



CARAHSOFT'S RESPONSE TO THE

**State of Utah
NASPO ValuePoint**

REQUEST FOR PROPOSAL

NASPO ValuePoint Master Agreement for Cloud Solutions

SOLICITATION NO. CH16012

Technical Proposal

Thursday
March 10, 2015

CARAHSOFT TECHNOLOGY CORP.

1860 MICHAEL FARADAY DRIVE, SUITE 100
RESTON, VA 20190

888.66.CARAH | WWW.CARAHSOFT.COM

March 10, 2015

State of Utah Division of Purchasing
3150 State Office Building
Capitol Hill
Salt Lake City, Utah 84114

Re: Carahsoft's Response to the State of Utah's Request for Proposal for NASPO ValuePoint Master Agreement for Cloud Solutions, Solicitation # CH16012.

Dear Mr. Hughes,

Carahsoft Technology Corp. appreciates the opportunity to respond to the State of Utah's Request for Proposals/Q/Information for Project Description.

5.2.1	Carahsoft Technology Corporation understands that they may be required to negotiate additional terms and conditions, including additional administrative fees, with Participating Entities when executing a Participating Addendum.
5.2.2	When writing this response Carahsoft utilized the OEMs being proposed as a part of this response to assist in preparing this response. Staff responsible for creating this proposal include Robert R. Moore – Vice President, Jack Dixon – Contract Specialist, & David Holl – Proposal Coordinator.
5.2.3	Carahsoft Technology Corporation is not currently suspended, debarred or otherwise excluded from federal or state procurement and non-procurement programs.
5.2.4	Carahsoft Technology Corporation acknowledges that a 0.25% NASPO ValuePoint Administrative Fee and any Participating Entity Administrative fee will apply to total sales for the Master Agreement(s) awarded from the RFP.
5.2.5	Carahsoft Technology Corporation is including an all-encompassing list of solutions in this response which covers the SaaS, PaaS, & IaaS categories. Services completion/deployment will vary based on manufacturer but will utilize either the manufacturers own integration policies and procedures or a third party subcontractor specializing in servicing the manufacturers' specific solution.
5.2.6	Carahsoft can provide varying levels of data risk support based on customer requirements, manufacturer, and solution type. Please see our response to Attachment H for further detail.

Please feel free to contact me directly at 703.871.8504/Robert.Moore@carahsoft.com or Jack Dixon at 703.230.7545/Jack.Dixon@carahsoft.com with any questions or communications that will assist the Agency in the evaluation of our response. This proposal is valid for 90 days from the date of submission.

Thank you for your time and consideration.

Sincerely,



Robert R. Moore
Vice President

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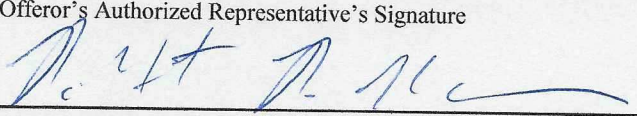
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RFP SIGNATURE PAGE

The Lead State's Request for Proposal Signature Page completed and signed. See Section 5.1 of the RFP.
Please find below Carahsoft's RFP Signature Page below.



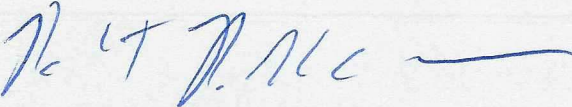
State of Utah Vendor Information Form

Legal Company Name (include d/b/a if applicable) Carahsoft Technology Corporation		Federal Tax Identification Number 52-2189693		State of Utah Sales Tax ID Number 9721863-0143	
Ordering Address 1860 Michael Faraday Drive, Suite 100		City Reston		State VA	Zip Code 20190
Remittance Address (if different from ordering address) 1860 Michael Faraday Drive, Suite 100		City Reston		State VA	Zip Code 20190
Type ☐ Proprietorship ☐ Partnership ☐ Government ☒ For-Profit Corporation ☐ Non-Profit Corporation		Company Contact Person Robert R. Moore			
Telephone Number (include area code) 703.871.8504		Fax Number (include area code) 703.871.8505			
Company's Internet Web Address www.carahsoft.com		Email Address robert.moore@carahsoft.com			
Offeror's Authorized Representative's Signature 					
Type or Print Name Robert R. Moore					
Position or Title of Authorized Representative Vice President					
Date: 3/10/2016					



State of Utah Request for Proposal

Legal Company Name (include d/b/a if applicable) Carahsoft Technology Corporation	Federal Tax Identification Number 52-2189693	State of Utah Sales Tax ID Number 9721863-0143	
Ordering Address 1860 Michael Faraday Drive, Suite 100	City Reston	State VA	Zip Code 20190
Remittance Address (if different from ordering address) 1860 Michael Faraday Drive, Suite 100	City Reston	State VA	Zip Code 20190
Type ☒ Corporation ☐ Partnership ☐ Proprietorship ☐ Government	Company Contact Person Robert R. Moore		
Telephone Number (include area code) 703.871.8504	Fax Number (include area code) 703.871.8505		
Company's Internet Web Address www.Carahsoft.com	Email Address Robert.Moore@Carahsoft.com		
Discount Terms (for prompt payment discounts): Not Applicable	Days Required for Delivery After Receipt of Order (see attached for any required minimums)		
By submitting a proposal in response to this RFP, the Offeror acknowledges and agrees that the specifications, terms and conditions, or other elements of the RFP are not ambiguous, confusing, contradictory, unduly restrictive, erroneous, or anticompetitive. The Offeror further acknowledges that it has read this RFP, along with any attached or referenced documents, and this document, including the General Provisions.			

Offeror's Authorized Representative's Signature 	Date 3/10/2016
Type or Print Name Robert R. Moore	Position or Title Vice President

NOTICE

ACKNOWLEDGEMENT OF AMENDMENTS

Please find below Carahsoft's Acknowledgement of Amendments.

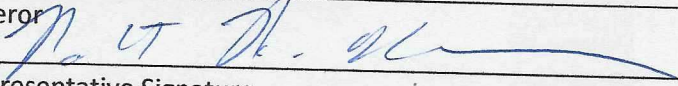
ACKNOWLEDGEMENT OF AMENDMENTS TO RFP (SOLICITATION CH16012)

This attachment represents that the Offeror has read, reviewed, and understands the totality of Solicitation CH16012, including the final RFP document posted on February 10, 2016.

By signing below, the Offeror attest to reviewing the documents listed above.

Carahsoft Technology Corporation

Offeror


Representative Signature

EXECUTIVE SUMMARY

The one or two page executive summary is to briefly describe the Offeror's Proposal. This summary should highlight the major features of the Proposal. It must indicate any requirements that cannot be met by the Offeror. The Lead State should be able to determine the essence of the Proposal by reading the executive summary. See Section 5.4 of the RFP.

Prime Contractor: Carahsoft Technology Corp.

Carahsoft Technology Corporation understands that the State of Utah & NASPO ValuePoint is seeking a Master Agreement for Cloud Solutions.

Carahsoft has assembled a team from our vast portfolio of over 200 hundred vendors that includes our premiere network of cloud solutions, resellers, and subcontractors as the best solution to meet the State of Utah's requirements. The intent of our proposal is to deliver the highest value proposition at the lowest possible cost to the State of Utah, NASPO ValuePoint, & all participating entities for the acquisition of cloud solutions. Carahsoft understands the need for high quality cloud based service providers that have the ability to provide a menu of cloud solution offerings. Carahsoft's superior contract management and network of Cloud Solution Providers will ultimately increase the State & Participating Entities overall efficiency, reduce costs, improve operational scalability, provide business continuity, increase collaboration efficiencies, and all for expanded flexibility.

Carahsoft Technology Corp. is an IT solutions provider delivering best-of-breed hardware, software, and support solutions to federal, state and local government agencies since 2004. Carahsoft has built a reputation as a customer-centric real-time organization with unparalleled experience and depth in government sales, marketing, and contract program management. This experience has enabled Carahsoft to achieve the top spot in leading software license GSA resellers.

VENDOR RELATIONSHIPS – Just as each state, territory, and participating entity is unique in how they employ cloud solutions, Carahsoft's cloud offering follows a unique business model focusing on providing superior sales and marketing execution, a track record of success, high integrity, and a focus on strategic vendor relationships.

PROVEN EXECUTION (Growth and Experience of Sales) – Carahsoft has been supporting the IT needs of Government and Education Customers for more than 12 years. Our Public Sector Sales Team supports the Government, Education, and Healthcare vertical markets and is an enormous component of Carahsoft's ongoing and continued growth. In 2014, Carahsoft had revenues of over \$2B in the public sector market. Our State & Local Government Sales Force is solely dedicated to supporting the unique needs of Higher Education, K- 12 Schools, State Government, and Local Government customers.

CONTRACT VEHICLES – Over the past ten years Carahsoft has acquired and maintained a wide variety of purchasing contract vehicles for agencies at the state, local, and federal levels. Carahsoft holds statewide contracts in many states across the country, and we have a great deal of experience with contract transitions. Associated with all contracts are dedicated and experienced contract management resources.

Carahsoft has leveraged its vast contracting experience and extended it to quoting and order management. Carahsoft seamlessly generates quotes within 30 minutes or less and processed over 56,000 orders in 2014 that were each completed the same day received.

GROWTH & STABILITY – Carahsoft has continued to show impressive growth year after year, turning annual revenue from \$3.4 million in our first year in 2004 to \$1.065 billion in 2011, \$1.465 billion in 2012, \$1.8 billion in 2013, and \$2.45 billion in 2014. In September of 2014, 7,501 orders were processed worth over \$626 million. We are a stable, conservative, and profitable company and have received numerous accolades including the 2013 GovCon Government Contractor of the Year Award in the greater than \$300M revenue category. Carahsoft was also recognized in the following areas:

- Largest GSA Schedule 70 Contract holder for software
- 7th of the Washington Business Journal's 100 Largest Private Companies List for 2014
- 2012 Federal 100 Winner, Craig P. Abod, President and CEO
- 2013 Federal 100 Winner, John Lee, Vice President of Cloud Services



As a part of this response Carahsoft has utilized multiple Cloud Solution Vendors, covering all of the Cloud Solution Categories; SaaS, IaaS, PaaS. Carahsoft's strong vendor relationships and partner ecosystem have created an efficient and cost effective response which encompasses all vendor solutions into a single, easy to utilize vehicle. While the technical requirements of each solution vary, Carahsoft strives to consolidate these specifications and responses into a cohesive unit.

MANDATORY MINIMUMS

This section should constitute the Offeror's point-by-point response to each item described in Section 5 of the RFP, except 5.1 (Signature Page) and 5.4 (Executive Summary). An Offeror's response must be a specific point-by-point response, in the order listed, to each requirement in the Section 5 of the RFP.

5.1 – Signature Page

Proposals must be submitted with a vendor information form, located on Bidsync as an attachment to the RFP, which must contain an ORIGINAL HANDWRITTEN signature executed in INK OR AN ELECTRONIC SIGNATURE, and be returned with the Offeror's proposal.

Please find Carahsoft's Signature Page completed above.

5.2 – Cover Letter

Proposals must include a cover letter on official letterhead of the Offeror. The cover letter must identify the RFP Title and number, and must be signed by an individual authorized to commit the Offeror to the work proposed. In addition, the cover letter must include:

5.2.1 A statement indicating the Offeror's understanding that they may be required to negotiate additional terms and conditions, including additional administrative fees, with Participating Entities when executing a Participating Addendum.

5.2.2 A statement naming the firms and/or staff responsible for writing the proposal.

5.2.3 A statement that Offeror is not currently suspended, debarred or otherwise excluded from federal or state procurement and non-procurement programs.

5.2.4 A statement acknowledging that a 0.25% NASPO ValuePoint Administrative Fee and any Participating Entity Administrative fee will apply to total sales for the Master Agreement(s) awarded from the RFP.

5.2.5 A statement identifying the service model(s) (SaaS, IaaS, and/or PaaS) and deployment model(s) that it is capable of providing under the terms of the RFP. See Attachment C for a determination of each service model subcategory. The services models, deployment models and risk categories can be found in the Scope of Services, Attachment D. Note: Multiple service and/or deployment model selection is permitted, and at least one service model must be identified. See Attachment H.

5.2.6 A statement identifying the data risk categories that the Offeror is capable of storing and securing. See Attachment D and Attachment H.

Please find above Carahsoft's Cover Letter addressing these requirements.

5.3 – Acknowledgement of Amendments

If the RFP is amended, the Offeror must acknowledge each amendment with a signature on the acknowledgement form provided with each amendment. Failure to return a signed copy of each amendment acknowledgement form with the proposal may result in the proposal being found non-responsive.

Carahsoft acknowledges all amendments. Also please find below Carahsoft's Acknowledgement of Amendments form completed.

5.4 – Executive Summary

Offerors must provide an Executive Summary of its proposal. An Executive Summary should highlight the major features of an Offeror's proposal. Briefly describe the proposal in no more than three (3) pages. The evaluation committee should be able to determine the essence of the proposal by reading the Executive Summary. Any requirements that cannot be met by the Offeror must be included.

Please find above Carahsoft's Executive Summary addressing these requirements.

5.5 – General Requirements

5.5.1 Offeror must agree that if awarded a contract it will provide a Usage Report Administrator responsible for the quarterly sales reporting described the Master Agreement Terms and Conditions, and if applicable Participating Addendums.

Carahsoft agrees that if awarded a contract they will provide a Usage Report Administrator responsible for quarterly sales reporting described in the Master Agreement Terms and Conditions, and if applicable Participating Addendums.

5.5.2 Offeror must provide a statement that it agrees to cooperate with NASPO ValuePoint and SciQuest (and any authorized agent or successor entity to SciQuest) with uploading an Offeror's ordering instructions, if awarded a contract.

Carahsoft agrees to cooperate with NASPO ValuePoint and SciQuest (and any authorized agent or successor entity to SciQuest) with uploading Carahsoft's ordering instructions, if awarded a contract.

5.5.3 Offeror must at a minimum complete, provide, and maintain a completed CSA STAR Registry Self-Assessment. Offeror must either submit a completed The Consensus Assessments Initiative Questionnaire (CAIQ), Exhibit 1 to Attachment B, or submit a report documenting compliance with Cloud Controls Matrix (CCM), Exhibit 2 to Attachment B. Offeror must also represent and warrant the accuracy and currency of the information on the completed. Offerors are encouraged to complete and submit both exhibits to Attachment B.

For ease of access and evaluation, Carahsoft has provided these Assessment documents under separate cover. All copies have been submitted electronically per the instructions of the RFP. Please note that specific assessments have been labeled as confidential- additional information is provided in the Confidential, Protected, or Proprietary Information section.

5.5.4 Offeror, as part of its proposal, must provide a sample of its Service Level Agreement, which should define the performance and other operating parameters within which the infrastructure must operate to meet IT System and Purchasing Entity's requirements.

SERVICE LEVEL FRAMEWORK

The service levels ("Service Levels") applicable to the Services specified in Sections 1 and 2 are set forth in Schedule B to this SD ("Service Levels for Cloud Platform Services"). The framework that governs all Service Levels is set forth in this Section.

Commencement of Service Levels

Commencing thirty (30) days from the Service Start Date (as set forth in the applicable Order Form), Virtustream's performance of the Services will meet each applicable Service Level. If Virtustream's performance of the Services does not meet the applicable Service Level, then Virtustream will use commercially reasonable efforts to restore its performance to meet such Service Level.

Service Level Reports

Service Levels will be calculated and measured monthly by Virtustream on a calendar month basis and reported each month for the previous month. The reports will be provided to Customer by the tenth (10th) working day of the month following that to which such report relates, commencing on the second (2nd) month following the Service Start Date and each month thereafter. The monthly service level report will contain at least the following items: (i) Uptime statistics for the month concerned; (ii) an analysis of reported incidents over the previous month, broken down by type for discussion; (iii) action plans for items giving rise to concern; (iv) comments and observations on any issues arising from Virtustream's performance monitoring activities; (v) recommendations on service delivery strategies to maintain or enhance the service level; and (vi) review of general business requirements ("Service Level Report").

Cloud Platform Services (CPS) has its own specific service levels as described in this document. Cloud Cover Services (CCS) has service levels that pertain to the CCS offerings and are reported separately. Not all Virtustream customers have CCS but all Virtustream customers use CPS.

Service Level Review Meetings

Monthly Service Level review meetings will be conducted by Virtustream with Customer where the monthly Service Level report specified above will be discussed. If any of the Service Levels measured over the previous calendar month period is not achieved in that month, then Virtustream will include the steps taken to rectify the problem in the next monthly Service Level Report. In addition, the issue shall be an agenda topic for discussion at the next monthly service review meeting. Additionally, after restoring service or otherwise resolving any immediate problem as specified in this SD, if Virtustream fails to provide Services in accordance with the Service Levels, Virtustream shall:

- a. Promptly investigate and report on the causes of such problem;
- b. Provide a Root Cause Analysis of such failure as soon as practical after such failure or at Customer's request;
- c. Correct such problem that is Virtustream's fault or responsibility, as soon as reasonably practicable and coordinate the correction of such problem if Virtustream does not have responsibility for the cause of such problem.
- d. Advise Customer of the status of remedial efforts being undertaken with respect to such problem;
- e. Demonstrate to Customer's reasonable satisfaction that the causes of such problem (that is Virtustream's fault or responsibility) have been or shall be corrected on a permanent basis; and
- f. Take corrective actions to prevent any recurrence of such problem (that is Virtustream's fault or responsibility).

Root Cause Analysis

Promptly following Virtustream's failure to meet a Service Level, Virtustream will perform a root cause analysis to determine the reason for that failure. Upon Virtustream's determination of the cause of such failure, it will provide to Customer a preliminary report citing the cause of such failure. If Virtustream determines that the failure was due to Virtustream, an additional report will be provided that details the root causes of the failure, and which details any measures that should be taken to minimize the possibility that such failures will re-occur. Virtustream will correct the problem and use reasonable commercial efforts to minimize the re-occurrence of such failures.

Service Level Exceptions

Virtustream shall not be liable for any failure to meet the Service Levels, to the extent such failure was caused by one or more of the following:

- a. A failure of Customer or any of its employees, agents or contractors (including any of Customer's third party service providers) to perform any of its responsibilities under this SD;

- b. Any act or omission of Customer or any of its employees, agents or contractors (including Customer's third party service providers or other third parties acting on behalf of Customer);
- c. Any hardware, software or other product of a third-party or Customer equipment;
- d. Any failure of Customer to secure the proper access rights or maintenance and support services with respect to any component of the Services (e.g., hardware, software, network, maintenance) for which Virtustream does not bear operational responsibility;
- e. Downtimes resulting from a Virtustream's scheduled maintenance windows;
- f. Customer's reprioritization of the tasks to be performed by Virtustream where such reprioritization causes Virtustream to miss a Service Level;
- g. Viruses; provided that the infected Virtustream-provided system had virus protection for which the virus protection software updates were up to date;
- h. An election by Customer to purchase a base commitment that is not sufficient to run Customer's system (e.g., If a customer elects to size a μ VM pool that is insufficient to run the designated workload);
- i. Issues occurring outside of standard working hours (as defined for business level customers) — for which the Service Level Objectives (SLOs) do not apply;
- j. Cloud Cover Services (CCS) offerings — for which the Service Level Objectives (SLOs) do not apply;
- k. Resolution delays due to lack of client response and/or Customer provided credential based information;
- l. Priority levels not agreed upon by both customer and supplier;
- m. Claims of performance degradation not substantiated through Customer provided diagnostic testing results.

5.7 Recertification of Mandatory Minimums and Technical Specifications

Offeror must acknowledge that if it is awarded a contract under the RFP that it will annually certify to the Lead State that it still meets or exceeds the technical capabilities discussed in its proposal.

Carahsoft acknowledges that if awarded a contract under the RFP that it will annually certify to the Lead State that it still meets or exceeds the technical capabilities discussed in this proposal.

BUSINESS PROFILE

This section should constitute the Offeror's response to the items described in Section 6 of the RFP. An Offeror's response must be a specific point-by-point response, in the order listed, to each requirement in the Section 6 of the RFP.

6.1 – Business Profile Provide a profile of your business including: year started, organizational structure, client base (including any focus by region, market sector, etc.), growth over the last three (3) years, number of employees, employee retention rates (specific for employees that may be associated with the services related to the RFP) over the last two (2) years, etc. Businesses must demonstrate a minimum of three (3) years of experience providing cloud solutions for large scale projects, including government experience, to be eligible for award.

Carahsoft Technology Corp. was started in Reston, Virginia in 2004. Carahsoft remains headquartered in Reston Virginia employing over 500 people that specifically support the Public Sector (Federal, State, Local, and Public Funded Educational Entities Nationwide within the United States.) Carahsoft has built a reputation as a customer focused organization with depth of experience in government sales, marketing, and contract program management. Carahsoft is one of the largest sellers of Cloud (including SaaS, PaaS, and IaaS) to U.S. the Public Sector.

Carahsoft's organizational structure allows for very focused and individualized support of any customer. The Executive Management team at Carahsoft is responsible for all aspects of day to day running of the organization. Reporting to the Executive Management Team are Directors. It is the Director's primary responsibility to oversee a particular technology area(s) and to monitor and manage all aspects of the staff, customers, and business within that area. An example of a Technology Area at Carahsoft is the VMware Virtualization practice. A host of technology offerings that use VMware at their core are supported by a single business unit overseen by a single Director that has reach back and access to the Executive Management staff. The Director's are then supported by a group of Team Leads. Each Team Lead Oversees a business area (typically defined by customer type (i.e. State Customers) or technology type (i.e. Virtual Desktop). Each team lead oversees a staff that is responsible for executing and managing the activities within that business unit.

At its' core, this organizational structure is lean and efficient, lacking layers of middle management, and empowering individuals with decision making capability in order to support all customers quickly and efficiently.

Carahsoft boasts an excellent employee retention rate. Specific benchmarks that we track include employee retention at 2 years of employment and 4 years of employment with rates of 65% and 90% respectively.

Carahsoft has been providing cloud solutions since opening its doors in 2004. US Public Sector entities have relied on Carahsoft to provide a wide variety of cloud technologies. Carahsoft serves as the cloud distributor and provides access to the core cloud technology with the core technology being supported by companies such as Salesforce, Google, ServiceNow, etc. Carahsoft currently support a state-wide implementation of Service Now's cloud technology within the Commonwealth of Pennsylvania. This implementation is known as the Enterprise Information Help Desk and manages all incident requests. Additionally, in 2013, Carahsoft has contracted with the State of Ohio to provide a cloud solution built around the technology from Salesforce. Ohio's Department of Administrative Services has contracted for Carahsoft to provide a variety of services including Service Cloud, Radian6 and Marketing Cloud as well as others. Both the Ohio and Pennsylvania cloud solutions are still being provided to these organizations.

Contracts similar in scope and size of this NASPO Cloud RFP:

California Multiple Award Schedule	California CMAS 3-12-70-2247E
Delaware Salesforce Contract	Delaware SE-CLD-001
Florida Commercial-off-the-shelf Software Contract	Florida COTS 43230000-14-01
Iowa Salesforce Contract	Iowa 2015-BUS-004
Ohio Master Cloud Services Agreement	Ohio MCSA-0016
Ohio State Term Schedule	Ohio STS 534354
Texas DIR Salesforce Contract	DIR-SDD-1793
Texas DIR Emergency Preparedness Contract	DIR-SDD-2035
Texas DIR Software/SaaS Contract	DIR-TSO-3149
VITA Desktop Productivity Software Contract	VITA VA-140401-CARA

6.2 – Scope of Experience Describe in detail the business' experience with government or large consortium contracts similar to the Master Agreements sought through this RFP. Provide the approximate dollar value of the business' five (5) largest contracts in the last two (2) years, under which the Offeror provided Solutions identical or very similar to those required by this RFP. Government experience is preferred.

CONTRACT VEHICLES – Over the past ten years Carahsoft has acquired and maintained a wide variety of purchasing contract vehicles for agencies at the state, local, and federal levels. Carahsoft holds statewide contracts in many states across the country, and we have a great deal of experience with IT Master contracts accessible to numerous public agencies. Carahsoft has extensive experience in successfully launching, maintaining, and managing these contracts and projects over a wide range of government customers. The range of government projects include agency/ county/ city wide project, state-wide efforts, and multi-state contracts, as well as supporting projects that cross a wide range of Federal government customers. Examples of some of these projects include:

TEXServe Multi-jurisdictional Purchasing Program: Carahsoft promoted and managed the Texserve Contract-allowing the full VMware Products & Services portfolio to be procured by Texas K-12 Users at a discounted price.

TEXserve services including: VMware Technical Support, Pre-sales licensing configuration & design, contract promotion, ad hoc revenue reporting, and customer nurturing/ upsell campaigns. Carahsoft worked with Texserve, K-12 customers, to partner with a select number of VMware Premier and Enterprise Authorized Resellers utilizing their expertise under the Texserve contract.

ONENET Purchasing Consolidation: Carahsoft serves as the prime contractor and program manager for the ONENET contract serving the entire ONENET community providing the ability to procure VMware software (licensing/support) through a trusted network of strategic partners at a discounted rate. Carahsoft has a proven track record of providing the highest level of technical support while ensuring that members receive the proper software products and services conveniently under the ONENET Contract.

TX DIR Contract Sales: Carahsoft maintains a number of purchasing vehicles with the State of Texas Department of Information Resources (DIR.) 2014 DIR sales accounted for greater than \$50M in revenues. Carahsoft actively markets these contracts and has grown revenues at greater than 10% annually for the past 5 years.

Total GSA State & Local Sales: Carahsoft holds a US General Services Administration (GSA) Schedule 70 Technology Contract. This contract is open to State and Local agencies to purchase as a form of Cooperative

Purchasing. Carahsoft markets the availability of this contract to eligible users and maintains sales revenues to eligible State and Local entities at greater than \$50M annually.

As a whole, Carahsoft's five largest public sector contracts have totaled approximately \$211,571,007 in sales in the past 2 years.

Carahsoft GSA Schedule	GS-35F-0119Y	\$127,242,948.95
Texas DIR Emergency Preparedness Contract	TX-DIR-SDD-2035	\$ 39,007,058.19
Texas DIR BMC Contract	TXDIR-SDD-1727	\$ 15,734,306.68
Texas DIR Salesforce Contract	TXDIR-SDD-1793	\$ 14,876,679.26
Texas DIR Adobe Contract	TX-DIR-SDD-2504	\$ 14,710,013.43

Total Sales: \$211,571,006.51

These contracts make up close to 2/3 of the total sales on contract that Carahsoft completed in that span. All of these contracts are currently in place with government entities.

6.3 – Financials Offeror must provide audited financial statements, of the last two years, to the State that demonstrate that an Offeror meets at a minimum Dun and Bradstreet (D&B) credit rating of 3A2 or better, or a recognized equivalent rating. Please provide the Respondent's D&B Number and the composite credit rating. The State reserves the right to verify this information. If a branch or wholly owned subsidiary is bidding on this RFP, please provide the D&B Number and score for the parent company that will be financially responsible for performance of the agreement.

Carahsoft has deemed its audited financials to be considered confidential. Additional information is provided in the Confidential, Protected, or Proprietary Information section. For D&B report along with additional clarification, please see page 360 in the Supplemental Information Section.

6.4 – General Information

6.4.1 Provide any pertinent general information about the depth and breadth of your Solutions and their overall use and acceptance in the cloud marketplace.

Carahsoft has assembled a team from our vast portfolio of vendors that includes our leading premiere network of cloud solutions, resellers, and subcontractors as the best solution to meet the State of Utah's requirements. They include:

AODocs, CA, DocuSign, FireEye, Google, QTS, Salesforce, SAP, ServiceNow, Virtru, Virtustream, VMware

Carahsoft is submitting as the exclusive offeror for all Google, Salesforce, and ServiceNow solutions and services for the NASPO Cloud solicitation. These manufacturers have deemed Carahsoft as the prime contractor who can effectively and efficiently manage the NASPO cloud contract on their behalf.

As a part of this response Carahsoft has utilized multiple Cloud Solution Vendors, covering all of the Cloud delivery models; SaaS, IaaS, PaaS. Carahsoft's strong vendor relationships and partner ecosystem have created an efficient and cost effective response which encompasses all vendor solutions into a single, easy

to utilize vehicle. While the technical requirements of each solution vary, Carahsoft strives to consolidate these specifications and responses into a cohesive unit. For example:

CA Technologies is a leader in IT Management Solutions in the industry. CA has been steadily moving its premier on premise management solutions to the cloud. CA Clarity Project and Portfolio Management (PPM) is one of the leading solutions used by state governments today.

Google's SaaS offering, Google Apps, has been commercially available since 2006 and presently has ~5.3 million paying customers covering 26m+ end user licenses. Google Apps represents a combination of the most popular consumer products that have been prepared for Enterprise use through the means of adding Administrative and Compliance Controls to the suite.

Gmail is the anchor product in the SaaS offering. Google has over 1B consumer users of Gmail and from that success designed a means by which customers could bring their own email-enabled domain name(s) into this managed service to replace legacy on-premises systems at a significantly reduced price. The straightforward means of migrating data as well as configuring the service and the knowledge that a majority of these business users may already be familiar with Gmail via personal use has made the adoption of Google Apps a logical choice.

Examples of the evolution of this SaaS offering include:

- Acquisition in 2007 of one of the leading email security and compliance vendors and the integration of those services to the Gmail Advanced Settings options. These features include the ability for customer System Administrators to set Spam, Content, Attachment and TLS policies to meet their specific requirements.
- In 2011 Google launches the Google Apps Status Dashboard, a publicly accessible website with RSS feeds to keep the world apprised of current system status.
- In 2012 Google increases the Gmail storage allocation from 10gb to 25gb, no change in price
- In 2013 Google modifies the storage space to unify email and Drive storage and increase the allocation to 30Gb, no change in price
- In 2014 Google offers a new premium SKU that offers unlimited unified Storage
- In 2015 Google enhances the Gmail Advanced Settings features to include pre-defined lexicons to support Data Loss Prevention scanning in email.

The above list is a short list of the variety of services, support offerings, features and best practices that Google has adopted into the service delivery of the SaaS offering. In addition to the wide use of Gmail, Google has six other products with over a Billion active users. Those are Google Search, Chrome, Android, Google Maps, YouTube and Google Play.

Chrome as a browser and an operating system are further evidence of strong usage and market acceptance. In a report released by Net Applications in April of 2015, Chrome browser held 25.68% market share while IE11 had 25.04, followed by IE8 at 16.0. The increase in adoption by Enterprise customers is attributed to the real time updates against emerging threats and the Chrome for Enterprise browser controls.

Chromebooks, the laptops that run Google Chrome as the OS, are seeing a rapid increase in sales in the K-12 market worldwide. This is attributed to the low-cost and the easy-to-manage machines.

Google's PaaS/IaaS offerings entitled Google Cloud Platform was first announced in 2008 with Google App Engine, a platform to develop and host web applications. Early success on this platform included The Royal Wedding Website and BestBuy moving their online Gift Card/Registry service to the platform. Over the years, and based on market demand, Google began to externalize off PaaS/IaaS service offerings that Google developed originally for their own infrastructure and platform utilization.

Google continues to expose the benefits of Google's infrastructure to outside entities.

Or, put differently, Google lets customers use the same infrastructure that allows Google to return billions of search results in milliseconds, serve 6 billion hours of YouTube video per month and provide storage for 1Billion Gmail users.

Salesforce is the enterprise cloud computing leader dedicated to helping companies and government agencies transform into connected organizations through social and mobile technologies. Since launching its first service in 2000, Salesforce's list of over 150,000 customers span nearly every industry worldwide. The company's trusted cloud platform is creating a connected government experience for over 1000 government agencies including all federal cabinet government agencies and the majority of US States. With the world's leading cloud platform, Salesforce is freeing government data from legacy systems, empowering citizens and connecting agencies to administer government in powerful new ways. Government agencies are using Salesforce solutions for a multitude of government functions including grants management, constituent communications and correspondence management, incident and case management, call/contact center management, outreach programs, learning management, volunteer management, project management, and even donor management, among numerous others.

SAP is the fastest growing company at scale in the cloud with a user base of over 95 million subscribers. We also have the largest cloud portfolio of over 30 solutions for all lines of business as well as business suites. We also have 41 data centers in 21 locations in 11 countries.

6.4.2 Offeror must describe whether or not its auditing capabilities and reports are consistent with SAS 70 or later versions including, SSAE 16 6/2011, or greater.

Security is a multidimensional business imperative that demands consideration at multiple levels, from security for applications to physical facilities and network security. In addition to the latest technologies, world-class security requires ongoing adherence to best-practice policies. To ensure this adherence, our various cloud providers continually seek relevant third-party certification, including ISO 27001, the SysTrust audit (the recognized standard for system security), and SSAE 16 SOC 1 audit (an examination and assessment of internal corporate controls, previously known as SAS 70 Type II). SOC1, SOC2 and SOC3 audits are performed by third party auditor annually at a minimum. Additional audits and certifications include: CSA 'Consensus Assessments Initiative', JIPDC (Japan Privacy Seal), Tuv (Germany Privacy Mark), and TRUSTe.

Some examples include:

ServiceNow's security framework is based on ISO/IEC 27002 and has been ISO 27001 certified since 2012. Annually, ServiceNow undergoes ISO 27001 Surveillance audits and well as SSAE 16 attestations for both SOC 1 Type 2 and SOC 2 Type 2. Customers under an NDA can request these reports annually in assisting with both their vendor management and regulatory or compliance programs. ServiceNow provides Security Event Logs using Application Level Audit Logs and Infrastructure Monitoring,

Application Level Audit Logs. The ServiceNow application writes detailed audit log information that is stored in tables within a customer's instance. Since this is considered customer data and is stored within a customer's instance, ServiceNow does not attempt to monitor or view this data unless specifically requested by a customer. As a result the customer is responsible for monitoring the contents of these logs files and, at the customer's choosing, exporting the logs through the capabilities provided within the platform.

Infrastructure Monitoring. All components of the infrastructure supporting the private cloud feed alerts and logs into the SIEM. In addition, ServiceNow has deployed an Intrusion Detection System (IDS), positioned to listen to all inbound network traffic, with all events going to the SIEM as well. The SIEM is configured to automatically send alerts for common attacks. ServiceNow is responsible for managing the SIEM environment and securing the logs. ServiceNow retains all infrastructure logs for at least 90 days. The Security Operations Center (SOC) is also responsible for completing a daily checklist across a range of security domains, including privilege account usage, IDS alerts, file integrity monitoring (FIM), and database access. The daily checklists and captured events are managed through an instance of ServiceNow. Any variances that are discovered are raised as incidents for tracking, notifications, and investigation.

CA SaaS environment is compliant with SSAE16 for services where infrastructure and application are managed and maintained by CA. CA Agile Management currently does not hold SSAE16 certification. For SaaS offerings where infrastructure is managed by a third party, provider's SSAE16 reports are available upon request.

6.5 – Billing and Pricing Practices

6.5.1 Describe your billing and pricing practices, including how your billing practices are transparent and easy to understand for Purchasing Entity's.

Carahsoft's Order Management team works to ensure that billing and payment are completed in an efficient and simple manner. Purchase Orders and Invoices are provided to the customer early to ensure that payment can be completed whenever the customer is ready and within the confines of the agreed upon deal. Our OM team is available to answer any questions a Purchasing Entity has in order to assist with the process and confirm that they have everything needed for payment.

Carahsoft's pricing is dictated by the manufacturers- Carahsoft ensures that the Purchasing Entity's receive the best possible price by working directly with the manufacturer and ensuring that pricing meets or exceeds the contract being used. In addition, Carahsoft works with the manufacturer to ensure that all pricing changes are accounted for within the contract, as applicable.

6.5.2 Identify any typical cost impacts that a Purchasing Entity might need to consider, if any, to implement your cloud solutions.

When a purchasing entity determines they need implementation services to their cloud solutions, the Carahsoft offering provides these additional services. For Example:

ServiceNow Response: Customers typically engage ServiceNow for the initial implementation and training services and then for any major new future application implementations to get the best-of-breed expertise

for good standard solution support. ServiceNow developed the platform and applications so anyone could support changes to the configuration without having to hire outside consultants. The customer is empowered as they gain experience either by shadowing ServiceNow consultants during initial implementations, as they talking to other customers through the Community website, or by asking for technical support through the portal. So initial costs typically occur for ServiceNow when it is first implemented and there might be requested services as customers add new application support but there are no ongoing costs typically.

CA Cloud SaaS solutions are fully operational multi-tenant solution that are fully ready to use at outset. These Solutions are typically complex management solutions that do require setup and training. For example many customer will purchase a limited time block of consulting to help with loading data, and configuring reports. Training is also available for all applications to either augment start-up packs or walk customers through basic tasks.

In addition to the licensing fees there are optional Google services that a Purchasing Entity may find meet additional mandatory requirements. Examples would include adding on other SaaS solutions like Virtru for end to end encryption or AODocs for Document Management. The key benefit to moving to Cloud based vendors is a new set of transformative tools that are more productive and most cost effective than traditional client server solutions. Other additional costs may come into play of the Purchasing Entity wants to outsource all of the configuration and migration work to the selected reseller leading to additional time and materials expenses.

The Salesforce solution is available immediately for use via the internet after a Purchasing Entity makes a purchase of the solution. Other additional costs would include any implementation fees to be performed by a certified Salesforce implementation partner. These fees vary based on the type of project and length and complexity of implementation.

6.5.3 Offeror must describe how its Solutions are NIST compliant, as defined in NIST Special Publication 800-145, with the service models it offers.

Carahsoft's cloud solution offerings all fit within the guidelines listed in NIST publication 800-145 and repeated in Attachment D of this response. Please see response 8.1.5 for a more detailed explanation.

6.6 – Scope and Variety of Cloud Solutions

6.6 Specify the scope and variety of the service models you offer under this solicitation. You may provide a list of the different SaaS, IaaS, and/or PaaS services that you offer.

Carahsoft proudly offers a number of SaaS, PaaS, and IaaS supported by the cloud technologies as listed below. Many of our top tier cloud vendors also provide subscription and utility based pricing models which would be available to the State. Below is a list of each manufacturer being proposed in this response, along with the specific type of solution (SaaS, IaaS, and PaaS) they fit into:

SaaS – AODocs, CA Technologies, DocuSign, FireEye, Google, QTS, Salesforce, SAP, ServiceNow, Virtru, VMware

PaaS – Google, QTS, Salesforce, SAP, ServiceNow, Virtustream

IaaS – FireEye, Google, QTS, Virtustream, VMware

6.7 – Best Practices

6.7 Specify your policies and procedures in ensuring visibility, compliance, data security and threat protection for cloud-delivered services; include any implementations of encryption or tokenization to control access to sensitive data.

Carahsoft utilizes varying procedures for ensuring visibility, compliance, data security and threat protection for cloud-delivered services. Please see the below examples of potential options for meeting the State's expectations:

ServiceNow Response: ServiceNow applications have the advantage of being built on a single cloud platform that consists of one user interface, one code base and one data model; delivering holistic visibility into processes, creating a single source of truth, irrespective of whether the processes and systems are within the customer's environment or hosted in the cloud. ServiceNow invests significant resources in providing its services in a secure manner. This includes global teams delivering 24x7 operations and technical support from ServiceNow staff. ServiceNow currently has offices with staff focused on the management of the private cloud in Australia, the Netherlands, the U.K, North America, and Asia. The ServiceNow environment is a private cloud, fully owned and operated by ServiceNow, which supports a logically single tenant architecture. Customer data is isolated from other customer data by leveraging an enterprise-grade cloud architecture and a dedicated database and application set per instance. This gives ServiceNow customers cost reduction through shared infrastructure, while having the security benefits of customer-specific isolation at the application and data layers. In addition to the security features that come standard within the platform and each customer instance, customers can leverage the additional security features within ServiceNow to augment the security configuration of their instances based on their own needs and risk profile.

CA Response: This is addressed throughout all of our policies and procedures. CA SaaS Operations and Delivery runs an Information Security Management Framework (ISMS), which includes security organization, documentation, monitoring, and continuous improvement cycle. The security documentation comprises of CA SaaS Operations information security policies, procedures, guidelines and checklists. ISMS documentation is reviewed along with applicable controls annually. CA offers a variety of SaaS solutions, details for each offering has been provided in Exhibit 1 and 2 of this proposal.

Salesforce Response: Salesforce has many customers that are subject to laws pertaining to the processing of personally identifiable information (PII) or personal data. Salesforce offers its customers a broad spectrum of functionalities and customer-controlled security features that its customers may implement in their respective uses of the Salesforce services. Salesforce believes that these provide its customers the flexibility to comply with laws with stringent privacy and security requirements. Encryption options vary based on Salesforce Commercial Cloud or Salesforce Government Cloud offering.

Government Cloud Encryption:

As part of the Salesforce Government Cloud, Salesforce is capable of responding to FIPS 140-2 cryptographic implementations for data being transferred between the State's web browser and Salesforce. Data that resides within Salesforce's protected boundary does not use FIPS 140-2 validated encryption as compensating/mitigating controls are in place to protect data. Additional information is provided below.

Data In Motion:

Salesforce employs cryptographic mechanisms to protect information during transmission. All transmissions between the user and Salesforce are encrypted by default with a 2048-bit Public Key. Our service uses International/Global Step Up certificates. We support one-way TLS, in which customers create secure connections before sharing private data.

Secure routing and traffic flow policies ensure that customer traffic is encrypted entering Salesforce until the load balancer decrypts the traffic. The load balancers decrypting the traffic are FIPS 140-2 compliant and are located inside of the Salesforce Government Cloud isolation boundary.

Data At Rest:

NIST SP 800-53 Rev. 4 states in SC-28, "Information at rest refers to the state of information when it is located on a secondary storage device (e.g., disk drive, tape drive) within an organizational information system." SC-28 also states, "Organizations may choose to employ different mechanisms to achieve confidentiality and integrity protections, as appropriate." All secondary storage media (hard drives, disk drives, and tapes) containing customer data are maintained within Salesforce's secure production data centers until the media has been sanitized and destroyed. Salesforce relies on physical access controls as a compensating control to protect the data.

ORGANIZATIONS PROFILE

This section should constitute the Offeror's response to the items described in Section 7 of the RFP. An Offeror's response must be a specific point-by-point response, in the order listed, to each requirement in the Section 7 of the RFP.

7.1 – Contract Manager

The Offeror must provide a Contract Manager as the single point of contact for management of the NASPO ValuePoint Master Agreement, administered by the State of Utah. The Contract Manager must have a minimum of three (3) years' experience managing contracts for cloud solutions.

7.1.1 Provide the name, phone number, email address, and work hours of the person who will act as Contract Manager if you are awarded a Master Agreement.

Bethany Blackwell
 Senior Manager
 703-230-7435 (office)
 703-501-1134 (cell)
Bethany.blackwell@carahsoft.com
 Working hours: 7am-7pm EST M-F

7.1.2 Describe in detail the Contract Manager's experience managing contracts of similar size and scope to the one that will be awarded from this RFP. Provide a detailed resume for the Contract Manager.

The proposed contract manager, Bethany Blackwell, has over 5 years of experience in managing SaaS contracts in both the State and Local and Federal markets.

Bethany developed and manages contracts and associated terms for cloud contracts in more than 10 states. The combination of the State and Federal contract vehicles and BPAs being managed is valued at over \$300M. Annually, she oversees 1000+ SaaS transactions off of these contract vehicles which include licensing and implementation that provide end to end cloud solutions to public sector customers.

Name	Position
Bethany Blackwell	Carahsoft Senior Account Manager – Will serve as the NASPO ValuePoint Contract Manager
Background	
• Senior Manager for cloud solutions products, including Salesforce.com, DocuSign, BMC Software • Vendor/Partner manager for 20+ complimentary solution vendors and 25+ implementation partners and system integrators • Graduated Virginia Tech in 2010 - dual degree with concentrations in Psychology and Political Science • 5+ years of experience at Carahsoft	
Skills	

• Expertise in negotiating SaaS contract vehicles and terms at State level • Knowledge of contract vehicles, BPAs, multi-year deals, multi-vendor deals • Management of enterprise size product contracts • Establish and maintain positive customer relationships through proactive communication • Maintained interactions with customers to ensure quick, accurate quotes; facilitated easy ordering process for customers
Relevant Experience
• Oversees the management and execution of 900+ individual SaaS contracts, valued at 85M+ annually • Maintain the annual recurring subscription renewal bases to ensure no customer's lapse in service • Oversees the ordering and distribution of licenses on statewide enterprise licenses agreements and various BPAs • Established vendor specific terms and conditions for 10 different statewide contracts • Assist customers in shifting buying strategy from perpetual to subscription licensing model

7.1.3 Describe in detail the roles and responsibilities of the Contract Manager as they apply to the NASPO ValuePoint Master Agreement that will be awarded from this RFP.

The Contract Manager assigned to this contract will be in charge of all coordination and organization efforts between Carahsoft and NASPO ValuePoint. This includes, but is not limited to:

- contract negotiation
- roll-out plan
- amendments completion
- renewal execution
- reseller/subcontractor additions
- contract pricelist updates and upkeep
- contract compliance
- marketing coordination

TECHNICAL RESPONSE

This section should constitute the Technical response of the proposal and must contain at least the following information:

A. A complete narrative of the Offeror's assessment of the Cloud Solutions to be provided, the Offeror's ability and approach, and the resources necessary to fulfill the requirements. This should demonstrate the Offeror's understanding of the desired overall performance expectations and clearly indicate any options or alternatives proposed.

In response to the State of Utah request for Cloud Solution Proposals, Carahsoft has assembled a response that includes a number of Cloud Solution Offerings from within the Carahsoft Cloud framework. These offerings are all supported in part or wholly by twelve leading cloud technology providers. Each provider's technology is an integral part of Carahsoft's proposal. Within this framework, Carahsoft will orchestrate, assemble, and execute on all activities necessary to support this contract, engaging each cloud technology provider as needed in the delivery of a particular service or solution offering.

The Carahsoft Cloud framework will provide for all requirements of the State of Utah Request for Proposal to be fulfilled. Carahsoft will be able to provide Cloud Solution Offerings to the State of Utah as well as to those entities that may participate via the cooperative purchasing program. The Carahsoft Cloud proposal provides for the provision of PaaS, IaaS, and SaaS offerings that are compliant with all requirements as outlined by the State. Carahsoft will provide dedicated resources to supporting this agreement. Carahsoft will insure that adequate resources are supplied to fully support this agreement during all phases from contract launch through termination. Usage requirements and demand resources fluctuate over time and Carahsoft's Cloud offering has been constructed in a manner that provides for the ability to scale without interruption, disruption, or any other similar interruption of customer service and solution availability.

B. A specific point-by-point response, in the order listed, to each requirement in the Section 8 of the RFP. Offerors should not provide links to a website as part of its response.

Offeror's should focus their proposals on the technical qualifications and capabilities described in the RFP. Offerors should not include sales brochures as part of their response.

For the purposes of Carahsoft's response to the technical requirements (section 8) of this RFP, please note that any response provided related to a specific manufacturer should be treated as a response to the following categories:

SaaS – AODocs, CA Technologies, DocuSign, FireEye, Google, QTS, Salesforce, SAP, ServiceNow, Virtu, VMware

PaaS – Google, QTS, Salesforce, SAP, ServiceNow, Virtustream

IaaS – FireEye, Google, QTS, Virtustream, VMware

8.1 – Technical Requirements

8.1.1 Offeror must identify the cloud service model(s) and deployment model(s) it intends to provide to Eligible Users. See Attachment D.

CA	APM	CA APIM SaaS offering helps accelerate, secure and manage APIs. CA is responsible for development and management of application. AWS provides IaaS services to CA for management of the underlying cloud infrastructure.
	MAA	CA Mobile App Analytics stimulates collaboration between business analysts, developers, operations and support in order to accelerate mobile app delivery and improve end-user experience. This service is hosted at CenturyLink Data center and the infrastructure is managed and maintained by CA SaaS Ops and Delivery team.
	CA Agile	CA Agile Central is a SaaS offering that is generally used to document and manage work within the SDLC.
	ASM	CA App Synthetic Monitor (ASM) provides end-to-end transaction response-time visibility into cloud, mobile and Web applications. Application utilizes Rack Space IaaS services.
Google	The Cloud Service Models that we intend to provide include SaaS, PaaS, and IaaS. In our response we will describe the various options for using Google Apps under the SaaS model and the functions of Google Cloud Platform under PaaS and IaaS.	
AODocs	The Cloud Service Models that we intend to provide is SaaS.	
Virtru	All Virtru services are cloud-based and accessed via browser or downloadable browser extensions and plugins.	
Salesforce	Salesforce's deployment model is a "public" cloud infrastructure, as defined by NIST 800-145	
ServiceNow	Cloud service model: Software as a Service (SaaS) Deployment model: Private Cloud	
QTS	"QTS is a leading national provider of Infrastructure as a Service (IaaS) data center solutions and fully managed cloud services and a leader in security and compliance. The company offers a complete, unique portfolio of core data center products, including custom data center (C1), colocation (C2) and cloud and managed services (C3), providing the flexibility, scale and security needed to support the rapidly evolving hybrid infrastructure demands of web and IT applications. With 12 data centers in eight states, QTS owns, operates and manages approximately 4.7 million square feet of secure, state-of-the-art data center infrastructure and supports more than 850 customers. QTS' Critical Facility Management (CFM) can provide increased efficiency and greater performance for third-party data center owners and operators. QTS offers a number of IaaS solutions.	
SAP	Ariba	Our solutions are offered and delivered in a true subscription-based model and shared service (multi-tenant) offering. There is no software to install, no hardware to buy, no maintenance or support costs and no need to hire consultants or tech specialists to run the system. We deploy and manage the infrastructure. Customers only need a web browser for access. Subscriptions include system maintenance, automatic upgrades, enhancements and application of service packs, Level 1– 3 help desk support, professional services and best practices built directly into the application.
	Fieldglass	The SAP Fieldglass application is exclusively offered in a software as a service (SaaS) model.
	Hana	SAP HANA Enterprise Cloud (HEC) is a private managed isolated & dedicated landscape (single tenant) offering end-to-end cloud-based infrastructure and managed services for SAP applications powered by SAP HANA. It is a fully scalable, enterprise-ready, mission-critical, secure and high-availability cloud service.
	Hybris	The SAP Hybris Commerce, Cloud Edition offering are all single tenant hosted VM environments. Customers have their own VM's with SAP Hybris instances deployed to those VM's. The SAP Hybris Commerce, Cloud Edition currently

		has Development, Staging, Testing, and Production environment. More environments can be added as required.
	SuccessFactors	Our solutions are delivered through a private cloud using a multi-tenant architecture. We refer to this as a Controlled Cloud. It includes a contractual framework reflecting applicable data privacy regulations, implementation and maintenance in accordance with Technical and Organizational Measures (TOMS) and regular audits by an independent third party for industry compliance and transparency.
VMware	vCloud Air	IaaS – Public, Hybrid, Community
	Horizon Air Desktop & Apps	IaaS – Public
	vCloud Suite	IaaS – Private, Hybrid, Community
	Airwatch	IaaS – Private SaaS – Public
	Horizon 6	IaaS – Private
	Realize Air Compliance	SaaS – Public
	SocialCast	SaaS – Public
FireEye	All FireEye cloud offerings included in this response fit the SaaS cloud service model and private cloud deployment model.	
VirtueStream	VirtueStream solution is fully NIST compliant for Essential Characteristics, as the Infrastructure as a Service (IaaS) Service Model, with all deployment options – Private Cloud, Community Cloud, Public and Hybrid Cloud.	

8.1.2 For the purposes of the RFP, meeting the NIST essential characteristics is a primary concern. As such, describe how your proposed solution(s) meet the following characteristics, as defined in NIST Special Publication 800-145:

8.1.2.1 NIST Characteristic – On Demand Self-Service: Provide a brief written description of how the cloud solutions proposed satisfies this individual essential NIST Characteristic. Attest capability and briefly describe how self-service technical capability is met.

CA	APM	N/A. This is a SaaS service and clients do not have direct access to the underlying infrastructure in order to provision computing capabilities. CA is responsible for the management and maintenance of the infrastructure and will make any necessary adjustments as part of providing this service to its clients.
	MAA	This is a SaaS offering and On-Demand service is not available, however, MAA customers are enabled to manage their accounts and carry out configuration changes required to manage mobile applications.
	CA Agile	We are a fully multi-tenant environment and do not provide the On-Demand Self-Service capability.
	ASM	This does not apply as this is a SaaS service. ASM customers are able to manage all aspects of their accounts, create sub-accounts, and make any configuration changes necessary for their monitors.
Google	SaaS, Google Apps administrators have access to an Admin Panel that allows them to perform user administration, service configurations, reporting on demand. PaaS/IaaS, Google Cloud Platform is an integrated set of Compute tools, Storage Tools, Networking Tools, Big Data analytic tools, Management tools and Services APIs. A customer can use any of these services on demand via the Developer's Console.	
AODocs	SaaS, AODocs administrators have access to an Admin Panel that allows them to perform user administration, product configurations, reporting on demand.	

Virtu	All required services can be provisioned immediately when required. Users only need to install application to get single-user capability, or login to administrative dashboard for administrative features.	
Salesforce	Salesforce PaaS and SaaS solutions are delivered on-demand via the web and can be accessed with a browser and internet connection or mobile device. No additional software or infrastructure is required. Salesforce hosts the entire solution, thus freeing up customers to manage their mission, not manage an infrastructure solution. Additionally, Salesforce is browser agnostic and supports all major browsers (Firefox, Chrome, Safari, IE). No installations on users' laptops or desktops are required and thus the solution is accessible from anywhere an internet connection and supported browser are available, including mobile devices.	
ServiceNow	Customer instances are provisioned automatically after an agreement between a customer and ServiceNow is executed. ServiceNow actively monitors customer instance performance and can automatically scale its application servers out horizontally by adding them to the load balancer pools for a particular instance.	
DocuSign	DocuSign's DTM® solution is ISO 27001:2013 certified and many of the ISO 27001:2013 controls are mapped to the NIST 800-53 requirements; we can provide additional information upon request.	
QTS	On-demand self-service. A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service provider.	
SAP	Ariba	The solution provides self-service user profile management. Users profit from the intuitive, minimal-step nature of the user interface with little or no training. Changes to user profile includes workflow capability for profile changes.
	Fieldglass	All system resources are available to all customers without limitation. The system is highly configurable with most configurations being available to the customer's administrators.
	HANA	HANA Enterprise Cloud is a private managed cloud therefore infra & services could be requested (added or decommissioned) on demand by placing change requests with SAP HEC teams. HEC roles & responsibilities document clearly articulates what is included in the monthly HEC pricing and what is available on-demand in addition to scaling up or down on the infra/compute.
	Hybris	N/A
	SuccessFactors	All self-service is in one place, including benefits and payroll if those products are in scope. Self-service is an intuitive experience. We provide the ability for employees to have configured permissions to take action in the tool such as field or data updates for personal information, benefits changes, payroll actions, completing workflow for assigned activities in the tool, etc. Self-service for both employees and managers is configurable to fit your business rules and organizational requirements.
VMware	VMware's IaaS and SaaS offerings complies with the On-Demand Self-Service characteristic, because once purchased, a user can unilaterally provision compute resources with no human interaction with VMware. The subscription includes access to two self service consoles: My VMware for account management, and the VMware vCloud Air Console which is the primary interface for access consumption and management of cloud resources purchased from VMware. (See doc for a complete list of products/ features that comply)	
FireEye	FireEye is offering 4 distinct SaaS cloud solutions each featuring self-service features specific to the unique capabilities of the offerings: 1.Email Threat Prevention (ETP) Email Provisioning	

	Once the ETP infrastructure is provisioned, customers can self-service the acceptance of upstream mail and delivery to user mailboxes by configuring their own domain settings. No user mailbox provisioning is required as ETP will automatically check the validity of the email recipient with the downstream service. 2.Mobile Threat Prevention (MTP) User Provisioning Once the MTP infrastructure is provisioned, customers can self-service the creation of service users by integrating with an LDAP service or manually adding the users via the user interface. Device Provisioning Once the MTP infrastructure is provisioned, customers can self-service the creation of managed devices by instructing users to install the FireEye MTP Application on their mobile device and having a valid user account provisioned. 3.Threat Analytics Platform (TAP) User Provisioning Once the TAP infrastructure is provisioned, customers can create and assign role-based access control to user accounts. The enrollment process includes the ability to create two-factor authentication for newly provisioned users. Data Sources Once the TAP infrastructure is provisioned, customers can configure new data sources to feed the TAP instance without the assistance of FireEye. The TAP communications broker accepts data feeds in the following formats: syslog, flat files, TCP/UDP streams, and JDBC connections. 4.FireEye as a Service with Continuous Vigilance (FaaS CV) User Provisioning Once the FaaS infrastructure is provisioned, customers can create and assign role-based access control to user accounts via the on premise FireEye sensors.
VirtueStream	Virtustream IaaS provides a self-service portal called xStream, where users can access, view, edit, provision, and modify compute, storage, network and application services based on granular Role Based Access Control, which can be integrated with Active Directory or LDAP. Virtustream portal that enables the user to provision VMs, order services through a catalog, add storage, upload service templates, and run various reports all through the same portal.

8.1.2.2 NIST Characteristic – Broad Network Access: Provide a brief written description of how the cloud solutions proposed satisfies this individual essential NIST Characteristic. Attest capability and briefly describe how network access is provided.

CA	APM	The APIM service is accessed via HTTPS on a supported browser with no requirements for a workstation client install ; mobile friendly and optimized for use with iOS and Android tablets
	MAA	Upon native authentication, MAA dashboard is accessible by any host over public internet. Also, mobile devices connect to the service using REST API.
	CA Agile	All access to the application is through a browser.
	ASM	The ASM dashboard and API are accessible from any host connected to the public Internet. The API and dashboard require authentication, and each account is only accessible by the account owner (customer).
Google	SaaS, Google Apps is device, platform and network agnostic. As a pure play cloud-based solution the services can be accessed via any modern browser from any network access point. Customers that have requirements to limit access to trusted devices or trusted access points have access to Device Management tools via the Admin Panel at no additional cost. PaaS/IaaS, Google Cloud Platform management services can be accessed via any modern browser from any network access point. End-users can access services through one or more	

	appropriate tools (browser, CLI, APIs, etc.). Administrators can also monitor and manage services through a mobile app.
AODocs	SaaS, AODocs is service, platform and network agnostic. As a pure play cloud-based solution the services can be accessed via any modern browser from any network access point.
Virtru	All Virtru services are available on the publically available internet.
Salesforce	Salesforce PaaS and SaaS solutions are delivered on-demand via the web and can be accessed with a browser and internet connection or mobile device. No additional software or infrastructure is required. Salesforce hosts the entire solution, thus freeing up customers to manage their mission, not manage an infrastructure solution. Additionally, Salesforce is browser agnostic and supports all major browsers (Firefox, Chrome, Safari, IE). No installations on users' laptops or desktops are required and thus the solution is accessible from anywhere an internet connection and supported browser are available, including mobile devices.
ServiceNow	ServiceNow's physical architecture is deployed into ServiceNow's managed dedicated colocation cage space. Multiple diverse Internet connections terminate within the dedicated cage space providing redundant access from the Internet to the ServiceNow environment. All users, administrators and developers connect to the ServiceNow private cloud over HTTPS, leveraging TLS, for communication to and from a ServiceNow instance with all normal interactions via a web browser. There is no requirement to install any client software on any desktop, laptop, tablet, or smart phone used to access a ServiceNow instance.
Docusign	Please see above.
QTS	Broad network access. Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, tablets, laptops, and workstations). QTS recognizes that the connectivity challenges of today are largely driven by consolidation, virtualization and adaptive architectures. Our agile connectivity solutions provide you with both unification across your communication infrastructure and with built-in network scale, reliability, and high-performance. QTS metroConnect is a fast, reliable, high bandwidth connection to hundreds of network and service providers inside the local Carrier Hotel. With access to the numerous networks at the carrier hotel, QTS delivers the interconnection necessary to support your connectivity, business continuity and application collaboration needs. metroConnect offers redundancy and diversity options that ensure your content is always available. •High availability •Backed by a 99.999% SLA •24x7x365 monitoring and management •Carrier-neutral model •Convenient access to an array of Carriers and Internet providers •Dedicated, secure, and highly resilient connectivity with speeds of 100Mbps, 1Gbps or 10Gbps* •Supports all connectivity redundancy, business continuity, and collaborative application needs QTS data centerConnect Service Data centerConnect is a secure, scalable, cost-effective way to connect your primary and secondary sites between two or more client environments located in different QTS data centers providing a reliable interconnection option for any size business. QTS data centerConnect enables data replication and recovery through its resilient and redundant network. This ensures your business operates successfully with seamless, day-to-day transactions over a high-performance, low latency connection that supports business continuity, data replication and other IT business application needs. With QTS data centerConnect you get: •High Availability – Resilient network architecture provides high availability and reliability

	•Dedicated and Secure – Dedicated bandwidth with secure MPLS encapsulation •Scalable Bandwidth – Easily scale your bandwidth (from 10Mb up to 1Gb) •Flexible Network Configurations – Supports multiple network topologies •Cost-effective, Bundled Solution – All inclusive, bundled offer •Fully Managed, End-to-End – End-to-end, proactive monitoring and management, 24x7x365 QTS internetConnect Service internetConnect provides a multi-homed, high performance, dual access, multi-carrier network that meets all your Internet service needs. We ensure maximum uptime, guaranteed availability, and various bandwidth speeds through our flexible, high performance, carrier-neutral offer. For enterprises and government agencies conducting business over the Internet, QTS internetConnect Service provides a highly reliable, secure connectivity solution for production environments. •Direct access to multiple ISP backbones gives unmatched reliability and guarantees maximum uptime ◦Dual connections with direct access to multiple ISP backbones ◦Diverse, redundant paths to multiple backbone providers ◦Dual paths, with diverse entry points into the QTS Data Center •Anti-DDoS Mitigation Services provide an additional level of protection and security •Dedicated with burstable bandwidth options provides resiliency and flexibility •Backed by an industry leading 100% SLA •Optional service plans to meet your needs QTS ethernetConnect Service You need to be able to connect your employees and customers to your applications and to the outside world. Whether hybrid cloud, disaster recovery/disaster recovery as a service, data replication, data migration or other applications, you need the ability to seamlessly and conveniently connect your business together and to the outside world as if there is no distance between you. QTS ethernetConnect offers a variety of connectivity options. You can centralize your services with a single provider. And since QTS can handle everything from ordering to billing you have a single provider for a complete solution – “One Stop Shopping”. QTS understands your needs and will tailor your end-to-end solution for your business. •High Bandwidth – Speeds are available in select increments of 100Mb to 10Gb •Data Privacy – Data is separated from IP traffic as it traverses the carrier backbone •High Performance Options – Solutions can be developed to fit your specific performance or reliability requirements •Consistency – Ethernet circuits travel over a single carrier’s infrastructure and data follows a consistent path.	
SAP	Ariba	Ariba uses Cisco Routers and Catalysts (high-speed switches) for ensuring maximum network connection performance. They deliver enterprise-class versatility, integration, and power to Ariba. Together, these routers provide the required support for Internet/intranet access with firewall security.
	Fieldglass	Customers are only required to use a standard web browser with default settings to access and use the Fieldglass solution.
	Hanna	Cloud Capabilities are available over the network (via secure MPLS or VPN network connectivity) and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms such as mobile phones, laptops. HEC is an extension of customers existing network and uses customer IP range and /24 range.
	Hybris	All capabilities of SAP Hybris are available over the network. Furthermore, they are accessible by standard mechanism including heterogeneous thin or

		thick client platforms through either standard web technologies or through the hybrid OCC REST web service API's.
	SuccessFactors	Our solution was designed from the outset for high availability. We provide a system availability SLA of 99.5%. Every component (hardware and software) is completely redundant. There is a redundant piece of equipment or software for every hardware or software component for every layer of the infrastructure stack (server, software and network). We load balance at every tier in the infrastructure, from the network to the database servers. F5 load balancers are used to route traffic to an available web server to process the request. Application server clusters are enabled so that servers can fail without interrupting the user experience. We maintain an N+1 approach for all equipment in the hosted cloud environment, so that there is never a single point of failure. All customer database backups are encrypted and streamed in a secure manner from the customer's "primary" data center to their "alternate" data center, allowing for a timely restoration of service in the event of disaster. Based on the terms of the agreement, we will designate one of the data centers as the customer's "primary" data center, with an additional data center designated as the "alternate" for data redundancy and disaster recovery purposes. Load balancers will automatically detect a software or hardware error and take the servers out of service if needed without interrupting the user experience or application. They also allow capacity addition or reduction without interrupting service. All of the JBOSS application servers are clustered. Each is designated as a primary and a secondary, so any application server can fail without any loss of service or interruption of the application or user experience. The database servers are also clustered using a Veritas high availability cluster. The Veritas suite will detect any hardware or software errors in the database machines and automatically fail them over to a standby server
VMware		VMware's IaaS offerings comply with the Broad Network Access characteristic. All of these products' capabilities are available over the public internet and can be used by heterogeneous thin or thick client platforms. Consumers only need internet access to access these resources. Additional capabilities exist including the ability to secure communications over the public internet including IPSEC VPN, SSL Client VPN, and the ability to consume via WAN connectivity. VMware's SaaS offering AirWatch can be accessed over the internet or private network through standard mechanisms.
FireEye		All FireEye cloud offerings included in this response meet the definition of broad network access. Each of the solutions performs its designed functionality over standard internet-facing services and is accessible via a web browser from any internet connected device when valid credentials are provided.
VirtueStream		VirtueStream IaaS provides Broad Network Access, where it can provide landing zone for any private network (Point-to-Point, Virtual Private Label Switching, Multi-Protocol Label Switching, or Direct Connect), public network (Internet, Trusted Internet Connectivity as landing zone, IPSEC VPN and SSL VPN) and also extranet connectivity (shared network, i.e., Cloud Connect, Cloud Exchange, etc.) which is growing rapidly as an option for connecting cloud resources.

8.1.2.3 NIST Characteristic - Resource Pooling: Provide a brief written description of how the cloud solutions proposed satisfies this individual essential NIST Characteristic. Attest capability and briefly describe how resource pooling technical capability is met.

Carahsoft's multiple Cloud Service Provider's solution provides for Resource Pooling, as defined by NIST, in a variety of methods. Each method optimizes the cloud subscriber's experience while optimizing the availability of compute, network, and data resources. Each service provider provides Resource Pooling, see below for details.

CA	APM	CA API Management SaaS (SaaS APIM) has been built from the ground up to be a multi-tenanted, SaaS-based offering that leverages Amazon's infrastructure to scale appropriately; utilize a continuous integration model to provide for frequent updates; and fail over across multiple availability zones.
	MAA	MAA core service utilizes dedicated infrastructure layered with virtualization capabilities. It doesn't share computing resources with other services. Tenants are segregated using application containerization capabilities.
	CA Agile	We monitor all system resources and have alerting mechanisms when resource constraints have reached a defined threshold. We can easily scale our systems to accommodate any additional capacity. If we determine a single user is using a significant amount of resources we will proactively reach out to them to understand what they are trying to accomplish and help them to formulate more performant queries.
	ASM	All ASM core servers are dedicated physical servers. ASM Public Status Pages are served from dedicated web servers (used only by CA ASM) in the Amazon Cloud, on shared tenancy virtualization. Amazon Cloud virtual machines used by ASM are managed by and provisioned by CA ASM systems administrators.
Google	SaaS, Google's global infrastructure is a shared pool of resources that dynamically serve each end user with a primary data center access point that may rotate throughout the session without the end user being aware while at the same time replicating any data across at least two additional geographically dispersed data centers which also may rotate through the session. PaaS/IaaS, Google Cloud Platform also operates across the global Google infrastructure. The elements of this service can be defined within the Developer's console to run within a higher level of abstraction which covers four regions; Central US, Eastern US, Western Europe, East Asia where each region has three or four zones.	
AODocs	AODocs infrastructure is hosted in Google App Engine and data of our customers on Google Drive. This protection is insured by Google.	
Virtru	Virtru Services are offered in a fully multi-tenant mode if the customer requests.	
Salesforce	Salesforce is a multitenant cloud-based subscription service. Multi-tenant cloud solutions provide a single, shared infrastructure, one code base, one platform that is all centrally managed, with platform-based API to support all integration traffic, and multiple release upgrades included as part of the subscription service. Multi-tenancy and the Cloud Computing model remove unneeded tasks from the process of delivering, managing, and integrating software. Salesforce customers will not need to maintain any hardware or software. Without multiple versions to support, integrations don't break during updates; they are simply updated automatically. As a result, both the initial integration and its continued maintenance are simplified. More resources can be focused on creating a better product, with a faster cycle of innovation, instead of having to manage the complexity of many different versions to support a vast installed base. Salesforce's position as an online service enables us to roll out all levels of improvement, from patch releases to major upgrades that are largely transparent to the end users. When a bug is fixed and tested, it is rolled out to the application as part of regular maintenance; the nature of the service prevents special patches and code branches for individual customers, so all fixes can potentially benefit all customers.	
ServiceNow	The ServiceNow environment is a private cloud, fully owned and operated by ServiceNow, which supports a logically single tenant architecture. Customer data is isolated from other customer data	

	by leveraging an enterprise-grade cloud architecture and a dedicated database and application set per instance. This gives ServiceNow customers cost reduction through shared infrastructure, while having the security benefits of customer-specific isolation at the application and data layers. In addition to the security features that come standard within the platform and each customer instance, customers can leverage the additional security features within ServiceNow to augment the security configuration of their instances based on their own needs and risk profile. Customers share a hardware platform (no virtualization), but access entirely separate individual instances of the ServiceNow platform.	
DocuSign		
QTS	Resource pooling. The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand. There is a sense of location independence in that the customer generally has no control or knowledge over the exact location of the provided resources but may be able to specify location at a higher level of abstraction (e.g., country, state, or datacenter). Examples of resources include storage, processing, memory, and network bandwidth.	
SAP	Ariba	Ariba recognizes that customers need the highest-possible availability and reliability. To that end, Ariba infrastructure is scalable and redundant at all tiers. To provide high availability and reliability, Ariba has extensive error handling and fail-over capabilities. In order to ensure the highest availability, Ariba uses such best practices as frequent systems backup and maintenance, redundant systems, proactive customer notification of unplanned down-time and international support coverage.
	Fieldglass	Fieldglass is offered in a SaaS model. All customers access the same Fieldglass application version in a multi-tenancy database. The system is hosted in a secure hosting facility. All system resources are available to all customers without limitation.
	Hanna	SAP HEC does not pool resources for critical business systems as it's a managed private cloud, which is dedicated to one particular customer. However, network routers, availability reporting & monitoring could be shared. Details can be provided during HEC technical assessment workshop.
	Hybris	All computing resources of the data centers are pooled to serve multiple customers. Each customer gets their own separate VM's and their own instances of hybris deployed to those VM's.
	SuccessFactors	Load Balancing & Server Clustering – We load balance at every tier in the infrastructure, from the network to the database servers. Application server clusters are enabled so that servers can fail without interrupting the user experience. Database servers are clustered for failover. We maintain an N+1 approach for all equipment in its hosted environment, so that there is never a single point of failure. Complete Redundancy - Every infrastructure component is redundant. There are at least two of each hardware component that processes the flow and storage of data. Backup & Restore - the Data center runs full data backups weekly and incremental data backups nightly.
VMware	All VMware's IaaS products comply with the Resource Pooling characteristic (except for the Hybrid Cloud Manager which is Not Applicable). vCloud Air provides a pool of vCPU, vRAM, Network and storage on the shared physical infrastructure. vCloud Air provides the required location independence and requires that the customer directly specify location of the datacenter that will host their cloud at time of instantiation. Note VMware's SaaS is also Not Applicable.	
FireEye	The FireEye cloud infrastructures consists of web and application servers, operating systems, and databases in a hosted environment and are comprised of both physical and virtual devices.	

	Computing power and resources are load-balanced across infrastructure and replicated to redundant datacenters in the event of a disaster. Client-specific data stored in databases are logically separated from other clients' data providing segmentation and isolation.
VirtueStream	Key to Virtustream solution is its proprietary and patented solution of uVM technology, which is effectively a granular solution for resource pooling, providing application performance, pay for consumption only and segregate resources for security and compliance, but aggregate for cost efficiency. In addition, Virtustream is currently one of very few Cloud Service Provider with capabilities for Geo-Fencing and Geo-Tagging of the virtual machines to a specific data center, and getting down to cluster and host machine level. The resources are pooled based on two specific criteria: •ONLY Accessible Using Private Network – We call this pool “Enterprise” which most of Virtustream’s IaaS workload is residing. There is no direct access from Internet into this pool. This is protected via a pair of routing and firewall from any other zones.

8.1.2.4 NIST Characteristic - Rapid Elasticity: Provide a brief written description of how the cloud solutions proposed satisfies this NIST Characteristic. Attest capability and briefly describe how rapid elasticity technical capability is met.

CA	APM	CA API Management SaaS (SaaS APIM) has been built from the ground up to be a multi-tenant, SaaS-based offering that leverages Amazon’s infrastructure to scale appropriately; utilize a continuous integration model to provide for frequent updates; and fail over across multiple availability zones.
	MAA	The pool of web and application servers can be grown or shrunk when necessary. Any changes to the size of the pool remains transparent to end-users and customers, and would only be done by CA MAA systems administrators.
	CA Agile	This is a SaaS service, therefore, CA monitors all system resources and have alerting mechanisms when resource constraints have reached a defined threshold. Data storage and network capacity are monitored and scaled to meet current client demands. Compute resources are scaled to meet client processing requirements
	ASM	All ASM core servers are dedicated physical servers; there is no elasticity. The ASM Public Status Pages are served from web servers in the Amazon Cloud, and the pool of web servers can be grown or shrunk if necessary. Any changes to the size of the pool would be transparent to end-users and customers, and would only be done by CA ASM systems administrators. Since this is a SaaS environment the CA SaaS Operations and delivery along with RackSpace are responsible for management of the capacity and monitoring.
Google	SaaS, Google Apps can scale from 1 user to tens of thousand users. The usage of the services included are designed to horizontal scale within the confines of the per user storage allocation. Google Apps can be purchased with a 30gb per user allocation or with unlimited storage. PaaS/IaaS, Google Cloud Platform was designed to scale on demand both in terms of available resources for applications designed and running on Google App Engine but also Compute Engine resources and more.	
AODocs	AODocs can scale from one user to tens of thousand users. The storage is based on the Google Apps storage which could be from 30Gb to unlimited storage depending on the Google Apps subscription.	
Virtru	Presently we over-provision services by 2.5x peak traffic in order to handle spikes. We are in the process of implementing horizontal scaling of all services and expect to have that work completed in the second half of 2016.	
Salesforce	User Authentication Logon is form-based. When users log into the Salesforce application, they submit a username and password, which are sent to Salesforce via an TLS-encrypted session.	

	Security features are developed by Salesforce and built into the application. Third-party packages are not used for development or implementation of security internal to the application. In addition, single sign-on and two-factor authentication may be used to authenticate users. Some organizations prefer to use an existing single sign-on capability to simplify and standardize their user authentication. You have two options to implement single sign-on—federated authentication using Security Assertion Markup Language (SAML) or delegated authentication. Federated authentication using Security Assertion Markup Language (SAML) allows you to send authentication and authorization data between affiliated but unrelated Web services. This enables you to sign-on to Salesforce from a client application. Federated authentication using SAML is enabled by default for your organization. Delegated authentication single sign-on enables you to integrate Salesforce with an authentication method that you choose. This enables you to integrate authentication with your LDAP (Lightweight Directory Access Protocol) server, or perform single sign-on by authenticating using a token instead of a password. You manage delegated authentication at the profile level, allowing some users to use delegated authentication, while other users continue to use their Salesforce-managed password. Delegated authentication is set by profile, not organization wide. You must request that this feature be enabled by Salesforce. Salesforce can be configured to utilize Active Directory directly via Delegated Authentication, or indirectly via Federated Identity using either SAML 1.1, or SAML 2.0. Additionally your users can be loaded from information drawn from your Active Directory servers and modifications made in Active Directory can be propagated into Salesforce. Customers can use their own SAML Identity Provider, or license one directly from Salesforce with our Identity Connect product. User provisioning and management is performed through the Salesforce Administrative Setup environment and is performed by Salesforce customers. Users, their profiles, permissions and passwords may be managed, edited, activated and deactivated as needed by those with appropriate permissions. An administrator (appointed by the customer and not by Salesforce) with appropriate privileges can manage session timeout, password policies, IP range login restrictions, delegated authentication/SSO, and requirements as part of this process. On first time login or password reset request, users are required to change their passwords to gain access. Salesforce also offers delegated authentication, enabling customers to provision and deactivate users from an external directory service. User Access Profiles Salesforce enables administrators to manage roles and relationships between roles from within the application, in a single easy to read page depicting the role hierarchy. All users and application-level security are defined and maintained by the organization administrator and not by Salesforce. The organization administrator is appointed by CSBS. An organization's sharing model sets the default access that users have to each other's data. There are four sharing models: Private, Public Read Only, Public Read/Write, and Public Read/Write/Transfer. There are also several sharing model elements: Profiles, Roles, Hierarchy, Record Types, Page Layouts, and Field Level security. Details about sharing models and sharing model elements are provided below: Private Only the record owner, and users above that role in the hierarchy, can view, edit, and report on those records.
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	Public Read Only All users can view and report on records but not edit them. Only the owner, and users above that role in the hierarchy, can edit those records. Public Read/Write All users can view, edit, and report on all records. Public Read/Write/Transfer All users can view, edit, transfer, and report on all records. Only available for cases or leads. Profiles A profile contains the settings and permissions that control what users with that profile can do within Salesforce. Profiles control: - Standard and custom apps the user can view (depending on user license) - Service providers the user can access - Tabs the user can view (depending on user license and other factors, such as access to Salesforce CRM Content) - Administrative and general permissions the user has for managing the organization and apps within it - Object permissions the user is granted to create, read, edit, and delete records - Page layouts a user sees - Field-level security access that the user has to view and edit specific fields - Record types are available to the user - Desktop clients users can access and related options - Hours during which and IP addresses from which the user can log in - Apex classes a user can execute - Visualforce pages a user can access User Roles Every user must be assigned to a role, or their data will not display in opportunity reports, forecast rollups, and other displays based on roles. All users that require visibility to the entire organization should be assigned the highest level in the hierarchy. It is not necessary to create individual roles for each title at the company, rather a hierarchy of roles should be defined to control access of information entered by users in lower level roles. When a user's role is changed, any relevant sharing rules are reevaluated to add or remove access as necessary. Record Types If the customer's organization uses record types, edit the record type to modify which pick list values are visible for the record type. A default pick list values can be set based upon the record type for various divisions. Field Level Security Field-level security settings let administrators restrict user's access to view and edit specific fields on detail and edit pages and in related lists, list views, reports, Offline Edition, search results, email and mail merge templates, Custom Links, and when synchronizing data.
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	The fields that users see in detail and edit pages are a combination of page layouts and field-level security settings. The most restrictive field access settings of the two always apply. For example, if a field is required in the page layout and read-only in the field-level security settings, the field-level security overrides the page layout and the field will be read-only for the user.	
ServiceNow	ServiceNow is a multi-instance architecture that gives every customer its own unique database, which means that it is impossible for your data to be commingled with any other customer. The multi-instance architecture is not built on large centralized database software and infrastructure. Instead, we deploy instances on a per-customer basis, allowing the multi-instance cloud to scale horizontally and infinitely. For our multi-instance cloud, we deploy separate application logic (Apache Tomcat Java Virtual Machines) and database processes (MySQL) for every customer. This allows ServiceNow to scale its application servers out horizontally by adding them to the load balancer pools for a particular instance.	
QTS	Rapid elasticity. Capabilities can be elastically provisioned and released, in some cases automatically, to scale rapidly out ward and in ward commensurate with demand. To the consumer, the capabilities available for provisioning often appear to be unlimited and can be appropriated in any quantity at any time. Delivering scalable, secure, high-performing, virtual data centers for government applications QTS is committed to not only giving your cloud the most secure home, but also the ability to utilize best-of-breed technologies. Flexible, high-performing, future proof infrastructure: Built upon the VMware vCloud® Suite, you'll benefit from reliable, high-performing infrastructure using a platform that includes VMware, EMC and Cisco. This compatible solution easily integrates with private VMware environments and provides a pathway to a hybrid cloud. Our scalability increases agility, efficiency and productivity: Your technologists can focus more time on your business and customers, and less time on your infrastructure. Rapid provisioning and improvements in utilization enhances your speed to market, delivers applications faster, and gets projects out the door. Virtually unlimited bandwidth and communications diversity QTS operates carrier-neutral data center facilities. This means that customers can select their communications service providers from hundreds of carriers, Internet Service Providers, dark fiber and satellite companies to meet their transport requirements. Selecting a provider from such a broad list of options gives customers exceptional route diversity and pricing options, as well as different Service Level Agreements and installation schedules. Customers who need very high amounts of bandwidth to conduct their business efficiently will never have to worry about running out of capacity at a QTS facility. Similarly, customers who require exceedingly high communications security have the benefits of selecting from physically diverse routes between their ends points and dark fiber that is not shared with any other users. In short, there are virtually no limitations to the type, amount, or security of communications available at each QTS data center facility.	
SAP	Ariba	There are no scalability limits with our products. We can scale accordingly to fit any data amount or user volume scenario.
	Fieldglass	The hosted Fieldglass solution can be horizontally and vertically scaled very quickly as the web server farm is fully virtualized. Only the SQL server is bare metal by design.
	Hanna	SAP HEC can be rapidly scaled to provision infrastructure & services on demand per customer requests.
	SuccessFactors	Our solution was designed and developed, from the outset, to be a highly scalable application. We also use the concept of "PODS," from a hardware perspective. A POD is a fault tolerant cluster of application & DB servers

		designed, as a scalable unit, to provide core processing and data storage services for fixed increment of customers. Attributes include: A POD is designed to support millions of subscribers. Our current 2nd Generation POD is scaled to 5M+ Multi-Vendor High Performance Blade Servers with 40GBps backplane fabric interconnects Multiple redundant Application Engines Clustering for availability and performance Hardware load balancers to route each new incoming session to the most available web and application processor Designed to support a high rate of concurrent connections while maintaining sufficient redundant capacity to meet SLA requirements New production PODs undergo a verification process before being brought into service Excess capacity PODs are always available on standby (scalability-on-demand) We will increase capacity if data center utilization surpasses the 70% threshold
VMware		All vCloud Air offerings partially comply with Rapid Elasticity. vCloud Air can be purchased as a pool of vCPU, vRAM, Network and Storage on shared or dedicated physical infrastructures that can be elastically provisioned and released. VMware's vCloud Air On Demand is fully compliant because capabilities can be elastically provisioned and released. VMware's SaaS Products i.e. AirWatch, does comply but the NIST requirement is not relevant to SaaS offerings. Note the vCloud Air Hybrid Cloud Manager is not Applicable.
FireEye		FireEye cloud environments are continuously monitored by cloud service operations (CSO) personnel to help ensure secure operation and available of the system. Capacity is actively monitored and pro-active upscaling is conducted to ensure resources are always available to end-users. Procedures are in-place for rapidly adding resources in the event the infrastructure approaches capacity.
VirtueStream		Virtustream's self-service portal, ticketing system and also the Technical Account Manager, who is the single point of contact for State of Utah allows for provisioning and deprovisioning of resources and services. In addition, Virtustream is uniquely positioned to provide application level provisioning as part of its standard automation and orchestration tool. Resources can be scaled based on application size, memory, storage, network requirements. xStream utilizes a supply chain to define resource profiles, attributes and offerings than can be provisioned.

8.1.2.5 NIST Characteristic - Measured Service: Provide a brief written description of how the cloud solutions proposed satisfies this NIST Characteristic. Attest capability and briefly describe how measured service technical capability is met.

CA	APM	Continuous monitoring of all service components (infrastructure and application) is deployed to proactively identify any component or service trending towards failure or approaching capacity. This portion is handled for the underlying cloud infrastructure by AWS with active participation by CA including escalations of issues.
	MAA	CA MAA systems administrators track the resource consumption of each virtual machine in use. ITIL flows are utilized to ensure service delivery. MAA customers do not need this information in order to use the service, nor do they have access to view it.

	CA Agile	Continuous monitoring of all service components (infrastructure and application) is deployed to proactively identify any component or service trending towards failure or approaching capacity CA's best-of-breed monitoring solutions are deployed and supplemented with vendor specific diagnostic tools where appropriate 24x7 staffed network operation center (NOC) to analyze and respond to automated monitoring alerts
	ASM	CA ASM systems administrators track the resource consumption of each virtual machine in the cloud. Since this is a SaaS service, ASM customers do not need this information in order to use the service, nor do they have access to view it.
Google	Saas, Google Apps is already optimized for unlimited use by all end users. Google ensures high availability, low latency and fault tolerance as a part of the contracted services. No metering or rate limiting would be required as Google does not charge based on bandwidth use. Paas/IaaS, Google Cloud Platform includes application development tools, Google App Engine, compute resources, Compute Engine and Container Engine, data storage solutions and networking solutions. The pricing model is based on actual usage and that usage can be monitored with Google's Cloud Monitoring Service which also includes options to autoscale a project.	
AODocs	AODocs is already optimized for unlimited use by all end users. AODocs ensures high availability, low latency and fault tolerance as a part of the contracted services. No metering or rate limiting would be required as AODocs does not charge based on bandwidth use.	
Virtru	All services in our system monitored for availability, stability, security, and intrusion using a combination of tools, such as Dtrace, LogTrail, CloudWatch, DataDog, ElasticSearch and AlienVault.	
Salesforce	Subscription-based Service The Salesforce PaaS and SaaS offerings are subscription based and in a per user/month or user/year format billed annually with some of our products offered as total logins per month or by defined number of members billed annually. Bandwidth Salesforce is designed to use as little bandwidth as possible so that the site performs adequately over high-speed, dial-up, and wireless Internet connections. While average page size is on the order of 90KB, Salesforce uses compression as defined in the HTTP 1.1 standard to compress the HTML content before it is transmitted as data across the Internet to a user's computer. The compression often reduces the amount of transmitted data to as little as 10KB per page viewed due to the lack of image content. The site was designed with minimum bandwidth requirements in mind, hence are extensive use of color coding instead of images. Our average user also is known to view roughly 120 pages from our site per day. Our application is stateless; therefore, there are no communication requirements in the background once the page loads, like traditional client server applications, e.g., Outlook. Therefore, once the page loads, there are no additional bandwidth requirements until a user queries or writes information to Salesforce. System Overview In addition to our Trust site (http://trust.salesforce.com/trust/status), you will also have access to a System Overview, which will help Salesforce customers monitor performance and usage of their own Salesforce org. This overview includes: Schema - # and % of custom objects and data storage Business Logic - # and % of Rules, Apex triggers and classes, as well as % of code used Licenses API Usage - # and % of requests in the last 24 hours User Interface - # and % of custom apps, sites, flows, custom tabs and pages	

	Portal The above list is of all the possible metrics that Salesforce customers may have in their system overview.	
ServiceNow	ServiceNow is a subscription service measured by number of user accounts or number of managed nodes. ServiceNow has a documented capacity-planning model, which is used to determine sizing requirements and scaling options. The need to address capacity and horizontal system scaling is in the background, transparent to our customers.	
DocuSign		
QTS	Measured service. Cloud systems automatically control and optimize resource use by leveraging a metering capability 1 at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts). Resource usage can be monitored, controlled, and reported, providing transparency for both the provider and consumer of the utilized service.	
SAP	Ariba	We have an Internal Tools Development Team which has established active monitoring systems with alerting and automated escalation. This includes log monitoring from the backend of the systems and this is tied to established internal processes related to security incident management. The environment, policies, tickets and reports are reviewed under ISAE 3402 assurance audit every six months.
	Fieldglass	Fieldglass utilizes various methods to ensure the system is available and is operating as expected. • Our network performance monitor ensures that all servers and devices are available and performing as expected. • All devices and servers on our network log into our enterprise SIEM tool. All activity is monitored by the Fieldglass security team to ensure activity does not vary from our known baseline. • An Active Performance Monitor has been built into the Fieldglass system. This monitor logs all system activity and enables Fieldglass engineers to drill into data such as concurrent user count, thread count, memory, CPU, SQL duration, server duration, client duration, page hits, etc. This data can be drilled into by day, hour, minute, server, and user. • Customer SLAs are tracked and communicated on a monthly basis. For 2015 we have a 99.4% success rate in meeting all customer page response time SLAs.
	Hanna	SAP HEC services are measured via SAP solution manager and reports are shared with the customer on a monthly basis as well as via self-service reports. SAP HEC operations team monitors the customer landscape and any disruption is addressed after reaching out to the customer and associated approval.
	SuccessFactors	Our hosting sites are designed to accommodate customers desiring a high level of managed service performance. In order to achieve such a level of performance, proactive monitoring is available through a variety of on-line tools that are implemented and managed by Cloud Operations. At a customer management level, the Cloud Operations monitors a series of “key metrics” that measure the results of various processes involved in supporting the business operations and service reliability. These metrics include reports of transaction volumes, latency, system availability, capacity, change management, and help incident response times as compared with established service level goals and standards. To facilitate required system performance, we monitor and tune the use of resources, and makes projections of future capacity requirements. We employ

		a variety of services to monitor and enhance application performance. The network makes extensive use of high availability architecture, and is monitored on a 24x7 basis at multiple levels. We utilize real time web applications performance monitoring software to do the following: - Sample web traffic in real time via performance analysis software - Track web application errors, (e.g. http 4xx-5xx errors) - Monitor end-to-end user performance trends - Detailed session analysis for session troubleshooting This data is reviewed on a daily and weekly basis by Operations Support, and is further supported with automated alerts. We proactively gather performance statistics, set triggers to alert on capacity thresholds, and regularly review utilization trends for capacity planning.
VMware		VMware's provides automatic monitoring and metering services to their IaaS and SaaS offerings. Note the vCloud Hybrid Manager is not applicable as it is not metered, because it is for management.
FireEye		FireEye cloud environments are continuously monitored by cloud service operations (CSO) personnel to help ensure secure operation and availability of the system. An internal monitoring system operates 24 hours per day to assess system availability and performance. The system is configured to send email alert notifications to FireEye operations personnel on a real-time basis communicating potential issues with the production systems.
VirtueStream		The fundamental of Virtustream solution is based on uVM Technology, which is very unique in terms of billing. Virtustream solution takes average consumption of compute resources, and State of Utah would only pay for actual resources based on a monthly average. This is in comparison with traditional cloud solution, where the billing is based on allocation of resources in T-Shirt size (Micro, S, M, L, XL, XXL), and if the server is up, consumer of the cloud pays, but when it is down, they don't. In case of the Virtustream solution, customer only pays based on the average of vCPU, RAM, IOPS and Network I/O; the key is average, not aggregate and based on consumption not allocation. In addition, all storage, security, application management services are offered as a monthly fee, based on the VMs; also, Virtustream can provide consultative and project support based on time and materials. The μVM brings significant benefits: enabling application level performance SLAs – which an average VM cannot. μVMs eliminate wasted headroom in fixed size VMs, generating significant efficiency improvements (up to 40% beyond traditional virtualization) and Virtustream only charges by the μVM so you only pay for the resources you actually consume not what you might need. Using μVMs also enables applications to be used across multiple hypervisors, across multiple clouds and between different locations – enabling true hybrid clouds. μVM technology allows Virtustream to offer enterprise class clouds capable of running both mission-critical enterprise applications and web-scale applications, delivering the full benefits of cloud to the enterprise.

8.1.3 Offeror must identify for each Solution the subcategories that it offers for each service model. For example if an Offeror provides a SaaS offering then it should be divided into education SaaS offerings, e-procurement SaaS offerings, information SaaS offering, etc.

CA	APM	In addition to the APIM SaaS offering CA Technologies also offers educational services and consultancy services. CA provides education and training services to its clients.
	MAA	CA MAA helps app developers visualize, investigate, manage, and support user interactions with their mobile apps. It provides deep insights into the performance, user experience, crash, and log analytics of mobile apps. CA MAA is aimed to help

		enterprises understand the experience of mobile app users across the DevOps application lifecycle. Enterprises can accelerate the delivery of user-experience-focused mobile applications and can achieve faster time to market by continuous application delivery while ensuring robust security.
	CA Agile	We provide a SaaS offering that is generally used to document and manage work within the SDLC. In addition to the CA Agile offering CA Technologies also offers educational services and consultancy services
	ASM	CA ASM is a SaaS offering that provides customers with the ability to monitor the availability, health, and performance of network services (web sites, email servers, etc.).
Google	Education SaaS offering - Google Apps for Education Messaging SaaS offering - Google Apps for Work, Google Apps Unlimited Collaboration SaaS offering - Google Apps Unlimited Identity Management SaaS offering - Google Apps SSO eDiscovery/Archiving SaaS offering - Google Apps Vault Application Development PaaS - Storage IaaS offering -	
AODocs	AODocs Team Folders AODocs Document Management AODocs Retention Application AODocs Email Connector	
Virtru	SaaS email encryption and SaaS file encryption.	
Salesforce	Salesforce is the enterprise cloud computing leader dedicated to helping companies and government agencies transform into connected organizations through social and mobile technologies. Over 150,000 Salesforce customers across nearly every industry have successfully transformed their operations including over 1000 government agencies, representing all federal cabinet level agencies and the majority of the United States. Customer examples include: State of Texas, State of Colorado, State of California, GSA, USDA, USAID, and others. Salesforce was named one of the World's Most Innovative Companies by Forbes for the last five years in a row. Salesforce is #1 in Enterprise Cloud Computing and #1 in CRM according to IDC. Salesforce ranks as the Leader in the Gartner Magic Quadrant for "CRM Customer Engagement Centers" (SaaS), "Sales Force Automation" (SaaS), and "Enterprise Platform as a Service" (PaaS). Government agencies are using Salesforce PaaS and SaaS solutions for a multitude of government functions including grants management, constituent communications and correspondence management, incident and case management, call/contact center management, outreach programs, learning management, volunteer management, project management, and even donor management, among numerous others.	
ServiceNow	SaaS Offerings: •Cloud and Infrastructure Management Tools •Customer Relationship Management •Project and Portfolio Management (PPM) Tools •Security •Workflow and Electronic Signature •Proposed new category: Information Technology Service Management Tools	

QTS	QTS has built some of the world's largest, most robust, and redundant data centers. The company's innovative 3C product set of custom data center, colocation, and cloud and managed services provides a fully integrated platform and a flexible, scalable level of service that is difficult to match. Our service categories include: - IaaS Custom Data Center - IaaS Enterprise Cloud - IaaS Managed Cloud - IaaS vCGS Cloud - IaaS Federal Solutions - IaaS Healthcare Solutions - IaaS Financial Service Solutions - Colocation - Connectivity - Critical Facilities Management - Hybrid IT Solutions - Disaster Recovery as a Service (DRaaS) - Managed Services: Managed Hosting, Managed Network, Managed Systems, Managed Security, Managed Storage & Backup, Managed Disaster Recovery, Data Security	
SAP	Ariba	We provide solutions that allow enterprises to efficiently manage the purchasing of non-payroll goods and services required to run their business. We refer to these non-payroll expenses as "spend." Our solutions include software, network access, and expertise. They are designed to provide enterprises with technology and business process improvements to better manage spend and, in turn, save money. Our solutions streamline the business processes related to the identification of suppliers of goods and services, the negotiation of the terms of purchases, and ultimately the management of ongoing purchasing and settlement activities. Our solutions allow enterprises to take a systematic approach with products and services that work together. By combining software, network access and professional services into a comprehensive solution, we help customers to address six key areas of spend management: - Visibility - enhance spend visibility and control across spend categories, disparate systems and corporate divisions - Sourcing - identify top suppliers, negotiate procurement terms, leverage aggregate spend, and manage procurement contracts - Contract Management - streamline and automate from contract creation to compliance - Procurement – streamline requisitioning and procurement across all types of spend - Invoice and Payment - automate invoicing and payment processes - Supplier Management - optimize buyer-supplier interactions throughout the spend lifecycle
	Fieldglass	The SAP Fieldglass Vendor Management System (VMS) application is a workforce management SaaS offering.
	HANA	HANA Enterprise Cloud is a private managed cloud primarily for all SAP enterprise-wide SAP applications such as: ERP, CRM, SRM, BW, etc. All SAP applications can be hosted in HANA Enterprise Cloud (via BYOL or Subscription Licensing model)
	SuccessFactors	Our original product release dates are as follows:

		Performance Management – 2001 Goal Management – 2002 360/Multi-Rater Reviews - 2002 Succession Management - 2004 Compensation Management – 2004 Analytics & Reporting – 2005 Learning & Development – 2006 Recruiting Management – 2006 Variable Pay Compensation – 2007 Employee Profile – 2007 Stack Ranker – 2008 Employee Central – 2009 Metrics Navigator – 2009 Goal Execution – 2010 Calibration – 2010 Workforce Planning (Acquisition) – 2010 Workforce Analytics (Acquisition) - 2010 Plateau LMS (Acquisition) – 2011 JAM – 2011 Employee Central Payroll – March 2012 Onboarding (acquisition of KMS) – May 2013
FireEye	FireEye is offering 4 distinct cloud solutions that can be classified into the following service categories and sub-categories: 1.Email Threat Prevention (ETP) Security – SaaS 2.Mobile Threat Prevention (ETP) Security – SaaS 3.Threat Analytics Platform (TAP) Threat Intelligence – SaaS 4.FireEye as a Service with Continuous Vigilance (FaaS CV) Managed Security Service – SaaS	
VirtueStream	Virtustream is an Infrastructure as a Service (IaaS) offering focused on mission critical workloads and applications. The solution provides as part of the response is IaaS only. Virtustream's IaaS is targeted for all virtualized, x86 based cloud solution. While we have secured and segmented infrastructure for FedRAMP, FISMA, PCI and other regulated workload, it is best suited for any and all enterprise workload as long as the workload can be virtualized and run on x86 platform. For non x 86 environments, Virtustream provides Collocated areas, which is cross connected with the cloud.	

8.1.4 As applicable to an Offeror's proposal, Offeror must describe its willingness to comply with, the requirements of Attachments C & D.

Carahsoft complies with the requirements in attachment C & D. Cloud service models by vendor are broken out in section 6.6 of this response per the request in attachment C.

8.1.5 As applicable to an Offeror's proposal, Offeror must describe how its offerings adhere to the services, definitions, and deployment models identified in the Scope of Services, in Attachment D.

Carahsoft's cloud vendors fit into multiple categories as listed out in Attachment D. Many of our vendors fit a hybrid cloud deployment method with ability to silo off a private cloud if security needs dictate such. Our cloud vendors are broken out by service model in section 6.6 of this response. Carahsoft's cloud vendors

also fit into many categories as listed in section 1.1.3 of Attachment D. Depending on the type of data and service requested our vendors can support everything from on demand self service delivery to a completely managed and measured service option.

8.2 Subcontractors

8.2.1 Offerors must explain whether they intend to provide all cloud solutions directly or through the use of Subcontractors. Higher points may be earned by providing all services directly or by providing details of highly qualified Subcontractors; lower scores may be earned for failure to provide detailed plans for providing services or failure to provide detail regarding specific Subcontractors. Any Subcontractor that an Offeror chooses to use in fulfilling the requirements of the RFP must also meet all Administrative, Business and Technical Requirements of the RFP, as applicable to the Solutions provided. Subcontractors do not need to comply with Section 6.3.

Carahsoft will be utilizing Subcontractors to provide services and solutions for specific manufacturers within this response. In other cases, Carahsoft will work with the manufacturers to provide these services and solutions to all Participating Entities. All Subcontractors shall be vetted to ensure they have the necessary qualifications to do business within the State of Utah and any applicable Participating States. All Subcontractors will also comply with the applicable terms and conditions of the RFP and subsequent contract, as well as all Participating Addendums for the States they are subcontracting in.

8.2.2 Offeror must describe the extent to which it intends to use subcontractors to perform contract requirements. Include each position providing service and provide a detailed description of how the subcontractors are anticipated to be involved under the Master Agreement.

Carahsoft will use subcontractors as a third party company to provide services in relation to the solutions provided by the manufacturer. No other functions of contract management or execution will be performed by the subcontractor. While Carahsoft cannot determine all roles and responsibilities of the positions for each subcontractor, there are multiple different standards which subcontractors utilize for these types of contracts. Here is an example set of the traditional roles a subcontractor would play on behalf of Carahsoft for this RFP:

Job Title: Consulting Engineer

Functional Responsibility: Working under close supervision, person provides technical or scientific and project support for multiple large-scale projects that cross-cut multiple specialization and product development areas. Applies advanced business and/or technical expertise to assist others with defining, analyzing, validating and documenting complex customer operating environments, states of technology and current engineering processes. Provides advanced technical support to others involved in applying specialized knowledge to complex customer processes and requirements. Supports complex technical investigations through advanced research techniques, analysis or development phases of engineering projects. Works with other engineering disciplines in the development and application of processes to improve quality, reliability, cost customer appeal, and satisfaction.

Job Title: Project Manager

Functional Responsibility: Possesses a thorough understanding of the process requirements and provide both technical and management oversight of the project. Responsible for customer satisfaction, serves as the single point of contact, compliance with the Statement of Work, project planning and management, resource allocation, and reporting.

Job Title: Senior Information Architect

Functional Responsibility: Provides supervision, person designs Intranet/Internet/Extranet architectures and develops implementations plans; administration activity; i.e., hardware, security, firewalls. Implements security architecture using LDAP, SSL and firewalls. Installs, configures and maintains all Intranet/Internet/Extranet tools, databases and features; provides support to e-commerce and other systems. Implements server design, development, and operation as well as analyze and develop requirements for hardware sizing/capacity, data validation, security and integration points to other applications.

Job Title: Information Architect

Functional Responsibility: Designs Intranet/Internet/Extranet architectures and develops implementations plans; administration activity; i.e., hardware, security, firewalls. Implements security architecture using LDAP, SSL and firewalls. Installs, configures and maintains all Intranet/Internet/Extranet tools, databases and features; provides support to e-commerce and other systems. Implements server design, development, and operation as well as analyze and develop requirements for hardware sizing/capacity, data validation, security and integration points to other applications.

Job Title: Senior Consulting Engineer

Functional Responsibility: Provides supervision, person provides technical or scientific and project support for multiple large-scale projects that cross-cut multiple specialization and product development areas. Applies advanced business and/or technical expertise to assist others with defining, analyzing, validating and documenting complex customer operating environments, states of technology and current engineering processes. Provides advanced technical support to others involved in applying specialized knowledge to complex customer processes and requirements. Supports complex technical investigations through advanced research techniques, analysis or development phases of engineering projects. Works with other engineering disciplines in the development and application of processes to improve quality, reliability, cost customer appeal, and satisfaction.

8.2.3 If the subcontractor is known, provide the qualifications of the subcontractor to provide the services; if not, describe how you will guarantee selection of a subcontractor that meets the experience requirements of the RFP. Include a description of how the Offeror will ensure that all subcontractors and their employees will meet all Statement of Work requirements.

Carahsoft will be making the determination of what subcontractors to include on the NASPO ValuePoint Cloud contract upon time of award. Carahsoft will ensure a subcontractor has all of the necessary certifications to do business in the State before adding them to the contract as a subcontractor. In addition, Carahsoft will do credit checks and meet with the subcontractor on multiple occasions to confirm that they are reliable and exceed expectations as a services and solutions provider. Finally, an agreement will be put in place between Carahsoft and the subcontractor to ensure optimal efficiency with the subcontractor's responsibilities.

A subcontractor will be actively involved in understanding and shaping any Statements of Work created for the services of a deal in order to make sure that they have the capacity to meet all of the necessary requirements. These Statements of Work will dictate the terms upon which the subcontractor is deployed for services, so Carahsoft will work specifically with subcontractors that are active in the public sector and understand the nuances of selling to government entities.

8.3 Working with Purchasing Entities

8.3.1 Offeror must describe how it will work with Purchasing Entities before, during, and after a Data Breach, as defined in the Attachments and Exhibits. Include information such as:

- Personnel who will be involved at various stages, include detail on how the Contract Manager in Section 7 will be involved;
- Response times;
- Processes and timelines;
- Methods of communication and assistance; and
- Other information vital to understanding the service you provide.

Security is of the utmost importance to all of the Service providers that Carahsoft is submitting. Should an actual breach occur, it is the first priority of Carahsoft and the service provider to identify the source of the breach and implement safe guards to prevent one from happening in the future. The Service Provider will promptly notify the Purchasing Entity of the incident. Notification of the breach will be provided by the service directly to the security or customer contact that is identified by the Purchasing Entity. Methods of communication could include phone or email notification.

8.3.2 Offeror must describe how it will not engage in nor permit its agents to push adware, software, or marketing not explicitly authorized by the Participating Entity or the Master Agreement.

Carahsoft ensures that no unwanted marketing efforts are made to customers through an easy to manage opt out system in our database. Carahsoft can also limit communications by vendor to ensure that only those vendors approved by the customer reach out with marketing materials or product updates. Carahsoft will never support or assist in the pushing of adware or unwanted software to participating customers.

8.3.3 Offeror must describe whether its application-hosting environments support a user test/staging environment that is identical to production.

For applicable cloud offerings, user test/ staging environments are available that are identical to real-time production environments.

8.3.4 Offeror must describe whether or not its computer applications and Web sites are accessible to people with disabilities, and must comply with Participating entity accessibility policies and the Americans with Disability Act, as applicable.

The user interfaces provided for within this proposal are accessible to people with disabilities using assistive technologies.

8.3.5 Offeror must describe whether or not its applications and content delivered through Web browsers are accessible using current released versions of multiple browser platforms (such as Internet Explorer, Firefox, Chrome, and Safari) at minimum.

All cloud solution offerings within this proposal that are delivered via web browsers are accessible using current releases of common internet browsers such as Internet Explorer, Firefox, Chrome, Safari, and more.

8.3.6 Offeror must describe how it will, prior to the execution of a Service Level Agreement, meet with the Purchasing Entity and cooperate and hold a meeting to determine whether any sensitive or personal information will be stored or used by the Offeror that is subject to any law, rule or regulation providing for specific compliance obligations.

Upon request of the customer, Carahsoft can host meetings via Adobe Connect web conferencing software or travel in person if the need presents itself. Carahsoft is happy to support and comply with any regulations or sensitive data compliance needs that the customer identifies. Carahsoft has the ability to limit customer information to a secure and isolated database if needed.

8.3.7 Offeror must describe any project schedule plans or work plans that Offerors use in implementing their Solutions with customers. Offerors should include timelines for developing, testing, and implementing Solutions for customers.

Project scheduling and work planning documents are developed in conjunction with customer requirements. Project planning activities are conducted with a focus on developing a statement of work that defines deliverables, customer and contractor areas of responsibility, as well as project benchmarks, and deadlines. Project complexity and customer requirements determine the overall timelines for development, testing, and solution implementation.

8.4 Customer Service

8.4.1 Offeror must describe how it ensure excellent customer service is provided to Purchasing Entities. Include:

- Quality assurance measures;
- Escalation plan for addressing problems and/or complaints; and
- Service Level Agreement (SLA).

The core of Carahsoft's business is to provide the best customer service to our government customers and vendor partners. We are an IT solutions provider delivering best-of-breed hardware, software, and support solutions to federal, state and local government agencies since 2004. Carahsoft has built a reputation as a customer-centric real-time organization with unparalleled experience and depth in government sales, marketing, and contract program management. This experience has enabled Carahsoft to achieve the top spot in leading software license GSA resellers. Carahsoft has leveraged its vast contracting experience and extended it to quoting and order management. Carahsoft seamlessly generates quotes within 30 minutes or less and processed over 56,000 orders in 2014 that were each completed the same day received. Over the past ten years Carahsoft has acquired and maintained a wide variety of purchasing contract vehicles for agencies at the state, local, and federal levels. Associated with all contracts are dedicated and experienced contract management resources. Quality and accuracy is the driving factor behind Carahsoft's success in the government market. All solutions proposals and price quotes that are sent to our customers go through a three step review process for quality. The first is a pricing review that is automatically run against the pricing database to ensure pricing accuracy for the proper contract. The second review is at the certified Account Representative level who will check pricing and configurations for accuracy and also review any SOWs that are included. Finally, management review confirms the quality and accuracy of the proposal that will be sent to the Purchasing Entity. Carahsoft has instituted an escalation procedure for any problems or complaints that may arise. There are four levels of escalation and include review by the Account Representative assigned to the

Purchasing Entity, followed by the Regional Manager of the territory, next to the Vice President of State and Local and finally to the President/CEO. Each stage of escalation shall have a response SLA of no more than 24 hours.

8.4.2 Offeror must describe its ability to comply with the following customer service requirements:

- a. You must have one lead representative for each entity that executes a Participating Addendum. Contact information shall be kept current.
- b. Customer Service Representative(s) must be available by phone or email at a minimum, from 7AM to 6PM on Monday through Sunday for the applicable time zones.
- c. Customer Service Representative will respond to inquiries within one business day.
- d. You must provide design services for the applicable categories.
- e. You must provide Installation Services for the applicable categories.

Carahsoft confirms and agrees that we will name a lead representative for each Participating Addendum. The contact information will be listed on the Carahsoft website and kept current. Carahsoft confirms it will have a representative available by phone and email available 7am-6pm on Monday through Sunday in the applicable time zones. Carahsoft confirms that it will respond to all inquiries within one business day or sooner. Carahsoft will engage with our service providers to provide design services in the applicable categories Carahsoft will engage with our service providers to provide installation services in the applicable categories.

8.5 Security of Information

8.5.1 Offeror must describe the measures it takes to protect data. Include a description of the method by which you will hold, protect, and dispose of data following completion of any contract services.

Security is of the utmost importance to Carahsoft and our service providers. As an example of our Service Provider's security standards, please see the government security response for Salesforce: Government Trusted Security and Infrastructure

Salesforce understands that the confidentiality, integrity, and availability of our customers' information are vital to their business operations and our own success. We use a multi-layered approach to protect that key information, constantly monitoring and improving our application, systems, and processes to meet the growing demands and challenges of security.

Independent audits confirm that our security goes far beyond what most companies have been able to achieve on their own. Using the latest firewall protection, intrusion detection systems, and TLS encryption, Salesforce Force.com gives you the peace of mind only a world-class security infrastructure can provide.

Third-party validation

Security is a multidimensional business imperative that demands consideration at multiple levels, from security for applications to physical facilities and network security. In addition to the latest technologies, world-class security requires ongoing adherence to best-practice policies. To ensure this adherence, we continually seek relevant third-party certification, including ISO 27001, the SysTrust audit (the recognized standard for system security), and SSAE 16 SOC 1 audit (an examination and assessment of internal corporate controls, previously known as SAS 70 Type II). SOC1, SOC2 and SOC3 audits are performed by third party auditor annually at a minimum. Additional audits and certifications include: CSA 'Consensus Assessments Initiative', JIPDC (Japan Privacy Seal), Tuv (Germany Privacy Mark), and TRUSTe.

Protection at the application level

Salesforce protects customer data by ensuring that only authorized users can access it. Administrators assign data security rules that determine which data users can access. Sharing models define company-wide defaults and data access based on a role hierarchy. All data is encrypted in transfer. All access is governed by strict password security policies. All passwords are stored in SHA 256 one-way hash format. Applications are continually monitored for security violation attempts.

Protection at the facilities level

Salesforce security standards are stringent and designed with demanding customers in mind, including the world's most security-conscious financial institutions. Authorized personnel must pass through five levels of biometric scanning to reach the Salesforce system cages. All buildings are completely anonymous, with bullet-resistant exterior walls and embassy-grade concrete posts and planters around the perimeter. All exterior entrances feature silent alarm systems that notify law enforcement in the event of suspicion or intrusion. Data is backed up to disk or tape. These backups provide a second level of physical protection. Neither disks nor tapes ever leave the data center.

Protection at the network level

Multilevel security products from leading security vendors and proven security practices ensure network security. To prevent malicious attacks through unmonitored ports, external firewalls allow only http and https traffic on ports 80 and 443, along with ICMP traffic. Switches ensure that the network complies with the RFC 1918 standard, and address translation technologies further enhance network security. IDS sensors protect all network segments. Internal software systems are protected by two-factor authentication, along with the extensive use of technology that controls points of entry. All networks are certified through third-party vulnerability assessment programs.

Trust.salesforce.com is the Salesforce community's home for real-time information on system performance and security. On this site you'll find:

- Live and historical data on system performance
- Up-to-the minute information on planned maintenance
- Phishing, malicious software, and social engineering threats
- Best security practices for your organization
- Information on how we safeguard your data

8.5.2 Offeror must describe how it intends to comply with all applicable laws and related to data privacy and security.

Carahsoft is happy to support and comply with any regulations or sensitive data compliance needs that the customer identifies. Carahsoft has the ability to limit customer information to a secure and isolated database if needed. Under no circumstances will Carahsoft ever publish or release secure customer data. Carahsoft's cloud vendors are all FIPS certified or have equivalent security standards in place to ensure no customer data is released outside of the secure cloud.

8.5.3 Offeror must describe how it will not access a Purchasing Entity's user accounts or data, except in the course of data center operations, response to service or technical issues, as required by the express terms of the Master Agreement, the applicable Participating Addendum, and/or the applicable Service Level Agreement.

Carahsoft will use customer accounts and data only in the processing of an order and management of the customer's service entitlements. Carahsoft's vendors, as outlined in their specific Master Agreements, only use customer account data for the express purpose of providing the service to the customer. Included in that service is implementation, technical support, and training efforts. Under no circumstances will Carahsoft or its cloud partners use customer information outside of normal operating procedures.

8.6 Privacy and Security

8.6.1 Offeror must describe its commitment for its Solutions to comply with NIST, as defined in NIST Special Publication 800-145, and any other relevant industry standards, as it relates to the Scope of Services described in Attachment D, including supporting the different types of data that you may receive.

CA	APM	CA technologies understands that security is a top concern when evaluating cloud-based applications, which is why CA technologies operations worldwide conform to rigorous certification, compliance and security programs and processes. In addition, we contract with independent auditors to regularly evaluate and validate the security of our service. High risks are identified, validated and remediated before production systems are made available. Medium risks are evaluated and resolved on a priority basis.
	MAA	
	CA Agile	We use CIS and NIST standards as baselines for hardening our systems. We are currently working towards a NIST 800-53r4 certification however this is not yet complete. We are continuously reviewing our compliance with these standards. We perform monthly scans against our Production Infrastructure based on CIS standards. We scan for both vulnerabilities and compliance best practices based on NIST 800-53v4 standards. Vulnerabilities are tracked and remediated based on severity and risk.
	ASM	Please see our response to APM/MAA
Google	Google's currently maintains a FedRAMP Authorization to Operate. FedRAMP incorporates the relevant NIST SP and FIPS security requirements. Further, Google contractually commits to maintaining SOC2 and ISO27001 certifications.	
AODocs	AODocs is committed to comply SOC2 type 2.	
Virtru	Virtru's business depends on its ability to support healthcare and criminal justice markets, which requires us to maintain compliance with HIPAA and CJIS standards which both make extensive use of NIST standards	
Salesforce	On May 23, 2014 Salesforce achieved a FedRAMP Agency Authority to Operate at the moderate impact level (as described in FIPS 199 and 200) issued by Health and Human Services (HHS) for the Salesforce Government Cloud. Additionally, on May 15, 2015, HHS, as the FedRAMP authorizing agency, approved the Salesforce Government Cloud authorization package that was updated based on annual attestation requirements and updates to the FedRAMP baseline which is FISMA compliant and based on the current release of NIST SP 800-53 Rev. 4. Salesforce provides contractual assurance to its customers that the Customer Data hosted in Salesforce's services will be kept confidential and not accessed by third parties except under narrow circumstances (such as a customer support issue or as required by law). In the case of customer support, the company's personnel will access a customer's Org only with prior approval and subject to confidentiality obligations.	
ServiceNow	ServiceNow is a cloud service provider offering a SaaS solution deployed from a private cloud that meets the five essential characteristics of cloud computing as described in 8.1. ServiceNow applies the same data classification for all hosted customer data. ServiceNow does not inspect or monitor its customers' information and therefore has no ability to sub-classify	

	customer data. The overriding requirement of the assigned classification is that customer data remains hosted in the private cloud until the customer terminates their subscription. It is never stored anywhere apart from the private cloud. Customers remain the data owner and data controller for all data placed into their instance. ServiceNow does not examine, inspect, monitor or analyze customers' data. Customers apply access controls to restrict access to data within their instances based on their own requirements and needs, including their own data classification.	
QTS	QTS understands the growing number of requirements along with the complexity of managing the high cost-risk if you are not in compliance, and makes compliance a top priority. Our dedicated QTS Internal Audit team is focused on helping you define controls and processes to meet your ever-expanding compliance requirements. We are steadfast in protecting your data with the commitment to allocate required resources, technology and controls to not only help you achieve and maintain compliance today, but to expertly support your needs as they inevitably grow and change in the future. QTS tackles compliance differently. We provide a flexible, integrated approach to meet the IT compliance and regulatory needs across a wide variety of industries – from Payment Card Industry Data Security Standard (PCI DSS) and the Health Insurance Portability and Accountability Act (HIPAA) to U.S.–EU Safe Harbor. Our approach reduces the complexity and workload to effectively support their compliance efforts.	
SAP	Ariba	Our security framework, which consists of semi-annual independent third party AICPA audit under the Trusted Services Principles of security, confidentiality, process integrity and availability as well as annual certification by an independent Qualified Security Assessor for PCI DSS, is highly aligned with the NIST controls. Our security framework and cloud services are designed to receive process and store data sets of a commercial business-to-business nature and are multi-tenant and international in scope. FISMA/NIST is designed to protect US government data that can include classified information as well as sensitive PII such as ePHI and SSN's or government identifiers. We practice data avoidance where these data sets are concerned primarily to reduce the risk to us and to our customers but also to avoid additional regulatory compliance which has onerous reporting and high costs which would have to be passed on to our customers. Where FISMA regulated entities can take advantage of our solutions, the data sets they expect to store must be validated to avoid being under regulatory requirements beyond what we can provide in terms of both security as well as reporting.
	Fieldglass	Fieldglass has based its security program on the ISO 27002 security standard and has maintained its ISO 27001 certification since February 2011. However, to ensure that a robust security framework was developed, additional controls were added and/or modified based on COBIT DS5 Ensure Systems Security, specific NIST special publications, and vendor specified best practices. Fieldglass uses a SSAE 16 audit with a twelve-month audit cycle to validate that the controls defined within the security framework are operating effectively.
	Hanna	SAP will show the compliance with the SAP Cloud Security Framework by the compliance audits and/or certification audits only as it pertains to the HANA Enterprise Cloud. SAP Cloud and Infrastructure Delivery's Security, Risk & Compliance Office has developed the Integrated

		Information Security Management System (IISMS) Framework. The IISMS Framework is based on SAP's corporate quality and security policy as well as the corporate security standards and guidelines relating to information security and business continuity. This IISMS Framework was adapted to SAP Cloud Security Services as SAP Cloud Security Framework (Cloud SFW). SAP's security, process and compliance team conducts technical security audits to validate that security concepts have been implemented successfully and to safeguard the usage of newly developed tools. Compliance Audits Cloud solutions from SAP have passed ISAE3402/SSAE16-SOC 1 Type II and/or SOC 2 Type II audits (in the following referred to as SOC audits) and can provide the related audit reports on request. Certification Audits The SAP HANA Enterprise Cloud has attained certifications according to the following ISO standards are available (related audits are in the following referred to as ISO audits): • ISO 27001:2013 • ISO 22301:2012 • ISO 9001:2008
	SuccessFactors	Our IT architecture is aligned with ISO 27002. We are Safe Harbor certified and in alignment with BS10012 and ISO 20000 for Service Delivery. We demonstrate an on-going commitment to protecting the confidentiality, integrity and availability ("CIA") of data from internal and external threats, making us a reliable and secure system provider. Our secure multi-tenant Software as a Service (SaaS) platform is designed for availability, security, scalability, and performance. Industry best practices and standards are adopted and incorporated. Our Network also complies with the Authority to Operate as a Moderate Risk Federal Information System by the Office of Personnel Management and Department of Homeland Security; NIST SP800-53 Security Controls; EU Privacy Directive 95/46/EC for EU and non-EU customer data; Payment Card Industry (PCI) Data Security Standard (DSS) v 2.0; Safe Harbor. We provide privacy compliant data center facilities not only in the United States but also as a Member State of the European Union (EU) or a state of the European Economic Area (EEA). Currently, such data centers are certified for ISO27001, ISO9001 and PCI-DSS compliance. Our security services provide complete and thorough monitoring of all traffic on the network on a 24x7x365 basis, and include security technology, alert services and incident management support. We are audited twice annually to SSAE16 (US) or ISAE 3402 (international) accounting standards.
VMware		VMware is fully committed to complying with NIST and all other relevant industry standards including FedRAMP, FISMA, PCI, CSA CAIQ, etc. This is demonstrated by VMware's track record of pursuing and obtaining certifications such as those listed above. vCloud Government Service has been certified to store and secure Low Risk Level and Moderate Risk Level data as defined by FIPS PUB 199. In addition, VMware is capable of enhancing the vCloud Government Service to meet participating State's requirements to be able to store data that is defined by FIPS Pub 199 as High Risk Data. VMware is committed to maintaining compliance with all of our existing and future compliance certifications. Our ability to remain competitive as a software and services provider in the public sector depends upon it. Thus we have established a comprehensive security and compliance team to ensure that we maintain compliance as well as a strong security posture.

	VMWare supports regular internal and external audits to ensure compliance with its certifications as required. The AirWatch Information Security Program is built on the security framework laid out in NIST 800-53. Although AirWatch is not required to register with any regulatory agencies, we provide a suite of tools for our customer's to maintain industry-relevant compliance guidelines within their mobile device fleets. AirWatch has recently been awarded the HP-IAPP Privacy Innovation Award for Most Innovative Privacy Technology by the International Association of Privacy Professionals (IAPP) for our commitment to delivering an EMM platform focused on end-user privacy. To help ensure the confidentiality, integrity, and availability of our cloud offering, we comply with the European Data Protection Directive (95/46/EC) and our top-tier data center partners have undergone SSAE16 SOC2 Type II audits and have ISO 27001 certifications.
FireEye	FireEye has mature and well documented security and privacy programs. The programs include third party certifications for SSAE 16 SOC 2, FedRAMP certifications, Model clauses, Privacy and security standards among others. The data that FireEye receives is only in conjunction with the malware analysis.
VirtueStream	The Virtustream Federal Cloud (IaaS) has met the requirements for a FedRAMP moderate P-ATO. The IaaS is assessed annually by a FedRAMP certified 3rd Party Assessment Organization (3PAO). The annual assessment will review a subset of the NIST 800-53 Revision 4 controls as designated by FedRAMP. Virtustream's 3PAO shall demonstrate impartiality throughout the assessment to accurately assess the status of all security controls in place.

8.6.2 Offeror must list all government or standards organization security certifications it currently holds that apply specifically to the Offeror's proposal, as well as those in process at time of response. Specifically include HIPAA, FERPA, CJIS Security Policy, PCI Data Security Standards (DSS), IRS Publication 1075, FISMA, NIST 800-53, NIST SP 800-171, and FIPS 200 if they apply.

CA	APM	AWS EC2 datacenters annually undergo SOC 3 audits. The application currently does not hold a Soc 2 attestation.
	MAA	CA MAA is certified for SOC 2 Type 1 Security Audit.
	CA Agile	Our data center provider has a SOC 2 audit report that can be provided upon request. Our application does not currently have such certifications.
	ASM	Rackspace datacenters annually undergo various certification including SOC 3 audits. The application currently does not hold a Soc 2 attestation.
Google	Google has a FedRAMP ATO at the Moderate impact baseline. FedRAMP incorporates many NIST SPs and FIPS including 800-53, FIPS 199, FIPS 200), and has a specific offering. Google Apps for Education that is FERPA and COPPA compliant. Other compliance standards such as HIPAA and CJIS don't offer certification per se, but are commonly accommodated (i.e. Google will sign a BAA to meet HiTECH/HIPAA requirements, and has numerous customers who bear responsibility for meeting CJI processing requirements). PCI DSS is generally not applicable to SaaS systems (though we can do email hygiene processing to protect against incidental usage), but Google IaaS/PaaS does meet PCI DSS v3 standards. Google also holds and is committed to maintaining SOC2 and ISO27001 certifications.	
AODocs	AODocs doesn't hold an HIPAA certifications per se, but are commonly accommodated to meet HIPAA requirements signing a BAA.	
Virtru	HIPAA, FERPA, CJIS, NIST 800-53, NIST SP-800	
Salesforce	Salesforce and the Salesforce Force platform is ISO 27001 certified and PCI-DSS compliant. SOC1, SOC2 and SOC3 audits are performed by third party auditor annually at a minimum. Additional audits and certifications include:	

	FedRAMP Authority to Operate from Department of Health and Human Services CSA 'Consensus Assessments Initiative' JIPDC (Japan Privacy Seal) Tuv (Germany Privacy Mark) TRUSTe HIPAA In provisioning and operating the services, Salesforce complies with the provisions of HIPAA's Privacy Rule and Security and the HITECH Act that are applicable to business associates. Salesforce's customers are still responsible for complying with the same in their capacity as a covered entity or business associate using the Salesforce services. The services' features permit customers to customize use as per a compliance program for HIPAA (including the HITECH Act) and many customers store protected health information (PHI) on our service. From a legal standpoint, some of our customers have asked Salesforce to assist them in meeting their compliance obligations; for example, by entering into business associate agreements (BAA) to address formal legal requirements pertaining to use and disclosure of protected health information (PHI). FERPA Salesforce maintains appropriate administrative, physical, and technical safeguards to help protect the security, confidentiality, and integrity of data our customers submit to the Salesforce Services as Customer Data. Salesforce's customers are responsible for ensuring the security of their Customer Data in their use of the service and implementing any necessary customer-controlled settings. To aid, Salesforce offers robust security functionality that provides our customers the flexibility to use the application in a configuration that furthers compliance with local data protection laws and regulations. While Salesforce complies with applicable law in provisioning and operating the Salesforce services, it is the sole responsibility of Salesforce's customers to ensure compliance with applicable laws in their respective uses of the Salesforce services. PCI-DSS Salesforce is PCI Level 1 compliant and has received a signed Attestation of Compliance (AoC) for the Payment Card Industry Data Security Standard (PCI-DSS). Salesforce customers who must adhere to PCI compliance may store personal account numbers ("PAN" or "credit card numbers") in Salesforce, with the following caveats: - PANs may only be stored in a custom field encrypted via Classic Encryption or supported field types via the Platform Encryption functionality. PANs must not be stored in clear text fields, attached files, or any other location. - Customer administrators must configure Salesforce features to support their organization's PCI controls. NIST SP 800-171 NIST Special Publication 800-171 is intended for use by federal agencies when agencies are providing CUI to nonfederal organizations (or when CUI is developed by those organizations for federal agencies) for purposes unrelated to information processing. In other words, the nonfederal organizations are not operating their information systems to process agency data, including CUI, on behalf of the agency but rather for other purposes (e.g., when designing or producing an aircraft, performing a study, or conducting background investigations for security clearances). Salesforce recommends that its customers use the classifications as detailed in FIPS 199. FIPS 140-2, FIPS 197, FIPS 199, and FIPS 200 On May 23, 2014 Salesforce achieved a FedRAMP Agency Authority to Operate at the moderate impact level (as described in FIPS 199 and 200) issued by Health and Human Services (HHS) for the Salesforce Government Cloud. Additionally, on May 15, 2015, HHS, as the FedRAMP authorizing agency, approved the Salesforce Government Cloud authorization package that was updated based on annual attestation requirements and updates to the FedRAMP baseline which is FISMA compliant and based on the current release of NIST SP 800-53 Rev. 4.
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	As part of the Salesforce Government Cloud, Salesforce is capable of responding to FIPS 140-2/3 cryptographic implementations for data being transferred between the customer's web browser and Salesforce. Data that resides within Salesforce's protected boundary does not use FIPS 140-2 validated encryption as compensating/mitigating controls are in place to protect data. Additional information is provided below. Data Transmission between the customer's web browser and Salesforce: Salesforce employs cryptographic mechanisms to protect information during transmission. All transmissions between the user and Salesforce are encrypted by default with a 2048-bit Public Key. Our service uses International/Global Step Up certificates. We support one-way TLS, in which customers create secure connections before sharing private data. Secure routing and traffic flow policies ensure that customer traffic is encrypted entering Salesforce until the load balancer decrypts the traffic. The load balancers decrypting the traffic are FIPS 140-2 compliant and are located inside of the Salesforce Government Cloud isolation boundary. Data Transmission for Backup Media: Media containing customer data is not transported outside of controlled salesforce.com areas and therefore relies on physical access controls to protect the data. Data at Rest: NIST 800-53 Rev. 3 states in SC-28, "Information at rest refers to the state of information when it is located on a secondary storage device (e.g., disk drive, tape drive) within an organizational information system." SC-28 also states, "Organizations may choose to employ different mechanisms to achieve confidentiality and integrity protections, as appropriate." All secondary storage media (hard drives, disk drives, and tapes) containing customer data are maintained within Salesforce's secure production data centers until the media has been sanitized and destroyed. Salesforce relies on physical access controls as a compensating control to protect the data. Primary Data Storage: User passwords are stored in the RDBMS encrypted via the SHA algorithm with a 256-bit hash. This is a one way hash. The passwords are encrypted by the application. For primary data storage, Salesforce provides customers with a built-in capability to apply field-level encryption, using 128-bit keys with Advanced Encryption Standard (AES) encryption (as defined by FIPS 197), for a selection of custom fields included in the Salesforce Platform and CRM applications. Field-level encryption ensures the data associated with designated fields is encrypted in storage.
ServiceNow	ServiceNow's security policy is based on ISO27001:2013 and has been since 2012. ServiceNow also has annual SSAE 16 SOC 1 Type 2 and SOC2 Type 2 attestations with controls being based off NIST 800-53. The ServiceNow Service Automation Government Cloud Suite is a FedRAMP Compliant Cloud System with a JAB Provisional Authorization. This cloud offering has regulatory restrictions to the types of tenants that can use it. ServiceNow's FedRAMP compliant and standard commercial datacenter environments are virtually identical. The differences that do exist, such as only allowing access to specially adjudicated US citizens, exist for regulatory reasons not because the environment is superior in some way.
QTS	QTS assists with mapping between DOD IT RMF/DIACAP and NIST as well as International Standards Organization (ISO) standards and many others. QTS maintains control mappings that include: • NIST 800-53/FedRAMP (Low/Moderate/High)

		• DOD IT RMF/DIACAP (MAC I/II/III Sensitive & Public) • HIPAA-HITECH-Omnibus • PCI-DSS • ISO/NATO • CNSS/ICD/DCID/NISPOM
SAP	Ariba	We are audited and certified by independent third-party auditor PricewaterhouseCoopers (PwC) for compliance with ISAE 3402 SOC1 Type II, SOC2 and SOC3 every six months. Upon completion of the audit, an attestation letter is issued, stating our compliance. In addition, our primary hosting facility (Equinix) infrastructure is audited for compliance with SSAE 16 SOC1 Type II. The Service Organization Controls report (SOC) is aimed at three different audiences. SOC1 (aimed at financial auditors) is the same type of report as the SAS70 but also includes an attestation letter signed by both our company and the auditor. SOC2 is aimed at IT and security practitioners. The SOC3 is the publicly viewable web seal to show that we have been audited. In addition, we have attained PCI (Payment Card Industry) - DSS (Data Security Standard) certification as a Level 1 Service Provider and compliance with the Visa USA Cardholder Information Security Program (CISP) and MasterCard Site Data Protection (SDP) program. These programs were created specifically for merchants and service providers who process, store, or transmit cardholder data. The PCI DSS is a set of comprehensive requirements for enhancing payment account data security which was developed by the founding payment brands of the PCI Security Standards Council, including American Express, Discover Financial Services, JCB International, MasterCard Worldwide and Visa Inc. It was developed to help facilitate the broad adoption of consistent data security measures on a global basis. The PCI DSS is a multifaceted security standard that includes requirements for security management, policies, procedures, network architecture, software design, and other critical protective measures. This comprehensive standard is intended to help organizations proactively protect customer account data. CISP and SDP reflect Visa's and MasterCard's respective longstanding commitment to information security.
	Fieldglass	SAP Fieldglass has achieved the following certifications: • ISO 27001 • SSAE 16 SOC 1 and SOC 2 HIPPA Fieldglass does not store Protected Health Information (PHI) on its system and is not required to comply with the Health Insurance Portability and Accountability Act. PCI The Fieldglass application does not process credit card information. We are not (and are not required to be) PCI compliant.
	Hanna	Please see response to 8.6.1
	Hybris	The Savvis datacenter located in Boston, MA is SSAE16 Type II SOC I Compliant. This replaces the older SAS70 Type II audit standard.
	SuccessFactors	We have been audited to the SOC 2 Trust Services Criteria. This signifies that our control objectives and control activities have been examined by an independent accounting and auditing firm, and that these controls fairly presented the controls in operation as of a specific date and were suitably designed to achieve the control objectives. Our SOC 2 audits are conducted semi-annually (May, November) by PricewaterhouseCoopers (PwC). We also hold US Federal FISMA Moderate

	Authority to Operate with both OPM and NTIS. We are compliant with EU Privacy Directive 95/46/EC and are Safe Harbor self-certified. https://safeharbor.export.gov/companyinfo.aspx?id=26196We are aligned with ISO 27001 for Information Security, BS 10012 for Data Protection, and ISO 20000 for Service Delivery to create an Integrated Compliance Framework ("ICF"). Where these standards overlap in subject matter, Information Security ISO 27001 takes precedence. Our Network also complies with Authority to Operate as a Moderate Risk Federal Information System by the Office of Personnel Management and Department of Homeland Security; NIST SP800-53 Security Controls; EU Privacy Directive 95/46/EC for EU and non-EU customer data; Payment Card Industry (PCI) Data Security Standard (DSS) v 2.0; Safe Harbor. We are aligned with ISO 27001 for Information Security, BS 10012 for Data Protection, and ISO 20000 for Service Delivery to create an Integrated Compliance Framework ("ICF"). Where these standards overlap in subject matter, Information Security ISO 27001 takes precedence. Our Network also complies with Authority to Operate as a Moderate Risk Federal Information System by the Office of Personnel Management and Department of Homeland Security; NIST SP800-53 Security Controls; EU Privacy Directive 95/46/EC for EU and non-EU customer data; Payment Card Industry (PCI) Data Security Standard (DSS) v 2.0; Safe Harbor.
VMware	VMware IaaS Services ISO/IEC 27001: ISO/IEC 27001 is a globally recognized standard for the establishment and certification of an information security management system (ISMS). vCloud Air continues to maintain a current ISO/IEC 27001 Certification and has recently issued updated certification for ISO/IEC 27001:2013. Achieving certification means that VMware has implemented a holistic security program that conforms with the ISO 27001 standard requirements, both in the security management system and control activities. The audit of the ISMS was completed by Brightline CPAs and Associates - an ANAB accredited certification body. HIPAA: The Health Insurance Portability and Accountability Act of 1996(HIPAA), which has incorporated requirements from the Health Information Technology for Economic and Clinical Health Act (HITECH) of 2009, established national standards for the security and privacy of Protected Health Information (PHI) in the United States. To help customers comply with HIPAA, VMware offers a Business Associate Agreement (BAA) to all interested customers using our US-based data centers. The BAA was designed in conjunction with a leading law firm with expertise in HIPAA and provides fair and reasonable terms for healthcare providers, insurers, and other organizations. VMware has completed an independent third party examination of vCloud Air against applicable controls of HIPAA. SOC 1 (SSAE16/ISAE 3402): Service Organization Control (SOC) 1 reports are conducted in accordance with Statement on Standards for Attestation Engagements (SSAE) No. 16 put forth by the Auditing Standards Board (ASB) of the American Institute of Certified Public Accountants (AICPS). The SOC 1 framework reports on internal controls over financial reporting for any service organization such as VMware vCloud Air. SOC 1 aligns to the International Standard on Assurance Engagements (ISAE) 3402 international reporting standards. SOC 1 examinations are specifically intended to meet the needs of the managements of vCloud Air's customers and vCloud Air's customers' auditors, as they evaluate the effect of the controls at vCloud Air on the clients' financial statement assertions. VMware has completed an independent third-party examination of vCloud Air which spans a twelve (12) month review period. SOC 2: The Service Organization Control 2 (SOC 2) report is composed of a comprehensive set of criteria on security, availability, processing integrity, confidentiality, and privacy and is similarly set forth by the America Institute of Certified Public Accountants (AICPA). The SOC 2 reports are

	intended for use by stakeholders (e.g. customers, regulators, business partners, suppliers, directors) of the service organization that have a thorough understanding of the service organization and its internal controls. VMware has completed an independent third-party examination of vCloud Air that also spans a twelve (12) month review period. SOC 3: Trust Services Report for Service Organizations Control 3 (SOC 3) reports are designed to meet the needs of customers who want assurance on the controls at a service organization related to security, availability, processing integrity, confidentiality, or privacy. vCloud Air has completed an independent third-party SOC 3 examination of VMware vCloud Air. SOC 3 is composed of a comprehensive set of trust principles including security, availability, processing integrity, confidentiality and privacy. Cloud Security Alliance: VMware vCloud Air has completed the Cloud Security Alliance (CSA) Consensus Assessments Initiative Questionnaire (CAIQ). CAIQ provides industry-accepted ways to document what security controls exist in IaaS, PaaS and SaaS offerings. FedRAMP Provisional Authority: VMware vCloud Government Service, provided by Carpathian, now has FedRAMP Provisional Authority to Operate issued by the Joint Authorization Board (JAB). FedRAMP is a government-wide program that provides a standardized approach to security assessment, authorization, and continuous monitoring for cloud products and services. This approach uses a "do once, use many times" framework that can reduce government organizations' costs, time, and staff required to conduct redundant agency security assessments. U.S. government agencies can now leverage vCloud Government Service to meet the stringent security and privacy requirements of FedRAMP. FIPS 140-2: VMware vCloud Government Service is fully FIPS 140-2 compliant including hardware which provides its 2-Factor Authentication capabilities. FIPS Pub 199: As discussed previously, vCloud Government Services is certified to store and secure Low Risk Data and Moderate Risk Data as defined by FIPS Pub 199. VMware is willing to work with participating States that require High Risk Data Storage to enhance vCloud Government Services to store and secure this data. FIPS Pub 199: As discussed previously, vCloud Government Services is certified to store and secure Low Risk Data and Moderate Risk Data as defined by FIPS Pub 199. VMware is willing to work with participating States that require High Risk Data Storage to enhance vCloud Government Services to store and secure this data. CJIS: vCGS recently underwent a CJIS assessment by CoalFire, Inc. CJIS is not a certification, it is a policy that must be followed and accredited for each deployment which requires it. The goal of VMware's CoalFire assessment was to create a baseline configuration that can be reused across any CJIS opportunity to accelerate the implementation and accreditation timeframes. FERPA: Like CJIS, FERPA compliance is assessed and confirmed for each deployment that requires it. VMware's vCloud Government Service FedRamp certification and others provide evidence that the underlying infrastructure is capable of meeting rigorous information security and availability requirements. VMware will work with Participating Entities to meet FERPA requirements on a task order basis. PCI Data Security Standards (DSS): Neither vCloud Air nor vCGS are currently PCI certified at this time. VMware will work with Participating Entities to meet PCI requirements on a task order basis. IRS Publication 1075: Because both IRS 1075 and FedRAMP are based on NIST 800-53, the compliance boundary for IRS 1075 is the same as the FedRAMP authorization. This, vCGS complies with IRS Publication 1075 on the basis that it is FedRAMP certified. FISMA: vCGS is FISMA Low and Moderate compliant.
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	NIST 800-53: NIST 800-53 provides the core controls that must be met to achieve FedRAMP compliance. VMware vCloud Government Service has FedRAMP Provisional Authority to Operate issued by the Joint Authorization Board (JAB), thus we are compliant with NIST 800-53. NIST SP 800-171: VMware vCloud Government Service has FedRAMP Provisional Authority to Operate issued by the Joint Authorization Board (JAB). NIST 800-171 outlines a subset of the NIST 800-53 requirements, and as stated above, VMware vCloud Government Service is compliant with these guidelines. Since NIST 800-171 outlines a subset of the NIST 800-53 requirements, VMware vCloud Government Service is compliant with NIST SP 800-171. FIPS 200: Neither vCloud Air nor vCGS are currently FIPS 200 certified at this time. VMware will work with Participating Entities to meet PCI requirements on a task order basis. VMWare AirWatch The AirWatch Information Security Program is built on the security framework laid out in NIST 800-53. Although AirWatch is not required to register with any regulatory agencies, we provide a suite of tools for our customer's to maintain industry-relevant compliance guidelines within their mobile device fleets. AirWatch has recently been awarded the HP-IAPP Privacy Innovation Award for Most Innovative Privacy Technology by the International Association of Privacy Professionals (IAPP) for our commitment to delivering an EMM platform focused on end-user privacy. To help ensure the confidentiality, integrity, and availability of our cloud offering, we comply with the European Data Protection Directive (95/46/EC) and our top-tier data center partners have undergone SSAE16 SOC2 Type II audits.
FireEye	Currently the standards that apply are SSAE 16 SOC 2 Type 2, with a FedRAMP ATO in place and full FedRAMP certification in process. We are also in the process of becoming FedRAMP ISO 2700x certified.
VirtueStream	Security is the foundation of our business. Virtustream's xStream™ cloud software assists our customers to meet mandatory Legislative requirements, and achieve and maintain SSAE16, ISAE3402, PCI-DSS 3.0, FISMA, ISO 27001-2005/2013, ISO 9001-2008, HIPAA, CSA STAR and other leading cloud certifications and compliance frameworks in the customer's own environment (when coupled with identified operational and management controls).

8.6.3 Offeror must describe its security practices in place to secure data and applications, including threats from outside the service center as well as other customers co-located within the same service center.

CA	APM	CA technologies understands that security is a top concern when evaluating cloud-based applications, which is why CA technologies operations worldwide conform to rigorous certification, compliance and security programs and processes. In addition, we contract with independent auditors to regularly evaluate and validate the security of our service. High risks are identified, validated and remediated before production systems are made available. Medium risks are evaluated and resolved on a priority basis.
	MAA	All MAA core servers are behind firewalls; only systems administrators have access to the servers; all data is encrypted when transmitted between data centers. The MAA dashboard and API are protected with HTTPS/TLS encryption, and users are required to authenticate in order to access these.
	CA Agile	We use a co-located data center provider and within that environment we have a dedicated cage to which only our Operations Team has access. We also monitor all traffic across our systems using HIDS (OSSEC) and NIDS (Snort) to notify of any suspicious activity.
	ASM	All ASM core servers are behind firewalls; only systems administrators have access to the servers; all data is encrypted when transmitted between data centers. The ASM dashboard and API are protected with HTTPS/TLS encryption, and users are required to use a username and password to login to their accounts.

Google	In this DPA the obligations of Google to hold all customer data as confidential and wholly owned by the customer is detailed. Google's internal data access processes and policies are designed to prevent unauthorized persons and/or systems from gaining access to systems used to process personal data. Google aims to design its systems to: (i) only allow authorized persons to access data they are authorized to access; and (ii) ensure that personal data cannot be read, copied, altered or removed without authorization during processing, use and after recording. The systems are designed to detect any inappropriate access. Google employs a centralized access management system to control personnel access to production servers, and only provides access to a limited number of authorized personnel. LDAP, Kerberos and a proprietary system utilizing RSA keys are designed to provide Google with secure and flexible access mechanisms. These mechanisms are designed to grant only approved access rights to site hosts, logs, data and configuration information. Google requires the use of unique user IDs, strong passwords; two factor authentication and carefully monitored access lists to minimize the potential for unauthorized account use. The granting or modification of access rights is based on: the authorized personnel's job responsibilities; job duty requirements necessary to perform authorized tasks; a need to know basis; and must be in accordance with Google's internal data access policies and training. Approvals are managed by workflow tools that maintain audit records of all changes. Access to systems is logged to create an audit trail for accountability. Where passwords are employed for authentication (e.g., login to workstations), password policies that follow at least industry standard practices are implemented. These standards include password expiry, restrictions on password reuse and sufficient password strength. For access to extremely sensitive information (e.g., credit card data), Google uses hardware tokens.
AODocs	AODocs being built in Google AppEngine and Google Drive.
Virtru	Please see the Virtru Security Policies and Procedures and the Virtru Privacy Policies and Procedures provided in the Supplemental Information section of this response.
Salesforce	Government Trusted Security and Infrastructure Salesforce understands that the confidentiality, integrity, and availability of our customers' information are vital to their business operations and our own success. We use a multi-layered approach to protect that key information, constantly monitoring and improving our application, systems, and processes to meet the growing demands and challenges of security. Independent audits confirm that our security goes far beyond what most companies have been able to achieve on their own. Using the latest firewall protection, intrusion detection systems, and TLS encryption, Salesforce Force.com gives you the peace of mind only a world-class security infrastructure can provide. Third-party validation Security is a multidimensional business imperative that demands consideration at multiple levels, from security for applications to physical facilities and network security. In addition to the latest technologies, world-class security requires ongoing adherence to best-practice policies. To ensure this adherence, we continually seek relevant third-party certification, including ISO 27001, the SysTrust audit (the recognized standard for system security), and SSAE 16 SOC 1 audit (an examination and assessment of internal corporate controls, previously known as SAS 70 Type II). SOC1, SOC2 and SOC3 audits are performed by third party auditor annually at a minimum. Additional audits and certifications include: CSA 'Consensus Assessments Initiative', JIPDC (Japan Privacy Seal), Tuv (Germany Privacy Mark), and TRUSTe. Protection at the application level

	Salesforce protects customer data by ensuring that only authorized users can access it. Administrators assign data security rules that determine which data users can access. Sharing models define company-wide defaults and data access based on a role hierarchy. All data is encrypted in transfer. All access is governed by strict password security policies. All passwords are stored in SHA 256 one-way hash format. Applications are continually monitored for security violation attempts. Protection at the facilities level Salesforce security standards are stringent and designed with demanding customers in mind, including the world's most security-conscious financial institutions. Authorized personnel must pass through five levels of biometric scanning to reach the Salesforce system cages. All buildings are completely anonymous, with bullet-resistant exterior walls and embassy-grade concrete posts and planters around the perimeter. All exterior entrances feature silent alarm systems that notify law enforcement in the event of suspicion or intrusion. Data is backed up to disk or tape. These backups provide a second level of physical protection. Neither disks nor tapes ever leave the data center. Protection at the network level Multilevel security products from leading security vendors and proven security practices ensure network security. To prevent malicious attacks through unmonitored ports, external firewalls allow only http and https traffic on ports 80 and 443, along with ICMP traffic. Switches ensure that the network complies with the RFC 1918 standard, and address translation technologies further enhance network security. IDS sensors protect all network segments. Internal software systems are protected by two-factor authentication, along with the extensive use of technology that controls points of entry. All networks are certified through third-party vulnerability assessment programs. Secure Data Centers Data centers provide only power, environmental controls, and physical security. Salesforce employees manage all other aspects of the service at the data centers. Colocation data center personnel do not have network or logon access to the Salesforce systems. Colocation personnel have physical access to the Salesforce secure server room in the event of an emergency, but do not have keys to the individual racks containing hardware. Data centers maintain a common baseline of physical and environmental controls across data centers. The exterior perimeter of each anonymous data center building is bullet resistant, has concrete vehicle barriers, closed-circuit television coverage, alarm systems, and manned 24/7 guard stations that together help defend against non-entrance attack points. Inside each building, multiple biometric scans and guards limit access through interior doors and to the Salesforce secure rooms at all times. Access to Salesforce's secure server rooms in the datacenter is authorized based on position or role. Additional access controls enforced by an electronic key box are implemented for the dedicated Salesforce Government Cloud racks to ensure that access is limited to Qualified U.S. Citizens. Salesforce has an established process to review data center access logs to the server room. Additionally, an at least annual assessment of the data center is performed to ensure the data centers are meeting Salesforce's security control requirements. In addition to securing the data center locations, it is critical that the data center facilities maintain robust critical infrastructure to support Salesforce through the following services:
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	Temperature and Humidity Controls • Humidity and temperature control • Redundant (N+1) cooling system Power • Underground utility power feed • Redundant (N+1) CPS/UPS systems • Redundant power distribution units (PDUs) • Redundant (N+1) diesel generators with on-site diesel fuel storage Secure Network Logistics • Concrete vaults for fiber entry • Redundant internal networks • Network neutral; connects to all major carriers and located near major Internet hubs • High bandwidth capacity Fire Detection and Suppression • VESDA (very early smoke detection apparatus) • Dual-alarmed, dual-interlock, multi-zone, pre-action dry pipe water-based fire suppression
ServiceNow	The ServiceNow cloud is built for the enterprise customer with every aspect aimed towards meeting the customer's demand for reliability, availability and security. ServiceNow's comprehensive approach to address this demand is enabled by the following: (a) ServiceNow's robust cloud infrastructure runs on its own applications and utilizes industry best-of-breed technology to automate mission critical functionalities in the cloud service with around-the-clock and around-the-world delivery; (b) ServiceNow achieves flexibility and control in its ability to deliver a stable user experience to the customer by having a logical single tenant architecture; (c) ServiceNow's application development which has a paramount focus on quality, security, and the user experience is closely connected to the operations of delivering those applications in a reliable and secure cloud environment; (d) ServiceNow invests in a comprehensive compliance strategy that allows its customers to attain their own compliance to applicable laws by obtaining attestations and certifications and running its subscription service from paired data centers situated close to where its customers are located; and (e) ServiceNow's homogeneous environment where all applications are on a single platform offers ServiceNow a competitive advantage in being able to concentrate its efforts to make the customer's user experience the best possible. The "Data Security Guide" contained within the "Subscription Service Guide" included with this response describes the measures ServiceNow takes to protect Customer Data when it resides in the ServiceNow cloud.
QTS	The QTS Information System Security Officer (ISSO) develops, disseminates, annually reviews and updates a formal, documented access control policy; System and Communications Protection and addresses the following: • Purpose and scope • Roles, responsibilities • Compliance QTS develops, disseminates, and annually reviews/updates a formal, documented security policy executive summary, SP Executive Summary - Information System Security Program Policies, which addresses: • management commitment • coordination among customer entities

	QTS cloud's Policies are maintained within a biometric secure office located in the Suwanee facility at 300 Satellite Blvd, Suwanee, GA 30024. It is disseminated to all individuals, including but not limited to employees, contractors, consultants, temporaries, and other personnel affiliated with third parties, who use any QTS Information Resource that is owned or leased by QTS. This policy is consistent with QTS's mission and functions and with applicable laws, directives, policies, regulations, standards, and guidance. The previously mentioned artifacts are disseminated via a centralized secure document repository among all QTS cloud's personnel who have any service operations or service delivery role for QTS cloud's IaaS offerings system environments, and is to be individually or by group reviewed semi-annually, especially by any personnel who have administrative access. QTS can provide its Information Security Policies as required: • IT_POL_03_System_and_Communications_Protection_Policy (v1.2 – 1/17/14)	
SAP	Ariba	We are committed to the security and integrity of customer information. We utilize security measures to protect against the loss, misuse or alteration of the information under our control. To prevent unauthorized access, maintain data accuracy, and facilitate the correct use of information, we have put in place appropriate physical, electronic, and managerial procedures to safeguard and secure the information we collect within the solution.
	Fieldglass	Please see the Fieldglass Security and Hosting Overview provided in the Supplemental Information section of this response.
	Hanna	Communication between data centers is via VPN or MPLS; VPN is encrypted by default and MPLS can be encrypted as well. Internet facing customer systems are protected by perimeter protection systems using technologies such as web application firewall (WAF) or intrusion prevention systems (IPS). Perimeter protection systems operate by monitoring traffic and blocking attacks towards SAP HANA Enterprise Cloud customer systems.
	Hybris	Both IDS and IPS are included the SAP Hybris Commerce, Cloud Edition The security infrastructure includes firewall security and hardened security policies on all servers. Log management procedures are in-place for log review for firewall, applications, network devices, including file-integrity management. SAP Hybris utilizes technologies from leading security firms for Log Management and File Integrity Management. SAP Hybris employs two-factor authentication across its network. SAP Hybris undergoes vulnerability and penetration testing. SAP Hybris validates against requirements for PCI DSS 2.0. The infrastructure also includes Web Application Firewalls and DDoS Mitigation Services. In addition, security policies and change management policies are in-place ensuring that all access and changes to customer systems and information is accessible only by SAP Hybris staff with access authorization. Security of the software application which is controlled by the Customer (or its implementation partner) remains the responsibility of the Customer.
	SuccessFactors	Technologies and measures used to help protect the security of customer data include: Redundant firewalls in a dedicated environment Network intrusion detection to help guard against attacks by monitoring all data center traffic around-the-clock and notifying operations and security teams in the event of an imminent threat Vulnerability scanning to proactively test internet-connected web servers by searching for weaknesses in the same way that a hacker would

	Penetration testing at least annually Security teams monitoring the infrastructure 24x7x365 Any security issues discovered are reported in real time to information security staff and IT management, entered into our ticketing system for follow-up investigation, and tracked to resolution. All actions taken to resolve the problem are documented, allowing all problems to be tracked to completion. We provide application level memory separation between each client instance as well as data level segmentation and separation with each customer's data residing in its own schema and table space at the database tier. The database tier provides isolation and security of data, and the use of application clustering provides availability, reliability and scalability. Each customer's data is maintained in a separate database schema with its own discrete set of tables, facilitating a high degree of data isolation thus preventing potential for data segmentation breaches Flexibility to backup individual customer table spaces without affecting adjacent customers Each schema has separate authentication credentials and assigned resource profile to restrict access rights and resource consumption
VMware	The VMWare Approach to Compliance Many organizations have initiatives to virtualize their Information Technology (IT) infrastructure, or to move to a Cloud Computing model. However, these initiatives are often complicated by the increasing number of regulatory compliance requirements, which require protection of data such as PCI, HIPAA, FISMA, DIACAP, FedRAMP, GLBA, and other State and Federal requirements. Organizations are increasingly concerned with the complexity, risk, and impact that a new technology can bring to their existing environments. VMware addresses these challenges by establishing a Compliance Reference Architecture Framework (RAF) that provides a consistent method for VMware, its partners, and customers to assess and evaluate the impact of regulations on virtual and cloud environments. The intent of the RAF is to provide a single framework for VMware, its partners, and organizations to address a variety of compliance requirements across an IT infrastructure. We designed our security architecture using a defense-in-depth approach to implement multiple layers of security throughout the SaaS environment and to mitigate any potential attacks through multiple safeguards, including: • Access control mechanisms, firewalls, anti-virus/malware software, auditing mechanisms, network controls, maintaining defined configuration settings, etc. We perform regular internal scans to assess the vulnerability of our internal network.
FireEye	All data is stored within locked and monitored cages in secure data centers. Customer data is restricted to a need to know basis. Data is logically tagged and virtually segregated in our cloud services. Access is managed and only given to those with need to know including internal employees and customers.
VirtueStream	All data for this environment will remain in the United States. Customers can elect Intel's TxT technology to demonstrate geo-fencing of data to specific data centers. Virtustream data centers are physically accessible by designated employees and approved employees only. Virtustream employees who are assigned to the data center are issued a proximity card which is required to access the data center. Once inside, physical access to the data processing areas is further restricted to specific employees. Physical access to the data processing areas is protected by biometric locks on the doors. Data center personnel maintain a list of all approved personnel who have access to the data center offices and who have access to the data processing areas. Virtustream offers security solutions which customers can select to protect their data while in transit and at rest. Customers are responsible for the protection of their data within their customer

	zone. Virtustream does not process, store, or disseminate customer data within the Virtustream-controlled management zone. Virtustream invokes a defense-in-depth model for monitoring the management zone with tools such as Splunk, Trend Micro, Fortinet, and Tenable. These tools are available for customers to select as a managed service.
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8.6.4 Offeror must describe its data confidentiality standards and practices that are in place to ensure data confidentiality. This must include not only prevention of exposure to unauthorized personnel, but also managing and reviewing access that administrators have to stored data. Include information on your hardware policies (laptops, mobile etc).

CA	APM	All personnel with access to client data undergo annual, mandatory security training and are covered under the CA Technologies NDA. Violations of security policies are grounds for termination. All access to data and other resources used to deliver the service are granted under the least principle.
	MAA	Customer accounts are password protected, and users can only access their data in their accounts. System administrators have access to MAA servers, and database administrators have access to database servers. Account access is reviewed periodically.
	CA Agile	All customer data is treated as confidential and as a policy we do not access customer data without explicit written consent. Access to systems containing customer data is restricted to our Operations Team according to our Elevated Permissions Policy.
	ASM	Customer accounts are password protected, and users can only access their data in their accounts. System administrators have access to ASM servers, and database administrators have access to database servers. Account access is reviewed periodically. All data on CA laptops are encrypted and a PIN is required to boot.
AODocs	The data stored in Google AppEngine are backed up every day. The application is hosted on Google Cloud Platform infrastructure and benefits from the network security.	
Virtru	See 'Virtru Security Policies and Procedures' and 'Virtru Privacy Policies and Procedures'	
Salesforce	Logical Access Control Salesforce provides contractual assurance to its customers that the data hosted in the Salesforce Services will be kept confidential and not accessed except under narrow circumstances (such as a support issue) and only for a set amount of time chosen by customer. In such circumstances, we will access your org only with prior approval and subject to a Non-Disclosure Agreement (NDA). To protect against access through the application, Salesforce employees don't have access at the application level for any customers, unless the customer grants access through the "login as" feature. Access to the production environment infrastructure is restricted to a very limited number of full-time Salesforce employees required to manage the service. Salesforce's Technical Operations team and Release Managers have logical access to servers. These employees must authenticate to the production environment via a secure server (Secure Global Desktop) using 2 points of RSA two-factor authentication. This tool provides pixel data only to these administrators. Systems access is role-based and controlled and logged. DBAs do not have login access to customer's instances (org) and do not see customer data in an assembled manner. They manage the system in aggregate-performance tuning, allocating space, building indices, etc. The Oracle tables and rows in our infrastructure do not reflect the view of a single customer instance (org) since we are multi-tenant and the data is spread across multiple disk arrays.	

	Database administrator account activity is logged. These logs are sent to the security information and event management (SIEM) system. These database activities logs are reviewed for appropriateness by the Computer Security Incident Response Team (CSIRT) team on a regular basis. This log data is also available as a forensic audit trail to support CSIRT during incident investigations. A customer's instance (org) of Salesforce is an aggregate of the raw data. The data model is very complicated, normalized, and the rows are identified by base62 encoded keys (primary and foreign). Re-establishing data ownership and a business context for the data would be very difficult to do at the database level. In order to reassemble any given customer's application (org), someone would need access to our source code in order to reassemble the raw data in a manner that could be interpreted and understood, and would need the entire set of tapes or disks/arrays supporting a given Instance, as the data for any one customer is spread across several tapes/disks. Data center engineers with physical access to the servers do not have logical access to the production environment and administrators with logical access to the systems do not have physical access to the data centers.	
ServiceNow	ServiceNow applies the same data classification for all hosted customer data. ServiceNow does not inspect or monitor its customers' information and therefore has no ability to sub-classify customer data. The overriding requirement of the assigned classification is that customer data remains hosted in the private cloud until the customer terminates their subscription. It is never stored anywhere apart from the private cloud. Customers remain the data owner and data controller for all data placed into their instance. ServiceNow does not examine, inspect, monitor or analyze customers' data. Customers apply access controls to restrict access to data within their instances based on their own requirements and needs, including their own data classification.	
QTS	The customer will be assigned one or more Org Administrators. All users will be configured with RSA AD two-factor Risk Based authentication as a requirement for cloud portal access.	
SAP	Ariba	We participate in the following national and international standards committees: WebTrust: (2001 - current) The Security, Availability, Processing Integrity and Confidentiality of our applications are based on the Trust Services Principles now incorporated into the SSAE16/ISAE 3000 SOC 2 standards SSAE16: (formerly SAS 70) certification: (Since 2011) ISAE 3402: (The International Standard on Assurance Engagements since 2014) every six months we undergo a rigorous ISAE 3402 audit by independent auditor PricewaterhouseCoopers (PwC) Payment Card Industry (PCI) Data Security Standard (DSS): (Since 2008) we have adopted and adhere to the PCI-DSS). PCI certification and compliance with the Visa USA Cardholder Information Security Program (CISP) and MasterCard Site Data Protection (SDP) program Safe Harbor: (Since 2007) Current on the Safe Harbor list for "Online Data" for the ASN and Cloud Solutions/Services A firewall separates the Ariba corporate network from Ariba infrastructure computers. Therefore, unauthorized Ariba employees cannot access Ariba data from the Ariba corporate network infrastructure. Access is limited to specific roles or functions within Ariba Operations. Additionally, access is managed on an "exception" basis whereby personnel need clearance to be

		authorized. Access is time-limited, after which time re-authentication is required. Internally, we have deployed an active monitoring system tied back to Human Resources. Logical access management reports are rolled up monthly and are part of the monthly Privacy & Security board review. All logical access management is subject to review and audit under ISAE 3402 assurance every six months and annually under PCI DSS certification. Wireless technology is not allowed within the production operations infrastructure where customer data is received, processed and stored. All corporate laptops are whole disk encrypted. All approved portable devices are encrypted and have a phone home capability which allows them to be wiped remotely.
	Fieldglass	Fieldglass has the following categories for classifying information: Confidential - This is the information that Fieldglass and end users have a legal, regulatory and/or contractual obligation to protect or information that unauthorized disclosure, compromise, or destruction that results in severe damage, provides significant advantage to a competitor, or incurs serious financial impact to Fieldglass and/or our customers. Fieldglass will not disclose to a third party without signing a nondisclosure agreement requiring the third party to protect such information. Internal Use - This is information that, due to a technical or business sensitivity, requires special precautions to ensure the confidentiality and integrity of data by protecting it from unauthorized access, modification or deletion. This information is intended for use only within the company and must be limited to end users who are employed by Fieldglass or individuals that have a business requirement to access the data and have signed a non-disclosure agreement. Public - This information has been made available for public distribution through authorized company channels. Public information does not require special protection. It is information that can be disclosed to anyone without violating an individual's right of privacy. Knowledge of this information does not expose Fieldglass to financial loss, embarrassment, or jeopardize the security assets. Laptops Every Fieldglass laptop issued to employees and contractors have a DLP agent installed that cannot be modified. This agent detects whether customer data or the Fieldglass source code is being copied externally. Monthly access reviews are conducted by product and file share owners to ensure access is limited to a need-to-know basis. Privileged user account access is also monitored on a weekly basis.
	Hanna	SAP treats all customer data stored in cloud solutions from SAP as "Confidential" according to SAP's data classification standard. Personal Data is subject to strict security and legal requirements in the legislation of several countries, for example handling of Personal Data is regulated in the European Union (EU) Data Protection Directive and

		corresponding national laws. At SAP intercompany agreements exist, to ensure that these requirements are met in all SAP companies and branch offices throughout the world. Similar data protection agreements were executed with all subprocessors. Personal data must be classified as equally confidential regardless of whether it relates to employees, customers or third parties.
	Hybris	The security infrastructure includes firewall security and hardened security policies on all servers. Log management procedures are in-place for log review for firewall, applications, network devices, including file-integrity management. SAP Hybris utilizes technologies from leading security firms for Log Management and File Integrity Management. SAP Hybris employs two-factor authentication across its network. SAP Hybris undergoes vulnerability and penetration testing. SAP Hybris validates against requirements for PCI DSS 2.0. The infrastructure also includes Web Application Firewalls and DDoS Mitigation Services. In addition, security policies and change management policies are in-place ensuring that all access and changes to customer systems and information is accessible only by SAP Hybris staff with access authorization. Security of the software application which is controlled by the Customer (or its implementation partner) remains the responsibility of the Customer.
	SuccessFactors	We are aligned with ISO 27001 for Information Security, BS 10012 for Data Protection, and ISO 20000 for Service Delivery to create an Integrated Compliance Framework ("ICF"). Where these standards overlap in subject matter, Information Security ISO 27001 takes precedence. Our Network also complies with Authority to Operate as a Moderate Risk Federal Information System by the Office of Personnel Management and Department of Homeland Security; NIST SP800-53 Security Controls; EU Privacy Directive 95/46/EC for EU and non-EU customer data; Payment Card Industry (PCI) Data Security Standard (DSS) v 2.0; Safe Harbor.
VMware		VMware monitors for security events involving the underlying infrastructure servers, storage, networks, and information systems used in the delivery of vCloud Air over which VMware have sole administrative level control. The goal of this process is to identify security incidents and respond to them proactively. This responsibility stops at any point where customers have control, permission, or access to modify any aspect of the service offering. The customer is responsible for the security of the networks over which they have administrative level control. This includes, but is not limited to, maintaining effective firewall rules, exposing communication ports that are only necessary to conduct business, locking down promiscuous access, and other such capabilities. Proactive Security Monitoring over Internet and Social Media (e.g. searching filesharing sites for customer data, seeding data with honey tokens) VMware security teams perform OSINT monitoring on the Internet for all VMware products and services. This includes harvesting data from search engines, le sharing, and social networking sites. This data is analyzed for keywords and other specific indicators. With regards to potential data leaks, the customer is solely responsible for protecting the security of his or her content, including any access provided to employees, customers or third parties. vCloud Air provides certain software and functionality to help protect content from unauthorized access such as firewalls, load balancers, and IPsec VPNs. Customers are encouraged to deploy additional security mechanisms similar to what exists in their current data center to address other security controls such as data encryption, intrusion detection, le integrity monitoring, and other such concerns relevant to the sector and regulatory requirements that apply to the specific business of a customer.

FireEye	FireEye has mature and well documented security and privacy programs. The programs include third party certifications for SSAE 16 SOC 2, and FedRAMP certifications, Model clauses, Privacy and Security Standards among others. The data that FireEye receives is only in conjunction with the malware analysis. Our data protection standards includes prevention of exposure to unauthorized personnel and managing and reviewing all access to systems (not just for admin) quarterly or when employees have a role change. FireEye has standards for hardware and software such as gold images for all operating systems and hardened systems, these are managed and distributed centrally. It also includes supported and managed configurations of hardware and software on mobile devices and acceptable use policy for all FireEye resources.
VirtueStream	Customers are responsible for the protection and confidentiality of data within their application and/or system which resides on the Virtustream IaaS. Virtustream customers are logically separated via VLAN and VRF technologies which ensure that different customers' data is not accessible and cannot be altered. Customers are responsible for controlling access to their data. Virtustream does not have direct access to customer data within their customer zone. Virtustream employees who are assigned to IaaS must pass a Virtustream background investigation. In addition, Virtustream employees assigned to the IAAS must adhere to any requirement by customers to pass federal, state, or local background investigations if they are to provide managed services to the customer zone. Virtustream offers an encryption at rest and encryption in transit managed service. This provides an additional level of protection for customer's data within their VLAN, All Virtustream employees with access to the IaaS are required to have hard drive encryption on their laptops. Virtustream performs quarterly privileged user access reviews.

8.6.5 Offeror must provide a detailed list of the third-party attestations, reports, security credentials (e.g., FedRamp), and certifications relating to data security, integrity, and other controls.

CA	APM	AWS EC2 datacenters annually undergo SOC 3 audits.
	MAA	CA MAA is certified for SOC 2 Type 1 Security Audit.
	CA Agile	N/A - we are working towards a NIST 800-53r4 certification but that is not yet complete.
	ASM	Rackspace datacenters annually undergo various certification including SOC 3 audits. The application currently does not hold a Soc 2 attestation.
Google	SOC 1 (SSAE 16) SOC 2 SOC 3 ISO 27001 ISO 27018 FedRAMP	
AODocs	AODocs is certified SOC2 Type 2	
Virtru	Vulnerability Scan and Penetration Testing by Cigital and FedRamp In Process sponsored by US Department of Interior	
Salesforce	Salesforce has comprehensive privacy and security assessments and certifications performed by multiple third parties. The following audits and their frequencies are performed: ISO 27001 - Annually (3 year certification) PCI-DSS - Annually FedRAMP - Annually SOC 1 (SSAE16/ISAE 3402, previously SAS 70) - Twice a year SOC 2 & SOC 3 - Twice a year Copies of our SOC reports can be provided to your Agency upon request and under NDA.	

	Under NDA, your Agency can also be provided Salesforce's complete FedRAMP Authority to Operate (ATO) package, which contains the following security assessment documentation: 01 - Salesforce Government Cloud System Security Plan 02 - Salesforce Government Cloud System Security Plan - Tracked Changes 03 - Salesforce Government Cloud Attachment 1 - Control Tailoring Workbook (CTW) 04 - Salesforce Government Cloud Attachment 2 - Control Implementation Summary (CIS) 05 - Salesforce Government Cloud Attachment 3 - PTA and PIA 06 - Salesforce Government Cloud Attachment 4 - E-Authentication 07 - Salesforce Government Cloud Attachment 5 - FIPS 199 Categorization 08 - Salesforce Government Cloud Attachment 6 - User Guide - Customer Configurations 09 - Salesforce Government Cloud Attachment 7 - Hardware, Network, and Software System Inventory 10 - Salesforce Government Cloud Attachment 8 - Customer Responsibilities 11 - Salesforce Government Cloud Rules of Behavior - Ground Rules for Security Success 12 - Salesforce Government Cloud Disaster Recovery Plan 13 - Salesforce Government Cloud Incident Response Plan 14 - Salesforce Government Cloud Configuration Guide 15 - Salesforce Government Cloud Continuous Monitoring Plan 16 - Salesforce Government Cloud Security Assessment Plan 17 - Salesforce Government Cloud Security Assessment Report (SAR) 18 - Salesforce Government Cloud Table 4.1 SAR 19 - Salesforce Government Cloud Test Cases (SRTM) 20 - Salesforce Government Cloud POA&M	
ServiceNow	•ISO/IEC 27001:2013 BrightLine Certificate Number 1980700-4 (see supplemental information section for official certificate) •SSAE 16 SOC 1 Type 2 (available under NDA) •SSAE 16 SOC 2 Type 2 (available under NDA) •FedRAMP Compliant	
QTS	QTS maintains control mappings that include: • NIST 800-53/FedRAMP (Low/Moderate/High) • DOD IT RMF/DIACAP (MAC I/II/III Sensitive & Public) • HIPAA-HITECH-Omnibus • PCI-DSS • ISO/NATO • CNSS/ICD/DCID/NISPOM	
SAP	Ariba	As assurance collateral, we can provide the BITS SIG and CSA Cloud Service Provider Questionnaire, Our ISAE 3402 SOC 1 Type II, SOC 2 and SOC 3 reports as well as the Attestation of Compliance for PCI DSS are signed by our qualified security assessor and management.
	Fieldglass	Independent third-party auditors conduct annual audits for the following: • ISO 27001 • SSAE 16 SOC 1 and SOC 2
	Hanna	Please see response 8.6.1
	Hybris	
	SuccessFactors	We have various third party certifications including ISO 27001 and BS10012.

VMware	VMware IaaS Services The International Organization for Standardization (ISO) has developed the ISO 27001 standard which defines an information security management system ("ISMS") as a systematic approach to managing sensitive company information so that it remains secure. It includes an organization's people, processes and IT systems and the application of a risk management process. vCloud Air has established and implemented an Information Security Management System (ISMS) based on ISO 27001 standards to manage risks relating to confidentiality, integrity, and availability of information. vCloud Air engages an independent third party auditing firm on an on-going basis to validate vCloud's air adherence to the ISO 27001 standard. An ISO 27001 certificate is issued if the auditing firm has validated adherence to the standard. VMware IaaS Services The International Organization for Standardization (ISO) has developed the ISO 27001 standard which defines an information security management system ("ISMS") as a systematic approach to managing sensitive company information so that it remains secure. It includes an organization's people, processes and IT systems and the application of a risk management process. vCloud Air has established and implemented an Information Security Management System (ISMS) based on ISO 27001 standards to manage risks relating to confidentiality, integrity, and availability of information. vCloud Air engages an independent third party auditing firm on an on-going basis to validate vCloud's air adherence to the ISO 27001 standard. An ISO 27001 certificate is issued if the auditing firm has validated adherence to the standard. VMware IaaS Services The International Organization for Standardization (ISO) has developed the ISO 27001 standard which defines an information security management system ("ISMS") as a systematic approach to managing sensitive company information so that it remains secure. It includes an organization's people, processes and IT systems and the application of a risk management process. vCloud Air has established and implemented an Information Security Management System (ISMS) based on ISO 27001 standards to manage risks relating to confidentiality, integrity, and availability of information. vCloud Air engages an independent third party auditing firm on an on-going basis to validate vCloud's air adherence to the ISO 27001 standard. An ISO 27001 certificate is issued if the auditing firm has validated adherence to the standard. vCloud Government Service (IaaS): FedRAMP Provisional Authority: VMware vCloud Government Service, provided by Carpathian, now has FedRAMP Provisional Authority to Operate issued by the Joint Authorization Board (JAB). FedRAMP is a government-wide program that provides a standardized approach to security assessment, authorization, and continuous monitoring for cloud products and services. This approach uses a "do once, use many times" framework that can reduce government organizations' costs, time, and staff required to conduct redundant agency security assessments. U.S. government agencies can now leverage vCloud Government Service to meet the stringent security and privacy requirements of FedRAMP.
FireEye	We have SSAE 16 SOC 2 Type 2 certification for specific cloud services, and associated datacenters. FireEye currently has a FedRAMP ATO for ETP and are in process for full FedRAMP, and ISO 27001 certification.
VirtueStream	Security is the foundation of our business. Virtustream's xStream™ cloud software assists our customers to meet mandatory Legislative requirements, and achieve and maintain FedRAMP, FISMA Moderate, PCI-DSS, SSAE16/SOC2/SOC3, ISO 27001/9001/22301, HIPAA, NIST 800-53, CSA STAR and other leading cloud certifications and compliance frameworks in the customer's own environment (when coupled with identified operational and management controls).

8.6.6 Offeror must describe its logging process including the types of services and devices logged; the event types logged; and the information fields. You should include detailed response on how you plan to maintain security certifications.

CA	APM	CA has various log monitoring tools that help us keep track of live production systems in order to understand load vs. resource utilization vs. performance. CA along with AWS monitors the service and provides real time alerting when systems suddenly die, or when system loads or response times approach critical thresholds. Logs are kept for forensic examination and identification of trends in order to proactively ensure stability.
	MAA	CA MAA servers log all activity, and data retention is anywhere from 14 to 180 days depending on the component and volume of logs generated
	CA Agile	All systems are required to send logs to a centralized log server. At a minimum log data must contain timestamps, usernames, IP Addresses, and query parameters.
	ASM	ASM servers log all activity, and data retention is anywhere from 30 days to 1 year depending on the application and volume of logs generated.
Google	This is largely the responsibility of the customer. Google's obligations, as described in 8.6.4, are to ensure there is no unauthorized access of Customer data. Customers are responsibility for ensuring their end users use the service according to the Customer's acceptable use policies. During the onboard process, Customers will be assisted in the configuration controls that are included to enforce acceptable use and security policies and trained in how to maintain oversight on the ongoing usage of the services in scope.	
AODocs	AODocs does not manage the authentication. The authentication is managed by Google.	
Virtru	See 'Virtru Security Policies and Procedures'	
Salesforce	Salesforce Infrastructure Logs Salesforce internal infrastructure logs are collected by various monitoring tools for activities on the systems that host Salesforce, and include: - Server access - Network access - Firewall management events - Network intrusion detection systems traffic - Cache - Database - File integrity - Network device configuration - Anti-virus detection Log events are correlated to generate alerts. Alerts are configured to notify the Technical Operations and Computer Security Incident Response Team (CSIRT) teams. Security alerts require acknowledgement and follow up, if appropriate by the CSIRT. Firewalls and IDS systems are configured with automated syslog notifications for key events. Logs are archived and are currently stored for a minimum of (1) one year. NOTE: These logs are not available to customers. Customer Auditing Capabilities Within Salesforce, the creator and last updater, as well as timestamps, are recorded for every record. Additionally, the Salesforce Platform and Salesforce Applications have a multitude of history tracking and auditing features that provide valuable information about the use of an	

	organization's applications and data, which in turn can be a critical tool in diagnosing potential or real security issues. Auditing features include: Record Modification Fields - All objects include fields to store the name of the user who created the record and who last modified the record. This provides some basic auditing information. Login History - You can review a list of successful and failed login attempts to your organization for the past six months within Salesforce. Field History Tracking - You can also enable auditing for individual fields, which will automatically track any changes in the values of selected fields. Although auditing is available for all custom objects, only some standard objects allow field-level auditing. Setup Audit Trail - Administrators can also view a Setup Audit Trail for the past six months within Salesforce, which logs when modifications are made to your organization's configuration. This trail can be downloaded into Excel or as a csv file. While the Login History and Setup Audit Trail are available for six months within Salesforce, audit trails can be downloaded and stored locally to meet longer audit log retention requirements. Detailed application logs can be used for forensics investigations by customers. These logs are stored for 12 months and are available for a fee. Event Monitoring (Additional License Option) In addition to Salesforce's core auditing capabilities, Salesforce also offers Event Monitoring as an additional license option. Your Agency can use event monitoring to discover how often and at what times your users are logging in to and out of your organization. This includes insight into what Salesforce applications are being adopted by users, who is logging in and from where, what pages users are viewing, what reports users are running and exporting and other aspects of application usage. This capability helps you discriminate between valid and invalid login requests and also track user login patterns for future reference. Not only can your Agency now better understand how your apps are being utilized, you can also monitor if users download large amounts of data that might put your agency at risk. In addition, your Agency can also determine if an employee is unnecessarily downloading sensitive customer/citizen information, pinpointing the exact time and location of that event. Event Monitoring is delivered as an API-first feature and there are Salesforce partners with visualization tools available. Use the SOAP API and REST API resources to retrieve event log files that contain information useful for assessing organizational usage trends and user behavior. Because event log files are accessed through the Force.com SOAP API and REST API, you can integrate log data with your own back-end storage and data marts so that you can correlate data from multiple organizations and across disparate systems easily. When using event monitoring, keep the following in mind: - In the unlikely case where no log files are generated for 24 hours, contact Salesforce. - Log data is read-only. You can't insert, update, or delete log data. - Use the EventType field to determine which files were generated for your organization - LogDate tracks usage activity for a 24-hour period, from 12:00 a.m. to 11:59 p.m. UTC time. - An event generates log data in real time. However, log files are generated the day after an event takes place, during nonpeak hours. Therefore, log file data is unavailable for at least one day after an event. - CreatedDate tracks when the log file was generated.
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	- Log files, represented by the EventType field, are only generated if there is at least one event of that type for the day. If no events took place, the file won't be generated for that day - Log files are available based on CreatedDate for the last 30 days when organizations purchase User Event Monitoring or one day for Developer Edition organizations. Businesses desire certainty that their data is accurate, complete and reliable, enabling them to meet stringent industry regulations. With Field Audit Trail, customers can track changes at the field level for up to ten years and set different policies for each Salesforce object to ensure data is purged when no longer needed. Life sciences companies running clinical trials in Salesforce, for example, can now maintain a complete audit trail of patient data so they can safeguard the integrity of clinical trial results and comply with FDA regulations. - All event monitoring logs are exposed to the API through the EventLogFile object, however there is no access through the user interface. Event monitoring can be used with 28 different file types: Apex Callout, Apex Execution, Apex SOAP, Apex Trigger, API, Async Report, Bulk API, Change Set Operation, Content Distribution, Content Document Link, Content Transfer, Dashboard, Document Attachment Downloads, Login, Login As, Logout, MDAPI Operation, Multiblock Report, Package Install, Report, Report Export, REST API, Salesforce1, Adoption (UI Tracking), Sandbox, Sites, Time-Based Workflow, URI, Visualforce. Event Monitoring Transaction Security Transaction Security policies give your Agency a way to look through events in your organization and specify actions to take when certain combinations occur. A transaction security policy consists of events, notifications, and actions. Transaction Security monitors events according to the policies that your Agency sets up. When a policy is triggered, you can receive a notification and have an optional action taken. For example, suppose that you activate a policy to limit the number of concurrent sessions per user to three. A user with three login sessions tries to create a fourth session. Your Agency can require a user to end one of their existing sessions before proceeding with the new session. At the same time, you are notified that the policy was triggered.
ServiceNow	The ServiceNow application writes detailed log information that is stored in tables within a customer's instance. As this is customer data in a customer's instance, ServiceNow does not attempt to monitor or view this data unless specifically requested by a customer. As a result the customer is responsible for monitoring the contents of these logs files. The log data is protected in the same manner as all other customer data. Event logs can also be configured to feed into a customer's environment via ServiceNow's Syslog probe allowing the logs to be stored within the customer's environment in a syslog repository or SIEM and retained according to the customer's requirements. ServiceNow's application logging includes verbose transaction logs, these logs are retained within the instance for 30 days. Event logs are stored for seven days and audit histories are retained indefinitely in the instance. Transaction logs represent every click, view, and system event that occurs in an instance and as a result, will grow very large, quickly. They provide a level of detail that is frequently used for troubleshooting issues with an instance. They can also provide detailed intelligence on the behaviors within an instance. These logs can be downloaded to customers' environments, if they need to be retained for longer than 30 days. The event logs on the other hand are less granular; they will include the creation of an incident, or deletion of problem, or any one of the 250 standard events. They may also contain customer

	created events. There are a number of security events as well, including successful login, failed login, security privilege escalation, and viewing of a table. These events can either be monitored manually, generate an Incident based on a parameter or when metric is reached; such as failed logins per minute. The final aspect of logging is the audit history. Audit history may be turned on for any particular table or field. The audit log table then maintains a record of who made changes when to a table or field and what they changed.
QTS	All account activities are logged including account creation, modification, disabling and termination. Logs are monitored and notifications are sent for abnormal activity. Splunk Enterprise is used as the centralized audit log monitoring tool to centrally collect, analyze and reduce the amount of audit logs. As referenced in IT_PRO_07_Audit_and_Accountability_Procedure (v1.0 – 1/20/14), on-site network and security operations monitoring coverage and audit management process; to include analysis, reporting, and alerting into a central repository provided by a highly available Splunk logging service. Splunk logging service supports QTS cloud information systems for organizational-wide situation awareness. Splunk provides built-in capabilities to filter, normalize, and correlate the large amounts of data produced by QTS cloud, and then allows QTS's support staff to use Splunk's built-in capabilities to data mine, log mine, and run pre-developed and ad-hoc reports against the result sets obtained during the data and log mining sessions. Logs are centrally correlated and reviewed from devices across QTS cloud Hosting Environment by QTS's Systems Engineer or designee. Specific report categories include: •Authentication and Authorization Reports •Systems and Data Change Reports •Network Activity Reports •Resource Access Reports •Malware Activity Reports •Failure and Critical Error Reports •Vulnerability Correlations Reports •Anti-Port Correlations Reports •Watch List Correlations Reports
VMware	VMware IaaS Services In accordance with our ISO and SOC commitments, change-related activity, including administrative actions, performed on the management infrastructure layers supporting vCloud Air are monitored and logged to a centralized logging server for a minimum of 1 year. Infrastructure logging is in place for customer interactions with the vCloud Air management and administrative consoles. These logs are only for the management and administrative interfaces. These are not in place for monitoring of individual customer VMs installed within the customer tenant org. Limited logging and activity reporting are available from customer tenant environments, with more detailed reporting, auditing and logging capabilities introduced Q4-2014. VMware AirWatch To enable user accountability, we have full auditing capabilities on all environments in the AirWatch Cloud. Customers can use the built-in event log, customizable dashboards, integrated reporting engine and AirWatch Hub to audit the web console and end-user actions. For the SaaS environment logs, our Information Security Team helps ensure that systems generate audit records containing information that establishes what type of event occurred, when the event occurred, where the event occurred, the source of the event, the outcome of the event, and the identity of any individuals or subjects associated with the event.
FireEye	FireEye auditing and log review procedures are based on industry best practices and in accordance with regulatory, statutory, contractual and business requirements. Detailed audit

	records (User ID, date, time, type of event, successful/unsuccessful attempts or access secured files and protect the contents of audit trails against unauthorized access, modification or deletion.
VirtueStream	Virtustream offers logging as a managed service to customers as optional solution. The types of services and devices are specified by the customer and a monthly report is delivered to the customer.

8.6.7 Offeror must describe whether it can restrict visibility of cloud hosted data and documents to specific users or groups.

CA	APM	Users of the Portal are divided into two types: Internal users (for publishers of the API) and External users (for developers). There are a number of pre-defined roles for both Internal and External users that inherit functionality in a hierarchical manner. Portal has RBAC built in that allows you to grant access to different functionality for different users. For example, you can assign a user to role that only allows them access to update content, or access apps but not create them.
	MAA	CA utilizes IaaS vendor to host the service with strict access controls in place. CA SaaS InfoSec team manages users and their associations with groups within LDAP Directory and conducts periodic access reviews to conform to governance requirements.
	CA Agile	Our databases are shared but logically segregated. We ensure logical security of access to customer data by implementing access restrictions between subscriptions and roles within those subscriptions to assure adequate segregation of data. There is a plugin available in the unlimited edition that allows the administrator to limit access to the application based on IP address.
	ASM	Only Public Status Page (PSP) data is stored in the cloud, and PSP web pages are accessible by anyone. PSP data is only sent to the cloud if the customer enables this feature, and they can decide which data is made public.
Google	If Google becomes aware of a Data Incident, Google will promptly notify Customer of the Data Incident, and take reasonable steps to minimize harm and secure Customer Data. Notification(s) of any Data Incident(s) will be delivered to the Notification Email Address provided by Customer in connection with the Agreement or, at Google's discretion, by direct communication (e.g., by phone call or an in-person meeting). Customer acknowledges that it is solely responsible for ensuring the contact information given for purposes of the Notification Email Address is current and valid, and for fulfilling any third party notification obligations. Customer agrees that "Data Incidents" do not include: (i) unsuccessful access attempts or similar events that do not compromise the security or privacy of Customer Data, including pings, port scans, denial of service attacks and other network attacks on firewalls or networked systems; or (ii) accidental loss or disclosure of Customer Data caused by Customer's use of the Services or Customer's loss of account authentication credentials. Google's obligation to report or respond to a Data Incident under this Section will not be construed as an acknowledgement by Google of any fault or liability with respect to the Data Incident.	
AODocs	The AODocs-specific data stored in the Google App Engine Datastore relies on a built-in multi-tenancy feature named "namespace", which define virtual "silos" within the AODocs database. Each customer is assigned a specific namespace (which is in fact the customer's primary Google Apps domain name), and all the customer's data is stored within this namespace.	
Virtru	Key material is encrypted prior to storage, and those keys are backed by HSM. Decryption occurs only for authenticated users	
Salesforce	The multitenant architecture and secure logical controls address separation of customer data. There are no dedicated servers used for individual customers. The Salesforce Services infrastructure is divided into a modular architecture based on "Instance". Each Instance is capable	

	of supporting several thousand customers in a secure and efficient manner. Services are grouped within each Instance; with app, search, and database elements contained. There are appropriate controls in place to ensure that any given customer's org (application) is not compromised. The service has been designed to accomplish this and is robustly tested on an ongoing basis by both Salesforce and its customers.	
ServiceNow	ServiceNow includes built in Role Based Access Control (RBAC) that is based on users, groups and roles. The entitlements granted to users are built from fine grained Access Control Lists (ACLs). ACLs can be built from individual entitlements that include read, write, create, execute and delete as well as a number of other individual attributes. The attributes that are available also vary, depending on the type of object being secured. Customers have full control of the entitlements granted to each of their users and integration with customer side directory service is possible through the use of users, groups and group memberships.	
SAP	Ariba	Within our solution, specific logging takes place that is viewable by the customer administrator or their designee. Audit logs produced through use of the solution are considered customer data and are maintained within the customer's instance of the database. These logs are retained so long as the customer has an active contract with us. As a user control consideration, customers are responsible for monitoring the proper entry of data to the solution and reviewing reports generated by the system.
	Fieldglass	The Fieldglass Audit Trail tracks a date/time stamp for each user as they log in and out of the application. Likewise, Fieldglass tracks a date/time stamp and owner of every transaction that is created, submitted and approved through the application. Similarly, actions that occur within the reporting tool are also tracked, including when reports are created and run and by whom. The audit trail log is visible by the State of Utah program office. Audit trail reports can be created with Fieldglass' ad hoc reporting.
	Hanna	SAP has Security Information and Event Management systems (SIEM) for analysis, reporting and alerting. All critical systems and infrastructure components within the SAP Cloud need to log relevant data, which is stored for a minimum of six (6) months. This is ensured via the security configuration compliance checks and event monitoring. General security monitoring is performed 24x7 for all activities. Resulting warnings and alerts are processed via ticketing system and critical events are handled according to the Incident Management Process.
	Hybris	Log management procedures are in-place for log review for firewall, applications, network devices, including file-integrity management. hybris utilizes technologies from leading security firms for Log Management and File Integrity Management.
	SuccessFactors	The application logs the following for every transaction: Event/transaction Time, Transaction ID, Event/transaction Type, Event/transaction Status (Result of the event; if failure, includes reason), Object Attributes (Describes the object affected by the event), Originator User ID (ID of the user who initiated the event or action), Subject ID, Process User ID, Account Number, Transaction Specific Elements. The application audits changes to the major components. Examples of this are goal auditing and document auditing. The audit trail includes who made the

	change, the date of the change and the ability to see the data as it existed at that point in time. The data in the audit log can be viewed with appropriate permissions. We also provide an optional Audit Framework for additional audit logging capabilities. All audit logs within the application are accessible only by customers. Therefore, the review of application audit logs as well as retention periods for the application audit logs are the customer's responsibility, and can be determined as per requirements. To detect unauthorized information processing activities, systems are monitored and all information security events are recorded. Operator logs and fault logging are used to information system problems are identified. We comply with all relevant legal requirements applicable to its monitoring and logging activities. All system logs are created with "write-once" technology so that they cannot be altered or overwritten. All system logs are maintained for a minimum of 90 days on-line and a minimum of 13 months near-line. Inter host communications are secured by multiple layers of defense including segmented separate VLANS, restricted protocol sharing, multiple levels of stateful firewalls, HOST and NETWORK IDS/IPS and constant vigilant monitoring and testing. In addition, our Operations Team maintains detailed system logs. Our internal system logs successful and unsuccessful requests for access, and our team monitors all system logs for any errors or unusual activity. Activities are logged and reviewed by various mechanisms such as: RSA, SysLog, NIDS, HIDS, OSSIM and database logging. The system logs are not made available to customers but are used to monitor the health of the application and facilitate a high level of performance. Alerts are responded to immediately and logs are analyzed daily for any issues or anomalies. The system level logs are written to servers in the data center then copied to our operations team on an as needed basis. Various logging mechanisms are used to monitor database administration activities. Logging mechanisms include: syslog, alert log and database auditing for the privileged role SYSDBA. All activities are logged under the SYSDBA role which including: start-up and shutdown of the data base, configuration changes to init.ora and also any queries/data extraction. We would be able to identify dba activities by manual review of the logs and database auditing to detect if client data querying has occurred. All audit logs are created with "write-once" technology so that they cannot be altered or overwritten. Controls aim to protect against unauthorized changes and operational problems with the logging facility including: - Alterations to the message types that are recorded. - Log files being edited or deleted. - Storage capacity of the log file media being exceeded, resulting in either the failure to record events or over-writing of past recorded events.
VMware	The vCloud Air Terms of Service and Data Privacy Addendum's establish the line of demarcation between the responsibility of VMware and the customer as it pertains to data protection. In addition, security whitepapers are made available to customers to further illustrate these points or to establish transparency regarding the separation of responsibility between VMware and the customer for compliance programs such as HIPAA or PCI. Subscribers are able to use a VPN connection at multiple layers to maintain data security. For traffic in motion, VPNs can be created for a particular application and also for an entire virtual data

	center. A site-to-site IPsec-VPN can also be established to securely tunnel the entire virtual data center back to the private data center. For data ""at rest"", subscribers are provided a role-based access control, whereby specified users are not exposed to the entire infrastructure and can be limited to a single or multiple virtual data centers. Further details of the controls in place to limit exposure of these groups to customer data is documented within the ATA 101 and SOC reports, available under NDA. vCloud Air has logically separated networks that restrict Tenant access to only their own private networks. The vCloud Hybrid Service has two offerings: The Dedicated Cloud option provides physically isolated and reserved compute resources from all other vCloud Hybrid Service tenants, as well as a private cloud instance. The Virtual Private Cloud option has a multitenant compute resource mode. Both services have logically isolated networking and storage that ensures secure resource separation. Customers have complete control over the file systems and databases they deploy within the service. Access is technologically enforced and employees are only authorized the level of access to information assets that is required to meet an approved business need or perform prescribed job responsibilities. • Administrative access is limited to only those users that explicitly require privileged access. Customers do not have direct access to the SaaS environment; rather, customers administer the solution via the Web console.
FireEye	Each of the FireEye offerings include strong access controls including role-based access. Only properly authorized individuals on a need to know basis are granted access to data.
VirtueStream	Virtustream does not have access to customer hosted data. Customers control access to their application or system which sits upon the IaaS. Customer would need to create the user in their own Active Directory to allow access by named users of Virtustream for specific system.

8.6.8 Offeror must describe its notification process in the event of a security incident, including relating to timing, incident levels. Offeror should take into consideration that Purchasing Entities may have different notification requirements based on applicable laws and the categorization type of the data being processed or stored.

CA	APM	CA Technologies documents a plan and associated procedures in case of an information security incident. The incident response plan clearly articulates the responsibilities of personnel and identifies relevant parties for notification. All security incidents will be investigated and triaged to understand where the vulnerability exists. Software vulnerabilities will be investigated by CA engineering teams; other vulnerabilities will be addressed by the SaaS Ops team in conjunction with AWS. Affected customers will be notified and given a remediation plan
	MAA	Clients are notified via email of any security incident that resulted in a data breach for that client promptly and no later than 5 days. A root cause analysis is then sent within 30 days. Meeting can be setup upon request.
	CA Agile	We have a defined Incident Handling Guide which outlines the process and responsibilities during breach investigation. Clients are notified via email of any security incident that resulted in a data breach for that client promptly and no later than 5 days. A root cause analysis is then sent within 30 days. Meeting can be setup upon request.
	ASM	Clients are notified via email of any security incident that resulted in a data breach for that client promptly and no later than 5 days. A root cause analysis is then sent within 30 days. Meeting can be setup upon request.
Google		Google's focus on security and protection of data is among our primary design criteria. Google data center physical security features a layered security model, including safeguards like custom-

	designed electronic access cards, alarms, vehicle access barriers, perimeter fencing, metal detectors, and biometrics, and the data center floor features laser beam intrusion detection. Our data centers are monitored 24/7 by high-resolution interior and exterior cameras that can detect and track intruders. Access logs, activity records, and camera footage are available in case an incident occurs. Data centers are also routinely patrolled by experienced security guards who have undergone rigorous background checks and training. As you get closer to the data center floor, security measures also increase. Access to the data center floor is only possible via a security corridor which implements multifactor access control using security badges and biometrics. Only approved employees with specific roles may enter. Less than one percent of Googlers will ever step foot in one of our data centers. Google operates a global, multi-tenant environment running the world's second largest IP data network providing customers with a low latency, high performing platform that runs 24x7. Hard Disks are assets that are tracked throughout its lifecycle at Google from arrival to final destruction. These disks are component parts that Google uses to build its own servers from other component parts including motherboards and a hardened, highly customized version of Linux. Google uses a proprietary storage and processing mechanism that isolates processing of data in chrooted jails within a physical server. Access permissions restrict the ability for processes to interact between jails. In addition, tenant data is striped in chunks across many different drives with each chunk having its own access control list. This helps ensure that data is logically isolated between customers in storage and during processing. In addition to the inherent processing and storage mechanisms described above, Google's security controls including least privilege rights, logging and auditing have been implemented consistent with FedRAMP requirements
AODocs	Altirnao can use multiple notification channels to communicate incident updates to its customers: the AODocs status page (https://status.aodocs.com) provide status updates on all the AODocs services the AODocs customer mailing list, which can be used to send emails to the technical contacts of all AODocs customers the AODocs support platform, i.e. ZenDesk, which can be used to communicate with specific customers who have opened tickets.
Salesforce	Incident Response If negotiated into a final contract, Salesforce can promptly notify the Customer in the event Salesforce becomes aware of an actual or reasonably suspected unauthorized disclosure of Customer Data. Notification may include phone contact by Salesforce support, email to customer's administrator and Security Contact (if submitted by customer), and public posting on trust.salesforce.com. Salesforce maintains an Incident Response Plan and has an established Security Incident Response Process. During a security incident, the process guides Salesforce personnel in management, communication, and resolution activities. Government customers can report security incidents related to their Salesforce products and offerings via security_gov@salesforce.com. Salesforce will respond in accordance with the incident response process described above. Our incident response plan/process was created in accordance with FedRAMP moderate control requirements which include incident response requirements derived from NIST SP 800-53, NIST SP 800-61, and the FedRAMP Incident Communications Procedure.
ServiceNow	Unless notification is delayed by the actions or demands of a law enforcement agency, ServiceNow shall report to Customer the unauthorized acquisition, access, use, disclosure or destruction of Customer Data (a "Breach") promptly following determination by ServiceNow that a Breach occurred. The initial report shall be made to Customer security contact(s) designated in

	ServiceNow's customer support portal. ServiceNow shall take reasonable measures to promptly mitigate the cause of the Breach and shall take reasonable corrective measures to prevent future Breaches. As information is collected or otherwise becomes available to ServiceNow and unless prohibited by law, ServiceNow shall provide information regarding the nature and consequences of the Breach that are reasonably requested to allow Customer to notify affected individuals, government agencies and/or credit bureaus. Customer is solely responsible for determining whether to notify impacted Data Subjects and for providing such notice, and for determining if regulatory bodies or enforcement commissions applicable to Customer or Customer Data need to be notified of a Breach. See the "Data Security Guide" contained within the "Subscription Service Guide" included with this response for additional information.	
QTS	Security Incident handling capability and process is outlined in the following Incident Response related procedures and plans: •FED_PLN_01_Incident_Response_Plan (v1.2 – 4/09/14) •IT_PRO_29_QTS-FC_Incident_Response_Procedure (v1.0 – 1/17/14) •IT_PRO_18_ISS0_IRT_Incident_Response_Guidelines_Procedure (v1.2 – 12/11/13) •OPS_PRO_77_OSC_New_Incident_Creation_Procedure (v1.0 -1/23/14) •OPS_PRO_62_Best_Practices_for_Incident_Handling_Procedure (v1.0 – 12/10/13) •OPS_PRO_72_BPG_OSC_Working_and_Resolving_Incidents_Procedure (v1.0 – 1/22/14) •OPS_PRO_84_BPG_OSC_Major_Incident_Management_Procedure (v1.0 – 1/27/14) As outlined in QTS's IT_PRO_29_QTS-FC_Incident_Response_Procedure (v1.0 -1/17/14) and FED_PLN_01_Incident_Response_Plan (v1.2 – 4/09/14): •Preparation activities, to include: -Ensuring the security of systems, networks, and applications through periodic risk assessments of systems and applications to prevent incidents. -Increasing user awareness of policies and procedures regarding appropriate use of networks, systems, and applications. -Sharing applicable lessons learned from previous incidents (particularly those involving malicious code and violations of acceptable use policies) with users so they can see how their actions could affect the organization. -Training Federal Cloud System Administrators to maintain their networks, systems, and applications in accordance with the organization's security standards. •Detecting activities, to include: -As referenced in QTS's IT_PRO_29_QTS-FC_Incident_Response_Procedure (v1.0 -1/17/14), review and analysis of continuous monitoring tools and related log file(s). -3rd Party monitoring services (Alert Logic): help detect and alert on changes in certain resources (e.g., Web pages) or publicly accessible services, such as Web, Domain Name System (DNS) and FTP servers. -File Integrity Checking Software: help detect any changes to important files caused by incident -IDS are set up for scanning and detection. Detection is achieved either by log analysis, packet capture review or image acquisition and analysis. •Analysis Activities, to include: -QTS IR Team is activated and incident identification is performed -Continued and targeted review and analysis of continuous monitoring tools, related log file, and corresponding applications would be performed. -If an Incident Response Team is required then at least one member of IT Security along with one or more members of QTS's IT Operations organization responsible for the affected system, as well as any necessary representatives from Network	
SAP	Ariba	We can provide a general overview but our full documentation is confidential. All of our security processes and procedures are audited by a third party every six months for ISAE 3402 assurance. We also hold PCI DSS certification. The

		intent of the following is to describe in a broad manner the actions we take in regard to security incidents, their management, tracking and communications in regard to internal policies and procedures. We have an established security incident plan based on internally-developed policies and procedures where documented results of all security incidents occurring during the six month audit period are reviewed and evaluated against the Trust Services Principles of ISAE 3402 and the PCI DSS standards as appropriate. Upon notification of a security incident, a documentation trail is begun by the InfoSec department and an internal ticket is created as the record of reference. The lead security manager calls a meeting including all personnel required to contain and reduce risk and impact appropriate to the nature of the incident. Tasks are assigned with milestones to be met to validate and determine extent of the incident. Communication is made to the Privacy & Security Board to alert principal membership and foster internal cooperation and awareness. An appropriate communication channel to affected customer(s) is determined based on how we were notified of the incident, i.e. from a customer, from an internal report or from a third party report. Communication is made to affected customer(s) to include the nature of the incident, actions taken to contain the incident and potential effects of actions if any, in regard to sustained business process and availability of the system. Any workarounds or hot fixes necessary in the solutions are communicated and scheduled reporting to the customer(s) is established with an identified single point of contact within our company. Based on the nature of the incident, if required, legal counsel present at initial risk & impact meeting, will assist in communicating with law enforcement contacts. The customer is kept informed of the milestones met and at scheduled intervals until the incident is fully contained and no further risk and impact perceived. All incidents are required to be internally managed by InfoSec to include tracking and review on a weekly basis and evaluation of the actions taken in regard to our security concept. All incident reports are presented to and reviewed by the Privacy & Security Board and are formally closed with discussion and evaluation to determine what actions can be taken to prevent similar incidents. Depending on the nature of the incident and impact to customer(s), security incidents are not formally closed by the board until all affected customers are made aware of the incident and appropriate measures to remediate the initial threat are formally communicated.
	Fieldglass	Fieldglass' security team is responsible for managing security incidents and all communication is conducted via the respective account managers to ensure timeliness. The process is defined within the Incident Response Management Standard. Customers are notified of an incident within 48 hours.
	Hanna	SAP will notify via defined communication channels within 36 hours of a confirmed data security breaches to the affected customers. The report will detail the following information: • Details relating to the security incident that has occurred, known at the time of notification. • IT infrastructure and/or application affected by the security incident. • Overview of the performed mitigation actions to restore the security, documented within the incident report form. • All further applicable requirements by country regulations "on obligation to notify" will be met.

	Hybris	Upon a breach that directly affects a customer's environment, hybris would notify the customer as quickly as reasonably possible. Furthermore, hybris follows its information security incident management policy as well as Visa's standard process for responding to a breach. The policy includes procedures such as disclosure of sensitive information, disclosure of system vulnerability, public release of vulnerability information, system vulnerability exploitation as well as incident reporting, contacting of law enforcement and forensic investigation.
	SuccessFactors	We have a comprehensive and approved Incident Management Policy and process. Upon the occurrence of a security incident, initial communication is distributed to the appropriate individuals and an escalation process is followed. Upon becoming aware of the incident, measures are promptly taken by the team to resolve the situation. All affected customers should be informed within at most 36 hours of confirming a potential breach in the privacy of their data. Following incident resolution, follow-up is required to ensure that the incident has been resolved effectively and that the threat is no longer present. We are aligned with ISO 27k standards for event and incident management and have formal incident management policies and processes in place. These policies and procedures are tested in the ISO 27k and SOC 2 audits.
VMware	VMware IaaS Services If VMware determines that there has been unauthorized access to, or use or disclosure of, Your Content, or other incident VMware will use commercially reasonable efforts to notify You, taking into account any applicable law, regulation, or governmental request. VMware will provide security incident response (e.g., detection, severity/threat classification, forensics, and resolution) pertaining to management infrastructure over which VMware has direct, administrative, and/or physical access and control, such as the vCloud Hybrid Service servers, storage, applications, and network devices. Documented escalation procedures and a ticketing system are in place to guide employees in identifying, reporting, and responding to system availability issues and related security incidents. This includes an incident response policy to determine severity of an incident and a breach notification process. All alerting and monitoring at the guest OS/VM level is the responsibility of the customer. In the event of a data breach customers will be notified by VMware vCloud Air Global Support Services via their preferred contact means. VMware will provide security incident response (e.g., detection, severity/threat classification, forensics, and resolution) pertaining to management infrastructure over which VMware has direct, administrative, and/or physical access and control, such as the vCloud Air service servers, storage, applications, and network devices. Notification timeframes are agreed upon between VMware and the customer in standard agreements and contracts. Incidents are handled on a case-by-case basis, but typically occur between 24-48 hours after a breach has been confirmed. VMware will provide security incident response (e.g., detection, severity/threat classification, forensics, and resolution) pertaining to management infrastructure over which VMware has direct, administrative, and/or physical access and control, such as the vCloud Air service servers, storage, applications, and network devices.	
FireEye	FireEye has a developed documented process for reporting client notification for regulatory, legal and contractual issues once a breach has been confirmed.	
VirtueStream	VirtueStream shall contact customers in accordance with Service Level Agreements (SLA) and contractual obligations. There are two primary Incident types; Security Incidents, where there is a possible breach in systems or data integrity, and Services, where there is an impacted or affected service. Although there is some overlap, generally any security-related incident should be classified as a Security	

	Incident and the response must be managed using the 'Virtustream Information Security Procedure – Security Incident Response Plan'. The purpose of this security incident response plan is to provide general guidance to Virtustream staff- both technical and managerial – to enable quick and efficient recovery from security incidents; respond in a systematic manner to incidents and carry out all necessary steps to correctly handle an incident; prevent or minimize disruption of critical computing services; and minimize loss or theft of sensitive or mission critical information including sensitive credit card data. The plan is also a guide to sharing information with other stakeholder organizations who might be impacted by such security incidents such as the credit card associations and law enforcement. The Security Incident Response Plan (SIRP) provides guidance to prepare for, respond to, and recover from potential incidents. Policy statements surrounding the IR-Plan are provided to ensure continued upkeep and standardized use. The SIRP guidance at the procedural level defines the roles, responsibilities, communication methods and flows, contact information, types of potential incidents, and immediate actions that are to be taken upon an incident's identification, and elaborates with subsequent recovery steps. Virtustream's Incident Response Policy requires the implementation and testing of a generalized plan that adheres to the International Standards Organization 27002 guidance for incident management and response, but meets specific requirements for compliance such as PCI-DSS. The Plan covers the corporate environment associated with Virtustream's IT assets, the local IT resources and the IT resources at Virtustream's Data Center. It consists of a series of guidelines (Incident Response Guidelines or "IRG") that should generally be followed as appropriate for the circumstances as when a security incident occurs or as part of the ongoing maintenance of this plan. As the incident progresses and has more impact (i.e. severity level increases), the escalation process will be used to engage appropriate resources. Incidents should be handled at the lowest escalation level that is capable of responding to the incident with as few resources as possible in order to reduce the total impact, and to keep tight control. The Table below defines the escalation levels with the associated team involvement.
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8.6.9 Offeror must describe and identify whether or not it has any security controls, both physical and virtual Zones of Control Architectures (ZOCA), used to isolate hosted servers.

CA	APM	AWS EC2 datacenters annually undergo SOC 3 audits.
	MAA	Physical access mechanisms (e.g., access cards, biometric devices, mantraps and portals) have been implemented and are administered by local operations staff to help ensure that only authorized individuals have the ability to access the data centers. Portals and mantraps have been installed as anti-tailgating measures in most of data center lobbies. Entry to and exit from the data centers is through either a portal or mantrap where present. In data centers without portals or mantraps, the security officer monitors the entrance to prevent tailgating. Where present, the portal/mantrap bypass doors are only used in the event an individual is unable to use the portal or mantrap in case of emergency. Examples include handicap, phobia, or other restrictions on a case-by-case basis. Tours and emergency data center security operations crews will be permitted to use the portal bypass door, when necessary.
	CA Agile	Physical access mechanisms (e.g., access cards, biometric devices, mantraps and portals) have been implemented and are administered by local operations staff to help ensure that only authorized individuals have the ability to access the data centers. Portals and mantraps have been installed as anti-tailgating measures in most of data center lobbies. Entry to and exit from the data centers is through either a portal or mantrap where present. In data centers without portals or mantraps, the security

		officer monitors the entrance to prevent tailgating. Where present, the portal/mantrap bypass doors are only used in the event an individual is unable to use the portal or mantrap in case of emergency. Examples include handicap, phobia, or other restrictions on a case-by-case basis. Tours and emergency data center security operations crews will be permitted to use the portal bypass door, when necessary.
	ASM	Physical access mechanisms (e.g., access cards, biometric devices, mantraps and portals) have been implemented and are administered by local operations staff to help ensure that only authorized individuals have the ability to access the data centers. Portals and mantraps have been installed as anti-tailgating measures in most of data center lobbies. Entry to and exit from the data centers is through either a portal or mantrap where present. In data centers without portals or mantraps, the security officer monitors the entrance to prevent tailgating. Where present, the portal/mantrap bypass doors are only used in the event an individual is unable to use the portal or mantrap in case of emergency. Examples include handicap, phobia, or other restrictions on a case-by-case basis. Tours and emergency data center security operations crews will be permitted to use the portal bypass door, when necessary.
AODocs	N/A because all our data is hosted on the Google Cloud Platform infrastructure.	
Virtu	We require 2 Factor and Private Keys to authenticate and Virtual Private Clouds for purposes of Inter-machine communication	
Salesforce	A customer's instance (org) of Salesforce is an aggregate of the raw data. The data model is very complicated, normalized, and the rows are identified by base62 encoded keys (primary and foreign). Re-establishing data ownership and a business context for the data would be very difficult to do at the database level. In order to reassemble any given customer's application (org), someone would need access to our source code in order to reassemble the raw data in a manner that could be interpreted and understood, and would need the entire set of tapes or disks/arrays supporting a given Instance, as the data for any one customer is spread across several tapes/disks. Data center engineers with physical access to the servers do not have logical access to the production environment and administrators with logical access to the systems do not have physical access to the data centers.	
ServiceNow	ServiceNow's architecture is built on a ServiceNow fully owned operated private cloud. This private cloud hosts the ServiceNow platform and applications that are offered to its customers under a subscription service model. The ServiceNow private cloud operates out of colocation data centers that provide robust physical and environmental controls, with ServiceNow staff exclusively providing the logical management. Access to the private cloud where customer data is hosted is only granted to ServiceNow staff based on their roles and job requirements. ServiceNow does not outsource any function that would give a third party access to customer data. ServiceNow's private cloud is a highly standardized environment from the identically configured cages in the data centers through to the consistent logical infrastructure. This private cloud is home to just ServiceNow, limiting the private cloud's footprint to only those technologies required to support this service. This allows for highly restricted networking rule sets regarding ingress and egress requirements and facilitates the ability for hardened systems, only allowing for the small number of necessary services, protocols and ports to be enabled. A ServiceNow instance represents an isolated logical environment consisting of application nodes in the web application tier and a dedicated database. Each customer will receive at least two instances, a production High Availability (HA) instance and a sub-production instance without HA. Each instance is accessed via a unique Domain name in the form of 'customername.service-now.com' (for a production instance) and 'customername-dev.service-now.com' as a sub-production example.	

	There is no comingling of any customer data between instances and there is no single shared multi-tenant databases, with data from multiple customers stored therein.	
QTS	QTS cloud employs security controls as needed to protect the confidentiality and integrity of the information being transmitted by utilizing Cisco AnyConnect VPN Client with SSL (TLS and DTLS) and IPsec (Internet Key Exchange Version 2 [IKEv2]). DTLS provides an optimized connection for latency-sensitive traffic, such as VoIP traffic or TCPbased application access, TLS (HTTP over TLS/SSL) ensures availability of network connectivity through locked down environments, including those using web proxy servers. IPsec/IKEv2 provides an optimized connection for latency-sensitive traffic when security policies require use of IPsec and complies with applicable federal laws, executive orders, directives, policies, regulations, standards, and guidance. The QTS Federal Cloud Infrastructure (QTS cloud) is divided into two separate, isolated firewalled environments, each having its own security boundaries, which are physically and logically separated. These are the QTS cloud Hypervisor Management Layer and the QTS cloud Service Delivery Layer. QTS cloud's Hypervisor Management Layer management is made available through dynamic FIPS 140-2 validated L2TP/IPSEC or SSL 3.0/TLS 1.0 encrypted VPN tunnels, which are authenticated against the RSA SecurID multi-factor authentication security appliances. Once fully authenticated, only a limited RDP session to the physical bastion host (which is also protected by the RSA SecurID multi-factor authentication security appliances) via jump domains is allowed, which prevents the presentation of information systems management related functionality at an interface for general users. QTS cloud's Service Delivery Layer management is also made available through FIPS 140-2 validated L2TP/IPSEC or SSL 3.0/TLS 1.0 encrypted VPN tunnels, which are authenticated against the RSA SecurID multi-factor authentication security appliances. Connection to the QTS cloud Service Delivery Layer is only available through dedicated site-to-site 140-2 validated L2TP/IPSEC or SSL 3.0/TLS 1.0 encrypted VPN tunnels or Trusted Internet Connection (TIC) monitored dedicated datelines to federal customer datacenters, which prevents the presentation of information systems management related functionality at an interface for general users. QTS cloud's Hypervisor Management Layer management is made available through dynamic FIPS 140-2 validated L2TP/IPSEC or SSL 3.0/TLS 1.0 encrypted VPN tunnels, which are authenticated against the RSA SecurID multi-factor authentication security appliances.	
SAP	Ariba	The Cisco Secure ASA5555 Firewall is a dedicated firewall appliance that delivers strong security and performance and creates almost no network performance impact. The product enforces secure access between an internal network and Internet, extranet, or intranet links. Ariba uses Cisco Secure ASA5555 Firewall hardware and Cisco Router access lists to control the traffic to and from the Internet, between Ariba Corporate and the Ariba system, and between servers in Ariba. The firewall servers are configured for Fail-Over/Hot Standby Setup. Additionally, Ariba uses internally developed Ariba SafeGuard software to protect customer data from unauthorized Ariba Corporate users, allowing only Ariba Operations personnel access for limited periods of time. Specifically, firewall servers are used in each level of data communication within Ariba: - Between the Internet and web servers - Between the web servers and the application servers - Between the application servers and the database servers

		These ASA5555 Firewall servers allow Ariba Operations to rigorously protect Ariba from unauthorized access, providing full firewall security protection. The Equinix Data Center utilizes an array of security equipment, techniques, and procedures to control, monitor, and record access to the facility, including customer cage areas. All areas of the center are monitored and recorded using CCTV, and all access points are controlled. The Data Center is staffed with 24-hour security officers. Visitors are screened upon entry to verify identity, and escorted to appropriate locations. Access history is recorded for audit purposes.
	Fieldglass	Please see the Fieldglass Security and Hosting Overview provided in the Supplemental Information section of this response.
	Hanna	The fundamental security architecture of the SAP Cloud infrastructure is the principal of a private cloud. Customers receive an isolated, logical grouping of several virtual machines and physical systems in dedicated customer private networks. Customer private networks are segregated from each other using virtual local area networks (VLAN) technology. Customer systems are deployed in the respective customer private network. Though customers are only able to view or access systems within their assigned customer private network. Design of customer private networks has to be defined in a workshop between SAP and the customer. Multiple customer private networks might be required to separate different tier levels or to implement customer data flow restrictions. SAP HANA Enterprise Cloud administrative tasks will be done using management networks. Administrative access to the management networks from the SAP internal networks is only possible using dedicated jump hosts with strong authentication. Security of the SAP internal network including SAP end user equipment is ensured using solutions like network admission control, Intrusion Prevention Systems, network filtering, strong authentication for remote access, internet content filtering, anti-virus scanner.
	SuccessFactors	We serve our customers and end users from secure data centers around the world. Physical security features at these facilities include a 24x7x365 manned security station and biometric and man-trap access controls. The systems at these facilities are protected by firewalls and encryption technology. Operational redundancy features include redundant power, on-site backup generators, and environmental controls and monitoring. We employ a wide range of security features, including two factor authentication, data encryption, encoded session identifications and passwords. Our hosting providers conduct regular security audits of our infrastructure. We also employ outside vendors for 24x7x365 managed network security and monitoring. Every page we serve is delivered encrypted to the end user via a Transport Layer Security or TLS. We also use encryption technology in our storage systems. We continuously monitor the performance of our cloud offerings using a variety of automated tools. The architecture is designed with built-in redundancy for key components. We load balance at each tier in the network infrastructure. We also designed our application server clusters so that

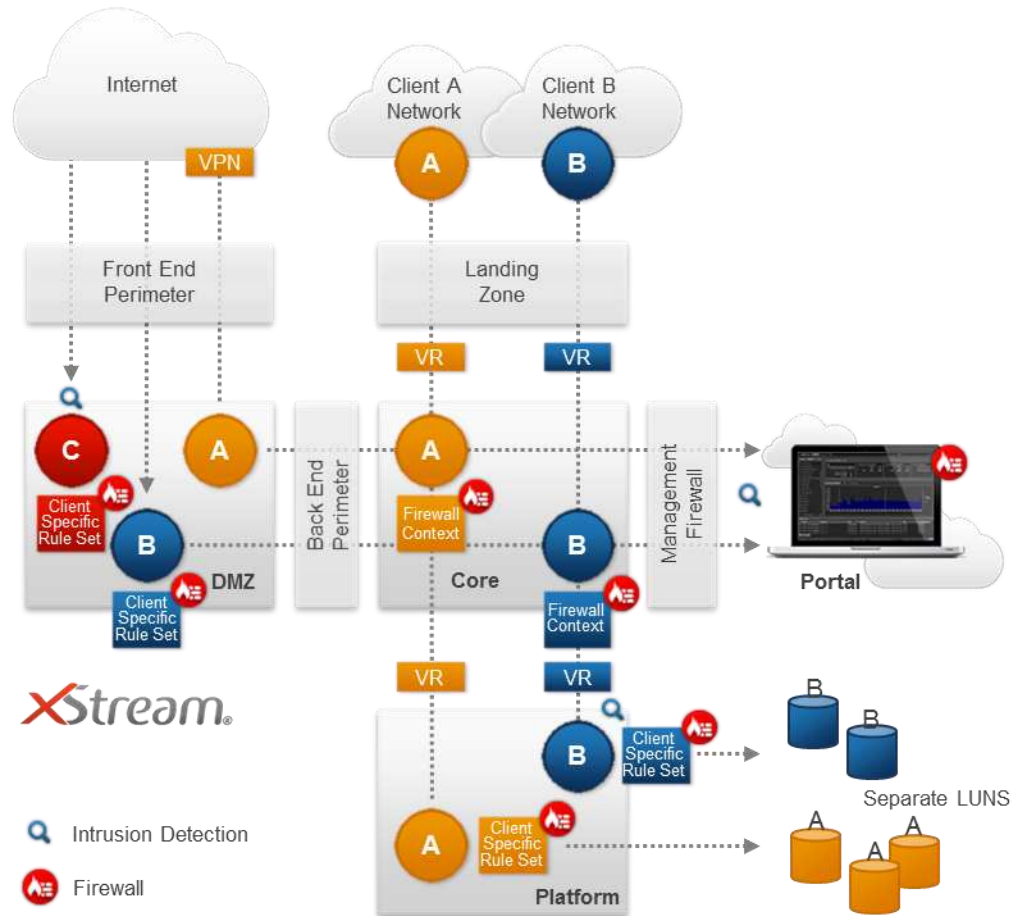
	servers can fail without interrupting the user experience, and our database servers are clustered for failover. We regularly back up customer data. We have implemented a multi-tiered architecture leveraging a strategy of “defense in depth” with 6 tiers of virtual networks (VLAN) for separation at each delivery layer. Network traffic is logged and monitored with live monitoring through an Intrusion Detection System (NIDS), and controlled through a series of switches and routers whereas data must pass through each tier in order to get to the next tier. In addition to Physical (site) security, the logical network stratification includes the following: Tier 1 (External VLAN/firewall) - The first tier consists of the external network and perimeter firewalls. These provide an initial layer of defense and protect the following layers from unauthorized access. Note that port 443 (HTTPS for web traffic) is the only port open. Tier 2 (Internal VLAN/firewall) - A de-militarized zone (DMZ) exists with load balancers. The DMZ provides a second line of defense while the load balancers are the first layer of scalability for the service delivery. The DMZ functions as a “neutral zone” between the network and the outside public network. Tier 3 (Web VLAN) - The Web tier presents the User Interface to the application, and separates the application, reporting and utility servers from the other tiers. Tier 4 (Application VLAN) - The Application tier contains the business logic and transaction servers, and is managed through clustered, high availability (HA) servers. Pre-configured as “Pods”, additional servers can be added as needed to provide scalability and performance. Tier 5 (Database VLAN) - The database tier is protected by an additional set of perimeter firewalls. The database processing is executed on database servers leveraging a multi-tenant, fully qualified database schema. Tier 6 (Storage VLAN) - Data is persisted to disks with include a Storage Area Network (SAN). Prior to store, data is encrypted by way of data appliance with AES-256 bit encryption.
VMware	VMware IaaS Services At the tenant level firewall services are provided via the vCloud Networking & Security Edge Gateways for customers to configure and maintain. Firewall policies can be used to restrict and manage public/Internet-based traffic and create DMZ zones for multi-tier applications. Firewall policies can also be used to configure access policies between internal IP networks and VxLAN segments. Stateful inspection firewalling can be applied on the external interface of the vCNS Edge Gateway. VMware architects, provisions, monitors and manages the vCloud Hybrid Service infrastructure and surrounding components. As described in the AT 101 (ISO 27001) report, access points such as delivery and loading areas and other points where unauthorized persons may enter the premises are controlled and, if possible, isolated from information processing facilities to avoid unauthorized access. The details of this control are not disclosed publicly. VMware AirWatch We implement multiple security measures to protect hosted servers, including physical and logical controls. Due to FOIA requirements and the competitive EMM marketplace, we cannot provide specific architecture details at this time.

FireEye	High-level architecture diagrams following industry best practices utilizing both virtual and physical controls are available and contained in the SOC 2 report.
VirtueStream	Virtustream utilized a virtual local area network (VLAN) and virtual route forwarding (VRF) to logically segregate all customers in the IaaS environment. Every customer chooses their own IP Address range, as there is no ability to overlap IP Addresses between customers. In addition, every customer is logically separated with Firewall Context with their own rule, where by default everything is denied except specific rule.

8.6.10 Provide Security Technical Reference Architectures that support Infrastructure as a Service (IaaS), Software as a Service (SaaS) & Platform as a Service (PaaS).

CA	APM	Only SaaS is provided, network diagram can be provided upon signing NDA
	MAA	Only SaaS is provided, network diagram can be provided upon signing NDA
	CA Agile	These can be provided when a NDA is in place.
	ASM	Only SaaS is provided, network diagram can be provided upon signing NDA
Salesforce	Salesforce offers market leading PaaS and market leading SaaS solutions. Salesforce does not provide IaaS as a direct service offering to our customers, it is an underlying part of our PaaS and SaaS offerings. The Salesforce Platform is built for cloud computing, with multitenancy inherent in its design. To meet the high demands of its large user population, Force.com's foundation is a metadata-driven software architecture that enables multi-tenant applications. Force.com combines several different persistence technologies, including a custom-designed relational database schema, which are innately designed for clouds and multitenancy—no virtualization required. Force.com's core technology uses a runtime engine that materializes all application data from metadata—data about the data itself. In Force.com's well-defined metadata-driven architecture, there is a clear separation of the compiled runtime database engine (kernel), tenant data, and the metadata that describes each application. These distinct boundaries make it possible to independently update the system kernel and tenant-specific applications and schemas, with virtually no risk of one affecting the others. Every logical database object that Force.com exposes is internally managed using metadata. Objects, (tables in traditional relational database parlance), fields, stored procedures, and database triggers are all abstract constructs that exist merely as metadata in Force.com's Universal Data Dictionary (UDD). For example, when you define a new application object or write some procedural code, Force.com does not create an actual table in a database or compile any code. Instead, Force.com simply stores metadata that the system's engine can use to generate the virtual application components at runtime. When you need to modify or customize something about the application schema, like modify an existing field in an object, all that's required is a simple non-blocking update to the corresponding metadata. Because metadata is a key ingredient of Force.com applications, the system's runtime engine must optimize access to metadata; otherwise, frequent metadata access would prevent the service from scaling. With this potential bottleneck in mind, Force.com uses massive and sophisticated metadata caches to maintain the most recently used metadata in memory, avoid performance-sapping disk I/O and code recompilations, and improve application response times.	

	The multitenant architecture and secure logical controls address separation of Customer Data. The Salesforce infrastructure is divided into a modular architecture based on “instances”. Each instance is capable of supporting several thousand customers in a secure and efficient manner. Salesforce uses the instance architecture to continue to scale and meet the demands of our customers. There are appropriate controls in place designed to prevent any given customer’s Salesforce instance from being compromised. This functionality has been designed and undergoes robust testing through an on-going process by both Salesforce and its customers.	
QTS	The QTS cloud makes use of unique managed service provider architecture layer(s). Information systems, particularly those based on cloud architecture models, are made up of different service layers. The layers of the QTS cloud that are defined in its System Security Plan, and are not leveraged by any other Provisional Authorizations, are: Infrastructure as a Service (IaaS). Note: Please refer to NIST SP 800-145 for information on cloud computing architecture models.	
SAP	Ariba	Ariba recognizes that security is a critical component of effective electronic commerce architecture and takes necessary security measures to protect any information passed between buyers and suppliers. Ariba implements security using a variety of hardware, software, and procedural best practices. Full details about our security mechanisms and procedures are available in Chapter 3 of the Ariba Cloud Technical Infrastructure Whitepaper.
	Hanna	N/A, HANA Enterprise Cloud is a private managed cloud
	SuccessFactors	We understand the critical importance of information protection and recognize the contribution that information security makes to an organization’s strategic initiatives and overall risk management. We have implemented security controls and practices designed to protect the confidentiality, integrity, and availability of customer information. We continually work to strengthen and improve those security controls and practices as well. The current best practices associated with information security involve a layered approach, what the industry calls “defense in depth.” Regardless of the software delivery model, security cannot be implemented at a single “make or break” point. For a SaaS provider to facilitate data security for sensitive information, it must have a comprehensive, multifaceted security program in place. We take a holistic approach to information security, implementing a multilayered defense at all the touch points in the information flow—both the physical and logical, applied across the database, middleware, application, and network and communication layers—to offer complete data privacy, transparency, and audit controls.
VMware	Compliance Reference Architecture Framework (RAF) that provides a consistent method for VMware, its partners, and customers to assess and evaluate the impact of regulations on virtual and cloud environments. The intent of the RAF is to provide a single framework for VMware, its partners, and organizations to address a variety of compliance requirements across an IT infrastructure. This includes: Product Applicability Guide (PAG), Architecture Design Guide (ADG), and a Validated Reference Architecture (VRA).	
FireEye	High-level architecture diagrams following industry best practices utilizing both virtual and physical controls are available and contained in the SOC 2 Type 2 report.	
VirtueStream	Virtustream Cloud Platform Security (for the Infrastructure-as-a-Service environment) is designed, built, and operated to provide highest level of infrastructure security available.	
Proposed State of Utah Security Architecture		

Figure 1. xStream Enterprise Architecture

State of Utah end users would access the hosted SAP environments via a MPLS connection (Provided by State of Utah). Additionally a VPN connection has been sized at 100Mbps however this can be decreased or increased depending on the exact requirements.

State of Utah end users accessing our enterprise platform would first hit the landing zone in a dedicated virtual local area network (VLAN) and dedicated virtual route forwarding (VRF). The next hop into the enterprise platform is a dedicated firewall (FW) context on a Cisco Firewall services module. After traversing the core, traffic hits another dedicated VRF and drops into the platform network and compute (CPU and Memory essentially a blade server) layer. All traffic is VLAN separated. At each compute host, a hypervisor based firewall and intrusion protection system (IPS) provides a dedicated client rule set to further ensure network security. All traffic transitioning from one zone to another are monitored by Intrusion Detection and Intrusion Prevention systems.

Traffic coming in via the internet hits the front-end perimeter with load balancing modules and multi-context Cisco firewalls. All traffic then passes through intrusion detection system and intrusion protection systems. As in the enterprise compute layer, every host in our demilitarized zone (DMZ) has a hypervisor-based firewall and IPS with dedicated client rule sets. Again, all traffic is VLAN separated as well.

Traffic that needs to traverse from DMZ to the enterprise runs through another dedicated FW context and IDS/IPS.

All of the State of Utah environments and data will be hosted in Virtustream's data centers within the continental United States.

Standard Services used in Virtustream's management environment and in all client environments including the following:

• All Virtustream employees use Mandatory Strong 2 factor authentication (2FA OTP) Administrative Access to all systems. • Dedicated VLAN network segmentation and dedicated Virtual Route Forwarding (VRF) are used extensively to segregate environments and zones. • Perimeter Firewalls are used to segment internal and external environments as well as segregate security zones. Configuration, monitoring, auditing and logging are included. • Virtual Machine-based Firewall and Intrusion Prevention System (IDS) is installed on every virtual machine in the environment and is protected with Juniper's Security Gateway virtual firewall application and monitored service. Security Services that are standard components for Virtustream's management environment and are Optional Services for client environments including the following: • Managed Two-Factor Authentication ("2FA") is in use for all application systems. • Intel TxT Enabled Servers and Trusted Boot/Bios monitoring with Attestation Server and OS and VM support, including Geolocation and Geofencing according to NIST 7904 guidelines. • Secure operating system (OS) builds based on DoD Secure Technology Implementation Guide (STIG) guidelines are used to build Virtustream's Management and Administration Servers. • Server/File Integrity Monitoring (FIM) is installed in the PCI and VFC clouds. • Patching Regimen: Virtustream patches host servers, network devices, security devices, servers and related services in the Management Network on a specified routine (monthly or quarterly, depending on release schedules), or when there is a CERT or other authorized source of patch that requires immediate attention. Based on urgency and risk of the issue we will schedule the patch as appropriate and use change control. • Scanning regimen: vulnerability scanning is done on a monthly basis with additional 3rd party vulnerability scans done monthly. Additional scans are done when made aware of new vulnerabilities. Issues are classified and addressed according to Risk Classifications and are addressed with ITIL v3 change control processes. • Managed IDS signatures are routinely updated and the logs are monitored. • Anti-Virus is managed on all Management servers in Enterprise, PCI and, VFC clouds. • Logging Service of all servers, network devices, and security devices to a centralized log server system. • Governance Risk Compliance: We use a complete Enterprise Risk Management toolset to manage compliance reporting and continuous monitoring to all of our supported compliance frameworks. Virtustream's facility monitoring systems are complete as per specifications in NIST 800-53r3/4. We use site assessment methodologies and checklists as detailed in NIST 800-42. Our systems and facilities are monitored 24/7 for any exceptions or trends. Our tools, processes and CONUS (Continental USA) personnel monitor network, power, cooling, humidity, water leakage, fire suppression, power systems (utility power, UPS systems and generators) and site access. Virtustream's Physical Access Control Security is designed to protect the confidentiality, integrity, and availability ("CIA") of the cloud platform system and its data with the following security components: • Limited and controlled room access. • Logged and monitored access of all access control events. • Video surveillance and review of all access control events. • Biometric access control required to gain access to the Data Center. • US Data Center staff is limited only to US Citizens.
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	• Locked racks and rooms with key log out/in process. • Data destruction policies and procedures. • Asset in/out policy and procedures. Physical access by authorized staff is controlled by badge systems and biometric access systems. All access of any kind is recorded and logged. Access lists are reviewed every 90 days. Employees that do not have a reason to have physical access are removed from our access management systems. Multiple high resolution and IR enhanced CCTV Cameras monitor our datacenters at all egress and ingress points as well as other sensitive areas. Security video footage is stored in a secure area for 90 days. Approved Visitor Access requires VISITOR Badges and bright lanyards that are specifically different from employee badges. Visitors are required to produce and surrender a state or government issued photo ID during the visit, have a pre-approved reason for the visit, and have the escort witness the sign in and out procedure. Visitors are escorted continuously through approved areas of the facility. Visitors are not allowed access to following areas of the data center under any circumstances: • Cloud hosting areas. • Networking and telecommunication areas. • Guard areas. • Power vaults.
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8.6.11 Describe security procedures (background checks, foot printing logging, etc.) which are in place regarding Offeror's employees who have access to sensitive data.

FireEye	Background verification for employment candidates is a mandatory component of FireEye's hiring process. All personnel are required to sign a confidentiality and non-disclosure agreement agreeing not to disclose proprietary or confidential information including client information to unauthorized parties. Security awareness training program is in place to maintain the skill level of personnel regarding security and privacy expectations and best practices. All FireEye personnel at all levels are trained and notified of information security and privacy requirements and personnel responsibilities.
VirtueStream	Virtustream employees who are assigned to IaaS must pass a Virtustream background investigation. In addition, Virtustream employees assigned to the IaaS must adhere to any requirement by customers to pass federal, state, or local background investigations if they are to provide managed services to the customer zone which includes access to sensitive data.

8.6.12 Describe the security measures and standards (i.e. NIST) which the Offeror has in place to secure the confidentiality of data at rest and in transit.

CA	At CA Technologies, we comply with a multifaceted security standard that includes requirements for security management, policies, procedures, network architecture, software design and other critical protective measures. We ensure the maintenance of vulnerability management programs, implement strong access control measures, regularly monitor and test networks and adhere to the highest industry compliance and security policies. CA offers a variety of SaaS solutions, details for each offering has been provided in Exhibit 1 and 2 of this proposal.
Google	All connections from customer end point devices to Google's Front End Servers are encrypted with enforced HTTPS sessions using Forward Secrecy. Google websites and properties use robust public key technologies: 2048-bit RSA or P-256 ECDSA SSL certificates issued by a trusted authority (currently the Google Internet Authority G2).

	All data in transit between Google's Data Centers traverses across Google's private fiber network using a customized, proprietary encryption technology. Google hard drives leverage technologies like FDE (full disk encryption) and drive locking, to protect data at rest. These methods of encryption are fully managed by Google and Google's Key Management Servers based on 128-bit or stronger Advanced Encryption Standard (AES). Encryption Keys and Ciphers Supported by Google Protocols TLS 1.2 TLS 1.1 TLS 1.0 SSL 3.04 QUIC Cipher suites ECDHE_RSA with AES ECDHE_RSA with 3DES ECDHE_ECDSA RSA with AES RSA with 3DES Signing keys RSA 2048 ECDSA P-256 Hash functions SHA384 SHA256 SHA1 MD5
Salesforce	Government Cloud Encryption Capabilities: As part of the Salesforce Government Cloud, Salesforce is capable of responding to FIPS 140-2 cryptographic implementations for data being transferred between the State's web browser and Salesforce. Data that resides within Salesforce's protected boundary does not use FIPS 140-2 validated encryption as compensating/mitigating controls are in place to protect data. Additional information is provided below. Data In Motion: Salesforce employs cryptographic mechanisms to protect information during transmission. All transmissions between the user and Salesforce are encrypted by default with a 2048-bit Public Key. Our service uses International/Global Step Up certificates. We support one-way TLS, in which customers create secure connections before sharing private data. Secure routing and traffic flow policies ensure that customer traffic is encrypted entering Salesforce until the load balancer decrypts the traffic. The load balancers decrypting the traffic are FIPS 140-2 compliant and are located inside of the Salesforce Government Cloud isolation boundary. Data At Rest: NIST SP 800-53 Rev. 4 states in SC-28, "Information at rest refers to the state of information when it is located on a secondary storage device (e.g., disk drive, tape drive) within an organizational information system." SC-28 also states, "Organizations may choose to employ different

	mechanisms to achieve confidentiality and integrity protections, as appropriate.” All secondary storage media (hard drives, disk drives, and tapes) containing customer data are maintained within Salesforce’s secure production data centers until the media has been sanitized and destroyed. Salesforce relies on physical access controls as a compensating control to protect the data. For primary data storage, Salesforce provides customers with a built-in capability to apply field-level encryption, using 128-bit keys with AES encryption, for a selection of custom fields included in the Force.com Platform and Salesforce Services. Field-level encryption ensures the data associated with designated fields is encrypted in storage.	
SAP	Ariba	Sensitive data elements, including PCI Primary Account Numbers and system account parameters for internal application communications, are stored in Ariba databases encrypted by the AES (Advanced Encryption Standard) and Triple DES (Data Encryption Standard) encryption algorithms with a minimum key length of 128 bits. Encryption technology is also applied for the client connection to the Web site and to the hosted application passwords in storage. Customer user passwords are one way hashed using SHA256 and salted with random data. Limited Ariba Operations personnel have data query access and monitoring rights for the Ariba Hosting program.
	Fieldglass	
	Hanna	SAP provides for enterprise-grade and industry-standard security. SAP HANA Enterprise Cloud datacenters are enterprise-class security with enterprise-class protection including data encryption, network encryption, firewalling, network isolation, and intrusion detection. HANA data is protected in multiple different ways. SAP HANA Enterprise Cloud is a managed cloud service that employs either a VPN or MPLS connection for transit. By default VPN is encrypted and MPLS can be encrypted. The customer procures the method of connection. At installation, HANA data can be encrypted using a feature called Data Volume Encryption. This encryption protects data in the persistence layer. Storage volume access is restricted to the customer account that created the volume, thus denying all other customer accounts the permission to view or access the volume that includes data isolation, masking, zoning and Logical Unit (LUN) binding. Strict user and access management, authorization management according to the need-to-know principle for administrative accounts, and security logging and security monitoring for critical activities or access, also protect data stored in HANA.
	Hybris	The Hybris platform uses SSL (https) for both the web application tier (browsers and WebService APIs) as well as communicating with back office systems. Data at rest is something that has to be taken into consideration in the application requirements by the partner/customer or PS teams. If encryption is required the application teams need to work on implementing the methods to encrypt and secure the data, for example encrypting data fields in the database.
	SuccessFactors	Each customer's data is maintained in a separate database schema eliminating data segmentation breaches. Each schema has separate authentication credentials and assigned resource profile to restrict access rights and resource consumption. Encryption for data at rest uses the AES256 cipher. All application access is encrypted-in-transit over HTTPS with 128-bit TLS encryption.

FireEye	At rest: Data are collected using automated batch and real-time processes and by manual personnel-driven actions via an Analyst facing Portal. Any information that is collected may be stored temporarily within appliances attached to our customers' networks and may subsequently be transmitted back to one or more FireEye datacenters. Data transmitted from a customer's network to a datacenter travels over a strong encryption Virtual Private Network ("VPN") established by the appliances. At transit: FireEye's network sensors are configured to collect full packet capture of customer network streams, including those originating from or destined to potentially malicious IP addresses, matching signature-based network indicators of compromise, results of domain name lookups, and full e-mail messages including headers, content and attachments. This information is primarily stored on-site on the appliances and only meta data matching FireEye / Mandiant indicators of compromise are sent to FaaS.
VirtueStream	Virtustream's use of Intel® Trusted Execution Technology (Intel® TXT), a hardware-root of trust security feature, and Intel® AES-NI encryption acceleration helps secure and protect virtualized environments against malware and provides more of the critical infrastructure and data protection assurances needed to enable trusted multi-tenancy in the cloud. Virtustream offers solution for data-at-rest and data-in-transit encryption solution for our customers as optional service, as most of our customer environment is only accessible via private network and only to the internal users of the customer. Solutions available to our customer as follows. 1. IPSEC VPN Tunnel for data-in-transit and 2. VM level encryption for files and databases 3. Encrypted Backup (all backups are encrypted by default) The technologies of encryption available throughout the entire data lifecycle and all are FIPS 140-2 compliant. a) DB and File System Encryption b) Encrypts file system and volume data transparently to: i) Applications ii) Databases iii) Storage Infrastructure c) Integrated Key Management d) High Efficiency Encryption i) Centralized Key Management ii) Policy Management iii) Detailed Auditing iv) Highly Available v) FIPS 140-2 Certified Hardware Appliance vi) Very Low Encryption Penalty due to Intel AES-NI enabled chip sets used e) Encryption of Virtual Machine, OS and App i) Integration of SafeNET Protect-V ii) Logging of all image access f) Encryption in Archive g) Implements Encryption, Access Control, Auditing on Host (LUW) h) Kernel Level Driver – Win i) File System – Unix/Linux j) Support for file systems and raw partitions k) Highly efficient block encryption

8.6.13 Describe policies and procedures regarding notification to both the State and the Cardholders of a data breach, as defined in this RFP, and the mitigation of such a breach.

CA	CA Technologies abides to contractual requirements for notification, in addition to working with legal to ensure compliance with regulatory requirements. There may be cases where incident analysis completion is a requirement for confirming the breach, and / or its impact and data leakage boundary. Prior to completion of this activity, CA may not have the needed conclusions for customer communication. Once subscriber data has been identified as part of the investigation, said subscribers will be notified as soon as possible and not longer than 5 days. A report of the incident will be available and distributed to clients within 30 days. Please note that none of the offerings proposed as considered payment products and are not intended for use of storage of cardholder data.	
Google	Google will take and implement appropriate technical and organizational measures to protect Customer Data against accidental or unlawful destruction or accidental loss or alteration or unauthorized disclosure or access or other unauthorized processing. If Google becomes aware of a Data Incident, Google will promptly notify Customer as permitted by law of the Data Incident, and take reasonable steps to minimize harm and secure Customer Data. Notification(s) of any Data Incident(s) will be delivered to the Notification Email Address provided by the Purchasing Entity in connection with the Agreement or, at Google's discretion, by direct communication (e.g., by phone call or an in-person meeting).	
Salesforce	Salesforce will promptly notify the State (within 48 hours, reflected in a negotiated agreement between the parties) in the event Salesforce becomes aware of an actual or reasonably suspected unauthorized disclosure of Customer Data. Notification may include phone contact by Salesforce support, email to the State's administrator and Security Contact (if contact is submitted by State and contact information is kept up to date), and public posting on trust.salesforce.com.	
SAP	Ariba	Ariba has developed a computer security incident response team. Following policies and procedures, this team responds to suspected security incidents to mitigate risks and damage. The team conducts response and forensic analysis of systems and network traffic. This information can be used to assist with prosecution if a security breach is detected and the offender caught.
	Fieldglass	SAP Fieldglass' security team is responsible for managing security incidents and all communication is conducted via the respective account managers to ensure timeliness. The process is defined within the Incident Response Management Standard. Customers are notified of an incident within 48 hours.
	Hanna	SAP will notify via defined communication channels within 36 hours of a confirmed data security breaches to the affected customers. The report will detail the following information: • Details relating to the security incident that has occurred, known at the time of notification. • IT infrastructure and/or application affected by the security incident. • Overview of the performed mitigation actions to restore the security, documented within the incident report form. • All further applicable requirements by country regulations "on obligation to notify" will be met.
	Hybris	Since we do not allow for CC data to be transmitted, stored or processed in our environment, we regularly scan the customer environment in case this is done without our consent. However, we do have a CSIRP in place, in which we would notify the customer and our internal Forensics team in the event that a customer environment should be breached.
	SuccessFactors	Upon the occurrence of a data breach, initial communication is distributed to the appropriate individuals and an escalation process is followed. Upon

		becoming aware of the incident, measures are promptly taken by the team to resolve the situation. All affected customers should be informed within at most 36 hours of confirming a potential breach in the privacy of their data. Following incident resolution, follow-up is required to ensure that the incident has been resolved effectively and that the threat is no longer present. We are aligned with ISO 27k standards for event and incident management and have formal incident management policies and processes in place. These policies and procedures are tested in the ISO 27k and SOC 2 audits.
FireEye	FireEye has a documented policy for incident management that has been approved by management and communicated to appropriate constituents and owners. It is continuously maintain and reviewed annually. The plan has a reporting structure and escalation path. An incident response team with defined roles and response related qualifications are available 24x7x365. The team maintains chain of custody for evidence during the incident investigation. There is a process for reporting client notification for regulatory, legal and contractual issues after a breach if a breach were to be confirmed. If a confirmed breach were to occur a management team would review all the factors and develop a remediation plan to mitigate.	
VirtueStream	There are two primary Incident types; Security Incidents, where there is a possible breach in systems or data integrity, and Services, where there is in impacted or affected service. Although there is some overlap, generally any security-related incident should be classified as a Security Incident and the response must be managed using the 'Virtustream Information Security Procedure – Security Incident Response Plan'. The purpose of this security incident response plan is to provide general guidance to Virtustream staff- both technical and managerial – to enable quick and efficient recovery from security incidents; respond in a systematic manner to incidents and carry out all necessary steps to correctly handle an incident; prevent or minimize disruption of critical computing services; and minimize loss or theft of sensitive or mission critical information including sensitive credit card data. The plan is also a guide to sharing information with other stakeholder organizations who might be impacted by such security incidents such as the credit card associations and law enforcement. The Security Incident Response Plan (SIRP) provides guidance to prepare for, respond to, and recover from potential incidents. Policy statements surrounding the IR-Plan are provided to ensure continued upkeep and standardized use. The SIRP guidance at the procedural level defines the roles, responsibilities, communication methods and flows, contact information, types of potential incidents, and immediate actions that are to be taken upon an incident's identification, and elaborates with subsequent recovery steps. Virtustream's Incident Response Policy requires the implementation and testing of a generalized plan that adheres to the International Standards Organization 27002 guidance for incident management and response, but meets specific requirements for compliance such as PCI-DSS. The Plan covers the corporate environment associated with Virtustream's IT assets, the local IT resources and the IT resources at Virtustream's Data Center. It consists of a series of guidelines (Incident Response Guidelines or "IRG") that should generally be followed as appropriate for the circumstances as when a security incident occurs or as part of the ongoing maintenance of this plan. As the incident progresses and has more impact (i.e. severity level increases), the escalation process will be used to engage appropriate resources. Incidents should be handled at the lowest escalation level that is capable of responding to the incident with as few resources as possible in order to reduce the total impact, and to keep tight control. The Table below defines the escalation levels with the associated team involvement.	

8.7 Migration and Redeployment Plan

8.7.1 Offeror must describe how it manages the end of life activities of closing down a service to a Purchasing Entity and safely deprovisioning it before the Offeror is no longer contractually obligated to maintain the service, include planned and unplanned activities. An Offeror's response should include detail on how an Offeror maintains security of the data during this phase of an SLA, if the Offeror provides for redundancy during migration, and how portable the data is during migration.

The end of life activities for each Purchasing Entity will vary based on the type of service they are currently using and the service that they will be moving too. All Purchasing Entities will be notified in advance of any end of life service so that the Purchasing Entity can work with Carahsoft and the service providers to develop a plan exporting and transitioning data.

8.7.2 Offeror must describe how it intends to provide an orderly return of data back to the Purchasing Entity, include any description in your SLA that describes the return of data to a customer.

At all times during the course of the Service, the Purchasing Entities will have access and ownership of their data. The Purchasing Entity is free to download or access the data through a variety of means based on the service at any time during their service period.

8.8 Service or Data Recovery

8.8.1 Describe how you would respond to the following situations; include any contingency plan or policy.

a. Extended downtime.

CA	APM	If unable to resolve in a timely manner, all customers will be notified via email to the registered admin
	MAA	Customers are kept abreast with progress during incidents, including outages. CA utilizes best-of-breed notification system which enables customer contacts to self-subscribe to different types of notifications that they would be interested in. A DR plan has been created should the extended down time result in DR declaration.
	CA Agile	We would failover to our warm data center in order to restore access to the application as quickly as possible. This is done according to our Disaster Recovery Plan
	ASM	If unable to resolve in a timely manner, all customers will be notified via email to the registered admin. Failover from the primary to DR site may be utilized if the extended amount of time warrants declaration of DR.
Google	Due the redundant nature of the Google infrastructure there is no expectation of any extended downtime. If a data center in use by any of your end users suffers a catastrophic failure, Google's dynamic health monitoring would just reroute the session to a different data center.	
AODocs	All the AODocs data is hosted on the Google Cloud Platform infrastructure. AODocs does not manage any physical infrastructure. Due the redundant nature of the Google infrastructure there is no expectation of any extended downtime. If a data center in use by any of your end users suffers a catastrophic failure, Google's dynamic health monitoring would just reroute the session to a different data center.	
Virtru	Notify users that Virtru service is unavailable, and recommend that they use their offline encryption tools and backups to perform emergency functions.	
Salesforce	Salesforce has maintained high levels of availability across all Salesforce instances since inception. As the only on-demand vendor to provide daily service-quality data on a public Web site (http://trust.salesforce.com), Salesforce proves that we are the leader in availability. And by making its track record completely transparent, Salesforce proves we are worthy of our customers' trust. To ensure maximum uptime and continuous availability, Salesforce provides the best	

	redundant data protection and most advanced facilities protection available, along with a complete data recovery plan—all without affecting performance. Salesforce uses commercially reasonable efforts to make its on-demand services available to its customers 24/7, except for planned downtime, for which Salesforce gives customers prior notice, and force majeure events. Excellent availability statistics are critical to Salesforce's customers' success and to the success of Salesforce as a company. Live and historical statistics on the Salesforce system performance are publicly published at http://trust.salesforce.com/trust/status. The persistence layer underlying Salesforce Platform is proven database technology that powers all of Salesforce's products today, serving more than 150,000 organizations and over 4 billion transactions per day with an average request response time of less than .25 seconds, all with an average up time of 99.9+ percent.
ServiceNow	ServiceNow's data centers and cloud-based infrastructure have been designed to be highly available. All servers and network devices have redundant components and multiple network paths to avoid single points of failure. At the heart of this architecture, each customer application instance is supported by a multi-homed network configuration with multiple connections to the Internet. Production application servers are load balanced within each data center. Production database servers are replicated in near-real time to a peer data center within the same geographic region. ServiceNow leverages this Advanced High Availability (AHA) architecture for customer production instances in several ways: •In the event of the failure of one or more infrastructure components, service is restored by transferring the operation of customer instances associated with the failed components to the peer data center. •Before executing required maintenance, ServiceNow can proactively transfer operation of customer instances impacted by the maintenance to the peer data center. The maintenance can then proceed without impacting service availability. This approach means that the transfer between active and standby data centers is being regularly executed as part of standard operating procedures – ensuring that when it is needed to address a failure, the transfer will be successful and service disruption minimized. RTO is 2 hours. RPO is 1 hour. See the "ServiceNow Security, Operations, and Compliance White Paper" included with this response for more information.
QTS	In the rare instance of failure of the commercially-delivered electrical power, back-up systems at each QTS data center start instantaneously. Batteries provide power for the first 12-15 seconds while on-site diesel generators spin up to synchronize their output with the battery-supplied feed. Once on-line, the generators can supply power indefinitely, and the IT equipment on the data floor as well as critical infrastructure components are all unaffected. While the basics of reliable power seem simple, none of this is taken for granted. Battery banks are sized to provide 15 minutes of power, well beyond the 15 seconds that it typically takes generators to come on line. Inspections are conducted daily and quarterly to ensure that the battery banks are prepared at all times. The diesel generators are inspected by running them each month to circulate and condition the fuel, then running them annually under the full simulated load of the current IT equipment on the data center floor. Factory technicians inspect and maintain the generators semi-annually. Quantities of fuel sufficient to support 48-72 hours of

	operation without resupply are stored on-site, and re-supply contracts are in place with multiple providers to have fuel delivered as soon as the generators come on line.	
SAP	Ariba	Ariba has implemented two sites within each region. In North America the sites are currently located in San Jose, California and Sterling, VA. In Europe the sites are located in St. Leon-Rot, Germany and Amsterdam, Netherlands. The act of failing over from one site to another has a design goal for its Recovery Time Objective (RTO) of no more than four hours. The design goal for the Recovery Point Objective (RPO) is five minutes. Disaster recovery options are included for all Ariba Cloud Services. In the event of a fail-over to the disaster recovery site, no customer changes are required as all URLs that customers use to reach the applications will continue to work. Ariba will notify customers via their email addresses in the event of unplanned downtime. Internally, Ariba uses a documented system recovery plan that outlines the approach and steps for recovering the applications. This document defines roles and responsibilities in the event of disaster: Local Ariba staff maintains the hardware remotely. Ariba maintains the application software. Processes are in place to keep database and file servers in sync between primary and backup data centers. The failover process of all parts of the infrastructure is automated. In the event of a catastrophe, Ariba will declare the primary data center “down” and locally the script will be run to switchover and start the applications at the remote data center. Ariba tests power outage backup scenarios and the Disaster Recovery Plan on a periodic basis to ensure it is up-to-date, successful, and effective.
	Fieldglass	Customers are notified of unscheduled downtime immediately via email. Updates are frequently emailed out until the issue has been resolved. Customers are notified of scheduled downtime 5 days prior via email.
	Hanna	In case of a disaster depending on the infra & technical architecture defined during HEC technical assessment workshop, systems could fail over to HA node. If DR (optional offering) is selected, the systems could move to secondary DC that where contracted with a DR option & HEC declaring DR. Regular system downtime for patching etc. is planned in advance with the customer and typically follows customers maintenance schedules.
	Hybris	SAP Hybris offers continuous 24/7 systems monitoring in-place, which automatically notifies you, SAP Hybris support and optionally your designated implementation partner in the event of any monitored system problem. Tools used for monitoring include HP Sitescope and Nagios. This service ensures quick response times to emergency problems. Standard monitors are in place for basic site availability. Customer can utilize additional 3rd party monitoring services should it wish to add additional monitoring. Upon request, monthly or quarterly reviews are offered to review performance over the period. When a system problem occurs, in addition to monitor alerts sent to the customer, SAP Hybris support may send emails to a designated customer notification email address to provide status, updates or further detailed information. In addition, a support ticket would be created which would include such information.
	SuccessFactors	Our infrastructure architecture is designed with high availability in mind, and engineered for resiliency. All major components are redundant, including power, HVAC, fire suppression, and the physical components of our network. Production data centers have strict access controls, and are continuously

		staffed and monitored to help prevent acts of sabotage or vandalism. All production data centers are ANSI/EIA/TIA-942 Tier III/IV facilities, and are ISO 27001 certified. Production data centers are also geographically dispersed to help prevent a single event from affecting more than one data center. In the event a production data center has an outage we failover to an alternate data center in the same geographic region to minimize impact to customers. Our Cloud Operations teams are also geographically dispersed, working in offices in the US, Europe, South America, and India. Should an office be impacted by an environmental event or pandemic, other offices can continue operations. Aspects of the plan are described in the SOC reports, Disaster Recovery Plan ("DRP") and Business Continuity Plan ("BCP") solutions are dependent on several factors. The customer may be responsible for parts of the recovery/continuity activities.
VMware		VMware vCloud Air leverages proven VMware High Availability technology to minimize the risk of extended downtime. In the unlikely event that an extended outage does occur, VMware will support guide the customer's efforts to restore services to an alternative vCloud Air or vCGS datacenter. We will also provide remedies in the form of service credits as outlined in the following VMware vCloud Air, vCGS, VMware AirWatch and VMware Identity Manager SLAs.
FireEye		FireEye has a mature and documented Business Continuity Plan and Disaster Recovery Plan that follows industry best practices that is reviewed and tested annually. The BCP/DRP plan has RPO/RTO timing criteria and other critical business requirements that is available for review if requested in the future.
VirtueStream		In the event of extended downtime affecting production systems, Virtustream and customer would jointly evaluate the situation and mutually decide on failover declaration, whereby Virtustream would then execute the failover plan to restore customer operations to the secondary data center.

b. Suffers an unrecoverable loss of data.

CA	APM	Customer data is isolated within dedicated schemas with nightly backups. The maximum data loss would be the previous 24hrs.
	MAA	MAA data is backed up fully daily. The maximum data loss would be the previous 24hrs.
	CA Agile	We have implemented a physical standby database in both hot/Live site as well as warm/standby sites using Oracle Data Guard with real-time apply to achieve the stated recovery objectives.
	ASM	Customer data is isolated within dedicated schemas with nightly backups. The maximum data loss would be the previous 24hrs.
Google		Google performs real time data replication to avoid unrecoverable data loss. Customers that configure the retention policies in Google Apps Vault can ensure that end users can not inadvertently or maliciously delete email in advance of any defined retention schedules.
AODocs		AODocs data are stored in Google AppEngine and Google Drive: - The data stored in Google AppEngine are backed up every day. The application is hosted on Google Cloud Platform infrastructure and benefits from the network security described in this whitepaper: https://cloud.google.com/files/Google-CommonSecurity-WhitePaper-v1.4.pdf - Data stored in Google Drive is managed by Google within its multiple servers location. Altirnao does not manage this infrastructure. Google Drive can be backed up by third party tool such as Backupify.

Virtru	Notify users that data within Virtru is unavailable, and recommend that they use their offline encryption tools and backups to perform emergency functions.	
Salesforce	To maximize availability, the service is delivered using multiple world-class data centers supporting primary and replicated disaster recovery instance, plus a separate production-class lab. The infrastructure utilizes carrier-class components designed to support millions of users. Extensive use of high-availability servers and network technologies, and a carrier-neutral network strategy, help to minimize the risk of single points of failure, and provide a highly resilient environment with maximum uptime and performance. The Salesforce services are configured to be N+1 redundant at a minimum, where N is the number of components of a given type needed for the service to operate, and +1 is the redundancy. In many cases, Salesforce has more than one piece of redundant equipment for a given function.	
ServiceNow	Please see our response for 8.8.1a	
QTS	QTS cloud developed a OPS_POL_54_QTS-FC_Contingency_Planning_Policy (v1.2 – 2/6/14), detailing the policies, procedures, roles and responsibilities of key personnel in the event of an emergency and/or disaster.	
SAP	Ariba	Our SLA provides tenant remuneration for losses they may incur due to outages within the infrastructure.
	Fieldglass	The maximum data loss timeframe is guaranteed to be less than three hours; however, offsite backups are performed every 15 minutes so the timeframe is actually much shorter.
	Hanna	Data loss is defined by RPO & RTO. HEC has a maximum RPO of 30 mins & RTO of 12 hours.
	Hybris	For a cloud solution, data backup and restore is handled by SAP. SAP shall follow its archiving procedures for Customer Data as set out in the SAP Hybris Commerce, cloud edition Services Description. In the event of any loss or damage to Customer Data, SAP shall use commercially reasonable efforts to restore the lost or damaged Customer Data from the latest back- up of such Customer Data maintained by SAP in accordance with the archiving procedure described in its SAP Hybris Commerce, cloud edition Services Description. SAP shall not be responsible for any loss, destruction, alteration or disclosure of Customer Data caused by any third party, (except those third parties sub- contracted by SAP to perform services related to Customer Data maintenance and back-up).
	SuccessFactors	Our SLA provides tenant remuneration for losses they may incur due to outages within the infrastructure.
VMware	VMWare IaaS Services As discussed in detail in section 8.8.2.1.a below, VMware IaaS services are architected to minimize the risk of unrecoverable data loss. In addition option services such as vCloud Air Data Protection can be leveraged to further mitigate any risk. VMware's vCloud Air policy regarding data loss can be found in the vCloud Air Terms of use. VMware's vCloud Government Service policy regarding data loss can be found in the vCloud Government Service Terms of Service AirWatch Hosted Services AirWatch Business Continuity and Disaster Recovery strategies include data and hardware redundancy, network configuration redundancy and backups, and robust, regular testing exercises. AirWatch features active-passive configurations for high availability and redundancy with all components made to failover with minimal downtime. Load balancing capabilities are deployed across multiple data centers to ensure timely server recovery. AirWatch also incorporates replication technology featuring SQL log shipping or network SAN byte replication to prevent data loss.	

	• Due to FOIA restrictions and the competitive nature of the EMM marketplace, we cannot provide specific details regarding recovery strategies or timelines.
FireEye	FireEye has a mature and documented Business Continuity Plan and Disaster Recovery Plan that follows industry best practices that is reviewed and tested annually. The BCP/DRP plan has RPO/RTO timing criteria and other critical business requirements that is available for review if requested in the future.
VirtueStream	Multiple copies of customer data exist in multiple datacenters – in the primary datacenter, there is the production copy and a local backup. The local backup is replicated to a secondary datacenter and the production datastores associated with coreVM's are also replicated at regular intervals to the secondary datacenter. If NASPO feels that additional steps/redundancy are required to maintain recoverability, Virtustream is open to discussion.

c. Offeror experiences a system failure.

CA	APM	Disaster to the CA Technologies corporate network in New York will not affect customers' service. Secondary services, such as domain name services will be routed through the secondary CA Technologies network in Illinois. CA has a BCP plan in place to direct its services. The SaaS environment is separate from the CA corporate network and a service specific disaster recovery plan is in place.
	MAA	Customers would be notified in advance, and given ample time to retrieve their data.
	CA Agile	We enable all of our employees with the ability to be able to work remotely and provide remote network access to ensure business functions can continue. All corporate infrastructure has redundate systems that can be utilized in the event of failure.
	ASM	Customers would be notified in advance, and given ample time to retrieve their data manually or via the ASM API.
Google	Google's corporate network is separate from it's production infrastructure. Google is a global organization that has support personnel located at key office installations and tests our business continuity programs annually. These tests are to validate that if corporate headquarters is off the grid that critical business functions can be picked up by other staff.	
AODocs	AODocs runs 100% over Google's Cloud Platform infrastructure that is naturally redundant, and all AODocs internal systems such as technical support, email, collaboration, source code hosting, etc are run on cloud based services. AODocs personnel can work from any physical location without any business disruption and they do work from remote locations on a regular basis. If one of the AODocs facilities were to be temporarily unavailable due to a natural disaster, AODocs personnel would be able to perform their work without significant interruption.	
Virtru	Notify users that Virtru is or will be permanently unavailable, and recommend that they use their offline encryption tools and backups to perform emergency functions.	
Salesforce	Please see response to items a. and b. above and d. and e. below. Salesforce has documented Disaster Recovery and Business Continuity plans for critical business functions. The Disaster Recovery and Business Continuity plans are tested at least annually. A post mortem documenting the results of the disaster recovery tests can be provided to customers with a signed NDA in place. Business continuity plans are updated each year, including the list of business processes, recovery time objectives, and key resources. Senior management is included in this process. Business continuity plans are exercised on an annual basis. Action items and lessons learned are tracked from each incident and exercise conducted. Action items are prioritized and tracked until	

	closed. Salesforce has developed additional procedures, processes and plans, including a Pandemic plan. Salesforce also recommends customers also devise their own backup strategy for their data, as there is a fee for customers to request for restoration from Salesforce backups. Salesforce provides multiple ways for our customers to obtain periodic backups of its data. We offer a weekly export service (WES) for those customers requiring a local backup copy of their data or a data set for import into other applications (such as an ERP system). Salesforce also supports data replication, which allows customers to store and maintain a local, separate copy of their organization's Salesforce data including the META data (logins, etc.) for specialized uses, such as data warehousing, data mining, custom reporting, analytics, and integration with other applications. Data replication provides customers with local control and the ability to run large or ad hoc analytical queries across the entire data set.	
ServiceNow	Please see our response for 8.8.1a	
QTS	QTS has established an alternate processing site including necessary agreements to permit the resumption of information system operations for essential missions and business functions within [Assignment: organization-defined time period consistent with recovery time objectives] when the primary processing capabilities are unavailable. The QTS cloud hosting facilities in Richmond, VA (RIC1) and Atlanta, GA (ATL1) have agreements with each other to restore services in the event that one of the sites becomes unavailable. Both facilities are QTS managed facilities and are always available to meet the recovery time and recovery point objectives for the system. Agreements are in place to allow QTS to access resources at the alternate processing site physically and via the QTS client network. Richmond and Atlanta Datacenters are independently operated datacenters that offers disaster recovery services to customers. The contingency approach ensures that hardware and software components needed for recovery efforts are already at the alternate facility. QTS ensures that equipment and supplies required to resume operations are available at the alternate site or contracts are in place to support delivery to the site in time to support the organization-defined time period for resumption. Network circuits, networking infrastructure, storage, virtual servers, and management components required to resume operations are available and configured at the alternate site.	
SAP	Ariba	"Ariba modules automatically persist object state to the underlying relational database as users work. When a user performs a significant action, for example, adding an item to an order, performing an approval, etc., the Ariba application tier is aware of the change and automatically saves the relevant object state to the database. This provides transparent persistence of the user's work without the user having to "save" or "submit" changes to avoid losing work in the event of failure or session timeout. This in turn means that the loss of any connections between the tiers or failure of one of the tiers will not leave data in an inconsistent state. While object data is cached in the middle tier for performance, the official record is stored in the database to avoid any potential data loss or corruption. This means that recovery for Ariba modules is implicit and automatic. When the modules start, they retrieve the state of the various business objects from the underlying database as needed for user sessions. If an Ariba module fails, there is no special application recovery process other than restarting the module. The Ariba module will automatically connect to the database and as clients login and commence working, all required business object data will be retrieved from the database."

	Fieldglass	Fieldglass' business continuity program (BC Program) was established to ensure that, after a complete disruption of its Chicago and/or Naperville, Illinois offices, all employees and the functions for which they are responsible, are capable of continued operations in less than one business day. This includes office space as well as all equipment and supplies needed to continue its operations without an interruption in customer services. Fieldglass' BC Program is integrated into all facets of the company due to the criticality of the product that it sells and supports. As such, representatives from all areas of the company are responsible for ensuring that they are familiar with their duties and responsibilities during a disruption and how to recover their areas after the disruption occurs.
	Hanna	Service Level Credits Where SAP fails to meet a Service Level, SAP will be liable to Customer for the corresponding Service Level Credit as set out in this section. The Service Level Credit is calculated as the sum of the Service Level Credits for both DEV/QAS and PRD for the TA Service Level defined in section 5.1 above. SAP will deduct the amount of any Service Level Credits owed to Customer from the next invoice (or, if there is no such invoice, by bank transfer to such bank account as Customer may specify in writing). Customer agrees that under no circumstances will the total maximum Service Level Credits: (i) for any one month, exceed 100% of the Service Fee for that month; and, (ii) for any given contract year, exceed in the aggregate an amount equal to one- third of the annual Service Fee charged for the contract year (or one third of the total Service Fee charged if the Term as defined in the applicable Order Form is less than one (1) year). Customer acknowledges that the Service Level Credits defined hereunder are the sole remedy for SAP's failure to meet the specified Service Level. 5.6 Termination for Service Level Failure Customer may terminate the applicable Order Form with thirty (30) day's termination notice in writing to SAP, if SAP misses a Service Level as specified in this Supplement for three (3) months in sequence. Customer may exercise this termination right only within thirty (30) days after receipt of the respective Service Level report that documents the applicable Service Level failure that would cause such termination right to accrue in Customer.
	Hybris	SAP isn't likely to go out of business in the near future. However, our contract states the following: Upon expiration or termination of the Agreement, SAP may destroy or otherwise dispose of any of Customer Data in its possession unless SAP (i) is requested by Customer to extend the term of the Order Form as permitted in the Order Form to allow Customer to retrieve Customer Data, or (ii) receives, no later than thirty (30) days after the effective date of the termination of this Agreement, a written request for the delivery to Customer of the then most recent back-up of the Customer Data. SAP shall use reasonable commercial efforts to deliver the back-up to Customer within thirty (30) days of its receipt of such a written request, provided that Customer has, at that time, paid all fees and charges outstanding and owed at termination. Customer shall pay all reasonable fees and expenses incurred by SAP in returning or disposing of the Customer Data.

VMware	AirWatch Hosted Services AirWatch Business Continuity (BC) strategies include clear policies and procedures as well as robust, regular testing exercises. Our BC recovery strategies for support and maintenance include provisions for workforce mobility, secondary support locations, and defined leadership roles and responsibilities for all recovery staff. • Multiple Support Locations – AirWatch maintains a Global Support Team, which spans multiple offices around the world. This ensures that if a disaster occurs at one of our offices, our remaining Support Team members can provide assistance to our customers. • Mobile Workforce – Should an AirWatch office become inaccessible, all AirWatch employees are equipped with laptops and can access necessary internal resources. • Defined Leadership – During a disaster, roles and responsibilities are assigned to key personnel, and a recovery manager provides leadership and documents the continuity process. Additionally, emergency contact numbers for key personnel are provided for all vendors and support staff.
FireEye	FireEye has a mature and documented Business Continuity Plan and Disaster Recovery Plan that follows industry best practices that is reviewed and tested annually. The BCP/DRP plan has RPO/RTO timing criteria and other critical business requirements that is available for review if requested in the future.
VirtueStream	Virtustream has built redundancy into all layers of the physical infrastructure in order to deliver SLAs up to 99.999% and mitigate the risks of a system failure. Additional levels of protection include regular system backups (stored locally and replicated offsite) as well as automatic storage replication to a secondary data center to facilitate the ability to restore operations in the event of a system failure.

- d. Ability to recover and restore data within 4 business hours in the event of a severe system outage.

CA	APM	CA provides an SLA of 99.8% uptime, which can result in unforeseen outages of ~1.5 hours per month. In the event of a failure to meet a SLA threshold, Customer is entitled to a number of days of credit.
	MAA	Using DB clustering technologies, multiple copies of data are maintained helping in recovery of the data.
	CA Agile	We can meet this requirement.
	ASM	Data is replicated from the primary (production) to secondary (DR) continuously. In the event of catastrophic loss of live data a failover to the DR site would be necessary.
Google	Google's RTO is zero.	
Virtru	See 'Virtru Incident & Breach Policy'	
Salesforce	Customer data, up to the last committed transaction, is replicated to disk in near-real time at the designated disaster recovery data center, and backed up at the primary data center. Backups are performed daily at primary data center facility without stopping access to the application. For business continuity purposes, Salesforce supports disaster recovery with a dedicated team and a 4 hour recovery point objective (RPO) and 12 hour recovery time objective (RTO). Additional details can be provided with the execution of an NDA between Salesforce and your Agency.	
ServiceNow	Please see our response for 8.8.1a	
QTS	As defined in QTS OPS_POL_54_QTS-FC_Contingency_Planning_Policy (v1.2 – 2/6/14), QTS cloud has identified the following potential accessibility problems: • Network Outage – Short Term • Network Outage – Long Term • Facility Power or Environmental Outage – Short Term	

	• Facility Power or Environmental Outage – Long Term • Serious Facility Damage – Short Term • Serious Facility Damage – Long Term or Permanent Both the RIC2 and ATL1 QTS cloud Infrastructure is an Active/Active system and can operate independently of each other indefinitely. If QTS cloud determines that any single event (network, power, facility damage) presents a long-term threat, QTS immediately conducts an emergency meeting and plan to remedy or relocate infrastructure to a viable facility."	
SAP	Ariba	Ariba has implemented two sites within each region. In North America the sites are currently located in San Jose, California and Sterling, VA. In Europe the sites are located in St. Leon-Rot, Germany and Amsterdam, Netherlands. The act of failing over from one site to another has a design goal for its Recovery Time Objective (RTO) of no more than four hours. The design goal for the Recovery Point Objective (RPO) is five minutes.
	Fieldglass	Fieldglass offers the following: • RTO = No more than 48 hours • RPO = No more than 6 hours. Warm site replica with 100% processing power of original site. Disaster recovery site can run without need from resumption.
	Hanna	See our RTO and RPO info below
	Hybris	For a cloud solution, data backup and restore is handled by SAP. SAP shall follow its archiving procedures for Customer Data as set out in the SAP Hybris Commerce, cloud edition Services Description. In the event of any loss or damage to Customer Data, SAP shall use commercially reasonable efforts to restore the lost or damaged Customer Data from the latest back-up of such Customer Data maintained by SAP in accordance with the archiving procedure described in its SAP Hybris Commerce, cloud edition Services Description. SAP shall not be responsible for any loss, destruction, alteration or disclosure of Customer Data caused by any third party, (except those third parties sub-contracted by SAP to perform services related to Customer Data maintenance and back-up). Both IDS and IPS are included the SAP Hybris Commerce, Cloud Edition. The security infrastructure includes firewall security and hardened security policies on all servers. Log management procedures are in-place for log review for firewall, applications, network devices, including file-integrity management. SAP Hybris utilizes technologies from leading security firms for Log Management and File Integrity Management. SAP Hybris employs two-factor authentication across its network. SAP Hybris undergoes vulnerability and penetration testing. SAP Hybris validates against requirements for PCI DSS 2.0. The infrastructure also includes Web Application Firewalls and DDoS Mitigation Services. In addition, security policies and change management policies are in-place ensuring that all access and changes to customer systems and information is accessible only by SAP Hybris staff with access authorization. Security of the software application which is controlled by the Customer (or its implementation partner) remains the responsibility of the Customer. Upon expiration or termination of the Agreement, SAP may destroy or otherwise dispose of any of Customer Data in its possession unless SAP (i) is requested by Customer to extend the term of the Order Form as permitted in

		the Order Form to allow Customer to retrieve Customer Data, or (ii) receives, no later than thirty (30) days after the effective date of the termination of this Agreement, a written request for the delivery to Customer of the then most recent back-up of the Customer Data. SAP shall use reasonable commercial efforts to deliver the back-up to Customer within thirty (30) days of its receipt of such a written request, provided that Customer has, at that time, paid all fees and charges outstanding and owed at termination. Customer shall pay all reasonable fees and expenses incurred by SAP in returning or disposing of the Customer Data.
	SuccessFactors	RPO and RTO are defined in the general terms and conditions
VMware	VMware Response: VMware IaaS Services VMware DR service. We can discuss specific recovery information under NDA to participating entities during task order negotiations as required. AirWatch Hosted Services We can discuss specific recovery information under NDA to participating entities during task order negotiations as required.	
FireEye	FireEye has a mature and documented Business Continuity Plan and Disaster Recovery Plan that follows industry best practices that is reviewed and tested annually. The BCP/DRP plan has RPO/RTO timing criteria and other critical business requirements that is available for review if requested in the future.	
VirtueStream	Basic Plus microVM's are designed for mission-critical workloads and for systems that require DR, addition of reserved compute capacity in a secondary datacenter (i.e. Reserve uVM) and automatic storage replication to facilitate the ability to restore operations in the event of an outage at the primary data center. RPO and RTO for core microVM's are 15 minutes and 2 hours respectively.	

e. Describe your Recovery Point Objective (RPO) and Recovery Time Objective (RTO).

CA	APM	Recovery Point Objective (RPO): Maximum data loss: 24 hours Data that is uploaded, but not backed up within the 24 hours may have to be re-entered Recovery Time Objective (RTO): 72 hours
	MAA	Recovery Point Objective (RPO): Maximum data loss: 24 hours Data that is uploaded, but not backed up within the 24 hours may have to be re-entered Recovery Time Objective (RTO): 72 hours
	CA Agile	RTO: 2 hours RPO: 12 hours
	ASM	Recovery Point Objective (RPO): Maximum data loss: 24 hours Data that is uploaded, but not backed up within the 24 hours may have to be re-entered Recovery Time Objective (RTO): 24 hours
Google	RPO/RTO objectives are zero hours.	
AODocs	AODocs is hosted on Google App Engine which is designed to be highly available. Our standard SLA is 99.5% . Specific financial penalties can be discussed as part of the AODocs license contract. Google App Engine is running in multiple datacenters on multiple continents.	

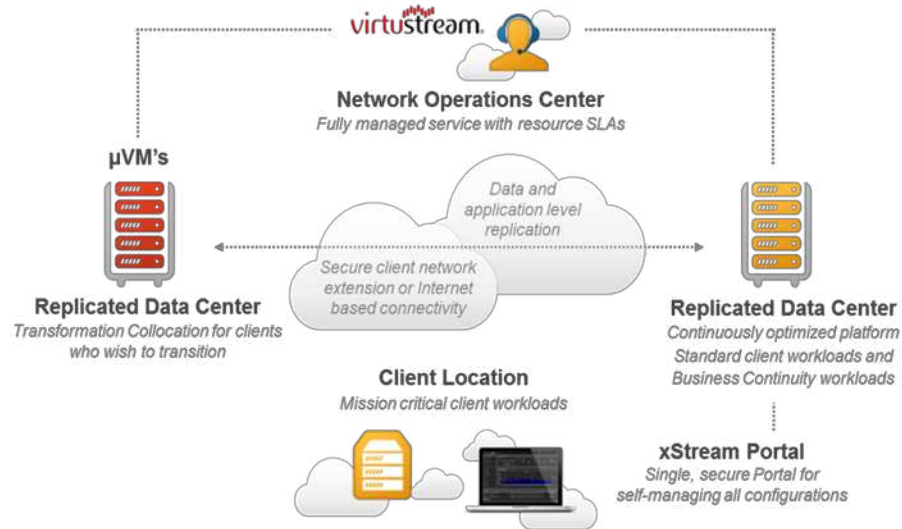
	AODocs data is backed up on a daily basis, and backups are stored on the highly redundant Google Cloud Storage. Backups are retained for at least 90 days	
Virtru	See 'Virtru Incident & Breach Policy'	
Salesforce	For business continuity purposes, Salesforce supports disaster recovery with a dedicated team and a 4 hour recovery point objective (RPO) and 12 hour recovery time objective (RTO). Additional details can be provided with the execution of an NDA between Salesforce and your Agency.	
ServiceNow	Please see our response for 8.8.1a	
QTS	QTS DRaaS will support all of your mission-critical application needs and enables you to achieve a RTO within minutes and RPO of just seconds.	
SAP	Ariba	See above
	Fieldglass	Fieldglass offers the following: • RTO = No more than 48 hours • RPO = No more than 6 hours. Warm site replica with 100% processing power of original site. Disaster recovery site can run without need from resumption.
	Hanna	For disaster Recovery, SAP HEC offers the following RTO & RPO 1. HANA Database RTO - 12 hours, RPO - 30 minutes 2. Sybase ASE Database RTO - 12 hours, RPO - 30 minutes
	Hybris	In the case of catastrophic failure to your primary production data center, we offer anywhere from best efforts to enhanced DR solutions. Enhanced DR options translates to either RTO of 8 hours and RPO of 1 hour for a warm standby solution, or RTO of 30 minutes to RPO of 30 minutes for a hot-site. Customers have 3 choices in DR sites: • as part of our base offering, best effort DR, we would bring your site back up in an alternate datacenter which is a minimum of 500 miles away from the primary datacenter. We would actually push your project server images to the alternate datacenter, but we would still need to set up your various interfaces, 3rd party services, etc, which could day a few days. • 2nd would be to have your DR site managed by hybris Managed Services. • 3rd would be to use your own DC as a DR site, We would need to set up a technical call with our combined teams to synch up on the replication strategies. • Our DR services utilizes VMware Site Recovery Manager with storage-based replication. • For enhanced DR, we would include one annual DR test, but more can be added if required. It also includes a customer specific DR and Business Continuity plan.
	SuccessFactors	Within the contract/subscription agreement, there are provisions for data recovery in the event of disaster. SLA's for RTO (Recovery Time Objective) and RPO (Recovery Point Objective) are defined in the contract. We will prioritize data recovery based upon our contractual obligations for each customer, concerning RTO and RPO.

VMware	VMware IaaS Services Provide the RPO and RTO for DR, point to SLAs for others. RTO – 4 hours or less RPO – 15 minutes to 24 hours – time is configurable by user but there is a bandwidth consideration for shorter replication times. VMWare AirWatch AirWatch Business Continuity (BC) and Disaster Recovery (DR) strategies include data and hardware redundancy, network configuration redundancy and backups, and robust, regular testing exercises. • Business Continuity – Our BC recovery strategies for support and maintenance include provisions for workforce mobility, secondary support locations, and defined leadership roles and responsibilities for all recovery staff. - o Multiple Support Locations – AirWatch maintains a Global Support Team, which spans multiple offices around the world. This ensures that if a disaster occurs at one of our offices, our remaining Support Team members can provide assistance to our customers. - o Mobile Workforce – Should an AirWatch office become inaccessible, all AirWatch employees are equipped with laptops and can access necessary internal resources. - o Defined Leadership – During a disaster, roles and responsibilities are assigned to key personnel, and a recovery manager provides leadership and documents the continuity process. Additionally, emergency contact numbers for key personnel are provided for all vendors and support staff. • High Availability and Disaster Recovery – AirWatch features active-passive configurations for high availability and redundancy with all components made to failover with minimal downtime. Load balancing capabilities are deployed across multiple data centers to ensure immediate server pick up, ensuring zero end user downtime. AirWatch also incorporates replication technology featuring SQL log shipping or network SAN byte replication to prevent data loss. Due to FOIA restrictions and the competitive nature of the EMM marketplace, we cannot provide specific details regarding recovery strategies or timelines.
FireEye	FireEye has a mature and documented Business Continuity Plan and Disaster Recovery Plan that follows industry best practices that is reviewed and tested annually. The BCP/DRP plan has RPO/RTO timing criteria and other critical business requirements that is available for review if requested in the future.
VirtueStream	Virtustream's solution will have a Recovery Point Objective (RPO) of 2 Hours and Recovery Time Objective (RTO) of 30 Minutes for all disaster recovery enabled workloads. The Virtustream Cloud has been designed to deliver continuous operations. The platform is architected to be highly available, with SLAs as up to 99.99%. All infrastructure systems are run in at least an N+1 model and have been designed with no single points of failure. All of the data center facilities and infrastructure has redundant power supplies connected to separate circuits from separate power feeds. Every device is connected via redundant pathways at a LAN/SAN/WAN layer. State of Utah can choose any of our FedRAMP Data Centers to host their applications and the DR location. For illustrative purposes, we have assumed the primary data center will be USDC02 and DR data center would be USDC01. The State of Utah solution has been designed with all workloads running in our San Francisco (USDC02) data center. In the unlikely event of a disaster at the USDC02 facility, State of Utah's production services will be brought back online in the secondary data center located in Northern Virginia (USDC01). The target RPO is 30 minutes for virtual machines with a 2 hour RTO. All production workloads in the primary node will have reserved compute capacity in the secondary node when deployed using Reserve μVMs and replicated storage. All virtual machine disaster recovery services are based on storage replication. The primary and secondary data centers are interconnected by diverse private 10 Gbps Sonet rings from separate Tier 1 providers – AboveNet and Level 3. Data is replicated asynchronously and continuously between the two data centers.

Virtustream also performs backups on a nightly basis and replicated offsite for further protection. The retention policies are determined by State of Utah per landscape and will be documented during the on-boarding process.

Figure 2. Integrated Disaster Recovery

Virtustream's cloud platform includes integrated disaster recovery (30 Min RPO & 2 Hr RTO) and backup.



8.8.2 Describe your methodologies for the following backup and restore services:

a. Method of data backups

CA	APM	Backups are stored on disk only
	MAA	Backups are stored on disk only, sync'd between data centers for DR purposes.
	CA Agile	Full database backups are taken once per week, both to onsite and offsite (our warm data center, not a separate 3rd party) systems. Incremental backups are run nightly. Backups are retained for 21 days after which time they are simply aged out and over-written. In addition, snapshots of database transactions are taken every hour to an disaster recovery site allowing for emergency disaster recovery with maximum of 1.5 hours of data loss due to catastrophic onsite failure (fire in cage, natural disaster, etc. at data center). Backups are tested monthly and a full disaster recovery process to the offsite application cluster is tested semi-annually.
	ASM	Backups are stored on disk only, sync'd between data centers for DR purposes.
Google	Keeping in mind that Google stores customer data in encrypted chunks or shards on several servers at several data centers backups should not be considered customer specific. Daily backups of each server are performed to encrypted tapes at each data center.	
Virtu	We perform live database replication to a separate redundant database in Oregon and offline as well in a separate Amazon AWS Region	
Salesforce	Customer data, up to the last committed transaction, is replicated to disk in near-real time at the designated disaster recovery data center, backed up at the primary data center, and then cloned to the disaster recovery data center. Disaster recovery tests verify our projected recovery times and the integrity of the customer data.	

	Backups are performed daily at each data center facility without stopping access to the application. Backup cloning is transmitted over an encrypted network (our MPLS network across all data centers). Tapes never leave our secure data center facilities, unless they are to be retired and destroyed through a secure destruction process. The backup retention policy is 90 days (30 days for sandboxes). Deleted / modified data cannot be recovered after 90 days (30 days for sandboxes). If customers want a longer retention, they can use the weekly export feature available in the system.	
ServiceNow	While Advanced High Availability as described in 8.8.1 is the primary means to recover data and restore service in the case of a service disruption, in certain cases it is desirable to use ServiceNow's more traditional data backup and recovery mechanism. This data backup and recovery system works in concert with AHA and acts as a secondary recovery mechanism. ServiceNow stores production instances in two geographically separate regional data centers, with sub-production instances hosted in a single data center. Backups of the two production databases and the single sub-production database are taken everyday for all instances throughout the private cloud infrastructure. The backup cycle consists of four weekly full backups and the past 6 days of daily differential backups that provide 28 days of backups. All backups are written to disk, no tapes are used and no backups are sent off site. All the controls that apply to live customer data also apply to backups. If data is encrypted in the live database then it will also be encrypted in the backups. Regular, automated tests are run to ensure the quality of backups. Any failures are reported for remediation within ServiceNow.	
QTS	QTS operates and manages high-performance, multi-tenant platforms on which customer system and data file backups can be created and retained for rapid restore of files/volumes. Data can be stored on tape or disk, depending on QTS location, and can reside locally in a QTS data center or off-site. If there is a need for off-site data retention, the backup medium is tape. QTS can also replicate the backed up data from the primary site to a secondary (remote) site to address geographically remote storage and DR requirements. Secure: QTS utilizes a separate, secure gigabit backup network with private VLAN security. Physical security is monitored using a priority badge access system to limit access to the tape libraries, disk arrays, servers, and network infrastructure. From the application, the backup software controls access to the data stored on tape, and access security is limited to QTS staff only. Scalable: QTS backup systems are highly scalable, and capacity can be quickly added as needed.	
SAP	Ariba	Our primary data center is Equinix, in San Jose; CA. Ariba's backup data center is CenturyLink in Sterling, VA. We make many copies of our data to insure no data loss happens: - Data is stored in databases on high-availability storage disk-based system in primary datacenter - Data is copied as backup to high-availability disk storage in the primary datacenter - Data is copied to tape and kept in the primary data center - Data is copied to tape and kept in an off-site tape storage facility (Iron Mountain) in Union City - Data is replicated to databases high-availability storage disk-based system in the backup datacenter - Data is copied as backup to high-availability disk storage in the backup datacenter - Data is copied to tape and kept in the backup datacenter

		Data replication to the remote datacenter happens in near-real time. Data is backed up to the backup disks multiple times a day (in each location) Data is written to tape once a day (in each location) These processes and procedures are audited against the ISAE 3402 standard. Our auditor verifies we can restore from these backup methods.
	Fieldglass	All data in the Fieldglass system is stored within our clustered databases. Full backups daily, 15 minute incremental backups, and replication from center to center of backup data continuously.
	Hanna	The backup of SAP systems in HEC is executed on EMC DataDomain deduplication storage. This is done using EMC Networker for backup and administration. The backups on Site A are also replicated to remote Site B.
	SuccessFactors	Data backup is undertaken as follows: storage system snapshots every 24 hours, nightly incremental database backups, and weekly full database backups. These are all standard and provided as part of our hosted service. All backups are stored on disk in the primary and backup data center facilities for 30 days. Database backups are encrypted and stored at a customer's "primary" location, as well as the "alternate" warm-site location for redundancy and disaster recovery purposes. If the customer's primary location is defined as the data center in Amsterdam, NL, then copies of their database would be encrypted and streamed in a secure manner to the data center based in St Leon-Rot, DE, and vice versa. The backup is stored on Storage Area Network systems encrypted with AES-256 bit by encryption appliance. Backups are retained for 30 days. Our Log File Retention Policy is designed to meet or exceed the most stringent industry standards. Archiving of data is the customer's responsibility.
VMware	VMware will provide the following services to participating entities with respect to Data Recovery: •Data protection, such as routine backups, for the vCloud Air infrastructure, including top-layer management and user-management interfaces owned and operated by VMware. •Data and infrastructure restoration for the vCloud Air infrastructure, including top-layer management and user-management interfaces owned and operated by VMware. Participating entities will be responsible for the following services with respect to Data Recovery: •Data protection, such as routine backups, for the data and content accessed or stored on vCloud Air virtual machine's or storage devices, configuration settings, etc. •Data, content, virtual machine and configuration restorations for assets accessed or stored on your vCloud Air account. Data Protection is an optional service that provides secure, image-based backup and recovery capabilities that enable you to protect important virtual machine data and content hosted in your vCloud Air IaaS environment. Through the Data Protection administration interface available in the vCloud Air Console, vApps and their virtual machine members can be selected for policy-based backup and recovery operations. Data Protection feature subscription and activation may be requested via My VMware and is subject to additional service fees based on the amount of backup data capacity. Backup data capacity for the service is measured in front end terabytes (FETB). Once activated, vApps and their virtual machine members may be registered and unregistered with Data Protection features on a self-service basis through the vCloud Air Console. As part of this service, VMware will: •Implement and maintain central service components (backup software appliances, backup and archival storage media and associated network topologies) needed to support Data Protection features. •Perform routine configuration, maintenance and optimization services on behalf of the Data Protection environment and in conformance with industry best practices.	

	•Allocate requisite backup storage based on capacity selections made at the time of subscription enrollment. •Guarantee storage locality per geographical region for all backup data. •Provide necessary Data Protection service reporting as it is requested. Participating entities will be responsible for: •Subscribing to Data Protection as an add-on feature via My VMware and selecting an amount of backup storage capacity commensurate with your requirements. •Creating custom backup protection policies that may include, but are not limited to: affinity settings per VDC, scheduling, and retention periods. •Registering and unregistering individual vApps and their virtual machine members for scheduled backups using Data Protection. •Performing any on-demand backups per vApp and its virtual machine members. •Performing in-place or out-of-place restores per vApp and/or individual virtual machine. •Managing any in-guest recovery tasks, including restore operations at the operating system, file systems and/or any application level. •Managing backup storage capacity and consumption that may include, but is not limited to: activity reporting, ordering additional storage capacity via My VMwareTM and deleting any backup data in inventory to free up space.
FireEye	All backup and restore procedures are in compliance with SOC 2 specifications. Data and server images are backed up digitally and replicated to datacenters in geographically different locations.
VirtueStream	Virtustream performs backups on a nightly basis and replicated offsite for further protection. The retention policies are determined by State of Utah per landscape and will be documented during the on-boarding process. Virtustream provides OS level files are protected with a File System backup and then protect the application with an integrated solution. Some of the databases would dump to a flat file format and those files would be protected with the standard file system backup.

b. Method of server image backups

CA	APM	N/A
	MAA	Automation tools are used to manage the configuration of MAA internal servers, and can be used for recovery.
	CA Agile	Systems are not backed up as we have determined rebuilding is faster than restoring. We manage systems through Chef and the configuration cookbooks are backed up.
	ASM	Automation tools are used to manage the configuration of ASM internal servers, and can be used for recovery.
Virtu	All images are backed up onto cloud storage on two separate provider systems	
Salesforce	Each server has been allocated a different volume group so it can fail over to its backup server within the instance independently of the others.	
ServiceNow	Please see our response to 8.8.2a	
QTS	Your data storage requirements are growing exponentially and a scalable comprehensive solution for storage and data protection is absolutely necessary in today's marketplace. Implementing and managing this necessary storage infrastructure to meet both your application and compliance requirements can be extremely time consuming and costly. Outsource your storage needs to QTS. With our portfolio of high-performance and cost-effective managed storage services, your data will be secure and guaranteed to be available when you need it. By leveraging market leading hardware and software, coupled with certified processes and personnel, QTS delivers dependable, auditable solutions.	

	Managed SAN (Shared and Dedicated)- a fast, reliable Fibre Channel (FC) and iSCSI SAN attached storage solution that easily scales to meet your business requirements. SAN-to-SAN Replication - provides block level asynchronous replication of your Managed SAN FC service between two of our state-of-the-art data centers for your disaster recovery needs.	
SAP	Ariba	See above
	Fieldglass	Fieldglass does not run server image backups. All systems are designed to be created through a series of templates and scripts.
	Hanna	The defined backup package includes a file system, operating system files, and the database backup. The frequency in which the backup is executed varies for each of the components mentioned above. This depends on the standard HEC service schedules and the service levels agreed on with the customer.
VMware	VMware will provide the following services to participating entities with respect to Data Recovery: •Data protection, such as routine backups, for the vCloud Air infrastructure, including top-layer management and user-management interfaces owned and operated by VMware. •Data and infrastructure restoration for the vCloud Air infrastructure, including top-layer management and user-management interfaces owned and operated by VMware. Participating entities will be responsible for the following services with respect to Data Recovery: •Data protection, such as routine backups, for the data and content accessed or stored on vCloud Air virtual machine's or storage devices, configuration settings, etc. •Data, content, virtual machine and configuration restorations for assets accessed or stored on your vCloud Air account. Data Protection is an optional service that provides secure, image-based backup and recovery capabilities that enable you to protect important virtual machine data and content hosted in your vCloud Air IaaS environment. Through the Data Protection administration interface available in the vCloud Air Console, vApps and their virtual machine members can be selected for policy-based backup and recovery operations. Data Protection feature subscription and activation may be requested via My VMware and is subject to additional service fees based on the amount of backup data capacity. Backup data capacity for the service is measured in front end terabytes (FETB). Once activated, vApps and their virtual machine members may be registered and unregistered with Data Protection features on a self-service basis through the vCloud Air Console. As part of this service, VMware will: •Implement and maintain central service components (backup software appliances, backup and archival storage media and associated network topologies) needed to support Data Protection features. •Perform routine configuration, maintenance and optimization services on behalf of the Data Protection environment and in conformance with industry best practices. •Allocate requisite backup storage based on capacity selections made at the time of subscription enrollment. •Guarantee storage locality per geographical region for all backup data. •Provide necessary Data Protection service reporting as it is requested. Participating entities will be responsible for: •Subscribing to Data Protection as an add-on feature via My VMware and selecting an amount of backup storage capacity commensurate with your requirements. •Creating custom backup protection policies that may include, but are not limited to: affinity settings per VDC, scheduling, and retention periods. •Registering and unregistering individual vApps and their virtual machine members for scheduled backups using Data Protection.	

	•Performing any on-demand backups per vApp and its virtual machine members. •Performing in-place or out-of-place restores per vApp and/or individual virtual machine. •Managing any in-guest recovery tasks, including restore operations at the operating system, file systems and/or any application level. •Managing backup storage capacity and consumption that may include, but is not limited to: activity reporting, ordering additional storage capacity via My VMware™ and deleting any backup data in inventory to free up space.
FireEye	All backup and restore procedures are in compliance with SOC 2 specifications. Data and server images are backed up digitally and replicated to datacenters in geographically different locations.
VirtueStream	OS level files are protected with a File System backup and then protect the application with an integrated solution where available. Otherwise databases would dump to a flat file format and those files would be protected with the standard file system backup. Additionally, core microVM's are automatically replicated to a secondary datacenter for DR purposes.

c. Digital location of backup storage (secondary storage, tape, etc.)

CA	APM	Backups are securely replicated to an alternate location (within the same geographic location (e.g. N. America))
	MAA	Daily differential and full backups reside in the primacy site with weekly data backups residing offsite.
	CA Agile	Backups are stored in our warm data center.
	ASM	CA has an alternate site approximately 900 miles from our primary site.
Google	Tape	
Virtru	All backup storage is hosted in two separate cloud storage regions	
Salesforce	Backups are performed daily at each data center facility without stopping access to the application. Backup cloning is transmitted over an encrypted network (our MPLS network across all data centers). Tapes never leave our secure data center facilities, unless they are to be retired and destroyed through a secure destruction process.	
ServiceNow	Please see our response to 8.8.2a	
QTS	Managed Tape Rotation and Off-site Storage This service provides off-site storage for data backup, and helps many customers who must store data separately from a primary IT site to comply with various laws and regulations. QTS has contracted Iron Mountain — a nationally recognized leader in off-site data storage services — to move the data storage media (tapes) to and from a secure, off-site location. The service enables data security, integrity, and restoration in the event of an outage. Off-site data storage via tape ensures that a customer's information is securely stored in multiple locations. In the event of an emergency, QTS and Iron Mountain deliver the customer's media back to their IT environment or wherever they request delivery.	
	Secure: QTS staff adheres to storage-industry best practices and security procedures. QTS facilities have earned SSAE16-SOC1 accreditations. All media is maintained in a secure environment and locked in secure media containers during transition from the QTS environment to the off-site storage location.	
	Compliance and Tracking: QTS's partnership with Iron Mountain provides the ability to offer logging and tracking information about the customer's off-site media via the SecureSync Web portal.	
SAP	Ariba	See above

	Fieldglass	Fieldglass houses all backup data vaults within its production data centers. Replicas of the vault are performed continuously across data centers more than 1,000 miles apart.
	SuccessFactors	All data is backed up to the secondary site and can be restored from there in the event of a disaster recovery event at the primary site.
VMware	VMware vCloud Air Data Protection provides backup storage to disk	
FireEye	All backup and restore procedures are in compliance with SOC 2 specifications. Data and server images are backed up digitally and replicated to datacenters in geographically different locations.	
VirtueStream	Virtustream performs backups on a nightly basis and replicated offsite for further protection. The retention policies are determined by State of Utah per landscape and will be documented during the on-boarding process. Backup data is stored on local enterprise class disk storage systems and can be replicated to systems in a secondary Virtustream datacenter. All of Virtustream backup is disk based solution. Encryption keys are generated at the time of backup application install on the Client VM(s). Encryption keys are at least AES-128 but can be AES-256. Keys are stored on the backup system databases using the encryption key management tool, the data about the keys on the database is in a unreadable format and cannot be decrypted	

d. Alternate data center strategies for primary data centers within the continental United States.

CA	APM	The location where data is stored is generally in the country where the contract is executed.
	MAA	The MAA service is currently available from one data center only.
	CA Agile	We have a hot/warm data configuration with both data centers located within the US but ~1300 miles apart.
	ASM	ASM has a warm standby with near time data replication between the data centers.
Google	Google does not use the N+1 data center assignment due to the risk of cascading failures. Google's infrastructure makes a dynamic decision for each unique login session which data center is the closest, most highly available data center and which data centers will be used as secondary and tertiary. This assignment would shift for that session throughout the day based on availability and is done completely seamless to the end user.	
Virtu	We utilize multiple availability zones in AWS, and backup all data stored in our database to separate datacenters	
Salesforce	Customer Data for customers in Salesforce's Government Cloud is stored in two of our U.S. data center locations. The Salesforce service performs near real-time replication at each data center and annual disaster recovery tests for the service verify the projected recovery times and data replication between the production data center and the disaster recovery center. The disaster recovery site is a 100% replica of the primary production site of capacity (host, network, storage, data). Data is transmitted between the primary and disaster recovery data centers across encrypted links. Additionally, back-ups of data are performed and data is retained on backups at the geographically separated disaster recovery data center location.	
ServiceNow	Please see our response to 8.8.2a	
QTS	The QTS cloud alternate storage sites are located at the following data centers: Richmond, VA, Atlanta, GA, and Suwanee, GA. The entire QTS cloud is a unified standalone Active cloud architecture and is backed up in both Atlanta and Richmond to include: Customer data in the Service Delivery Hypervisor Cluster, and; Cloud Hypervisor Management Infrastructure and Configuration backups.	

	The QTS cloud Security documentation is backed up in alternate site located Suwanee, GA to include: Software/operating Systems, Configuration Data and Security Documentation QTS cloud Management Infrastructure and Configuration Data: Richmond, VA: The Richmond Cloud Management Layer (Cloud Hypervisor Management Cluster) and Customer data in the Service Delivery Hypervisor Cluster, and Configuration data is backed and staged locally in Richmond on the management layer then backed up across the Site-to-Site Management VPN to Atlanta, GA. This process is separate and independent of the Customers Service Delivery Layer. Atlanta, GA: The Atlanta Cloud Management Layer (Cloud Hypervisor Management Cluster) and Configuration data is backed and staged locally in Atlanta on the management layer then backed up across the Site-to-Site Management VPN to Richmond, VA. This process is separate and independent of the Customers Service Delivery Layer. This process maintains both local and remote management layer data and configuration backup for both locations. Suwanee, GA: software/operating systems, configuration data and security documentation at Rocstor Rocsecure Amphibious X7s with Secure-Encrypted Two-Factor Authentication, Utilizing AES-256 CBC Real-Time Hardware Encryption, with NIST and FIPS 140-2 Certified Cryptographic Modules, in a fire-rated safe located at Suwanee, GA.	
SAP	Ariba	We have a warm site for failover. Equinix (Our primary data center) is located in San Jose, California and our disaster recovery site is located at CenturyLink Data Center in Sterling, Virginia. The act of failing over from the main data center to the recovery site data center has a design goal recovery time objective (RTO) of four hours. The design goal Recovery Point Objective (RPO) is five minutes. In the event of a fail-over to the disaster recovery site location, all URLs that customers use to reach the San Jose data center will continue to work. We will notify customers via their email addresses in the event of unplanned downtime. Internally, we use a documented system recovery plan that outlines the approach and steps for recovering the applications. The document defines roles and responsibilities in the event of disaster: Local staff maintains the hardware remotely We maintain the application software Processes are in place to keep database and file servers in sync between primary and backup data centers In the event of a catastrophe, we will declare the primary data center ""down"" and our local staff will follow a script to start the applications at the remote data center We test power outage backup scenarios and the Disaster Recovery Plan on a periodic basis.
	Fieldglass	Please see the answer to Question 8.8.2A. above. Fieldglass' backup data center is located in San Jose, CA.
	Hanna	The backup of SAP systems in HEC is executed on EMC DataDomain deduplication storage. This is done using EMC Networker for backup and administration. The backups on Site A are also replicated to remote Site B. For example, site A & B may be Santa Clara, CA and Sterling, VA, respectively.
	Hybris	In the case of catastrophic failure to your primary production data center, we offer anywhere from best efforts to enhanced DR solutions. Enhanced DR

		options translates to either RTO of 8 hours and RPO of 1 hour for a warm standby solution, or RTO of 30 minutes to RPO of 30 minutes for a hot-site. Customers have 3 choices in DR sites: • as part of our base offering, best effort DR, we would bring your site back up in an alternate datacenter which is a minimum of 500 miles away from the primary datacenter. We would actually push your project server images to the alternate datacenter, but we would still need to set up your various interfaces, 3rd party services, etc, which could day a few days. • 2nd would be to have your DR site managed by hybris Managed Services. • 3rd would be to use your own DC as a DR site, We would need to set up a technical call with our combined teams to synch up on the replication strategies. • Our DR services utilizes VMware Site Recovery Manager with storage-based replication. • For enhanced DR, we would include one annual DR test, but more can be added if required. It also includes a customer specific DR and Business Continuity plan.
	SuccessFactors	Each client has a designated primary and backup data center which is geographically separated as well as existing on different power and telecommunications grids.
VMware	Customers can purchase Rackware to provide geographical HA and COOP, but this service is not provided as a core capability of vCA or vCGS. VMware AirWatch AirWatch backs up the production environment from the primary US data center to the secondary US data center. Due to FOIA restrictions and the competitive nature of the EMM landscape, we cannot provide additional backup scheduling or image security procedures.	
FireEye	All backup and restore procedures are in compliance with SOC 2 specifications. Data and server images are backed up digitally and replicated to datacenters in geographically different locations.	
VirtueStream	State of Utah can choose any of our FedRAMP Data Centers to host their applications and the DR location. For illustrative purposes, we have assumed the primary data center will be USDC02 and DR data center would be USDC01. The State of Utah solution has been designed with all workloads running in our San Francisco (USDC02) data center. In the unlikely event of a disaster at the USDC02 facility, State of Utah's production services will be brought back online in the secondary data center located in Northern Virginia (USDC01). The target Recovery Point Objective (RPO) is 30 minutes for virtual machines with a 2 hour Recovery Time Objective (RTO). All production workloads in the primary node will have reserved compute capacity in the secondary node when deployed using Enterprise Reserve μVMs and replicated storage. All virtual machine disaster recovery services are based on storage replication. The primary and secondary data centers are interconnected by diverse private 10 Gbps Sonet rings from separate Tier 1 providers – AboveNet and Level 3. Data is replicated asynchronously and continuously between the two data centers. Virtustream also performs backups on a nightly basis and replicated offsite for further protection. The retention policies are determined by State of Utah per landscape and will be documented during the on-boarding process.	

8.9 Data Protection

8.9.1 Specify standard encryption technologies and options to protect sensitive data, depending on the particular service model that you intend to provide under this Master Agreement, while in transit or at rest.

CA	APM	All data is encrypted via TLS Mutual Auth during transit
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	MAA	HTTPS/TLS encrypts the data in-transit. Sensitive data rest is encrypted using native encryption of SQL and NoSQL vendors.
	CA Agile	All data in transit is encrypted - we support TLS 1+. For data at rest we have both database and disk level encryption. DB encryption utilizes Oracle TDE w/ AES-256.
	ASM	All data transmitted between data centers is encrypted in-transit. HTTPS/TLS is used by the ASM dashboard and API.
Google	All connections from customer end point devices to Google's Front End Servers are encrypted with enforced HTTPS sessions using Forward Secrecy. Google websites and properties use robust public key technologies: 2048-bit RSA or P-256 ECDSA SSL certificates issued by a trusted authority (currently the Google Internet Authority G2). All data in transit between Google's Data Centers traverses across Google's private fiber network using a customized, proprietary encryption technology. Google hard drives leverage technologies like FDE (full disk encryption) and drive locking, to protect data at rest. These methods of encryption are fully managed by Google and Google's Key Management Servers based on 128-bit or stronger Advanced Encryption Standard (AES). Encryption Keys and Ciphers Supported by Google Protocols TLS 1.2 TLS 1.1 TLS 1.0 SSL 3.04 QUIC Cipher suites ECDHE_RSA with AES ECDHE_RSA with 3DES ECDHE_ECDSA RSA with AES RSA with 3DES Signing keys RSA 2048 ECDSA P-256 Hash functions SHA384 SHA256 SHA1 MD5	
AODocs	All data in transit is encrypted via SSL/TLS Vendor interfaces are available only via HTTPS Email is exchanged via SMTP/TLS All AODocs data are stored in Google AppEngine.	
Virtru	AES-256 in CBC mode, TLS 1.2 ECDHE	
Salesforce	Encryption Capabilities Salesforce has many customers that are subject to laws pertaining to the processing of personally identifiable information (PII) or personal data. Salesforce offers its customers a broad spectrum of functionalities and customer-controlled security features that its customers may implement in their	

	respective uses of the Salesforce services. Salesforce believes that these provide its customers the flexibility to comply with laws with stringent privacy and security requirements. Data In Motion All transmissions between the user and the Salesforce Services are TLS encrypted with a 2048-bit Public Key. The Services use International/Global Step Up TLS certificates, with AES 256-bit encryption by default. Data At Rest Salesforce includes a feature to encrypt custom text fields (ECF): The fields can be masked appropriately for specific data types (i.e., credit card number, Social Security Number, National Insurance Number, Social Insurance Number). Access to read the masked parts of the fields is limited by the ""View Encrypted Data"" permission, which is not enabled by default. Customers can manage their encryption key based on their organization's security needs and regulatory requirements. Encrypted fields are encrypted with 128-bit keys and use the AES (Advanced Encryption Standard) algorithm. Additional Salesforce Encryption Capabilities Apex Code extends the powerful and proven success of the Force.com platform by introducing the ability to write code that runs on Salesforce servers. This language makes possible the development of a new class of application and features deployed entirely on demand. Using Apex, your Agency can create user interface classes that utilize the Apex crypto class to encrypt field level data up to AES 256-bit encryption. Third Party Encryption Solutions (Additional License Option) Should additional encryption be required, third party solutions such as CipherCloud, Skyhigh, and PerspecSys are available on the Salesforce AppExchange. These solutions offer data loss prevention, user activity and monitoring, malware protection, as well as data protection with encryption and tokenization. Data can be encrypted and masked at rest, keys managed and stored in Salesforce, and compliance controls to prevent unauthorized access to data and keys.
ServiceNow	ServiceNow makes use of encryption for both data in transit and data at rest. ServiceNow provides optional capabilities with regard to the encryption of data at rest within the system, which customers can apply at their own discretion. Encryption in Transit ServiceNow customers access their instances over the Internet using forced Transport Layer Security (TLS) encryption (AES128/256) for all user access. The level of encryption is based on the browser and must be configured by the customer as ServiceNow does not modify any browser settings. All attempts to access ServiceNow over HTTP are redirected to HTTPS. Integration Encryption For integrations such as LDAP and Web Services, ServiceNow provides customers with the ability to encrypt traffic. LDAP can be configured to run over SSL, this requires customers to provide a certificate for the specific LDAP server. Certificates may also be stored within an instance to allow encrypted transmission for Web Services integrations. FTPS and SCP can be used as file transfer methods to securely transfer files to ServiceNow. Email Encryption Customers may configure their instance to generate emails to their users from the instance. ServiceNow provides the capability to receive email over TLS. Customers are able to configure their

	email system to send email to ServiceNow over TLS and ServiceNow will receive that email over TLS. Encryption at Rest ServiceNow can provide three types of encryption for data at rest that are implemented by the customer or by customer request in the case of edge encryption and dedicated hardware. •Column encryption of customer added fields and attachments: Provides data encryption using AES128/256 or 3DES symmetric key encryption. The customer provides the keys for this encryption. Data stored in these fields cannot be searched or reported on and this does not support out of the box fields. •Edge Encryption Proxy: With optional additional cost Edge Encryption, the customers create and control their encryption keys within their own network. Edge Encryption includes a proxy application that resides in a customer's network. This encrypts data before it is sent (also encrypted in transit) from the customer's environment to the ServiceNow instance. The data always remains encrypted whilst stored in the instance and the data along with the keys and the encryption configuration is never accessible by ServiceNow. Requests for encrypted data must also be made through the proxy application and is therefore decrypted only within the customer's network before being sent to their end users client browser. Please note that data encrypted with Edge encryption cannot be used by back-end scripts or processes and searching and reporting behavior is also modified through its use. •Full disk encryption: Provides via self-encrypting hard drives with AES256 bit encryption. This encryption capability is only available through the purchase of dedicated ServiceNow hardware at an additional cost. This delivers "at-rest" protection only and is focused solely on preventing data exposure through the loss or theft of hard disks holding customer data. Wherever possible, ServiceNow leverages existing FIPS 140-2 certified technologies.	
DocuSign	Secure, private SSL 256 bit viewing session Anti-tampering controls Signature verification of signing events Unalterable, systematic capture of signing data Digital certificate technology Customer configurable data retention program	
SAP	Ariba	We enforce minimum AES 128-bit encryption using Transport Layer Security (TLS) for all sessions. We encrypt only PCI-DSS data in the database where appropriate and in support of PCI-DSS compliance. All backup media is encrypted using AES 256-bit cipher prior to transporting to off-site storage
	Fieldglass	Our application provides a high level of application-level security through a combination of encryption, page-level access checking, document envelopes, and activity logging. Application security is handled through a combination of programming checks, application server configuration, and database server configuration. Fieldglass uses 2048-bit SSL (HTTPS) encryption for all data transmissions over the public Internet, including data shared between the product and end users and data shared between the product and back-end systems. Data is decrypted on the internal VLAN to allow IDS monitoring. Passwords are hashed using a one-way hash based on the SHA-256 encryption algorithm. The hash value is saved within the database; not the password. The base Fieldglass application does not require data that would require breach notifications if compromised. While customers should not store sensitive personal data, custom fields may be defined by the customer that can be encrypted with AES-256 to capture any pertinent and permissible data points. These fields can also be optionally masked from view while entering and viewing the fields in the application.

	Hanna	Initial encrypted data load - physical encrypted data transfer possible Encrypted connection to HEC DC - SAP solutions support various VPN-device vendors and specifications that can be used to setup a secure and encrypted tunnel between cloud solutions from SAP on the customer network segment and the customer site. Optional Data at Rest encryption - HANA encryption at Rest activated during system build upon request. Moreover data at rest is properly protected against unauthorized access, these controls include •Physical security controls in SAP HEC Datacenters in place •Physical separation of "online" storage and backup (physically separated DC sections) •Strict User and Access Management (segregation of duties) •Authorization Management according to the need to know principle also for administrative accounts, e.g. DBAs have limited authorizations to perform DB operation only •Security Logging and Security Monitoring for critical activities / access Optional encryption in transit can be configured on customer request which requires a different subset of DC's from delivery perspective.
	Hybris	Encryption is provided through SSL connectivity at the web application layer as well as VPN secure encrypted tunnel for back-office integration connectivity. Further encryption capabilities are available through the hybris Advanced Security Module (optional).
	SuccessFactors	All data in the system is treated as highly sensitive information. The application and infrastructure offers Strong Encryption, Encryption in Transit and Encryption at Rest, including the following (some of these are options that are not included in the base services): Transport Layer Security (TLS) technology, consisting of a public key and a private key, to protect sensitive information. The public key is used to encrypt information and the private key is used to decipher it. When a Web browser points to a secured domain, a handshake authenticates the server (website) and the client (browser). An encryption method is established with a unique session key. Customers may then begin a secure session that facilitates message privacy and integrity. Hitachi SAN storage arrays provide a reliable safe, secure data storage environment. We use AES-256 bit encryption to secure data at the block level of our storage systems. Backups are performed "disk to disk". Data is transported over 3DES VPN and stored on encrypted disk using Data Domain replication technology
VMware	VMWare IaaS Services Data in transit will be encrypted based upon the customers selected method of transport (SSL or IPSEC VPN). Data at rest encryption is the responsibility of the customer. By example HyTrust is an endpoint encryption choice for many vCloud Air customers. VMWare AirWatch AirWatch leverages strong, non-proprietary encryption algorithms to protect applicable data at rest and in transit. Due to FOIA restrictions and the competitive nature of the EMM landscape, we cannot provide specific encryption algorithms and protocols.	
FireEye	Each of the FireEye offered solutions have their own implementations and practices concerning encryption:	

	1.Email Threat Prevention (ETP) ETP offers TLS encryption support for data in transmission. ETP only stores email found to contain malware or malicious content and does not encrypt this data. 2.Mobile Threat Prevention (MTP) All data in transit is protected using standard TLS encryption. The database itself is not encrypted. However, all systems are under strict security and access control rules, in compliant with SOC 2 regulations. 3.Threat Analytics Platform (TAP) All data in-transit between a customer environment and TAP instance in Amazon AWS is encrypted with a 256-bit Twofish key. No customer data is stored on disk, however data stores leverage Amazon AWS S3 encryption settings. 4.FireEye as a Service (FaaS CV) FireEye appliance communications, and FireEye as a Service (FaaS) non-person entity (NPE) secured inter-process communications employs industry standard HTTPS encrypted web interfaces, and multifactor SSH management access for the end-to-end protection of sensitive customer data. In addition, FaaS communicates with FireEye appliances with additional layers of protected symmetric key exchanges protecting and establishing encrypted channels for inter-device information.
VirtueStream	Encryption keys are generated at the time of backup application install on the Client VM(s). Encryption keys are at least AES-128 but can be AES-256. Keys are stored on the backup system databases using the encryption key management tool. The data about the keys on the database is in an unreadable format and cannot be decrypted.

8.9.2 Describe whether or not it is willing to sign relevant and applicable Business Associate Agreement or any other agreement that may be necessary to protect data with a Purchasing Entity.

Carahsoft would be willing to sign Business Associate Agreements or similar agreements that are set forth with a purpose of protecting customer data.

8.9.3 Offeror must describe how it will only use data for purposes defined in the Master Agreement, participating addendum, or related service level agreement. Offeror shall not use the government data or government related data for any other purpose including but not limited to data mining. Offeror or its subcontractors shall not resell nor otherwise redistribute information gained from its access to the data received as a result of this RFP.

Agreed and understood. Carahsoft and its' subcontractors will not use any government data for purposes other than those outlined within the frameworks of this contract.

8.10 Service Level Agreements

8.10.1 Offeror must describe whether your sample Service Level Agreement is negotiable. If not describe how it benefits purchasing entity's not to negotiate your Service Level Agreement.

CA	APM	The target availability SLA of 99.8% is standard and not negotiable
	MAA	The target availability SLA of 99.8% is standard and not negotiable
	CA Agile	The target availability SLA of 99.8% is standard and not negotiable
	ASM	The target availability SLA of 99.8% is standard and not negotiable
Google	Google maintains a single SLA for all customers.	
AODocs	AODocs maintains a single SLA for all customers.	
Virtu	Agreement can be negotiated for certain large customers.	

Salesforce	Salesforce does not typically offer Service Level Agreements as part of the base service offering. Our approach is to offer a service with high availability and fast resolution of problems. If a customer requires an SLA it will be negotiated separately. The persistence layer underlying Salesforce Platform is proven database technology that powers all of Salesforce's products today, serving more than 150,000 organizations and over 4 billion transactions per day with an average request response time of less than .25 seconds all with an average up time of 99.9+ percent. Salesforce uses commercially reasonable efforts to make its on-demand services available to its customers 24/7, except for planned downtime, for which Salesforce gives customers prior notice, and force majeure events. Excellent availability statistics are critical to Salesforce's customers' success and to the success of Salesforce as a company. Live and historical statistics on the Salesforce system performance are publicly published at http://trust.salesforce.com/trust/status. Salesforce has maintained high levels of availability across all Salesforce instances since inception. As the only on-demand vendor to provide daily service-quality data on a public Web site (http://trust.salesforce.com), Salesforce proves that we are the leader in availability. And by making its track record completely transparent, Salesforce proves we are worthy of our customers' trust. To ensure maximum uptime and continuous availability, Salesforce provides the best redundant data protection and most advanced facilities protection available, along with a complete data recovery plan—all without affecting performance.	
ServiceNow	ServiceNow's SLA is not negotiable. ServiceNow delivers the same level of world-class support to all customers as described in the "Subscription Service Guide" included with this response. ServiceNow's homogeneous private cloud environment where all applications are on a single platform offers ServiceNow a competitive advantage in being able to concentrate its efforts to make the customer's user experience the best possible. The ServiceNow environment is a private cloud, fully owned and operated by ServiceNow. ServiceNow's experience & understanding of its private cloud and the benefits provided by a consistent infrastructure and standardized processes allow it to provide a high level of security, availability, and performance in a cost effective and reliable manner.	
Docusign	Yes SLA's can be modified per contractual agreement.	
SAP	Ariba	Our SLAs are not negotiable. As mentioned above, the SAP Ariba Cloud Service Level Agreement includes a 99.5% uptime.
	Fieldglass	Our SLA is designed to (i) meet the expectations of our customers and (ii) fit with our operational protocols and capabilities. Because of this our ability to make significant changes to the SLA is limited. However, we are always willing to work with a customer to try and determine how our SLA can address a particular business.
	Hanna	Our SLAs are not negotiable for Support. Under our SLA, System Availability is 99.5% during each month for productive systems. Customers may claim a credit of 2% of Monthly Subscription Fees for each 1% below SLA (not to exceed 100% of Monthly Subscription Fees). This credit may be applied to a future invoice relating to Cloud Service that did not meet the System Availability SLA.
	Hybris	Our SLAs are not negotiable for Support. Under our SLA, System Availability is 99.5% during each month for productive systems. Customers may claim a credit of 2% of Monthly Subscription Fees for each 1% below SLA (not to exceed 100% of Monthly Subscription Fees). This credit may be applied to a

		future invoice relating to Cloud Service that did not meet the System Availability SLA.
	SuccessFactors	Our SLAs are not negotiable for Support. Under our SLA, System Availability is 99.5% during each month for productive systems. Customers may claim a credit of 2% of Monthly Subscription Fees for each 1% below SLA (not to exceed 100% of Monthly Subscription Fees). This credit may be applied to a future invoice relating to Cloud Service that did not meet the System Availability SLA.
VMware	VMware's SLAs are specific to the product or service, and are subject to the product's Terms of Service (which are also provided). The SLA is specific to the product rather than to the customer, to define the expected availability and recourse should the product not meet the stated availability levels. VMware's existing customers include Federal, State and Local government customers as well as commercial customers, who successfully utilize our products in accordance with the current SLA and Terms of Service and their applicable, mandatory laws and regulations. Accordingly, VMware is confident that the existing SLA meets the state and local government requirements, as it is being utilized currently. VMware IaaS Services To best work with our customers and improve our terms in alignment with market requirements, VMware is willing to review the terms of its SLA during negotiations of the Participating Addendum to identify how the existing SLA meets the state's applicable and mandatory laws and regulations. If it becomes apparent to the parties that it is necessary to revise VMware's SLA to comply with the state's applicable and mandatory laws, VMware will enter into discussions about how to best address these requirements VMware SaaS Services VMware AirWatch AirWatch Service Level Agreements are non-negotiable. AirWatch has a guaranteed uptime SLA of 99.9%. Please refer to the AirWatch Hosted Services Policy for additional information. VMware AirWatch acknowledges that if it is awarded a contract under the RFP that it will annually certify to the Lead State that it still meets or exceeds the mandatory minimum requirements and technical specifications of the RFP.	
FireEye	SLAs are negotiable.	
VirtueStream	Virtustream's Service Level Agreement is generally not negotiable. Our SLAs are one of the strictest in the market place. To change the SLA would mean either changing the design or create operational disruption and higher cost by engaging in non-standard processes and practices. For example, Virtustream's SLA for Tier 1 storage is 10 ms latency. For Virtustream to change this latency means changing the design for Tier 1 storage.	

8.10.2 Offeror, as part of its proposal, must provide a sample of its Service Level Agreement, which should define the performance and other operating parameters within which the infrastructure must operate to meet IT System and Purchasing Entity's requirements.

Below is a sample of Virtustream's Service Level Agreement:

SERVICE LEVEL FRAMEWORK

The service levels ("Service Levels") applicable to the Services specified in Sections 1 and 2 are set forth in Schedule B to this SD ("Service Levels for Cloud Platform Services"). The framework that governs all Service Levels is set forth in this Section.

Commencement of Service Levels

Commencing thirty (30) days from the Service Start Date (as set forth in the applicable Order Form), Virtustream's performance of the Services will meet each applicable Service Level. If Virtustream's performance of the Services

does not meet the applicable Service Level, then Virtustream will use commercially reasonable efforts to restore its performance to meet such Service Level.

Service Level Reports

Service Levels will be calculated and measured monthly by Virtustream on a calendar month basis and reported each month for the previous month. The reports will be provided to Customer by the tenth (10th) working day of the month following that to which such report relates, commencing on the second (2nd) month following the Service Start Date and each month thereafter. The monthly service level report will contain at least the following items: (i) Uptime statistics for the month concerned; (ii) an analysis of reported incidents over the previous month, broken down by type for discussion; (iii) action plans for items giving rise to concern; (iv) comments and observations on any issues arising from Virtustream's performance monitoring activities; (v) recommendations on service delivery strategies to maintain or enhance the service level; and (vi) review of general business requirements ("Service Level Report").

Cloud Platform Services (CPS) has its own specific service levels as described in this document. Cloud Cover Services (CCS) has service levels that pertain to the CCS offerings and are reported separately. Not all Virtustream customers have CCS but all Virtustream customers use CPS.

Service Level Review Meetings

Monthly Service Level review meetings will be conducted by Virtustream with Customer where the monthly Service Level report specified above will be discussed. If any of the Service Levels measured over the previous calendar month period is not achieved in that month, then Virtustream will include the steps taken to rectify the problem in the next monthly Service Level Report. In addition, the issue shall be an agenda topic for discussion at the next monthly service review meeting. Additionally, after restoring service or otherwise resolving any immediate problem as specified in this SD, if Virtustream fails to provide Services in accordance with the Service Levels, Virtustream shall:

- a. Promptly investigate and report on the causes of such problem;
- b. Provide a Root Cause Analysis of such failure as soon as practical after such failure or at Customer's request;
- c. Correct such problem that is Virtustream's fault or responsibility, as soon as reasonably practicable and coordinate the correction of such problem if Virtustream does not have responsibility for the cause of such problem.
- d. Advise Customer of the status of remedial efforts being undertaken with respect to such problem;
- e. Demonstrate to Customer's reasonable satisfaction that the causes of such problem (that is Virtustream's fault or responsibility) have been or shall be corrected on a permanent basis; and
- f. Take corrective actions to prevent any recurrence of such problem (that is Virtustream's fault or responsibility).

Root Cause Analysis

Promptly following Virtustream's failure to meet a Service Level, Virtustream will perform a root cause analysis to determine the reason for that failure. Upon Virtustream's determination of the cause of such failure, it will provide to Customer a preliminary report citing the cause of such failure. If Virtustream determines that the failure was due to Virtustream, an additional report will be provided that details the root causes of the failure, and which details any measures that should be taken to minimize the possibility that such failures will re-occur. Virtustream will correct the problem and use reasonable commercial efforts to minimize the re-occurrence of such failures.

Service Level Exceptions

Virtustream shall not be liable for any failure to meet the Service Levels, to the extent such failure was caused by one or more of the following:

- a. A failure of Customer or any of its employees, agents or contractors (including any of Customer's third party service providers) to perform any of its responsibilities under this SD;
- b. Any act or omission of Customer or any of its employees, agents or contractors (including Customer's third party service providers or other third parties acting on behalf of Customer);
- c. Any hardware, software or other product of a third-party or Customer equipment;
- d. Any failure of Customer to secure the proper access rights or maintenance and support services with respect to any component of the Services (e.g., hardware, software, network, maintenance) for which Virtustream does not bear operational responsibility;
- e. Downtimes resulting from a Virtustream's scheduled maintenance windows;
- f. Customer's reprioritization of the tasks to be performed by Virtustream where such reprioritization causes Virtustream to miss a Service Level;
- g. Viruses; provided that the infected Virtustream-provided system had virus protection for which the virus protection software updates were up to date;

- h. An election by Customer to purchase a base commitment that is not sufficient to run Customer's system (e.g., If a customer elects to size a μ VM pool that is insufficient to run the designated workload);
- i. Issues occurring outside of standard working hours (as defined for business level customers) — for which the Service Level Objectives (SLOs) do not apply;
- j. Cloud Cover Services (CCS) offerings — for which the Service Level Objectives (SLOs) do not apply;
- k. Resolution delays due to lack of client response and/or Customer provided credential based information;
- l. Priority levels not agreed upon by both customer and supplier;
- m. Claims of performance degradation not substantiated through Customer provided diagnostic testing results.

8.11 Data Disposal

Specify your data disposal procedures and policies and destruction confirmation process.

The disposal of data will vary based on the type of service that is being provided to the Purchasing Entity by Salesforce. As an example, please see Salesforce response for disposal of government data: Data Disposal and Destruction

In the event of termination of the Salesforce service, requests by your Agency made within 30 days after the effective date of termination or expiration of the Subscription Agreement, Salesforce will make your data available to you for export or download. Once the export has been completed, an email will be sent to you containing a link where you can download a .zip file that contains multiple .csv (spreadsheets) files, each representing your Salesforce objects. Your data on disk is flagged within the database and set to inactive status or what can be referred to as a ""soft delete."" This data is no longer available or accessible to the application but is backed up in the full database backup process. The data remains in this state for 180 days; this is done in the event that the customer decides to resume services or needs the data for a legal reason. At 180 days, the data is marked for deletion (""hard delete"") and will be deleted after 30 more days. Once this ""hard delete"" is executed the customer data is physically deleted and non-recoverable from the database. Following the purge, the data will remain on backup for an additional 90 days prior to being overwritten and unrecoverable.

Media Sanitization

Salesforce has an established process for sanitizing media consistent with industry guidelines and consistent with NIST SP 800-88 Guidelines for Media Sanitization [MP-6].

8.12 Performance Measures and Reporting

8.12.1 Describe your ability to guarantee reliability and uptime greater than 99.5%. Additional points will be awarded for 99.9% or greater availability.

CA	APM	CA SaaS production environments have an SLA at 99.8% uptime calculated arrear monthly. 1hr response for P1 issues.
	MAA	CA MAA SaaS production environments have an SLA at 99.8% uptime calculated arrear monthly. 1hr response for P1 issues.
	CA Agile	For Rally SaaS Unlimited Edition customers, our goal is to provide 99.9% up-time during each calendar quarter. If in any calendar quarter an up-time of 99.5% is not met and our customers were negatively impacted (for example, were unable to login to Rally), we will provide a service credit equal to one month of fees for use of the Rally Service.
	ASM	CA SaaS production environments have an SLA at 99.8% uptime calculated arrear monthly. 1hr response for P1 issues.

Google	Google Apps services will be operational and available to the customer at least 99.9% of the time in any calendar month. If Google does not meet the Google Apps SLA, the customer will be eligible to receive service credits.	
AODocs	Altirnao agrees to use commercially reasonable efforts to meet or exceed the Availability Service Level. The Availability Service Level means the Service is available for use by Users for not less than 99.5% of the time excluding the Exclusion Events (as defined below).	
Virtru	Virtru provides the same SLA as Gmail	
Salesforce	Salesforce has maintained high levels of availability across all Salesforce instances since inception. As the only on-demand vendor to provide daily service-quality data on a public Web site (http://trust.salesforce.com), Salesforce proves that we are the leader in availability. And by making its track record completely transparent, Salesforce proves we are worthy of our customers' trust. To ensure maximum uptime and continuous availability, Salesforce provides the best redundant data protection and most advanced facilities protection available, along with a complete data recovery plan—all without affecting performance. Salesforce uses commercially reasonable efforts to make its on-demand services available to its customers 24/7, except for planned downtime, for which Salesforce gives customers prior notice, and force majeure events. Excellent availability statistics are critical to Salesforce's customers' success and to the success of Salesforce as a company. The persistence layer underlying Salesforce Platform is proven database technology that powers all of Salesforce's products today, serving more than 150,000 organizations and over 4 billion transactions per day with an average request response time of less than .25 seconds all with an average up time of 99.9+ percent. Salesforce does not typically offer Service Level Agreements as part of the base service offering. Our approach is to offer a service with high availability and fast resolution of problems. If a customer requires an SLA it will be negotiated separately.	
ServiceNow	ServiceNow's Availability SLA is 99.8%, excluding Excused Downtime of up to two hours per month. This is achievable through the use of the Advanced High Availability (AHA) architecture described in 8.8.1 that provides failover capabilities for maintenance and service disruptions to minimize downtime.	
DocuSign	DocuSign offers carrier class bank grade, "always on" availability. This means DocuSign has eliminated monthly maintenance (taking 0 minutes of planned downtime per year). We are a multi-year 99.99% operation. Please view the DocuSign Trust site (trust.docusign.com) for additional information.	
QTS	TIA 942 requirements for the design, construction, and management of Tier III facilities is the design basis for all QTS data centers. Using best-of-breed technologies, QTS's highly trained, certified data center professionals tailor efficient and reliable solutions to meet individual customer requirements. Primary commercial power is delivered to facilities through diverse, redundant paths to eliminate single points of failure between the nearest electrical substation (usually on-site) and each piece of customer IT equipment. QTS allows users to inspect the engineering drawings to validate that truly redundant N+1 architectures are in place and that the 99.999% uptime guarantee is supported by sound engineering and operational policies. Meaningful Service Level Agreements are backed by financial penalties spelled out in tailored Master Service Agreements with each customer.	
SAP	Ariba	Our data centers have 99.99% uptime. Our application maintains a 99.% official SLA with the last 12 months seeing 99.98% uptime.
	Fieldglass	For customers hosted in US data centers, we commit to a 99% availability standard. For customers who choose to be hosted in EU data centers, our availability standard is 96.7%. If we fail to meet the availability standard, the

		customer may be entitled to receive a credit equal to two percent (2%) of its transaction fees for the service for that month for each one percent (1%) (or portion thereof) by which we fail to achieve such level, up to one hundred percent (100%) of the fees for such month.
	Hanna	The SAP HEC offers a 99.5% uptime availability SLA for production (PRD) instances and a 95% uptime availability for quality assurance (QAS) and development (DEV) instances. This means that after taking in to account the monthly maintenance window, the TOTAL solution will be available 99.5% of the time - not that we expect it, but this equates to about 3 hours of unscheduled downtime per month. The concept of "total solution" is important because the HEC provides Holistic Solution Availability - our single SLA covers the FULL SOLUTION STACK which means it covers the Infrastructure, Operating System, local DB, the HANA in-Memory DB, and the Application layers. We do not offer individual SLAs on individual layers because if one layer fails, the entire solution is down
	Hybris	The environment is completely redundant and based on a high availability architecture. The hybris private cloud is based on VMWare virtualization and is fully load-balanced. Customer systems reside on a redundant server infrastructure ensuring that if one server (or part of the server infrastructure) fails, a backup is in place to ensure that systems remain operational. The infrastructure is load-balanced ensuring high availability of the system during peak usage periods. The load-balancing allows the systems to support large volumes of simultaneous users balancing the load of activity across multiple servers ensuring peak performance of all systems. Redundancy of Infrastructure Components: • Multihome connectivity to the Internet backbone. Multiple connections to the internet, allows optimizing the best route as well as redundancy. • At an individual component level, all devices have dual physical power connections to protect against any individual power supply failure • Redundant Firewalls • Redundant Routers, • Redundant Load balancers • Virtualized Application and Web servers • Clustered Database - active active cluster mode for enhanced redundancy • High performance SAN storage- from Netapp, with built in redundancy at the disk level (NetApp proprietary RAID technology, similar to a RAID 5) • The data centers provide diverse power (Uninterruptible Power Supply), backup generators and air conditioning systems required to ensure equipment remain online with optimal performance 24/7/365. • SLA: contractually we provide a guarantee on the performance of your application at 99.9% availability.
	SuccessFactors	We contractually guarantee a minimum of 99.5% system uptime, with the exception of regularly scheduled and emergency maintenance.

VMware	VMware's SLAs for vCloud Air. Our Availability Commitment ranges from 99.99% - 99.95 based on the Class of Service. The SLAs are subject to the terms of the applicable Terms of Service for the VMware vCloud Air Service Offerings. Dedicated Cloud 99.99%, Virtual Private Cloud 99.95%, Data Protection 99.95%, Disaster Recovery 99.95%, Virtual Private Cloud On-Demand 99.95% Availability Commitment. IaaS Object Storage: Object Storage powered by Google Cloud Platform (standard) 99.9%, Object Storage powered by Google (durable reduced availability) 99.0% and Object Storage (nearline storage) 99%. vCloud Government Service Dedicated Cloud 99.95% and Virtual Private Cloud 99.9% Availability Commitment.
FireEye	FireEye undertakes all reasonable efforts to ensure the availability for 99.9% of the time during each calendar month. In the event the solution does not meet the monthly service availability, FireEye will provide a credit as outlined in the SLA.
VirtueStream	VirtueStream solution for VM workload includes the uptime of 99.99%.

8.12.2 Provide your standard uptime service and related Service Level Agreement (SLA) criteria.

CA	APM	Uptime SLA target is 99.8% CA runs test scripts using application monitoring tools on the Production system to verify that the CA SaaS service is available. Test scripts are run approximately once every ten (10) minutes, twenty-four (24) hours per day, seven days per week, throughout the contracted term of the service.
	MAA	Uptime SLA target is 99.8% CA runs test scripts using application monitoring tools on the Production system to verify that the CA SaaS service is available. Test scripts are run approximately once every ten (10) minutes, twenty-four (24) hours per day, seven days per week, throughout the contracted term of the service.
	CA Agile	See above.
	ASM	Uptime SLA target is 99.8% CA runs test scripts using application monitoring tools on the Production system to verify that the CA SaaS service is available. Test scripts are run approximately once every ten (10) minutes, twenty-four (24) hours per day, seven days per week, throughout the contracted term of the service.
Google	Google Cloud Platform SLA: Google's Cloud platform has SLAs ranging from 99.9 - 99.95% uptime.	
Salesforce	Please see response to 8.12.1 above. Salesforce does not typically offer Service Level Agreements as part of the base service offering. Our approach is to offer a service with high availability and fast resolution of problems. If a customer requires an SLA it will be negotiated separately. Salesforce uses commercially reasonable efforts to make its on-demand services available to its customers 24/7, except for planned downtime, for which Salesforce gives customers prior notice, and force majeure events. Excellent availability statistics are critical to Salesforce's customers' success and to the success of Salesforce as a company. Live and historical statistics on the Salesforce system performance are publicly published.	
ServiceNow	DEFINITIONS (a) "Available" means that the Subscription Service can be accessed by authorized users.	

	(b) "Excused Downtime" means: (i) Maintenance Time of up to two (2) hours per month; and (ii) any time the Subscription Service is not Available due to circumstances beyond ServiceNow's control, including without limitation modifications of the Subscription Service by any person other than ServiceNow or a person acting at ServiceNow's direction, a Force Majeure Event, general Internet outages, failure of Customer's infrastructure or connectivity (including without limitation, direct connectivity and virtual private network (VPN) connectivity to the Subscription Service), computer and telecommunications failures and delays, and network intrusions or denial-of-service or other criminal attacks. (c) "Maintenance Time" means the time the Subscription Service is not Available due to service maintenance. (d) "Availability SLA" means the percentage of total time during which Customer's production instances of the Subscription Service are Available during a calendar month, excluding Excused Downtime. AVAILABILITY If Customer's production instances of the Subscription Service fall below the Availability SLA of ninety-nine and eight-tenths percent (99.8%) during a calendar month, Customer's exclusive remedy for failure of the Subscription Service to meet the Availability SLAs is either: (1) to request that the affected Subscription Term be extended for the number of minutes the Subscription Service was not Available in the month in accordance with the Availability SLA; or (2) to request that ServiceNow issue a service credit to Customer for the dollar value of the number of minutes the Subscription Service was not Available in the month in accordance with the Availability SLA (determined at the deemed per minute rate ServiceNow charges to Customer for Customer's use of the affected Subscription Service), which Customer may request ServiceNow apply to the next invoice for subscription fees. REQUESTS Customer must request all service credits or extensions in writing to ServiceNow within thirty (30) days of the end of the month in which the Availability SLA was not met, identifying the support requests relating to the period Customer's production instances of the Subscription Service was not Available. The total amount of service credits for any month may not exceed the subscription fee for the affected Subscription Service for the month, and has no cash value. ServiceNow may delay issuing service credits until such amounts reach one thousand U.S. dollars (\$1,000) or equivalent currency specified in the applicable Order Form.	
Docusign	Our industry-leading, global support model is there to back you up, no matter where you do your business. We provide you access to the expertise you want, whether through our communities, our knowledge base and on-demand training, or our team of experienced technical support professionals, who know you and your solutions.	
QTS	99.999% uptime guarantee. Meaningful Service Level Agreements are backed by financial penalties spelled out in tailored Master Service Agreements with each customer.	
SAP	Ariba	We guarantee a 99.5% system availability percentage during each month for production versions, with the exception of regularly scheduled and emergency maintenance.
	Hanna	Technical Availability for PRD systems - 99.5% Technical Availability for non PRD systems - 95% SAP shall track and report to Customer the "Technical Availability" in a monthly summary report. SAP HEC can offer a contractual SLA of 99.7 on a case by case basis.
	Hybris	SLA: contractually we provide a guarantee on the performance of your application at 99.9% availability.

	SuccessFactors	We guarantee a 99.5% system availability percentage during each month for production versions, with the exception of regularly scheduled and emergency maintenance.
VMware	AirWatch Service Level Agreements are non-negotiable. AirWatch has a guaranteed uptime SLA of 99.9%. Please refer to the AirWatch Hosted Services Policy for additional information. VMware AirWatch acknowledges that if it is awarded a contract under the RFP that it will annually certify to the Lead State that it still meets or exceeds the mandatory minimum requirements and technical specifications of the RFP.	
FireEye	FireEye cloud solutions are available 99.9% of the time in any calendar month, other than mutually agreed upon and scheduled downtime.	
VirtueStream	Virtustream IaaS Compute is comprised of computing resources hosted in secure data centers that replace the physical computing hardware traditionally housed on Customer site. These resources include physical servers which are logically divided into VMs (virtual machines), each with an allocation of CPU and memory, and linked to storage. Terms used in the detailed descriptions below: •μVM. Pronounced “micro VM,” this is Virtustream’s fine-grained unit of measurement designed to accurately measure the actual consumption of cloud resources. A μVM is a unit of computing resources, comprised of CPU, memory, storage IOPS, and associated local network bandwidth. The usage of each μVM resource component (CPU, memory, storage input/output, and network bandwidth) is measured at five minute intervals — one unit each for 200MHz of CPU, 768MiB of memory, 40 storage fabric input/output operations per second (IOPS), and 2Mbps of local network bandwidth. The highest of the four is averaged per hour, and the hour values averaged across the month to determine the overall μVM usage for the month. - Note: The measurement is performed at the aggregate level — across Customer’s entire μVM resource pool. Bandwidth usage is only within the data center. •Basic Plus μVM. These terms differentiate the two ways Virtustream offers μVMs services. “Basic Plus” μVM services are limited to a single Virtustream data center and have 99.99% availability for the Customer’s committed level. •“Reserve” μVM service is an equivalent quantity of Basic Plus μVMs reserved at Customer-designated secondary Virtustream data center for on-going operation during disaster events and during scheduled disaster recovery (DR) exercises. - In both cases, overage resources required (“surges”) up to 20% above the committed level from the contract /order form are provided at the same availability level. If Customer experiences consistent overage above this level, then Customer should reset the committed level. •High Memory. Virtustream offers competitive pricing on compute services for applications that require large amounts of memory (64GiB or more). •Enterprise These terms identify the “zones” within which μVMs are made available for consumption. The “Enterprise” zone is for use by non-Internet facing workloads. Systems deployed into the Enterprise zone are not directly accessible from the Internet. Enterprise Basic Plus μVM (IC-uVM-BASP-ENT) Enterprise Basic Plus μVMs reside in a single Virtustream data center, in the Enterprise zone. Resource availability is 99.99%, and only at the designated data center. Overage resources required (“surges”) up to 20% above the committed level from the contract /order form is provided at the same availability level. If Customer experiences consistent overage above this level, then Customer should reset the committed level. Service Level. 99.99% availability for the Customer’s committed level. Billing. Monthly, based on resource usage. Tier 0 Block Storage - Local Only (IC-STO-TOA-LOC) Block storage with a Latency Service Level of 3ms that is maintained in a single data center with no replication capability. Billing. Monthly fee, based per GB of storage allocated. Allocated storage is measured every 30 minutes, averaged across the month.	

	Tier I Block Storage - Local Only (IC-STO-T1A-LOC) Block storage with a Latency Service Level of 10ms that is maintained in a single data center with no replication capability. Billing. Monthly fee, based per GB of storage allocated. Allocated storage is measured every 30 minutes, averaged across the month. Tier II Block Storage - Local Only (IC-STO-T2A-LOC) Block storage with a Latency Service Level of 20ms that is maintained in a single data center with no replication capability. Billing. Monthly fee, based per GB of storage allocated. Allocated storage is measured every 30 minutes, averaged across the month. Tier III Block Storage - Local Only (IC-STO-T3A-LOC) Block storage with a Latency Service Level Objective of 40ms that is maintained in a single data center with no replication capability. Billing. Monthly fee, based per GB of storage allocated. Allocated storage is measured every 30 minutes, averaged across the month. Tier 0 Block Storage - Replicated (IC-STO-TOA-REP) Data storage with a Latency Service Level of 3ms that is persisted in Customer's primary Virtustream data center, and replicated to a second data center with an interval to provide a Recovery Point Objective (RPO) of 15 minutes. Service Level. Recovery Time Objective (RTO) of one (1) hour, and a Recovery Point Objective (RPO) of fifteen (15) minutes. Billing. Monthly fee, based per GB of storage allocated. Tier I Block Storage - Replicated (IC-STO-T1A-REP) Data storage with a Latency Service Level of 10ms that is persisted in Customer's primary Virtustream data center, and replicated to a second data center with an interval to provide a Recovery Point Objective (RPO) of 15 minutes. Service Level. Recovery Time Objective (RTO) of one (1) hour, and a Recovery Point Objective (RPO) of fifteen (15) minutes. Billing. Monthly fee, based per GB of storage allocated. Tier II Block Storage - Replicated (IC-STO-T2A-REP) Data storage with a Latency Service Level of 20ms that is persisted in Customer's primary Virtustream data center, and replicated to a second data center with an interval to provide a Recovery Point Objective (RPO) of 15 minutes. Service Level. Recovery Time Objective (RTO) of one (1) hour, and a Recovery Point Objective (RPO) of fifteen (15) minutes. Billing. Monthly fee, based per GB of storage allocated. Tier III Block Storage - Replicated (IC-STO-T3A-REP) Data storage with a Latency Service Level Objective of 40ms that is persisted in Customer's primary Virtustream data center, and replicated to a second data center with an interval to provide a Recovery Point Objective (RPO) of 15 minutes. Service Level. Recovery Time Objective (RTO) of one (1) hour, and a Recovery Point Objective (RPO) of fifteen (15) minutes. Billing. Monthly fee, based per GB of storage allocated.
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8.12.3 Specify and provide the process to be used for the participating entity to call/contact you for support, who will be providing the support, and describe the basis of availability.

CA	APM	CA Support can be engaged by telephone or online via CA Support Online at http://www.support.ca.com . CA Support is available 24x7x365. Technical support will be delivered in accordance with customer preference, and will likely include both telephone and email communications. CA Support Online is available 24 hours per
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		day and allows customers to manage their cases (i.e. log, view, set severity level, update and close cases). CA Support Online also provides various other useful features, for example: a knowledge base search; product and documentation downloads; fixes, service pack and patch downloads; support utilities; automated notifications; access to communities, beta programs; subscriptions for hyper notifications, etc. While working with CA Support engineers on cases, email communications and a remote access capability can also be used to deliver support services. Secure File Transfer Protocol (FTP) and a secure FTP web client allow for the protected transfer of case file attachments to CA Support, with the web client additionally providing case file transfer protection from CA Support. Files are encrypted and stored securely while on CA systems. Optionally unsecure FTP transfers also are supported."
	MAA	CA Support can be engaged by telephone or online via CA Support Online at http://www.support.ca.com. CA Support is available 24x7x365. Technical support will be delivered in accordance with customer preference, and will likely include both telephone and email communications. CA Support Online is available 24 hours per day and allows customers to manage their cases (i.e. log, view, set severity level, update and close cases). CA Support Online also provides various other useful features, for example: a knowledge base search; product and documentation downloads; fixes, service pack and patch downloads; support utilities; automated notifications; access to communities, beta programs; subscriptions for hyper notifications, etc. While working with CA Support engineers on cases, email communications and a remote access capability can also be used to deliver support services. Secure File Transfer Protocol (FTP) and a secure FTP web client allow for the protected transfer of case file attachments to CA Support, with the web client additionally providing case file transfer protection from CA Support. Files are encrypted and stored securely while on CA systems. Optionally unsecure FTP transfers also are supported."
	CA Agile	Support is available 24/7 and a contact number will be provided upon completion of the contract.
	ASM	CA Support can be engaged by telephone or online via CA Support Online at http://www.support.ca.com. CA Support is available 24x7x365. Technical support will be delivered in accordance with customer preference, and will likely include both telephone and email communications. CA Support Online is available 24 hours per day and allows customers to manage their cases (i.e. log, view, set severity level, update and close cases). CA Support Online also provides various other useful features, for example: a knowledge base search; product and documentation downloads; fixes, service pack and patch downloads; support utilities; automated notifications; access to communities, beta programs; subscriptions for hyper notifications, etc. While working with CA Support engineers on cases, email communications and a remote access capability can also be used to deliver support services. Secure File Transfer Protocol (FTP) and a secure FTP web client allow for the protected transfer of case file attachments to CA Support, with the web client additionally providing case file transfer protection from CA Support. Files are encrypted and stored securely while on CA systems. Optionally unsecure FTP transfers also are supported."
Google		Customers are entitled to direct Google support in addition to whatever Support Services the reseller has to offer. Google has a published Technical Services Support Guide for both Google Apps and Google Cloud Platform that describe the hours of operation, how to get after hours

	support, how to set the priority on a case, how to contact Google, and what the target response times are.
AODocs	Customers are entitled to direct AODocs support in additional to whatever Support Services the reseller has to offer.
Salesforce	Salesforce is proposing the Premier+Success Plan. Your Agency can cover all of its bases with this plan: support, training, and administration. It's what the + is all about. The Premier+ Success Plan gives you all the benefits of our Premier success plan, including a support rep assigned to your organization, priority case routing, 1-hour response time, 24x7 phone support, unlimited usage of our entire online course library, plus one very helpful addition: access to your own team of expert Salesforce administrators. This lets you focus on design and management while we support your configuration. The Premier+ Success Plan includes: • Unlimited access to our entire online course catalog of 100+ courses • 24x7 toll-free phone support • Priority case queuing and routing • Quick 1-hour response time • An assigned support account rep • Force.com code troubleshooting • Customizable end-user course templates • Premier Success Review to measure usage and trends • Access to our pool of Salesforce Certified Administrators who can configure and maintain your Salesforce edition • Premier Success Review to measure usage and trends • Includes administration services: Get configuration help. Request 100+ routine configuration updates like creating users, reports, workflow, and dashboards. You take online administration training to learn the basics, then you tell us your business requirements. Our team of certified administrators updates your Salesforce system. Subject to the Government Cloud Premier+ Success Plan outlined above, access to systems and permissions which could permit access to Customer Data inside of the Salesforce Government Cloud storing U.S. government, U.S. government contractors, and FFRDC Customer Data will be restricted to Qualified U.S. Citizens. Qualified US Citizens are individuals who are United States citizens, and are physically located within the United States when accessing the Salesforce Government Cloud systems; and have completed a background check as a condition of their employment with Salesforce. Severity Levels & Response Times Issues will be categorized and handled according to an assigned severity level, as follows: Level 1 - Critical Response time: 1 Hour* Critical production issue affecting all users, including system unavailability and data integrity issues with no workaround available. Level 2 - Urgent Response time: 2 Hours* Major functionality is impacted or significant performance degradation is experienced. Issue is persistent and affects many users and/or major functionality. No reasonable workaround available. Also includes time-sensitive requests such as requests for feature activation or a data export. Level 3 - High Response time: 4 Hours**

	System performance issue or bug affecting some but not all users. Short-term workaround is available, but not scalable. Level 4 - Medium Response time: 8 Hours** Inquiry regarding a routine technical issue; information requested on application capabilities, navigation, installation or configuration; bug affecting a small number of users. Reasonable workaround available. Resolution required as soon as reasonably practicable. *24/7 Severity 1 and 2 coverage includes weekends and holidays **Severity 3 and 4 target response times include local business hours only and exclude weekends and holidays Overview of Support Escalation Path An issue is received by Tier 1 Support Rep who will document details and attempt to resolve. In the event that the problem cannot be resolved at this level, case will be escalated to a Tier 2 Support Rep for further analysis. Occasionally, a Case may be received for which technical understanding or indicated fix exceeds the responsibility of Support. These issues are quickly brought to the attention of R&D through the Tier 3/QA channel. Throughout the lifecycle of the case, customer will receive regular updates from the case owner at regular intervals based on case severity. Customers can work with their Support Account Specialist (SAS) if assigned through the purchase of Premier Support as a point of escalation should the need arise. Step-by-step escalation path: •Case is logged via Help Portal, Phone or through Live Chat •Depending on the functional area of the case a Tier 1 Support Rep from the appropriate skill group responds to the user confirming that the issue has been received and is in process. •Tier 1 analyzes the issue from the perspective of customer provided information in the case. •Tier 1 makes contact (phone or email) with the customer and gathers more information including any access needed to reproduce the problem. •With all necessary information gathered, Tier 1 will attempt to resolve the issue with the customer. •When resolution cannot be immediately achieved, Tier 1 Support Rep will escalate to a Tier 2 Support Rep in the same skill group. Tier 2 Support Rep will take all steps necessary to reproduce, understand and resolve the issue. •Technical Issues that cannot be resolved by the Tier 2 Support Rep are escalated to Tier 3. This escalation will provide a deeper layer of analysis with the possibility of escalation to QA/Development for Application issues and Escalation to Operation Services for Infrastructure issues as needed. •Functional Issues that cannot be resolved by Tier 3 are escalated to Product Management. •If it is an application Issue, necessary Development work will be performed, tested and a patch created. •Issue Fix Submitted to Operations for Infrastructure issues. •Issue Fix deployed. •Tier 2 Support Rep confirms success of Bug Fix in addressing the problem. •Tier 2 Support Rep contacts customer and confirms that the issue is Resolved. •Case is closed"
ServiceNow	Customer Support is provided by ServiceNow 24 hours a day, 7 days a week, including all holidays. Customer may contact ServiceNow using one of the following means: •Support Portal at https://hi.service-now.com/. Customer may get login access to this self-service portal by contacting its ServiceNow administrator. •Phone using one of the numbers at http://www.servicenow.com/support/contact-support.html. Customer shall contact ServiceNow's authorized reseller in accordance with its agreement with the reseller.

	See the "Customer Support Policy" contained within the "Subscription Service Guide" included with this response for more information.
Docusign	Enterprise Premier support provides 24x7 Live Phone Support.
QTS	Dedicated support staff is available 24x7x365 to generate and track incidents to resolution QTS Customer Portal provides round-the clock visibility into your environment
VMware	Global Support Services
FireEye	FireEye offers 24/7 technical support and its technical support centers around the globe in a follow-the-sun model. •Milpitas, CA, USA (UTC -7 hours) •Reston, VA, USA (UTC -4 hours) •Dublin, Ireland (UTC) •Singapore (UTC +8 hours) •Sydney, Australia (UTC +10 hours) FireEye Support is available via telephone, email, live chat, and web. Phone: U.S: +1 877-347-3393 (877 FIREEYE) Email: Support@FireEye.com Web Support: https://www.fireeye.com/support/get-support.html Support Programs: https://www.fireeye.com/support/support-programs.html
VirtueStream	Virtustream will work collaboratively with State of Utah to develop / maintain a relationship structure that leads to quick resolution, regularly scheduled status meetings, and quarterly business reviews. Virtustream will assign multiple key personnel to State of Utah including an Executive level sponsor. The primary point of contact will be Virtustream's Technical Account Manager (TAM). The TAM is responsible for daily activities/interaction and understanding/ensuring State of Utah's objectives are met at a minimum. Optimizations and other improvements to processes/standard operating procedures are delivered by the TAM in coordination with other Virtustream staff working behind the scenes. The TAM will coordinate day-to-day operation, service level management and SL reporting. The following outlines Virtustream's approach to service desk escalation and issue resolution. <u>Escalations within Virtustream</u> Virtustream will provide Level 0 and Level I support and first call resolution where possible, as determined by Virtustream. Where first call resolution is not possible, the Virtustream Service Desk provides incident management for Incidents and Urgent Service Requests escalated to Level II and Level III resources as defined below. In the event that Virtustream's Response to an Incident is not acceptable to the Customer, Customer can contact the Virtustream Service Desk and request escalation to the head of the Service Desk. Virtustream shall, upon receipt of any such request, immediately escalate the issue to the head of the Service Desk or technical team as appropriate. <u>Service Request Prioritization</u> Service Requests are assigned a priority of either 'Urgent' or 'Standard' and are queued for fulfillment with the corresponding priority. All Service Requests will be reviewed by the Virtustream Service Desk, who will determine the appropriate priority to assign with collaboration of Customer. <u>Incident Prioritization</u> All Incidents that are reported to the Virtustream Service Desk, or that Virtustream otherwise becomes aware of, will be initially assigned a priority by the Virtustream Service Desk as set forth below. Internal escalation for Incidents to Level II and Level III resources are based on the priority level assigned to the Incident.

Incident Prioritization			
Priority/ Severity	Definition	Response Time Service Level	
1	Major part of the system is unavailable/not operating correctly, affecting multiple users. No workarounds in place and business operations are not possible. Or Incident has a critical impact on the business (e.g., loss of the Exchange Production server impacting all users).	30 minutes	Response time will be within indicated time beginning from when the customer creates a ticket or a monitoring event is validated. Additional resources are engaged via Virtustream's on Call Process.
2	Part of the system is unavailable/not operating correctly, affecting users in a single function. No workarounds in place and business operations in this function are not possible/severely impacted. Or Incident has a serious impact on part of the business (e.g., a configuration change is impacting a small subset of users).	60 minutes	
3	Part of the system is unavailable/not operating correctly, affecting users in a single function. Workarounds in place, but business operations are impacted, although not severely. Or Incident has a temporary impact on users and is non critical or is a development issue (e.g., email is slow to deliver)	4 hours	
4	Incident that is causing inconvenience to the business, but not impacting operations. Or Incident has a minor impact on users or business, or issue is a request for further information	1 business day	

Virtustream will assign a Technical Account Manager starting on day 1 of the contract. The Cloud Platform, Cloud Cover (managed services), and Cloud Security team's will also be assigned to State of Utah upon execution of the contract. All of the individuals assigned to the State of Utah account have significant years of experience in their fields.

The TAM assigned to State of Utah will provide reports ad hoc but also on a quarterly basis. The quarterly business reviews include but are not limited to performance measurements, service requests. On a monthly basis, the TAM will provide a consumption report detailing the items consumed by each virtual machine. This delivers a very granular cost breakdown to State of Utah which will allow the data to be carved multiple ways. Also, information can be gathered by the State of Utah team any time they want from the xStream portal. State of Utah can also issue a ticket to Virtustream operations center to request information as well. The TAM will conduct scheduled meetings and be in constant contact with State of Utah. The TAM is an extension of the State of Utah team.

Virtustream defines a Root cause analysis (RCA) as the formal process, documented in writing by Virtustream and approved by Customer, to be used by Virtustream to diagnose problems at the lowest reasonable level which includes a report of the corrective action to be taken and defined timelines for corrective actions, which shall eliminate, to the extent reasonably possible, repeat failures. The following details the RASCI for RCA's:

	Role/Function	Customer	Virtustream
	Request Root Cause Analysis tickets by contacting the Virtustream TAM (Customer requests Incident report/Problem record)	R/A	S
	Document, track and manage all Problem tickets using ITSM system	S	R/A
	Provide Problem management review and Root Cause Analysis (RCA) for all in-scope P 1 Incidents (preliminary report within 48 hours; final within 15 calendar days)	S	R/A
	Provide Problem management and RCA of identified Problems (e.g., reoccurring events, alerts) - investigate and diagnose	S	R/A

8.12.4 Describe the consequences/SLA remedies if the Respondent fails to meet incident response time and incident fix time.

CA	APM	In the event that the Service Level Availability committed decreases below the Threshold for Service Availability Default, Minor or Major, Customer may be entitled to take action as outlined in the contract.
	MAA	In the event that the Service Level Availability committed decreases below the Threshold for Service Availability Default, Minor or Major, Customer may be entitled to take action as outlined in the SaaS Listing.
	CA Agile	In the event that the Service Level Availability committed decreases below the Threshold for Service Availability Default, Minor or Major, Customer may be entitled to take action as outlined in the contract.
	ASM	In the event that the Service Level Availability committed decreases below the Threshold for Service Availability Default, Minor or Major, Customer may be entitled to take action as outlined in the SaaS Listing.
AODocs	If AODocs does not meet the SLAs, the customer will be eligible to receive a service credit.	
Virtu	Email support@virtru.com	
ServiceNow	ServiceNow or its authorized reseller, as applicable, will use reasonable efforts to meet the target response times and target level of effort stated in the "Customer Support Policy" contained within the "Subscription Service Guide" included with this response for more information.	
SAP	Ariba	As part of the Cloud subscription, Ariba provides Customer Support services to help diagnose, troubleshoot and resolve functional and technical problems for all users. Ariba's award winning customer service staff can be contacted via phone (toll free), email or Web form Monday-Friday, 24/5 in multiple time zones and languages. Ariba Connect, our online support portal provides 24/7 support for service and enhancement requests. Customers may also choose to purchase ExpertCare. ExpertCare provides each customer with a named contact within Ariba that acts as an ExpertCare Manager for the customer and is knowledgeable about customer specific business process, configurations and customizations.
	Fieldglass	Our best practice is that the program office (managed by the State of Utah or your chosen MSP) provides first-level support for end users including hiring managers, approvers, suppliers, etc. Fieldglass' multi-lingual helpdesk is available by phone, email or web form 24x7x365. Our English language helpdesk is located at our corporate headquarters in Chicago. Merlin Information Systems Ltd., a UK entity, provides helpdesk service in French, German and Japanese from its Manila,

		Philippines and Debrecen, Hungary locations. We are prepared to assist with technical, functional or administrative questions about the Fieldglass application.
	Hanna	Customer key users have several options to communicate incidents into SAP Managed Cloud Delivery. Primary entry point: The best and easiest way to get an incident resolved is by creating and sending incidents directly to SAP Managed Cloud Delivery Service Teams via the SAP Support Portal. This communication channel ensures that all support teams are notified and therefore is the most preferred way to contact SAP on support/service related issues. Alternative option to the primary entry point: Customer key user can also communicate incidents by telephone via the SAP Customer Interaction Center (CIC) (e.g. in case of facing challenges in submitting an incident via the SAP Support Portal). Exceptional option: During business hours, customer key user may also communicate urgent incidents by contacting designated SAP Managed Cloud Delivery service contacts like Customer Engagement Service Manager (CESM) to create an incident on behalf of the customer. However – as already mentioned - this is not the preferred way of communication, but only should be applied in exceptional cases. Support times are contractually agreed upon with each individual customer organization. The SAP Managed Cloud Delivery (MCD) Service Desk and the Service Teams are spread across Europe, Americas and Asia. As a result of the global set-up across several time zones, SAP MCD Service Desk is able to provide worldwide 24/7 support to customers, throughout the entire year and according to the "Follow-The-Sun-Principle".
	Hybris	Key service levels are delivered through service level objectives, which provide for uptime of 99.9 for the hosted environment. Furthermore, monitoring is in place to report and alert upon uptime and response times of the environment to ensure best possible performance. The following support is specifically for the SAP Hybris Commerce, Cloud Edition. Customers can contact SAP Hybris Commerce, Cloud Edition technical support by toll-free telephone number or e-mail 24 hours per day, seven days per week. Based on the priority level, SAP Hybris's support personnel will attempt to provide Customer with remote assistance for reported issues. Contact information for technical support is as follows: Toll-Free Telephone Number: 888-944-2664 ext 6 In the event that Customer contacts SAP Hybris support, SAP Hybris shall respond to such reports as follows: Priority Level : Characteristics Response Time Resolution Time Objective

		Priority Level 1 Fatal Issue: Problem causing the Customer Website to cease from operating. This situation is generally described as a total failure. 25 Minutes (7x24) 2 hours Priority Level 2 Major Issue: Problem causing the Customer Website to experience major problems with it ability to operate. This situation exists when the Customer Website is partially failing however it is still able to function. 25 minutes (7x24) 12 hours Priority Level 3 Degradation of Performance: Problem affecting only certain non-critical functions of the Customer Website. This situation is occurring when the Customer Website is usable but has certain limited functions. 2 hours 1 business day Priority Level 4 Minor Issue: This situation includes all other non-critical problems. It is present when the Customer Website is usable however the problem results in a minor issue affecting it. 2 hours 3 business days Upon receipt of a service call classifying the priority level, SAP Hybris will deploy commercially reasonable efforts to respond and assist in the resolution of the problem. Application support for code developed by Customer or its implementation partner will be provided by Customer or Customer's implementation partner. If SAP hybris provides SAP Hybris Commerce, Cloud Edition support to a Customer as requested by Customer, and it is subsequently revealed that SAP Hybris was not responsible for the problem or the problem was not classified correctly by the customer, Customer will pay SAP Hybris on a time and materials basis for such support and assistance.
	SuccessFactors	
VMware	Our Availability Commitment for VMware AirWatch is 99.9%. The SLAs are subject to the terms of the applicable Terms of Service for VMware AirWatch. If the Availability of a class of service that you purchase is less than the associated Availability Commitment, then you may request Service Credits for that affected class of service. Availability in a given month is calculated according to the following formula: "Availability" = ((total minutes in a calendar month – total minutes Unavailable) / total minutes in a calendar month) x 100 A class of service will be considered "Unavailable," subject to the Service Level Agreement Limitations set forth below, if VMware's monitoring tools determine one of the following events has occurred ("SLA Event"). The total minutes that a class of service is Unavailable for a particular SLA Event is measured from the time that VMware validates the SLA Event has occurred, as defined below, until the time that VMware resolves the SLA Event such that the Service Offering is Available to you. If two or more SLA Event occurs simultaneously, the SLA Event with the longest duration will be used to determine the total minutes Unavailable.	

	1. Each of the following will be considered an SLA Event for the Dedicated Cloud, Virtual Private Cloud, or Virtual Private Cloud OnDemand Services: a) Any of the network interfaces of the Service Offering Network are unavailable for more than three (3) consecutive minutes. The "Service Offering Network" means the network that extends from the network interfaces of physical host servers for a class of service to the outside network interfaces providing the Service Offering's public internet connectivity. b) The data store(s) associated with your block level storage for a class of service are unavailable for more than three (3) consecutive minutes. c) The self-service console, available at https://vchs.vmware.com, cannot successfully authenticate a simulated user for more than five (5) consecutive minutes. d) Your running virtual machines for a class of service become inaccessible for more than five (5) consecutive minutes due to physical host server failures. 2. Each of the following will be considered an SLA Event for the Data Protection Service: a) The backup storage repository associated with your Data Protection service is unavailable for more than three (3) consecutive minutes. b) The start time associated with your backup scheduling window is missed for longer than thirty (30) consecutive minutes. c) The standard 24-hour recovery point objective (RPO) is missed for any virtual machines actively enrolled in the service. d) Any restore operation for a virtual machine fails to complete due to backup infrastructure failures. 3. Each of the following will be considered an SLA Event for the Disaster Recovery Service: a) Any of the network interfaces of the Service Offering Network are unavailable for more than three (3) consecutive minutes. b) The data store(s) associated with your block level storage for replication is unavailable for more than three (3) consecutive minutes. c) The self-service console, available at https://vchs.vmware.com, cannot successfully authenticate a simulated user for more than five (5) consecutive minutes. d) Your failed-over virtual machines for a class of service become inaccessible for more than five (5) consecutive minutes due to physical host server failures. e) Any built-in service functions for failover testing, planned migration, or live failover and recovery result in virtual machine replicas not powering on in less than 4 consecutive hours from the time a request is acknowledged and approved by VMware. 4. The following will be considered an SLA Event for the Object Storage service: a) A more than five (5) percent Error Rate for more than ten (10) consecutive minutes – where "Error Rate" means the number of valid requests that result in a response with HTTP Status 500 and Code "Internal Error" divided by the total number of valid requests during each five-minute period.
FireEye	FireEye shall use commercially reasonable efforts to correct any reproducible programming error in the Software attributable to FireEye, employing a level of effort commensurate with the severity of the error, provided, however, that FireEye shall have no obligation to correct all errors in the Software.

8.12.5 Describe the firm's procedures and schedules for any planned downtime.

CA	APM	Planned downtime is scheduled, and customers are notified
	MAA	Customers are notified at least two weeks in advance for planned downtime.
	CA Agile	Regularly scheduled maintenance (planned downtime for upgrades and maintenance) where the customer has been given at least eight (8) hours notice does not count as downtime. Unscheduled maintenance, in which the Rally Service is unavailable and

		advance notice was not provided to customers, will be counted against the up-time SLA.
	ASM	Customers are notified at least two weeks in advance for planned downtime.
Google	Google's maintenance routines are done in a manner that ensures there is no need to schedule any downtime.	
AODocs	AODocs's maintenance routines are done in a manner that ensures there is no need to schedule any downtime.	
Salesforce	There are two types of maintenance at Salesforce: System Maintenance and Release Maintenance. System Maintenance is for sustaining the performance, reliability, security, and stability of the infrastructure supporting our services. When maintenance is scheduled, the specific timing and availability to be expected during that time will be communicated to all customers approximately one week in advance of the maintenance window upon login to Salesforce and via a posting to http://trust.salesforce.com/trust/maintenance. In the event of planned maintenance where the services will be unavailable for more than four hours, or that requires customer action in advance, Salesforce endeavors to communicate via email several months in advance. Please Note: If emergency system maintenance is required, customers may be notified less than one (1) week in advance. Major Release Maintenance is for upgrading the services to the latest product version to deliver enhanced features and functionality. Major release dates and times are posted on http://trust.salesforce.com/trust/maintenance approximately one month before release to Sandbox instances. An email notification and blog post regarding Sandbox preview instructions is also sent approximately one month prior to upgrading Sandbox instances. Email notification of major release dates is sent one month prior to upgrading non-Sandbox instances. The Release Notes document describing the new features and functionality is posted in Help & Training one month prior to upgrading non-Sandbox instances. Final release reminders are communicated to all customers approximately one week prior via email and upon logging into Salesforce. Major release maintenance occurs three times per year. The instance will be unavailable for up to five minutes during the release window. Patch Releases and Emergency Releases are used to deliver scheduled and ad hoc application fixes. Patch releases are scheduled weekly and are usually deployed to instances on Tuesday, Wednesday or Thursday, with release to Asia-Pacific instances the following day. Emergency releases are conducted on an as-needed basis and can occur any day of the week. Whenever possible, patches and emergency releases are deployed during off-peak hours and without downtime.	
ServiceNow	ServiceNow notifies customers at least 10 days prior to scheduled maintenance for infrastructure network, hardware or software that might impact service. ServiceNow targets no more than two hours of downtime due to scheduled maintenance per month.	
DocuSign	Continuous availability is a necessity for mission-critical business applications in a global world. It's also a key component of the xDTM standard. Zero maintenance downtime means that DocuSign is always available, regardless of the time-of-year, day-of-week, time zone or country. DocuSign's Carrier Grade System Architecture, a first in SaaS, eliminates maintenance downtime, and ensures the highest level of performance resiliency and data integrity. This is accomplished through a combination of advanced high availability architecture, native DocuSign engineering, and both specialized and commodity hardware and software components.	
SAP	Ariba	Scheduled downtime windows for maintenance, upgrades or new releases are provided in the Service Level Agreement. Our uptime percentage takes scheduled maintenance into account.

	Fieldglass	Fieldglass' maintenance windows are as follows: • Friday maintenance window of 11:00 p.m. – 2:00 a.m. Central (Daylight Savings Observed) • Extended maintenance windows are taken with five days advance notice and are typically as follows: - Second Friday of each of the following months: March, July, and November - Critical service packs, security issues, and other emergencies will still be taken if needed with communication as reasonable
	Hanna	SAP performs periodic scheduled maintenance activities to maintain security patching levels, application transports, fixes, network maintenance, and other scheduled proactive activities during scheduled maintenance window (agreed to by the customer). The predefined maintenance window is 4 hours per month (for example first friday of every month) SAP may perform additional maintenance services on the Customer's Computing Environment in agreement with Customer, with at least ten (10) Business Days prior notice (which notice may be by email to Customer's nominated contact or posting) of the date and anticipated length of the maintenance window, and provided that SAP adheres to Customer's reasonable requirements as to the timing and duration of any such maintenance. SAP reserves the right to apply critical application and operating system security patches in compliance with the SAP Global Security Team's reasonable recommendations. SAP will use reasonable endeavours to provide Customer with forty-eight (48) hours advance notice regarding the critical patch deployment unless a shorter notice period is required in order to address a critical security issue. Non critical security issues shall be dealt with by Scheduled Maintenance
	Hybris	Typically they are two-hour maintenance windows, with no downtime or on occasion maintenance periods require between 2 to 10 minutes of downtime. Other rare periods which may require further maintenance could have downtime between 30 min to 4 hours.
	SuccessFactors	To address issues such as security patches, hot fixes, updates, equipment upgrades, etc., we has established maintenance windows to perform scheduled maintenance. Scheduled maintenance events typically occur during only one of these windows, roughly every 6-8 weeks. A 14-hour/week window will be used for all critical / most emergency patches and all bug fixes (will include tech stack and application patch sets). We define scheduled downtime maintenance windows as: Midnight to 7 a.m. Fri-Sat local time + midnight to 7 a.m. Sat-Sun local time (dependent upon the data center where the customer data is hosted) We will provide customers with at least a 2 days' notice if a larger maintenance window is needed. Typically, for HCM / LMS products, customers receive a 3-5 day notification (via popup on login). When the system is not available during the maintenance there is a notification page displayed for the outage timing. We plan maintenance events conservatively, and use them sparingly.
VMware	VMware IaaS Services Customers are notified in advance of any expected downtime with vCloud Air services. In the event of an unexpected outages or disruption to the service, customers will be notified via their preferred contact means as soon as possible as per the terms outlined in the Service Level Agreement. VMWare AirWatch	

	We maintain standard SLAs with our customers to provide for downtime • SLAs are defined within the AirWatch Hosted Services Policy Per our Hosted Services Policy, we provide outage credits in the event of a service interruption: • ""AirWatch warrants it will provide Availability of the Hosted Services 99.9% of the calendar month (the "Service Level"). To the extent that the Hosted Services fail to conform to the Service Level, Customer may request service credits ("Outage Credits") as provided herein. A failure or lack of Availability for any period of time of at least one minute during which Customer is unable to utilize the Hosted Services due to AirWatch's failure to provide Customer with the specified services constitutes an "Outage". All Outage measurements will be rounded up or down to the nearest one minute increment, with increments equal to or greater than 30 seconds being rounded up to the next minute. Outage Credits are based on cumulative periods of Outage over a calendar month. Final determinations of the length of the cumulative periods of Outage over a calendar month shall be based on AirWatch's internal monitoring equipment and records. Outage Credits will be taken against only the Hosted Service fees for the month in which the Outage occurred.""
FireEye	FireEye undertakes reasonable efforts to ensure that the service availability maintains a minimum of 99.9% availability. However there are circumstances where the system will be down due to the following: a) "Scheduled Maintenance Period" is the period during which weekly scheduled maintenance may be performed, or a maintenance window otherwise mutually agreed upon by FireEye and Customer. Customers receive notification and announcements for any scheduled maintenance period. b)"Emergency Maintenance" means any time outside of Scheduled Maintenance that FireEye is required to apply critical patches or fixes or undertake other urgent maintenance. If Emergency Maintenance is required, FireEye will contact Customer and provide the expected time frame of the Emergency Maintenance.
VirtueStream	Virtustream planned downtimes start with the weekly change board meeting by the Platform Operations group. All requested changes whether requested by customers or by the operations staff are reviewed, if approved then scheduled. Depending on the nature of the change, routine and planned, the affected customers are notified as early as possible and adjusted based on customer needs. For example, if the scheduled downtime falls on a weekend that a customer plans to do their quarterly close, Virtustream will reschedule. An emergency/urgent change may have less notice for the customers. But in all cases, customers will be notified of the upcoming downtime multiple times, start of the downtime will be specified and the expected duration. Once the downtime is complete, another notification will go out to the affected

8.12.6 Describe the consequences/SLA remedies if disaster recovery metrics are not met.

CA	APM	In the event that the Service Level Availability committed decreases below the Threshold for Service Availability Default, Minor or Major, Customer may be entitled to take action as outlined in contract. Defined, monetary penalties are provided in the SaaS Listing document.
	MAA	Defined monetary penalties are provided in the SaaS Listing document
	CA Agile	See 8.12.4
	ASM	Defined, monetary penalties are provided in the SaaS Listing document
Google	Customers will be eligible to receive a service credit.	
AODocs	Customers will be eligible to receive a service credit.	
Salesforce	Customer data, up to the last committed transaction, is replicated to disk in near-real time at the designated disaster recovery data center, and backed up at the primary data center. Backups are performed daily at primary data center facility without stopping access to the application.	

	For business continuity purposes, Salesforce supports disaster recovery with a dedicated team and a 4 hour recovery point objective (RPO) and 12 hour recovery time objective (RTO). Additional details can be provided with the execution of an NDA between Salesforce and your Agency. In terms of remedies, the Salesforce Service Terms incorporated as part of the End User Licensing Agreement indicate the following regarding Termination allowing customers to terminate the contract at time of renewal: ""User subscriptions will automatically renew for additional periods of one (1) year at the list price in effect at the time of renewal unless You give Your Reseller notice of termination at least 30 days prior to the end of the relevant subscription term.""	
ServiceNow	See 8.12.2 for the Availability SLA.	
Docusign	See 8.12.4.	
SAP	Ariba	Please see the details provided in 8.12.4 response.
	Fieldglass	Please see the answer to Question 8.12.4, above.
	Hanna	Penalties and remediation for SLA violations are detailed in the Statement of Work.
	Hybris	Our SLA provides tenant remuneration for losses they may incur due to outages within the infrastructure.
VMware	For VMware there is a service credit reimbursement structure outlined above. We have detailed recovery procedures that include defined steps, roles and responsibilities and accountable personnel to help ensure streamlined disaster recovery. As conversations progress, AirWatch can provide specific details regarding our disaster recovery timelines and strategies.	
FireEye	FireEye has established formal Business Continuity and Disaster Recovery plan, as well as Incident Response and Recovery Plans to help maximize availability of critical customer-impacting services.	

8.12.7 Provide a sample of performance reports and specify if they are available over the Web and if they are real-time statistics or batch statistics.

CA	APM	A report of the Service's measured monthly SLA is available to Customer upon request
	MAA	Reports are generated periodically and ad hoc. Customers can use their support.ca.com credentials to access private trust site which contains SLA details for the subscribed service.
	CA Agile	Realtime and historical system status can be viewed at https://status.rallydev.com
	ASM	Reports are generated periodically and ad hoc.
Google	Google does not produce customer specific performance reports. The web based Apps Status Dashboard displays real time System Availability Details. Customers can work with their Google reseller to design a reporting system using Google Sheets based on which incident actually impacts their end users. Service availability issues are isolated to specific applications and specific geographically locations and thus would not impact all of your users or your account at all.	
AODocs	AODocs does not produce customer specific performance reports. Customers can visit the AODocs status page: status.aodocs.com . AODocs provides a set of usage reports and AODocs team can also work with the customer to build specific reports	
Virtru	We have realtime monitoring of both server side operations and client side interactions.	
Salesforce	System Performance Reports Our track record speaks for itself—Salesforce has maintained high levels of availability across all Salesforce instances since inception. As an on-demand vendor	

	providing daily service-quality data on a public website (http://trust.salesforce.com), Salesforce proves that it is a leader in availability. And by making its track record completely transparent, salesforce.com proves it is worthy of customers' trust. A few metrics that we maintain (and publish publicly via our trust.salesforce.com website) are: -Daily Transaction Counts -Daily Transaction Speeds Salesforce is hitting almost 4 billion transactions a day. These transactions are a mix of user interacting with the system and API calls where other systems are bi-directionally interacting with Salesforce. Our Average Transaction Time hovers between 150 and low 200 milliseconds. Some additional published metrics are uptime & availability, planned maintenance windows, and any performance degradation. The Purchasing Entity can view all of this information and more by going to trust.salesforce.com. Customers can also log a case to request system uptime reports for the last 6 months and last 12 months, however, system reports are not automatically distributed.	
ServiceNow	Administrators can view a wide range of performance metrics for their instance and for the machine on which the instance is running, displayed in a graphical format. Add these graphs and their controls to a home page to monitor the performance of instances. Some of these graphs are intended for use by ServiceNow Technical Support to troubleshoot performance issues or help tune your system for maximum efficiency. Each graph enables admins to filter the data by using different measurements, such as maximum and minimum values, means, and medians. The available graphs reflect performance in eight functional areas of ServiceNow. •Database •Discovery •Disk Partitions •Linux Stats •Logging •MySQL Overview •Node Metrics •Replication •ServiceNow Servlet	
DocuSign	For real-time data, please visit the DocuSign Trust site (trust.docusign.com) for additional information.	
SAP	Ariba	We provide a monthly report to customers describing the system availability percentage. Depending on the cloud service, these reports are made available either by email, through the cloud service or through an online portal.
	Fieldglass	Fieldglass executes comprehensive performance testing prior to each release to production. Performance testing is executed in accordance with the Fieldglass Performance Testing Standards document. Types of testing performed include regression, load, stress, and endurance. Results are reviewed and approved by senior members of development, QA, IT, and the Chief Architect. Our standards document can be shared upon request while under NDA.
	Hanna	During peak periods, Fieldglass will see 12,000 concurrent users with page response times averaging 400-700ms. Across all of 2015, we have a 99.4% success rate in meeting or exceeding all monthly customer SLAs for page response times.
		Performance reports on HEC are available to the customer via the SAP One Portal page. It provides the customer among other things: operational info about systems being managed, incident management, security management, user specific settings, planned downtime, etc.

	SuccessFactors	Customers can view hosting performance and availability information real-time at the following link: https://support.successfactors.com/Service_Status .
VMware	VMware IaaS Services VMware vCloud Air provides Web-based capacity reporting via the MyVMware portal. For detailed performance reporting, participating entities may wish to acquire VMware vRealize Operations suite, which is a non-Web based software product which provides real-time and historic performance statistics for vCloud Air. VMware AirWatch We can provide sample performance testing documents that validate our ability to handle anticipated workload under real-world conditions as conversations progress. We have a dedicated team for scalability and performance testing. They work with both internal teams and customers to conduct testing.	
FireEye	This is not applicable as each of the FireEye offerings are classified as SaaS. The performance of the FireEye cloud environments are continuously monitored and managed by the cloud service operations (CSO) team to ensure secure operation and availability.	
VirtueStream	Service Levels will be calculated and measured monthly by Virtustream on a calendar month basis and reported each month for the previous month. The reports will be provided to Customer by the tenth (10th) working day of the month following that to which such report relates, commencing on the second (2nd) month following the Service Start Date and each month thereafter. The monthly service level report will contain at least the following items: (i) Uptime statistics for the month concerned; (ii) an analysis of reported incidents over the previous month, broken down by type for discussion; (iii) action plans for items giving rise to concern; (iv) comments and observations on any issues arising from Virtustream's performance monitoring activities; (v) recommendations on service delivery strategies to maintain or enhance the service level; and (vi) review of general business requirements ("Service Level Report"). Cloud Platform Services (CPS) has its own specific service levels as described in this document. Cloud Cover Services (CCS) has service levels that pertain to the CCS offerings and are reported separately. Not all Virtustream customers have CCS but all Virtustream customers use CPS.	

8.12.8 Ability to print historical, statistical, and usage reports locally.

CA	APM	A report of the Service's measured monthly SLA is available to Customer upon request
	MAA	Same as above.
	CA Agile	This is available upon request.
	ASM	Customers are sent monthly SLA reports.
Google	See 8.12.7	
AODocs	See 8.12.7	
Virtru	We may be able to publish reports locally for customers.	
Salesforce	Trust.salesforce.com is the Salesforce community's home for real-time information on system performance and security. On this site you'll find: • Live and historical data on system performance • Up-to-the minute information on planned maintenance • Phishing, malicious software, and social engineering threats • Best security practices for your organization • Information on how we safeguard your data	

	In addition to the Salesforce Trust site (http://trust.salesforce.com/trust/status) to monitor uptime and performance, your Agency will also have access to a System Overview, which will help you monitor performance and usage of your own Salesforce org. This overview includes: Schema - # and % of custom objects and data storage Business Logic - # and % of Rules, Apex triggers and classes, as well as % of code used License Usage API Usage - # and % of requests in the last 24 hours User Interface - # and % of custom apps, sites, flows, custom tabs and pages Portal Usage The above list is of all the possible metrics that you may have in your system overview.	
ServiceNow	Yes. Instance performance can be viewed locally. Customers can use the Customer Support Portal to obtain information about the real availability of all their instances. Real availability is the percentage of production time that an instance is up and available for use.	
DocuSign	Yes. DocuSign offers a number of pre-defined reports to provide detail and summary information on DocuSign usage in the account, such as by Envelope, Recipients, Velocity of signing, and User Access among many other reports. Users can modify report criteria such as data ranges and reports can be scheduled to execute. All reports can be downloaded or Printed locally.	
QTS	Yes	
SAP	Ariba	User access is browser-based, so printing is enabled via the printers that are setup on the user's workstation. There are several "Print" buttons throughout the applications that will open an additional browser window with a printer-friendly format of the screen.
	Fieldglass	Any user with the correct permissions in the system, as specified by the State of Utah, may locally print historical, statistical, and usage reports.
	Hanna	Yes, available
VMware	VMware IaaS Services At the present time, VMware does not provide end user customers with specific reports for SLA performance. VMware tracks the overall health of the environment and will report to customers in the event of an outage. However, specific SLA performance is not delivered as a report, but as an alert. It is currently the customer's responsibility to track downtime within their environments and report to VMware when they believe SLA has been violated. VMWare AirWatch Customers can export and print solution data using interactive dashboards (CSV), reports (PDF, XLS, and CSV), the AirWatch Hub (PDF), and event log (CSV)	
FireEye	Each of the offerings in this response have reporting capabilities local to the system and users with the appropriate access rights.	

8.12.9 Offeror must describe whether or not its on-demand deployment is supported 24x365.

CA	N/A. CA only offers SaaS solutions and manages all aspects of the service. Clients do not have direct access to the environment.
Google	Purchasing entities will subscribe to an initial set of user licenses and can provision new user accounts at their convenience within that range of licenses.
Salesforce	The Salesforce service can be deployed rapidly since our customers do not have to spend time procuring, installing or maintaining the servers, storage, networking equipment, security products,

	or other infrastructure hardware and software necessary. The service is always available and the customer can deploy 24x365 at their own pace.
ServiceNow	ServiceNow is supported 24x365.
FireEye	The FireEye offerings in this response are SaaS service models. Once the application or service is set up there are no further deployment steps necessary. On-demand Self-service options referenced in section 8.1.2.1 are available 24x365.
VirtueStream	Virtustream's self-service portal allows authorized users to deploy resources on-demand 24x365.

8.12.10 Offeror must describe its scale-up and scale-down, and whether it is available 24x365.

CA	N/A. CA only offers SaaS solutions and manages all aspects of the service; monitoring and capacity planning is included as part of the service.
Google	Purchasing entities will subscribe to an initial set of user licenses and can provision new user accounts at their convenience within that range of licenses. If the purchasing entity has exceeded or is about to exceed their user count they can place an order for additional licenses at any time. Scale-down procedures will be handled on the renewal anniversary.
Salesforce	The Salesforce cloud based architecture will allow the State to deploy Salesforce solutions rapidly and scale at will for future needs. Customer's may scale up and add licenses at any point during their annual contract cycle. User counts are examined on an annual basis at time of renewal to ensure the customer had adequate license coverage.
ServiceNow	ServiceNow can automatically scale its application servers horizontally by adding or subtracting them to the load balancer pools for a particular instance. Scaling is managed by the ServiceNow Cloud Operations team.
FireEye	The FireEye offerings in this response are SaaS service models. FireEye cloud environments are continuously monitored by cloud service operations (CSO) personnel to help ensure optimal resources are allocated to the system 24x365.
VirtueStream	Virtustream's self-service portal allows authorized users to deploy or de-commission resources on-demand 24x365.

8.13 Cloud Security Alliance

Describe your level of disclosure with CSA Star Registry for each Solution offered.

- Completion of a CSA STAR Self-Assessment, as described in Section 5.5.3.
- Completion of Exhibits 1 and 2 to Attachment B.
- Completion of a CSA STAR Attestation, Certification, or Assessment.
- Completion CSA STAR Continuous Monitoring.

Carahsoft is proposing a number of Service Providers that are members of the Cloud Security Alliance. For example Salesforce is a corporate member of the Cloud Security Alliance (CSA) and contributes to their research and initiatives in a variety of ways. Salesforce has completed the CSA Consensus Assessments Initiative questionnaire (CAIQ), which maps to the CSA Cloud Controls Matrix (CCM) for the Salesforce Services, including Force.com, Analytics Cloud, Communities, Chatter, Sales Cloud and Service Cloud. A copy of the current completed CSA CAIQ can be provided to prospects or customers under NDA upon request.

8.14 Service Provisioning

8.14. 1 Describe in detail how your firm processes emergency or rush services implementation requests by a Purchasing Entity.

CA	APM	CA SaaS Ops has a rigorous service introduction and update process that is governed by a central body to ensure adherence. Every step in the process is recorded, tracked and approved.
	MAA	Standard lead times for requests can be waived for requests that have a critical business need
	CA Agile	Standard lead times for requests can be waived for requests that have a critical business need such as a data recovery effort
	ASM	Standard lead times for requests can be waived for requests that have a critical business need such as a data recovery effort
Google	Order processing from the time a valid Purchase Order is submitted has a normal turn around time of three business days. Google's sales team can be contacted to expedite orders when needed.	
AODocs	Order processing from the time a valid Purchase Order is submitted has a normal turn around time of two business days. AODocs's sales team can be contacted to expedite orders when needed.	
Virtu	Requests are triaged by the support and if an emergency is identified, the request is escalated by the VP of Product who immediately assigns the issue as a top priority to a developer. Once completed a hotfix is pushed to production.	
Salesforce	Subscription-based, On-Demand Service Salesforce offers on-demand Platform as a Service (PaaS) and Software as a Service (SaaS). The Salesforce PaaS and SaaS offerings are subscription based and in a per user/month or user/year format billed annually with some of our products offered as total logins per month or by defined number of members billed annually. Multi-tenancy gives applications elasticity. Force.com applications can automatically scale from one to tens of thousands of users. Processing more than three billion transactions each day, Force.com is used for large-scale deployments. Any application that runs on Force.com is automatically architected to seamlessly scale from 1 user to 100,000 users without the customer having to do anything differently. All applications (includes mobile, offline and read-only options) and data running on Force.com are deployed to and replicated across multiple data centers in different geographies. Every application, no matter how large or small, gets the full benefits of the backup, failover, disaster recovery, and other infrastructure services required for an organization's mission-critical applications.	
ServiceNow	ServiceNow professional services organization responds to customer needs based on each request. Once a purchase order is received from the Purchasing Entity, ServiceNow contacts the Customer to discuss schedules. Resources are assigned based on the project need. If the customer has a priority issue with the system, they would open a ticket and the ticket SLA process would proceed until the issue is resolved. Every ServiceNow customer is supported based on their priority and need.	
SAP	Hanna	Rush or emergency infra provisioning can be request in exceptional situations and would be addressed on best effort priority basis.
VMware	VMware IaaS Services Initial Order - Expedite the purchasing process thro - In the event that an emergency or rush service implementation request is received, VMware's NASPO program manager will coordinate an expedited response depending on the request. - Expedited Procurement - The Program Manager will directly interface with each company in the supply chain to ensure that the order is processed immediately upon receipt by each party. - Expedited In Increased capacity	

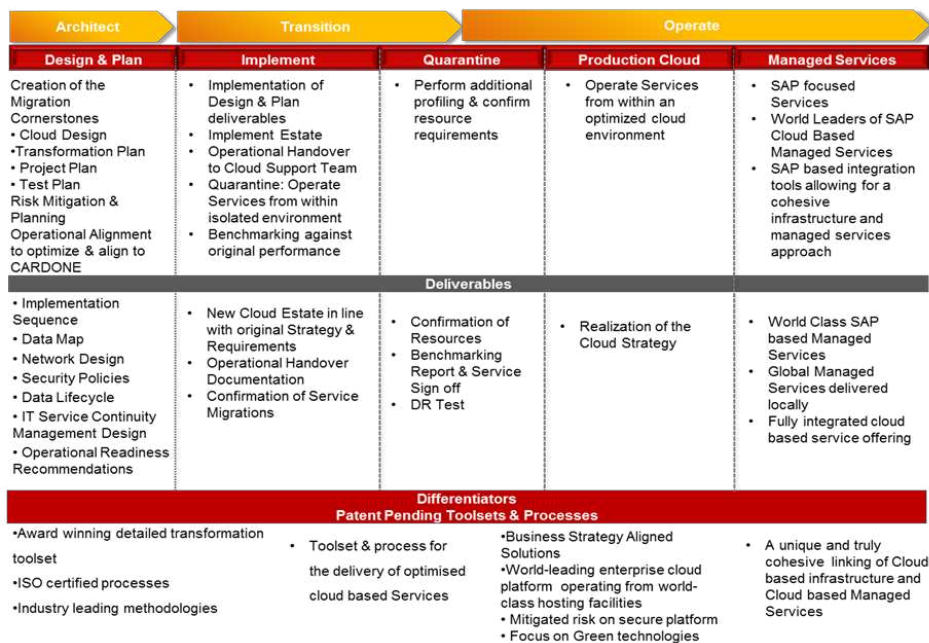
	VMWare AirWatch Participating Agencies will work with thier dedicated Account Executive to procure addition services for thier AirWatch implementations. Customers can implement and update configurations through the AirWatch administrative console. Additionally, customers can submit ASK tickets for any solution issues that will be tracked through completion.
FireEye	FireEye will make every reasonable effort to accommodate rush provisioning requests. The purchasing entity should contact their sales account team who will interface directly with the corresponding implementation team to coordinate an expedited implementation.

8.14.2 Describe in detail the standard lead-time for provisioning your Solutions.

CA	APM	48 hour turnaround is typically required
	MAA	Services do not generally require client action for provisioning. General service catalog requests have a standard 48 hour lead time
	CA Agile	Services do not generally require client action for provisioning. General service catalog requests, such as a data refresh, have a standard 48 hour lead time
	ASM	Services do not generally require client action for provisioning. General service requests have a standard 48 hour lead time
Google	Standard lead time is three business days.	
AODocs	Standard lead time is two business days.	
Virtru	The Lead-time for provisioning is no more than 15 minutes	
ServiceNow	ServiceNow provisions new instances or newly purchased users or applications to the instance within 48 hours after receipt of order. If users or applications are required more quickly, the customer controls access to all ServiceNOW capabilities at any time and the true-up occurs thereafter.	
DocuSign	DocuSign is intuitive and easy-to-use. Getting started with our cloud solution, standard console, can be implemented in a day. Adding integrations or API's will add to the complexity of the implementation, but our Professional Services are there to guide you every step of the way.	
VMware	VMware vCloud Air Services VMware vCloud Air OnDemand services can be purchased and provisioned in minutes via the vCloud Air self service portal. VMware vCloud Air services other than OnDemand are purchased via purchase order. Purchase orders are typically processed on the day of order. Once services have been purchased the user can immediately begin provisioning services from the self service portal. These services are available within minutes of launch. VMware vCloud Government Services VMware vCloud Government Services are purchased via purchase order. Purchase orders are typically processed on the day of order. New environments require an RSA token that is overnighted for 2 factor authentication. Once the user has their RSA token they can begin to provision IaaS Services. VMWare AirWatch AirWatch is committed to implementing the solution in a timely manner and we work closely with customers to meet internal deadlines. Delivery and deployment models will vary depending the hosting model selected by the customer: • SaaS deployments can be implemented within several days and some within a few hours • Large enterprise deployments with numerous integration endpoints may require additional time Once an order is placed, we immediately begin working with the customer to finalize terms and conditions in a mutually agreeable manner and begin the implementation process. We schedule regular check-ins for project status updates and to discuss any questions or concerns.	

FireEye	FireEye anticipates that the standard lead-time is expected to take no more than five (5) business days. However, FireEye is willing to accommodate an urgent request from NASPO in order to provide adequate service to the participating states.
VirtueStream	Virtustream's standard lead-time for provisioning can vary based of the type of deployment and requirement. Resources can be deployed on-demand basis by State of Utah. For the initial services, there is a standard which is maintained as best practice. At project kick-off, Virtustream and State of Utah will develop a detailed Implementation Plan, on a system-by-system, week-by-week basis, to ensure that both sides of the relationship have clear expectations on what is to be accomplished, by whom, and in what timeframe. Upon completion of the Implementation Plan, Virtustream and State of Utah will establish a Project Governance Plan and the Project Governance Plan will manage Implementation Plan and ensure alignment at all tiers of the organization, define expectations for status update frequency and formats, and establish an escalation path for issue identification and resolution. Virtustream offers a dedicated onboarding project team that is charged with migrating clients into the xStream® cloud. This chargeable service includes resources from our platform and SAP teams and development of an onboarding project plan with milestones and deliverables. Virtustream uses a mature methodology to move clients onto our cloud platform, a process which is continuously refined and improved. A link is established to the client site using a Virtual Private Network (VPN) or Multiprotocol Label Switching (MPLS) circuit, for customer access and testing of migrated systems. Prerequisites are put into place (domain controllers, backup systems, infrastructure, networking, etc.) prior to systems being onboarded, in a defined sequence. Virtustream SAP basis team members test the systems before turning them over to Ascend for validation. Once on the xStream® platform, Virtustream monitors, backups and maintains the systems. As a component of the Virtustream platform, all core units are replicated to an alternate data center to provide disaster-recovery capability.

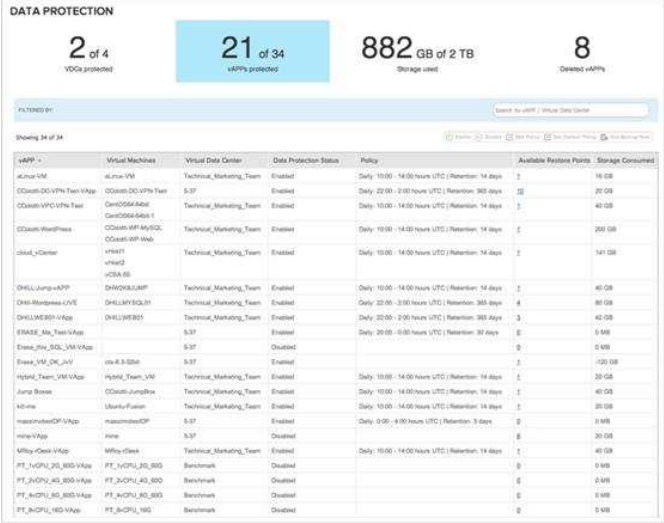
Figure 3. Sample Work Plan



8.15 Back Up and Disaster Plan

8.15.1 Ability to apply legal retention periods and disposition by agency per purchasing entity policy and/or legal requirements.

CA	APM	Not currently available.
	MAA	Not Available.
	CA Agile	The customer is responsible for the lifecycle of their data. We will retain all data until it has been deleted from our systems. We can remove data from our systems upon written request from the customer at termination of the contract.
	ASM	Not available.
Salesforce	Salesforce customers are responsible for complying with their company's data retention requirements in their use of the Salesforce Services. If a Salesforce customer must preserve data and the retention procedures above are insufficient, they may schedule a weekly export of data or copy to a sandbox account. Exports of Customer Data are available in comma separated value (.csv) format by request via Salesforce's Customer Support department. In addition, many exports can be manually pulled by the designated org administrators.	
ServiceNow	Once notified ServiceNow has the ability to leverage our internal clone operation process. This provides a locked state copy of the instance, while the customer can continue working on the production instance. Any data additions, changes or deletes will be on the production but not on the frozen instance copy. Additionally, ServiceNow can freeze backups to prevent them from being over written.	
DocuSign	DocuSign customers determine their retention policies.	
QTS	Yes QTS will work with customers to meet legal requirements.	
SAP	Ariba	For the network's standard record retention is 180 days, but customers can request longer terms.
	Fieldglass	Fieldglass has many methods in which we can freeze customer data, today. We have the capabilities to restore, utilizing a point in time recovery method to a secondary system for legal review effectively delivering a system that has been frozen in time for all clients.
	Hanna	HEC standard backup retention is 1 month for productive systems, and 14 days for non-productive systems. However retention period can be changed per request and may have cost impact.
	SuccessFactors	A customer can configure as many ""purge rules"" as required to comply with data privacy rules. Since these rules vary by country, the solution provides the flexibility to define different retention periods for groups defined by country, department, division, location, job code and hire date. Customers can grant permissions to the appropriate users to create a request to purge data and to approve the request to purge data. These ""purge rules"" can be scheduled to reoccur. User records are kept in the system, for reporting purposes, but their data is anonymized. Our customers use the solution in compliance with local regulations today in almost 180 countries.
VMware	VMware IaaS Services Participating entities that leverage VMware Data Protection are able to specify the retention period of their backups to comply with policies and legal requirements. Data Protection leverages snapshots to take an image level backup of virtual machines. When a backup is initiated, a snapshot is taken of that virtual machine. Once the snapshot is taken it is then stored on the Data Protection storage for the duration of the retention period assigned in the policy. The policy column in the screenshot below illustrates the variety of data retention policies that have been set within a sample customer's vCloud Air Data Protection instance. In this example retention policies range from 3 to 365 days.	

	 VMware AirWatch Customers can export and archive solution data using interactive dashboards (CSV), reports (PDF, XLS, and CSV), the AirWatch Hub (PDF), and event log (CSV). Customers in a Dedicated Cloud deployment can leverage a robust data mart.
FireEye	Customers have access to data stored in the varying cloud solutions and are accessible at any time during the length of the subscription contract. Retention periods vary per service offered. See section 8.7.2 for further information.
VirtueStream	Specific retention requirements can be accommodated on a custom basis. More detailed information would need to be provided in order to scope.

8.15.2 Describe any known inherent disaster recovery risks and provide potential mitigation strategies.

CA	APM	DR is provided only in a single geography at this point. Professional Services would need to be engaged to provide multi-geo DR
	MAA	N/A
	CA Agile	None - our DR plan is tested at a minimum semi-annually.
	ASM	None
Virtu	Please see the Virtu Disaster Recovery Plan provided in the Supplemental Information section of this response.	
Salesforce	The Salesforce service performs near real-time replication at each data center and annual disaster recovery tests for the service verify the projected recovery times and data replication between the production data center and the disaster recovery center. The disaster recovery site is a 100% replica of the primary production site of capacity (host, network, storage, data). Data is transmitted between the primary and disaster recovery data centers across encrypted links. Additionally, back-ups of data are performed and data is retained on backups at the geographically separated disaster recovery data center location [CP-4, CP-6, CP-7, CP-9, MP-5].	
ServiceNow	ServiceNow is divided into two distinct environments for Business Continuity (BC) and Disaster Recovery (DR). ServiceNow's corporate environment and its data center environments are physically and logically isolated from each other. A disaster in ServiceNow's corporate environment could occur with little or no impact on the ability for the data centers within the private cloud to operate. In both cases, the BC and the DR are supported by a series of SOPs that allow ServiceNow to quickly and effectively take action when it is required.	

	ServiceNow's customer DR is documented in its Information System Contingency Plan (ISCP), which covers its data center environments, and includes all customer environments as well as the instances that ServiceNow uses to run its business. ServiceNow formally tests this process on an annual basis and can produce compliance reports for customers requiring them. ServiceNow also uses the process of transferring instances to reduce the impact of maintenance on its service and will move instances out of one data center to the other on a daily basis. As a result, ServiceNow is very well practiced at the process of "failing over" customer instances. ServiceNow's BC process covers its functional offices and is a separate standard operating procedure from its customer environments. The BC Plan (BCP) has been developed in concert with the entire business including Business Impact Assessments (BIA) to understand the impact of the loss of any given systems or locations.			
DocuSign	DocuSign is dedicated to providing the industry's most secure eSignature solution through the DocuSign Security Assurance Program.			
QTS	Not having a current copy of your information. Mitigation - QTS's DR High Availability Service provides continuous data replication of your physical and virtual server environments, ensuring you always have access to a current copy of your data, applications and operating systems.			
SAP	Ariba	Ariba has a strong disaster recovery procedure, tested every 6 months though has never required to fail over to the backup data center. The RTO is 4 hours and RPO is 5 minutes. Please see the SaaS Technical Infrastructure Whitepaper for addiitonal details.		
	Fieldglass	None.		
	Hanna	SAP Hana Enterprise Cloud helps customers improve their Business Continuity requirements with High Availability (HA) , Disaster Recovery & Backup options. High Availability (HA) - HA is achieved by failover to standby node Disaster Recovery (DR) - Systems are configured in the secondary datacenter. DR is an optional service that can be included as per customer's requirements		
	SuccessFactors	We maintain an N+1 approach for all equipment in the hosted cloud environment, so that there is never a single point of failure. All customer database backups are encrypted and streamed in a secure manner from the customer's "primary" data center to their "alternate" data center, allowing for a timely restoration of service in the event of disaster. Based on the terms of the agreement, we will designate one of the data centers as the customer's "primary" data center, with an additional data center designated as the "alternate" for data redundancy and disaster recovery purposes.		
VMware	VMware IaaS Services The following table provides common inherent disaster recovery risks and potential mitigation strategies.			
	RISK	Unmitigated Probability	Mitigation	Mitigated Probability
	Participating agency's lack of a disaster recovery plan leads to	High Risk	Participating Entities are encouraged to develop a disaster recovery plan to mitigate against service	No Risk

	service outage or data loss in the event of a disaster.		outage or data loss. In parallel, entities are encouraged to leverage vCloud Air data protection, vCloud Air Disaster Recovery, and other high availability services while a formal plan is written	
	Participating entity chooses inappropriate data center location leading to service degradation or outage.	High Risk	Participating entities are encouraged to choose datacenter(s) that is geographically proximate to their end users to maximize performance. In addition, location of disaster recovery data center should be geographically separated from primary data center.	Low Risk
	Participating entity fails to budget for and acquire appropriate DR technology leading to inability to recover from disasters.	High Risk	Participating entities are encouraged to include DR capabilities in their costs estimates for cloud deployments to ensure budget is available to acquire those services.	No Risk
	Participating entity fails to ensure cloud service SLAs (e.g. RPO & RTO objectives) meet their mission requirements leading to inadequate service recovery times and data loss.	High Risk	Participating entities are encouraged to review SLAs for each cloud service that they are interested in acquiring to ensure that they meet mission requirements. Care should also be taken to ensure service SLAs do not significantly exceed mission requirements to avoid unnecessary cost.	No Risk
VMWare AirWatch				

	Providing a secure and stable product that mitigates vulnerabilities, reduces risk and quickly responds to the evolving threat landscape is considered a top priority. Following the guidelines established in NIST SP 800-30, regular risk and vulnerability assessments are performed against the production environment to identify, assess and remediate emerging threats. When potential vulnerabilities are discovered, we follow a documented procedure to prioritize and deploy necessary patches. •Vulnerabilities and threat-sources are identified by conducting interviews with various members of the Cloud Operations community and mapping data to the AirWatch business landscape. •We can provide additional information as conversations progress.
FireEye	Varies by service and customer deployment. Will be defined during engagement setup.
VirtueStream	Virtustream has built redundancy into all layers of the physical infrastructure in order to deliver SLAs up to 99.999% and mitigate any known risks. To further mitigate against the unknown, Core microVM's are designed for mission-critical workloads and include reserved compute capacity in a secondary datacenter and automatic storage replication to facilitate the ability to restore operations in the event of an outage at the primary data center.

8.15.3 Describe the infrastructure that supports multiple data centers within the United States, each of which supports redundancy, failover capability, and the ability to run large scale applications independently in case one data center is lost.

CA	APM	AWS datacenters provide redundancy and failover within a single AWS EC2 zone (i.e., a single geographic location). Professional Services would need to be engaged to provide multi-geo DR
	MAA	MAA service is currently available from one data center only.
	CA Agile	We run a hot/warm data center configuration and have the ability to quickly failover if required. Our data centers are ~1300 miles apart to ensure redundancy. We perform full system planned switch over testing at a minimum semi-annually.
	ASM	ASM core services run in one primary data center, and can fail over to the DR site if there is a catastrophic failure.
AODocs	As described elsewhere in this response, AODocs is built on Google Cloud Platform (AppEngine) and Altirnao does not manage this infrastructure.	
Virtru	We operate our infrastructure in multiple Availability Zones, and any given data center failure would not result in data loss.	
Salesforce	Customer Data for customers in Salesforce's Government Cloud is stored in two of our U.S. data center locations. Our service is collocated in dedicated spaces at toptier data centers. Salesforce's hardware is located inside of secure server rooms designated to Salesforce and separated by concrete walls from other data center tenants. Individual racks inside of the data center are secured with a lock. Specific racks are allocated for hardware supporting the Salesforce Government Cloud. Access to the racks supporting the Salesforce Government Cloud hardware is restricted to Qualified U.S. Citizens as described in the section above.	
ServiceNow	ServiceNow's data centers and cloud-based infrastructure have been designed to be highly available. All servers and network devices have redundant components and multiple network paths to avoid single points of failure.	
	At the heart of this architecture, each customer application instance is supported by a multi-homed network configuration with multiple connections to the Internet. Production application servers are load balanced within each data center. Production database servers are replicated in near-real time to a peer data center within the same geographic region.	

	ServiceNow leverages this Advanced High Availability (AHA) architecture for customer production instances in several ways: •In the event of the failure of one or more infrastructure components, service is restored by transferring the operation of customer instances associated with the failed components to the peer data center. •Before executing required maintenance, ServiceNow can proactively transfer operation of customer instances impacted by the maintenance to the peer data center. The maintenance can then proceed without impacting service availability. This approach means that the transfer between active and standby data centers is being regularly executed as part of standard operating procedures – ensuring that when it is needed to address a failure, the transfer will be successful and service disruption minimized. See the “ServiceNow Security, Operations, and Compliance White Paper” included with this response for more information.
DocuSign	Each component of our trusted platform - Hardware & Infrastructure, Systems & Operations, Applications & Access, and Transmission & Storage - undergoes tremendous security scrutiny. HARDWARE & INFRASTRUCTURE Three geo-dispersed, SSAE 16 audited datacenters Near real-time secure data replication and encrypted archival 365x24x7 on-site security Annual Business Continuity Planning (BCP) & Disaster Recovery (DR) testing Third-party penetration testing SYSTEMS & OPERATIONS Physically and logically separate networks Two-factor, encrypted VPN access Professional, commercial grade firewalls and border routers Distributed Denial of Service (DDoS) mitigation Active monitoring and alerting APPLICATIONS & ACCESS Formal code reviews and vulnerability mitigation by third parties Application level Advanced Encryption Standard (AES) 256 bit encryption Key Management & Encryption Program Enterprise-class malware protection Digital audit trail Multiple authentication mechanisms TRANSMISSION & STORAGE Secure, private SSL 256 bit viewing session Anti-tampering controls Signature verification of signing events Unalterable, systematic capture of signing data Digital certificate technology Customer configurable data retention program

QTS	QTS cloud utilizes alternate telecommunications services from both TW Telecom and NTT America that reduces the likelihood of experiencing a single point of failure. QTS's failover facilities in RIC1 and ATL1 are a carrier-class and carrier-neutral datacenter with multiple Internet Service Providers. QTS-FC can establish connectivity with another service provider with 24 hours in the event of an unrecoverable catastrophic connectivity failure of QTS-FC's primary/secondary provider.	
SAP	Ariba	Ariba has implemented two sites within each region. In North America the sites are currently located in San Jose, California and Sterling, VA. In Europe the sites are located in St. Leon-Rot, Germany and Amsterdam, Netherlands. The act of failing over from one site to another has a design goal for its Recovery Time Objective (RTO) of no more than four hours. The design goal for the Recovery Point Objective (RPO) is five minutes. Disaster recovery options are included for all Ariba Cloud Services. In the event of a fail-over to the disaster recovery site, no customer changes are required as all URLs that customers use to reach the applications will continue to work. Ariba will notify customers via their email addresses in the event of unplanned downtime. Internally, Ariba uses a documented system recovery plan that outlines the approach and steps for recovering the applications. This document defines roles and responsibilities in the event of disaster: Local Ariba staff maintains the hardware remotely. Ariba maintains the application software. Processes are in place to keep database and file servers in sync between primary and backup data centers. The failover process of all parts of the infrastructure is automated. In the event of a catastrophe, Ariba will declare the primary data center "down" and locally the script will be run to switchover and start the applications at the remote data center. Ariba tests power outage backup scenarios and the Disaster Recovery Plan on a periodic basis to ensure it is up-to-date, successful, and effective.
	Fieldglass	We host and manage the Fieldglass system within secure Internet data centers provided by CenturyLink in Elk Grove, IL, and our disaster recovery center provided by Equinix in San Jose, CA. Both are managed by Server Central which is a Tier 4 hosting provider and a Tier 1 data provider (see the note below). All systems are ""mission-critical loads"" supported by IDC Redundant Power Management System (UPS, generators etc.). Note: Data centers can be classified by tiers, with Tier 1 being the most basic and inexpensive, and Tier 4 being the most robust and costly. According to definitions from the Uptime Institute and the latest draft of TIA/EIA-942 (Telecommunications Infrastructure Standard for Data Centers), a Tier 1 data center is not required to have redundant power and cooling infrastructures. It needs only a lock for security and can tolerate up to 28.8 hours of downtime per year. In contrast, a Tier 4 data center must have redundant systems for power and cooling, with multiple distribution paths that are active and fault tolerant. Furthermore, access should be controlled with biometric readers and single-person entryways, gaseous fire suppression is required, the cabling infrastructure should have a redundant backbone, and the facility can permit no more than 0.4 hours of downtime per year. Tier 1 or 2 is usually sufficient for enterprise data centers that primarily serve users within a corporation. Financial data centers are typically Tier 3 or 4 because they are critical to our economic stability and, therefore, must meet

		higher standards set by our government. Public data centers that provide disaster recovery/backup services are also built to higher standards.
	Hanna	Infrastructure setup: * Standby SAP HEC systems at DR failover site will be shutdown / not useable during regular operations. * WAN connectivity & special requirements (e.g. acceleration services) fall into the responsibility of the customer. * Customer must have independent network connections to both DR sites. * All DR-relevant systems are going to be installed according to the Adaptive Computing (AC) principle (virtual hostnames + virtual IP addresses) HSR will be used to replicate data from Primary to DR site for HANA solutions, similarly Sybase Replication Server (SRS) will be used to replicate data from Primary to DR site for ASE based solutions. For more information, please refer to attached Business Continuity document
	SuccessFactors	Our infrastructure architecture is designed with high availability in mind, and engineered for resiliency. All major components are redundant, including power, HVAC, fire suppression, and the physical components of our network. Production data centers have strict access controls, and are continuously staffed and monitored to help prevent acts of sabotage or vandalism. All production data centers are ANSI/EIA/TIA-942 Tier III/IV facilities, and are ISO 27001 certified. Production data centers are also geographically dispersed to help prevent a single event from affecting more than one data center. In the event a production data center has an outage we failover to an alternate data center in the same geographic region to minimize impact to customers. Our Cloud Operations teams are also geographically dispersed, working in offices in the US, Europe, South America, and India. Should an office be impacted by an environmental event or pandemic, other offices can continue operations. Aspects of the plan are described in the SOC reports, Disaster Recovery Plan ("DRP") and Business Continuity Plan ("BCP") solutions are dependent on several factors. The customer may be responsible for parts of the recovery/continuity activities
VMware	VMware IaaS Services VMware offers several technologies to provide redundancy, failover capability and the ability to run large scale applications independently in case one data center is lost. vCloud Air is built upon infrastructure that is architected for High Availability leveraging proven vSphere High Availability (HA), vSphere vMotion, and VMware Distributed Resource Scheduler (DRS). These technologies allow participating entities to migrate live workloads and/or automatically restart VMs in the event of host maintenance or unexpected issues. These technologies also maintain a consistently high level of performance for all tenants. VMware vSphere vMotion enables migration of live VMs to transfer your workloads during maintenance, without downtime. Unlike other cloud providers, VMware ensures that tenants are not impacted by standard maintenance. VMware performs vMotion migrations for maintenance behind the scenes for its tenants in vCloud Air during maintenance windows without disrupting tenant applications. vMotion is also used to seamlessly migrate VMs from an on-premises environment to vCloud Air and back. Today, vCloud Air is one of only a few major cloud vendors that uses live migration to do maintenance. This capability will enable NASPO participating entities to perform live migrations to move their applications to and from the cloud for maintenance and other purposes. This	

	technology inherently prevents the lock-in experienced when migrating to cloud services offered by others. VMware Dynamic Resource Scheduler continuously monitors CPU and memory utilization across a cluster of vSphere hosts, allocating resources among VMs and rebalancing performance during high-volume peak times. This is performed 24x7 within the VMware vCloud Air environment. VMware vSphere High Availability delivers the availability required by most applications running in VMs, independent of the operating system and application running in it. Whether participating entities leverage Microsoft Windows or Linux; off-the-shelf or custom developed application; single VMs or many, HA provides uniform, failover protection against hardware and operating system outages within vCloud Air. HA can: • Monitor VMware vSphere hosts and VMs to detect hardware and guest operating system failures. • Restart VMs on other vSphere hosts in the cluster without manual intervention when a server outage is detected. • Reduce application downtime by automatically restarting VMs upon detection of an operating system failure. Other cloud providers require you to build availability in to your application. In the best case scenario, this is as simple as including a load balancer in front of multiple VMs in the same tier to achieve basic high availability. However, often the technologies of other cloud service providers requires a complete redesign of the hosted application, and often network devices such as load balancers are offered at an additional cost, unlike vCloud Air. vCloud Air was built to run hosted applications as-is, providing availability down to a single VM instance, and balancing resources across multiple tenant needs with DRS. Unlike other clouds, with vCloud Air and vCGS, participating entities are not required to rebuild thier application to get the flexibility and agility that cloud can provide. Of course, vCloud Air customers usually do not just stop at moving applications to vCloud Air. Once in the cloud they start to explore features like our Advanced Networking Services and using APIs, automation, and CI/CD tools to deliver services faster. And, where it makes sense, customers do look at application redesigns as well, but with vCloud Air it is not because they must redesign to ensure the application is always available. VMWare AirWatch AirWatch features active-passive configurations for high availability and redundancy with all components made to failover with minimal downtime. Load balancing capabilities are deployed across multiple data centers to ensure immediate server pick up, ensuring zero end user downtime. AirWatch also incorporates replication technology featuring SQL log shipping or network SAN byte replication to prevent data loss.
FireEye	Varies by service and customer deployment. Will be defined during engagement setup.
VirtueStream	Virtustream's U.S. based data centers are located in Washington, DC, Las Vegas, and San Francisco. All data centers meet the highest industry standard in terms of operational protocol and have redundancy built into all layers of the physical infrastructure. Core microVM's, which are used for mission-critical workloads, provide reserved compute capacity and automatic storage replication so that these systems can be failed over to a secondary data center and have access to the compute capacity required in the event of a catastrophic outage at the primary data center.

8.16 Solution Administration

8.16.1 Ability of the Purchasing Entity to fully manage identity and user accounts.

CA	APM	Customer has full control over all user accounts
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	MAA	CA MAA provides user management self-service to customers to manage their own accounts and create accounts for other users.
	CA Agile	The customer is responsible for managing the lifecycle of all user accounts.
	ASM	The Purchasing Entity can manage their account and create sub-accounts within ASM.
Google	Comply	
AODocs	Comply	
Virtu	Virtu does not have an identity system. We federate authentication to Oauth and Email loop verification.	
Salesforce	Identity Management Logon is form-based. When users log into the Salesforce application, they submit a username and password, which are sent to Salesforce via an TLS-encrypted session. Security features are developed by Salesforce and built into the application. Third-party packages are not used for development or implementation of security internal to the application. In addition, single sign-on and two-factor authentication may be used to authenticate users. Some organizations prefer to use an existing single sign-on capability to simplify and standardize their user authentication. You have two options to implement single sign-on—federated authentication using Security Assertion Markup Language (SAML) or delegated authentication. Federated authentication using Security Assertion Markup Language (SAML) allows you to send authentication and authorization data between affiliated but unrelated Web services. This enables you to sign-on to Salesforce from a client application. Federated authentication using SAML is enabled by default for your organization. Delegated authentication single sign-on enables you to integrate Salesforce with an authentication method that you choose. This enables you to integrate authentication with your LDAP (Lightweight Directory Access Protocol) server, or perform single sign-on by authenticating using a token instead of a password. You manage delegated authentication at the profile level, allowing some users to use delegated authentication, while other users continue to use their Salesforce-managed password. Delegated authentication is set by profile, not organization wide. You must request that this feature be enabled by Salesforce. Salesforce can be configured to utilize Active Directory directly via Delegated Authentication, or indirectly via Federated Identity using either SAML 1.1, or SAML 2.0. Additionally your users can be loaded from information drawn from your Active Directory servers and modifications made in Active Directory can be propagated into Salesforce. Customers can use their own SAML Identity Provider, or license one directly from Salesforce with our Identity Connect product. User Accounts All users and application-level security are defined and maintained by the organization administrator, and not by Salesforce. The organization administrator is appointed by the customer. An organization's sharing model sets the default access that users have to each other's data. There are four sharing models: Private, Public Read Only, Public Read/Write, and Public Read/Write/Transfer. There are also several sharing model elements: Profiles, Roles, Hierarchy, Record Types, Page Layouts, and Field Level security.	
ServiceNow	Customers manage their own instances, including assigning users, defining user roles and profiles, and administrating the system. ServiceNow does not have access to the Customer's instances. The ServiceNow wiki has all ServiceNow documentation available.	

DocuSign	Yes, DocuSign allows the purchasing entity to manage identities and user accounts. DocuSign for Enterprise is customizable to meet the administrative needs of the largest organizations. Full administration rights give you total control over document custody and retention policies, how signers sign or adopt signatures, user authentication and more. The branding tools ensure recipients can easily identify documents from your organization.	
QTS	24x7x365 Operations Staff - Let QTS provide the expertise and experienced staff to monitor and manage your data center facility. Never again worry about staff turnover or whether your technologists are current with data center best practices.	
SAP	Hanna	Yes
VMware	VMware IaaS Services VMware management infrastructure requires 2-factor authentication and multiple layers of access control. vCloud Air customers have the ability to provide access to their designated users. User account management is maintained by the customer. control. vCloud Air customers have the ability to provide access to their designated users. User account management is maintained by the customer. VMWare AirWatch The Purchasing entity has the ability to fully manage identity and user accounts for administrators and end users through the web console. Customers can optionally integrate with AD/LDAP to inherit your existing structure and policies.	
FireEye	User identity and account settings are controlled within the administration sections of the FireEye cloud solutions.	
VirtueStream	Virtustream can provide solution for managed solution for Active Directory or LDAP. As standard, we provide support for managing the VM itself and all OS support. However, our typical use case is, customer manages the users and related activities, as Virtustream might not be aware of internal HR elements of User Management.	

8.16.2 Ability to provide anti-virus protection, for data stores.

CA	APM	AWS provides protection/virus scanning for data at rest
	MAA	Logical security is provided by ClamAV Antivirus.
	CA Agile	We have ClamAV installed on all Linux hosts and TrendMicro for Windows hosts.
	ASM	Logical security is provided by ClamAV Antivirus.
Google	Comply	
AODocs	N/A	
Virtu	AlienVault IDS is used to perform virus and vulnerability scans.	
Salesforce	Salesforce runs antivirus software on the production systems that store, transmit or process customer information. The Anti-virus scans host filesystems (not customer data). The antivirus software checks for virus definition updates daily. Other controls are also used to address malware such as hardening the Operating System of our servers, firewall configuration to ensure only required ports are open and all others denied, and use of intrusion detection systems. Access to these systems is restricted to authorized personnel and all these systems, as well as the host platforms, are monitored in real time through a security monitoring system. The application only accepts http and https traffic, but Salesforce does not restrict the file types users can upload. Salesforce does not modify or clean any customer data; the system stores the information provided in an encoded format within the database. It is recommended that customers run updated antivirus and antimalware solutions to help mitigate these threats. The production system receives inbound mail as part of the workflow functionality, but this does not pose any threat to our network, application, or users. No code in the email can be executed or transferred,	

	eliminating the malicious software risk. Email sent from the Salesforce system is not currently scanned for viruses.
ServiceNow	If Customers want to schedule an antivirus software scan on certain computers after a pre-defined number of days, Customer would define a model-based plan with a duration-based maintenance schedule. This would do the scan automatically to those models defined in the Planned Maintenance area.
DocuSign	Yes, DocuSign maintains enterprise-class malware protection.
QTS	Yes - 24x7x365, dependable and detailed support
SAP	Hanna Yes
VMware	VMware IaaS Services Anti-virus software is installed on all development, domain and production hardware devices owned and operated by VMware, which hold company data, passwords, or keys. These devices maintain the most recent version of the anti-virus software signature file. VMware AirWatch AirWatch has installed a best-in-class, continuously-updated anti-virus suite on servers in the SaaS environment
FireEye	FireEye employs a multi-layered, continuously monitored and engaged set of active defenses to provide anti-virus protection for customer data stores that both meet and exceed traditional approaches. FireEye, and our customers, not only are prepared to reactively withstand attacks from known virus vectors, but since FireEye and our MVX technology is literally, continuously, and securely detonating viruses and other advanced malware on the way to our customer's data stores, FireEye proactively defends from zero day and other emergent attacks as they happen.
VirtueStream	VirtueStream offers Anti-Virus protection based on per virtual machine, per month charge.

8.16.3 Ability to migrate all Purchasing Entity data, metadata, and usage data to a successor Cloud Hosting solution provider.

Carahsoft will work with each Participating Entity to develop a cost effective plan to assist in the migration and implementation of their data into the new service that has been selected.

8.16.4 Ability to administer the solution in a distributed manner to different participating entities.

Carahsoft will view each Participating Entity as a separate customer and privileges can be assigned for control access even within the individual services.

8.16.5 Ability to apply a participating entity's defined administration policies in managing a solution.

Each Participating Entity will have the ability to work with Carahsoft and the Service Provider to identify defined administration policies to manage the solution.

8.17 Hosting and Provisioning

8.17.1 Documented cloud hosting provisioning processes, and your defined/standard cloud provisioning stack.

CA	APM	CA SaaS Ops has a well defined Service Introduction and update process, including review boards, staged rollouts and followups to ensure service integrity. Our cloud provisioning stack is tied to AWS EC2 services, and includes S3 and RDS for storage; RHEL instances for the applications; route 53 DNS services; cloudfront for monitoring; and ELB for load balancing
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	MAA	Automation tools are used to install and configure MAA software on CA infrastructure. SOP documents are used by CA internally.
	CA Agile	All new systems should be provisions according to our baseline standards and we use configuration management tools to ensure all systems are created with the same standards.
	ASM	Automation tools are used to install and configure ASM software on CA infrastructure. SOP documents are used by CA internally.
Google	Google has administrative document and Google Deployment Guides accessible on the web.	
AODocs	This is not applicable to Google.	
Virtu	Ubuntu AMIs provisioned using terraform and configured by Ansible	
Salesforce	Cloud Hosting and Provisioning Salesforce's deployment model is a "public" cloud infrastructure, as defined by NIST 800-145. In the Salesforce Government Cloud, an agency dynamically provisions computing resources over the Internet on our multi-tenant infrastructure. This is a cost effective deployment model for agencies as it gives them the flexibility to procure only the computing resources they need and delivers all services with consistent availability, resiliency, security, and manageability. Salesforce provides market leading PaaS and SaaS solutions and is a multitenant cloud-based subscription service. Multi-tenant cloud solutions provide a single, shared infrastructure, one code base, one platform that is all centrally managed, with platform-based API to support all integration traffic, and multiple release upgrades included as part of the subscription service. Multi-tenancy and the Cloud Computing model remove unneeded tasks from the process of delivering, managing, and integrating software. Salesforce customers will not need to maintain any hardware or software. Without multiple versions to support, integrations don't break during updates; they are simply updated automatically. As a result, both the initial integration and its continued maintenance are simplified. More resources can be focused on creating a better product, with a faster cycle of innovation, instead of having to manage the complexity of many different versions to support a vast installed base. Salesforce's position as an online service enables us to roll out all levels of improvement, from patch releases to major upgrades, that are largely transparent to the end users. When a bug is fixed and tested, it is rolled out to the application as part of regular maintenance; the nature of the service prevents special patches and code branches for individual customers, so all fixes can potentially benefit all customers. The Salesforce Services is delivered using a world-class data center infrastructure. Each customer's org is hosted from a primary and secondary production data center, with near real-time replication occurring between the two sites. Salesforce is a pure multi-tenant web application. No software or infrastructure is required by the customer other than a computer, browser and internet connection or a mobile device. User Administration and ProvisioningUser provisioning and management is performed by the customer through the Salesforce Administrative Setup environment. Users, their profiles, permissions and passwords may be managed, edited, activated and deactivated as needed by those with appropriate permissions. An administrator with appropriate privileges can manage session timeout, password policies, IP range login restrictions, delegated authentication/SSO, and requirements as part of this process. On first time login or password reset request, users are required to change their passwords to gain access.	
ServiceNow	ServiceNow includes all documentation on the wiki at wiki.servicenow.com .	
DocuSign	DocuSign hosts customer accounts in its own data centers managed by DocuSign. Upon a new contract executed with a customer, DocuSign provisions a customer account based on the	

	contract terms. A designated point of contact becomes the default primary administrator who then adds additional users and other admin tasks. DocuSign's cloud stack is defined in architecture documents available under separate confidential disclosure.	
QTS		
SAP	Ariba	Our solutions are offered and delivered in a true subscription-based model and shared service (multi-tenant) offering. There is no software to install, no hardware to buy, no maintenance or support costs and no need to hire consultants or tech specialists to run the system. We deploy and manage the infrastructure. Customers only need a web browser for access. Subscriptions include system maintenance, automatic upgrades, enhancements and application of service packs, Level 1– 3 help desk support, professional services and best practices built directly into the application.
	Fieldglass	Fieldglass maintains its own platforms and follows a mature change control process for introducing new systems to the hosted environments.
	Hanna	The Managed Service includes the following: • Infrastructure operations management: monitoring, patching, software updates & maintenance up to the OS Layer • OS management: monitoring, patching, updates, and maintenance of the specific OS • Network and system administration • HANA database platform operations includes: space management revision management , security management , hardware configuration management, backup & recovery, change management coordination • Health check services, proactive monitoring, capacity management • SAP Technical Application Basis Operations (incl. SAP Basis) • Monitoring • Troubleshooting – Incident Management Level 2 and 3 • Patch Management • Housekeeping • Backup/Recovery
	SuccessFactors	We offer a cloud based solution. Our application is standardized on the J2EE technology stack with the majority of our software written in industry-standard software programming languages, such as Java. We also make extensive use of Web 2.0 technologies, such as AJAX and Flash, for improved usability and performance and to deliver a rich and highly interactive experience. Our hardware consists primarily of industry standard web servers, application servers, database servers and storage and networking equipment. Customers share the network security infrastructure, web servers, application servers and database instance, and each customer has their own set of database tables that are logically partitioned in the database containing its own unique database schema. Each company instance can be completely exported out of the database without affecting any other customer. The application utilizes the JAVA and J2EE industry standards. Integration is supported through .CSV, XML and web services standards. The application is portable to any platform and is deployed on Apache (Solaris) Web Servers, JBOSS Application Servers, and Veritas High Availability Cluster Servers, and utilizes Cisco Networking.
VMware	VMware IaaS Services An interface that allows users to select from a catalog of pre built OS images and allows them to provision on the fly.	

	VMWare AirWatch AirWatch uses industry recognized tools and follow best practices to deploy, configure, and maintain server images. We do not apply customer-supplied templates and do not share templates with customers. Our Information Security team identifies applicable security standards and the AirWatch Server Team creates a secure baseline image for deployment throughout the SaaS environment. Due to FOIA restrictions, additional information regarding capacity planning and image creation/safeguarding cannot be disclosed at this time.
FireEye	This is not applicable as each of FireEye's offerings are classified as SaaS.

8.17.2 Provide tool sets at minimum for:

1. Deploying new servers (determining configuration for both stand alone or part of an existing server farm, etc.)

CA	APM	New servers are predefined by the CA SaaS Ops toolchain, and automated using AWS tooling to be able to bring up/down servers on demand
	MAA	Same as above.
	CA Agile	We utilize configuration management tools to ensure consistent configuration across our servers.
	ASM	Same as above.
Google	1. This is not applicable to Google. Capacity planning and server deployment is fully managed by Google. 2. This is not applicable. With the Google IaaS solutions all server images are provided by Google. 3. With respect to the SaaS offering, Google Apps, if customers have not selected the Google Apps Unlimited option which offers unlimited storage, they have options to upgrade. With respect to the PaaS/IaaS offering, Google Cloud Platform, storage space is allocated dynamically based on actual usage demand. 4. SaaS, Google Apps includes numerous administrative tools to monitor end user and administrator activities."	
AODocs	This is not applicable.	
Virtu	AMIs provisioned using terraform and configured by Ansible to include all configuration parameters	
Salesforce	This is not applicable. These services while applicable to IaaS are not applicable to PaaS/SaaS where all of the infrastructure is managed by Salesforce as the Cloud Service Provider. These services are included and managed as part of the Salesforce subscription service and not directly exposed to the customer. The multitenant architecture and secure logical controls address separation of customer data. There are no dedicated servers used for individual customers. The Salesforce Services infrastructure is divided into a modular architecture based on "Instance". Each Instance is capable of supporting several thousand customers in a secure and efficient manner. Services are grouped within each Instance; with app, search, and database elements contained. There are appropriate controls in place to ensure that any given customer's org (application) is not compromised. The service has been designed to accomplish this and is robustly tested on an ongoing basis by both Salesforce and its customers. An instance consists of a database instance run on clustered database servers and physical storage subsystems. Each server has been allocated a different volume group so it can fail over to its backup server within the instance independently of the others. As scalability needs dictate,	

	additional database instances can be brought online (the application already provides for this). For additional server capacity, one or more databases could be moved onto its own database server.	
ServiceNow	ServiceNow has read and understands this requirement. ServiceNow supports only a SaaS environment so there is no on-premise offering.	
SAP	Ariba	Operating systems when installed through default means and with default settings are typically not secure and often include applications and services not required. Ariba has standardized operating systems' installations based on best practices. Ariba servers are configured with just the applications and services required to run the server as designed. Services not required are disabled and binary files not required for operation are removed, which reduces the total number of vulnerabilities a system may have. Ariba standardized installation process also ensures that all servers of the same type are configured exactly the same, utilizing a process that initiates an upgrade to system binaries across all systems. Based on the system type, the configuration will remain the same. If one server type needs to receive a patch for a vulnerable binary file, that patch is pushed to all systems of that particular server type. If that binary exists on all systems, it is patched across all systems. Patches are then included in the build process as well so that future systems built are in compliance with security standards. Ariba uses this configuration process to 'harden' the operating system prior to implementing additional controls as detailed below.
	Fieldglass	Fieldglass uses group policy to ensure the configuration of all servers match our security requirements.
	Hanna	HEC is a private cloud offering where servers configurations are discussed and approved by customer prior to deployment.
	SuccessFactors	We apply hardening in line with ISO 27k standards and audit key areas in the SOC 2 Type 2 report. Audit reports are available to customers and prospects upon completion of an NDA.
VMware	VMware IaaS Services vCloud Hybrid Service provides an interface that allows users to select from a catalog of pre-built OS images and allows them to provision on the fly. vRealize Automation is the next level for provisioning, delivering, and managing IT services on VMware vSphere infrastructure as well as VMware vCloud Air all with a unified management experience. It provides governance and blueprints to deliver services from on premise into vCloud Air. Customers can integrate vCloud Air with vRealize Automation. In this setup, users access vCloud Air primarily through the vRealize Automation service catalog which handles authentication to the service itself. vRealize Automation supports VMware AirWatch AirWatch uses industry recognized tools and follow best practices to deploy, configure, and maintain server images. We do not apply customer-supplied templates and do not share templates with customers. Due to FOIA restrictions, additional information regarding capacity planning and image creation/safeguarding cannot be disclosed at this time.	
FireEye	This is not applicable as each of FireEye's offerings are classified as SaaS.	
VirtueStream	VirtueStream offers on-demand self-service portal where State of Utah can deploy new servers as stand-alone or part of a server farm.	

2. Creating and storing server images for future multiple deployments

CA	APM	Servers are brought up on demand
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	MAA	Same as above.
	CA Agile	We utilize configuration management tools to ensure consistent configuration across our servers.
	ASM	Same as above.
Virtru	Provisioning system automatically persists all past AMLs for ability to roll-back	
Salesforce	This is not applicable. These services while applicable to IaaS are not applicable to PaaS/SaaS where all of the infrastructure is managed by Salesforce as the Cloud Service Provider. These services are included and managed as part of the Salesforce subscription service and not directly exposed to the customer.	
ServiceNow	ServiceNow has read and understands this requirement. ServiceNow supports only a SaaS environment so there is no on-premise offering.	
SAP	Ariba	Ariba has standard 'realms' which are default versions of the various configurations the Ariba on-demand products can be setup for each customer with one test and one production instance. Ariba maintains all hardware, software, realms and entitlements taking the burden off our customers and suppliers whilst providing a platform to configure to each company's needs and business processes
	Fieldglass	Fieldglass uses virtual servers within our hosted environments uses the hardening configurations to maintain the right level of security.
	Hanna	HEC is a private cloud offering where servers configurations are discussed and approved by customer prior to deployment.
VMware	VMware IaaS Services We also allow for template and gold master images to be stored on-premise and deployed to the cloud as well as storage of templates and master images in vCloud Director catalogs in vCloud Air VMware AirWatch Our Information Security team identifies applicable security standards and the AirWatch Server Team creates a secure baseline image for deployment throughout the SaaS environment. Due to FOIA restrictions, additional information regarding capacity planning and image creation/safeguarding cannot be disclosed at this time.	
FireEye	This is not applicable as each of FireEye's offerings are classified as SaaS.	
VirtueStream	VirtueStream offers server images, templates, or other methods (OVF and blueprints) for multiple deployments as part of standard solution.	

3. Securing additional storage space

CA	APM	AWS EC2 storage is elastic, and can be expanded on demand
	MAA	Virtual storage can be added when needed.
	CA Agile	We have redundant systems for all critical infrastructure and have the ability to add additional storage if deemed necessary.
	ASM	Additional storage is added manually.
AODocs	AODocs storage is based on Google Apps Drive storage and with respect to the SaaS offering, Google Apps, if customers have not selected the Google Apps Unlimited option which offers unlimited storage, they have options to upgrade.	
Virtru	New hardware added at Cloudant	
Salesforce	Salesforce provides extensive storage capabilities. Storage is divided into two categories: file storage and data storage. File storage includes files in attachments, the Documents tab, the Files tab, the File field, Salesforce CRM Content, Chatter (including user photos), and Site.com assets. Data storage includes the following entities/records stored within the Salesforce application: Accounts, Article types, Article type translations, Campaigns, Campaign Members, Cases, Case	

	Teams, Contacts, Contracts, Custom objects, Email messages, Events, Forecast items, Google docs, Ideas, Leads, Notes, Opportunities, Opportunity Splits, Orders, Quotes, Quote Template Rich Text Data, Solutions, Tags: Tag applications, Tags: Unique tags, and Tasks. For file storage, Unlimited Edition is allocated a per-user limit multiplied by the number of users in the organization plus an additional per-organization allocation. For example, an Unlimited Edition organization with 600 users receives 1,211 GB of file storage, or 2 GB per user multiplied by 600 users plus an additional 11 GB. For data storage, Unlimited Edition is allocated either 1 GB or a per-user limit, whichever is greater. For example, an Unlimited Edition organization with 10 users receives 1 GB because 10 users multiplied by 20 MB per user is 200 MB, which is less than the 1 GB minimum. Additional storage can be purchased, or files can be exported and archived outside of Salesforce, thus freeing up file storage space.	
ServiceNow	ServiceNow has read and understands this requirement. ServiceNow supports only a SaaS environment so there is no on-premise offering.	
QTS	Services that scale to meet your web and IT infrastructure needs - QTS offers space options from single cabinets to multi-rack cages to private suites. Coupled with configurable primary and redundant power options to run your infrastructure, QTS Colocation services can be scaled to support your near term growth requirements and future expansion.	
SAP	Ariba	We carefully monitor all network interfaces. Internally we are well below capacity on our most congested interconnects. To the internet we use Border Gateway Protocol to peer with redundant Internet Service Provider's and manage the bandwidth accordingly.
	Fieldglass	As a software-as-a-service (SaaS), Fieldglass automatically and transparently handles the scaling and redundancy for customers based on SLAs governing performance and availability. Fieldglass monitors application servers, database servers, bandwidth, and infrastructure for average and maximum utilization with Orion. Current utilization averages approximately 20 percent across all components with a goal of scaling the component vertically or horizontally (depending on the specific component) upon reaching a 60 percent threshold). All systems are scalable either horizontally or vertically to handle capacity requirements. This includes but is not limited to web servers, database servers, and storage.
	Hanna	HEC is a private cloud offering where servers configurations are discussed and approved by customer prior to deployment.
VMware	VMware IaaS Services Additional storage can be purchased and provisioned in 48 hours. VMWare AirWatch Our Information Security team identifies applicable security standards and the AirWatch Server Team creates a secure baseline image for deployment throughout the SaaS environment. Due to FOIA restrictions, additional information regarding capacity planning and image creation/safeguarding cannot be disclosed at this time.	
FireEye	This is not applicable as each of FireEye's offerings are classified as SaaS.	

4. Monitoring tools for use by each jurisdiction's authorized personnel – and this should ideally cover components of a public (respondent hosted) or hybrid cloud (including Participating entity resources).

CA	APM	all SaaS based instances are monitored by CA SaaS Ops. With Hybrid deployments, customers can manage the on premise components of the deployment using their own tooling or CA products
	MAA	MAA is monitored internally as well as externally using multiple tools recognized within industry.
	CA Agile	Access to monitoring tools is provisions according to the principle of least privilege and is only granted based upon business need.
	ASM	ASM uses Nimsoft Monitor, third-party open source monitoring tools, and ASM itself to monitor the health of ASM internal services and servers.
AODocs	AODocs includes numerous administrative tools to monitor end user and administrator activities.	
Virtru	Dtrace, CloudWatch, CloudTrail, Logstash, Elasticsearch, Kibana, DataDog	
Salesforce	Trust.salesforce.com is the Salesforce community's home for real-time information on system performance and security. On this site you'll find: • Live and historical data on system performance • Up-to-the minute information on planned maintenance • Phishing, malicious software, and social engineering threats • Best security practices for your organization • Information on how we safeguard your data System Overview In addition to our Trust site (http://trust.salesforce.com/trust/status), you will also have access to a System Overview, which will help Salesforce customers monitor performance and usage of their own Salesforce org. This overview includes: Schema - # and % of custom objects and data storage Business Logic - # and % of Rules, Apex triggers and classes, as well as % of code used Licenses API Usage - # and % of requests in the last 24 hours User Interface - # and % of custom apps, sites, flows, custom tabs and pages Portal The above list is of all the possible metrics that Salesforce customers may have in their system overview.	
ServiceNow	ServiceNow has read and understands this requirement. ServiceNow supports only a SaaS environment so there is no on-premise offering.	
QTS	Alert Logic's Threat Manager Intrusion Detection System (IDS) and Vulnerability Scanning functionality are designed to monitor, detect, report and alert on adverse security issues on behalf of our customers. Within this process there are a number of both automated and manual processes which are supported by our SIEM software ('The Expert System') as well as our Network Security Analysts in our Security Operations Center (SOC). Threat Manager is the Alert Logic IDS and VA scan product. It includes the physical or virtual appliances and software tools used to analyze the customer's infrastructure and monitor that infrastructure for attacks. ActiveWatch is the managed aspect of Threat Manager, providing 24 x 7 monitoring and incident response operations from the Alert Logic SOC. Threat Manager's Expert System identifies valid security events and suppresses false positives through a patented multifactor correlation process. Every security event monitored by its global network of threat sensors is analyzed in real time. When the Expert System determines that a set of events comprise a valid security threat, an incident is created and escalated according to severity via email or through an Alert Logic Network Security Analyst. This approach dramatically	

	reduces false positives and keeps analysts and customers focused on real, actionable incidents. In addition, Alert Logic's security research team continuously monitors threat data and tunes the Expert System to respond to the most current threats.	
SAP	Ariba	Within our solution, specific logging takes place that is viewable by the customer administrator or their designee. Audit logs produced through use of the solution are considered customer data and are maintained within the customer's instance of the database. These logs are retained so long as the customer has an active contract with us. As a user control consideration, customers are responsible for monitoring the proper entry of data to the solution and reviewing reports generated by the system.
	Fieldglass	Fieldglass has a comprehensive set of performance monitoring tools in place. Some tools are built in the application and some are external. The Fieldglass application captures every page hit and the time it takes to respond. It captures the server response time and the client rendering time separately. The average page times are available to be seen by privileged users through the application. The user can drill down to the hour or minute or a single request for analysis. The information can be displayed by time range for all users, by company, or even for an individual user. Orion Network Monitoring watches more than 1,000 different points of interest on the production infrastructure. These monitors include, but are not limited to, the following: CPU, Memory, I/O, Capacity and Synthetic Transactions. These monitors along with our custom application performance monitors are used to produce and comply with customer SLA requirements. Fieldglass also uses Splunk Enterprise Security for event/audit log collection and correlation. Events and logs are retained online for 90 days and offline for two years. Alerts are generated and reviewed as they occur.
	Hanna	SAP HEC uses Solution Manager for monitoring the infrastructure end to end.
	Hybris	SAP Hybris offers continuous 24/7 systems monitoring in-place, which automatically notifies you, SAP Hybris support and optionally your designated implementation partner in the event of any monitored system problem. Tools used for monitoring include HP Sitescope and Nagios. This service ensures quick response times to emergency problems. Standard monitors are in place for basic site availability. Customer can utilize additional 3rd party monitoring services should it wish to add additional monitoring. Upon request, monthly or quarterly reviews are offered to review performance over the period. When a system problem occurs, in addition to monitor alerts sent to the customer, SAP Hybris support may send emails to a designated customer notification email address to provide status, updates or further detailed information. In addition, a support ticket would be created which would include such information.
	SuccessFactors	The application logs the following for every transaction: Event/transaction Time, Transaction ID, Event/transaction Type, Event/transaction Status (Result of the event; if failure, includes reason), Object Attributes (Describes the object affected by the event), Originator User ID (ID of the user who initiated the event or action), Subject ID, Process User ID, Account Number, Transaction Specific Elements. The application audits changes to the major components. Examples of this are goal auditing and document auditing. The audit trail includes who made the change, the date of the change and the ability to see the data as it existed at

		that point in time. The data in the audit log can be viewed with appropriate permissions. We also provide an optional Audit Framework for additional audit logging capabilities. All audit logs within the application are accessible only by customers. Therefore, the review of application audit logs as well as retention periods for the application audit logs are the customer's responsibility, and can be determined as per requirements
VMware	VMware IaaS Services The vCloud Hybrid Service infrastructure, including the top layer management stack, the customer management stack and the computing/storage/network hardware are monitored for availability, capacity and performance. Customers are responsible for monitoring their own VMs (OS, apps). Customers can use on premise monitoring tools to manage and monitor their applications and OSes over VPN and direct connect. VMWare AirWatch The AirWatch Cloud Operations team monitors the SaaS environment. AirWatch follows the Fault, Configuration, Accounting, Performance, and Security (FCAPS) model to monitor the SaaS environment. •We have configured the system to notify support personnel of any issues with key performance items •Because the solution is built on industry-standard ASP.NET architecture, it integrates into existing management and monitoring tools. Administrators can configure log data storage to destinations such as Windows Event Viewer, SNMP traps, syslog, SMTP email alerts, etc. The solution also integrates directly with Microsoft SCCM. The communication layer includes a complete infrastructure for API integration to third parties as well as a rich set of existing APIs, web services, single sign on and authentication protocols. Integrate with security information and event management (SIEM) solutions for enhanced logging of events occurring in the console. Administrators can view events, filter by event type, category and module, and export events. Event logging settings can be configured based on severity levels, with the ability to send specific levels to external system via syslog integration.	
FireEye	This is not applicable as each of FireEye's offerings are classified as SaaS.	

8.18 Trial and Testing Periods (Pre- and Post- Purchase)

8.18.1 Describe your testing and training periods that your offer for your service offerings.

Training and testing periods will vary based on the Service provider as well as the complexity of the request that is made by the Purchasing Entity. Some of the services can be functional within a few days and some will take a few months for full implementation.

8.18.2 Describe how you intend to provide a test and/or proof of concept environment for evaluation that verifies your ability to meet mandatory requirements.

Upon Request, Carahsoft will provide access to any of the Cloud Technologies proposed. The precise Access to the technology may be in a limited or "DEMO" fashion. Access will be to an extent that the State may complete any necessary tests or verifications that may be required. Instructions on precisely how each technology will be accessed will be provided upon request. All of the proposed technologies are currently live/ active and support many customers. A specific instance of the requested technology would be stood up within the cloud framework to support this request. As this will be occurring within a production, the creation of the instance is a quick and straight forward process not requiring any sort of extraordinary effort.

8.18.3 Offeror must describe what training and support it provides at no additional cost.

Carahsoft provides the customer with free training for specific deals on a case by case basis. This can include free installation, training, and maintenance for high value customers who purchase Carahsoft's solution through the NASPO contract vehicle. In addition, Carahsoft will provide webinars with basic training on a quarterly basis, made available to any Purchasing Entity who wishes to participate.

8.19 Integration and Customization

8.19.1 Describe how the Solutions you provide can be integrated to other complementary applications, and if you offer standard-based interface to enable additional integrations.

The integration into other applications will vary base on the Service Provider, however it is standard practice to allow for open APIs for integration development. For example Connecting Salesforce to an existing enterprise application is a common and frequently performed task. Integration options range from native Web Services support (APIs, outbound workflow, etc.) to import/export utilities to middleware integration via packaged connectors to toolkits for Java, .NET, and other open platforms. Our solution provides the ability to call out to virtually all common APIs, to enable synchronization, push / pull, and mash-ups with external apps/systems. Salesforce itself is based on web-service based APIs that in turn simplify access to Salesforce data from external systems. API-based integration is heavily leveraged by our customers.

8.19.2 Describe the ways to customize and personalize the Solutions you provide to meet the needs of specific Purchasing Entities.

The Service Providers customization options are very extensive and highly configurable. For example The Salesforce Platform offers a core set of technologies that not only power the Salesforce SaaS products, but also allows your Agency to build custom apps, connect data from any system, and manage it from anywhere. The Salesforce Platform allows customers to build apps fast with just a few clicks, designed for desktop and mobile devices, all from a single canvas. The Salesforce Platform has been given top ratings by Gartner, Forrester, & Info-Tech Research. To help IT deliver apps faster, the Salesforce Platform offers a simple yet powerful set of declarative, point-and-click tools that anyone can use to achieve business goals at lightning speed. Without writing code, developers and business users alike can quickly and easily create custom apps on the Salesforce Platform with complex business logic and beautiful user interfaces designed specific to every screen. Salesforce Lightning Builder tools allows your Agency to work in alignment with agile development methodologies as IT meet business demands faster. The Platform uses open APIs based on industry standards such as REST and SOAP to make it easy for your Agency to build apps that integrate with legacy systems. For more complex applications, developers can leverage the Apex programming language. Apex is an object-oriented, on-demand language. It is like Java, with similar syntax and notation, and is strongly-typed, compiled on demand, and fully integrated into the Platform. All of the application services come right out of the box, from a powerful workflow engine to API services, integration services, authentication, event log framework, analytics, and collaboration.

8.20 Marketing Plan

Describe your how you intend to market your Solutions to NASPO ValuePoint and Participating Entities.

Carahsoft offers deep experience in public sector marketing. Our dedicated team plans, promotes and executes more than 2,000 public-sector marketing campaigns and events each year, including contract-specific promotional activities. These include but are not limited to:

- News announcements

- Social media promotion (Twitter, Linked In, Facebook, Carahsoft Community)
- Website content/reciprocal links (Carahsoft website page; content for contract sponsor page)
- Marketing materials (FAQs, contract overviews, solution spec sheets, powerpoint slides)
- Training documents
- Co-branded tradeshow graphics, giveaways, display materials
- Tradeshow participation (national, state and local government and education shows)
- Digital and print ads
- Webinars
- Email campaigns
- Proactive marketing opportunity available through:
 - National Coalition for Public Procurement (NCP) – publicprocurementcoalition.org
 - Institute for Public Procurement (NIGP) – nigp.org
 - National Association of Counties (NACo) – naco.org
 - The United States Conference of Mayors – usmayors.org
 - National League of Cities – nlc.org
 - National Governors Association – nga.org
 - Relevant State Associations

8.21 Related Value-Added Services to Cloud Solutions

Describe the valued-added services that you can provide as part of an awarded contract, e.g. consulting services pre- and post- implementation. Offerors may detail professional services in the RFP limited to assisting offering activities with initial setup, training and access to the services.

In addition to Carahsoft's quoting and configuration expertise, we also have a wide range of Service Provider implementation partners that we leverage to work with Purchasing Entities in order to ensure successful adoption and deployment within a Purchasing Entity. We will help to identify needs for initial setup, training and access to the services so that it is all available at the best prices from one source to the Purchasing Entity.

8.22 Supporting Infrastructure

8.22.1 Describe what infrastructure is required by the Purchasing Entity to support your Solutions or deployment models.

The Service Providers that are being proposed operate on their own secure infrastructure. The Purchasing Entities will only need an internet connection to access the services.

8.22.2 If required, who will be responsible for installation of new infrastructure and who will incur those costs?

The Service Providers maintain all costs for updating and building new infrastructures.

8.23 Alignment of Cloud Computing Reference Architecture

Clarify how your architecture compares to the NIST Cloud Computing Reference Architecture, in particular, to describe how they align with the three domains e.g. Infrastructure as a Service (IaaS), Software as a Service (SaaS), and Platform as a Service (PaaS).

CA	APM	The SaaS portal runs in Amazon Web Services.
	MAA	CA MAA is a SaaS service.
	CA Agile	Only SaaS is being offered via a public cloud

	ASM	As a monitoring service, ASM is considered to be SaaS.
Virtu	The capability provided to the consumer is to use the provider's applications running on a cloud infrastructure ² . The applications are accessible from various client devices through either a thin client interface, such as a web browser (e.g., web-based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited userspecific application configuration settings.	
Salesforce	Salesforce's deployment model is a "public" cloud infrastructure, as defined by NIST 800-145. In the Salesforce Government Cloud, an agency dynamically provisions computing resources over the Internet on our multi-tenant infrastructure. This is a cost effective deployment model for agencies as it gives them the flexibility to procure only the computing resources they need and delivers all services with consistent availability, resiliency, security, and manageability. Salesforce was the first Cloud Service Provider to attain FedRAMP Authority to Operate for both Software as a Service (SaaS) and Platform as a Service (PaaS), consistent with the FedRAMP moderate baseline controls. Salesforce does not provide IaaS as a direct service offering to our customers, it is an underlying part of our PaaS and SaaS offerings. Salesforce Government Cloud In May 23, 2014 Salesforce achieved a FedRAMP Agency Authority to Operate at the moderate impact level (as described in FIPS 199 and 200) issued by Health and Human Services (HHS) for the Salesforce Government Cloud. Additionally, on May 15, 2015, HHS, as the FedRAMP authorizing agency, approved the Salesforce Government Cloud authorization package that was updated based on annual attestation requirements and updates to the FedRAMP baseline which is FISMA compliant and based on the current release of NIST SP 800-53 Rev. 4. Testing for the ATO was performed by a third party assessment organization (3PAO). The Salesforce Government Cloud information system and authorization boundary, is comprised of the Force.com Platform, Salesforce Services (Sales Cloud, Service Cloud, Chatter), and the backend infrastructure (servers, network devices, databases, storage arrays) that support the operations of these products, referred to as the General Support System (GSS). To obtain compliance with FedRAMP, Salesforce conducted security assessment and authorization activities in accordance with FedRAMP guidance, NIST SP 800-37, and HHS guidance. As part of this process Salesforce documented a System Security Plan (SSP) for the Salesforce Government Cloud service offering. The SSP is developed in accordance with NIST SP 800-18, Guide for Developing Federal Information System Security Plans. The SSP identifies control implementations for the GSS and in-scope customer facing products (Force.com Platform, Salesforce Services) according to the FedRAMP moderate baseline and HHS security control parameters. A security assessment of the information system was conducted by a third party assessment organization (3PAO) in accordance with NIST 800-53A and FedRAMP requirements. The security assessment testing determined the adequacy of the management, operational, and technical security controls used to protect the confidentiality, integrity, and availability of the Salesforce service and the customer data it stores, transmits and processes. To maintain compliance with FedRAMP, Salesforce conducts continuous monitoring. Continuous monitoring includes ongoing technical vulnerability detection and remediation, remediation of open compliance related findings, and at least annual independent assessment of a selection of security controls by 3PAO. As part of our FedRAMP annual assessment, Salesforce is now aligned with NIST SP 800-53, Rev. 4 controls.	
ServiceNow	ServiceNow's architecture aligns with Software as a Service (SaaS).	

DocuSign	DocuSign's DTM® solution is ISO 27001:2013 certified and many of the ISO 27001:2013 controls are mapped to the NIST 800-53 requirements; we can provide additional information upon request.	
SAP	Ariba	Our solutions are offered and delivered in a true subscription-based model and shared service (multi-tenant) offering. There is no software to install, no hardware to buy, no maintenance or support costs and no need to hire consultants or tech specialists to run the system. We deploy and manage the infrastructure. Customers only need a web browser for access. Subscriptions include system maintenance, automatic upgrades, enhancements and application of service packs, Level 1– 3 help desk support, professional services and best practices built directly into the application.
	Fieldglass	Fieldglass is offered in a SaaS model. We follow the public cloud model identified by NIST. All customers access the same Fieldglass application version in a multi-tenancy database. The system is hosted in a secure hosting facility. Fieldglass manages everything from the cage in including all servers, devices, wiring, software, and configuration. Fieldglass uses the Cloud Security Alliance framework to measure itself against the recommended controls, in addition to ISO 27001 and SOC 2 controls in the Trust Services Principles of Security, Availability, Processing Integrity, Confidentiality, and Privacy.
	Hanna	HEC is a private cloud offering from SAP that provides fully 'managed' Infrastructure as a Service (IaaS) following NIST Cloud Computing Reference Architecture.
	Hybris	The SAP Hybris Commerce, Cloud Edition is a Private Cloud Managed Service that offers a best practice multichannel commerce platform built on hybris accelerator technology, running in SAP Hybris own datacenters with a pay as you grow subscription model.
	SuccessFactors	Our IT architecture is aligned with ISO 27002. We are Safe Harbor certified and in alignment with BS10012 and ISO 20000 for Service Delivery. We demonstrate an on-going commitment to protecting the confidentiality, integrity and availability ("CIA") of data from internal and external threats, making us a reliable and secure system provider. Our secure multi-tenant Software as a Service (SaaS) platform is designed for availability, security, scalability, and performance. Industry best practices and standards are adopted and incorporated. Our Network also complies with the Authority to Operate as a Moderate Risk Federal Information System by the Office of Personnel Management and Department of Homeland Security; NIST SP800-53 Security Controls; EU Privacy Directive 95/46/EC for EU and non-EU customer data; Payment Card Industry (PCI) Data Security Standard (DSS) v 2.0; Safe Harbor. We provide privacy compliant data center facilities not only in the United States but also as a Member State of the European Union (EU) or a state of the European Economic Area (EEA). Currently, such data centers are certified for ISO27001, ISO9001 and PCI-DSS compliance. Our security services provide complete and thorough monitoring of all traffic on the network on a 24x7x365 basis, and include security technology, alert services and incident management support. We are audited twice annually to SSAE16 (US) or ISAE 3402 (international) accounting standards.

VMware	See section 8.1.1 for additional details. Due to FOIA restrictions, we cannot share specific infrastructure details or architecture diagrams at this time. We can provide sample architecture diagrams under NDA to participating entities during task order negotiations as required. VMWare AirWatch AirWatch partners with co-located and cloud-hosted Tier III data centers to support of SaaS offering. Due to FOIA restrictions, we cannot share specific infrastructure details or architecture diagrams at this time. We can provide sample deployments as under NDA to participating entities during task order negotiations as required.								
FireEye	Each of the FireEye cloud solutions are classified as Software as a Service (SaaS) and leverage a private cloud deployment model. With respect to the NIST Cloud Computing Reference Architecture, the following actors are integral to the overall design of the solutions: <table border="1"> <thead> <tr> <th>Actor</th><th>Definition</th></tr> </thead> <tbody> <tr> <td>Cloud Consumer</td><td>Customer organizations who have purchased FireEye cloud solutions</td></tr> <tr> <td>Cloud Provider</td><td>FireEye</td></tr> <tr> <td>Cloud Carrier</td><td>Internet service providers and organizations who have been contracted to host FireEye cloud solutions.</td></tr> </tbody> </table> A Cloud Broker is not leveraged in the FireEye cloud offerings. FireEye has contracted independent service auditors for evaluating controls relevant to security and confidentiality, however this occurs on an as-needed basis.	Actor	Definition	Cloud Consumer	Customer organizations who have purchased FireEye cloud solutions	Cloud Provider	FireEye	Cloud Carrier	Internet service providers and organizations who have been contracted to host FireEye cloud solutions.
Actor	Definition								
Cloud Consumer	Customer organizations who have purchased FireEye cloud solutions								
Cloud Provider	FireEye								
Cloud Carrier	Internet service providers and organizations who have been contracted to host FireEye cloud solutions.								
VirtueStream	Virtustream solution is fully NIST compliant for Essential Characteristics, as the Infrastructure as a Service (IaaS) Service Model, with all deployment options – Private Cloud, Community Cloud, Public and Hybrid Cloud. To that extent: 1.Virtustream IaaS provides a self-service portal called xStream, where users can access, view, edit, provision, and modify compute, storage, network and application services based on granular Role Based Access Control, which can be integrated with Active Directory or LDAP. 2.Virtustream IaaS provides Broad Network Access, where it can provide landing zone for any private network (Point-to-Point, Virtual Private Label Switching, Multi-Protocol Label Switching, or Direct Connect), public network (Internet, Trusted Internet Connectivity as landing zone, IPSEC VPN and SSL VPN) and also extranet connectivity (shared network, i.e, Cloud Connect, Cloud Exchange, NetBond, etc.) which is growing rapidly as option for connecting cloud resources. 3.Key to Virtustream solution is its proprietary and patented solution of uVM technology, which is effectively a granular solution for resource pooling, providing application performance, pay for consumption only and segregate resources for security and compliance, but aggregate for cost efficiency. In addition, Virtustream is currently one of very few Cloud Service Provider with capabilities for Geo-Fencing and Geo-Tagging of the virtual machines to a specific data center, and getting down to cluster and host machine level. 4.Virtustream's self-service portal, ticketing system and also the Technical Account Manager, who is the single point of contact for State of Utah allows for provisioning and deprovisioning of resources and services. In addition, Virtustream is uniquely positioned to provide application level provisioning as part of its standard automation and orchestration tool. 5.The fundamental of Virtustream solution is based on uVM Technology, which is very unique in terms of billing. Virtustream solution takes average consumption of compute resources, and State of Utah would only pay for actual resources based on a monthly average. This is in comparison								

	with traditional cloud solution, where the billing is based on allocation of resources in T-Shirt size (Micro, S, M, L, XL, XXL), and if the server is up, consumer of the cloud pays, but when it is down, they don't. In case of the Virtustream solution, customer only pays based on the average of vCPU, RAM, IOPS and Network I/O; the key is average, not aggregate and based on consumption not allocation. In addition, all storage, security, application management services are offered as a monthly fee, based on the VMs; also, Virtustream can provide consultative and project support based on time and materials. 6. The deployment of Virtustream cloud can be on-premise or private based on purchase of its Cloud Management Platform, Community Cloud based on its IaaS, Public Cloud based on its IaaS and Hybrid cloud based on its ability to provide software and IaaS combined.
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CONFIDENTIAL, PROTECTED, OR PROPRIETARY INFORMATION

All confidential, protected or proprietary Information must be included in this section of proposal response. Do not incorporate protected information throughout the Proposal. Rather, provide a reference in the proposal response directing Lead State to the specific area of this protected Information section.

If there is no protected information, write "None" in this section.

Failure to comply with this Section and Section 3.13 of the RFP releases the Lead State, NASPO ValuePoint, and Participating Entities from any obligation or liability arising from the inadvertent release of Offeror information.

Carahsoft Technology Corporation ("Carahsoft") respectfully requests that section 6.3 Financials of Carahsoft's response be treated as a trade secret under the Utah Uniform Trade Secrets Act, Utah Code § 13-24-2 and submits this justification in accordance with Utah Code 63-G-2-305 demonstrating that its audited financials should be treated as a trade secret under Utah's Uniform Trade Secrets Act. Additionally, Carahsoft is claiming the same confidentiality of the Consensus Assessments Initiative Questionnaire provided in relation to DocuSign and FireEye offerings, as well as the Cloud Controls Matrix for DocuSign.

Carahsoft has marked this attachment as "confidential" in accordance with the RFP instructions by including all confidential data into the Confidential, Protected, or Proprietary Information in our response.

Carahsoft is claiming confidentiality for these specific Consensus Assessments Initiative Questionnaires and Cloud Controls Matrix because releasing these documents would cause irreparable damage and would create the potential for cyber security breach. While portions of this information are in the public domain, the information contained within is not represented or assimilated this way in any other format.

Carahsoft's Audited Financial Data satisfies the three-part test of the Utah Uniform Trade Secrets Act as set forth below and should therefore be treated as confidential and by the Utah Division of Purchasing and should not subject to public disclosure as provided in Utah Code § 63G-2-305.

1. *Carahsoft's Audited Financial Data is a "compilation" within the meaning of Utah Code § 13-24-2(4).*
Carahsoft's Audited Financial Data is a compilation of all of the Company's financial data and results for 2014. While some aspects of this information may be available, the compilation of this information is unique and the result of sustained and distinct effort by the Company's financial staff and its accountants.
2. *As required by Utah Code § 13-24-2(4)(a) Carahsoft derives independent economic value, actual or potential, from its Audited Financial Data not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use.*

Carahsoft is a leading distributor of technology products and services to public sector customers such as the State of Utah, and throughout the United States and Canada. Sales in this market are intensely and deliberately competitive, with each sale subject to a structured bidding process in which low price is frequently the deciding factor on which contract award is based. Competition in this market is fierce, with competitors regularly competing with one another for federal, state, county and city business.

Carahsoft's competitors closely monitor this market, and regularly attempt to gain financial and other information about Carahsoft and other competing vendors. Allowing Carahsoft's competitors access to this compilation of financial data by releasing it in response to a public records request will damage Carahsoft's competitive position because it will provide competitors insight into Carahsoft's financial structure, including compensation, overhead costs, rental rates, profit margins and the like. Indeed, allowing insight into compensation may violate individual employees' expectations of privacy. Once competitors have this access and insight, they can use it to undercut Carahsoft in the marketplace, damaging Carahsoft's business with its customers and its suppliers, and inflicting economic hardship upon the Company.

For these reasons, Carahsoft does not itself disclose its Audited Financial Data except when required by law to do so. For example, Carahsoft discloses its financial information in filing its periodic tax returns—disclosure of which is prohibited by applicable state and federal law. In this regard, we note that Carahsoft is a privately owned company. Therefore, Carahsoft does not publicly report its financial results to the United States Securities and Exchange Commission.

3. Carahsoft uses reasonable efforts to maintain the secrecy of its Audited Financial Data.

The third part of the Utah Uniform Trade Secret Act's test for trade secret treatment is whether the information "...is the subject of efforts that are reasonable under the circumstances to maintain its secrecy." Utah Code § 13-24-2(4)(b).

Carahsoft satisfies this test because it takes reasonable steps to maintain the secrecy of its financial information. As noted above, Carahsoft is a privately held company and therefore does not report its financial results publically to either its shareholders or the Securities and Exchange Commission. This is in contrast to public companies such as IBM or AT&T who report financial results quarterly as a matter of public record.

Even within Carahsoft's business operations itself, Carahsoft's management strictly limits disclosure of this information to a few carefully selected employees, and then only on a "need to know" basis in connection with their work assignments. Indeed, each Carahsoft employee signs a Confidentiality Agreement agreeing not to disclose this information.

Conclusion

Based on the forgoing, Carahsoft believes it has demonstrated that its Audited Financial Data, Consensus Assessments Initiative Questionnaires, and Cloud Controls Matrix are trade secret as defined in Utah Code § 23-24-2. It is a compilation the content of which affords Carahsoft a competitive advantage. Carahsoft's competition cannot readily discern it by proper means. Moreover, Carahsoft itself treats this information as a trade secret even within its own business operations.

Should there be a public records request for this information, Carahsoft respectfully requests that the State afford Carahsoft's requested confidential information and documents trade secret protection in accordance with Utah law and deny the request. In the event that the State determines to release the requested confidential data, Carahsoft requests that you notify us promptly so that we may provide further justification for trade secret protection of this confidential data.

CLAIM OF BUSINESS CONFIDENTIALITY

Pursuant to Utah Code Annotated, Subsections 63G-2-305(1) and (2), and in accordance with Section 63G-2-309, Carahsoft Technology Corporation (company name) asserts a claim of business confidentiality to protect the following information submitted as part of this solicitation. Pricing/Cost Proposals may not be classified as confidential or protected and will be considered public information. **An entire proposal cannot be identified as “PROTECTED”, “CONFIDENTIAL” or “PROPRIETARY”.**

- ☒ Non-public financial statements
- ☐ Specific employee name and contact information
- ☐ Specific customer information, client lists, or subscription lists
- ☒ Other (specify): Consensus Assessments Initiative Questionnaires and Cloud Controls Matrix

This claim is asserted because this information requires protection as it includes:

- ☒ trade secrets as defined in Utah Code Annotated Section 13-24-2 ("Trade secret" means information, including a formula, pattern, compilation, program, device, method, technique, or process, that: (a) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; and (b) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy).
- ☒ commercial information or non-individual financial information obtained from a person if: (a) disclosure of the information could reasonably be expected to result in unfair competitive injury to the person submitting the information or would impair the ability of the governmental entity to obtain necessary information in the future; [and] (b) the person submitting the information has a greater interest in prohibiting access than the public in obtaining access.

This statement of reasons supporting the claim of business confidentiality applies to the following information in this proposal:

Page	Paragraph	Reason
187-204, Technical Response Template	All	See Confidential, Trade Secret, & Proprietary Information Explanation Page 176-177 of Carahsoft's Technical Response
Exhibit 1- DocuSign Excel	N/A	See Confidential, Trade Secret, & Proprietary Information Explanation Page 176-177 of Carahsoft's Technical Response
Exhibit 1- FireEye Excel	N/A	See Confidential, Trade Secret, & Proprietary Information Explanation Page 176-177 of Carahsoft's Technical Response
Exhibit 2- DocuSign Excel	N/A	See Confidential, Trade Secret, & Proprietary Information Explanation Page 176-177 of Carahsoft's Technical Response

Please use additional sheets if needed.

You will be notified if a record claimed to be protected herein under Utah Code Annotated § 63G-2-305(1) or (2) is classified public or if the governmental entity determines that the record

should be released after weighing interests under Utah Code Annotated § 63G-2-201(5)(b) or Utah Code Annotated § 63G-2-401(6). See Utah Code Annotated § 63G-2-309.

Signed: Robert R. Moore, Vice President

On behalf of (company): Carahsoft Technology Corporation

Date: March 10, 2016

(Revision 6/4/2015)

EXCEPTIONS AND/OR ADDITIONS TO THE STANDARD TERMS AND CONDITIONS

Proposed exceptions and/or additions to the Master Agreement Terms and Conditions, including the exhibits, must be submitted in this section. Offeror must provide all proposed exceptions and/or additions, including an Offeror's terms and conditions, license agreements, or service level agreements in Microsoft Word format for redline editing.

Offeror must also provide the name, contact information, and access to the person(s) that will be directly involved in terms and conditions negotiations. If there are no exceptions or additions to the Master Agreement Terms and Conditions, write "None" in this section.

The point of contact who will be directly involved in terms and conditions negotiations is Jack Dixon – Contract Specialist. He can be reached at – 703.230.7545 / Jack.Dixon@Carahsoft.com.

32. Transition Assistance:

a. The Contractor shall reasonably cooperate with other parties in connection with all Services to be delivered under this Master Agreement, including without limitation any successor service provider to whom a Purchasing Entity's Data is transferred in connection with the termination or expiration of this Master Agreement. The Contractor shall assist a Purchasing Entity in exporting and extracting a Purchasing Entity's Data, in a format usable without the use of the Services and as agreed by a Purchasing Entity, at no additional cost to the Purchasing Entity. Any transition services requested by a Purchasing Entity involving additional knowledge transfer and support may be subject to a separate transition Statement of Work.

b. A Purchasing Entity and the Contractor shall, when reasonable, create a Transition Plan Document identifying the transition services to be provided and including a Statement of Work if applicable.

c. The Contractor must maintain the confidentiality and security of a Purchasing Entity's Data during the transition services and thereafter as required by the Purchasing Entity.

Carahsoft takes exception to section 32 – Transition Assistance and request it includes the following.

9.4 RETURN OF CUSTOMER DATA. Carahsoft shall provide Customer Data in its standard database export format, excluding the any Core Technology, to Customer upon Customer's written request and at no additional cost to Customer, provided that Carahsoft receives such request from Customer within forty-five (45) days following the expiration or termination of a provided service. If Carahsoft has not received a request within the foregoing time frame, Carahsoft shall have no obligation to maintain or provide any Customer Data and shall thereafter, unless legally prohibited, have the right to delete all Customer Data in its systems or otherwise in its possession or under its control and delete Customer's instances of any provided service.

Carahsoft takes exception to Section 13 – Indemnification. Carahsoft requests that Indemnification from the state to the customer under a certain set of circumstances.

IN SUMMARY

Carahsoft Technology Corporation appreciates the opportunity to offer this solution for the State of Utah's initiative.

The Carahsoft Team has proposed a superior and cost-effective solution that fully complies with the State of Utah's requirements set forth in Solicitation # CH16012. We understand the importance of your project goals, and we are confident you will benefit from this solution and our expertise.

Carahsoft looks forward to the opportunity to speak with you regarding the details of this proposal, as well as the opportunity to work with the State of Utah on this project.

SUPPLEMENTAL INFORMATION

Please find below Carahsoft's supplemental information.

Carahsoft Technology Corporation

**Financial Statements with
Independent Auditors' Report**

December 31, 2013

Carahsoft Confidential - State of Utah

CONFIDENTIAL PROPRIETARY INFORMATION

*All information contained in these documents is considered confidential and
proprietary for the use of only the intended receiver.*

Carahsoft Technology Corporation

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CONFIDENTIAL PROPRIETARY INFORMATION

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One Church Street
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Rockville, Maryland 20850

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Fax: 301.738.9010
Toll-Free: 800.541.5811

Independent Auditors' Report

To the Board of Directors
Carahsoft Technology Corporation
Reston, Virginia

We have audited the accompanying financial statements of Carahsoft Technology Corporation (a Maryland corporation), which comprise the balance sheet as of December 31, 2013, and the related statements of income, shareholder's equity, and cash flows for the year then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Carahsoft Technology Corporation as of December 31, 2013, and the results of its operations and its cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

April 29, 2014
Rockville, Maryland

Saggen + Rosenberg, PC

Carahsoft Technology Corporation
Balance Sheet
December 31, 2013

Assets

Current Assets	
Cash and cash equivalents	\$ 57,508,890
Accounts receivable, net	230,858,892
Prepaid expenses and Other Current Assets	<u>181,147</u>
Total Current Assets	<u>288,548,929</u>
Property and Equipment	
Property and equipment	656,388
Less: accumulated depreciation and amortization	<u>(385,790)</u>
Property and Equipment, Net	<u>270,598</u>
Other Assets	
Deposits	<u>18,667</u>
Total Assets	<u><u>\$ 288,838,194</u></u>

Liabilities and Shareholder's Equity

Current Liabilities	
Accounts payable	\$ 235,561,345
Sales tax payable	274,076
Accrued expenses	<u>19,710,325</u>
Total Liabilities	<u>255,545,746</u>
Shareholder's Equity	
Common stock, \$0.01 par value, 1,000 shares authorized; 100 shares issued and outstanding	1
Additional paid-in capital	16,823,635
Retained earnings	<u>16,468,812</u>
Total Shareholder's Equity	<u>33,292,448</u>
Total Liabilities and Shareholder's Equity	<u><u>\$ 288,838,194</u></u>

CONFIDENTIAL PROPRIETARY INFORMATION

*All information contained in these documents is considered confidential and
proprietary for the use of only the intended receiver.*

See Accompanying Notes and Auditors' Report

Carahsoft Technology Corporation
Statement of Income
December 31, 2013

Revenue	\$ 1,724,988,403
Cost of Goods Sold	<u>1,653,993,173</u>
Gross Margin	70,995,230
Operation Expenses	<u>67,382,570</u>
Income from Operations	<u>3,612,660</u>
Other Income & Expense	
Interest Income	<u>814,902</u>
Total Other Income	<u>814,902</u>
Net Income	<u><u>\$ 4,427,562</u></u>

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proprietary for the use of only the intended receiver.*

See Accompanying Notes and Auditors' Report

Carahsoft Technology Corporation
Statement of Shareholder's Equity
December 31, 2013

	<u>Common Stock</u>	<u>Additional Paid-in Capital</u>	<u>Retained Earnings</u>	<u>Total Shareholder's Equity</u>
Balance at December 31, 2012	\$ 1	\$ 16,823,635	\$ 12,041,250	\$ 28,864,886
Net income for the year ended December 31, 2013	<u>-</u>	<u>-</u>	<u>4,427,562</u>	<u>4,427,562</u>
Balance at December 31, 2013	<u><u>\$ 1</u></u>	<u><u>\$ 16,823,635</u></u>	<u><u>\$ 16,468,812</u></u>	<u><u>\$ 33,292,448</u></u>

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See Accompanying Notes and Auditors' Report

Carahsoft Technology Corporation
Statement of Cash Flows
Year Ended December 31, 2013

Cash Flows from Operating Activities:

Net Income	\$ 4,427,562
Adjustments to reconcile net income to net cash used in operating activities:	
Depreciation and amortization	135,000
Increase/decrease in operating assets and liabilities:	
Accounts receivable, net	(13,896,459)
Prepaid expenses and other current assets	(152,726)
Accounts payable	37,525,376
Sales tax payable	78,847
Accrued expenses	<u>(38,255,630)</u>

Net Cash Used In Operating Activities	<u>(10,138,030)</u>
---------------------------------------	---------------------

Cash Flows From Investing Activities:

Purchases of property and equipment	<u>(100,947)</u>
-------------------------------------	------------------

Net Decrease in Cash	<u>(10,238,977)</u>
----------------------	---------------------

Cash and Cash Equivalents at the Beginning of the Year	<u>67,747,867</u>
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Cash and Cash Equivalents at the End of the Year	<u><u>\$ 57,508,890</u></u>
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See Accompanying Notes and Auditors' Report

Carahsoft Technology Corporation
Notes to the Financial Statements

Note 1: Organization

Carahsoft Technology Corporation ("Technology" or "the Company") was incorporated under the laws of the State of Maryland. The Company is a software reseller and provides information technology solutions to the U.S. Federal Government as well as State and Local Agencies and Commercial organizations. Technology is a wholly owned subsidiary of Carahsoft, Inc. The parent company charges Technology a management fee for certain administrative and support services.

Note 2: Summary of Significant Accounting Policies

Cash Equivalents

The Company considers its demand deposits and money market funds to be cash equivalents in the statement of cash flows.

The Company maintains its funds with certain financial institutions in amounts that generally exceed the Federal Deposit Insurance Corporation (FDIC) insurance limitation of \$250,000. At year-end, the Company maintained bank balances of approximately \$73,745,000 that exceeded insured levels.

Accounts Receivable

Receivables are stated at amounts estimated by management to be the net realizable value. The Company charges off accounts receivable when it becomes apparent based upon age or customer circumstances that amounts will not be collected.

Allowance for Doubtful Accounts

The allowance for doubtful accounts is established through charges to the provision for bad debts. The Company evaluates the adequacy of the allowance for doubtful accounts on a periodic basis. The evaluation includes historical trends in collections and write-offs, management's judgment of the probability of collecting accounts and management's evaluation of business risk. An allowance in the amount of \$38,000 has been established for the year ended December 31, 2013.

Revenue Recognition

Revenue is recognized under the accrual method at the time the goods are shipped.

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See Auditors' Report

Carahsoft Technology Corporation
Notes to the Financial Statements

Note 2: Summary of Significant Accounting Policies - continued

Property and Equipment

Property and equipment is stated at cost. Depreciation and amortization is computed using the straight-line method over the estimated useful lives of three to seven years. Depreciation expense for the year ended December 31, 2013, was \$135,000.

Prepaid Expenses

Prepaid expenses consist of prepaid marketing, software purchases and other operating expenses.

Income Taxes

The Company has elected to be taxed under the provisions of Subchapter S of the Internal Revenue Code (IRC). Accordingly, all income tax liabilities are the responsibility of the Parent Company.

Concentrations

Approximately 54% of the Company's revenue is concentrated with three vendors.

Use of Estimates

Management uses estimates and assumptions in preparing these financial statements in accordance with U.S. generally accepted accounting principles. Those estimates and assumptions affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities, and the reported revenues and expenses. Actual results could vary from the estimates that were used.

Subsequent Events

The date to which events occurring after December 31, 2013, the date of the most recent balance sheet, have been evaluated for possible adjustment to the financial statements or disclosure is April 29, 2014, which is the date on which the financial statements were available to be issued.

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See Auditors' Report

Carahsoft Technology Corporation
Notes to the Financial Statements

Note 3: Accounts Receivable

Accounts Receivable at December 31, 2013, consisted of the following:

Billed Receivables	\$ 230,896,892
Less: allowance for doubtful accounts	<u>(38,000)</u>
	<u>\$ 230,858,892</u>

Note 4: Lines of Credit

The Company has lines of credit available from a financial institution that have a combined maximum borrowing limit of \$25,000,000. The lines were secured by cash, and substantially all of the Company's assets. There were no borrowings against any of these lines at December 31, 2013.

Two of these lines of credit bear interest at prime + ½ percent and expire October 31, 2014. The other line bears interest at the prime rate and expires October 31, 2014. There was no interest expense for the year. As part of the line of credit agreements, the Company must comply with certain financial covenants. At year end, the Company was in compliance with all financial covenants.

Note 5: Retirement Plan

The Company has a 401(k) defined contribution retirement plan (the Plan) covering all eligible employees. Participants may make voluntary contributions to the Plan up to the maximum amount allowed by law. The Company may make discretionary matching and profit sharing contributions to the Plan. Participants are immediately vested in their contributions while Company contributions to the Plan vest 25% each year after the first year of service. The Company contributed approximately \$337,000 to the Plan for the year ended December 31, 2013.

Note 6: Operating Leases

The Company leases office space under an operating lease that expires in May 2016. The office lease calls for rent escalations. Rent expense, including common area and other related expenses, for the year ended December 31, 2013 was approximately \$638,000.

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See Auditors' Report

Carahsoft Technology Corporation
Notes to the Financial Statements

Note 6: Operating Leases - continued

Future minimum lease payments under all operating leases are as follows:

2014	\$ 462,458
2015	476,370
2016	<u>200,927</u>
Total	<u>\$ 1,139,755</u>

Note 7: Legal Matters

From time to time and in the ordinary course of business, the Company is involved in various legal matters. The Company does not expect any material unfavorable outcome as a result of these legal matters.

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See Auditors' Report

Carahsoft Technology Corporation

**Financial Statements with
Independent Auditor's Report**

December 31, 2014

Carahsoft Confidential - State of Utah

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proprietary for the use of only the intended receiver.*

Carahsoft Technology Corporation

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One Church Street
Suite 204
Rockville, Maryland 20850

Office: 301.738.9040
Fax: 301.738.9010
Toll-Free: 800.541.5811

Independent Auditor's Report

To the Board of Directors
Carahsoft Technology Corporation
Reston, Virginia

We have audited the accompanying financial statements of Carahsoft Technology Corporation (a Maryland S corporation), which comprise the balance sheet as of December 31, 2014, and the related statements of income, shareholder's equity, and cash flows for the year then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Carahsoft Technology Corporation as of December 31, 2014, and the results of its operations and its cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

April 3, 2015
Rockville, Maryland

Saggar + Rosenberg, PC

Carahsoft Confidential - State of Utah

Carahsoft Technology Corporation
Balance Sheet
December 31, 2014

Assets

Current Assets	
Cash and cash equivalents	\$ 62,441,330
Accounts receivable, net	254,996,232
Prepaid expenses and Other Current Assets	<u>2,603,637</u>
Total Current Assets	<u>320,041,199</u>
Property and Equipment	
Property and equipment	722,669
Less: accumulated depreciation and amortization	<u>(535,790)</u>
Property and Equipment, Net	<u>186,879</u>
Other Assets	
Deposits	<u>18,667</u>
Total Assets	<u><u>\$ 320,246,745</u></u>

Liabilities and Shareholder's Equity

Current Liabilities	
Accounts payable	\$ 262,659,304
Sales tax payable	81,981
Due to Parent	12,145,114
Accrued expenses	<u>6,024,208</u>
Total Liabilities	<u>280,910,607</u>
Shareholder's Equity	
Common stock, \$0.01 par value, 1,000 shares authorized; 100 shares issued and outstanding	1
Additional paid-in capital	16,823,635
Retained earnings	<u>22,512,502</u>
Total Shareholder's Equity	<u>39,336,138</u>
Total Liabilities and Shareholder's Equity	<u><u>\$ 320,246,745</u></u>

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See Accompanying Notes and Auditor's Report

Carahsoft Technology Corporation
Statement of Income
December 31, 2014

Revenue	\$ 2,276,200,166
Cost of Goods Sold	<u>2,181,503,353</u>
Gross Margin	94,696,813
Operation Expenses	<u>89,661,323</u>
Income from Operations	<u>5,035,490</u>
Other Income	
Interest Income	<u>1,008,200</u>
Total Other Income	<u>1,008,200</u>
Net Income	<u><u>\$ 6,043,690</u></u>

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proprietary for the use of only the intended receiver.*

See Accompanying Notes and Auditor's Report

Carahsoft Technology Corporation
Statement of Shareholder's Equity
December 31, 2014

	<u>Common Stock</u>	<u>Additional Paid-in Capital</u>	<u>Retained Earnings</u>	<u>Total Shareholder's Equity</u>
Balance at December 31, 2013	\$ 1	\$ 16,823,635	\$ 16,468,812	\$ 33,292,448
Net income for the year ended December 31, 2014	<u>-</u>	<u>-</u>	<u>6,043,690</u>	<u>6,043,690</u>
Balance at December 31, 2014	<u><u>\$ 1</u></u>	<u><u>\$ 16,823,635</u></u>	<u><u>\$ 22,512,502</u></u>	<u><u>\$ 39,336,138</u></u>

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See Accompanying Notes and Auditor's Report

Carahsoft Technology Corporation
Statement of Cash Flows
Year Ended December 31, 2014

Cash Flows from Operating Activities:

Net Income	\$ 6,043,690
Adjustments to reconcile net income to net cash provided by operating activities:	
Depreciation and amortization	150,000
Increase/decrease in operating assets and liabilities:	
Increase in Accounts receivable, net	(24,137,340)
Increase in Prepaid expenses and other current assets	(2,422,490)
Increase in Accounts payable	27,097,959
Decrease in Sales tax payable	(192,095)
Decrease in Accrued expenses	<u>(1,541,003)</u>

Net Cash Provided by Operating Activities	<u>4,998,721</u>
---	------------------

Cash Flows From Investing Activities:

Purchases of property and equipment	<u>(66,281)</u>
-------------------------------------	-----------------

Net Increase in Cash and Cash Equivalents	<u>4,932,440</u>
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Cash and Cash Equivalents at the Beginning of the Year	<u>57,508,890</u>
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Cash and Cash Equivalents at the End of the Year	<u><u>\$ 62,441,330</u></u>
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See Accompanying Notes and Auditor's Report

Carahsoft Technology Corporation
Notes to the Financial Statements

Note 1: Organization

Carahsoft Technology Corporation (“Technology” or “the Company”) was incorporated under the laws of the State of Maryland. The Company is a software reseller and provides information technology solutions to the U.S. Federal Government as well as State and Local Agencies and Commercial organizations. Technology is a wholly owned subsidiary of Carahsoft, Inc. The parent company charges Technology a management fee for certain administrative and support services.

Note 2: Summary of Significant Accounting Policies

Cash Equivalents

The Company considers its demand deposits and money market funds to be cash equivalents in the statement of cash flows.

The Company maintains its funds with certain financial institutions in amounts that generally exceed the Federal Deposit Insurance Corporation (FDIC) insurance limitation of \$250,000. At year-end, the Company maintained bank balances of approximately \$135,000,000 that exceeded insured levels.

Accounts Receivable

Receivables are stated at amounts estimated by management to be the net realizable value. The Company charges off accounts receivable when it becomes apparent based upon age or customer circumstances that amounts will not be collected.

Allowance for Doubtful Accounts

The allowance for doubtful accounts is established through charges to the provision for bad debts. The Company evaluates the adequacy of the allowance for doubtful accounts on a periodic basis. The evaluation includes historical trends in collections and write-offs, management’s judgment of the probability of collecting accounts and management’s evaluation of business risk. An allowance in the amount of \$38,000 has been established for the year ended December 31, 2014.

Revenue Recognition

Revenue is recognized under the accrual method at the time the goods are shipped.

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See Auditor’s Report

Carahsoft Technology Corporation
Notes to the Financial Statements

Note 2: Summary of Significant Accounting Policies - continued

Property and Equipment

Property and equipment is stated at cost. Depreciation and amortization is computed using the straight-line method over the estimated useful lives of three to seven years. Depreciation expense for the year ended December 31, 2014, was \$150,000.

Prepaid Expenses

Prepaid expenses consist of prepaid marketing, software purchases and other operating expenses.

Income Taxes

The Company has elected to be taxed under the provisions of Subchapter S of the Internal Revenue Code (IRC). Accordingly, all income tax liabilities are the responsibility of the Parent Company.

Concentrations

Approximately 96% of the Company's revenue is concentrated with five vendors.

Use of Estimates

Management uses estimates and assumptions in preparing these financial statements in accordance with U.S. generally accepted accounting principles. Those estimates and assumptions affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities, and the reported revenues and expenses. Actual results could vary from the estimates that were used.

Subsequent Events

The date to which events occurring after December 31, 2014, the date of the most recent balance sheet, have been evaluated for possible adjustment to the financial statements or disclosure is April 3, 2015, which is the date on which the financial statements were available to be issued.

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See Auditor's Report

Carahsoft Technology Corporation
Notes to the Financial Statements

Note 3: Accounts Receivable

Accounts Receivable at December 31, 2014, consisted of the following:

Billed Receivables	\$ 255,034,232
Less: allowance for doubtful accounts	<u>(38,000)</u>
	<u>\$ 254,996,232</u>

Note 4: Lines of Credit

The Company has lines of credit available from a financial institution that have a combined maximum borrowing limit of \$25,000,000. The lines were secured by cash, and substantially all of the Company's assets. There were no borrowings against any of these lines at December 31, 2014.

Two of these lines of credit bear interest at prime + ½ percent and expire November 30, 2015. The other line bears interest at the prime rate and expires November 30, 2015. There was no interest expense for the year. As part of the line of credit agreements, the Company must comply with certain financial covenants. At year end, the Company was in compliance with all financial covenants.

Note 5: Retirement Plan

The Company has a 401(k) defined contribution retirement plan (the Plan) covering all eligible employees. Participants may make voluntary contributions to the Plan up to the maximum amount allowed by law. The Company may make discretionary matching and profit sharing contributions to the Plan. Participants are immediately vested in their contributions while Company contributions to the Plan vest 25% each year after the first year of service. The Company accrued a contribution of \$315,000 to the Plan for the year ended December 31, 2014.

Note 6: Operating Leases

The Company leases office space under an operating lease that expires in May 2015. The office lease calls for rent escalations. Rent expense, including common area and other related expenses, for the year ended December 31, 2014 was approximately \$709,000.

Future minimum lease payments total \$270,000 for 2015. Subsequent to year end, the Company signed a new 5 year lease agreement through April 2020, with total lease payments through the end of the lease of approximately \$3,200,000.

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See Auditor's Report

Carahsoft Technology Corporation
Notes to the Financial Statements

Note 7: Concentrations and Contingencies

Taxable years ended December 31, 2011 through December 31, 2013 are subject to federal and other jurisdictions' tax authority examinations. If the Company were to be audited, management is of the opinion that no significant liability will result from these actions.

Note 8: Legal Matters

From time to time and in the ordinary course of business, the Company is involved in various legal matters. The Company does not expect any material unfavorable outcome as a result of these legal matters.

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See Auditor's Report



SECURITY AND HOSTING OVERVIEW

June 2015

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1 Introduction

This document provides a general overview of the SAP Fieldglass security and hosting infrastructure. It is effective as of the revision date indicated below. However, as security needs continue to evolve, the specific information relating to the topics covered may be subject to change over time.

Security

The SAP Fieldglass solution was architected to be the most reliable and secure Vendor Management System available today.

SAP Fieldglass is proud to offer our customers, subject to review and acceptance by our audit partner, the following assurances:

- ISO 27001 certified since 2011
- SSAE 16/ISAE 3402 Type 2 SOC1 audits conducted since 2005
- SSAE 16 Type 2 SOC2 audits in the Trust Services Principles for:
 - Security – the system is protected, both logically and physically, against unauthorized access
 - Availability – the system is available for operation and use as committed or agreed to
 - Processing Integrity – system processing is complete, accurate, timely, and authorized
 - Confidentiality – information that is designated as “confidential” is protected as committed or agreed
- SSAE 16 Type 1 SOC2 audit in the Trust Services Principle for Privacy (Type 2 audit scheduled for Q3 2015)
- Annual third party pen testing of our network and application

This document provides an understanding of how SAP Fieldglass handles the following areas across its global operations:

- Scope of Operations
- Security Management
- Application Security
- Physical Security
- Network Security
- Data Management
- Release Management
- Disaster Recovery
- Business Continuity

1.1 Scope of Operations

SAP Fieldglass has global operations located in the following regions:

United States

Business office

SAP Fieldglass
111 N. Canal Street
Suite 600
Chicago, IL 60606

Active and passive datacenters

Century Link
2425 Busse Road
Elk Grove Village, IL 60007

Equinix / ServerCentral
1735 Lundy Avenue
San Jose, CA 95131

APAC

Business office

SAP Fieldglass
Suite 5, 48 Lovett Street
Manly Vale
NSW 2094
Australia

European Union

Business office

SAP Fieldglass
One Valentine Place
London
SE1 8QH
United Kingdom

Active and passive datacenters

ServerCentral c/o Equinix Laarderhoogtweg 57 1101EB Amsterdam, Netherlands	ServerCentral c/o Telehouse North 14 Coriander Avenue London E14 2AA United Kingdom
--	---

The terms “active” and “passive” designate which of the production hosting environments is being used as the primary (active) and which is being used as the backup (passive or disaster recovery). These designations are not static and SAP Fieldglass will occasionally fail over the active hosting environment to the passive hosting environment. This practice ensures that SAP Fieldglass is capable and ready in the unlikely event a disaster occurs and we need to fail over to the passive site.

1.2 Security Management

SAP Fieldglass’ Security Team is responsible for implementing and maintaining the security controls to ensure that SAP Fieldglass information systems are secure. SAP Fieldglass has based its security program on industry standards and best practices. For our established datacenters, these practices are audited annually by a third party with results available to customers in October.

1.2.1 Security Policies, Standards and Procedures

SAP Fieldglass maintains a comprehensive set of policies that define the information security goals and objectives. Each policy may be supported by a standard that dictates the required security requirements to ensure the uniform application of technologies and processes.

1.2.2 Risk Management

SAP Fieldglass manages risk by the identification of threats and vulnerabilities to its information systems and through a control selection process. Controls selected fall into the following categories:

- Policy
- Physical and Environmental Security
- Organizational Security
- Communications and Operations Management
- Acceptable Use
- Access Control
- Third Party Access
- Information Systems Acquisition, Development and Maintenance
- Asset Management
- Incident Management
- Personnel Security

- Compliance

As an element of our ISO 27001 compliance, SAP Fieldglass conducts an enterprise-wide risk assessment. Key individuals from every department are interviewed so that risks can be identified. Risks are then evaluated and entered into a risk treatment plan. This plan is managed by the Security team with oversight by the Security Steering Committee. The Security Steering Committee meets on a quarterly basis.

1.2.3 Assessments

SAP Fieldglass periodically assesses the security controls to review the effectiveness of each control in addressing risk. If SAP Fieldglass' assessment suggests a need for changes, the baseline standard may be changed to include additional controls.

Internal Audit

SAP Fieldglass conducts quarterly internal audits for critical controls. Evidence is reviewed by our Sr. Compliance Analyst and a formal assessment report is prepared. Failed controls are made visible by this process so they can be remediated. Executive sign off on the internal audit reports is required.

External Audit

SAP Fieldglass also contracts with third parties on an annual basis to perform formal security audits on the following:

- ISO 27001 surveillance audit
- SSAE 16/ISAE 3402 Type 2 SOC1 audit
- SSAE 16 Type 2 SOC2 audits in the Trust Services Principles for:
 - Security
 - Availability
 - Processing Integrity
 - Confidentiality
- SSAE 16 Type 1 SOC2 audit in the Trust Services Principle for Privacy (Type 2 audit scheduled for Q3 2015)
- Network penetration test
- Application penetration test

These assessments allow SAP Fieldglass to maintain an appropriate security posture in order to protect the company and its systems, as well as its customers' data.

We are currently working with our third party audit partner in bringing our EU datacenters into scope for our 2015 ISO 27001 audit and SSAE 16/ISAE 3402 Type 2 SOC1 and SOC2 examinations.

1.3 Application Security

Our application provides application-level security through a combination of encryption, page-level access checking, document envelopes, and activity logging. Application security is handled through a combination of programming checks, application server configuration, and database server configuration. SAP Fieldglass uses 128-bit SSL (HTTPS) encryption for all data transmissions over the public Internet, including data shared between the product and end users and data shared between the product and back-end systems.

Passwords are encrypted using a one-way hash with salt based on the SHA-256 encryption algorithm. The hash value is saved within the database; not the password.

The base SAP Fieldglass application does not require data that would require breach notifications if compromised. If the customer chooses to store sensitive data, custom fields may be defined by the customer that can be encrypted with AES-256. These fields can also be optionally masked from view while entering and viewing the fields in the application.

1.3.1 Encryption

By default, the application utilizes SSL encryption for all data transmissions over the public Internet.

In addition, the SAP Fieldglass hosted application encrypts sensitive data stored on the database so that only properly authorized users (or systems) will be able to decrypt the data. Because no state information is stored on the application server, in the unlikely event of unauthorized access to the database, the sensitive data is still encrypted.

1.3.2 Database Segmentation

SAP Fieldglass is a SaaS and utilizes a multi-tenancy database. Each customer is assigned a unique company code. Every record written to the database is keyed using this company code. After a user authenticates into the system, a session ID is generated which holds vital information about the user including their company code, user role, and data visibility restrictions. The session ID is cached server side to eliminate any ability for a malicious user to modify its contents.

1.3.3 Document Envelopes

Throughout the system, there are a number of events that generate “documents.” These are digital representations of their real-world counterparts. For example, job postings, work orders, time sheets, and invoices are all represented in the system as documents.

Each document in the system has an accompanying digital envelope that stores all access to that document. For example, when a job posting is created, an envelope entry is added for creation that records the date, time, and person. When it is submitted, another entry is added recording the date, time, and person.

1.3.4 Page-Level Access Checking

The application has been designed so that every single web page checks for access rights before displaying itself. Additionally, each page performs a second check to ensure that an authorized user will only have access to those data elements and functionality that has been expressly authorized by the system administrator.

The post-authentication session ID that is generated and cached server-side is validated prior to showing each page. SAP Fieldglass stores a non-persistent cookie in the browser and compares back to the server-side session ID. If they no longer match due to malicious activity, the user is redirected to a “You are not authorized” page.

Authorization is handled through the use of user-defined User Roles. User Roles provide the customer, through its designated administrators, the flexibility to specify the type of access given to a member of that user group based on the definitions configured by the administrator. The User Role controls what areas of the application are accessible to the user group and what actions they can perform in those areas (e.g. job posting create, time sheet approve, etc.).

1.3.5 URL Encryption

SAP Fieldglass does not pass any sensitive data in its URL query strings. Parameters that are used to identify users in the system are protected by anonymizing the field variable and then encrypting the associated value using AES-256.

1.3.6 Activity Logging

As users access the system, all of their business significant activities are tracked and logged including failed login attempts, successful logins, approvals, submissions, etc. This activity log provides a full audit trail of what actions a particular user performed within the system and the timestamp as well.

1.3.7 Application Testing

Upon request, SAP Fieldglass will provide customers with a sandbox environment where system testing can occur outside of production. This is useful when testing out configuration changes, new integrations, and/or new reports prior to making the changes live in the customer’s production instance.

Upon request, customer’s data can be anonymized. SAP Fieldglass has the ability to scrub the data such that it is unrecognizable. Data element replacement is accomplished by an automated SAP Fieldglass utility that replaces the customer’s company code, user names, business units, cost centers, and sites from a store of random variables. Any or all of these elements may be chosen for replacement.

Sensitive data that has been designated by the customer to be stored in the SAP Fieldglass application is encrypted with AES-256. The encryption and decryption keys are different between production and test environments and are different between the US and EU datacenters. These keys are stored in the corporate password vault and are accessible only by the Database Administrators and the Lead Architect.

Once customer testing has been completed, the Environment Management team (a team within Professional Services) destroys the environment. The database is purged and the VM is returned into circulation.

1.3.8 Password Management

The SAP Fieldglass application provides each customer the ability to define a Password Policy. This policy contains custom-defined password rules that each user in the customer's instance must adhere to. The policy provides 20 different password rules such as minimum length, user lockout preference (hard lockout vs. time-based reset), days to expiration, minimum password age, etc. Also included is the ability to specify a regex pattern(s). This pattern dictates the password value syntax that each user must follow.

When customer chooses to use a test instance ("sandbox"), all user password values remain unchanged from their production values. All passwords and visibility restrictions remain unchanged to ensure that users in the test instance are not able to gain access to data they're not privileged to see in production. Also, the password policy that is enforced in the production instance is also enforced in the test instance.

New user invitations are sent via email. Recipients enter their 1-time passcode and are then forced to specify a new password that complies with the customer's password policy rules. User invitations expire after 21-days.

1.3.9 Email Approvals

In order to better support our growing mobile workforce, SAP Fieldglass offers customers a supplementary method for approving their work items. Via email, approvers are able to submit their approval or rejection response by simply replying to the approval work item that was sent to them. This method has been proven to reduce approval cycle times by several days since the approver does not have to be in the office. This feature has been architected with the following security controls:

- Only the original recipient can approve/reject the work item. If the recipient forwards the email to another person, the system will not accept the response.
- Email spoofing is not a risk. A unique ID is generated for each approval request. This unique ID along with the person ID of the intended recipient is stored encrypted with AES-256. So even if the email address sending the approval/rejection response is legitimate but the sender is not, the system will detect this anomaly and not accept the response.
- A SAP Fieldglass approver can identify another user as their Proxy and/or Delegate when they will be out of the office and unable to handle the approval requests. By design, neither of these roles receive approval work items via email. So only the original recipient can ever submit an approval/rejection response via email.
- If the customer created custom fields where sensitive information is stored encrypted, those fields and associated values are not allowed to be selected for inclusion in these email approval notifications.
- The system audit trail is updated with all user actions including approval/rejection activities via email. This audit trail is accessible by privileged customer users and can be used to monitor user activity.

In order to compromise the security of our email approval feature, a malicious user would need to hack into another user's email account, locate the SAP Fieldglass approval request email, and then submit the approval/rejection response.

1.3.10 Application Penetration Testing

SAP Fieldglass uses a combination of manual and automated testing to ensure the application is secure. Various automated commercial tools are used prior to each major release of the SAP Fieldglass system (three times per year).

On an annual basis, SAP Fieldglass engages a 3rd party security company to conduct pen testing services against our application. This is in addition to SAP Fieldglass' own internal penetration testing efforts.

SAP Fieldglass has several test environments available for customers to conduct their own application penetration testing if requested.

1.4 Physical Security

The SAP Fieldglass data center provides physical security through its secure hosted facilities. The application is hosted within a secure unmarked cage. SAP Fieldglass manages everything from the cage in. Meaning, SAP Fieldglass manages all servers, devices, and software in the cage. The hosting provider provides physical security, internet connectivity, and HVAC.

1.4.1 Internet Data Center Construction

Exterior perimeter walls, doors and windows are constructed of materials that afford UL Standard #752, Level V Ballistic Protection.

1.4.2 Access Control

The data center uses an Access Control System (ACS), which supports a networked card reader and alarm system. The ACS uses proximity card readers to control access into perimeter doors, shipping/receiving areas, storerooms and other areas. Biometric hand scanners are installed to control access into the network control center, telecommunications node room and customer vaults. Additional access control measures include:

- Designated with signage as controlled access areas
- Areas within the internet data center are designated as restricted
- Access into the internet data center and restricted areas is controlled by biometric hand scanners, and is limited to authorized personnel
- Card access badges or contractor/visitor badges are required to gain entry
- All employees, customers, vendors, contractors and visitors must be sponsored by a facilities pre-approved sponsor to gain access
- Visitors are escorted at all times within the controlled access area perimeter

1.4.3 Man Traps

The system includes the following key features:

- Anti-passback
- Integrated metal & explosive detection
- Video monitored / recorded
- Two-way intercom audio to Security Control Room
- Level V ballistic protection
- Weight sensors limit entry to one person at a time (no tailgating)
- ADA compliant
- Intrusion / tampering alarm monitoring by Security Control Room
- Integrated card access & biometric access control systems limits access to persons verified by hand geometry
- All systems are supported by redundant power management system (generators).

1.4.4 Key Control

Facilities security staff is the custodian of all security and cage keys. These keys are maintained and tracked through a comprehensive issue, retrieval, audit, and storage process. The listing of all customers, customer employees and cage assignments is updated in real-time maintained to ensure that cage access is restricted to authorized personnel.

1.4.5 Alarm System

The ACS is used to monitor and log security alarms. The ACS monitors all:

- Perimeter doors
- Restricted Area doors
- Shipping / receiving doors

1.4.6 Closed Circuit Television System

Facilities employ an extensive closed circuit television system to monitor the exterior and interior of the internet data center. Exterior cameras provide views of critical support equipment and perimeter doors. Interior cameras are positioned to monitor all internet data center aisle ways, requests for entry and entry into the internet data center, shipping / receiving areas, high-security vaults and the internet data center lobby. All cameras are recorded on digital video recorders 24 x 7.

1.4.7 Background Checks

SAP Fieldglass requires background checks be performed at the time of hiring on all personnel. These background checks are performed by a nationally recognized third party company. SAP Fieldglass initiates the background check request for all potential employees and independent consultants. If the independent contractor is placed through

an agency, the agency will conduct a background check and confirm with Human Resources whether the results were completed with/without discrepancies. If the independent contractor is placed directly, SAP Fieldglass will conduct the background check.

Background checks include the following:

- Social Security Trace
- Statewide & National Criminal Report (7 years)
- Sex Offender Registry & Terrorist Watch
- Compliance Authorities Database Checks – Global (OFAC level verification)
- Education verification
- Employment verification (7 years)
- Global Sanctions & Prohibited Parties
- Credit (only for specific finance roles)

1.4.8 Hosting Facility Security Personnel

The security office duties include:

- Response to calls for assistance
- Security facility inspections
- Fire and safety patrols
- Shipping / receiving security
- Physical security audits and assessments

1.5 Network Security

The SAP Fieldglass network infrastructure includes redundant components, firewalls, and 24/7 monitoring.

1.5.1 Redundant Components

Most network components are internally redundant. For example, routers have redundant power supplies; servers have redundant drives, power supplies, and NIC cards. Additionally, all network components are redundant to provide redundancy and security in the event of a component failure.

1.5.2 Private Virtual LANs

The application network architecture has been designed with multiple private virtual LANs using redundant Cisco routers. Every major network layer is placed on its own virtual LAN with rules about which protocols and ports are accessible.

1.5.3 Firewall

SAP Fieldglass has implemented dual-vendor redundant firewalls between the public internet and the SAP Fieldglass private network, as well as between each virtual LAN. This

firewall has been configured to enforce protocols and ports that are able to cross LANs with a default deny stance.

1.5.4 24/7 Monitoring

SAP Fieldglass provides 24/7 monitoring of suspicious activity. Any failure is promptly reported and, after an initial analysis, escalated to the next appropriate level.

1.5.5 Enterprise SIEM

Our security incident and event management (SIEM) tool has been configured to collect logs and events from all systems and devices within the SAP Fieldglass network. Forwarders are used to collect, filter, normalize and forward relevant data to an Indexer. Each installation listens for Syslog data and actively pulls WMI information from its respective environment. Security related issues are monitored and alerted on where required.

1.5.6 Network Pen Testing

On an annual basis, SAP Fieldglass engages a 3rd party security company to conduct pen testing services on our network.

1.6 Data Management

1.6.1 Data Backups and Replication

SAP Fieldglass has a highly available backup solution that guarantees data can be restored as expediently as possible. Our solution performs a continuous replication of data to our passive production hosting facility. SAP Fieldglass takes incremental SQL backups every 15 minutes and full backups on a nightly basis. Backups are transferred to the passive production hosting environment over a secure channel. SAP Fieldglass' solution offers continuous protection of customer data geographically without imposing performance degradation or scaling limitations. Data is encrypted both at rest and in transit with AES-256.

Data backups and replication are performed between the active and passive production environments. The US-based active production environment replicates data to the US-based passive environment. Likewise, The EU-based active production environment replicates data to the EU-based passive environment.

Also refer to section 3.1 Disaster Recovery.

1.6.2 Data Archiving

Data is archived throughout the year. Eligible transactional and reporting data are moved from the active database to an archive database after 24 months. Archived data can be accessed only by customer users with a user role of Administrator. Archive data is accessed using the same login screen and user interface that is used to access current data. Reports can also be generated using archive data from the standard interface.

The criteria for archiving data are as follows:

- Data remains in the active database for 24 months, at which point eligible data is moved to the archive database.
- Data remains in the active report database for 24 months, at which point eligible data is moved to the archive report database.
- Archiving begins with the worker. When a worker's end date is more than 24 months old, the worker and all associated data including the worker's work orders, job seeker record, job posting, time sheets, expense sheets, and payment-related items such as invoices are archived.
- The archive process is run as a batch job on a weekly basis to move data from the active databases to the archive databases.
- Data cannot be moved back from the archive database to the active database.

SAP Fieldglass does not delete data from its archive databases and has data older than 7 years. In the future, if SAP Fieldglass decides to delete archived data, we will ensure that a minimum 7 years of data is retained.

1.6.3 Data Deletion

Data deletion occurs only when required by a customer. SAP Fieldglass' data deletion capabilities allow customers to remain compliant with data privacy, data protection, and other related data directives.

- Deletion logic is based solely on a customer's business requirements. A custom script is developed by SAP Fieldglass.
- Results are verified in a non-production environment by both SAP Fieldglass and the customer prior to executing in production.
- A "Preservation" flag is available for use. Customers can set this flag on any data to override logic that would otherwise delete the data. This is useful during times when litigation or eDiscovery efforts are in progress and certain data must be preserved.
- Script execution frequency is determined by the customer.

SAP Fieldglass is contractually obligated to retain at least 7 years of data for customers.

1.6.4 Data Usage

Customer data is required in non-production environments for various reasons:

- Second level help desk support for customer defect investigation and resolution.
- Supporting customer requests for updating data, whether it be for desired changes or corrections for data modified by the customer in error.
- Customer sandboxes – these are non-production environments configured only with the customer's data (customer's data is "sliced" out from the multi-tenancy production database). These sandboxes are required for many

reasons, including testing of new or changed integration connectors, reports, and/or application configuration changes such as revised approval workflows. New application features can also be turned on and reviewed in the sandbox before turning on in the live production instance.

- Any data deletion scripts that are developed between the customer and SAP Fieldglass must be tested in a non-production environment prior to executing in production.
- Customer Preview testing – this is an opportunity for customers to gain early access to a future upgrade of the SAP Fieldglass application. This allows customers to gain confidence that the system is working as expected prior to the release date. Customer participation is optional.
- SAP Fieldglass regression testing – the SAP Fieldglass application is offered in a Software as a Service (SaaS) model. One of the services we provide is testing of the application prior to each production release. To ensure a customer's configuration, integrations, and reports are working as expected with the new codebase, SAP Fieldglass Quality Assurance uses a scrubbed production copy of the database in our regression testing. Regression testing is where we execute test cases against the current production codebase and the future codebase using a common data input. Output files from each test are compared to ensure any changes are expected.

Customers may opt out of this process. However, all responsibility in ensuring the customer's SAP Fieldglass instance is properly working and maintained is transferred to the customer.

To date, all SAP Fieldglass customers have declined to assume this responsibility.

1.6.5 Data Scrubbing

In order to properly service our customers, access to production data is required. All customer data is classified as Confidential. SAP Fieldglass takes every possible precaution to ensure data is protected from unauthorized access and misuse.

Data is protected in the following ways:

- First names and last names of buyers, suppliers, and workers are anonymized by replacing with a test value.
- Email addresses of buyers, suppliers, and workers are changed to a single false email address such as gatest8@SAP-Fieldglass.com which is configured to automatically purge all email sent to it.
- Buyer and supplier company names are anonymized.
- Any custom fields created by the customer remain unchanged. Custom fields that contain sensitive data are encrypted with AES-256 and optionally display masked when entering and displaying values in the user interface. There is no way to decrypt these values since the decryption keys between production and test are different. Keys are stored in the corporate password vault and

access is limited to only select senior members of the technology team. This access list is reviewed quarterly by the internal audit team and by a third party in our annual SSAE 16 / ISAE 3402 Type 2 SOC1 and SOC2 audits.

The data scrubbing process is:

- A backup of the data is taken at the location where the source database resides
- Data is filtered where only the most recent 3 months of data remain
- Data is scrubbed as described above
- Data is then securely transferred from the production system to the test system

Once scrubbed, all personally identifiable information (PII) has been removed and any sensitive custom field data cannot be read.

Our test systems reside in secure third party data centers with the same controls as our production data centers.

1.6.6 Data Access

Direct access to production data is required in specific cases. Access is provided based on business need and not by role alone. Access reviews are conducted monthly and reviews are subject to recurring quarterly reviews by the SAP Fieldglass internal audit team. Executive review and sign off is performed for all quarterly reviews.

Access is required for the following purposes:

- Professional Services Data Services team – this team receives a customer's master and/or worker data and executes data uploads into test and/or production environments. Once the data are successfully uploaded and customer has signed off on the accuracy and completeness of the upload, the data are destroyed.
- First level help desk – when customers call our help desk, the caller may require the help desk agent to view data or log in as the caller in order to help them with their problem. This is only performed when authorized by the caller.

SAP Fieldglass has help desk locations in the following regions:

United States

SAP Fieldglass
111 N. Canal Street
Suite 600
Chicago, IL 60606

Europe and APAC

Merlin-IT Hungary Information
Technology Services
Kft. Vagohid u. 2., 4034
Debrecen, Hungary

Merlin Information Systems Philippines Inc.
6th Floor C
ommerce and Industry Plaza Building,
McKinley Hill Cyberpark,
Taguig City, Philippines

The SAP Fieldglass Security team conducted an onsite security audit in 2014 at Merlin Hungary. Contractually, Merlin must meet SAP Fieldglass' security requirements. The following security controls are in place:

- Help desk agents are not able to cut/paste using their secured workstation.
- External media including any USB drive is disabled.
- Printing is not supported.
- Help desk agents have been background checked by Merlin using SAP Fieldglass' background check requirements (see section 1.4.7 Background Checks).

1.6.7 Data Loss Prevention

Our DLP solution has been installed and configured for use on devices subject to exposure to sensitive information. It has been implemented to guard data at its endpoints and to ensure leakage of information classified as Confidential does not occur. Policies can be pushed from the central management console or pulled from an individual endpoint client. Client installs are configured to update (pull) policy changes every 90 minutes.

Our enterprise SIEM tool is configured to pull data in real time from the DLP database. Dashboards are created to allow quick overviews of agent statuses/details, alert details, and logging details.

The SIEM is configured to notify the Security Team in real time when an alert is detected. The Analyst then logs into the SIEM and investigates the alert to determine whether it's legitimate or a false positive.

1.6.8 Customer Termination

If a customer were to terminate their contract with SAP Fieldglass, the customer's data could be sliced out of the production database and delivered to the customer on a media of their choice. The size of the data will determine what media is appropriate.

2 Release Management

2.1 Release Management Process

The SAP Fieldglass Release Management team is responsible for the management of all deliverables required in upgrading the production SAP Fieldglass system. This team is comprised of key members from the Development, Quality Assurance, Product Management, Professional Services, and executive teams. SAP Fieldglass customers benefit from our release management in that the release deployment schedule repeats itself year over year; releases are deployed over the same weekends of predetermined months.

SAP Fieldglass has several different release types:

Major Releases

In the US, Major releases occur on the second Fridays in March, July, and November. In the EU, Major releases occur on the third Fridays in March, July, and November

These releases can include new product features, new or changed functionality, user experience enhancements, and changes to the user interface. These are our most formal releases and the only type of release that requires an extended maintenance window. The Release Manager and the Release Management team closely monitor all phases of the Software Development Lifecycle and analyze PKIs at each phase transition. Release notes are provided as well as an opportunity for customers to optionally participate in a customer preview opportunity. This is where users can log into a non-production environment that is running the future codebase. The benefit of participating is that customers can gain confidence the system is behaving as expected prior to the official release date.

Minor Releases

Minor releases occur on the second Fridays in January, May and September.

These releases do not require the formalities of major releases. This type of release is used when deploying customer-specific product features and integrations to production. These releases are deployed to both US and EU customers at the same time.

Service Packs

Service packs are deployed as required to resolve product defects. These releases are deployed to both US and EU customers at the same time.

All releases are deployed to production by a central deployment team located in the US. During the deployment process, the codebase is replaced with the new codebase and data transformation scripts are executed. During this process, customer data is not viewed or accessed. Upon completion of the deploy, the Quality Assurance team executes a post-deploy verification checklist to ensure the system is ready for general availability. One such verification is verifying an MD5 hash to ensure the certified codebase was installed in production without modification. Test companies are used in conducting all testing.

3 Disaster Recovery and Business Continuity Plan

3.1 Disaster Recovery

SAP Fieldglass maintains a disaster recovery plan with backup, hardware repair, and data restoration, along with the ability to bring up the SAP Fieldglass application at a hot backup site in the event of a declared disaster (as described in the SAP Fieldglass disaster recovery plan) where the primary site is destroyed or disabled. This plan is tested on a yearly basis. Lessons learned are recorded in the test results and the plan is adjusted and improved accordingly.

SAP Fieldglass has the concept of active and passive production hosting facilities. The active environment is the live production hosted facility that all SAP Fieldglass users are actively using. The passive environment is a hot production hosting environment. Our data replication solution ensures that the passive environment is ready at anytime to be failed over to. In a disaster scenario, SAP Fieldglass changes the DNS to the passive hosting center's set of IPs. Users are then seamlessly routed to the other datacenter. There is not multi-day data migration that has to occur due to the ongoing data replication that is in place.

SAP Fieldglass proactively conducted a datacenter failover from the active datacenter to the passive datacenter in April 2015. The entire failover process was conducted in just over 8 hours with zero data loss. SAP Fieldglass plans to repeat this proactive datacenter failover between 1 and 3 times per year.

Also refer to section 1.6.1 Data Backups and Replication.

3.2 Business Continuity

The primary objective of our business continuity plan (BCP) is to enable SAP Fieldglass to recover all functions within their respective Recovery Time Objectives (RTOs) after any type of disruption occurs which prevents SAP Fieldglass personnel from engaging in ongoing business operations. A Recovery Point Objective (RPOs) has also been defined to identify our tolerance for any data loss. This Plan is designed to support the employees responsible for leading recovery efforts to enable SAP Fieldglass to resume daily operations following a disruption.

A business impact analysis (BIA) has been developed to fully quantify and prioritize restoration of mission-critical processes.



Privacy Policies and Procedures

Revision History

Virtru's Privacy Policies and Procedures were adopted as of **[Date]**.

Name

Virtru's Privacy Policies and Procedures were revised as of **[Date]**.

Name

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I. Company

Virtru may be referred to as “**Company**.”

A. Document Control

A staff copy of this document is available with the **Virtru** Privacy Officer, Will Ackerly, willackerly@virtru.com or (202) 577-3683.

B. Security Document Library

These policies and procedures and related privacy and security practice information will be kept in our Security Documentation Library (SDL). The Library is located in [Google Drive](#) and backed up to a local NAS.

Outdated and superseded materials from the Security Documentation Library (or Notebook) will be kept in an archive (the Security Documentation Archive) for at six (6) years after the date when they are first outdated or superseded.

II. Management and Protection of Personally-Identifiable Information

A. Overview

The Privacy Rules place certain restrictions on the acquisition, use and disclosure of Personally-Identifiable Information (PII). These policies establish the minimum care with which PII in the custody of **Virtru** personnel must be maintained.

B. Purpose

The purpose of this document is to provide basic instruction to all **Virtru** employees regarding the management and protection of Personally-Identifiable Information.

C. Applicability

This policy applies to all **Virtru** employees, which are defined for the purposes of this document to be employees of all current and future subsidiaries of **Virtru**.

D. Definitions

Covered Entity means a health plan, a health care clearinghouse, or a health care provider that transmits any health information in electronic form relating to any covered transaction.

Personally-Identifiable Information (PII) means any information about an individual maintained by **Virtru**, including:

1. Any information that can be used to distinguish or trace an individual's identity, such as name, social security number, date and place of birth, mother's maiden name, or biometric records; and

2. Any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information

Treatment, Payment and Health Care Operations (TPO) include all the following:

1. *Treatment* means the provision, coordination, or management of health care and related services, consultation between providers relating to an individual, or referral of an individual to another provider for health care.
2. *Payment* means activities undertaken to obtain or provide reimbursement for health care, including determinations of eligibility or coverage, billing, collections activities, medical necessity determinations and utilization review.
3. *Health Care Operations* includes functions such as quality assessment and improvement activities, reviewing competence or qualifications of healthcare professionals, conducting or arranging for medical review, legal services and auditing functions, business planning and development, and general business and administrative activities including the creation of de-identified health information as defined by these regulations.

Disclosure means the release, transfer, provision of access to, or divulging in any other manner of information outside the entity holding the information.

Use means, with respect to individually identifiable health information, the sharing, employment, application, utilization, examination, or analysis of such information within an entity that maintains such information.

Personal Representative means a person who has authority under applicable law to make decisions related to health care on behalf of an adult or an emancipated minor, or the parent, guardian, or other person who is authorized under law to make health care decisions on behalf of an un-emancipated minor.

Employees means all employees of **Virtru** as well as its temporary employees, interns, independent contractors, trainees, and other persons in the performance of work for the **Company**, its offices, programs or facilities.

Privacy Rules means the rules adopted by various state and federal agencies to implement the requirements of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and regulations promulgated under this Act as well as those obligations that arise under the privacy and security standards adopted by the Health Insurance Marketplaces, pursuant to 45 C.F.R. §155.260.

E. Policy

For details on specific requirements, refer to the appropriate policies in this manual as indicated in *[brackets]*.

1. Generally: Personally-Identifiable Information shall not be obtained, used or disclosed except as permitted or required by law.
2. Permitted and Required Uses and Disclosures: Personally-Identifiable Information may or shall be disclosed as follows:
 - a) To the individual
 - b) To carry out TPO activities as allowed under HIPAA and/or pursuant to and in compliance with a current and valid Authorization [\[Receipt, Use and Disclosure of Personally-Identifiable Information\]](#).
 - c) In keeping with a Business Associate Agreement [\[Business Associate Agreement\]](#).
 - d) As otherwise allowed or required under the HIPAA Rules or other federal and/or state laws concerning privacy of information that is used by **Virtru** in the course of its business operations.
3. Minimum Necessary: Generally, when obtaining, using or disclosing Personally-Identifiable Information, or when requesting PII from another entity, reasonable efforts must be made to limit the PII used or disclosed to the minimum necessary to accomplish the intended purpose. However, the Privacy rules were not intended to severely complicate business processes and **Virtru** may, where appropriate, use a single format to provide data containing PII for our various services [\[Minimum Necessary Standard\]](#).
4. De-identified Personally-Identifiable Information: PII may be considered not to be individually identifiable in the following circumstances:
 - a) The following identifiers of the individual (and relatives, employers or household members) are removed. (This is the “Safe Harbor” method that **Virtru** will generally use.)
 - Names
 - Information relating to the individual's geographic subdivision if it contains fewer than 20,000 people
 - Elements of dates (except year) directly related to the individual
 - All ages and elements of dates that indicate age for individuals over 89, unless aggregated into a single category of age 90 and older
 - Telephone numbers
 - Fax numbers

- Email addresses
- Social Security Numbers
- Medical record numbers
- Health plan beneficiary numbers
- Account numbers
- Certificate or license numbers
- Vehicle identifiers and serial numbers, including license plate numbers
- Device identifiers and serial numbers
- Web Universal Resource Locators (URLs)
- Internet Protocol (IP) address numbers
- Biometric identifiers; full face photographic images
- Any other unique identifying number, characteristic or code.

b) As allowed in the Privacy Rules, **Virtru** shall provide a number of longitudinal identifiers in the de-identified data. These identifiers shall not allow identification of the individual who is the subject of this data in that:

- 1) These identifiers will be encrypted using industry level encryption techniques
- 2) The method of encryption shall not be divulged to the receiver of the de-identified data

5. Complaint Process: **Virtru** has put into place a process for individuals to make complaints about our Privacy Policies and Procedures and/or our compliance with those Policies and Procedures.

6. Documentation: **Virtru** must maintain written or electronic copies of all policies and procedures, communications, actions, activities or designations as are required to be documented under this manual for a period of six (6) years from the later of the date of creation or the last effective date.

F. Enforcement

An employee found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access or use or disclosure of Personally-Identifiable Information was or may have been involved, such individuals may additionally be reported to the appropriate enforcement agencies.

[\[Sanction Policy\]](#)

III. Administrative Requirements for HIPAA Implementation

A. Overview

The Privacy Rules require that a Business Associate have in place appropriate administrative safeguards to protect the privacy of Personally-Identifiable Information.

B. Purpose

To provide instructions regarding **Virtru**'s obligations relating to the implementation of administrative requirements of the Privacy Rules.

C. Applicability

This policy applies to all **Virtru** employees, which is defined for the purposes of this document to be employees of all current and future subsidiaries of **Virtru**.

D. Policy

1. Personnel Designations: **Virtru** has designated and documented designations of the following:
 - a. Will Ackerly has been designated as the Privacy Officer.
 - 1) He is responsible for the development and implementation of corporate-wide policies and procedures relating to the safeguarding of Personally-Identifiable Information.
 - 2) He will also be responsible for receiving complaints relating to Personally-Identifiable Information and for providing information about the **Company's** privacy practices.
 - b. Persons with access to Personally-Identifiable Information are listed by title and department including a listing of individuals' names on the Risk Assessment; and will be updated if **Virtru** makes any major changes to processes, staff, programming or company location; or at a minimum annually. **Virtru** will retain the previous listing for a period of not less than six (6) years.
2. Training Requirements: **Virtru** shall document the following training actions: All **Virtru** employees shall receive training on applicable policies and procedures relating to Personally-Identifiable Information as necessary and appropriate for such persons to carry out their functions within the **Company**.
 - a. Each new employee shall receive the training as described above within 30 days after joining **Virtru**.

- b. Each employee whose functions are impacted by a material change in the policies and procedures relating to Personally-Identifiable Information, or by a change in position or job description, shall receive the training as described above within 30 days after the change becomes effective.
- c. Complaints handled by Committee...

3. Safeguards: **Virtru** shall have in place appropriate Administrative, Technical, and Physical Safeguards to reasonably safeguard Personally-Identifiable Information from intentional or unintentional unauthorized receipt, use or disclosure.

4. Complaint process: **Virtru** shall have in place a process for individuals to make complaints about the **Company's** HIPAA Policies and Procedures and/or **Virtru's** compliance with those Policies and Procedures, and shall document all complaints received and the disposition of each complaint. (See [Complaint Process](#))

5. Sanctions: Our Privacy Policies call for our workforce that has access to Personally-Identifiable Information to perform certain duties and to refrain from certain actions. Failure to do so will be sanctioned according to the policy below.

These sanctions apply to the designated workforce members including managers, supervisors, and staff who have access to Personally-Identifiable Information. It is intended as guidance for our business management in sanctioning information security policy infractions. We reserve the right to implement sanctions differently if, in our judgment, the situation warrants it.

We define a serious infraction as one that results in known significant damage or that threatens imminent significant damage. Other infractions are simple infractions.

First security infraction

If the infraction is:

- a. A simple infraction, and
- b. The first infraction in the last 3 years

The sanction will be retraining the workforce member on the appropriate policy/procedure and placement of a written letter of reprimand in the employee file. The letter will notify the person of the nature of this infraction and of sanctions for future potential infractions.

Second security infraction or first serious infraction

If the infraction is:

- a. A serious infraction, or

- b. The second infraction of either type within 3 years

The sanction will include a written letter of reprimand that is given to the person at fault, placement of a copy of the letter in the employee file, and one week's suspension without pay. The letter will notify the person of the nature of this infraction and of sanctions for future potential infractions.

Third security infraction or second serious infraction

If the infraction is:

- a. A second serious infraction within 3 years, or
- b. A third infraction of any type within 3 years.

The sanction will be dismissal from the workforce.

Virtru makes exceptions for disclosures made by employees who qualify as whistleblowers or certain crime victims.

6. Mitigation efforts required: **Virtru**, to the extent practicable, shall mitigate any harmful effects of unauthorized uses or disclosures of Personally-Identifiable Information by the **Company** or any of its Business Associate Subcontractors.

7. Prohibition on intimidating or retaliatory acts: Neither **Virtru** nor any employee shall intimidate, threaten, coerce, discriminate against, or take other retaliatory action against any individual for the exercise of their rights or participation in any process relating to HIPAA compliance, or against any person for filing a complaint with the Secretary of the U.S. Department of Health and Human Services, participating in an investigation, compliance review, proceeding or hearing, or engaging in reasonable opposition to any act or practice that the person in good faith believes to be unlawful under the Privacy Rules as long as the action does not involve disclosure of Personally-Identifiable Information in violation of the regulations.

Virtru shall document the following actions relating to its policies and procedures:

- a. Required policies and procedures: **Virtru** shall implement policies and procedures to assure appropriate safeguarding of Personally-Identifiable Information in its operations.
- b. Changes to policies and procedures: **Virtru** shall change its policies and procedures as necessary and appropriate to conform to changes in law or regulation. **Virtru** may also make changes to policies and procedures at other times as long as the policies and procedures are still in compliance with applicable law. Where necessary, **Virtru** shall make correlative changes in its Privacy Notice.

E. Documentation Requirements

Virtru must maintain the required policies and procedures in written or electronic form, and must maintain written or electronic copies of all communications, actions, activities or designations as are required to be documented hereunder, or otherwise under the Privacy Rules, for a period of six (6) years from the later of the date of creation or the last effective date.

F. Enforcement

Any employee found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access, use or disclosure of Personally-Identifiable Information was or may have been involved, such individuals may additionally be reported to the appropriate enforcement agencies.

IV. Minimum Necessary Standard

A. Overview

The Privacy Rules place certain restrictions on the receipt, use and disclosure of Personally-Identifiable Information in regards to the amount reasonably necessary to accomplish the task being performed. However, the Privacy Rules also allow Personally-Identifiable Information to be disclosed for business appropriate needs.

The policies developed by **Virtru** will follow this business appropriate philosophy as well as that of administrative simplification, which is the subsection of the HIPAA law under which the Privacy Rule was developed. **Virtru** shall use standard data formats for information acquisition or disclosure and tailor these formats to contain a business reasonable minimum necessary amount of Personally-Identifiable Information. The **Company's** policies establish the minimum necessary use provisions for Personally-Identifiable Information in the custody of **Virtru** employees.

B. Purpose

To issue instructions regarding **Virtru's** obligations relating to the Privacy Rules to obtain, use and disclose only the minimum amount of Personally-Identifiable Information (PHI) necessary to accomplish the intended purpose.

C. Applicability

This policy applies to all **Virtru** employees, which is defined for the purposes of this document to be employees of all current and future subsidiaries of the **Company**.

D. Policy

Virtru will make reasonable efforts to ensure that the Minimum Necessary amount of Personally-Identifiable Information is disclosed, used, or requested to accomplish the intended purpose. Exceptions to the Minimum Necessary Standard include disclosures:

1. To the individual who is the subject of the information;

2. Made pursuant to an authorization provided by the individual;
3. To healthcare providers for treatment purposes;
4. Required for compliance with the standardized HIPAA transactions;
5. Made to the Secretary of HHS or his agent pursuant to a privacy investigation;
6. Otherwise required by the Privacy Rules or other law.

Employees shall be trained on the policies and procedures developed to apply these principles to the use or disclosure of, or requests for Personally-Identifiable Information.

E. Procedures

The following procedures will be implemented to ensure that this policy is enforced effectively across all parts of **Virtru**.

1. Each user of a system which accesses Personally-Identifiable Information shall be identified and the classes or types of PII to which access is needed and any conditions appropriate to such access will be established. It will be the responsibility of the Privacy Officer to maintain this information using the *Employee Access Request Form* [**Forms for Employees**] and *System Access Log* [**Change Control Logs for Security**].
2. Reasonable efforts will be taken to limit the access of each user of Personally-Identifiable Information to the amount needed to carry out the individual's duties. These efforts will include internal use of PII.
3. For situations where Personally-Identifiable Information disclosure occurs on a routine and recurring basis, the PII disclosed will be limited to the amount of information reasonably necessary to achieve the purpose of the disclosure.
4. Requests for disclosures that are not routine and recurring and thereby covered by **Virtru** standard procedures (other than to the individual, the Secretary of HHS or his agent, or where required by law) shall be reviewed by the Privacy Officer to determine that the Minimum Necessary Standard is applied to the extent reasonable.
5. Questions regarding these procedures should be directed to the **Virtru** Privacy Officer, Will Ackerly, willackerly@virtru.com, or (202) 577-3683.

F. Enforcement

An employee found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access or use or disclosure of Personally-Identifiable Information was or may have been involved, such individuals may additionally be reported to the appropriate enforcement agencies.

V. Business Associate Agreements

A. Overview

The Privacy Rules impose certain requirements on Business Associates who create, receive, use or disclose Personally-Identifiable Information on behalf of their Covered Entity partners. **Virtru** must comply with the requirements in this section.

B. Purpose

To provide instructions to all **Virtru** employees regarding the necessity of and the requirements for Business Associate Agreements relating to Covered Entities.

C. Applicability

This policy applies to all **Virtru** employees, which is defined for the purposes of this document to be employees of all current and future subsidiaries of **Virtru**.

D. Policy

1. Generally: A Covered Entity may disclose Personally-Identifiable Information to **Virtru**, or allow **Virtru** to create or receive PII on the Covered Entity's behalf. **Virtru** will appropriately safeguard the PII obtained from the Covered Entity. **Virtru** will document these assurances through a written agreement.
2. Content Requirements: The agreement between the Covered Entity and **Virtru** must meet the following requirements, as applicable:
 - a. Establish permitted and required uses or disclosures of Personally-Identifiable Information that are consistent with those authorized for the Covered Entity, except that the agreement may permit **Virtru** to use or disclose Personally-Identifiable Information for its own management and administration if such use or disclosure is required by law, or **Virtru** provides reasonable assurance to the Covered Entity to which the Personally-Identifiable Information is disclosed that the confidentiality of the PII will be maintained.
 - b. Provide that **Virtru** will:
 1. Not use or disclose the Personally-Identifiable Information except as authorized under the agreement or required by law.
 2. Use safeguards to prevent unauthorized use or disclosure.
 3. Report unauthorized uses or disclosures to the Covered Entity.

4. Pass on the same obligations relating to protection of Personally-Identifiable Information to any subcontractors.
 5. Make Personally-Identifiable Information available for access by the Covered Entity in accordance with relevant law and policy.
 6. Make Personally-Identifiable Information available to the Covered Entity for amendment, and incorporate any approved amendments to Personally-Identifiable Information, in accordance with relevant law and policy.
 7. Make information available for the provision of an accounting of uses and disclosures in accordance with relevant law and policy.
 8. Make its internal practices, books and records relating to its receipt or creation of Personally-Identifiable Information available to the Secretary of HHS for purposes of determining **Virtru's** compliance with Privacy Rules.
 9. Authorize termination of the agreement by the Covered Entity upon a material breach by **Virtru**.
3. Compliance Responsibilities: Virtru agrees to report any use or disclosure of Personally-Identifiable Information not permitted by this agreement and any successful security incident to Covered Entity within a commercially reasonable period, but in no event later than within thirty (30) business days, after it is discovered.

E. Enforcement

An employee found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access or use of Personally-Identifiable Information was or may have been involved, these individuals may additionally be reported to the appropriate law enforcement agencies.

VI. Business Associate Subcontractor Agreements

A. Overview

The Privacy Rules impose certain requirements on Business Associate Subcontractors who create, receive, use or disclose Personally-Identifiable Information on behalf of **Virtru**. All Business Associate Subcontractors of **Virtru** must comply with the requirements in this section.

B. Purpose

To provide instructions to all **Virtru** employees regarding the necessity of and the requirements for Business Associate Subcontractor Agreements relating to Business Associate Subcontractors who receive, use or disclosure Personally-Identifiable Information on behalf of **Virtru**.

C. Applicability

This policy applies to all **Virtru** employees and Business Associate Subcontractors, which are defined for the purposes of this document to be employees of all current and future subsidiaries of **Virtru** and the Business Associate Subcontractor.

D. Policy

1. Generally: **Virtru** may disclose Personally-Identifiable Information to a Business Associate Subcontractor, or allow a Business Associate Subcontractor to create or receive PII on **Virtru**'s behalf, if adequate assurances are obtained by **Virtru** that the Business Associate Subcontractor will appropriately safeguard the PII. **Virtru** must document these assurances through a written agreement. This requirement does not apply with respect to:
 - a. Disclosures made to a provider concerning the individual's treatment, payment or health care operations; or
 - b. Uses or disclosures made to a governmental agency for purposes of public benefit eligibility or enrollment determinations where such company is authorized by law to make these determinations.
2. Content Requirements: The agreement between **Virtru** and a Business Associate Subcontractor must meet the following requirements, as applicable:
 - a. Establish permitted and required uses or disclosures of Personally-Identifiable Information that are consistent with those authorized for the entity, except that the agreement may permit the Business Associate Subcontractor to use or disclose Personally-Identifiable Information for its own management and administration if such use, or disclosure is required by law, or the Business Associate Subcontractor obtains reasonable assurance from the entity to which the Personally-Identifiable Information is disclosed that the confidentiality of the PII will be maintained.
 - b. Provide that the Business Associate Subcontractor will:
 - 1) Not use or disclose the Personally-Identifiable Information except as authorized under the agreement or required by law.
 - 2) Use safeguards to prevent unauthorized use or disclosure.
 - 3) Report unauthorized uses or disclosures to **Virtru**.
 - 4) Pass on the same obligations relating to protection of Personally-Identifiable Information to any subcontractors or agents.
 - 5) Make Personally-Identifiable Information available for access by **Virtru**, in accordance with relevant law and policy.

- 6) Make Personally-Identifiable Information available to **Virtru** for amendment, and incorporate any approved amendments to PII, in accordance with relevant law and policy.
- 7) Make information available to **Virtru** for the provision of an accounting of uses and disclosures in accordance with relevant law and policy.
- 8) Make its internal practices, books and records relating to its receipt or creation of Personally-Identifiable Information available to the Secretary of HHS for purposes of determining the Business Associate Subcontractor's compliance with Privacy Rules.
- 9) If feasible, return or destroy all Personally-Identifiable Information upon termination of contract; if any PII is retained, continue to extend the full protections specified herein as long as the PII is maintained.
- 10) Authorize termination of the agreement by the entity upon a material breach by the Business Associate Subcontractor.

3. Compliance Responsibilities: If **Virtru** knows of a pattern or practice of the Business Associate Subcontractor that amounts to a material violation of the Agreement, **Virtru** and the Business Associate Subcontractor must attempt to cure the breach to end the violation, and if unsuccessful, terminate the agreement. If terminating the Agreement is not feasible, **Virtru** must report the problem to the Secretary of HHS.

E. Enforcement

An employee of **Virtru** or an employee of the Business Associate Subcontractor found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access or use of Personally-Identifiable Information was or may have been involved, these individuals may additionally be reported to the appropriate law enforcement agencies.

VII. Receipt, Use and Disclosure of Personally-Identifiable Information

A. Overview

The Privacy Rules impose certain requirements on Covered Entities and Business Associates who create, receive, use or disclose Personally-Identifiable Information on behalf of their Covered Entity partners.

B. Purpose

To provide instructions to all **Virtru** employees regarding the receipt, uses and disclosures of Personally-Identifiable Information, which are permitted or required by HIPAA.

C. Applicability

This policy applies to all **Virtru** employees, which is defined for the purposes of this document to be employees of all current and future subsidiaries of the **Company**.

D. Special Definition

Public Health Authority means a governmental company or authority, or a person or entity acting under a grant of authority from or a contract with such a public company, including the employees or agents of the public company, its contractors and those to whom it has granted authority, that is responsible for public health matters as part of its official mandate.

E. Policy

State and federal law permit and require certain receipt, uses and disclosures of Personally-Identifiable Information such as those related to Business Associate Agreements. Additional uses and/or disclosures are allowed or required that related to public responsibility that require no agreement or authorization on the part of the individual who is the subject of the PII. It is the policy of **Virtru** to obtain, use and disclose PII only as permitted and/or required by law or regulation including the following situations:

1. Treatment, Payment or Healthcare Operations: Personally-Identifiable Information may be used or disclosed for the purposes of providing treatment, payment or healthcare operations. Such disclosures will be made only as allowed by and pursuant to prevailing state and federal law.
 - a. Discussions involving Personally-Identifiable Information shall be conducted only in appropriate business areas including but not limited to offices, conference rooms and other non-public areas;
 - b. Conducted only for the purpose of fulfilling a legitimate business need; and
 - c. Conducted with regard to and in compliance with the “Minimum Necessary Standard.” [*\[Minimum Necessary Standard\]*](#)
2. Contained in a Business Associate Agreement: For permitted and required uses or disclosures of Personally-Identifiable Information that are consistent with those authorized by the Covered Entity in a Business Associate Agreement.
3. Required by Law: Personally-Identifiable Information may be used or disclosed to the extent such use or disclosure complies with and is limited to the requirements of such law.
4. Abuse and Neglect: Except for reports of child abuse or neglect, Personally-Identifiable Information about an individual believed to be a victim of abuse, neglect, or domestic violence may be disclosed to a governmental authority authorized to receive such reports if the individual agrees or the reporting entity believes, in the exercise of professional judgment, that the disclosure is necessary to prevent serious physical harm. If the individual lacks the capacity to agree, disclosure may be made if not intended for use against the individual and delaying disclosure would materially hinder law

enforcement activity. The individual whose Personally-Identifiable Information has been released must be promptly informed that the report was made unless doing so would place the individual at risk of serious harm.

5. Judicial Proceedings: Personally-Identifiable Information may be disclosed in response to a court order.
6. Law Enforcement: Personally-Identifiable Information may be disclosed for the following law enforcement purposes and under the specified conditions:
 - a. Pursuant to court order or as otherwise required by law, i.e. laws requiring the reporting of certain types of wounds or injuries
 - b. Decedent's Personally-Identifiable Information may be disclosed to alert law enforcement to the death if entity suspects that death resulted from criminal conduct
7. Serious Threats to Health or Safety: Consistent with applicable law and ethical standards, Personally-Identifiable Information may be used or disclosed if the entity believes in good faith that the use or disclosure is necessary to prevent or lessen a serious and imminent threat to a person or the public, and disclosure is to someone reasonably able to prevent or lessen the threat, or the disclosure is to law enforcement authorities to identify or apprehend an individual who has admitted to violent criminal activity that likely caused serious harm to the victim or who appears to have escaped from lawful custody. Disclosures of admitted participation in a violent crime are limited to the individual's statement of participation and are not permitted when the information is learned in the course of treatment to affect the propensity to commit the subject crime, or through counseling, or therapy or a request to initiate the same.
8. Specialized Government Functions: National Security and Intelligence: Personally-Identifiable Information may be disclosed to authorized federal officials for the conduct of lawful intelligence, counter-intelligence, and other activities authorized by the National Security Act.(45 CFR 164.512(k)(2))
9. Protective Services: Personally-Identifiable Information may be disclosed to authorized federal officials for the provision of protective services to the President, foreign heads of state, and others designated by law, and for the conduct of criminal investigations of threats against such persons. (45 CFR 164.512(k)(3));
10. Public Benefits: Personally-Identifiable Information relevant to administration of a government program providing public benefits may be disclosed to another governmental program providing public benefits serving the same or similar populations as necessary to coordinate program functions or improve administration and management of program functions.

11. Workers' Compensation: Personally-Identifiable Information may be disclosed as authorized and to the extent necessary to comply with laws relating to workers' compensation and other similar programs.

F. Procedures

The following procedures will be implemented to ensure that this policy is enforced effectively across all parts of **Virtru**.

Any request for disclosure of Personally-Identifiable Information, 1) pursuant to a court order, warrant or subpoena; 2) by a law enforcement agent; 3) by a public health authority; or 4) by a national security, intelligence or other federal company, must be directed to the Privacy Officer and the CEO for review and action. Any such request will include an acknowledgement of receipt to insure that the document was actually received by the appropriate corporate individual and will retain a copy of the request. If the acknowledgement is not received within two working days of submitting to the appropriate corporate individual, then the request will be resubmitted to the Privacy Officer and CEO.

G. Enforcement

An employee found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access, use or disclosure of Personally-Identifiable Information was or may have been involved, such individuals may additionally be reported to the appropriate enforcement agencies.

VIII. Complaint Process

A. Overview

The Privacy Rules require that **Virtru** provide a process for individuals to make complaints concerning the **Company's** policies and procedures required by these regulations and document all complaints received, and the dispositions of these complaints, if any.

B. Purpose

To issue instructions regarding **Virtru** obligations relating to the Privacy Rules to provide a process for individuals to complain about the **Company's** policies and procedures and the requirement to document complaints received and the disposition of these complaints.

C. Applicability

This policy applies to all **Virtru** employees, which is defined for the purposes of this document to be employees of all current and future subsidiaries of **Virtru**.

D. Policy

Virtru shall maintain a process to receive complaints from individuals about **Company** Privacy Policies and Procedures, for complaints from individuals who believe their privacy rights have been violated and from employees or Business Associate Subcontractors who believe that **Virtru** is not abiding by its policies and procedures and/or assurances concerning Personally-Identifiable Information. This process shall include the following:

1. Any complaints or questions should be submitted to the Privacy Officer or his assistant.
2. All service and complaint issues will be stored in the Desk.com app.

Virtru shall work in good faith to resolve complaints received to the satisfaction of the submitter, where possible.

E. Procedures

The following procedures will be implemented to ensure that this policy is enforced effectively across all parts of **Virtru**.

1. Complaints shall be submitted in writing on paper or electronically.
2. Complaints shall be entered into the complaint tracking system either automatically or by the individual designated to provide information on the **Company** complaint process. and when manually entered shall be in the exact words provided by the submitter.
3. The **Virtru** Privacy Officer shall investigate complaints and make a determination as to whether or not the complaint has merit.
4. The **Virtru** Privacy Officer shall present complaints received to **Virtru's** senior executive for immediate action.
5. If the Privacy Officer has completed the investigation of the complaint and made a determination, such determination shall be presented to the **Virtru** Executive Board
6. If the investigation has not been completed nor a provisional determination made by the Privacy Officer, it shall be the prerogative of the senior executive to make a summary determination or to direct the Privacy Officer to continue with the investigation and to report on the complaint at the next scheduled meeting.

If a determination is made that **Virtru** is in violation of the privacy provisions of the Privacy Rules or that changes are needed in the Privacy Policies or Business Associate Agreement to clarify the allowed practices of **Virtru**, the **Virtru** CEO and Privacy Officer shall determine the actions that the **Company** shall take.

Complaint determinations and actions that **Virtru** takes pursuant to such complaints, if any, shall be reported to the submitter of the complaint, if such person is known. Privacy Officer, or his designated agent, shall update the complaint tracking system with the findings of the Privacy Officer's investigation, any determination made, direction or actions of the **Virtru** CEO and Privacy Officer with regard to the complaint, and a copy of any information provided to the submitter in response to their complaint.

F. Enforcement

Any employee found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access, use or disclosure of Personally-Identifiable Information was or may have been involved, such individuals may additionally be reported to the appropriate enforcement agencies.

IX. Fax Policy

A. Overview

The Privacy Rules require that **Virtru** implement appropriate administrative, technical, and physical safeguards to protect the privacy of Personally-Identifiable Information.

B. Purpose

To provide instructions to all **Virtru** employees regarding the use of faxes with respect to Personally-Identifiable Information and the measures necessary to maintain an adequate level of security for such information. This policy defines rules necessary to achieve this level of protection. These standards are designed to minimize the potential exposure to **Virtru** from damages, which may result from unauthorized disclosure of Personally-Identifiable Information through facsimile use.

C. Applicability

This policy applies to all **Virtru** employees, which is defined for the purposes of this document to be employees of all current and future subsidiaries of **Virtru**.

D. Special Definitions

Fax: An electronic facsimile of a document stored as a series of zeroes and ones (binary data) that can be transmitted like normal computer data. When received by a fax machine, the incoming stream is translated into dots creating a representation of the original document.

Inappropriate Disclosure: The intentional or unintentional revealing of Personally-Identifiable Information to people who do not have a need to know such information.

E. Corporate Policies

Employees must exercise utmost caution when sending faxes to parties outside of **Virtru**. Faxes containing Personally-Identifiable Information should only be received on and sent to user or departmental specific fax machines and not to systems that have general access.

In cases where Personally-Identifiable Information is received from outside on a non-departmental specific fax machine, the receiving department shall notify the **Virtru** Privacy Officer of the source of such information. The employee shall communicate the approved fax number to the external entity and record such actions. Should PHI be disclosed by fax to an inappropriate party, **Virtru** shall, to the extent possible, remediate such disclosures.

All fax documents sent by **Virtru** employees shall contain the following statement:

This fax is intended for the individual/individuals or entity/entities named above and may be covered by copyrights, business partner confidentiality agreements, non-disclosures or other legally binding instruments. If you are not the intended recipient, do not read, copy, use or disclose the contents of this communication to others. Immediately notify the sender by reply fax, destroy all hard copies and delete this document from all systems. Thank you!

F. Procedure

In the cases where data that contains Personally-Identifiable Information is disclosed by fax machine use to an inappropriate party, the following procedure shall be followed:

1. The receiving party shall be contacted by telephone at the earliest opportunity and requested to destroy the fax without reading.
2. The name of the company, the person contacted, the date and time shall be recorded as well as any comments made by the person receiving such calls.
3. A fax shall also be sent to the receiving party containing the same instructions as detailed for the phone call requesting a return fax message indicating that the requested action was taken.
4. The cause of the inappropriate disclosure shall be determined and reported to the **Virtru** Privacy Officer.

Methods to prevent a reoccurrence of the inappropriate disclosure shall be formulated and put into place.

Any additional actions prescribed by regulations shall be performed to the extent possible.

G. Enforcement

Any employee found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access, use

or disclosure of Personally-Identifiable Information was or may have been involved, such individuals may additionally be reported to the appropriate enforcement agencies.

X. Scanner Policy

A. Overview

The Privacy Rules require that **Virtru** implement appropriate administrative, technical, and physical safeguards to protect the privacy of Personally-Identifiable Information.

B. Purpose

To provide instructions to all **Virtru** employees regarding the use of scanners with respect to Personally-Identifiable Information and the measures necessary to maintain an adequate level of security for such information. This policy defines rules necessary to achieve this level of protection. These standards are designed to minimize the potential exposure to **Virtru** from damages, which may result from unauthorized disclosure of Personally-Identifiable Information.

C. Applicability

This policy applies to all **Virtru** employees, which is defined for the purposes of this document to be employees of all current and future subsidiaries of **Virtru**.

D. Special Definitions

Scanner: An electronic copy of a document stored as a series of zeroes and ones (binary data) that can be transmitted like normal computer data. When received by a computer, the incoming stream is translated into dots creating a representation of the original document.

Inappropriate Disclosure: The intentional or unintentional revealing of Personally-Identifiable Information to people who do not have a need to know such information.

E. Corporate Policies

Employees must exercise utmost caution when scanning and transmitting these documents to their devices and parties outside of **Virtru**. Scans containing Personally-Identifiable Information should only be received on and sent to user or departmental specific computer in an encrypted format, or sent using **Virtru's** encrypted email application.

F. Procedure

In the case where scanned data that contains Personally-Identifiable Information is disclosed to an inappropriate party, the following procedure shall be followed:

1. The receiving party shall be contacted by telephone at the earliest opportunity and requested to destroy the scan without reading.

2. The name of the company, the person contacted, the date and time shall be recorded as well as any comments made by the person receiving such calls.
3. The cause of the inappropriate disclosure shall be determined and reported to the **Virtru** Privacy Officer.

Methods to prevent a reoccurrence of the inappropriate disclosure shall be formulated and put into place. Any additional actions prescribed by regulations shall be performed to the extent possible.

G. Enforcement

Any employee found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access, use or disclosure of Personally-Identifiable Information was or may have been involved, such individuals may additionally be reported to the appropriate enforcement agencies.

XI. Training Policy

A. Overview

The Privacy Rules require that **Virtru** train their employees on the requirements of our Privacy Policies and Procedures developed to protect the Personally-Identifiable Information to which employees are provided access. The **Company** has determined that all employees of **Virtru** shall be trained on Privacy so that we can provide the necessary assurances for the protection of Personally-Identifiable Information to our clients, vendors and business partners as required under the Privacy Rules.

B. Purpose:

To provide instructions to all **Virtru** employees regarding the requirement for HIPAA training.

C. Applicability

This policy applies to all **Virtru** employees, which is defined for the purposes of this document to be employees of all current and future subsidiaries of **Virtru**.

D. Policy

1. General: It is the policy of the **Company** that all employees of **Virtru** and its current and future subsidiaries be trained on Privacy and the **Company** policies and procedures created to protect Personally-Identifiable Information.
2. Duty Specific Training: Privacy training shall be appropriate to the tasks that each employee performs. In the case where an employee does not come into contact with Personally-Identifiable Information as a normal course of the employee's duties, the employee shall be trained on the corporate policies and procedures.

3. New Employees: New employees shall be trained on the corporate policies and procedures as part of their normal employment process and shall be trained on our Privacy Policies and Procedures, if applicable, within 30 days of being employed by **Virtru**. The Assistant ISO, Jordan Duggan, shall document this training and provide the Privacy Officer with documentation of this training within the 30-day period.
4. Transfers: When an employee transfers from one department to another, the employee shall be trained on our Privacy Policies and Procedures within 30 days of being assigned. Jordan Duggan shall document this training and provide the Privacy Officer with documentation of this training, within the 30-day period.
5. Material Change in Policies and Procedures: when a material change in the policies and procedures occurs, each employee shall receive training on such changes within 30 days of the implementation of the change. Jordan Duggan shall document this training and provide the Privacy Officer with documentation of this training, within the 30-day period.

E. Enforcement

Any employee found to have violated this policy shall be subject to disciplinary action, up to and including termination of employment. In the case where inappropriate access, use or disclosure of Personally-Identifiable Information was or may have been involved, such individuals may additionally be reported to the appropriate enforcement agencies.

Security Policies and Procedures



{After choosing where you will store your Security Documents, delete either the **Library** or {Notebook} option throughout this document.}

Revision History

Virtru's Security Policies and Procedures were adopted as of [Date].

Name

Virtru's Security Policies and Procedures were modified as of [Date].

Name

Virtru's Security Policies and Procedures were modified as of [Date].

Name

Virtru's Security Policies and Procedures were modified as of [Date].

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Security Policies and Procedures

I. Virtru

Virtru may be referred to as “**Company**.”

A. Document control

A staff copy of this document is available with the Information Security Officer (ISO), Will Ackerly, willackerly@virtru.com (202) 577-3683, and Assistant Information Security Officer(AISO), Jordan Duggan, jordan@virtru.com (202) 577-3683.

B. Security Document Library

These policies and procedures and related security practice information will be kept in our **Security Documentation Library** (SDL). The **SDL** is located in [google drive](#) and backup to the Synology NAS.

Documentation about security practices (logs of activities, etc.) will either be kept in this SDL (or Notebook) or in a short file in the SDL that will describe where the security practice documentation resides. The intended result is that anyone with access to the SDL will be able to locate any piece of documentation associated with our security program.

Outdated and superseded materials from the SDL will be kept in an archive (the Security Documentation Archive) for at least seven (7) years after the date when they are first outdated or superseded.

II. Preface and Background Material

A. Overview

It is vital to the reputation and profitability of **Virtru** that our information and our clients' information, in all forms, be protected from unauthorized use, modification, loss, copying, etc. This document sets out the default standards, which must be met to ensure that control.

Our information may exist on paper, in voice systems, on IT systems and networks, in the minds of our people, and in other forms. The information which needs protection includes, but is not limited to:

1. Client information (both for customer companies and for people as individuals)
2. Financial information, including credit cards, salaries, banking, transactions and more
3. Medical information of all types
4. **Company** patents, business plans and other intellectual property

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5. **Company** business records and planning materials, including our customer list, marketing and sales efforts, product line plans and more
6. Copyrighted materials, both which our **Company** creates and those which we obtain under license from others

B. Policy

Compliance with these standards is mandatory. Any deviation from these standards must be approved beforehand by the ISO.

III. Key Concepts

A. Information Security Principles

The protection of information can be described in several key dimensions:

1. Confidentiality
2. Integrity
3. Availability
4. Provability

In this document, the standards given are the **Company** defaults. They must be applied where appropriate, but always balanced against the cost of implementing the control, and the value of the information involved.

B. Definitions

To prevent confusion, these are the definitions used throughout this document.

Policies: Corporate documents which set out **Virtru's** position regarding business processes, behavior of personnel and similar topics. Policies are a high-level statement of **Virtru's** position. Some of **Virtru's** policies, which relate to information security are:

1. Information Security Policy
2. Privacy Policy
3. Acceptable Use Policy for IT Systems Users
4. Employment Policies

Standards: Rules that must be followed to enable an effective information security program. Compliance with the Standards is mandatory, but deviation is possible if approved by the ISO.

Standards define the minimum baseline procedures, practices and configurations for systems, applications, controls, networks and related topics. Standards are designed to provide a single reference point for use during software development and adoption,

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installation of systems and tools, and during the contracts process with vendors and service providers. Standards do not, however, give detailed command-line instructions on how to meet the **Virtru's** policies. Those are given in the guidelines.

Guidelines: Built for each application and platform; to be followed when implementing that particular tool. A Guideline may vary a bit from one implementation to another, as long as the Security Standards are met and justification is given and properly documented.

Combined, these three levels of documents provide a method for **Virtru** to audit itself and ensure proper controls are in place, without excess cost or risk. They also provide a means for **Virtru** to explain to regulators, examiners, external auditors or investors how our **Company** is safe, trustworthy and efficient.

IV. Using These Standards

A. Audience – Who will use this document

This document applies to **Virtru's** employees, business units and any Business Associate Subcontractor supporting **Virtru**:

1. Technology and business process providers should comply with these Standards as a matter of contractual obligation
2. Employees and Business units within Virtru should comply, unless a Risk Assessment has been done and a deviation is approved by the ISO

B. How the document is used

This Standards document is a reference point to ensure a consistent framework of protections is in place. Implementing these standards involves:

1. Review of existing controls, procedures and tools against the Standards
2. Documenting compliance or deviations
3. Gap Analysis to determine where improvements are needed
4. A Risk Assessment to validate that the improvements are justified against the costs of the controls and the value of the information involved
5. Creation of a plan to close the gaps OR signoff of a deviation
6. Documentation of the new controls, procedures and tools

No signoff or approvals are needed if a level of protection higher than what is given in this Standard is determined to be needed for a given information asset.

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C. Maintaining this document

This document must be reviewed at least once a year or anytime there are significant changes in software or security. Updates must be made to keep it in accord with **Virtru's** overall business goals and risk position. The document will be reviewed by the ISO or AISO. Any updates, improvements or suggestions should be sent to the ISO.

V. Roles and Responsibilities

A. Rules for ownership of information

The information and systems provided by **Virtru** to workforce members, contractors and representatives are owned by **Virtru**, which also determines appropriate usage and access rules. All data on **Virtru's** systems and networks is owned by **Virtru**, with the exception of software that the ISO has approved to be open sourced or otherwise transferred to another entity through code escrow or code exchange and/or trade.

In this document, the words 'information owner' refer to the person who owns the responsibility for the information. The information itself remains the property of **Virtru**.

B. Information users

Every user of **Virtru's** information must protect that information and ensure that it is used for **Virtru's** business purposes only. Any incidents or questionable issues in the security of our information must be reported to the ISO or AISO.

Information users may not assign access rights, authorize destruction or copying of information, or change the protections given to information assets. Information users must comply with all laws, regulations and **Virtru's** policies and procedures.

C. Information Security Officer

Virtru's ISO and AISO will:

1. Manage awareness programs relating to security and privacy topics
2. Maintain a [central record of exceptions](#) to this Standards document
3. Manage changes to this Standards document
4. Provide leadership relating to new security risks, controls and technologies
5. Oversee and approve the sharing and reuse of Personal Identifiable Information (PII) collected by or processed by the company

See Appendices for further information and [Information Security Committee](#) for a current listing of members.

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VI. Information Classifications and Requirements

A. Overview

Information is classified by system to ensure that the controls applied to it are sufficient and also to ensure that the controls applied do not impair **Virtru's** business, ability to compete or **Virtru's** image.

All information must have a classification for security and must have requirements set for business continuity.

B. The Security classification process

Each information asset will go through the following classification process. Information assets include, but are not limited to:

1. IT platforms such as servers and workstations
2. IT applications including database transaction processing and email
3. Data sets
4. Paper copies of information
5. Information types typically known to workforce members, such as customer information

In general, an information asset includes both the raw information itself (paper, oral or data entry), the location where it resides, the business processes which handle it and the systems and tools that handle it.

Information assets will also be reviewed during:

1. Development, acquisition or deployment of software
2. Connections of computers or networks to outside systems or networks
3. Granting of access to any outside organizations

The security classification of an information asset is assigned according to the highest of these dimensions. As an example, if an asset is regulated by law, then it needs the highest classification, even if the asset is not critical to the Company's business.

C. The classes of information for Security and Privacy

This policy applies to all workforce members, management, contractors, vendors, business partners and any other parties who have access to Company or client data.

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Data Types

The security classification of an information asset is assigned according to the highest of these dimensions. As an example, if an asset is regulated by law, then it needs the highest classification, even if the asset is not critical to **Virtru's** business. **Virtru** deals with two main kinds of data:

1. **Company-owned data** that relates to such areas as corporate financials, employment records, payroll, etc.
2. **Personally Identifiable Information (PII)** that is the property of our clients or workforce members, such as Protected Health Information, social security numbers, credit card information, contact information, etc.

D. Setting requirements for business continuity

The requirements for an information asset relating to business continuity are not set by classification, but are specific to that asset. They include:

1. Required uptime for the information asset
2. Required restoration time if the data must be restored
3. Required frequency of backups
4. Requirements for storage of backups
5. Requirements for testing of the recovery process

The default requirements for business continuity are listed in the information handling rules' section. [See *Handling rules for the information classifications*](#) in this document and *Disaster Recovery Plan* for detailed information.

This section outlines the basic rules for handling information types according to the classifications. More specific standards for platforms, processes and networks appear in each topic section of this standards document.

E. Enforcement

It is the responsibility of everyone who works at **Virtru** to protect our data. Even unintentional abuse of classified data will be considered punishable in accordance with the extent and frequency of the abuse.

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VII. Handling Rules for the Information Classifications

A. Overview

This section outlines the basic rules for handling information types according to the classifications. More specific standards for platforms, processes and networks appear in each topic section of this standards document.

B. Inventory of Information Assets and Electronic Asset Management Log

An inventory is maintained of all significant information assets belonging to, or used by **Virtru**. This inventory includes:

1. Serial numbers/license numbers
2. MAC Addresses
3. Model
4. Device Type
5. Manufacturer
6. The information owner
7. Username
8. Location
9. OS Version
10. The custodian of the information and repository location (database, file cabinet, etc.)
11. Purpose in our systems
12. Asset value in dollars or other suitable measurement
13. The sensitivity of the asset, due to regulations, laws, customer expectations or other requirements
14. Requirements for the asset regarding availability, uptime, etc.
15. Contact information for one or more parties who can repair, restore, replace, or recover this asset. Examples are hardware/software vendors, IT support vendors, and/or staff members

This asset list contains information that is restricted to executives and super-admins, and therefore is stored securely on the Synology NAS, which itself is backed up to AWS Glacier.

This inventory will be reviewed and updated quarterly, or as new assets and devices are added. Logs are maintained as the *Inventory of Information Assets Log* and the

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Organizational Chart/Electronic Asset Management Log. A current copy of this inventory will be kept at a separate location as described in our *Disaster Recovery Plan*.

C. Rules for access to information assets

If any given security incident involves a breach of Personally Identifiable Information (PII), the ISO will follow our security policies and *Incident and Breach Policy* for handling such a breach.

If a security incident includes the potential that personal information may have been obtained by unauthorized individuals, the ISO will work with the client to notify affected persons of this event, in compliance with relevant federal and/or state law.

See also *Breaches or Impermissible Uses/Disclosures* within these Security Policies and Procedures.

VIII. Access Control Policy

A. Overview

This policy defines how **Virtru** manages access to electronic information and systems. **Virtru** provides access to electronic data relative to the workforce member's job requirement. We limit access to categories of data and systems that each person needs to do his/her job. We require that each workforce member restrict his/her access to only those specific records and functions needed to carry out his/her job. For the purposes of this policy workforce members are anyone in **Virtru** who has access to Personally Identifiable Information (PII).

B. Access levels

The ISO will qualify the workforce member to have one of these forms of access based on the job role (in order of increasing access permissiveness):

1. Low Access to Corporate Email and Salesforce Data
2. General Access to product metrics
3. Admin Access to all front end products as well as product metrics
4. Super Admin Access to all front and backend products as well as product metrics

The access will match the person's job responsibilities The ISO will keep a record of the type of access provided to each workforce member. The record will include a date and justification and will be kept in our *Employee Access Request Log* in the **Security Documentation Library**.

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The granting of access to Business Associate Subcontractors will be done in the same way as it is done for workforce members.

C. Granting access

The ISO will provide accounts with the matching technical privileges and give the workforce member the account information including a one-time-use password that the user must change to a private password upon first use of the account.

1. Only the person assigned to an account will be allowed to use that account.
2. Each time a user logs in to a system, a log will be maintained by that specific program with the following information
 - a) When the user accessed the system
 - b) What information the user accessed while in the program
 - c) Tracking will be done by using the User ID and IP Address
 - d) The ISO will maintain this log for a period of 1 year
3. The ISO and AISO will each have a special account that allows them to create new accounts. The accounts will be used:
 - a) In an emergency when all other accounts have been disabled or locked out;
 - b) To either reset the passwords on locked accounts; or
 - c) To create new accounts that provide needed access.
4. When a change in the role of a workforce member requires a change in access privileges, the ISO will reassess the needs and provide new access privileges based on the policy in [Access Levels](#) in this section.
 - a) If a workforce member leaves **Virtru**, the ISO will remove that member's access as soon as the access is no longer needed.
 - b) If a workforce member takes a leave of absence and is not expected to require access, the ISO will disable the workforce member's account when he/she leaves and re-enable it upon his/her return to work.
 - c) For other people who work around protected electronic information but are not qualified to access it, the ISO will decide which of the following two steps to take:
 - 1) Train the person to understand his/her responsibilities
 - 2) Supervise while he/she is exposed to the data
 - d) For cases in which the provision of individual accounts is not feasible {e.g. access by any one person of a large help desk staff of a vendor}, the ISO will make:
 - 1) A serially reusable account and provide a one-time-use password to the vendor's representative for each time that access is needed; and

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- 2) The password will be changed by the ISO on the account after each use of the account to a value not known to the vendor.

D. Vendors, contractors and other outsiders

Any outside organization that wishes to gain access to our or our client's Private/Internal, Confidential or Protected information must:

1. Sign a Business Associate Subcontractor Agreement; AND
2. Be willing and able to show that their privacy and security controls are at least as stringent as **Virtru's** controls.

See *Business Associate Subcontractor Agreement* for details of Agreement.

A written history of incidents reported by Business Associate Subcontractors (BAS) will be maintained. If the ISO becomes aware of a pattern of activity in which the BAS is not carrying out the contractually required safeguards, then the ISO will do one of the following:

1. Attempt to remedy this failure
2. Terminate the contract, if attempt to remedy is not feasible
3. Report the situation to the U.S. Secretary of Health and Human Services, if terminating the contract is not feasible.

If any given security incident involves a breach of Personally Identifiable Information, the ISO will follow our privacy policies and incident management plan for handling such a breach.

If a security incident reported by a BAS includes the potential that personal information may have been obtained by unauthorized individuals, the ISO will work with the BAS to notify affected persons of this event in compliance with relevant federal and/or state law.

See also [Breaches or Impermissible Uses/Disclosures](#) within these Security Policies and Procedures.

E. Individuals

Individual persons who work for such an organization must also be bound to the outside organization's controls. Such individuals must:

1. Have Business Associates Subcontractor Agreement with their own company;
OR
2. Have a contract with their company; AND
3. Have appropriate background checks and bonding in place.

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F. Policy

Virtru will not knowingly accept any confidential information belonging to third parties until that information is reviewed against our protections and the appropriate agreements put into place and signed by the information owner. The agreements should include all requirements for controls over the third-party information and the processes to be followed.

IX. Rules by Data Classification

A. Public/unclassified data

This type of information does not require special marking or storage, except to ensure that it is available when needed. It does need to be kept safe from unauthorized modification.

B. Private/internal data

Access is granted on a need-to-know basis, as authorized by the manager of the user of the information. Some types of jobs are automatically granted access to data in this class.

Paper products and backup media containing this type of information must be stored and handled in a secure manner. This includes:

1. Printing this class of information only to a known printers located in secure areas on secure networks.
2. Encrypting or physically securing backup media
3. Keeping paper copies of information locked or otherwise secured

This class of information is not released to anyone outside **Virtru** without a non-disclosure agreement, a Business Associate Subcontractor Agreement, and/or without the approval of the information owner. Private/Internal use information must not be transmitted across any unsecured outside network or path without proper controls. This means encryption for files and emails or secured packaging for paper copies.

C. Confidential or protected data

Access to this type of information is on a need-to-know basis, as approved by the ISO or information owner.

This class of information is not released to anyone outside the Company without a non-disclosure agreement and without the approval of the information owner.

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Confidential or Protected information must not be transmitted across any unsecured outside network or path without proper controls. This means encryption for files and emails, or secured packaging for paper copies.

Paper products and backup media containing this type of information must be stored and handled in a secure manner. This includes:

1. Printing this class of information only to a known, secure printer
2. Encrypting and physically securing backup media
3. Keeping paper copies of information locked or otherwise secured

D. Managing data sources

The key to managing **Virtru's** business' media and documents is to first consider the source of the information, then the media type. **Virtru's** media and documents containing Protected Information (PHI, CJIS, or other) require protection from inception through disposition. Regardless of the owner relationship, the Company will be cognizant of the following Media Types:

1. **Hard Copy:** paper printouts, printer and facsimile ribbons, drums, etc.
2. **Electronic:** the bits and bytes contained on hard drives, flash drives, phones and tablets.

E. Retention of media

Retention: The length of time documentation and/or information is retained according to the level of confidentiality and to the business continuity requirements. System/information owners should consult with the ISO to ensure compliance with the record retention regulations.

Virtru's hard copy record retention policy is as follows:

We will digitize and encrypt these records for secure storage on the Synology NAS, which will be backed up to AWS Glacier.

Virtru's electronic record retention policy is as follows:

1. Agent of Record letters and Letters of Authorization requests are held for no less than ninety (90) days
2. New Business Group documents are held for no less than ninety (90) days
3. General documents are held for no less than ninety (90) days
4. Banking statements are held for seven (7) years
5. Workforce member records are held for seven (7) years

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F. Sanitization of Media

When media (hard copy and electronic) becomes obsolete, is no longer required or no longer usable, it is critical that proper sanitization is accomplished.

Sanitization Types

Disposal: the act of discarding media. This is often done via recycling paper containing “non-confidential” material.

Reinitializing: Re-formatting drives so information cannot be retrieved by recovery utilities or any other forms including keystroke recovery attempts. This is achieved by overwriting the disk with zeros for no less than one (1) time.

Purging: exposing the magnetic media to a strong magnetic field in order to disrupt the recorded magnetic domains, this is also known as degaussing.

Destroying: destruction of media so it cannot be reused as its original purpose.

Virtru’s electronic disposal policy is as follows:

1. Hard-drives are purged, reinitialize or destroyed
2. CD or DVD disks are destroyed
3. Flash drives are re-initialized or destroyed
4. Backup tapes are purged, reinitialized or destroyed

Any systems that are leased must be securely sanitized of all Company data prior to being returned to the leasing company. Any additional media (e.g. hard drives, USB drives etc.) will be reformatted then written with zeros for no less than one (1) time to ensure that the data contained on the media has been destroyed.

Virtru shall maintain appropriate records of sanitization. This entails validating how, where and when media is sanitized. See *Media Sanitization*.

G. Information sharing and privacy

In most cases the sharing and reuse of Personally Identifiable Information is governed by law, regulation and customer expectation. To ensure **Virtru** meets those requirements, no Personally Identifiable Information will be shared with outside companies, vendors or personnel without written approval from the ISO.

Personally Identifiable Information includes:

1. Names
2. Addresses

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3. Phone Numbers
4. Email Address
5. Dates of birth
6. Social Security Numbers
7. Ages
8. Gender
9. Personal Financial Information
10. Personal Medical Information
11. Criminal History Information
12. Personal Employment Information
13. Personal Buying Histories
14. IP Addresses

Aggregated and statistical data developed from this personal information is not personally identifiable and, thus, does not need the approval of the ISO for sharing and re-use.

Virtru will comply with all applicable laws and regulations regarding the privacy of personal information, including such laws as:

1. Health Insurance and Portability and Accountability Act (HIPAA)
2. Health Information Technology for Economic and Clinical Health (HITECH)
3. Family Educational Rights and Privacy Act (FERPA)
4. Criminal Justice Information Systems (CJIS)
5. Federal Information Security Management Act (FISMA)

Virtru's workforce members, contractors, vendors and suppliers may come into possession of Personally Identifiable Information as a part of their relationship with **Virtru**. Each person must comply with all laws, regulations and policies and ensure such information is properly protected.

H. Release of company information

Virtru's information may only be released with the approval of the ISO or the information owner. This includes the posting of **Virtru's** information of any type onto bulletin board systems, public networks, social media or other open sharing tools. Any information released must contain proper copyright, trademark, disclaimer and patent notices as appropriate.

X. Risk Analysis and Management

Risks to **Virtru's** assets and environment should be addressed proactively rather than reactively. The controls applied to the risks must also be periodically reviewed to ensure the controls are working properly and efficiently.

Security Policies and Procedures

A. Risk reviews

The job of reviewing risks and setting requirements for controls is the ISO's. Risks should be reviewed or assessed when:

1. Developing or deploying new applications, systems, networks or software
2. When significant changes are made to that same list
3. When business processes change
4. When **Virtru** enters a new geographical area of business
5. When **Virtru** enters a new line of business
6. When incidents occur or new risks emerge
7. When new regulations or standards are set

B. Risk management

Risks may be accepted, avoided or mitigated.

Accepting the risk is appropriate when the cost of avoiding or mitigating the risk is greater than the expected loss. The losses considered should include the less tangible items such as **Virtru's** reputation, loss of market share and loss of public trust in **Virtru**. Acceptance of a risk requires complete documentation of the risk analysis and approval by the information owner.

Avoiding the risk is appropriate when the cost of insurance is less than the cost of incremental controls. However, basic controls must always be in place.

Mitigating the risk is appropriate in most situations. These situations are those where compensating controls are possible, cost-effective and manageable. These mitigating controls may include:

1. Increasing a protection to a level higher than what is listed in this document
2. Improving oversight or monitoring of the risk to limit impact and minimize response time
3. Limiting transactions or other events to minimize the possible impact of the risk event

The method chosen for managing the risk (acceptance, avoidance, mitigation) must match the business value and costs involved and must be approved by the information owner.

For further detail, see the *Risk Management Policy* and the *Disaster Recovery Plan*.

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XI. IDs and Accounts

A. User IDs

Each user shall be assigned a unique identification, called the User ID. This User ID is not considered to be sensitive, unless the User ID relates to an authentication process, systems or application management role.

On sensitive systems or applications the User ID should not be easily identifiable, thus making unauthorized usage more difficult.

Sharing of User IDs is not permitted, unless justified by business requirements and approved by the ISO. For any such shared User ID, the password will be shared using LastPass, and the password will not be shared with the additional user. If this password is shared, it must be changed immediately after the User ID is used to keep the shared User ID from becoming generally available and a risk to **Virtru**.

Guest and anonymous User IDs are not allowed, unless the system involved is not connected to any of **Virtru's** networks and the system does not have any **Company** information on it. Typically, these guest or anonymous User IDs are only used during development or during marketing/sales demonstrations.

B. ID and account creation

User IDs are only to be created following a process approved by the information owner. This User ID creation process should include:

1. Expiration dates for the User ID
2. Renewal process for the User ID
3. Documentation of the role, business process and job function relating to the User ID

User IDs are to be created for the purpose needed and not in a manner to compromise segregation of duties.

A record of all User IDs and their owners will be maintained by the ISO. See the **Change Control Logs for Security** for further detail.

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C. Account management

A periodic check will be made of all User IDs and any redundant, dormant or unused IDs will be removed. The ISO must review the privileges set up for User IDs no less than once every year.

D. Application Specific IDs

Application Specific IDs and logins are used in support of automated applications, transactions, processes or batch jobs. These have non-expiring passwords.

1. Application Specific IDs must not be used by individuals.
2. Application Specific IDs must be created only with the approval of the ISO, must be documented and have strictly limited access rights.
3. Application Specific IDs must not have ad hoc or interactive capabilities on the applications, systems, transactions or data involved.

XII. Authentication and Passwords

A. Overview

All systems, applications, databases or other information repositories shall require users to authenticate themselves prior to granting access. Authentication may be via an approved password scheme or via an access control device. All systems that support 2-factor authentication must have them enabled.

The authentication method used must suit the value of the information asset, matching the cost of the authentication method against the level of protection required. In general, administrative and other high-value User or Service IDs will use the most secure methods of authentication.

B. Password format

Must be at least twenty (20) characters in length and must contain characters from all of the following four (4) categories:

1. English uppercase characters (A through Z)
2. English lowercase characters (a through z)
3. Base 10 digits (0 through 9)
4. Non-alphabetic characters (for example, ! , @, #, \$)

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C. Rules

Users are forced to create a new password every 3 months. Users must not write down on paper or store any passwords; they must also never share their passwords with other users. Software is provided to securely store user passwords, with encryption.

A maximum 5 attempts will be permitted prior to disabling the account. New passwords must be different from the previous three (3) passwords. Passwords must be changed immediately upon first use of a new ID. Passwords must never be stored or transmitted in clear text. Systems must not echo back the password as it is entered.

Passwords must not be retained by any system or application longer than is needed to grant access. Initial passwords must be transmitted separately from the ID.

XIII. Authorization and Rights Management

A. General Access Roles

Access roles are defined as:

1. *Super Admin Access*: Access to all front and backend products as well as product metrics
2. *Admin Access*: Access to all front end products as well as product metrics
3. *General Access*: Access to product metrics
4. *Low Access*: Access to corporate email, sales, and marketing data only

Amazon Web Services (AWS)

Users who have access to AWS have Super Admin Access. User sessions will expire after one (1) hour of inactivity

Cloudant

Users who have access to Cloudant have Super Admin Access. User sessions do not automatically time out, the user is required to log out at the end of a session.

Github

Users who have access to Github have General Access. User sessions do not automatically time out, the user is required to log out at the end of a session.

ELK Stack

Users who have access to ELK Stack have Admin Access. User sessions do not automatically time out, the user is required to log out at the end of a session.

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Mixpanel

Users who have access to Mixpanel have General Access. User sessions do not automatically time out, the user is required to log out at the end of a session.

Kissmetrics

Users who have access to Kissmetrics have General Access. User sessions do not automatically time out, the user is required to log out at the end of a session.

Salesforce

Users who have access to Salesforce have General Access. User sessions automatically time out after twenty (20) minutes.

Segment.io

Users who have access to Segment.io have General Access. User sessions do not automatically time out, the user is required to log out at the end of a session.

B. Access Rules

User IDs and accounts must be authorized to access only those elements needed for the user's role, including:

1. Limiting access to datasets and types
2. Limiting access to operating systems
3. Limiting times of access

Access to operating systems, ad hoc transaction capabilities, software development tools, and other system devices must be controlled and limited to only those User IDs which require that access.

Segregation of duties shall be established for all information asset controls to minimize the possibility that one person is responsible for an entire asset.

A user (and hence User ID) that changes role or job function must have access rights updated to match the new job role or function. Any changes will be documented in the *Responsibility Change Log*.

C. Temporary Privileged Users and Accounts

Temporary privileged users are defined as those who:

1. Have any control over security tools on an application, system or network
2. Can update operating systems or similar tools
3. Can directly modify data within a database or application
4. Have any special capabilities built in by the vendor of the application software, operating system or platform

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Access at a temporary privileged user level shall be granted only on a need-to-know, need-to-perform basis, and then only to the assets required. Temporary privileged user access shall only be granted to those supporting **Virtru's** applications, networks and systems.

D. Assignment and Revocation Procedure

The ISO shall electronically complete:

1. An *Employee Access Log* for all new hires and/or workforce member change of status.
2. An *Exit Checklist* for all terminations.

E. Logout After Inactivity

The ISO shall verify that all users have activated a password-protected screensaver that automatically prevents unauthorized users from viewing or accessing electronic protected information from any system or device that can be used to access electronic information systems. After a maximum of 10 minutes of inactivity the system should log off and lock the device, making information inaccessible. Once logged off a user must re-enter a password to gain access to electronic protected information.

XIV. Breaches or Impermissible Uses/Disclosures

A. Definitions

Incident is defined as any breach of security, privacy, continuity, legal or regulatory controls over information assets of any type. Examples of such incidents include but are not limited to:

1. Penetrations of systems, applications, networks or databases
2. Denial of service attacks
3. Misuse or mishandling of assets
4. Virus or other malware contamination
5. Transaction errors
6. Breaches of confidentiality agreements or contracts
7. Legal or regulatory violations

Breach is defined as an impermissible access, use or disclosure, which compromises the privacy or security of PHI.

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XV. Breach Response

A. Overview

Virtru will maintain an effective method so that all information users, custodians and owners can readily report incidents.

Incidents will be reported to the person's immediate manager or the ISO. Once the ISO has been notified, said Officer will then follow the directions in the [Incident and Breach Policy](#).

The ISO will investigate incidents and will log or report significant losses or threats immediately. The appropriate authorities will be contacted by the ISO depending on the severity of incident.

Incidents involving misuse by workforce members will be investigated by the ISO.

Depending on the severity of the incident, the Emergency Contact list may provide additional contacts. See the [Emergency Contact List](#) located in the [Disaster Recovery Plan](#).

Confidential Reporting:

Confidential reporting may be done either by:

1. Calling (may leave voice message) the ISO or AISO
2. Sending an email to the ISO or AISO, or;
3. [Google Form for anonymous reporting](#)

XVI. Personnel Security

A. Screening for newly hired personnel, third parties, vendors

Proper verification checks must be made prior to granting any new workforce member, contractor, vendor, agent or affiliate access to Private, Internal, Confidential or Protected information. These verification checks will meet the requirements set forth by the **Company** and may include:

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1. Professional qualifications
2. Identity checks
3. Criminal checks
4. Confirmation of academic and professional experience

The ISO is responsible for ensuring that background checks are made biannually on parties who are not newly hired workforce members. A third party will conduct background checks.

B. Training and Awareness

Virtru will provide security awareness training to each new member of our workforce with access to electronic **Company**-owned or private data ([Refer to Data Types information Classifications](#)) whose activities in the business we directly control. The training will be provided prior to that person assuming his/her duties. The training is designed to inform the person of his/her responsibilities under **Virtru's** security policies. At a minimum, this training will include the workforce member's role in:

1. Managing malicious software (e.g. viruses)
2. Using workstation(s) securely
3. Managing passwords and
4. Monitoring and reporting suspicious use of account(s)

Virtru's employees will also be trained annually on **Virtru's** Policies and Procedures. A record of successful completion of this training and annual retraining will be kept online by **Total HIPAA Compliance**.

Within 30 days of starting, individuals who are employed as developers will receive training on the security measures and mechanisms used to protect the company's systems and service. All new developers will be required to take and pass online training modules covering [secure coding when using Node.js](#). Developers who will be managing or developing operational aspects of the company's systems will also be required take the [Security Operations on AWS](#) training course from Amazon.

A record of training will be kept of training that lists the employee, type of training, date of completion, the employee's signature, and an admin's signature asserting successful completion of the training.

C. Terms of employment

Compliance with **Virtru's** policies regarding security and privacy are a condition of employment.

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D. Acknowledgement

All users shall be required to sign an acknowledgement after being trained on **Virtru's** security and privacy policies.

E. Exit process for users

Upon exiting employment or any relationship with **Virtru**, all users who have been granted access to any information asset shall:

1. Relinquish all access to control devices
2. Report all User IDs in use by the person
3. Relinquish all information stored, whether on paper or on backup media
4. Relinquish all information processing devices, including workstations, all **Virtru**-owned mobile devices and others

All systems access will be revoked.

The ISO will verify termination is completed, and document this procedure has been followed. See *Exit Checklist*.

F. Security Sanction Policy

Virtru's security policies call for the workforce that has access to electronic Protected Employee or Client Data and others to perform certain duties and to refrain from certain actions. Failure to do so will be sanctioned according to the policy below.

If the infraction involves the unauthorized use or disclosure of electronic Protected Employee or Client Data, the sanctions below apply to the designated workforce members including managers, supervisors, and staff who have access to Protected Employee or Client Data.

We define a serious infraction as one that results in known significant damage or that threatens imminent significant damage. Other infractions are simple infractions. The process below is intended as guidance for our business management in sanctioning Security Policies and Procedure infractions. We reserve the right to implement sanctions differently if, in our judgment, the situation warrants it.

First Security Infraction

If the infraction is:

1. A simple infraction, and
2. The first infraction in the last 3 years

The sanction will be retraining the workforce member on the appropriate policy/procedure and placement of a written letter of reprimand in the employee file.

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The letter will notify the person of the nature of this infraction and of sanctions for future potential infractions.

Second Security Infraction or First Serious Infraction

If the infraction is:

1. A serious infraction, or
2. The second infraction of either type within 3 years

The sanction will include a written letter of reprimand that is given to the person at fault, placement of a copy of the letter in the employee file, and one week's suspension without pay. The letter will notify the person of the nature of this infraction and of sanctions for future potential infractions.

Third Security Infraction or Second Serious Infraction

If the infraction is:

1. A second serious infraction within 3 years, or
2. A third infraction of any type within 3 years

The sanction will be dismissal from the workforce.

XVII. Legal and Regulatory Issues

A. Legal processes

Responses to subpoenas, deposition requests and other legal issues will be referred to and handled by the CEO. The ISO will not respond to such legal processes without company legal counsel.

B. Copyrights and licenses

Virtru may have agreements in place governing the use and handling of software, information and other tools that are owned by other entities. All users and information owners will comply with those agreements.

Users are responsible for complying with copyrights regarding any material obtained via the Internet. This includes files, graphics, software, audio and video materials.

Users may not agree to a new copyright license, unless given permission by the ISO.

Licensed software must be used in accordance with the license agreement and only the number of copies licensed must be created or used.

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C. Export controls

Information may not be exported across country boundaries without prior written approval of the **Company's** ISO.

XVIII. Malware and Antivirus

A. Definitions

Anti-Malware: malicious software that may reside on a computer, steal information or cause destruction. This can include a virus, trojan horse, keylogger, hijacker or dialer.

Sandbox: A highly controlled area where programs and software can be tested before being allowed access to the rest of the system.

B. Operating system anti-malware requirements

Macintosh, Linux and iPhones:

Virtru has determined that software for anti-malware scanning on Macintosh, Linux and iPhones is not necessary due to the low probability of encountering malware, the demand on computer processing power, and loss of productivity by the user. This policy will be reviewed annually or as needed to determine if this is still valid.

PC Operating Systems:

Data entering **Virtru's** Window-based systems must be subject to an up-to-date anti-malware scanning tool that is scheduled to run at regular intervals. In addition, all emails, attachments, disks, backup media, USB memory devices and other data carrying tools must be scanned before they are downloaded or allowed access to the system. All incoming data must be sandboxed by the anti-malware program before it is allowed access to the system. The anti-malware pattern files must be regularly updated.

Android and Windows Phone Operating Systems:

All such devices must have anti-malware tools in place prior to being connected to **Virtru's** networks. These systems must be subject to an up-to-date anti-malware scanning tool that is scheduled to run at regular intervals. In addition, all emails, attachments, and SD cards must be scanned before they are downloaded or allowed access to the system.

C. Affiliates

Virtru and all of its affiliates, contractors, consultants, vendors, representatives or other service providers must make certain that adequate controls are in place to guarantee that data coming from their systems and networks is free from malware.

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D. Infected devices

The ISO will use approved tools to monitor and remove malicious software from **Virtru's** assets. Virus-infected computers, tablets or phones must be removed from the network immediately until they are verified as virus-free.

E. Employees' Requirements

1. Workforce members will not load software on our **Company's** information equipment without permission from the ISO.
2. Workforce members will not open electronic files from unfamiliar sources.
3. Will exercise best practices when using the **Virtru** network. The employee will not:
 - a. Circumvent user authentication on any device
 - b. Sniff network traffic
 - c. Access data, servers, or accounts they are not authorized to access
 - d. Cause a disruption of servers
 - e. Violate copyright law by transmitting copyrighted pictures, music, video and/or software
 - f. Export or import software, technical information, encryption software, or technology in violation of international or regional export control laws
 - g. Use the Internet or network in a manner that violates **Virtru's** Security Policies, or local laws
 - h. Intentionally introducing malicious code; including, but not limited to, viruses, worms, Trojan horses, e-mail bombs, spyware, adware, and keyloggers

The workforce will be trained to know and carry out these malware protections. The ISO will generally provide permissions as required above only for actions that are intended for our **Company's** business and only under conditions that limit the potential for the introduction of malware.

F. Enforcement

Any activities with the intention to create and/or distribute malicious programs into **Virtru's** networks (e.g., viruses, worms, Trojan Horses, e-mail bombs, etc.) are prohibited, and user will be subject to **Virtru's** Sanction Policy, and will be reported to the proper state and federal authorities.

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XIX. Change Control Logs

A. Preface

The ISO is required to maintain logs of systems that document any changes and access users may have to sensitive systems. The following are the retention policies for these logs.

B. Policy

Audit logs will be retained for at least one (1) year in raw format, preferably electronic, to preserve evidence. Audit logs must be configured to prevent overflow, erasure or tampering. Audit logs will be configured to record information such that:

1. Sufficient information is available for proper investigation of use, misuse, incidents and performance
2. User ID, event type, date and time are maintained
3. Time is according to a known time stamp so that events across systems can be coordinated
4. End-to-end accountability is always maintained

Events to be recorded include, but are not limited to:

1. Login and activity by any other privileged accounts
2. Changes to operating systems, application code or other tools
3. Backup and restore events
4. Changes affecting any cryptographic keys or devices
5. Stop or start of critical processes
6. Transaction failure, retry or duplication

All systems and tools involved in the protection process are required to always have change logs enabled and properly configured. This includes:

1. Firewalls
2. Email servers
3. Anti-malware tools especially the administration tools
4. Security administration tools such as password resets and account modifications
5. Monitoring tools
6. Routers and other network devices
7. Github
8. Amazon Web Servers (AWS)

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9. IBM Cloudant
10. Salesforce
11. Elk Stack
12. Mixpanel
13. KissMetrics
14. Segment.io
15. Sendgrid
16. Customer.io

Logs will be reviewed and analyzed by delegates of the ISO.

Reports of problems and incidents will follow the incident reporting method, listed in the *Incident and Breach Policy*.

XX. Encryption

A. Preface

Encryption is the process of encoding messages of information in such a way that only authorized parties can read it.

B. Application Encryption Policy

Virtru encrypts all client data using NIST-approved cryptographic modules. **Virtru** uses AES 256 encryption for its application. **Virtru's** key length requirements shall be reviewed annually as part of the yearly security review and upgraded as technology allows.

The use of proprietary encryption algorithms is not allowed for any purpose, unless reviewed by qualified experts outside of the vendor in question and approved by the ISO.

C. Key Rotation Policy

Virtru requires the following key rotation policy to protect all external systems. The following is the list of policies for the following keys:

1. Secure Socket Layer (SSL) Keys

Virtru uses SSL keys to enable Transport Layer Security (TLS) traffic between clients and **Virtru's** servers.

Rotation Policy

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Rotation of SSL Keys is done upon SSL Key expiration. They are set to expire at 1 (one) year and rotated at that time. If there is an incident or the security keys are thought to be compromised, the keys will be rotated immediately.

2. Secure Shell (SSH) Keys

The SSH keys provide a layer of authentication to get into the production servers. SSH Keys are used as the authentication mechanism to remotely login to a server. They are also used as the first factor of authentication to assume root access on the production servers. Each developer has his/her own SSH key and is responsible for keeping this key secure.

Rotation Policy

All SSH keys are rotated at a minimum of every three (3) months. If there is an incident or the SSH keys are thought to be compromised, keys will be rotated immediately.

3. Amazon Web Services (AWS) Access Keys

Unique AWS Access Keys are given to each developer with a unique AWS Login. This allows the developer to make Application Protocol Interface (API) calls to AWS. Currently, 1-2 AWS Access keys exist per developer. Where are these stored? How do you know how many keys each developer has?

Rotation Policy

These keys are rotated at a minimum of every 90 days. If there is an incident or the AWS keys are thought to be compromised, keys will be rotated immediately

4. Application Keys

Virtru uses these keys to encrypt sensitive key data stored in the CouchDB database managed by IBM. There is only one copy of this key.

Rotation Policy

No rotation requirement.

Backup Policy

Backup of the key is kept with **Virtru's** Super Administrators.

The export of encryption technologies is restricted by the U.S. government. Residents of countries other than the United States should make themselves aware of the encryption technology laws of the country in which they reside.

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D. Device Encryption Policy

Virtru requires devices have encryption enabled for any files, folders, drives, databases, or other stored data that may have sensitive information including protected personally identifiable information.

The implementation of any encryption scheme is performed by the user and the deployment of the encryption tool, including all keys, must meet industry best practices and be properly documented. Currently the minimum standard is 128-Bit encryption. Encryption keys will be managed by the user and a log will be maintained by the ISO.

Mac OS Devices:

Mac OS devices that store Protected Information (PHI, CJIS, etc), are required to use full disk encryption using FileVault 2. Users must provide a copy of their key to the ISO; both will maintain the key in a secure location.

For devices that do not store Protected Information (PHI, CJIS, etc), full disk encryption is at the discretion of the user. However, if this is used, a copy of the encryption key will be stored by both the user and the ISO in a secure location.

Windows OS Devices:

Windows OS devices that store Protected Information (PHI, CJIS, etc) are required to use full disk encryption with the program Bitlocker. The encryption key will be maintained in a secure location by both the user and the ISO.

For devices that do not store Protected Information (PHI, CJIS, etc), full disk encryption is at the discretion of the user. However, if this is used, a copy of the encryption key will be stored by both the user and the ISO in a secure location.

Linux OS Devices

Linux OS devices that store Protected Information (PHI, CJIS, etc) are required to use full disk encryption. This will be encrypted at a minimum of 128 bit encryption. The encryption key will be maintained in a secure location by both the user and the ISO.

For devices that do not store Protected Information (PHI, CJIS, etc), full disk encryption is at the discretion of the user. However, if this is used, a copy of the encryption key will be stored by both the user and the ISO in a secure location.

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Android Devices

All Android devices that store Protected Information (PHI, CJIS, etc) will have encryption turned on and will be password protected at all times. The encryption key will be maintained in a secure location by both the user and the ISO.

Windows Phone

All Windows Phones that store Protected Information (PHI, CJIS, etc) will have encryption turned on and will be password protected at all times. The encryption key will be maintained in a secure location by both the user and the ISO.

iPhone

iPhones are natively encrypted. These devices are required to be password protected and/or biometrically protected at all times.

E. Wi-Fi network encryption

All wireless access points owned by **Virtru** are required to be protected using Wi-Fi Protected Access 2 with Advanced Encryption Standard (WPA2-AES). This password will be changed quarterly and will not be shared with users that are not employees or authorized Business Associates. Any outside users are required to use guest access points.

Employees that access **Virtru** resources from home are required to use Wi-Fi Protected Access 2 with Advanced Encryption Standard (WPA2-AES) to protect their devices. This password should be changed quarterly.

F. Email encryption

Virtru requires the use of its secure, encrypted email service to communicate with our employees about their Personally Identifiable Information, and to communicate any sensitive data. All email communication that includes personally identifiable data, and potentially sensitive data will be encrypted.

Virtru uses only its secure, encrypted email service to communicate with clients about their Personally Identifiable Information.

Virtru forbids the use of chat, texting or instant messaging programs by devices that store PHI.

G. Enforcement

Any workforce member found to have violated this policy may be subject to disciplinary action, up to and including termination of employment.

See [Sanction Policy](#).

Security Policies and Procedures

XXI. Assessments and Testing

A. Overview

The Security Rule of HIPAA mandates that covered entities implement appropriate information security policies and procedures to protect PI from "reasonably anticipated threats and hazards."

B. Penetration testing

Penetration testing of all servers containing PII will be conducted monthly by internal personnel, and by an external 3rd party at least annually or whenever there is a major system update. Testing shall validate the security of:

1. External connections
2. Operating systems
3. Applications
4. Databases
5. Network controls
6. Security procedures, including monitoring and incident response

C. Vulnerability assessment testing

Vulnerability assessments will be conducted periodically on all network-connected systems devices. Any vulnerability found must be corrected in a timely manner.

Vulnerability assessments also shall be conducted when:

1. A new system, application or network is installed inside the Company
2. Changes are made to firewalls, VPNs or other security control tools
3. Changes are made to a web server's operating system
4. Changes are made to email servers
5. Configuration changes are made to databases
6. Configuration changes are made to critical applications
7. Changes are made to encryption scheme(s)

NOTE: *Vulnerability and penetration tests will not be conducted except with the prior approval of the ISO. No user will have vulnerability or penetration testing tools loaded onto any **Company** system without prior permission from the ISO.*

D. Wireless access testing

Testing of wireless access points (war-driving) shall occur regularly, to cover all wireless access points under the control of **Virtru**.

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E. Password testing

Password cracking software shall be run periodically to validate the enforcement of password rules.

F. 3rd Party Security Management

A comprehensive list of 3rd parties with which the company does business with shall be maintained. Any 3rd party who handles or holds sensitive data or who provides a service which is critical to operations shall be required to assert that their own security practices and procedures meet or exceed that of the company's. Each 3rd party shall be assessed for conformance annually.

XXII. Use of Email, Internet, Messaging, Public Sites, Blogs, Social Media

A. Policy

Confidential, Private or Protected information and Internal Use information must not be transmitted across any unsecured outside network or path without proper controls. **Virtru** requires encryption for files and emails, or secured packaging for paper copies.

Users are responsible for ensuring that their use of these tools complies with all of **Virtru's** policies, and with applicable laws and regulations. This includes all employment policies such as sexual harassment, stalking, ethics and appropriate use.

These tools may not be used to access, send or receive, store or display:

1. Sexually explicit material
2. Confidential, Private or Protected Information or Internal Use material, except as meets the [Handling Rules](#) section
3. Viruses
4. Threats
5. Inappropriate or unlawful language, including:
 - a. Offensive language
 - b. Language inappropriate for the **Company** environment
6. Discriminatory or harassing language
7. Tools usable for hacking, password cracking, vulnerability scanning or penetration testing

These tools are the property of **Virtru** and are to be used only for **Virtru's** business. Access may be unavailable at any time, at the **Company's** discretion. Users must not assume that access to these tools will be available for incidental personal use.

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All content transmitted over these tools is the property of **Virtru**. Content, including emails, may be inspected by **Virtru**. Such inspections will occur with the approval of the ISO or of the **Company** legal department. **Virtru** may monitor, filter or block content on these tools.

Users of blogs, social media sites such as Facebook, and other such tools must follow the guidelines outlined in **Virtru's** Social Media Policy. See *Social Media Policy*.

Users of blogs, social media sites such as Facebook, and other such tools must not represent their comments as coming from, or being representative of, the business or opinions of **Virtru**.

XXIII. Hardware

A. Definitions

Workstations: PCs, desktop computers, tablets and mobile computing devices that are located at **Virtru's** home office, or at remote locations. These devices are easily attacked and therefore must have access controls and anti-malware as specified in those sections of this document.

Servers: Devices that may or may not be housed at **Virtru** locations. Regardless of their location, these must be secured in a manner that prevents them from being physically accessed without the appropriate level of security clearance.

B. Policy

A current copy of the *Organizational Chart/Electronic Asset Management Log (Risk Assessment)* will be kept at an off site location so it can be accessed quickly in the case of theft, fire, flood or other events that may make inventory information useful.

The ISO will keep a log of events noting when a physical security mechanism is repaired, replaced, installed, removed, modified, or maintained. This *Maintenance Log* will contain the: who, what, when, where, and why of the change and be kept in the **Security Documentation Library**.

Users of these devices are required to ensure that all appropriate protections are in place, including:

1. Physical security to prevent theft or misuse
2. Access controls suitable for the class of information on the device
3. Anti-malware
4. Keeping the devices locked to a desk or other secure location when outside

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5. Keeping control over backup media, as to minimize the possibility of theft or loss
6. Ensuring that the transport of these devices is secure and is safe from damage - for example, these devices should only travel in padded containers and should be locked and shut down during transit
7. Keeping all operating systems and tools up-to-date, with all updates and patches. Specific requirements for these topics are in the appropriate sections of this document

Virtru's devices must not be used by people who are not authorized, including family members and friends.

Software loaded onto such devices must follow the rules in the [Software](#) section of this document. In general, only approved software may be loaded, and shareware, games and other such software are not permitted.

International travel with these devices may require special approvals or configurations, especially in regards to encryption and licensed software. Before traveling internationally, users must contact the ISO to determine if such special considerations exist.

Connecting these devices to **Virtru's** networks must follow the rules in the [Networks](#) section of this document. In general, all such devices must be approved prior to connecting.

Remote access from these devices to **Virtru's** networks and devices must meet the controls specified in the [Networks](#) section of this document. In general, such access must be approved, and must have adequate controls over the security of information in transit.

Devices of these types that are owned by contractors, vendors or other third parties must meet all **Virtru** requirements prior to being connected.

C. Asset management

The ISO is responsible for maintaining an inventory of devices; as such he shall employ software to aid in the management of hardware and software asset. See [Handling Rules for the information classifications](#)

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D. Enforcement

Any workforce member found to have violated this policy may be subject to disciplinary action, up to and including termination of employment. See [Sanction Policy](#).

XXIV. Networks

A. Overview

Virtru's networks and devices shall designed, deployed and operated in a manner so as to provide proper levels of protection for the data being accessed and transported. Significant changes in network designs must be piloted before deployment.

Mechanisms must be in place to alert the ISO of possible attacks and breaches, to include:

1. Denial of service attacks
2. Improper access
3. Virus infections
4. Unauthorized software installations, email, FTP or other improper usage

Analysis must be conducted at least annually to validate the failure mode and recovery for all devices, network circuits and protocols. See [Change Logs](#) for details.

Responsibilities must be defined for:

1. Administration of network and communications connections
2. Operations of all devices
3. Monitoring
4. Timely review of audit logs and response to alerts or alarms
5. Review of unusual patterns of usage or activity

To minimize risks, any network connections or network segments should be disconnected when not in use.

B. Monitoring

Virtru uses AlienVault's Unified Security Management System to monitor all traffic on their network. Notifications are set to alert the IT staff of any unusual traffic and vulnerabilities, as well as log any security events that may occur.

C. Access control and physical security

Sites where **Virtru's** network equipment or communications lines exist are considered to be high-value and are subject to the access control and physical security rules

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outlined in the [Physical Security](#) section of this document. In general, these rules will require:

1. Access limited to authorized personnel only
2. Physical security, including RFID or passcode controlled locks, are in place

D. Modifications, updates

Changes to the network architecture which affect the protections must be approved by the ISO. Examples of such changes include firewalls, wireless configurations, ports and proxies.

E. Documentation

The ISO shall maintain an accurate set of documentation of the networks and their components. This documentation is considered to be highly valuable and will be classified "Protected".

F. Network design

The goal for network design is to facilitate **Virtru's** business, while still providing protection for **Company** assets.

G. Segmentation

Virtru's networks will be segmented, in order to limit access to Confidential and Protected Information, without impacting the **Company's** business. There will be a guest network that will have no access to **Virtru's** Network Attached Storage, and other vital network resources.

H. Firewalls

Virtru's network and workstations in the DC office is protected using the Fortinet FortiGate 100D Firewall appliance. This device is configured to monitor and log all unusual traffic and warn **Virtru** of any network irregularities or attacks.

Definitions

Firewall: A part of the computer operating system or network that is designed to block unauthorized access while permitting outward communication. There are two different types of firewalls.

1. *Software Firewall:* Part of the operating system or can be a software add-on.
2. *Hardware Firewall:* Built into a router or a stand alone device. All computing devices will access a network through this point.

Firewall Settings

1. *Whitelisting:* Blocks all incoming traffic, and only allows traffic from good, or known IP addresses. The user will be required to authorize connections to their device.

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2. *Blacklisting*: Authorizes all traffic as a default, and the user is responsible for denying unauthorized connections to their computing device from unrecognized or unknown IP addresses.

Software Firewall Policy

Virtru requires every device to have their internal software firewall activated at all times, and set to only allow whitelisted traffic. This will require the user to authorize any connections to their device. Any workforce member found to have violated this policy may be subject to disciplinary action, up to and including termination of employment.

I. Internet

Connections to the Internet must be:

1. Approved by the ISO
2. Periodically reviewed and tested for vulnerabilities
3. Protected by firewalls, intrusion detection systems and anti-malware tools

Some Internet tools, such as FTP, Internet Relay Chat, Telnet and Remote Procedure Call are restricted in use and must be approved for use by the ISO.

J. VPN-remote access

Virtual private networks (VPNs) will be used for traffic flowing over public networks to ensure the proper level of protection of **Virtru's** data.

K. Wireless

All wireless connections must have WPA2 with Advanced Encryption Standard (AES) turned on. This applies to all networks for **Virtru's** home office, and all telecommuting employees.

L. Telework Policy

If a staff member is allowed to telework/telecommute, they must comply with the **Virtru's** various employment policies, remote security measures and use the provided web portal via HTTPs, VPN and SSL. They must also make sure their home WI-FI is encrypted properly.

If they are accessing sites while on an unsecure router, they must make sure the sites they visit have a valid SSL certificate before proceeding.

M. Patching of systems and applications

Microsoft Windows OS Patches

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To manage the patching of Microsoft Windows operating systems (OS), Windows Software Update Service (WSUS) is used. The WSUS server automatically checks for patches once a day not during business hours. Then downloaded patches are manually released from the WSUS server to be downloaded and applied on the workstations. The ISO will evaluate all patches before they are applied; workstations will not automatically download OS patches from the WSUS server and updates will not be automatically installed. Installation of OS patches is done within a planned downtime.

Apple OS Patches

All Macintosh Operating System (OS) patching will be done through the App Store, and is the responsibility of the individual user to install. These should be applied within one (1) week of release from Apple.

Linux OS Patches

These patches should be applied and tested in an app staging environment before they are applied systemwide. The User is required to document where they received the patch, who downloaded it, what version of patching they are using, and when the patch was applied to the system. This documentation should be submitted to the ISO upon completion of the patching.

iPhone iOS Patching

All iPhone (OS) patching will be done through the App Store, and is the responsibility of the individual user to install. The device should be fully backed up prior to installing these patches either in the cloud or locally. All backups are required to be encrypted and password protected. These patches should be applied within one (1) week of release from Apple.

Android Phone Patching

All Android patching will be done through the Google Play Store, and is the responsibility of the individual user to install. The device should be fully backed up prior to installing these patches either in the cloud or locally. All backups are required to be encrypted and password protected. These patches should be applied within one (1) week of release from Google.

Windows Phone Patching

All Windows Phone patching will be done through the Windows Phone Store, and is the responsibility of the individual user to install. The device should be fully backed up prior to installing these patches either in the cloud or locally. All backups are required to be encrypted and password protected. These patches should be applied within one (1) week of release from Windows.

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Patching of applications is done on a weekly basis, unless a zero-day exploit is found in an application that is used within the domain. If such an exploit is found and a patch is released for said exploit, an emergency planned downtime will be called for at the conclusion of the business day to patch the application in question.

N. Network hardening

Upon adding new devices to the network, installation procedures and set-up must be followed. Hardening will be done on network devices as well as systems (e.g. laptops, workstations and servers) and handled by the ISO or AISO.

Hardening will be broken down into the following categories which include, but are not limited to:

1. Preparation and installation
2. Updates to: software, firmware and hardware
3. Setting of appropriate account and auditing rules
4. Setting of appropriate security rules
5. Turning on the internal firewall
6. Turning on full disk encryption (If device will have access to PHI)
7. Other internal operations such as:
 - a. Installation of appropriate software for workstation, server or laptop

The ISO will notify all affected staff when making changes to the hardening policy and will update the Security Policies and Procedures at that time. Written approval for hardening procedures above and beyond what is currently mandated is not necessary.

XXV. Physical and Environmental Protections

A. Definitions

Secure sites: These are locations that require the highest level of protection. These sites include:

1. Computing centers
2. Network connection points
3. Media storage locations
4. Locations containing platforms which carry high-value or critical information or transactions

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Physical Security: These may occur within **Virtru** where the overall building is operated to a lower level of security, but a certain area is more controlled due to documents, assets or processes which occur in that area.

B. Secure Sites Policy

Secure sites shall be established for all computing centers and other locations where there is a concentration of high-value or sensitive information, systems or networks.

Sites will be designed and operated according to best practices and in consideration of threats appropriate to the site such as hurricanes, tornados, power outages and intruders.

This standard is not to be construed as a complete list of requirements for a secure site. It should be used in conjunction with expert advice, architects, fire marshals, OSHA and other regulations.

Separate, isolated areas will be created within the secure site for:

1. Media libraries
2. Electrical supplies and controls
3. Environmental and mechanical controls

Access to these sub-areas will be on a need-only basis. Critical assets and operations must be conducted in a secured area or secured site, with protections implemented in accordance with the risks and value of the assets, information and operations.

C. Data Centers

All data centers used by the company must provide proof that they meet or exceed the security requirements and standards of the company.

XXVI. Physical Security Policy

A. Entry Policy

All **Virtru's** workforce members are allowed access to the physical site at any time of the day, and any day of the week. The site is secured with an electronic door lock that accepts RFID cards and a numeric passcode. RFID cards are issued by the ISO or AISO by request and after approval.

B. Loss of RFID key

If a workforce member loses their RFID key, they will notify the ISO or AISO as soon as possible so the key may be deactivated. Any workforce member found to have violated

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this policy may be subject to disciplinary action, up to and including termination of employment. See [Sanction Policy](#).

C. Mobile devices

Mobile devices (laptops, netbook, tablets, iPhones, iPads, etc.) must have the appropriate encryption. Devices must have a power-on password or PIN, data encryption, auto-lock and role-based access per user. See *BYOD Policy (Forms for Employees)*.

D. Video monitoring

Virtru's main office is monitored by a video camera. The data is stored in the Network Attached Storage which is physically secured in a locked cage in the IT closet. This data is stored for up to one (1) month.

E. Alarm system

Virtru's main office is monitored by an alarm system. It is attached to all doors and windows, and requires a 4-digit pin plus a modifier to deactivate. Once triggered, there is a 45-second delay before the local authorities, ISO and CEO are notified by the monitoring company. ADT is the company that is responsible for monitoring **Virtru's** main office.

The alarm pin code is changed quarterly, or at the time that an employee is fired or leaves the Company.

Virtru requires that this alarm be set by the last person to exit the office, and should be active anytime there is not an authorized employee on the premises.

F. Fire protection

Fire protection meet all regulations, including federal, state and local. Fire extinguishers shall be deployed in accordance with regulations of OSHA and fire inspectors. Periodic testing of alarms, fire extinguishers and fire evacuation procedures shall be conducted.

XXVII. Software

A. Overview

This section outlines the standards applying to operating systems, applications, databases and other software tools.

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B. Acquisition of software

It is up to the developer to decide which software tools they will require for their workstation. All regulated software will only be download from trusted sources, such as the Apple App Store, Windows Store, or directly from reputable websites, etc.

Unregulated software is allowed, but must be fully documented and approved for use by the ISO. Documentation will include:

1. The source of the software
2. When it was downloaded
3. Who downloaded it for use and;
4. The date the ISO approved the use of the software

All software for Windows OS devices is required to be screened for malware prior to installation.

Any unauthorized software must be approved and validated, or removed.

Users of workstations, netbooks, wireless and other personal devices must not install unapproved software.

C. Open Source Software

The use of open source shareware or open source freeware may only occur if:

1. It is not used in a production environment OR
2. Prior to use it is fully tested, documented and **Virtru's** personnel are assigned to support it. Checks to be performed include:
 - a. Verify usage license (no strong or weak copyleft licenses)
 - b. Review open CVEs and available patches
 - c. Perform internal security evaluation
 - d. Flag for external security evaluation during next penetration test
3. The source of the software is documented
 - a. URL
 - b. Project lead
 - c. Contributors
 - d. Whether the project is actively maintained
4. The ISO approves of the use

D. Documentation

Documentation for sensitive applications and the operating systems which run those systems shall be stored securely. Backups of all documentation shall be maintained off

Security Policies and Procedures

site. Access to the documentation for sensitive applications and the operating systems will be on a need-to-use basis.

E. Change Control and Maintenance

All proposed changes to production systems must be registered in the company's issue tracking system. Changes shall be categorized as standard, normal, or emergency. Standard changes are those that are performed frequently and considered low risk. Standard changes are reviewed quarterly and pre-approved for the following quarter. Normal changes are those which are not performed frequently and may pose some risk to the business. Each normal change must be reviewed by a minimum of two super-admins, the CTO and/or VP of engineering prior to being made. Reviewers are responsible for assessing the impact of the change in regards to the functionality, availability, durability, and security of the system. If a consensus among reviewers is reached, the proposed change is sized, sorted, and executed through the standard engineering workflow. Emergency changes are those that are required to rectify some form of degradation of the system. Emergency changes must be reviewed by a minimum of two super-admins. If a consensus is reached, emergency changes can bypass the standard engineering workflow and be made immediately. All changes to production systems must be captured in the company's issue tracking system without exception.

F. Operating Systems

Only approved operating systems will be loaded onto **Virtru**-owned assets. Before major upgrades to systems, authorization by the ISO and AISO will be required.

Default settings must be reviewed prior to installation to identify any security vulnerabilities. These settings will be communicated with all workforce members, or they will surrender their devices to the ISO or AISO for configuration.

G. Applications

All applications, whether developed or purchased, must comply with **Virtru's** policies and protection standards. The information owner is responsible for ensuring that these requirements are included during the development or acquisition of software.

The protection requirements for applications include:

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1. Access control
2. Authorization
3. Information classification
4. Storage controls
5. Backup and restoration
6. Confidentiality and integrity requirements
7. Audit logs
8. Privacy, export control and other such requirements

All product associated applications must use HTTPS to communicate with all remote hosts, both Virtru hosted services and external third parties. HTTP and other non-encrypted communications are not allowed under any scenario.

Virtru applications shall treat user credentials with the utmost sensitivity and must follow security best practices for storing and transmitting user credentials. All credentials which are shared with a client device must be sent over HTTPS or another encrypted communication channel. All user credentials which are stored in a data store, must be stored in a benign state so that leakage of information from the data store does not compromise user accounts.

All application logs must be sent to a central logging cluster for aggregation and analysis.

H. Configuration Management

Where possible, Virtru applications and infrastructure follow an immutable paradigm. All changes to production infrastructure and application code is deployed on a brand new Amazon Machine Image (AMI). This allows all changes which are deployed to be tracked and audited. This also means that no configuration or application code will be modified on a production instance. All application servers have osquery installed and configured to monitor key files on the system for any change (File Integrity Monitoring). Any changes to configuration are logged and sent to AWS Cloudwatch Logs, where they trigger an alarm and cause an email to be sent to the Virtru DevOps team for further investigation.

Where possible, Virtru utilizes Terraform, Ansible, and other similar tools to define their infrastructure as code. This allows the production infrastructure to be versioned in a git repository and easily audited for change over time.

I. Asset management for software

The ISO is responsible for maintaining an inventory of software; as such it shall employ software to aid in the management of software assets.

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J. Enforcement

Any workforce member found to have violated these policies may be subject to disciplinary action, up to and including termination of employment. See [Sanction Policy](#).

XXVIII. Removable Media Device Policy

A. Purpose

The purpose of this policy is to minimize the risk of loss or exposure of Confidential or Protected Information maintained by **Virtru** when it is stored, transferred or accessed on a removable media device. This policy also aims to reduce the risk of acquiring malware infections on computers operated by Company. Any questions or comments about this policy should be directed to the ISO

B. Scope

This policy covers all removable media that contains **Virtru's** data or that is connected to **Virtru's** network.

C. Definitions

Removable media: devices or media that is readable and/or writable by the end user and are able to be moved from computer to computer without modification to the computer. This includes flash memory devices such as thumb drives, SD cards, cameras, MP3 players or any other storage medium; removable hard drives (including hard drive-based MP3 players); optical disks such as CD and DVD disks.

Encryption: a procedure used to convert data from its original form to a format that is unreadable and/or unusable to anyone without the tools/information needed to reverse the encryption process.

Malware: software of malicious intent/impact such as viruses, worms, and spyware.

D. Policy

Workforce members may use removable media in their work computers if they take all reasonable and prudent measures to ensure the safety and confidentiality of all information that is downloaded to any removable media or portable device

E. Using Removable Media Devices

PHI should be stored on removable media only when required in the performance of assigned duties or when responding to legitimate requests for information. When

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Protected and Confidential information is stored on removable media, it must be encrypted in accordance with **Virtru's** [Encryption Standards](#).

The workforce member shall take all reasonable and prudent measures to physically secure all removable media or to portable devices. Users shall not open or attempt to open the encasement of any removable media or portable devices nor otherwise circumvent any lock system that secures the device or its components. Users should take reasonable measures to secure device at all time and report any lost or stolen removable media or portable devices immediately.

Workforce members may not copy information or other sensitive data onto personal devices, unless approved by management in conjunction with the *Confidentiality Agreement for Employees*.

F. Exceptions

Exceptions to this policy may be requested on a case-by-case basis by petition to the ISO.

G. Refusal

Virtru reserves the right to refuse the ability to connect removable media devices to the Company network if such media is being used in such a way that puts **Virtru's** systems, data, users and customers at risk.

H. Enforcement

Anyone found to have violated this policy may be subject to disciplinary action, up to and including suspension of access to technology resources or termination of employment. A violation of this policy by a temporary worker, contractor or vendor may result in action up to and including termination of their contract or assignment with **Virtru**.

XXIX. Application Recovery Plan

A. Overview

Virtru backs up of all production data hourly and stores it remotely on two separate Amazon Web Server (AWS) Accounts. These backups are a combination of both differential and full backups. These backups are durable a the same rate as S3 data, each snapshot is 99.99999% durable.

B. Scope

These policies apply to all production servers and data that **Virtru** is responsible for maintaining on behalf of our clients.

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C. Data durability and reliability

Virtru uses Amazon S3 to provide a highly durable storage infrastructure designed for mission-critical and primary data storage. Amazon S3 redundantly stores data in multiple facilities and on multiple devices within each facility. To increase durability, Amazon S3 synchronously stores **Virtru's** data across multiple facilities before confirming that the data has been successfully stored. In addition, Amazon S3 calculates checksums on all network traffic to detect corruption of data packets when storing or retrieving data. Amazon S3 performs regular, systematic data integrity checks and is automatically self-healing.

D. Encryption

Virtru uses Server-side encryption to protect data at rest. Server-side encryption with Amazon S3-managed encryption keys (SSE-S3) employs strong multi-factor encryption by encrypting each object with a unique key. As an additional safeguard, it encrypts the key itself with a master key that it regularly rotates. Amazon S3 server-side encryption uses 256-bit Advanced Encryption Standard (AES-256) to encrypt **Virtru's** data.

E. Load balancing

Virtru uses Amazon Web Services' Elastic Load Balancing (ELB) to automatically distribute incoming application traffic, to automatically route traffic across multiple instances, and multiple Availability Zones. This is used to insure that only healthy servers are receiving traffic.

F. Restoration of data

Restoration of production data is done on an as-needed basis. The following employees are responsible for restoration of the application if it is needed:

1. Reuven Gonzales, Lead Developer, or
2. Conor Gilsenan, Developer Ops.

The needed backup data will not be restored "on top of" the current "bad" data. The restores will be redirected to a new location, and first verified. Upon verification, the "bad" data will be removed from the drive, and stored and relabeled as "old data." Then the backup data will replace the "old data" on the drive. Once the restored data has been verified once more, the "old data" will be destroyed.

G. Testing and revision of plan

Once every quarter, after doing a full backup, **Virtru** will recover the saved data. During hours when the business is closed, we will operate the application using this recovered data in a test mode. The tests will consist of a set of tasks that are designed to exercise the main system functions to confirm that the data is usable and as up-to-date as we expected given the backups that were used to do the recovery. This testing process

Security Policies and Procedures

should take an hour. The restore process should take an hour or two, once the files are retrieved.

If the process does not work as documented in our policy, it will be updated to reflect the actual procedure we need to implement to achieve successful recovery and operation.

Whenever we make changes to software or hardware, we will create/update and test using our *Inventory of Devices/Software Assets* and store this checklist in the **Security Documentation Library**.

XXX. Network Attached Storage and Workstation Backup Plan

A. Overview

Virtru recognizes that the backup and maintenance of data in the Network Attached Storage (NAS) and individual workstations are critical to operations. It is essential that certain basic standard practices be followed to ensure that data files are backed up on a regular basis.

B. Policy

Virtru will be using a Synology DS1515+ Network Attached Storage for backing up all workstations, firewall logs, and video surveillance footage. This data will also be backed up to a Amazon Web Services Glacier account.

C. Backup software

Virtru uses Cloud Station software to perform all backups. This will be installed on all workstations and must not be disabled by the user for more than one (1) business day. The software will maintain one month of file versions for restoring purposes

D. Remote backups

Virtru will provide a Virtual Private Network (VPN) for employees to login to for backing up their devices. Credentials for the VPM will be provided to remote employees, and they will be expected to configure their devices properly. If they are unsure, or have issue in setup, the IT department will be available for configuration assistance.

E. Local backups

Virtru encourages all users to do daily local backups of their data. These backups are to be encrypted using the encryption standards listed below. Any local backups must be surrendered at the time an employee no longer is employed by **Virtru**.

Security Policies and Procedures

F. Encryption of backups

The backups of data will be encrypted on the NAS using AES 256 bit encryption. Any local backups that employees make must be encrypted at a minimum of 256 bit encryption.

G. Restoring data

In the event that a workstation fails, is stolen, or is damaged whether physically or by malware. It is the policy of **Virtru** that this device will be replaced within 24 hours. The IT department will be responsible for reprovisioning this device, and testing that the workstation is functioning properly before giving the device to the employee.

H. Enforcement

Anyone found to have violated this policy may be subject to disciplinary action, up to and including suspension of access to technology resources or termination of employment. A violation of this policy by a temporary worker, contractor or vendor may result in action up to and including termination of their contract or assignment with **Virtru**.

XXXI. Information Integrity Management Policy

A. Overview

The other policies in this document contribute to the integrity of the data in our systems. Notably, the Data Backup Plan, the Access Control Policy, and the Malware Management Policy contribute to data integrity. In addition to these, we add the following policy elements.

B. Policy

Virtru will configure our applications software to use the available edits on data that is entered into our systems. These edits will check for internal data consistency, reasonableness of data, and logical relations among data items.

XXXII. Security Incident Management Policy

A. Overview

Virtru recognizes that, despite having reasonable security safeguards, we may have security incidents.

B. Procedures

To manage these incidents, **Virtru** will do the following:

Security Policies and Procedures

1. We will train each workforce member to recognize the common telltale signs of a security incident. When a member of the workforce detects one of these signs, he/she will be responsible for notifying the ISO.
2. The ISO will maintain a set of tests to detect events in the system logs that may indicate security incidents. These tests will be written into a script and run against the system log on a daily basis or whenever needed. The tests currently are:
 - a) Account creation/deletion
 - b) High volume of unsuccessful logon attempts
 - c) Alerts from our malware monitoring systems
 - d) High volume of file or database access/creation/deletion activity for the time of day, or for day of the week
 - e) Account activity at unusual times of the day or night
 - f) Absence of expected log records of activity when expected
 - g) Unusual level of record access for a given account
 - h) Daily logs will be tested by the firewall in real time,
 - i) User data will be reviewed weekly
 - j) Logs for the past month will be retained. When anomalies are discovered, the script will provide a report that is immediately brought to the attention of the ISO or designee as a potential security incident.
 - k) Account lock out due to excessive password retry failure.

The ISO will determine, in consultation with others if needed, whether an event is a security incident.

If an event is a security incident, the ISO (or designee) will proceed to contain and repair damage from the incident by working with staff, vendors, and Business Associates as needed. The security incident will be tracked in JIRA and treated as an application defect. A log of relevant actions taken to contain and repair the damage will be stored in JIRA. The permanent home of this log will be in the **Security Documentation Library**. The ISO will determine if the event involves a workforce member action that is covered under the sanction policy and will follow that policy. The ISO will determine if the event represents a security incident for which a Business Associate is responsible. If so, the ISO will follow our *Incident and Breach Policy* in this area.

Security Policies and Procedures

C. Policy

If an event is a security incident, the ISO (or designee) will proceed to contain and repair damage from the incident by working with staff, vendors, and Business Associate relations in order to further deter future incidents of the same type.

XXXIII. Security Plan Review Policy

A. Overview

We recognize that our underlying security risk will change and our ability to manage this risk will improve over time. To ensure that we adjust our policies and procedures to take these two factors into account, we will review our Security Policies and Procedures annually. The ISO will lead this review and involve others as needed. Documentation of the review will be contained in a document called *Annual Security Review* and restored in the **Security Documentation Library {or Notebook}**.

B. Procedures

At a minimum, the review process will consist of:

1. Evaluating changes in the last year that may affect our Security Policy. These will include changes in:
 - a) Number, sizes or locations of our business sites
 - b) Our workforce size and composition
 - c) Hardware/software
 - d) State or federal laws that apply to us
 - e) Type of medical insurance that we provide
2. Reading each Policy to determine whether or not the changes may affect it and/or the practices driven by the Policy. We will make a list of changes that need to be made, then write a paragraph describing how.
3. Creating a list of changes in Policies and/or Procedures that our **Company** will carry out.
4. Developing and implementing any changes in our Policies and Procedures on a timely basis.

Security Policies and Procedures

Security Policies and Procedures

Appendices

Security Policies and Procedures

A. Change Logs

The Change Logs are logs and reports that are reviewed, at a minimum, twice a year. It provides information on programs available and which employees have access to which programs. The actual logs are found in the **Change Control Logs for Security** section of the documents.

1. Annual Security Review
2. Application/Database Change
3. Employee Access
4. Incident - Disaster
5. Maintenance
6. Media Sanitization
7. Operating System Changes Audit
8. Organizational Chart/Electronic Asset Management
9. Network Change
10. Physical Entry Access
11. Responsibility Change

Security Policies and Procedures

B. Information Security Committee

Information Security Officer:

Will Ackerly

willackerly@virtru.com

(202) 577-3683

Information Security Committee:

Jordan Duggan

jordan@virtru.com

(919) 696-7936

Reuven Gonzales, Director of Operations

Cell: (949) 878-6154

reuven@virtru.com

Conor Gilsenan, Operations Developer

Cell: 973-986-6650

conor@virtru.com

Disaster Recovery Plan for Virtru

We define a disaster as any event that affects our information systems and, as a result, substantially interferes with the operations of our business. Examples are fire, flood, hardware failure of critical elements (servers), software failures, theft, chemical/radiation hazard, and sabotage. Our definition of recovering from a disaster is taking all the actions needed to restore the systems to their normal operational state. Our plan to recover from disasters is described below.

1. What we will do to prepare to perform a disaster recovery:
 - A. We will train the workforce to recognize and report a disaster.
 - B. We will organize the workforce responsibilities so that during a recovery we are not dependent on only one person for any critical step.
 - C. We will report disasters to the ISO and AISO. The ISO will make the formal determination as to whether or not to classify the event as a disaster.
 - D. We will store paper backup copies of key disaster related documents with the offsite backups. These documents will include a List of Support Contacts – vendor, reseller, and/or support group contact information for all of our software and hardware.
 - E. We will keep an *Inventory of Device/Software Assets* for [Name of Business]-- a detailed checklist for each asset, such as the server, PCs, the router, network switch, databases, and software programs containing tasks that must be completed to recover that asset. The list will include key data about the device including a party responsible for the recovery whose role is to diagnose and, if needed, repair, replace, and/or rebuild a device.
 - F. We will have current copies of system data and software available at the off site location, as our data backup plan specifies.

2. Once the ISO (or designee) has certified a disaster, we will:
 - A. Use the ISO or designee to facilitate the recovery. The facilitator will direct the recovery process, coordination and communication of the actions of the various parties that are involved in the recovery.
 - B. Determine which devices/software (e.g. servers, PCs, power units, AC units) are not functioning normally, conferring with the appropriate staff, vendors, and other support personnel to make this determination. When in doubt about the status of the device, we will either use a test that is described in the IT Assets Recovery Checklist for the device/system or depend on the recovery responsible party to make this determination.
 - C. Review the *Inventory of Device/Software Assets* for the devices to be recovered. Each checklist will have as an initial task, "Contact the appropriate parties responsible for restoring the devices/software to be recovered." Guidance and other recovery activities from these parties are key contributors to the recovery process.
 - D. After all of the non-functioning assets have been restored, follow the instructions in the part of the Emergency Operations Plan that deals with what to do when the system is available again.

Organization

Emergency Planning & Crisis Management Team (EPCMT):

- Will Ackerly, CTO & ISO
- Jordan Duggan, VP of Product & Development & AISO
- Reuven Gonzales, Director of Operations
- Conor Gilsenan, Operations Developer
- Zack Nelson, Director of Development

Primary Disaster coordination handled through:

Crisis Manager 1:

Reuven Gonzales, Director of Operations

Cell: (949) 878-6154

reuven@virtru.com

Crisis Manager 2:

Conor Gilsenan, Operations Developer

Cell: 973-986-6650

conor@virtru.com

Other Members' Contact Information

- Zack Nelson 443-834-3791
- Payam Abedi 703-656-6227
- Tyler Biscoe 301-642-8844
- Jon Gilpen 303-358-6689
- Jason Ghent 803-658-6645

Off-Site Meeting Location

Used if team needs to meet to formulate an action plan.

If primary location is not accessible, we may need to operate from an off-site locations such as:

Employees' Home Offices

Jack Rose Restaurant

Extended off-site locations will be determined after assessing the severity of the disaster.

Disaster Recovery Timeframes

Maximum Tolerable Downtime (MTD)

The total amount of time our company is willing to accept for an outage or disruption, including all impact considerations. This guides our Crisis Management Team in determining the selection of an appropriate recovery method, and the depth of detail which will be required when developing recovery procedures, including their scope and content.

Recovery Point Objective (RPO)

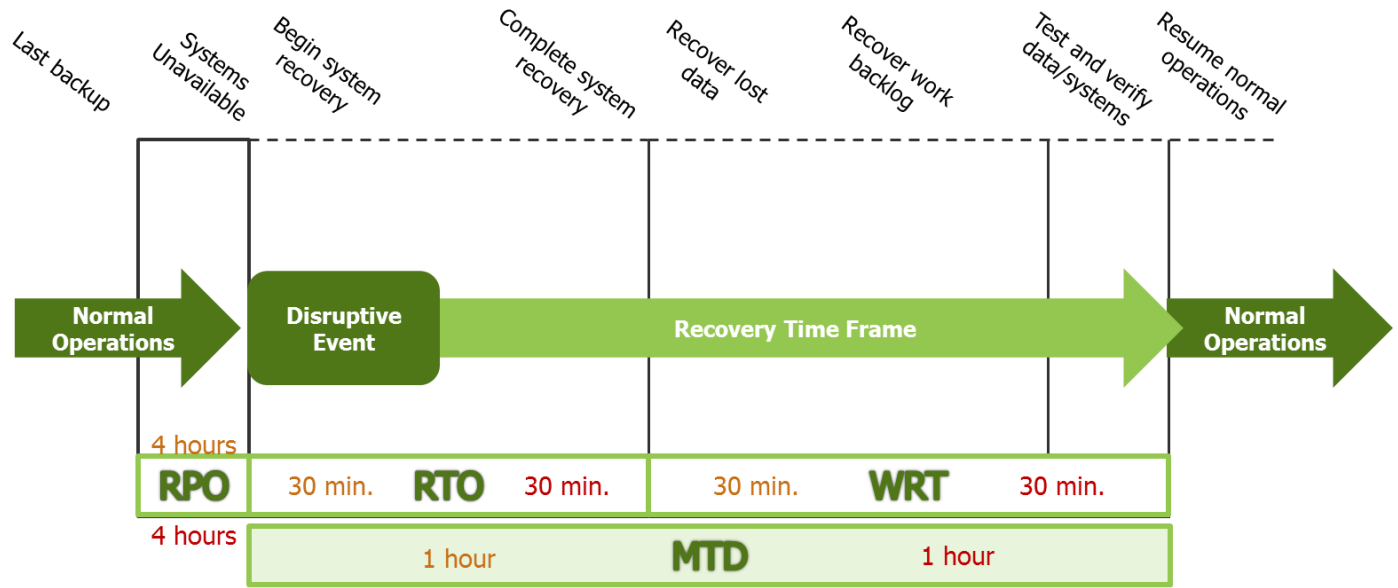
This is the point in time, prior to a disaster or disruptive event, which our company has accepted for data loss. RPO determines the frequency of our data backups. When determining RPO, we need to consider how much newly entered data we can afford to lose. *Therefore, if RPO is set to 4 hours, then we must have offsite backups maintained every 4 hours.*

Recovery Time Objective (RTO)

RTO determines the target time for recommencement of business activity. The Crisis Management Team will determine what business functions (i.e. telecommunications, web servers, etc.) should be restored based on priority.

Working Recovery Time (WRT)

This is the time our company will spend recovering lost data and work backlog, and testing and verifying data and systems. WRT usually is the difference between MTD and RTO.



Physical Security Example Times
 Minor Disaster and Major Disaster

(See next page)

Disaster Timeframe Expectations

Internal Network

The server and network must be functioning in order for any of our other information systems to function. We could afford to be without the server/network for ten (10) minutes without materially affecting our business. If the server/network is down for longer than ten (10) minutes, staff will switch over the mobile tethering, or will go to an approved location to continue their work.

Production Servers

Production servers must be functioning at all times in order for our applications to work. We cannot afford to be without the production servers without materially affecting our business. Traffic will be automatically routed to another server via Amazon Web Services' Elastic Load Balancing.

Workstations

If a workstation crashes, we can easily use another one with only modest inconvenience. Ideally, we would like to replace/restore a workstation within 72 hours.

Printer and Fax

We have two multifunction printers. We can lose all printers for up to a week with little effect on data flow.

Email and Web Browser

Currently, we can function for no more than 10 minutes without email or web browsing. We will tether devices via smartphones after that time.

Wireless Network

We have a wireless network and the office depends on it for routine transactions. A backup router is available; it is preconfigured and encrypted using WPA2-AES.

IT Resources

We depend on the availability of certain employees and our IT service provider to diagnose and fix problems quickly. A chain of contacts is available in this document.

Power and HVAC Equipment

We depend on external power and environmental equipment (especially our AC unit) to maintain the power and environmental support for our system. Failure of either of these systems could inhibit the use of our IT systems, and could also stop us from doing business. These failures are not IT-specific risks. We are comfortable enough with the track record of these services not to need more than a short term UPS to allow us to smoothly shut the network down in the event of a sustained power outage. We have to yearly revisit the question of whether or not we need

more power/environmental backup to ensure that the satellite site will be able to operate even if power/cooling at the main site is out.

Disaster Timeframes Table

{This is a sample. Please fill in according to Virtru's standards. Functions can include departments, as listed below, or they can include more specific tasks, such as invoicing.}

Minor Disaster				Major Disaster				
Function	MTD	RTO	WRT	RPO	MTD	RTO	WRT	RPO
Physical Security (office/suite)	1 hour	30 minutes	30 minutes	4 hours	1 hour	30 minutes	30 minutes	4 hours
IT (server, hardware, equipment)								
Sales and Marketing								
Administration								
HR								

EVACUATION PLAN - during business hours:

For a disaster where you will need to **leave the building**:

If a disaster happens during normal business hours all Company employees will meet at **Jack Rose Restaurant, 2007 18th St NW, Washington, DC 20009**.

This will prevent Company employees from being in the way of emergency crews. A head count by managers will determine if all staff members have fully exited the building.

Headcount numbers will be brought to the ISO or CEO.

If the disaster happens after the meeting location has closed, employees will wait outside of the same address.

For a disaster where you will need to **stay in the building**:

If a disaster happens during normal business hours, all Company employees will meet in the **Basement**. A head count will determine if all staff members have fully exited the suite. See above for head count procedures.

{Please fill in the appropriate personnel for the following responsibilities}

Office/Evacuation Managers		Assembly Managers	
Will Ackerly		John Ackerly	
John Ackerly as Backup		Will Ackerly as Backup	
System Shutdown Manager		Back-up System Shutdown Manager	
Jordan Duggan		Jordan Duggan	
Will Ackerly as Backup		Will Ackerly as Backup	

Critical Operation Priority List

If or when a disaster happens, certain contacts will need to be made.

Operation	Employee in Charge	Action Plan
Current enrollment processes (any pending business)	Will Ackerly	Notify carriers of current situation—give cell number if needed.
Communications	Will Ackerly	eBlast to client list
IT—phones, faxes, e-mail	John Ackerly	Set up remote office
Payroll-Banking issues-Commissions	John Ackerly	Notify payroll/banking institutions of disaster and action plan

Potential Purchase List

If or when a disaster happens, certain items may need to be replaced:

1. 3 UPS (Uninterruptible Power Supply)(s)(Batteries)
2. Network Attached Storage (NAS)
3. Network Switch(s)
4. Network cable(s)
5. Power cable(s)
6. Power strip(s)
7. Monitor(s) / Monitor Cable(s)
8. Keyboard(s) / Mouse(s)
9. Firewall
10. Workstation(s) / Laptop(s)
11. Phone(s) & Headsets
12. Security Camera
13. Electronic Door Lock
14. Video Conference Microphones
15. Minifridge
16. Projector
17. Software
 - a. OSX
 - b. Windows
 - c. Acrobat
 - d. Office Suite
18. Paper
 - a. Printer paper
 - b. Sticky notes
 - c. New Checks
19. Multifunction Color Printer
20. Office Furniture/Equipment
21. Carrier (Marketing) Supplies
22. Office Supplies

Fire Plan

EVACUATION PLAN - FIRE!

If the fire alarm goes off during business hours, **evacuate the building immediately**. If you discover a fire or smell heavy smoke inside building: **DO NOT ATTEMPT TO FIGHT THE FIRE!!**

1. Pull fire alarm, evacuate the building and call 911 on the way out of the building
2. Perform head count at the designated assembly point
 - If anyone is missing, call their [emergency contacts](#) to determine if the missing individual has made contact with them. If they have not, alert the authorities.
3. Action Plan - developed by **EPCMT**
 - Re-open based on damage
 - If the office must remain closed:
 - Notify employees and/or employees [emergency contacts](#).
 - If there is any impact to customer operations, email all clients with a status update and recovery plan.

NOTE: First Aid kit located in the drawer of the white cabinet located to the right of the spiral staircase.

Earthquake Plan

EVACUATION PLAN - Earthquake!

During an Earthquake

- **DO NOT USE THE ELEVATOR DURING AN EMERGENCY EVACUATION.**
- If you're indoors, stay there. Get under -- and hold onto -- a desk or table, or stand against an interior wall. Stay clear of exterior walls, glass, heavy furniture, fireplaces and appliances. The kitchen is a particularly dangerous spot. If you're in an office building, stay away from windows and outside walls and do not use the elevator.
- If you're outside, get into the open. Stay clear of buildings, power lines or anything else that could fall on you.

After an Earthquake

- Perform head count at the designated assembly point
 - If anyone is missing, call their [emergency contacts](#) to determine if the missing individual has made contact with them. If they have not, alert the authorities.
- Shut down systems, if time permits, see **Emergency Shutdown Procedures**
 - Check for fire or fire hazards. If you smell gas, shut off the main gas valve. If there's evidence of damage to electrical wiring, shut off the power at the control box.
 - If the phone is working, only use it in case of emergency. Likewise, avoid driving if possible to keep the streets clear for emergency vehicles.

- Be aware that items may fall out of cupboards or closets when the door is opened, and also that chimneys can be weakened and fall with a touch. Check for cracks and damage to the roof and foundation of your home.
 - Listen to the radio for important information and instructions. Remember that aftershocks, sometimes large enough to cause damage in their own right, generally follow large quakes.
 - If you leave home, leave a message telling friends and family your location.
- Action Plan - developed by **EPCMT**
- Re-open based on damage
 - If the office must remain closed:
 - Notify employees and/or employees [emergency contacts](#).
 - If there is any impact to customer operations, email all clients with a status update and recovery plan.

NOTE: First Aid kit located in the drawer of the white cabinet located to the right of the spiral staircase.

Tornado Plan

EVACUATION PLAN - Tornado!

If the city or county signal a tornado warning, move away from the perimeter of the building and any exterior glass.

DO NOT USE ANY ELEVATORS DURING AN EMERGENCY EVACUATION.

1. Move to the basement of the office suite.
2. Shutdown systems, if time permits, see **Emergency Shutdown Procedures**
3. Perform head count at the designated assembly point
 - If anyone is missing, call their [emergency contacts](#) to determine if the missing individual has made contact with them. If they have not, alert the authorities.
4. Action Plan - developed by **EPCMT**
 - Re-open based on damage
 - If the office must remain closed:
 - Notify employees and/or employees [emergency contacts](#).
 - If there is any impact to customer operations, email all clients with a status update and recovery plan.

NOTE: First Aid kit located in the drawer of the white cabinet located to the right of the spiral staircase.

Flood Plan

EVACUATION PLAN - Flood!

1. Evaluate the situation

- Shutdown systems routine, see **Emergency Shutdown Procedures**
- Perform head count
 - If anyone is missing, call their [emergency contacts](#) to determine if the missing individual has made contact with them. If they have not, alert the authorities.

2. Action Plan - developed by **EPCMT**

- Remain open - *based on damage or location*
 - Relocate staff within suite
 - Evaluate IT requirements
- Close - send staff home
 - Re-open based on damage
 - If the office must remain closed:
 - Notify employees and/or employees [emergency contacts](#).
 - If there is any impact to customer operations, email all clients with a status update and recovery plan.

After Hours Plan

EVACUATION PLAN - after business hours

If the building is in a disastrous state after working hours, the **EPCMT** will notify employees. See *Virtru Phone Tree*.

If **re-opening** on a workday at the primary location:

1. Verify location is safe for operations - including systems
2. Communications
 - a. Emergency Contact List
 - b. Client Blast

If **NOT re-opening** on the following workday at the primary location:

1. The **EPCMT** must decide estimated length of time we will not be able to function
 - a. If less than or equal to one day, office is closed.
 - i. **[Name of Business]** will open the following work day
 - ii. Verify location is safe for operations
 - iii. Communications
 1. Emergency Contact List
 2. Client Blast
2. If office needs to move to secondary location or close for a **short** period of time.
 - a. The **EPCMT** meets to develop a plan of action
 - b. Determine the validity of systems
 - i. If valid, move critical systems to secondary location
 - ii. If not valid, retrieve necessary items and contact suppliers for new systems
 1. Restore systems from backups
 2. Restore connectivity
 - a. Skeleton crew of selected staff members (possibly several from each department)

c. Communications

i. Emergency Contact List

ii. Client Blast

3. If office needs to move to secondary location or close for a **longer** period of time:

a. The **EPCMT** meets to develop a plan of action

b. Determine the validity of Systems

i. If valid, move critical systems to secondary location

ii. If not valid, retrieve necessary items and contact suppliers for new systems

1. Restore systems from backups

2. Restore connectivity

ii. Determine staff needs - full or partial capacity

iii. Communications

1. Emergency Contact List

2. Client Blast

Emergency Contact List

Emergency services—call 911	
Police	000-000-0000
Fire	000-000-0000
Poison Center	800-222-1222
Building	
Building Owner	000-000-0000
Alarm Company	000-000-0000
Cleaning Company	000-000-0000

Technical Issues	
Technologies Company	000-000-0000
Website-Programmer	000-000-0000
Miscellaneous Internal Operations/Vendors	
Staffing Companies	000-000-0000
UPS	000-000-0000
Bank	000-000-0000
401K Company	000-000-0000
Payroll Company	000-000-0000

Emergency Shutdown Procedures

If an electrocution occurs while working in server room, staff will pull all of the UPS cords from the outlet by the interior door. If that outlet is inaccessible due to fire or victim's position, staff will shut off the power at the breaker, located in the basement on the wall to the left of the TV.

If there is a fire within the building or suite, staff should concentrate on notifying authorities.

If there is severe flooding that threatens to affect the server room, staff will shutdown and unplug all equipment and move it to the second story platform of the suite.

CERTIFICATE OF REGISTRATION

Information Security Management System - ISO/IEC 27001:2013

The Certification Body of BrightLine hereby certifies that the following organization operates an Information Security Management System that conforms to the requirements of ISO/IEC 27001:2013

ServiceNow, Inc.

for the following scope of registration

The scope of the ISO/IEC 27001:2013 certification is limited to the information security management system (ISMS), which supports ServiceNow as a provider of cloud-based solutions that define, structure, manage and automate services across the global enterprise, as well as all supporting resources including global data center operations and infrastructure, applications, end-user services, and product development, and in accordance with the Statement of Applicability, approved July 28, 2015. Assets within scope of the ISMS include: internal information assets, customer data, software, hardware, people, and physical assets to host, support and operate the cloud-based solutions. The data centers in the following locations house the infrastructure used to deliver the cloud-based solutions: Virginia, California, Florida, Washington, Montreal, Toronto, London, Amsterdam, Geneva, Zurich, Sydney, Brisbane, Singapore, Hong Kong, São Paulo and Campinas. Additionally, ServiceNow uses Amazon Web Services (AWS) to host some ServiceWatch customers. Excluded from the scope are all operations of third party data centers and AWS.

the scope of this certification includes the following locations:

Santa Clara (HQ): 3260 Jay Street, Santa Clara, California, 95054, United States
San Diego: 4810 Eastgate Mall, San Diego, California, 92121, United States
Kirkland: 4400 Carillon Point, Kirkland, Washington, 98033, United States
Orlando: 3501 Quadrangle Blvd, Suite 150, Orlando, FL 32817, United States
Amsterdam (EMEA HQ): Hoekenrode 3, 1102 BR Amsterdam, The Netherlands
London: 3rd Floor, Future House, The Glanty, Egham, Surrey, TW20 9AH, United Kingdom
Sydney: Level 21, 50 Bridge St, Sydney, New South Wales, 2000, Australia

Certificate Number: **1980700-4**

Authorized by:



Christopher L. Schellman
President, BrightLine
1300 N. West Shore Blvd, Suite 240
Tampa, Florida 33607, United States
www.BrightLine.com



Issue Date
September 29, 2015

Original Registration Date
December 17, 2012

Expiration Date
September 28, 2018

Certificate Version
Version 4

CONDITIONS & LIMITATIONS:

1. The aforementioned organization has a perpetual responsibility to maintain compliance with ISO 27001:2013 during the period of certification.
2. This certificate is subject to the satisfactory completion of annual surveillance audits by BrightLine.
3. ISO 27001:2013 compliance audits are not designed to detect or prevent criminal activity or other acts that may result in an information security breach. As such, this certification should not be construed as a guarantee or assurance that an organization is unsusceptible to information security breaches.
4. The information in this document is provided "AS IS", without warranties of any kind. BrightLine expressly disclaims any representations and warranties, including, without limitation, the implied warranties of merchantability and fitness for a particular purpose.
5. This certificate is the property of BrightLine and is bound by the conditions of contract. The authenticity of this certificate can be validated at www.BrightLine.com/Certificate-Directory.



vCLOUD GOVERNMENT SERVICE



Compliant cloud solutions built for government agencies

Whether spurred by the need to increase efficiency, meet government mandates or deal with rapidly expanding data sets and workloads, more and more agencies are moving some or all of their applications or infrastructure to the cloud. However, for many agencies, the most cost-effective, secure and efficient solution is a hybrid cloud model that allows them to not only leverage their existing investments in IT infrastructure, but also extend their systems seamlessly to the technology platform that best meets their needs.

VMware®, the global leader in virtualization and cloud infrastructure, and QTS, a trusted cloud operator and leading provider of hybrid cloud services and managed hosting for government agencies and enterprises, have partnered to deliver VMware vCloud® Government Service provided by Carpathia™ (A QTS Company).

vCloud Government Service is an enterprise-class hybrid cloud service designed to run new and existing applications in exactly the same way, giving government organizations application and data mobility. Being able to use existing people, processes, tools, and automation enables government organizations to focus on the benefits of the cloud to their mission, rather than taking time and resources to re-architect for new infrastructure. Federal organizations can securely extend their data centers to the cloud quickly and confidently, using an integrated cloud infrastructure with the security of a JAB-based FedRAMP Provisional Authorization.

KEY FEATURES

Robust Security and Compliance

- vCloud Government Service is a secure cloud platform that enables customers to maintain security and data protection that meets a broad range of regulations, standards, and best practices including FedRAMP, International Traffic Arms Regulations (ITAR), FIPS 140-2, and AT 101 SOC Type 2.

Efficiency and Manageability

- Agencies can write, deploy, and manage applications in the cloud in the same way they do today, without making any changes or additional investments. With management tools consistent across on premises and cloud environments, you can accelerate application deployments, streamline the deployment and update process, leverage pre-built components, and reuse application models across environments, and clouds.

Seamless Network Integration

- vCloud Government Service is built on a seamless virtualized network that is quickly customizable to support your application and security needs. Network virtualization allows you to configure your firewalls and network as if they were in your own data center so that you can replicate the network your applications need to operate. Get common identity and access management across your onsite and offsite cloud locations.

BENEFITS

- **Ease of Use** – Leverage your existing investments in applications and infrastructure and avoid the complexity of re-architecting for public cloud infrastructure
- **Secure and Compliant** – Secure cloud platform, with security controls designed to meet the unique requirements of government customers, most notably the FedRAMP standards
- **Hybrid** – True hybrid cloud solution enables both onsite and offsite IT environments to run new and existing applications seamlessly
- **Fastest Path to Cloud Value** – Use a common platform to leverage internal and external cloud resources without having to retrain your staff, and lower overall costs



Why vCloud Government Service?

vCloud Government Service has a FedRAMP Provisional Authority to Operate (P-ATO) and is generally available to U.S. government and defense organizations. It can be used for a variety of applications and workloads including:

- Test and development
- Packaged application hosting
- Backup and Disaster Recovery
- Web hosting and customer service
- On-demand data center expansion

Trusted Cloud Services

QTS is redefining the industry with trusted cloud services that leverage innovation to improve the flexibility, scalability, and cost-effectiveness of cloud services.

- We are a trusted cloud operator with past performance serving the government market -- including DoD, Civilian and Intelligence agencies -- across multiple programs and applications
- QTS data centers deliver the highest levels of security and compliance, and meet many compliance standards including FISMA, DIACAP, PCI, and HIPAA
- We hold a number of certifications and accreditations across multiple federal agencies and programs and support over 50 Federal systems holding active Authorizations to Operate (ATO)

Security

vCloud Government Service operates with a FedRAMP Provisional Authorization to Operate (P-ATO) issued by the Joint Authorization Board (JAB). Built with a defense in-depth strategy that puts our customers' critical applications and data in the innermost ring, our people, processes and procedures ensure 100 percent compliance at implementation and through the lifecycle of the project.

Hybrid Options

vCloud Government Service is a true enterprise-class hybrid cloud service, offering a seamless platform for migrating and managing workloads between dedicated virtualized environments, on-premise infrastructures, third-party data centers and the cloud.

ABOUT QTS

QTS Realty Trust, Inc. (NYSE: QTS) is a leading provider of secure, compliant data center solutions and fully managed services, and the owner of Carpathia Hosting, a leading provider of hybrid cloud services and managed hosting. QTS' integrated technology service platform of custom data center (C1), colocation (C2) and cloud and managed services (C3) provides flexible, scalable, secure IT solutions for web and IT applications. QTS' Critical Facilities Management (CFM) provides increased efficiency and greater performance for data center owners and operators. QTS owns, operates or manages 25 data centers and supports more than 1,000 customers in North America, Europe and Asia Pacific.



March 10, 2016

State of Utah Division of Purchasing
3150 State Office Building
Capitol Hill
Salt Lake City, Utah 84114

Mr. Hughes:

As a privately owned company, Carahsoft Technology Corp. does not report to D&B. As such, the information in D&B is incorrect. To support you to determine that we have the financial resource to perform the contract we provide you the following information.

We are a stable, conservative and profitable company. Carahsoft continues to grow as noted by our year over year revenue below:

2010	\$820 Million
2011	\$1.12 Billion
2012	\$1.46 Billion
2013	\$1.81 Billion
2014	\$2.45 Billion
2015	\$3 Billion

We currently employ close to 500 employees.

To support you to determine that we have the financial resource to perform the contract we provide you the following information:

We maintain a \$25M line of credit available (currently 100% available) with Xenith Bank. I have included a recent banking clarification letter from Xenith.

Mr. Joe Humphries is the Regional President and can be reached at 703-869-3610 if you need any information from him.

We have received numerous accolades including:

- For the 6th consecutive year CRN's 2012 Fast Growth List
- Washington Business Journal's 2012 List of Largest Government Contractors in Metro DC
- Third consecutive year Washington SmartCEO magazine's 2012 Future 50 list which recognizes the metro areas fastest growing companies.

Should you require additional details please call me and I can discuss our confidential financial information with you or provide you trade references that can further assist you.

Sincerely,

Jillian Dewey Szczepanek
Controller

Carahsoft Technology Corp.

DUNS: 08-836-5767

Credit Information

Risk Summary

Risk of Late Payment



Risk of late payment is based on the following prioritized factors in addition to other information in D&B's files:

- Proportion of slow payments in recent months
- Higher risk industry based on delinquency rates for this industry
- Increase in proportion of delinquent payments in recent payment experiences
- Proportion of past due balances to total amount owing
- Evidence of open liens

Indications of slowness can be the result of disputes over merchandise, skipped invoices, etc.

Payment Performance Trend



The payment performance trend for this company is Increased . Payment Trend currently is Increased compared to payments three months ago. The most recent payment information in D&B's files is:

- Payments currently: 11 days beyond terms
- Payments 3 months ago: 19 DAYS BEYOND terms
- Industry average: 5 DAYS BEYOND terms

*Note: Payments to suppliers are averaged weighted by dollar amounts.

Credit Limit Recommendation

Recommendation Date: 11/18/2015

Risk Category

High

Conservative Credit Limit

\$0

Aggressive Credit Limit

\$0



Company Profile

Chief Executive:

DIRECTOR(S): THE OFFICER(S)

Type of Business:

NA

Years in Business:

NA

Annual Sales:

Line of Business:

Whol computers/peripherals

1000000000	
Employees Total:	500

Legal Filings and Other Important Information			
Bankruptcies:	None	Negative Payment Experience:	None
Judgements:	0	Negative Payment Experience	None
Liens:	3	Amount:	
Suits:	None	Payments Placed for Collection:	0
Suits/Judgments/Liens Amounts:	None		
The public record items reported may have been paid, terminated, vacated or released prior to the date this data is transmitted. Accounts are sometimes placed for collection even though the existence or amount of the debt is disputed.			

Special Events
We currently do have any information to be displayed for this business.

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Payment Trends

Summary	
Address: 1860 Michael Faraday Dr, Suite 100 Reston, VA 20190	Primary Industry SIC: 5045
D-U-N-S Number: 08-836-5767	Description: Whol computers/peripherals
This is a single location.	
Payment Activity	
Total payment Experiences in D&Bs File:	48
Payments Within Terms: (not dollar weighted)	72%
Total Placed For Collection:	NA
Average Highest Credit:	\$2,379,615
Largest High Credit:	\$20,000,000
Highest Now Owing:	\$20,000,000
Highest Past Due:	\$4,000,000
Indications of slowness can be the result of dispute over merchandise, skipped invoices, etc. Accounts are sometimes placed for collection even though the existence or amount of the debt is disputed.	

3 Month PAYDEX®

75

When weighted by dollar amount, payments to suppliers average 8 days beyond terms terms.



Based on payments collected over the last 3 months

24 Month PAYDEX®

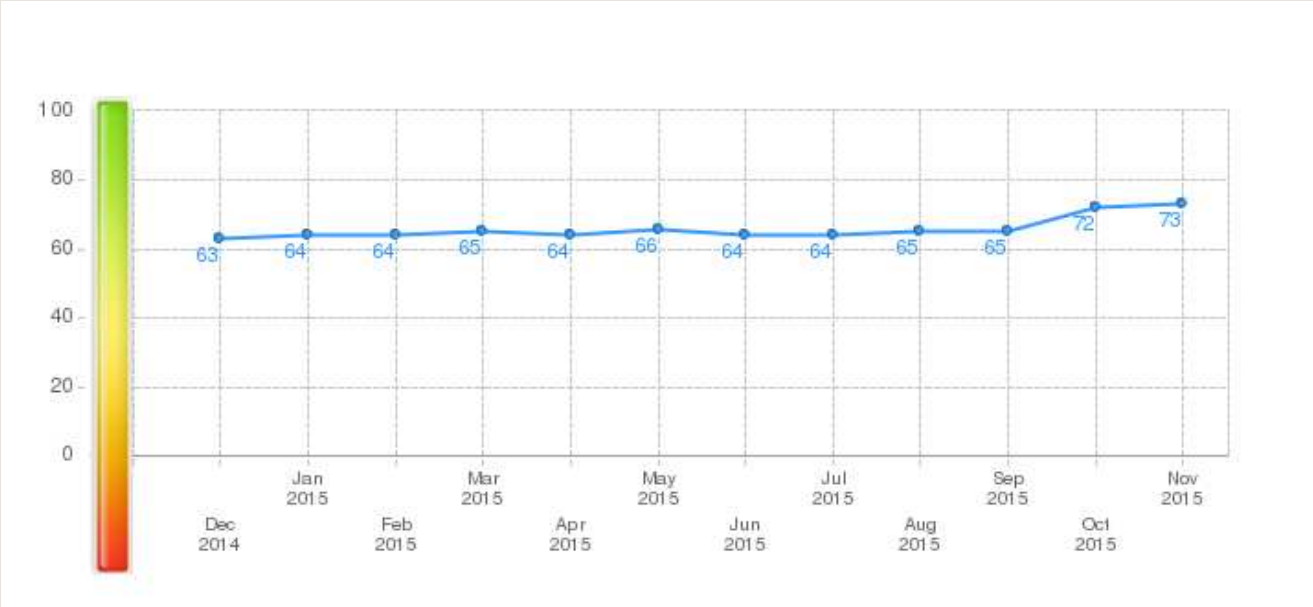
73 ▲

When weighted by dollar amount, payments to suppliers average 11 days beyond terms terms.



Based on payments collected over the last 24 months

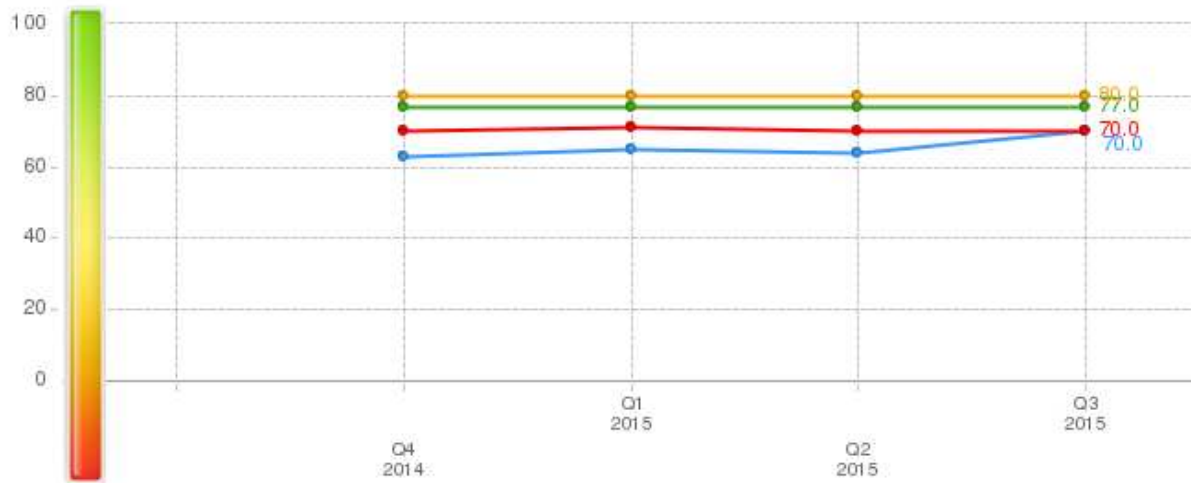
PAYDEX ® Trends - This Company, 12 Months



This Company (73)

- Based on payments collected over the last 12 months.
- Current PAYDEX® for this Business is 73 , or equal to 11 days beyond terms terms
 - The 12-month high is 73 , or equal to 11 DAYS BEYOND terms
 - The 12-month low is 63 , or equal to 11 DAYS BEYOND terms

PAYDEX ® Score Comparison - This Company to Primary Industry Comparison, 4 Quarters



- My Company (73)
- Industry Median (77)
- Industry Upper Quartile (80)
- Industry Median (70)

Based on payments collected over the last 4 quarters.

- Current PAYDEX® for this Business is 73 , or equal to 11 days beyond terms
- Current PAYDEX® for this Business is 77 , or equal to 5 DAYS BEYOND terms
- Industry upper quartile represents the performance of the payers in the 75th percentile
- Industry lower quartile represents the performance of the payers in the 25th percentile

Business Payment Habit by Amount of Credit Extended, 24 Months ?

\$ Credit Extended	% of Payments Within Terms	# Payment Experiences	Total \$ Dollar Amount
Over 100,000	73%	24	\$90,200,000
50,000-100,000	100%	1	\$85,000
15,000-49,999	27%	5	\$110,000
5,000-14,999	73%	4	\$27,500
1,000-4,999	100%	1	\$2,500
under 1,000	100%	3	\$400

How to Read the D&B PAYDEX ® Score ?

