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New American  
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FIRESIDE CHAT WITH GENERAL DAVID L. GOLDFEIN

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Fireside Chat with the 21<sup>st</sup> Chief of Staff of the Air Force

# **Fireside Chat with General David L. Goldfein: 21<sup>st</sup> Chief of Staff of the Air Force**

BY

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## I. Opening Remarks

Susanna Blume: Thank you very much everybody for joining us here today. My name is Susanna Blume. I'm the director of the defense program at CNAS. And joining me today at my larger than usual virtual fireside is General David Goldfein, the 21st chief of staff of the Air Force. General, thank you very much for joining me today.

GEN Goldfein: Thank you.

Susanna Blume: He and I are going to have a little bit of a chat about strategy, force design, resourcing, et cetera. And then we're going to leave about 15 to 20 minutes at the end to take your questions for the general. And with that I'd like to invite General Goldfein to make a few opening remarks to start us off.

GEN Goldfein: Yeah. Thanks. And thanks for everybody. I know that we end up rescheduling after a little bit of world events, but thanks. And also, Susanna, it's great to see you again. We had a chance to work together in the Pentagon for a while. Thanks for setting this up and for staying engaged in defense.

Susanna Blume: Of course.

GEN Goldfein: So, maybe just some framing comments and then we'll just jump right into the Q&A. And I know that the focus will likely be on the budget coming up. And I will tell you up front, I'll share as much as I possibly can here going forward. We just had a really good meeting this morning with secretary Esper, with all of the service chiefs and the defense leadership talking about themes and messages going forward. For the Air Force, this is really a continuation of our 21 submission. What you're going to see is it's really a continuation, and I would offer an acceleration of a dialogue that we've been having for the last really four years.

GEN Goldfein: And if you go back to 2018 and of course, this is the 2018 budget, but we started in '16 - that was the first year that we actually got a full appropriation on time, after nine years of continuing resolutions. And so, I would offer that that was the first year where we really just stopped the bleeding of readiness that was just going downhill for all the services.

GEN Goldfein: And so, we really just started reversing that trend line. But two other things happened in '18 that were really important, and they were signature documents that came out, and that was of course the National Defense Strategy and the nuclear posture review. And those have been guiding documents for us I think ever since. Because you build budgets two years out, right? It came out in '18 we were already building '20 so, we were aligning the '20 submission already.

GEN Goldfein: In '19 we took on two really signature efforts and won both of them. And not one of them was easy. The first one was to transition from a platform centric approach to command and control and battle management with a platform called Joint STARS that we had to replace and shifted into a network solution for the future. We ought not underestimate how difficult. And you remember how dialogue that was.

- Susanna Blume: Yes, I do.
- GEN Goldfein: ... But the entire department aligned looked at what we were proposing and determined that in fact what we were proposing would provide the best possible solution for the joint team going forward. And we also put on the table, a pretty significant shift from defenseless space into defensible space, when we canceled two of our cyber satellites, and went into a defensible architecture. We actually had to win those two to set the foundation for now what's coming because as I would argue that advanced battle management is actually the pathfinder, and the foundation for now what we're calling Joint All-Domain Command & Control.
- GEN Goldfein: We did our own reforms in the Air Force, in the '20 submission. And part of this was, answering a question that came from Congress, which is what do you need to be able to successfully execute the tasks you're given Air Force in the National Defense Strategy? And we ran 2000 computer iterations on this and had a lot of data to back up our submission, which would say, "Hey, to be able to close on the National Defense Strategy missions with moderate risk." Which is about as much as I can say in an open forum, but there's a lot more fidelity I could go into in a classified forum against our best assessment of the threat that's laid out in the NDS.
- GEN Goldfein: We need 386 operational squadrons, not gold plated. We had 412 when we went into desert storm. So, we're saying to actually compete, deter and win against a nuclear pier, and do the Air Force missions, we need 386. We also reformed the staff, and build a numbered Air Force focused on information warfare, taking four disciplines of cyber ISR, electronic warfare, and information operations, putting them together, and putting one of our top cyber operators in charge, General Hawk, and stood up that, and aligned with the Navy on our N26, A26.
- GEN Goldfein: So, we reformed the department. Did our own night chord, right? Sourced about \$30 billion to put into the '21 submission, which is focused on four areas. And I'll just leave this out go into those Q&A. Most of us in this room had been in the war gaming business for years, and we tend to put ourselves up against the most stressing scenario we can find because if you're going to win that scenario, you can normally win the other ones that you may have to face.
- GEN Goldfein: For the last 10 years, I would say, well over 50% of the time we'd walk away from the war game and it didn't end well, and we'd go back again, and we'd restructure and look at different force design, right? What we found is that if we could invest in four areas and keep our submission intact in these four areas, we actually won in the most stressing scenario, for the first time in years. And the four key areas that we found you have to invest in is first and foremost, you got to connect the joint team.
- GEN Goldfein: We have to have access to common data so that we can operate at speeds and bring all domain capabilities against an adversary to overwhelm them. So, you got to do that foundational work, which is digital engineering, and data architecture. We found in every war game that if you're the first to move in space, you're not actually guaranteed to win. I mean, it's not a birthright, but if you're the second mover, your chances of winning go down significantly. So, you've got to dominate space. So, you will see some significant investment in space capabilities, and it's not enough just to be in the ring taking punches.

- GEN Goldfein: At some point you got to be able to punch back, and if you want to deter the adversaries, they got to know that you have the capability of punching back. One of our challenges is a lot of what we have to talk about and talk to Congress about is in the classified arena. And so, we are doubling the number of sessions we're doing in small crew rooms with members of Congress and with staffers to walk them through, "Hey, here's what I can say in an opening hearing, but when I say these words, it's code for this capability that we're buying."
- GEN Goldfein: And so, we're doing a lot of that. After you dominate space, you've got to be able to produce combat power both inside and outside defended areas. We tried running an entirely inside force, a treatable, we tried running an entirely outside force, standoff. And what we found in the scenario we were fighting in is you got to have a hybrid. You got to be able to do both, and you can't forget that it's both nuclear and conventional. And lasting area that we invested in is we no longer think it's a good assumption that we will have unfettered access to logistics.
- GEN Goldfein: That's something we've enjoyed now for the last, 18, 19 years, right? Well, we've been able to move personnel equipment at a time and place of our choosing, then that system hasn't been under attack. That's a bad assumption for the future. So, we are looking at creative ways of being able to have less footprint and be more agile on our feet, so we can move to win in those scenarios. So, when we talk about force design and where we're investing, it's going to be in those four key areas, and I'm feeling pretty confident going into the submission.

## II. Conversation

- Susanna Blume: Great. Well, thank you for that overview. I want to dive deeper into basically everything you said. I'm cognizant of our time. We'll have to pick and choose. But starting with the National Defense Strategy, which is where I typically like to start these conversations, it just turned two. So, we've got a two-year old strategy here and as you say, we've actually had the cycles required through the resourcing process to hopefully align program to resources. And I was wondering, if you could answer this question, both in your joint chief's hat and your chief of staff of the year force hat, how is the joint force and how is the Air Force doing on implementation? How would you grade them against the strategy?
- GEN Goldfein: Based on where we started, to where we are right now today, going even to the conversation we had this morning, I will say that we are having the kinds of discussions on alignment of all the services, and our budget submissions. And how we talk about the business of joint war fighting in ways that I've not seen in previous years. And what we tend to do is sometimes we build our own individual service submissions and then someone's got to cobble it together, right? We're actually building the foundation.
- GEN Goldfein: We started talking about multi-domain operations and multi-domain C2 in 2016, and it was an interesting discussion, and we were moving forward. And what we decided as an Air Force is that, we were not going to win like we won in the JSTARS or the defensible space, we were not going to win with PowerPoint charts with lightning bolts.
- GEN Goldfein: I mean it was just that it has to be real. And so, what we've built that we now have going into this submission is we ain't talking about cloud architecture. We have actually built one. We have one, it's up, it's operating, it's running. And all the services are connected in. We're not

talking about data architecture. We actually have built a unified data library, and we're inclusive of all the services going forward. We're not talking ... I mean, in each of those ones had one of those little green lightning bolts, right? Which were aspirational, right? You can remove the lightning bolt, and are we built? No, are we where we need to be? No, this journey never ends.

GEN Goldfein: We're going to be on this. But the fact that every four months, we're doing a demonstration of connectivity. So, the last one we just did, which was extremely successful and not everything worked. I think Dr. Roper said, "Hey, we had 26 of 28 things that didn't actually work." Right? It was a great experiment. We learned a ton, but I want you to think about this. All right. So, we did an experiment, with the other services. We took a space that, I'm going to talk about it in totally unclassified terms here, but we took a space asset.

GEN Goldfein: And we built the algorithms, put the common data architecture in place, and we put a Naval vessel, and an enemy Naval vessel with all the right emissions out there, right? And we told the space to go out and see if it could find it. It found it, but it couldn't identify it, and it couldn't get target quality coordinates. So, it passed information to a ISR asset. That ISR asset actually put sensors on it. Got targeted quality coordinates and a 90% confidence in the ID. Pass that to a C2 asset that had a full data list of all the capabilities you could use based on commander's intent to either kinetically or non-kinetically to accomplish the objectives, right? Chosen an Aegis cruiser, and then targeted that Aegis cruiser against that particular enemy target. Here's what's important. The first human in that loop was on the cruiser. Everything else was done at machine speeds-

Susanna Blume: And it's amazing.

GEN Goldfein: ... That's our future. So, when I say connect the joint force, I'm talking about making sure that every sensor, every shooter has got access to each other and commanders have access. So, we can operate at a speed that the adversary can, it just overwhelms them because I can come at them from above, below. I joke and say, "If I see one more PowerPoint chart that has this big red dome over China, I'm going to execute Cho Kun on a slide [crosstalk 00:15:26]." Right? China cannot put a red dome over itself.

GEN Goldfein: It can put a block of Swiss cheese over itself, our jobs to know where the holes in, and get in, and hold targets at risk. And so, I'd give ourselves a pretty good grade in terms of the maturity of the dialogue. And the question will be whether the budget will survive, will it survive when we're talking about networks, and new ways and new concepts for joint war fighting in a platform town?

Susanna Blume: Yeah. I do want to come back to that one, but I want to ask you a follow-up first on that first question. Where does work remain to be done, right? I mean what you've just cataloged as I fully agree, a pretty significant accomplishment in terms of realigning program to strategy. But there's got to be unfinished business and I wonder, what are on the top of your list of that [crosstalk 00:16:23].

GEN Goldfein: I think in '21 the key for us is going to be are we able to as joint chiefs articulate this vision going forward? And the importance of networks and ... I mean, data is the currency of future warfare. And if you don't have access to it, you are not in the game. How do we communicate that in an environment where I don't think there's going to be a single network

lobbyist pounding on the doors of Congress? Right? But there's going to be plenty of platform lobbyists. And so, when we started looking at, because you got to find ways to pay for this.

GEN Goldfein: And one of the ways that we have found and all the services are looking at this the same way as if you have platforms that are not going to play in that 2030 fight, is there a near term risk, which is real risk that we need to take as a department to buy our future, to be able to have the connectivity we need to fight at the speeds the future's going to demand. That's the narrative this year. That's the dialogue that we were going to have to be able to explain. And it's not an easy narrative in a town that's primarily focused on platforms.

Susanna Blume: Yeah. I think what you've just described I see as a twofold challenge. First of all, the networks that you're describing, you can't touch them by definition.

GEN Goldfein: That's right.

Susanna Blume: It makes it a very hard sell, particularly when there aren't huge factories in congressional districts that are producing these things. But there's a second aspect to the challenge that you've described, which is, it's very difficult for humans generally to prioritize the future over the present. And in particular in the latest round of escalation with Iran, I see that unfolding and I think risk to NDS. I'm wondering how you and other senior leadership in the department are working through that balance particularly as we're seeing an increased demand signal from that region.

GEN Goldfein: [inaudible 00:18:34] go back to a conversation I remember listening to. I was a major at the time, and I happened to be on a helicopter with then chairman Shalikashvili. And then we landed in Bosnia, and he was in a press conference, and somebody asked him, he says, "You're doing so much peacekeeping chairman. Why don't you just carve out a big portion of the forest and just build peacekeepers if that's what you're doing anyway." And his answer was, great. He said, he goes, "I can turn warfighters into peacekeepers. I can't turn peacekeepers into warfighters. I got to build warfighters."

GEN Goldfein: If we build what we need to defeat China and Russia, we'll have everything we need to handle Iran. If we build a force that just handles Iran, we're not going to have what we need to handle the high-end fight. So, that's where I think you are going to see certainly for the Air Force that were focused. I can adapt for a middleweight challenge. I can always adapt that direction. I can adapt in a reverse direction.

Susanna Blume: But the challenge that you've just described in terms of accepting risk in the here and now, where these increased tensions and increased activity vis-a-vis Iran are happening versus making these investments that are not going to come to full fruition for another end of five years or so. It's a very tough balancing act.

GEN Goldfein: Yeah, it is. Because there's real risk, right? I mean, it's one thing for the chief ... And this is the natural tension between a service chief, who's focused on handing over a service to chief 24, as chief 21, right? I think a lot about chief 24 is going to war in 2030, and chief 24 will likely go to war with the force that chief 21 built-

Susanna Blume: Right. Built.

- GEN Goldfein: ... And so, my focus is always going to be longer. If I'm the CENTCOM, AFRICOM, EUCOM, you name the com commander, I've got a two-year horizon and a mission that I've been given today. So, it's real risk and I don't play down what I'm asking for if I'm trying to sacrifice some legacy capability now that combat commanders are relying on to be able to buy the future that we need. But that's the tension that's always there, that we're going to have to work our way through.
- Susanna Blume: Yeah. So, in light of those comments, I want to circle back to this question of 386 operational squadrons. That report came out very early last year. So, we're about a year away from that analysis. And I wonder if, in light of all the work that has occurred since, and again thinking differently about new operational concepts, has that changed your thinking on the capability capacity tradeoffs that you see in the future force design?
- GEN Goldfein: Not significantly because again, it was a really useful question to be asked, to then have the analytical rigor behind the answer we provided to Congress. But life changes, the threat changes, right? Technology changes. One of the things that's probably the most exciting thing for now as we stand up. And I'd love to spend some time talking about the space force, and two chiefs with one mission. It was the services is the exponential growth in commercial space opportunities, and how we harness that. Right?
- GEN Goldfein: So, all those things change, and what you have to be as agile and you have to be consistent enough so that folks can follow your logic from year to year. Again, why '21 is a continuation and an acceleration of a four-year journey and story, but also be agile enough to be able to shift quickly when new technology or new opportunities arise. So, you think about what's going on in space, so what's caused space now to be profitable? I'd say it's two things, right? It's increased access to affordable launch. I mean, I remember as a young programmer, as a carnal when they would walk into me and say, "Hey, we got this launch and we really think we can get this down to some ... " I'd say, "Just go away and bring me back the billion dollar number." Because in the end it will come back eventually as a billion dollars. Right?
- Susanna Blume: Mm-hmm (affirmative).
- GEN Goldfein: Well, now, we hosted this air chief's conference on space. Every country was telling me about their launch business. So, now we have launch opportunities, and now the second thing that's happened is payload's getting smaller. We're from school buses to suitcases, and small ... Have a satellite it's about twice the size of this cup. I have a satellite in my office that I show people, a [SkySat 00:23:41]. It's a satellite. So, you get launched, it's affordable. Payload that's smaller, space's now profitable. How do we harness that going forward? You got to be agile enough to make sure you can latch onto that and bring it in.
- Susanna Blume: Yeah. Well, it was once described to me by a space expert, we hosted CNAS for a little while, as a death spiral basically, right? Launch is so expensive that your satellites get ever bigger and much more exquisite because it costs so much to get them into space, which means your risk tolerance in the launch is ever lower because the satellite so expensive, which means, on and on. And I would agree. I think what we've seen just in the past couple of years is a real reversal of that dynamic, which is a huge game changer.
- GEN Goldfein: Well, chief Raymond, his task and our task together, right? As two peers of two services within the department, the Air Force is really to do three things. We got to defend what we

got because it's going to be up there for a long time and we all relied on it. And by the way, everyone in this room, you access space before your first cup of coffee this morning, right? If you reached over, grabbed your cell phone, and looked at it, right? And started checking on things, you are already accessing space technology.

GEN Goldfein: So, we all rely on space capability. So, we've got to defend what we got but we also got to transition. While we're defending what we have, we've got to transition into new capability and make sure that we have capable deterrence because I have not fought one war game yet where a war has either extended into or started in space that produced any winners. In every war game, everyone loses. And so, we have got to have capabilities, so others know that they are not going to win if they go there.

GEN Goldfein: The third thing we got to do is we've got to build a force, right? We got ... General Raymond, Chief Raymond, and me helping him with so much of the infrastructure support as he builds up his service to develop the warriors that we require to take this domain and do what the president's ask, which is to dominate in space. So, we've got to make sure we're agile enough to going forward to do that.

Susanna Blume: So, can I ask you a little bit, how's that transition going? What does it look like? What do the next couple of months to a year look like in the evolution of space force?

GEN Goldfein: I'll tell you, that this one president got it exactly right. I'll tell you in my opinion. I did my own journey, as I worked through, "Okay ... " I went and visited both all the launch facilities, I went and talked to folks, I went down to Maxwell, and talked to our Schriever fellows down there, and really got the details. And I came away on my own with realizing, man, this is exactly where we need to go. The objective for I think chief Raymond and I are, how do we build a service on a foundation of trust and confidence, and focused on integrated joint war fighting but at the same time allow the space force to develop its own unique service culture?

GEN Goldfein: Because we could hug it to close and slow it down or we could allow space to get separated too much as we build a separate service. And there's a sweet spot that we got to find that we're driving at. And sometimes just to give you the visual, I talk about two years ago almost, I got the best call sign ever papa, right? So, I've got two granddaughters now. And I've done the math and they are going to be the Air Force Academy class of 2040, they don't know this yet, right? If their parents have anything to say about it, they'll be Texas A&M class of 2040.

GEN Goldfein: But let's just agree that they're going to class of 2040. One of them is going to join the Air Force, and one is going to join the space force. On 2040 the class of 2020 will be graded. That's us. And the question is, what did we build? Did we build two services on a foundation of trust, confidence, and focused on integrated joint war fighting? Or did we allow others to make this some a divisive split? Is this a marriage or a divorce? This is a marriage, and we have got to do this. Well, and chief Raymond and I are absolutely committed to getting this right. And does that space force have its own unique service culture just like all of the services going forward? That's the task at hand.

Susanna Blume: Yeah. I mean in a sense there's a little bit of cognitive dissonance between creating two separate forces under the department of the Air Force, when the trends all seem to be

moving in the other direction towards further integration. And particularly when we think about, the fact that so many missions can be accomplished from space, from air breathing platforms, from the two working together, it'd be really detrimental. We're the space and air portfolios to drift too far apart from each other. But you don't see that happening. You think they're-

GEN Goldfein: That's our task. We can't let them drift too far apart. But I also is a reason that every session I always talk about, but it is a separate service within the department of the Air Force. And it has to have room to grow and do that. And as it grows, one of the things Chief Raymond and I are talking about is, it will take time. We're not going to stand this force up completely in one year. It's going to take a few years to do this.

GEN Goldfein: And so, there'll be portions of the support for the space force that will be primarily, United States Air Force. And then as the chief Raymond stands up his own individual elements, right? That will shift. And so, that's what we want to do is make sure that we build this sort of ... And because we haven't done this since 1947, it actually frees us a little bit to write our own template going forward and working closely with Congress as we go forward. And of course, the white house as we do it. So, I think, right now I'm feeling pretty confident that chief Raymond, chief Goldstein, and secretary Barrett are on the right path.

Susanna Blume: Yeah. So, you mentioned 1947 and I actually want to stick with that for a minute. Ask you about the 1948 Key West agreement and whether it's time for a new service roles and missions review, conversation, dabbling. And I asked this question because, there've been a bunch of new missions obviously that have emerged since then. Many of them gone to the Air Force. I don't know that the resource realignment necessarily reflects that. And so, that's my question to you is both the joint chief and a service chief, is it time? Is it time for a new look time for a new Key West agreement?

GEN Goldfein: Yeah, I'd say it depends on the framework, and the outcome we're looking for. If this is a budget drill to try to reorient slices of the pie or what have you, I don't know that those actually produce all that much value in the end. We can certainly go through one. If this was looking at the future of joint war fighting and the task at hand, and how we compete to turn win against the China, Russia, nuclear peer, and what are the force elements that are required, and how do the services focus their investment as part of that joint war fight? I'm all in.

Susanna Blume: Okay. And redundancy I guess is another component to that. Are you seeing more or less duplication of effort across the services that maybe needs to be thinned out or is that good to let a thousand flowers bloom?

GEN Goldfein: I'm not seeing any more. I'm not so sure there's been a demand signal to drive much less. I don't know. Right now, we're coming out of a period of budget growth. So, when you have budget growth, it's not necessarily a bad thing to have some redundancy, right? In terms of across the services in terms of what we do. If we were to see budgets go flat or start down, then there would probably create a greater demand signal for having to go through exactly the drill that you're talking about. Right? And so, for my joint chief hat, I think as long as the framework that we're working within is focused on the National Defense Strategy, and joint war fighting, and how we make the most use of our dollars to move in that direction. I think that'd be useful.

- GEN Goldfein: I try to never forget that I'm accountable to the American people as a chief for every dollar we spend. I mean, every dollar the Air Force spends was earned by somebody. And so, we owe a receipt to the Congress as representatives of the people on what we spend our money on. And we as chiefs, we had to welcome that, and we're held accountable. I will be held accountable when we come up for our posture hearings for every dollar we intend to spend. And it's actually okay that we have to give enough fidelity to explain that, the American people what they're getting for their investment.
- Susanna Blume: Yeah. I think I want to spend my time remaining in this stage, you're walking through your four pillars, and I think we just covered space pretty well, unless you have anything additional you want to add there. So, I'll go back to Joint All-Domain Command & Control. And unpack that a little more because it does sound like that's going to be really critical theme in the 2021 budget request. And I also have to give a little bit of plug for us at CNAS. This is the problem of connecting sensors and shooters across multiple domains, across the joint force is something we've been thinking about a lot.
- Susanna Blume: And, Chris Doherty, my colleague, in the defense program has got a report forthcoming on that exact topic, hopefully, early next month. And I wonder if you can talk a little bit about the evolution of, there was AVMs in the Air Force, MDO coming into the army. The Navy was doing its own work, and how this is coming together in this JAD C2 effort. How's that working? Because really in order for it to work, all the services got to be thrown together. And so, what's that look like?
- GEN Goldfein: We as joint chiefs are ... We were even talking about this morning because we have to be very refined in our, terminology, what you've seen happen that really started back in '16 as well, right? Is that each of the services on its own came to the recognition that tying sensors, and shooters, and soldiers, sailors, airmen, Marines, coast guardsmen together was a absolute foundational necessity. And so, the way you normally approach it is a service then it looks within its own portfolio and says, "Okay, how do I connect up what I have?" And that's why you saw advance battle management system. I'll probably get this wrong. Anybody can tell me on the army. Is IBCs or ICBS.
- Speaker 3: IBCS.
- GEN Goldfein: IBCS. You quote me the right one, right? ICBS, right? So, army has got its own system, right? Navy's got its system. And so, the Navy has got to operate independently at sea, and each of the service has different individual requirements, right? And I'm going to be operating at speed, right? At an altitude. Army's going to be operating in a different environment, right? So, it's not surprising. It shouldn't be surprising all of us, that each service then took a look at its own portfolio and said, "Okay, how do I build a C2 connectivity to do multi-domain operations?
- GEN Goldfein: But you can't stop there. At some point that service investments got to connect to a larger investment that says, "All right, F22's and F35's talking to each other and sharing data. It's interesting, but actually not that compelling for the joint war fight. Right?
- Susanna Blume: Mm-hmm (affirmative).

- GEN Goldfein: What's compelling is what I just described to you, the space to ISR to C2, to Navy ship, to long range precision fires, to special operations, to that's ... Right?
- Susanna Blume: Mm-hmm (affirmative).
- GEN Goldfein: And not require us to overcome speed through merch chat. Right? Which is humans at every element of the loop, right? Operating at lethargic speeds.
- Susanna Blume: They're like, "God forbid picking up a telephone."
- GEN Goldfein: Well, I mean I can go through a number of scenarios, you know about, right? Where that's our primary method of communication to share data, and information. That is not going to work in the future fight. So, the fact that you've got terms, each service has been focused on, and then an overarching architecture that now the Air Force for the joint team, as we look at the key elements of this war fighting concept for the future. We are absolutely committed to making sure that what we're offering and moving forward works for the joint team. Because if I'm just talking about an Air Force solution then I'm just solving my piece, right?
- GEN Goldfein: And so now ... I can't tell the number of conversations I've had with Admiral Gilday with General McConville, with Joel Berger, right? With Admiral Schultz to say, "Hey, listen, my commitment to you is to make sure that the investment we're making, where are we going forward, it's got to work for all of us." And now the question is how do we scale this? Because we've gone from lightning bolts to something real, but even though I described space to ISR to CT, right? That's not the whole portfolio. I got to be able to expand, and we got to get scale, and we got to understand how we can scale to a level that doesn't become the elephant that just crushes under its own weight because you can't do it all. And here's the good news industry actually has the best solutions.
- GEN Goldfein: So, one of the things I'm excited about is that we ... So, we have a team of pioneers that are helping us with advanced battle management. One of our pioneers is the guy who designed Uber. Let's think about how Uber works. You have a common operational picture. Okay. Show of hands, how many people Uber? Our security guys hate it when I do, but that's all right. So, right, you have a common operational picture, right? And you have a different thing moving on the right, and now it's actually closing a kill chain, right? Because what you have do is you have to match, right?
- Susanna Blume: Right.
- GEN Goldfein: ... A vehicle, right? With a target, which is somebody who wants to do it, right? And you could see it all happen, right? And you can see it caught there. You've got options you can pick from, you can see the driver, you can see the license plate, you can watch that person come towards you. You start thinking about that application militarily. It's exciting. Think about ways, right? Ways actually gives you a threat presentation. Cop, right? Two miles ahead on the right. Right? And then you can help validate whether that cop was there or not. Right?
- Susanna Blume: Mm-hmm (affirmative).

- GEN Goldfein: Okay. So, industry actually has some really creative solutions, and I actually was over in Israel, and I was talking to the air chief there and I say, "Hey, I'm looking for your ways guy, because we can bring him on as a pioneer." So, this is pretty exciting, but this is a journey. And this journey by the way, you never ... And this is also a harder part of articulating this to Congress, and the American people, is that this is not a destination you ever arrive at. This is constant development of applications, and software, and making sure that we are staying ahead of the adversary.
- GEN Goldfein: And if you enjoy that environment, developing op, dev ops, you are going to thrive in business. That's why we have software companies we have started inside the United States Air Force. Yeah. Kessel Run, example. Who would've think it? Right?
- Susanna Blume: Right.
- GEN Goldfein: A software company inside the United States Air Force. That is developing-
- Susanna Blume: Complete the nerdy name.
- GEN Goldfein: Sure, but developing software, right?
- Susanna Blume: Yeah.
- GEN Goldfein: So, here's the old way of doing business. "Hey, tell me what you need." Right?
- Susanna Blume: Mm-hmm (affirmative).
- GEN Goldfein: ... Then I go back. I have a request for a proposal and analysis of alternatives. We go through all of, right? And then months later I may come back to you with an option, right? If not years later, right?
- Susanna Blume: Mm-hmm (affirmative).
- GEN Goldfein: And we all know sitting here today, that is a completely dysfunctional way of doing IT, right? So, here's a new way of doing business. What do you need? And then I start writing the code right there. And then when I get done about, I don't know, day or two later, I come ask them, "How's that?" "Man, I need to tweak a little bit more." "Okay, let's go at it." Right? And within a week, two weeks, you've got what you've asked for at the speed of relevance.
- Susanna Blume: That can evolve quickly.
- GEN Goldfein: That can and willable. I joke and say the next uniform change for the United States Air Force, hoodies, right? Because we need to bring in some young, high tech smart coders who understand how to manipulate software at the speed of relevance. So, our message to you to industry is you've got some great solutions. We need to bring them on.
- Susanna Blume: Yeah. So, sticking with the ways Uber, they operate, I won't call it an uncontested environment, but certainly less contested than the networks of the joint force is going to rely on in an actual fight with China or Russia. And so, what are your worries there? And to the

extent that you can understand this, an open forum here, how are you tackling that piece of the challenge? Or is it a question of adapting commercial solutions, developing your own? A little bit of the both.

GEN Goldfein: A lot of both. But to me it's about changing the cost curve. So, today it's far more expensive to defend than it is to attack in many areas, right? I think missile defense, right? Or another defense. I mean, we're going to shoot million-dollar missiles at hundreds of thousand dollars, things come out. Well, so, the cost curve is all of the enemies' favor, right?

GEN Goldfein: How do we flip the cost curve? Right? How do we make it actually cheaper to defend than it is to attack? And one of the ways you do that is to resiliency. You build multiple pathways to communicate. And if a certain portion of the architecture is taken out, if you build resilience into it, noted, I'm not going to operate on that particular part of the pathway. Again, I'm moving over there and there's way to do that through automation. There are ways to do that. And again, industry has some creative solutions for this.

GEN Goldfein: And I also think that we have to take advantage of Moore's law, right? Computing capacity doubling every year or two years, right? Everything we were talking about fielding, almost everything in this budget that we're going to submit from any of the services is standalone computing capacity at the tactical edge, right? That are running miles of code. Right?

GEN Goldfein: I mean, tell me about a platform that we're procuring today that doesn't have its own computing capacity, that's advancing on its own according to Moore's law and/or faster? If we start thinking about networks as connecting computer technology as opposed to connecting platforms, it provides creative solutions that industry already is using, and changes the cost curve.

Susanna Blume: Right. Absolutely. So, from there I think I'd like to go to your third pillar here and that's it all paraphrases the standard standoff mix or hybrid approach. I remember those debates. So, it's a conversation that's been going on for quite some time. I think is your sense that you've landed on an answer and to the extent you can share with us what are the contours there.

GEN Goldfein: I can tell you that with significant analysis, again, thousands of computers run by our Air Force Fighting Integration Center, so, AFFIC and some really smart folks that have run through this in the most stressing scenario that we could find. We actually ran inside forces only. We ran outside forces only, and we ran a hybrid of the two with the right mix. And we found that the winning force's hybrid. There's some portion of the joint force that has got to be a penetrating joint force. A highlight joint because it's not just Air Force, right?

Susanna Blume: Mm-hmm (affirmative).

GEN Goldfein: This is space, this is penetrating capabilities in the air. This is the fact that I will always expect to have special operators on the inside already. Swiss cheese, can't block me out, right? There's going to be subsurface capabilities that's going to penetrate, and the penetrating joint force is got to do five things, right? It's got to penetrate. It's got to persist for as long as you got to be in there. It's got to protect itself and other things that are inside there. It's got to proliferate. What is one becomes many. And it's got to be able to punish because the reason you're in there is to hold targets at risk.

- GEN Goldfein: And so, the penetrating joint team, if you will, is all focused on doing those five key elements of what has got to be the penetrating force. And you've also got to build the C2 to be able to do that. At the same time, you have to have a standoff force that feeds the penetrating force that can bring the volume of fires that are required, that can stand off outside the threat. And do that which is required to sustain the force. And so, when you bring though both of those together, it's actually a pretty powerful combination that we found was the right force to win.
- GEN Goldfein: And the only other thing I would offer to you is that, like many in this room and many of my friends who are here, Adam Fox here and I fought together over there in the Middle East. We were component commanders. We've all spent most of our adult lives fighting one particular fight, and that tends to frame the way we look at the problem sets. And every once in a while, we have to stand back and recognize the fact that that's a different problem set. Some of the muscles across our services are in great shape because we've been in the gym and they're cut. But there are some muscles that have atrophied and we're rebuilding those muscles back up to make sure we're ready for the fight that's coming.
- Susanna Blume: So, it's a perfect segue actually to your fourth pillar logistics. And I'll confess this is also a high interest area for us at CNAS. We've got a project forthcoming later this year about contested logistics. The joint force is very accustomed to being able to move behind the [inaudible 00:47:14] at will, and mass things, and take their time getting there, et cetera. And so, how do you see that changing and what are the implications to the Air Force?
- GEN Goldfein: So, for us, we got to be far more expeditionary, light, and lethal. We have been fighting a certain war where we've had really uncontested logistics. And when you think about logistics that are attack, you've got to start in the cyber domain because so much of our logistics is on the unclassified networks, turns out we operate. So, if you go in with the assumption that you're going to be under attack both physically in cyber, on your ability to move into and sustain forces, then it causes you to think differently about your investments.
- GEN Goldfein: And some ways for us it's returning to our expeditionary routes of how do you move to win? How do you have a light footprint? How do you look at creative technologies in terms of supplies, right? How do you make creative use of 3D printing, right? Does the future actually look like 3D printers, right? And stacks of material, as opposed to the large logistics chimneys that we've built. Right?
- Susanna Blume: Yup.
- GEN Goldfein: How do you think about that differently and leverage technology? How do we articulate to the Congress, the American people, the importance of flowing portions of our material forward, and then actually starting to park it in different places? That's probably as far as I could go into it here, going forward. So, these are all the things that we're thinking about. Probably the most important though, is we're starting with the foundational assumption that changes our thinking. You're going to have to fight your way in, you're going to fight your way to sustain yourself. And you better be thinking battle the entire time.
- Susanna Blume: Yeah, absolutely. I think I do want to definitely preserve some time for the audience to ask their questions. So, I'll just conclude with two more and hope somebody asks about nuclear forces because it fell off the bottom of my list here. Two questions. Two closing questions

for you. First, what keeps you up at night? What are your most critical worries as you're looking at the Air Force and what's going to be expected of it in the future?

GEN Goldfein: I wouldn't say it keeps me up at night. I'll tell you this one of the things that's always foreman, I call it my mirror check. And I actually, when I'm talking to wing commanders courses, group commanders courses, when I go out to all the professional military education, I look at all senior officers, and I say, I tell them, I say, "Hey, look, America's in love with his military. We enjoy the highest ratings of trust and confidence." And it was Jeff Bezos at the Reagan, he made a comment, I thought it was pretty good. He goes, "One of the reasons you're so stressed is because you do hard things really well." And the American people have come to expect that the military does hard things really well. But I tell leaders, I said, "But let's just make sure we remember something."

GEN Goldfein: America's not in love with his senior officer Corps. America is in love with this young enlisted men and women, the sons and daughters they've sent to us. Our job is to take care of them so they can take care of the mission. And so, the mirror check is every, for me airman, but it's really beyond its soldiers, other airman, Marine, coast guard. Because every airman that we send into hard harm's way, properly organized, properly trained, properly equipped, and courageously led by inspirational commander.

GEN Goldfein: And then when they come back home to their family, once they've done the nation's business, did we take care of that family while they were gone? That we've got to get right. Everything else, you know what? Hey, we'll do the best we can. That one is sacred duty.

Susanna Blume: Yeah. All right. I think I'll leave it there and open up to the audience. We think we have some microphones circulating in the room, so if you could wait for one to arrive at you and then let us know who you are and where you are from. And we'll start right here in the second row.

### III. Audience Q & A

Steven Trimble: Steve Trimble with Aviation Week.

GEN Goldfein: Hey Steve.

Steven Trimble: So, when you talk about the 2030 timeframe and platforms that can't participate at that time, it makes me think of platforms like RC-135s, MQ-9s, U-2s, RQ-4s, perhaps. But I was wondering if you could explain that specifically, at this point, I know the budget's not out yet, but if so, or even if it's others, how do you assure the combatant commanders that you can support their requirements by taking risks right now, for this capability that will be delivered later?

GEN Goldfein: Yeah. Steve, I don't think you actually ... That's again the tension and the negotiation that is going on right now, as we finalize budget rollout is what we put on the table as near term risk is real risk near term. It's not ... The easy decisions in terms of what you might give up to buy a future capability, those decisions were actually made some years ago. They're in some of the tough budget cycles when we were going through sequence ration, and all the services, right? Are still recovering.

- GEN Goldfein: I can't tell you the number of times I find that something will come up and we'll track, "Well, how'd this happen? And we'll track it back to a decision that was made because we were had to find \$10 billion in a single year. And so, we made those decisions, and we're still seeing the repercussions of that. So, the easy decisions are long gone. Now what's left on the table is essentially, near term risks versus future capability, and the fight that the National Defense Strategy tells us we have to prepare for.
- GEN Goldfein: And while I'm ... Right now, this is where I can't really go into this platform or that platform of that platform because one of the things you don't do as a service chief is to get out from the secretary of defense, and until he's actually had a chance to roll out the budget, it'd be inappropriate for me to do that. But that's the tension. And trust me on this, the combat commanders are not sitting silent. But one of the things that we do as a service, I think all the services do it.
- GEN Goldfein: But I can tell you one thing, I sat down with every combat commander and walk through, "Hey, here's what you asked me for in terms of Air Force capabilities, you need to support your war fight. Here's where we landed in each one of these areas." And as you might imagine, there were certain areas where they were very happy and certain areas where they were unhappy. But we were absolutely open Kimono with them to say, "Here's exactly what our budget has here, and here's why we made this particular trade." And I won't tell you the combatant commander, but he looked at me afterwards, he says, "Man ... " He goes, "I'm conflicted."
- GEN Goldfein: He said, "I know exactly where you're going, and I think that's the right way to go." He goes, "I just can't live with the near-term risk you're asking me to take." I looked at him, I said, "Hey, that's exactly where I expected we would land. You have a different priority at a different time horizon than I have." And so, that's what we are working our way through. As you might imagine, we didn't get everything that we put on the table. Some was walked back; some was walked back for all the reasons we talked about. But we got a lot of what we put on the table because the story resonated in terms of the force that we know we need to build to win.
- Susanna Blume: On the aisle here in the blue top, right.
- Vivian Marshy: Hi sir. Vivian Marshy with Defense Daily. I wanted to go back to when you and Susanna were talking about ... You mentioned how you're trying to speak with Congress about moving from platform centric to network centric, but I wondered if you could go from the perspective of talking to industry, and how you are really working with them on this shift because I would imagine that's a challenging conversation as well.
- GEN Goldfein: Yeah. So, Valerie, you're going to get a bingo check for this one. Right? So, I think some of the industry ... Because I use this same framework and it's been fun with not only industry, but also with our media. And by the way, I'm not just saying this for our media folks. Thanks for what you do. We're in a serious business. We owe the American people a receipt of what they invest. We also want to owe the American people a receipt on how we take care of their sons and daughters. You hold me accountable, and I accept that.
- GEN Goldfein: And so, thanks for what you do. So, what we've tried to message to industry is that the future systems that we're going to procure have got to do three things. And this is just a

framework, but first of all, they got to connect. A system that is being offered to solve a military problem that is a standalone system doesn't fit in the architecture that I see us going forward in the future.

GEN Goldfein: The second thing we tell them is it's got to share. It's got to share information. That's a hard discussion to have. And I'll be honest with you, I don't think we're having the level of mature dialogue. And Hawk, this is some we've talked about, right? How do we have the mature dialogue about data? Because the extremes are not the place we're going to land. Right? Then the extremes would be, I've got to protect all of my data within my company because I can't let those other competitors see what I've got. Right? That isn't going to work.

GEN Goldfein: It's also not going to work for me to go to industry and say, "Hey, listen, sorry that you've made all of this investment in your own proprietary data systems. If I'm going to buy it, I'm going to share it with everybody free of charge." Well, that isn't going to work either. So, what we have to do is find a way to have a mature dialogue about what is it that the industry absolutely has to preserve as the coin of the realm. Right? And what is it that I have got to have, because if I don't, I can't manipulate it at the speed of relevance against the fight that I know I'm preparing for?

GEN Goldfein: Somewhere there, there's a sweet spot going forward. So, if it doesn't connect and it doesn't share, and the third thing is it's got to learn. It's got to have artificial intelligence, the tactical edge built into it. Because if not, I'm going to end up with humans at every part of the loop again, and we'll end up with Merck 2.0 or 3.0 that isn't going to work, right? We have got to operate at machine speeds. And so, hopefully, the demand signal to industry is consistent. And I remember, my first year as chief, I tried to meet with as many CEOs as I could.

GEN Goldfein: And my question to him was, "Hey, listen, I've never been a CEO, I want to be a good customer. What advice can you give me now as my first year as chief to help me to be a better customer?" And they said ... What was fairly consistent to me was, "Hey, I make bets with industry money based on what you say, and if you keep shifting your story every year, after a while, I'm not going to make any more bets." And the second thing they told me was, one of the CEO says, "And I'm tired of building static displays. I've got way too much investment in things that you don't eventually buy, and I can't keep doing that."

GEN Goldfein: So, I've tried to be really consistent and have called up and called CEOs. I've gotten to know and say, "Hey, here's what I'm saying, what are you hearing?" To make sure that I'm trying to again, be a good consistent customer so they can bet dollars against where they see the Air Force going in the future. And so, back to the, this is a consistent 16, 17, 18, 19, 20, right? We've been trying to send the same message to industry going forward. And I know we've got a lot of our industry teammates here. I'd love to ... If we have time afterwards, you can give me some brutally honest feedback on how that's going.

Susanna Blume: Okay. And unfortunately, we've got time for only two more questions. So, we'll go to Val.

GEN Goldfein: That's code for answer quickly there.

Susanna Blume: No, not at all. Not at all. Just want to set expectations since there's a lot of folks have good questions.

- Valerie: Hey sir, Valerie in Sonoma Defense News. So, the chief of Naval operations and the secretary of the army had been out there publicly making the argument that their service deserves a bigger size of the budget. And I'm wondering, what are your thoughts about the Air Force's slice up the budget? Does the Air Force need more? And does it need more, especially, in light of the fact that part of it is probably going to be cut out of it to feed the space force?
- GEN Goldfein: Yeah. Thanks Valerie. Yeah, budget paranoia as a service core competency, right? We all have it, right? So, certainly in my Air Force chief hat, when we did the analysis for the Air Force we need, and said we have to grow from 312 to 386 operational squadrons. And certainly, you don't do that without additional resources. But I'm also aware of the world I live in, right? And the world I live in has got a top line that I now have to use to build the best Air Force I can possibly build. And that's where my role as a joint chief really comes in here, right? How do I ensure that based on the money that I have, that we are building then spending that money on the force that the nation requires?
- GEN Goldfein: And again, going back to all that war gaming, right? I can't tell you how significant it is to actually walk out of a war game, and have actually had ... And against a very stressing scenario to have one for one of the first times in years of doing war gaming. And then being able to track that to a level of investment in four key areas to say, "If we can keep this investment on track, we actually build a force that wins against an adversary that's not standing still." Right?
- GEN Goldfein: Because as we build a 2030, they're building 2030. And so, we take the best China experts, the best Russia experts who are looking at all their investment, all their planning, what they're saying, everything that's going on. And we track that forward to say, "Hey, guess what we project them to be at, and we project us to be at?" We win, they lose. And so, that's why for me, certainly do we need more resources to do that? Absolutely. Yes. Would I be offering legacy capability to buy the future if I didn't have to balance the books? No. I wouldn't be asking combatant commanders to take real-time near-term risk if we had the resources to do it.
- GEN Goldfein: That's the sandbox that chief plays in. Capability, capacity, and readiness. You make trades in those three areas, and all of one is rarely ever the solution. Right? If I was to come to you and say, "This budget, it's all about readiness. It's all about ..." I could put a ton of money into restoring readiness right now, and not focus on anything beyond the near-term fight. I could come to you and say, "Hey, you know what? We are going to take huge risks in readiness, and huge risk in capacity because I'm going to build capability like you read about."
- GEN Goldfein: Or I could say, "Listen, we have got to grow." Not one of those by itself will elbow be an executable solution. But within the three of those, there's a sweet spot that we're aiming at, and that's what we're submitting.
- Susanna Blume: Unfortunately, we're at time. But thank you very, very much for coming today-
- GEN Goldfein: No, thank you.
- Susanna Blume: ... It's been a really phenomenal conversation. Appreciate your time.

GEN Goldfein: Yes, [crosstalk 01:04:10].

Susanna Blume: And I'm sure our audience does too. Thank you.

GEN Goldfein: Thanks.

