

**Lieutenant General B. Chance Saltzman
U.S. Space Force**

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Moderator: Good afternoon and welcome to this Defense Writers Group. I'm Thom Shanker, the Director of the Project for Media and National Security, part of GW's School of Media and Public Affairs. I'm incredibly honored to have with us a guest speaker on one of the most dynamic themes underway in the Pentagon today. Lieutenant General B. Chance Saltzman, who's Deputy Chief for Operations, Cyber and Nuclear, United States Space Force.

As always, this is on the record, but no aspects of it can be rebroadcast, either audio or video. I'll open with the first question and then forward your email first to get on the list of questioners, then we'll go around the table afterwards for the rest of the hour.

General, my first question is this, sir. In the recent posture hearings we heard both Secretary Kendall and General Raymond talk about how the need to transform to a resilient architecture in space. Can you help us understand what a resilient architecture means both to the base force and to the joint force? And the obvious question, resilient against what and against who?

Saltzman: First let me just say thanks. This is a great opportunity. I'm excited to be here. This is my first time at the Defense Writers Group. It's an honor to be with this distinguished group. I've read most all of your work at some point, and I appreciate you taking the time to listen to me.

That's a central question because I think it ultimately lays the foundations for why we even have a space force. If I could, I'd like to maybe expand a little bit and kind of outline why the question he asked is so central and how it covers so much of what the Space Force does. I think it will kind of set the stage for what I'm focused on and maybe prompt some questions on digging in a little deeper.

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I'm going to repeat some stuff that I know you've heard. It starts with the threat. You have a Space Force not because we provide T&T, satellite communications and missile warnings. Those are essential and we've done those for years. Space operations is not new in the military. The problem is the security environment has shifted dramatically and our peer adversaries, the strategic competitors, have invested heavily and fielded operational systems that are designed to deny us our strategic advantages in space, those capabilities that we've come to count on in space.

So because that environment has shifted, and I don't have to go down the litany from SATCOM and GPS jammers to lasers and dazzlers and on-orbit capabilities that are shooting projectiles and have grappling arms that can cause damage to satellites. Those are tremendous threats to our capability. The shift that the Department of Defense made with really solid bipartisan support from Congress, by the way, is that Space Force is now focused on making sure -- and I'll use military shorthand -- on space superiority. And we can talk about what precisely that means. But in short it goes to this idea of Secretary Kendall's operational imperative number one which says we need a resilient and effective space order of battle.

There's two key elements to that that kind of define the parameters of what space superiority is. The first is it has to be resilient. Those things that we want to do in space, we have to be able to continue to do despite our adversaries' efforts to deny those capabilities. So we have to have a resilient architecture. We have to have resilient operations that allows us to continue to provide the capabilities that the joint force has come to expect from the space community.

The other pieced is effective. What we're talking about there is, there's a responsibility that the Space Force has to protect our joint force from our adversaries' space-enabled capabilities and I think that's maybe the transition that we've come to realize most specifically here recently, is that our adversaries have invested heavily not just in threats to our capabilities that we have to protect against, but actually using space assets to make their weapons and their targeting more effective.

So our joint force is under this umbrella of an adversary's space-enabled capabilities and it could prevent them from getting the job done in the domains that are much closer to the

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earth. So we have a responsibility to protect our assets, but then protect the joint force from our adversaries' space-enabled capabilities. That becomes kind of the two sides of the coin associated with the Space Force's mission that we call space superiority.

Then if I could just maybe focus on my perspective on this, because what I do as the Chief Operations Officer is I'm kind of laser focused on readiness. Is our force ready to take on those responsibilities?

And if I could paint a little bit of a picture, I use kind of a diagram of a pyramid, which is maybe easy to visualize. But it's a seven-tiered pyramid that are the key elements of what I call Space Force Readiness. The reason I like the visual of a pyramid is because it's true. There are foundational elements that if you don't take care of those foundational elements, the stuff at the top of the pyramid is very unstable and shaky and it's not going to be as effective.

So there's seven pieces to this pyramid and the bottom three are what I call foundational. Then there's the three layers of capabilities which I think will make sense to you from a systems standpoint. Then at the top is the cap about doctrine and concepts and I'll explain that to you.

But the bottom foundation is a professional force of Guardians. I can't emphasize this enough. If we think that technology alone will make us successful against an adversary we're kidding ourselves. It truly is the people we have trained, educated, experienced, motivated, empowered to do the work that we expect them to do. And that's a complicated endeavor, to make sure you're recruiting the right people, training them, giving them all the necessary experiences and keeping them in place. Motivated for an extended period of time. The big challenge is something we're very committed to because it is that bottom layer, that foundation of readiness.

The other two foundational pieces are assured network. That's one. And operational test and training infrastructure. This is where it gets a little more technical, but I think most of us would understand that if we don't have assured network the data, the information that we get from space just falls flat, it doesn't go anywhere. If you don't have the assured networks to distribute the information, pull it down, be able to evaluate it

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in time and space, that assured network is fundamental to our ability to do our operations.

Kind of a subset of that is what we're calling the operational test and training infrastructure. It's servers and it's computers. There's lots of that. It's simulators, it's digital models. But we have to have an environment and it has to be basically synthetic because we can't do a lot of things actually in the space domain with regards to training and practice. But we need this virtual environment where our operators can practice their skills, can practice their tactics, can see what works and what doesn't work against a thinking adversary that's simulated but at the same time pushes our crews and our operators and our intelligence and our engineers to really the brink of what they can and can't do so that we can learn from it rapidly on our terms and so that we'll be ready to face conflict or crisis when it comes.

So people, assured networks, and that training infrastructure are really those foundations.

Then you get to the systems pieces and the bottom system piece is all of the tools and capabilities necessary to build situational awareness. The space domain is not something that we interact with personally. We interact with it through digital interpretation, whether it's sensors looking up and pulling down information, radar data, optical data. Of course there are astronauts that actually get to experience it, but from a military perspective, we have to understand that we have to have sensors, data fusion engines, analytic tools that actually go out in the environment and pull information for us so we have the situational awareness that we need. It's a very complex endeavor that we have to undertake to get it right.

Then there's this idea of space superiority. We have to be able to protect what we have and then deny our adversary the use of what they have in space to protect our joint force. Those are the systems that are necessary to do really that heart and soul of what the Space Force is about.

The reason we do all of that is so that we can continue to provide the next layer of systems, and that's those joint enabling capabilities. It's decision, navigation and timing through GPS. It's the military satellite communications. It's missile warning and missile tracking. Those are the joint

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enablers that we're really after in the space domain.

The final piece at the top of the pyramid, and I'm very proud of this one because I think it's an important aspect that sometimes we forget about, and it's the doctrine and operational concepts.

Again, you can train your people and you can have all the systems, but how do you use them? How do they come together? What's the strategy? What's the theory? How do you use what you have available to you to achieve a mission, to achieve an objective? And just to say well we'll just do operations is not, of course you have to do operations but that's not sufficient to say how you're going to achieve a military objective.

So we're going through a very introspective period where we're looking at our operational concepts. How do you build space domain awareness? How do you achieve space superiority? How do you protect the joint force? What are those operational concepts? What are the tactics that you have that you need to practice and which tactics do you need to develop so that you're better in the future than you are right now? So that's that capstone piece that really brings it all together, where the people, the systems, and then those operational concepts that allow us to do the job.

In a nutshell I think that defines at least my perspective on what the Space Force is. It's putting all those tools together so that we can accomplish that important space superiority mission and enable the joint force to do its job.

Moderator: My follow-up, sir, as you're doing this constant assessment and reassessment, are there lessons learned from the conflict on the ground in Ukraine today? And I ask because it's open source. But clearly the Ukrainians' ability to see more, see better, communicate securely, has been a huge advantage for them, and much of that happens in space.

Saltzman: I think it would only be fair as a history major from Boston University that I say that some of these things take time and perspective to really draw the lessons. However, there are clear observations that you can't ignore. I think we have seen the criticality that space plays in modern warfare, whether it's indications and warning about what's going to happen next, whether it's about communications across a broad area. There's

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just a heavy reliance on satellite communications, on space-based capabilities that I think we're seeing play out there.

I think there's an observation at this point that when you look at for instance the commercial capabilities that have been given to the Ukrainians, those are in proliferated constellations like StarLink, and we're seeing the value of proliferating constellations. They're very hard to deny because it's such a widespread set of targets. You can't just jam one satellite and achieve that effect.

So I think we're learning, and I know you've heard General Raymond talk about diversification of our satellites as well as orbital regimes, and I think we're observing that that does have value in a combat scenario that starts to protect that mission from being attacked.

Moderator: Thank you so much, sir.

First question is Sandra Irwin, Space News.

DWG: Taking up on Thom's question on cybersecurity and what we're seeing happening with Republicans cyber attacks. Have you been briefed on these Russian cyber events? And if you can talk about kind of what is your assessment. Do you see these as major events or if things that happen in a conflict in another conflict is the US going to be able to cope with? And what is that doing to your thinking about the architecture, maybe thinking about your next budget cycle that you have to come up with new requirements.

Saltzman: I have been briefed on those instances. For us, there are some clear connections -- for those that aren't neck deep in this day to day, here are the observations that I would offer on that.

If you think the only way to dismantle space capabilities is by shooting down satellites, you're missing the bigger picture. Cyber attacks on ground networks. Back to my discussion on assured networks. You have to have those assured networks or you can't pull down the space effects that you need. So cyber attacks against those ground networks can be effective. I think those are the observations that we're learning.

Now what do we do about it? Well, do we recognize that cyber

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defense of our networks is important? Absolutely. We took very few, if you look at what the Space Force pulled from the Air Force, we pulled very few what we call Air Force Specialty Codes, or specialists in those. We pulled satellite operators, obviously, space operators, intelligence officers, engineers and acquirors certain came over, but that fifth very critical piece was the cyber operators because we know if we don't have assured networks that are defended by cyber professionals, then we're not going to be effective in accomplishing those missions. I think that's a critical point that we've learned from this environment.

DWG: As far as having the capability to fight back, are you looking to bring more operators into the government? Are you maybe working with the private sector to be more integrated with commercial industry?

Saltzman: We're always working with industry and I think that's one of the hallmarks of the Space Force. We're always looking for new relationships. The bottom line is a lot of the tech industry on cybersecurity, corporate America is out in front of us and we want to learn as much as we can as fast as we can.

From a budget standpoint, you asked, we are definitely trying to shift the small number of resources we have from what I would call traditional information technology support kinds of functions to more of the cyber defense. So that shift, that's a manpower shift, that's a resourcing shift and you have to take care of that on the budget, but it's very clear that the most important thing we can do with our cyber experts is have them monitor our cyber terrain, our networks, to defend against them so that they're assured when we need them.

Moderator: Next question is Michael Morrow with Inside Defense.

DWG: I wanted to follow up on your point about distributed satellite architecture. That's obviously something that we're pursuing [inaudible] project [inaudible]. But I wanted to get your thoughts on it from an adversary's point of view and how [we would deal with that] which is one, are adversaries like Russia and China pursuing this kind of similar distributed architecture? And two, to your point that it's much harder to deny that kind of capability. How do you approach, in the event an adversary pursues that kind of technology, how do you deny that kind of capability?

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Saltzman: It's a great question. You're like three steps out in front of all the strategies on this, so that's great. Those are the kind of questions you [inaudible] before they happen.

I would say right now the better way to characterize our adversary pursuit, what the adversary's doing is just in basic capacity. While we see some diversification of orbits, we're not seeing the mega constellations in direct support like we see on the commercial side and that we're trying to take advantage of.

I've been on the red team of so many exercises, it is a difficult problem. What do they say, quantities in some kind of quality. There's no doubt that the more targets you have to affect in order to achieve a mission affect, the tougher it is for the force to accomplish. So capacity is one side of this, but if you can diversify the portfolio in numbers as well as orbital regimes, what it takes to attack a satellite or a system that's LEO based is very different than what it takes to affect a satellite system that's GEO based. Having both means they have to have that much broader a spectrum of capability for defending it. So this diversification is a real resiliency important factor to consider as we move forward. That's why this last budget submission is so much of a pivot towards that kind of technology. It's a tough problem.

Moderator: Next sis Brandy Vincent of Defense Group.

DWG: Thank you so much for doing this.

Can you talk a little bit about how you are working with Cyber Command from [inaudible] Space Force?

Saltzman: It's an interesting relationship because right now we leverage the Air Force's component to US Cyber Command as our conduit into what are our requirements, what are our issues, et cetera. So we don't have our own cyber component yet in US Cyber Command. I think that day will come, quite frankly. It's too important. The service will have too many cyber responsibilities. We're just not there yet. You've got to prioritize and pick your battles early on. But Cyber Command's been a terrific partner because we know that the critical NC3 networks that have networks that have to be assured, we simply go to Cyber Command and we say what capabilities do you have to

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offer? Can you come look at our networks and tell us where the issues are and what we can do internally to help shore those up? And Cyber Command's been great, because they understand the criticality of it too. So they've been terrific partners in helping us assess how we can better perform those assured missions and networks and defense. But we're going to have to organizationally figure out how we create that routine, habitual relationship so that it's an ongoing dialogue rather than episodic. Hey come help us, we'll respond. Come help us again. So that's the nature of what we're doing now versus the future.

DWG: I'll keep an eye on it.

I remember reading in November that you had mentioned the possibility of a hotline, sort of like what was used in the past to maybe stop conflicts in space with our rivals and competitors. I was wondering if you have an update on that or if sort of your position on that has changed in any way given the current conflict.

Saltzman: It hasn't changed. I don't have a hotline in my office, I can tell you that. And I don't know whether that's being pursued across the full Department of Defense. Who is it that can pick up the phone and have that discussion? That's going to be a very high-level senior person who has the full spectrum of information available to them. So I'm not tracking any specifics on that.

What I will say is my position hasn't changed. Transparency in this domain works to our advantage. We want a safe, secure environment that everybody can take advantage of. And if that means picking up the phone and clarifying intention or clarifying what's going to happen. Hey, we're doing this launch but this is what we intend and this is what you can expect to see. That's all very stabilizing.

So I always come from the vantage point, this is the one of the powers of America is that transparency and truth works to our advantage. So it's so much easier to say pick up the phone and let's talk this out. Let's talk about what's going on so that there's no miscalculation, there's no misunderstandings. If a hotline is part of that secret sauce, I'm all for it.

Moderator: Next is Warren Strobel of the Wall Street Journal.

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DWG: Thanks for doing this.

The Russians by all accounts have done a really lousy job in creative integrating their air, land and sea. They're [inaudible] the jointness that American forces do. I'm just wondering, if you can talk about it, how have they done integrating space assets? The Pentagon, the military writ large, I think [inaudible] reassessing Russian capabilities now given the setbacks in Ukraine? Are we discussing our space [inaudible]?

Saltzman: It's probably safer not to talk about specific operations. Let me give you some of my experience that I can talk about.

I had the great opportunity to be the Deputy Air Component Commander in US Central Command, Air Force's Central, '19 to '20. The amount of planning and integration and detailed procedures that it takes for four components at the time -- air, land, sea and space -- to integrate those capabilities and control them in sequence and timing and tempo to create precision effects, this is a very complex undertaking. And we've been practicing it for years under real world conditions, getting combat feedback on how well we're doing, certainly in the Middle East, and it's still difficult. It's still hard.

So generally speaking, it doesn't surprise me at all that they're struggling in integrating these things.

Back to the reason I really feel strongly about having this test and training infrastructure, there is no amount of practice that will prepare you for combat conditions. As somebody that trained for a year to go into that situation, I'm telling you, war is a very complex endeavor. So having realistic, high fidelity simulations and training environment is the closest you're going to come to providing those operators the practice and the repetitions so that they can get it right. And it's so amazing what you uncover when you actually try to do it. You say hey, wait a minute, why didn't you just call me at this point and tell me what you were doing instead of just assuming I would do this action? Those things happen all the time but they take a lot of practice. That's why I'm focused so much on the operational test and training infrastructure.

Moderator: If I can use the power of the chair to follow on

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Warren's question. General Raymond at his council, it was on the record so we can talk about it, made the interesting case that Space Force doesn't have only one AOR, doesn't only support one service. That kind of goes to what you're talking about. Can you expand a little bit on your rather cosmic mission and how you do interact with all the services, all the combatant commands, all the AORs?

Saltzman: Absolutely. First, no question that US Space Command is the first amongst equals. That is the combatant command that has the authority and the responsibility directly from the President to conduct offensive and defensive space operations and provide the joint capabilities that we talked about.

I think the next step of discussion though is a recognition that there are important space activities that are done in a regional context. Whether it's security cooperation activities, training events with our coalition partners, or just the basic integration of space effects into plans. Those are best done in timing and tempo from that regional perspective.

So General Raymond is committed to standing up service components in all of the combatant commands. That's just joint doctrine.

All the services have service components to all the combatant commands because combatant commands, the fundamental operational element of those combatant commands are the service components.

As I mentioned, I was the Deputy to the Air Force component to Central Command. That's where operational integration of air power occurs is at those service components. So we just think space is so critical now that we need a seat at that table so the combatant commander has a subordinate commander that they can direct to be responsible for operational level integration of all those capabilities.

Now we're small and we're going to have to grow slowly and we'll take the baby steps to get it right. We won't just over-expand too quickly. We're focused first on those combatant commands that are generally responsible for our NDS threats. The European Command, Indo-Pacific Command as the pacing threat of China would indicate, and Central Command. So that's where our efforts are initially, and then we'll expand to Cyber Command and some of the others as we can grow into that role.

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Moderator: The next question is Dmitry Kirsanov with TASS.

DWG: Good morning. Thank you so much for doing this session.

The great power competition is of course getting more and more pronounced. And the trick is now to deal with China and the rest of the world in the process. So I wanted to ask what is your current thinking, the Space Force's thinking, on the idea of non-deployment of weapons in space? Would you like to see a treaty on that? Are you doing anything to actively discuss this with the Russians and the Chinese and so on?

Saltzman: I don't have any specific details. That's mostly a Department of State matter when we talk treaties and engaging other countries on specific arrangements like that.

Again, I think the Vice President's commitment to stop destructive testing of antisatellite missiles, I think that's a great step in the sense that it shows a commitment to what is really one of the most dangerous aspects of space operations now, and that's debris. Debris creating events. So her leadership and the US' leadership to show that we're committed to maintaining a secure and stable space domain is really what's important.

I think throwing that out there is going to lead to a much needed international conversation on what constitutes responsible behavior in space. I think that discussion by the international community, the space-faring nations and users, I think it will generate a broader discussion on what it means to work professionally and responsibly in that domain.

DWG: Do you see any traction? Do you see this idea, this initiative offered by Vice President Harris is getting any traction?

Saltzman: In my limited conversations with my counterparts in some of the coalitions, I do. They share the same concerns. Debris, safe operating in space, what it means to do collective warning about collisions, whether it's debris or whether it's satellites or any of those kinds of things. We have a good, solid community of the willing now, but it's a growing community that says we're going to share information on the nature of the domain. I think that's the kind of progress towards those

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responsible behaviors.

Moderator: That's the list of the prior questions. Anybody else?

DWG: Courtney Albon with C4ISR Net.

I wanted to go back to some of your comments on the Operational Test and Training Infrastructure. Space Force is developing this plan for a National Testing and Training Complex. And I'm curious how you distinguish between OTTI and the NTSTC and then also what are you telling planners as they develop this roadmap about what baseline capabilities you want from the NSTTC?

Saltzman: That's an important point. It's kind of nuanced to some degree. When I say the Operational Test and Training Infrastructure, it's almost impossible to not use singular pronouns, so it sounds like it's one thing. Let's put this infrastructure in place. And that couldn't be further from the truth.

It's a system of systems that just has to interact effectively so we can share data, share models, et cetera. And the National Space Test Training Complex is a critical element to that overarching Operational Test and Training Infrastructure. So I think that's the best way to think about it. It's a series of sub-elements that add up to this overarching idea of an Operational Test and Training.

The National Space Test and Training Complex is not exclusively but it has a lot of focus on the test side of things. We have a lot of capabilities coming online and we have to be able to perform the tests -- the developmental test, the operational tests -- to make sure that the systems are working the way they're designed. And quite frankly, when these new systems were coming on we didn't have a lot of test infrastructure to do it, so we're expanding that capacity and calling it the NSTTC.

But there are things like simulators for the crews, those will also be there. There's distributed exercises, virtual exercises. We have the virtual range system that's a part, it's good but it's not where it needs to be to connect what I would call an aggressor force against a blue force. We've always had DMOC-S, I don't know if you're familiar. That's another component. So there are several of these components that are

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out there. First we stitch them together, we figure out what's missing, and then we have a vision to kind of pull in the other capabilities so we have this comprehensive test and training infrastructure.

DWG: If you're looking out past kind of the initial activity of stitching those things together, making that virtual environment more integrated, what's kind of the next level of capability that you want? Or even further out than that, what's you --

Saltzman: Here's my vision, and I've learned this 30 years in the Air Force. How do we practice our tradecraft? A lot of the practice happens in home station units where four airplanes are launched and two are going to go against the other two and they're going to practice against each other and they're going to come home and discuss how they did. And they can do that so routinely because the organically have all those capabilities that they need to do that kind of training.

I can anticipate a day where one space squadron is practicing its tactics against another space squadron who's trying to deny it or trying to monitor what it's doing and they practice those tactics together in a simulated environment and then they come back to the debriefing room and say hey, what worked and what didn't work?

We don't really have that ability to connect those things together. So if you think about connection of simulators, if you think about the virtual range where those simulators plug in so they're in an operational environment so that they can see each other, if you will, in a virtual sense. That's kind of the next generation of training, at least from an advanced standpoint.

DWG: General, thanks very much for doing this.

A lot of the strategy in terms of Ukraine and Russia, more in Ukraine right now, has been it seems, especially for providing declassifying intelligence about what Russia's doing, Russian movements. There's a lot in the Pentagon about what Russia's doing, not doing, not achieving on a day to day basis.

Given that, and given the big role that's had so far in the US strategy, are you surprised about how much or how little Russia has done to try to deny the US and other NATO allies those

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capabilities with counter-space or counter-cyber measures at this point?

Saltzman: I'm back to transparency is such a valuable tool for democracies, for the US in particular. It seems like a natural strategy for us to just describe and discuss the things that we observe, because again, this transparency is value-added. So I don't have any particulars on what the Russians are doing or not doing with regards to that. But it's a war. They're trying to win and the Ukrainians are defending their homeland. So very little is going to surprise me about what they try to do to achieve those objectives.

DWG: More broadly, since war involves so many domains including space, what do you see happening as a result of what's happening in Ukraine from the Chinese? They're major players. As they look at this what do you think about what they're learning from this and how they're going to approach the next conflict? What players may be the most difficult to think of as major players in this arena but are adversaries, whether state or non-state, that you're worrying about who might look to use either their cyber capabilities or developing their own space capabilities to impact this environment?

Saltzman: There's so much discussion these days on Joint All Domain Command and Control, and I know that's a phrase everybody's heard. Let me try to answer that question by thinking about it in terms of all domain operations.

I think that's the next generation of warfare broadly, is that taking advantage of all the domains that are available to diversify, to create lines of operation that are harder to defend against or easier to exploit. But how do you connect all that together?

Back to the question about how difficult it is to integrate all those things. I have in my mind this 5x5 matrix, if you will, where down the vertical side are the traditional D verbs that we use like Deceive, Deny, Disrupt, Degrade, Destroy. Those are the thing that we want to do to a target set. Then across the top are kind of the domains, where the platforms might be -- Air, Land, Sea, Space, Cyber. Really, the ability of Joint All Domain Command and Control is how do you take advantage of that whole matrix? Rather than just saying hey, there's a space piece to this and how does the space achieve some objectives, or

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how does the air achieve some objectives, or what are our destruction goals versus our deception goals? Seeing that whole matrix and being able to pick and choose the strategy about how you pick and choose what's the right effect and what's the right platform to achieve that effect really is the essence of this.

I think as we watch modern warfare play out, as we watch great power competition play out, I think we more and more recognize the value of the nation or the actor that can exploit that whole matrix the best is going to have an advantage.

I know that's a little bit of a circle answer on that, but I think that's the nature of this is just broadening the understanding of what warfare is. This is not force on force, land versus land, sea versus sea. I think those days are behind us. I think this is about your matrix versus my matrix and who's going to break first.

DWG: Which adversaries do you see making the most progress or do you fear are making the most progress in that regard?

Saltzman: There's no question that China is the pacing threat.

DWG: Thanks for doing this. It's nice to see you again.

Back at GEOINT, you talked a little bit about something called the ISR Integrated Process Team where there was an effort to look across the different commands, what their needs were for tactical ISR concerns. General [Inaudible] yesterday mentioned that they are doing an Industry Day today, I think it was yesterday and today or today and tomorrow. I can't remember, kind of asking the same questions of industry.

So I wondered if you might elaborate on what are those questions? What are some of the questions that need to be asked of the users and what are the questions that need to be asked of industry for you to figure out where you want to go with tactical ISR.

Saltzman: I think the process is the same and then the subject shifts. If tactical ISR is the subject, a process is what is the as-is condition? Meaning what are our current capabilities to meet users' needs? And one question there is, what are the full set of user needs? Do we have a comprehensive set of the requirements that our users need from the ISR community? And

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given what we currently have in place, what does the as-is look like?

Then you say okay, that's interesting, but are there requirements that we're not meeting? Or can we envision a time forward where they're going to need additional capabilities, additional timeliness, additional domains pulled in? So you build this vision of what your to-be infrastructure looks like. And what the team is doing is capturing both of those and then doing the gap analysis to say what's missing? What's the difference between the as-is and the to-be? That's what we have to go after. Then how do we get there?

Well, you'd be silly if you didn't ask industry hey, what do you have that might fill some of these gaps? What do you have that might add these capabilities that progresses us towards the as-is infrastructure that we're looking for? We're going to do the same thing of the broader intelligence community. What is it you have or is coming on-line that might be able to fill these gaps as well?

It's imperative that we collaborate across the board. One, to make sure we're taking advantage of technological advances that commercial industry is out in front of. We pull those in. And second, that we're not doing something redundant that either the IC's doing or another service is doing. So that's what this integrated process team is doing, is making sure that we understand the landscape and then kind of bin it so we understand what we need to do to get to our as-is.

DWG: Do you have any concept at this point what some of -- I know when you talk about intel it's hard to talk about, but what some of the gaps might be? And the second question is, how concerned are you about being able to actually integrate things from the IC and send it back out to the warfighter given the classification issues that have long troubled that capability?

Saltzman: Good point.

First, that IPT is still going on so I haven't seen the results of it or whatever, and they're going to do a much better job than I am answering this question, I promise.

But a couple of things routinely come up. First and foremost is are we evaluating how we manage the data and the security

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classification of it so we can make sure that we kind of lean forward in the need to share rather than limiting how we disseminate with our kind of traditional need to know thought process. We take that very seriously, and we're going to make sure that things aren't over-classified.

There are things that need to be classified, as mostly that's because it's perishable information and we want to protect it as long as we can. That's not going to go away. But who can we share with and how do we share with them and what can we provide them that emphasis on need to know? That will definitely come as a gap, and the tools to help us do that.

The second one that always comes up is the amount of data that comes in usually overwhelms the people or the processes to evaluate the data, determine what's good, what's bad, and how do you put it together into a meaningful context? So exploring artificial intelligence and machine learning and automation to help manage that data flow, I would be shocked if tactical ISR didn't account for that piece of this.

Those are just a couple but those are almost always a part of this process.

DWG: From your personal experience as an operator, have you, do you think there are things that we will need to do in the future that we're not doing now, in the arena of tactical ISR?

Saltzman: I certainly think we're going to have to do things differently and better. You heard at GEOINT, I kind of talked about we have this traditional view of intelligence from space looking down to characterize the terrestrial domains, and the need to now realize hey, there's actually intelligence above the earth in space that we now have to look up and make sure we understand what's going on there. We call that space domain awareness which is for operational purposes. But there's an intelligence aspect to that which is mostly centered on what's the intent of what's going on in space or what are the capabilities and how would you characterize those capabilities in space? So we're still in the learning stages of what it means to truly build that foundational intelligence associated with the space domain and then what tools do we need and what processes do we need to get after that?

DWG: We kind of started getting down this path, but I want you

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to elaborate on it a little bit if you can. You're talking about the earth components around the world. You guys have already stood up eight [inaudible].

Saltzman: We haven't yet. We're in the process. Indo-PACOM first; Central next; and European Command following that one. But those are all pre-decisional. We're still working through administratively putting it in place.

DWG: Last I checked in on it, it was [inaudible] and not the other ones yet. So I'm hearing what you've learned from that whole process thus far, in particular for CENTCOM, you know, there's been a couple of things that have happened in CENTCOM in the last year, so I'm curious what you see as the role of space components. Using that has it helped at all with the saturation and stuff like that?

Saltzman: First, our first and primary component is to US Space Command. Space Operations Command, General Whiting's command. That is a service component as well. That's a huge chunk of what we do and we put a lot of effort there. And we're still trying to figure out the exact organizational relationships and how everything works. So these are all works in progress and they continue to be in other domains as well.

With China being the pacing threat it was essential that we stand up the service component to Indo-PACOM. With the ongoing operations that were in US Central Command, it was important that we stood up there. And with the Russian acute threat, if you will, EUCOM is right there as well.

The issue and timing, what I've learned from this, is that each of those combatant commands have different thoughts when it comes to space integration, scope of responsibilities associated with space of operations, and then there's just different processes administratively. When you're trying to put a new command into Europe and have to balance NATO concerns and host nation notifications. We do an Overseas Force Structure Change process. Those take time. The State Department's involved. Just coordination of those takes a long time.

If you're just going to put something at Tampa to support CENTCOM, it changes the dynamics and the administrative activities that have to set that up.

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So there's timelines associated with standup of those. That's why you're kind of seeing us bounce around a little bit. But those are the first three that we want to focus on because we see those as the NDS threats that we want to emphasize, and Indo-PACOM is at the center of that because China is the pacing threat.

DWG: So if Indo-PACOM is the first one, like how far long are they? Have you reaped any benefits from them so far?

Saltzman: Indo-PACOM?

DWG: Yes, or I guess any of the service components.

Saltzman: We've talked through it philosophically so that there's buy-in across the community, that this is a good idea and this will enhance our capabilities with regards to integrating space. We did a lot of work with US Space Command to make sure we understood what the relationship would be. I think we're all on the same page there and now we're just working through the Pentagon.

This is a Secretary of Defense decision and those decisions are not made lightly, so we've got to make sure we understand exactly what the implications are. Second and third order effects. Do we have the manpower to support? What's the resourcing and budgeting? We have to line all that up because we don't want to go so fast that we hang this organization out and it can't be effective when it's put in place. So we're really just trying to make sure we do the deliberate planning to make sure it's successful from day one because it's so critical.

DWG: So thinking about it some more -- are you thinking about it?

Saltzman: Sometimes that's the best path.

DWG: Sure. I have a real follow-up on a separate topic.

I feel like we never really hear about the nuclear piece of your title, so I'm curious what you're doing in that area. Are you working on training with those forces, figuring out the gaps that exist? Talk us through that.

Saltzman: There's two important aspects, and if I think about

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the nuclear part of my portfolio, it's really in support of Admiral Richard and the US STRATCOM mission set. You've probably seen him divide things up into detect, decide, direct. Those are kind of the three aspects of that mission set.

The Space Force is heavily involved in detection. Missile warning is a huge aspect of what it means to provide strategic deterrence. Theresa heard me talk about attribution at GEOINT. The ability to say this is who's attacking us and it's a credible threat and here's what's happening gives the President those options to respond, et cetera. So missile warning is a huge part of the nuclear deterrence portfolio.

The second one is the direction of forces. We are heavily involved in NC3. The command and control and the communication with those forces before anything happens and even in a post-nuclear environment, we have to be ready for all of that. So we manage the satellite communications that are critical to that backbone of NC3.

So missile warning for detect. And don't forget the ground-based radars that fall to us that are also part of that missile [inaudible] architecture as well. And the command and control capabilities through SATCOM. That's the portfolio that I manage for the Space Force that feeds directly into that mission set.

DWG: So what is going well with that? What would you like to be able to do that you can't? What are the action items?

Saltzman: The big one, and you've heard General Raymond talk about this recently, the threat is changing so fast. A non-ballistic hypersonic threat is different than a ballistic ICBM over the Poles. So we have to make sure that our detection capabilities keep pace with that threat. So the next generation of SBIRS capabilities, the next generation of the missile warning architecture. It is all designed to make sure that we are threat informed and addressing the threats that are coming down the line so that we can continue to provide that assured warning, that assured indications and warning and detection.

DWG: To follow on from that just a bit, when you're looking at the modernization plans that are on the books right now, are those moving along in an adequate pace to meet the threat that you see [inaudible]?

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Saltzman: It always feels like a trick question, especially as an operator. Operators are very impatient people. We just want effects now. And that's just not the way acquiring these complex major systems works sometimes. But I'll tell you, digging into it, even with an operator's perspective, when I look at the budget submissions, when I look at the work that the Space Warfighting Analysis Center has done, when I look at the pivot and changes that Mike [Gulan] is making out at [SSC], we are faster. And I'm saying this from somebody that's been watching this for 30 years with an operator's level of impatience. We are faster and we are getting at the work that [SGA] is doing in a disruptive environment. The way we're coordinating faster through the Space Acquisition Council and the Program Integration Council. That level of coordination is going so much faster.

I remember General Hyten talking about sometimes the slowest part of a major acquisition program is just figuring out how to start. Like how do you get to the point where you can actually go? We recognize that and we've really compressed that down. Like I said, the work that [SSC's] doing to collaborate faster, the requirements process, the analytically driven force design that SWAC has done allows us to advocate for the precise requirements and capabilities that we need. That all works to compress the timeline.

So as a watcher, sometimes you feel like you're watching the clock and you know it's moving but it's hard to see. I'm telling you, I've seen dramatic increases in how much faster we're producing those capabilities.

DWG: Then on your point about the ISR Integrated Product Teams. You said that one gap is likely to be AI. What do you see in the marketplace that might be different from what current providers are offering? There seem to be a lot of startups in that space that are offering magic solutions. Do you see that?

Saltzman: Let me tell you the magic solution. Get your pen out. I'm not the best person to talk about the specifics, just because I don't know exact [inaudible]. Here's a couple of things that I think are important.

One is, I've been really impressed with the way Mike [Gulan] has designed the Sherpas -- you hear him talk about that? The idea of guiding smaller companies that maybe don't have the vast

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experience or overhead to work with the government on a routine basis but have terrific ideas, they're really innovative, really groundbreaking, and having people that are dedicated to shepherding them through the process so we can roll them in. That's a tremendous innovative advantage that I think we're going to get, and be able to pull some of those niche capabilities that might not otherwise find a place in the Department of Defense, I think we're going to find some fertile ground there.

The hardest part of data analysis is asking the right question. And you don't know what you don't know, so it always feels like oh, I should have asked that question, and you see it after the fact.

My understanding of the way artificial intelligence, some of the tools and algorithms that are available is they kind of take that pressure off. They're out there asking millions of questions of the data all the time and returning interesting things for you to say that is interesting, hold on, let me take a look at that. It's getting in front of it and being able to process at scale all of that information and present information that meets certain criteria where we don't have to ask the question up front. That I see is real fertile ground in this space. I just don't know what the specifics are and who's doing it. You know, I want to ask Echo to tell me something about the adversary but we're not there yet.

Moderator: Just a footnote for you, sir, General Hyten did the Defense Writers Group as his final meeting with the press before retiring. He was asked across his 40-year career his greatest disappointment. He said it was the speed of procurement.

Saltzman: I thought you were going to say it was his exec in 2015. [Laughter]. I'm so happy to hear that.

DWG: He said what a smart guy that was. [Laughter].

DWG: Abraham Mahshie, Air Force Magazine. Sorry for my lateness.

There's a few different points I'd like you to touch on, thinking about a lot of things that are happening currently.

First of all, I'm very interested, you were talking about the

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standup of the Indo-PACOM service component, and I wonder what you can tell us we're going to see first out of that, particularly do partners and allies have a role in that? Do you see Japan and Australia, there's a lot of talk about their service components that they're standing up in terms of space forces. Are they filling some of the gaps or expanding US capability on eyes in the sky and space?

Also yesterday there was a Strategic Forces Subcommittee Hearing, I'm sure you're aware, and HBTSS was mentioned. A lot of the Senators' questions were about how are we going to defend against missiles like hypersonics? And I feel like not enough was said about what this, these new satellites are going to be able to do from space and how we can operationalize that, get action from it soon, fast.

Finally, do you think that Russia's war in Ukraine, do you think the impact on their military and their economy is going to impact their space cooperation with China?

Saltzman: Service components. First let me just reiterate this is still a work in progress. This is the Secretary of Defense's decision and he hasn't made one yet. But there's, I don't suspect there's going to be some big groundbreaking, ribbon-cutting thing because this is normal operations. Every service has components in every combatant command. We're just the newest service and we're stepping up to those responsibilities.

Once you put Guardians forward into those commands you have to have connection back to the service. It's just an organizational requirement that's out there.

So to some degree this is --

DWG: So [inaudible].

Saltzman: I won't say this is administrative, because it's important from an operational standpoint. So the biggest change is going to be that the combatant commanders will have a subordinate commander that they can task to effectively integrate space capabilities. And expertly manage the space activities that go on from a regional perspective. Like I mentioned, the security cooperation. That's where I would talk about coalition partners and allies.

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To the degree that all of our coalition partners and allies are engaged with combatant commands, now there's senior personnel at strength with numbers that can start to address space concerns, that can start to address space integration with exercises or wargames or the like.

In the past we've been maybe spread out amongst the service components where there wasn't enough mass to really influence some of the key decisions, so that's the idea, is just really raising the level of stakeholder concern up to service level and that's what the service components offer.

So this is just consistent with our normal joint doctrine, and space is important enough now that it warrants that service level attention. That's really the essence of what we're trying to get after with the service components.

Hypersonics. The next generation -- I'm not going to talk specifics for probably obvious reasons, but the next generation of on-orbit IR capabilities will be better against faster, lower maneuvering threats. That's the goal. That's the requirement that's out there. Because we recognize that that's what's changing. In the way that we were optimized around ballistic trajectories, we have to change the models now to be able to account for non-ballistic trajectories, so we're doing that, the requirements account for that as well. So those are the big changes is making sure that we have systems that can detect all the threats, not just a subset of them, and the nature of those threats are shifting away from those traditional models and we just have to keep pace and the next generation will keep pace.

DWG: Soon? You'll get some actionable data soon?

Saltzman: I think we have a lot of data and I think the requirements are on the books and next gen OPIR is on pace to deliver. We have the missile warning, missile tracking. This budget was like the first one that really pivoted to put serious dollars against the next, the proliferated constellations. We're going to start launching here in the next three, four, five years I think to see some of those. I don't want to commit to an IOC date because I think those are all still kind of in the future. But like I said earlier, I think we are moving rapidly, as rapidly as the system really allows, to get it right because we have to get it right. It's our no-fail mission.

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DWG: Thank you for doing this. I'm Lauren Williams with Federal Computer Week.

The Defense Intelligence Agency came out with a report recently about the proliferation of threats against satellites.

Saltzman: That was a great report, I thought.

DWG: Particularly on the cyber side, how this might affect your job and what changes you're making if any to keep up with that.

Saltzman: A little bit of a repeat here, but it's important.

I treat cyber operations as part and parcel completely integrated with space operations. I don't separate them at all. IN fact we're starting to talk about just from career development, cyber operators doing space operations and space operators doing cyber operations because the understanding of the conditions which drive those kinds of operations are important on both sides. So we are actively looking at our training and our education of those officers and enlisted personnel to do those to make sure that they fully understand both sides of the equation because they're so critical.

We are shifting our cyber expertise away from the traditional info-technology, base support kinds of things and shifting rapidly towards cyber mission defense of our systems. Not the least of which are the critical networks that you don't always see, you don't always hear about. But when data comes down, it has to go somewhere Where does it go and what are the networks and how are we protecting it? That's what our cyber defenders are going to be charged with is mapping that cyber terrain, making sure we understand exactly and then assuring that network for data distribution. That's going to be important. It's a very important shift we're making.

DWG: The training -- the shift in training is happening now or is there a time line --

Saltzman: It is.

DWG: Okay.

Saltzman: It's already underway. Buckley Space Force Base is one of the places where we started a pilot program pulling away

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from that, and we love it. We like what we're seeing. The cybersecurity service providers, that role, taking it on and understanding that we're well into that process as well. So it is a shift that's already underway.

DWG: General, before I give you a minute or two for any final word, I just want to say that the mission of my project is to bring together the smartest national security correspondents in town and the smartest officials working in the national security space for really interesting, substantive discussions, and I think we have hit that mark today.

So to all the correspondents, thank you for coming and for your questions. And General, and your staff in particular, thank you for this engagement.

The last word, sir, is yours.

Saltzman: It's kind of cool to have the last word with reporters. I haven't had that opportunity. [Laughter].

What you guys do is so critical to our country. It really is. And it's painful sometimes for us that we don't put things out there, we don't want things discussed. That's okay. That's just a natural tension that I think should exist in a democracy. But what you do, where you have to sit down and listen to some technical person describe something, put it in layman's terms that the public can understand. It's difficult, it's incredibly important, and thanks for what you're doing to make that happen.

The Space Force is new. It feels like everything we're doing is unprecedented. Even though we've been flying satellites for years in the Department of Defense, thinking about the security of those capabilities and making sure the public understand how important it is to protect those capabilities. I can only say it so much and my inner circle is too small. You have a much wider audience obviously, and it's just so important that our public understand what we're doing, why we're doing it, and how important it is, and you are really the critical cog that makes that happen. So thanks so much for what you do.

If I can ever be of assistance, help clarify, I'm much better off the record than on the record, by the way. It's important that we understand the depth of some of these technical considerations and I'm happy to help however I can, and just

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thanks for what you're doing.

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