Building an SAP Infrastructure to Handle the Winds of Change

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A Closer Look at Hyperconverged Infrastructure

Anyone who has been to the top of the Willis Tower—formerly the Sears Tower—in Chicago can attest to the fact that the skyscraper sways when it's windy. People on the 103rd floor can feel the building move six inches from its center on a blustery day. Architects deliberately designed the building to sway three feet to withstand heavy winds blowing from Lake Michigan. But the integrity of its structure wouldn't allow for this without a firm foundation. In other words, the infrastructure must be both solid and flexible to bend without breaking.

Flexibility or Fracture?

Imagine the software used throughout a company as the floors of a skyscraper. Shifts can happen that are sometimes significant in scale, though not always the result of carefully planned change management. This is often the case when IT and SAP Basis teams are tasked with operating faster and more efficiently while reducing their overhead—all without sacrificing performance or system availability. Without a solid infrastructure, business technology can bend only so far before something breaks.

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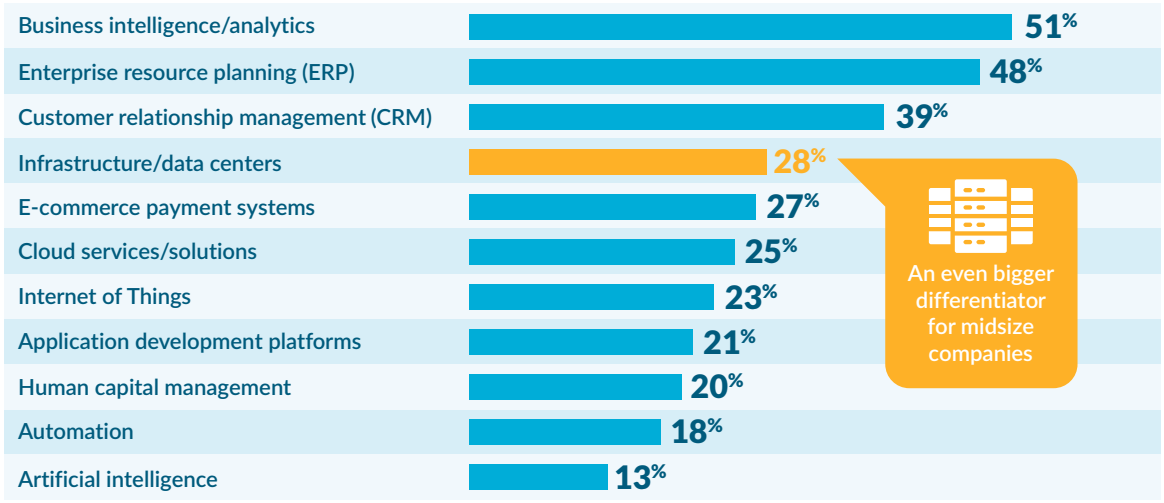
For this reason, it is crucial that businesses have the right infrastructure in place. Compounding inaccuracies and inefficiencies in your technology infrastructure increase risks to the business overall. Making sure your company's technology stack is strengthened at the lowest level will help prevent your systems from crashing and will increase your company's agility.

The Bottom Layer Affects the Bottom Line

There are benefits associated with a sound technology infrastructure. ASUG conducted research in early 2018 (shown in Figure 1) about key business differentiators and competitive advantages. Infrastructure is among the top five differentiators, ahead of factors that include cloud services, automation, and emerging technologies.

Figure 1: Key Business Differentiators for SAP Customers



Source: ASUG Research, May 2018

One fact stood out from the data: Midsize companies with revenues between $1 billion and $2 billion place even greater importance on infrastructure, trailing only ERP as a differentiator. This suggests that having a best-in-class infrastructure positions a company to steal market share away from its competitors. That's something that executives can get behind, even if technology infrastructure isn't top of mind.

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Redefining Infrastructure Today

Infrastructure within the business technology world is a broad term encompassing a range of products, services, and competencies. Before the growth of virtualized and cloud-based strategies in the 1990s and early 2000s, infrastructure was defined as the physical servers and storage arrays that sat on-premises and stored the company's data. Today, companies have the option to outsource some of this responsibility away from their physical locations and IT departments. That has both reduced and increased complexity because IT teams must now work with infrastructure as a service (IaaS), which is offered by cloud providers including Amazon Web Services, Google Cloud, Microsoft Azure, and others.

The exponential growth of information and data that's transferred, analyzed, and stored across systems is causing IT infrastructure teams to look for new ways to manage and use large volumes of data. It is paramount to make this information accessible to employees in real time so they can do their jobs more effectively. This need for increased compute and data storage is driving infrastructure change, according to a 2017 Interop ITX survey (Figure 2). Cloud integration and simplified systems management also are key areas of interest for IT professionals who participated in the study.

Figure 2: Top 5 Factors Driving IT Infrastructure Change

Source: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

A New Blueprint for Infrastructure

The evolution of infrastructure led to the introduction of converged infrastructure (CI), an architecture that combines multiple IT elements into one computing package. Among these elements are software, servers, networking equipment, and data storage arrays that historically have had their own vendors and plans for support, maintenance, and updates. CI allows a company to simplify how it deploys these IT resources by consolidating systems where appropriate. This ultimately reduces the time it takes to make these systems available and has the potential to lower the total cost of ownership (TCO) of technology infrastructure. For those looking to run SAP HANA in an on-premise environment that requires these applications and data servers, a converged infrastructure as part of a Tailored Datacenter Integration (TDI) provides a strong alternative to the physical appliance approach that companies are predominately using for SAP HANA today.

There are pros and cons to both infrastructure approaches. Appliances are quicker to deploy and easier to manage, but they are not flexible and do not offer advanced storage capabilities. A converged infrastructure is much more flexible and has advanced storage capabilities, yet it's more difficult to deploy and manage than purpose-built appliances. Both of these options limit the ability of SAP HANA customers to take full advantage of the in-memory capabilities and real-time access to data that SAP HANA offers. These customers need an alternative that brings together the best of both worlds. That's why the next-generation approach to infrastructure, hyperconverged infrastructure (HCI), has emerged.

The Next Generation: Hyperconverged Infrastructure (HCI)

The biggest difference between an HCI-based solution and a traditional CI or appliances is how an HCI separates storage vehicles, also known as abstraction. This happens at the physical hardware level for CI and appliances. HCI, however, virtualizes computing using a hypervisor, networking, and software-defined storage. The operating system creates this software-defined storage along with networking and compute capabilities. The hypervisor is layered on top of these pooled resources and brings the discrete elements of the physical assets into commercial off-the-shelf (COTS) servers. This allows a company to apply the same methods and standard operating procedures across different parts of its infrastructure.

For SAP customers looking to improve their infrastructure, moving to a virtual system via a solution that leverages HCI lets you consolidate all SAP applications, traditional databases, and SAP HANA databases onto a single platform. The performance of this design is comparable to a typical localized data storage deployment. Yet it lacks the complexity and rigidity of traditional storage while still retaining the availability, scalability, and manageability of shared architectures. For those looking to take advantage of all the cloud has to offer, today's HCI solutions are based on web-scale architecture and share many of the attributes of private and public cloud offerings. This includes benefits such as being server node-based, software-defined, highly automated, and able to scale incrementally.

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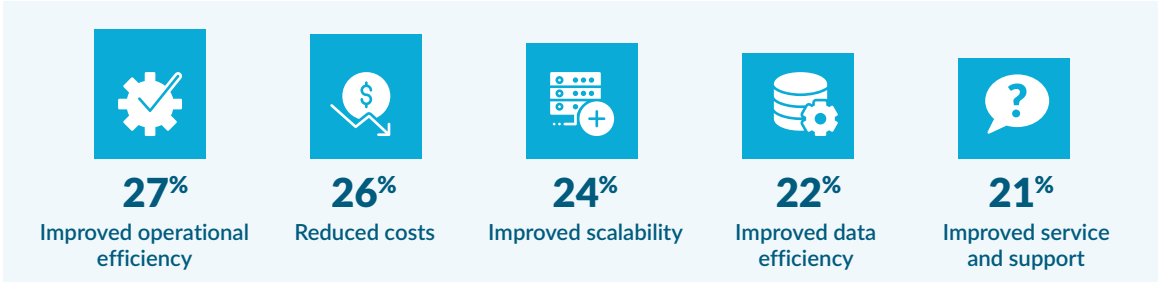
Why Don't More Companies Benefit from Hyperconverged Infrastructure (HCI)?

HCI offers benefits to a company at both the business level and the technical level. From a business perspective, using HCI for SAP HANA environments allows a company to achieve all the gains promised by running SAP HANA, including:

- Increased speed
- A simplified IT footprint
- Reduced risk of downtime caused by a compromised infrastructure

Additional key business benefits (or anticipated benefits) of HCI from a 2018 Nutanix research study are shown in Figure 3. Together, these allow IT and SAP Basis administrators to be more efficient and redistribute IT resources to other important projects.

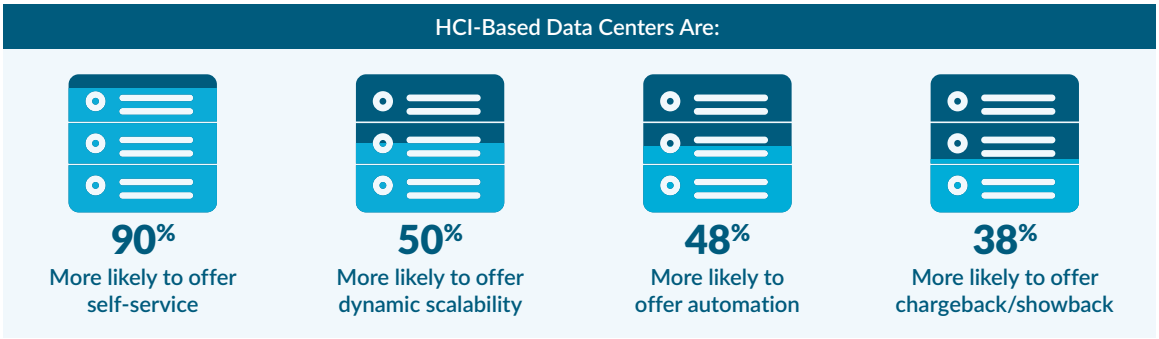
Figure 3: Key Business Benefits of HCI Adoption



Source: 2018 State of the Enterprise Datacenter, ActualTech Media and Nutanix

At the technical level, HCI can increase the maturity of a company's data center. Though HCI isn't a definitive catalyst for data center maturity, companies that have adopted HCI or are implementing it are significantly ahead of their non-HCI peers on data center processes (Figure 4) such as self-service, automation, dynamic scalability, and chargeback/showback (policies used by IT to allocate costs by each department's use).

Figure 4: Data Center Capabilities for HCI Adopters



Source: 2018 State of the Enterprise Datacenter, ActualTech Media and Nutanix

The adoption of HCI, however, still is relatively light among those aware of the technology. According to ActualTech Media and Nutanix research, only 23 percent of the businesses surveyed implemented or are in the process of implementing HCI at their companies, while 33 percent have no plans to use HCI. Considering all of the potential benefits to the business and data center, the 33 percent with no intention to use HCI should be a much lower percentage of the respondents.

Deciding Whether Hyperconverged Infrastructure Fits

If you are not among the 23 percent who have already made the move to a solution using HCI, or you have adopted HCI for a specific workload but are now considering broader use for business-critical SAP applications, we suggest asking a few questions within your organization to learn whether adopting it could be a good fit:

> **How long have we been using our current infrastructure model?** Inertia often is a key barrier to change. If you have been using the same strategy for a decade or more and upgrading your hardware, you might be leaving efficiencies and profits on the table.

> **Are we having trouble keeping up with the application performance and data access demands our company is experiencing?** If so, it might be an indicator that your physical assets and/or resources to support them are spread too thin. An HCI-based solution would virtualize many of these assets to make them more flexible and accessible as the demands on your IT team change.

> **Are we planning an SAP HANA transition within the next few years?** If you are embracing the reality that SAP ECC maintenance coverage will end by 2025, you might be thinking about or planning an SAP HANA migration. Looking to the future should inspire you to reduce silos instead of creating new ones. That's a reason to avoid maintaining the status quo for SAP HANA while moving to a modern infrastructure for the rest of your SAP systems.

Improving your infrastructure concurrently or prior to the transition will help you avoid building your shiny new building on an old foundation that might have cracks. If you have already made the switch to SAP HANA but still are using an older infrastructure model, consider these changes before you purchase additional systems running custom applications. The same theory applies if you aren't quite ready to make the switch to SAP HANA, but you want to be certain your infrastructure is ready to support you when you are.

How much of your technology landscape remains consistent and how much has variable resource needs? If you have largely predictable growth and your system is running continuously, an on-premise HCI approach is likely the most cost-effective and manageable solution for you. If you have high variability and intermittent demands on your systems, then solutions using the public cloud are worth considering. You also can mix and match these two options (in some cases even with the same solution provider). For example, you can use the public cloud to run test environments.

Building an Infrastructure to Handle the Winds of Change

A quote from William Arthur Ward is appropriate: "The pessimist complains about the wind. The optimist expects it to change. The realist adjusts the sails." For people at your company to take the next step forward, they need technology infrastructure that will not only assist them in their day-to-day duties but open up new opportunities. If you haven't assessed your company's technology, we hope learning about these advancements will inspire you to inspect and strengthen your infrastructure foundation.

ABOUT ASUG

Founded in 1991, Americas' SAP Users' Group (ASUG) is the world's largest SAP user group with 2,300-plus corporate members. ASUG's mission is to help people and organizations get the most value from their investments in SAP technology. The Chicago-based organization accomplishes this by connecting and educating people through in-person and virtual events, delivering customer feedback to SAP, and advocating for our members. Find additional information at www.asug.com.

ABOUT NUTANIX

Nutanix is a global leader in cloud software and hyperconverged infrastructure solutions, making infrastructure invisible so that IT can focus on the applications and services that power its business. Companies around the world use Nutanix Enterprise Cloud OS software to bring one-click application management and mobility across public, private, and distributed edge clouds, enabling them to run any application at any scale with a dramatically lower total cost of ownership. The result is organizations that can rapidly deliver a high-performance IT environment on-demand, giving application owners a true cloud-like experience. Learn more at www.nutanix.com or follow Nutanix on Twitter @nutanix.