

## **“Evolving Threats: Protecting the Homeland”**

Voiceover:

Ladies and gentlemen, ladies and gentlemen, please take your seats, and join me in welcoming our moderator to the stage, the 11th Vice Chairman of the Joint Chiefs of Staff, General John E. Hyten.

Gen. John E. Hyten, USAF (Ret.):

Well, good evening everybody. It's great to welcome AFA to Colorado. Since Laura and I chose to live in Colorado here, it's great to watch AFA come back here. It's great to have the Warfare Symposium here. So Orville, thanks very much for you and the team bringing them back.

We're just going to sit up here for the next better part of an hour and just talk. We're going to talk about Homeland Defense, we're going to talk about space and fortunately we have some pretty well qualified people to do that. So I'll do a quick introduction, and then we're just going to jump right into questions and answers. And hopefully have a good time and maybe you'll learn something. Maybe you'll learn something about balloons, we'll see.

So sitting to my left General Glen VanHerck, been a friend for a long time, currently commander of US Northern Command, Commander of NORAD, North American Aerospace Defense Command, former wing commander at Dyess, flew F-15s, F-35s, B-1s, B-2s, commander of the Warfare Center. Did a lot of good stuff, was Director of the Joint Staff when I was vice chairman. So we fought the Pentagon Wars together and there were some interesting times, we'll just put it that way. But it's great to have you here, General VanHerck.

General John Shaw, I've known for a long time, worked in the Pentagon together a long time ago, when you were a major, I was lieutenant colonel. That goes back a long way. Wing commander at the 21st, squadron commander at the 50th. Oh, much better wing than the 21st was at the time. Commander of 14th Air Force. Probably one of the great jobs, if you're a space professional in all the world commanding all space operations at the time. Now the Deputy Commander US Space Command, and I think that's enough of an introduction for everybody.

So let's kind of jump into it. The two commands that are represented to my left have an interesting connection and the connection goes back to, well, October of 2002, October 1st, 2002. Because on October 1st, 2002, the United States made a great decision and a horrible decision all at once. After 9/11, the debate was that we needed a combatant command responsible for defending the homeland, and so we decided to stand up US Northern Command to do that. We also decided that we could only have nine combatant commanders, and so we needed to get rid of one. So we got rid of US Space Command on the same day we stood up Northern Command down south at Peterson Air Force Base.

Now, the stupidity of standing down Space Command equaled the brilliance of standing up Northern Command. But Northern Command was only really worried about counter-terrorism, defending against storms. But now General VanHerck has to deal about the emerging adversaries of Russia and China, and he still has to worry about terrorism and he still has to worry about natural disasters and he also has to worry about balloons, which is a significant challenge.

John Shaw and Jim Dickinson, the commander down there, stood up in 2019 again, because the nation realized that as we stood down US Space Command, the rest of the world started chasing us and chasing us hard, and building weapons to counter us, capabilities to counter us, on orbit capabilities, ground capabilities, all to challenge us. And now for the last three years, US Space Command has stood up provisionally in Colorado Springs, we may talk about that as we get there as well, to try to deal with the operational threats that we deal with in space. So that's where we're going to talk about today. So I'm

going to turn it over to them to make some opening comments and then we'll jump into question and answer. So General VanHerck.

Gen. Glen D. VanHerck:

Well, thank you very much General Hyten, and thanks for what you continue to do for our nation. I sincerely appreciate it. I'll talk about balloons here in just a minute. So General Wright, great to see you again. Thanks for what AFA does, an honor to be here. Mr. Secretary, good to see you as well.

It's great to be here with my neighbor. Truly, he is my neighbor. He lives right next door to me down at Peterson, and also in building one. Space Command is crucial to NORAD and United States Northern Command for our missions that we accomplish. Threat warning, provide the overhead capabilities to do that, attack assessment, nuclear detonation, C2, ballistic missile defense. All that doesn't happen without Space Command, US Space Force. So it's an honor to be here with you John, and I appreciate the opportunity to talk to you.

I talked in September and just wanted to follow up on a few things. The world hadn't gotten any easier by the way. It's growing more challenging each and every day. Every day is one day closer to strategic deterrence failure, and I truly believe that we're not necessarily going in the right direction. We've got a lot of work to do.

Since I was here in September, obviously, you're aware of the PRC continued down the path of their breakout with their nuclear capabilities. They're developing capabilities with their bombers, their cruise missiles, standoff capabilities to hold the homeland at risk. Today, they can hold Alaska in the northwest portion at risk. Their outpatient is tenfold in hypersonic development and capabilities, that ought to concern us all. And of course, we saw what they did with the high altitude balloon.

Actually, that high altitude balloon was a great opportunity for NORAD and the United States Northern Command to get some attention that I think we deserved, that we've been talking about since several of my predecessors, I believe General Robinson's out here, it's hard to see you guys by the way, but we've been talking about the lack of domain awareness and the challenges that we face. In a five-day period, I got to speak in front of congressional engagements eight times over that, four times in front of the full Senate and the House, with the gang of eight twice, with many others. This week, I'll get to talk more.

So it's great to have that opportunity to tell our story about the challenges that we face, the domain awareness challenges that we have in the homeland. And magically the appropriators want to talk to me. In the history of Northern Command, the appropriators have never given us the opportunity to testify. Magically, the House and the Senate each want to talk to me this year. And so that's a great opportunity to tell our story. I hate to say I like doing that, but I actually do like doing it. It's a great opportunity.

We talked a little bit about the PRC, also talk about Russia. Russia, with their illegal actions, irresponsible actions in the Ukraine, we see what they want to do. They want to change the norms and behavior around the globe. We're not out of that. The risk of escalation is still there. We need to keep our eye on that ball. From the homeland defense perspective, I'm very comfortable with where we are, but I'm also worried about escalation management each and every day.

The PRC and Russia this year since we last talked in September, sailed together, Surface Action Group, in the vicinity of Alaska. The Russians have moved another Sev class submarine on par with ours, very quiet, into the Pacific. Now I have problems not only in the Atlantic but also in the Pacific with Sev submarines that candidly go undetected for weeks and months at a time that can threaten our homeland. So a lot happening there for us to get after.

I worry most though about cyber, candidly. The unknown of cyber and we're under attack each and every day in the cyber domain, and we're under attack each and every day in the information space, especially in the information space. What you see on social media, what you see on TV oftentimes is being perpetuated by actors that don't have our best interests in mind. PRC, China, violent extremists and many others, and they fan the flames of any internal discord of our nation. Don't kid yourself. That's happening each and every day. And I do worry about it.

The DPRK North Korea this year, an order of magnitude more ballistic missile tests than they've ever done in the past. 10 intercontinental ballistic missiles with the capability to strike our homeland. And transnational criminal organizations that continue killing more than a 100,000 Americans with their fentanyl that they pass across the border in their business model. And if you've seen over the weekend four US citizens were caught up in what I would say criminal activity, just south of the border. So not a shortness of things to do in the homeland, much to deal with each and every day.

So I'm happy to report that I finally have policy. It took me two years to get policy on what to defend. And that was shocking to me when I showed up into the job that there's no policy. Really hard to come into the department with realistic requirements and build realistic OPLANs if you don't have policy on what to defend. So I've got defense policy. It goes much broader than defense policy by the way. Now, it's the lifelines that support our installations and the federal capabilities that we have that we have to get after as well.

And I turned in a commander's estimate that looks at what do we need to defend? And what does that look like going forward? It's two FYDPs, essentially. It's a near term, which we're pretty much stuck with what we have in the near term, and then it's in the out years, if you will, FYDP 2.

I think the future of Homeland Defense looks vastly different than it does today. It's autonomous unmanned platforms that can loiter for long times, that can create domain awareness, that can do kinetic and non-kinetic effectors. That frees up the joint force to go forward to do additional things. But that's where I think we need to go. When it looks forward to Homeland Defense.

My campaign plan, I'm out three years in front now in our campaign plan. And campaigning is deliberate. That's the three-year piece. It gives me the opportunity to compete for the global force management resources we need. Probably most importantly, it gives me the opportunity to compete for the intel community assets that allow me to validate the measures of effectiveness and performance in execution of that campaign plan.

We also campaign dynamically and respond to ongoing activities around the globe. And I have an internal, what I would call an institutional campaign plan that's focused on changing the department, changing things that we need to do, and we've been successful there. I was the only combatant commander without a threshold force. Every other regional combatant commander had a threshold force.

The global force management implementation guidance is going to change some of those things. I was the only one that was written out. It said, oftentimes, "Except for Northern Command." That GFMIG, if you will, is going to change and allow us to compete and work with the services to us share forces for 45 days. So given the opportunity to campaign is a big thing for us, and I'll talk a little bit more about that.

The recent activities highlights the need to focus on the four strategic priorities that I've had the whole time I've been in command. Domain awareness, hey, you can't deter and you can't defeat something if you can't detect it. We'll talk a little bit more about that. Information dominance, that's about giving more time. The only thing I can't give the president and the secretary defense enough of is time, candidly. And so we have to use that domain awareness and use artificial intelligence and machine learning to get further left. We need to get on orbit artificial intelligence and machine learning as well.

And when you disseminate that, that's called decision superiority. Candidly, I think the services are focusing too much on sensor to shooter. We need more sensor to decision maker, when it comes to JADC2, and JADC2 capabilities, and then a global approach to that.

So I'll wrap up here and just tell you that I believe the greatest risk that we face right now is actually the inability to change at the pace the strategic environment demands. And I'm talking change policy, change process, change culture, change institutionally our budget processes. And I look forward to talking more about that. Thanks.

Gen. John E. Hyten, USAF (Ret.):

All right. Thanks, General VanHerck. General Shaw.

Lt. Gen. John Shaw:

So General Hyten, General VanHerck, a pleasure to share the stage with you. It occurs to me that you both have had the burden of having to live next door to the Shaws. You on the row there in Omaha, sir, and then you right now, and I just want to apologize for the time my guitar amp got a little out of whack, any of those times, sorry.

It used to be so simple. So let's go back, just kind compare to where we are in the strategic environment today, think back just 40 years, so 1983. A guy named Lieutenant Hyten was running around, I think, at that time. 40 years ago, we had a singular enemy. It was a bipolar world. It was the Soviet Union. The strategic threats that we faced, the vast market share of those strategic threats were traditional, classic ballistic missiles. They might have come from land, they might have come from submarines, but they were classic ballistic missiles. And we were pretty good at detecting those threats.

We detect them from space with our space capabilities, when they were on launch. And then we would refine where they were going to land because they were so predictable, because they were ballistic, with our missile warning radars, in 1983. Those are the same radars we're using today, by the way. It was so simple. And in space, really all of our capabilities were geared towards the strategic war, not to the tactical, not to the operational, to the strategic fight. And by the way, what was going on in 1983, that's actually when President Reagan announced the Strategic Defense Initiative was that year, and most importantly, Return of the Jedi came out that year.

Fast-forward 40 years, we no longer have a bipolar environment. Admiral Richard, the previous strategic unit commander used to call it the three-body problem. I loved it when he used that, that's an astrodynamics term for when you have three bodies in classical mechanics. It becomes very chaotic and very hard to predict the interaction between all three of those. Well, we have at least three major nuclear powers now on the world, and then you could add an nth body to that with North Korea. It's much more complicated. That strategic calculus of deterrence is more complicated than it's ever been.

The threats are more complex than they've ever been. The market share of classic ballistic missiles has shrunk dramatically. And now we have hypersonic glide vehicles, we have cruise missiles. We have, even as China demonstrated just two years ago, fractional orbital bombardment capability. That's nothing to take lightly, by the way, folks. It takes some deliberate engineering to be able to launch a hypersonic glide vehicle to put it into orbit and then to deorbit it and then bring it into a target. That's a determined effort, that's not accidental. And that's a potential threat that we face.

And in space, the equation is completely different now. We use space for everything. It's endemic in our society. It was not that way in 1983. It's now intertwined in everything that we do in our society, everything that we do in war fighting. And that curve seems to only be accelerating over time. So tomorrow it will be even more important to our society and to our joint war fighters.

So no wonder that we're under threat in the space domain. If I were on the general staff of Russia or if I was serving in the PLA, I would be advising the leadership go after the space capabilities of the United States. They rely on them to project power across the planet, and they're not all that well defended. So we should not be surprised they were under threat.

John Hyten, you talked about the history of US Space Command. So that first US Space Command stood up in 1982, I think. Really close to that 40 year mark that I mentioned there. Stood down in 2002. We stood up the new version 2.0 of Space Command in 2019. One thing that was different about it though from the previous US Space Command is we were assigned an area of responsibility. The previous US Space Command was strictly in a joint doctrinal sense, a functional combatant command, provide trans regional support to the other combatant commands.

The new instantiation of US Space Command has an area of responsibility, and it's actually a pretty deep concept that we're still exploring and what that actually means in US Space Command. We now have to protect and defend space territory, and we have to think about it in those terms. In addition to doing what we've always done, and that's ensure that our space capabilities are delivered down to the terrestrial domains for war fighting.

So it presents us with some really interesting challenges. The command has grown in the time I've been there. It's literally grown in terms of the manpower. It's more than doubled since I showed up as the deputy commander and continues to grow. And our AOR, by the way continues to expand. If you want... to the expanding universe. So it's an interesting time for us.

I'll close my opening thoughts by saying. A really wise man that I live next door to right now is says that, "Homeland defense doesn't start in the homeland, it starts in other regions." I would say that it absolutely also starts in Space Command's AOR. And in fact, so much of what we rely on our society and in our homeland is in space today. It is inextricably linked to homeland defense today.

Gen. John E. Hyten, USAF (Ret.):

Thanks, General Shaw. So let's talk about threats and let's talk about speed for a second. So Russia, with the economy the size of Italy has modernized their entire nuclear force, and the United States is just beginning the modernization of ours. North Korea, the last time I checked, the 118th largest economy in the world is building and testing more ICBMs than the United States of America. We have significant homeland defense problems, significant sensor problem. You look at our sensor architecture across the country, across North America, it's ancient. It's ancient.

And we can't seem to move fast enough to deal with the threats. We have adversaries that are moving unbelievably fast, and we seem to not be able to take up the challenge and move fast again. So I'll turn it to General VanHerck first, especially from a homeland defense perspective. How do you look at speed, the need for speed, and the challenge we have in getting the speed that we have to have?

Gen. Glen D. VanHerck:

Thanks, that's a great question. If I could solve that right now, I'd probably be doing something else then I'm doing right now. What I would tell you first is for me, when I said earlier, time is the only thing I can't get enough of or give enough of, I think that time we need to get further left. For me, Homeland Defense, as John said, is not about starting an in-game kinetic defeat in the homeland. It's about layered defenses. It starts with our allies and partners and my fellow combatant commanders, and creating the capability, especially from the intel community to give me options further left than we have today.

So how do you get after that? I think you have to be able to take more risks than we do today. I think that the failure today with the oversight, and I fully respect the congressional oversight that we have

today, as a matter of fact, I had a great conversation with a Senator about this just last week, but we have to be allowed to fail. When China fails, they get on the horse and ride again. What we do is a two-year investigation on why we failed, and we slow things down. We can't afford to do that anymore.

I think we have to look at our budgeting processes. We do a five-year FYDP and an annual budget, and the colors of money can't change without going back and asking for the colors of money to change. I update my software every 14 days. You got to be able to go faster within the budget environment that we have today to give us more flexibility.

I would tell you from in an acquisition standpoint, where we are today is an industrial age acquisition process by tank, ships, planes, and those kinds of things. When you're in a data driven information environment, software driven, you can do things differently than we do today. So for example, we have a very serial process through the development and requirements, testing all the way through fielding capabilities. In a software driven environment, you can do those things in parallel to field capabilities much faster than we do today.

Gen. John E. Hyten, USAF (Ret.):

Yep. So General Shaw, you talked about the difference between this US Space Command 2.0 and the original one, and you talked about having an AOR defined, and you talked about the need to protect and defend that AOR. We already have adversaries that are deploying capabilities against us in that domain. You don't have time to do a deliberative process and spend the next two decades trying to figure out how to do that. You have to be ready right now. How are you dealing with it operationally today? And how are you looking at speed relative to where we're going as well?

Lt. Gen. John Shaw:

Well, most fundamentally, we need to, and I think Space Force is doing a great job of this on, and Mr. Calvelli in particular, is really driving it, what I'm about to say, but we have to change the way that we built space architectures. If we trace how we started building from the very beginnings of the Space Age and through the rather benign period of the post Cold War until we are now under threat in the domain. We built our systems for efficiency and I liken them to mega container ships or supertankers. We built large platforms for efficiency. That's why you have supertankers on the high seas. They're not built to be defended against, against threats. They're built for economic efficiency. And we did the same thing in our space architectures.

And it wasn't just the size of those platforms, it's how we operated them. We operated them using the gifts that Kepler has given to us. Using orbits of fixed orbital energy, they don't have to maneuver a whole lot. They can just stay in those orbits and do their job, whether they're in geosynchronous or you have a mission design that has satellites and low earth orbit of multiple satellites.

We have to completely rethink how we do our space architectures. We're probably going to have to be more nimble. We're going to have to find ways to have sustained maneuver in the domain in ways that we do not do today. We're going to have to find ways to commoditize some of our architectures, in the sense of which we're always replenishing those platforms on a regular basis. And we're also going to have to be far more nimble against threats than we are today.

So I think it starts with that and US Space Command has tried to move forward with that. Again, we're a pretty nascent command, but we've written some initial capabilities documents with partnership with the Space Force that will get after these kinds of new architectures. Those are the building blocks that will get us to a fighting force in the space domain that will do, again, our two large missions, protect and defend in the domain and deliver space capabilities to the trust of domains.

Gen. John E. Hyten, USAF (Ret.):

Thanks very much. Let's talk about deterrence for a second. I'm of the belief that in many ways our country as a whole has lost the ability to understand what deterrence really means anymore, especially strategic deterrence. It is probably the most active mission that we do in the Department of Defense, and it's not well understood how active that mission is in the Department of Defense. It's also not just about the existence of nuclear weapons, and by their existence, somehow we magically deter all our adversaries. Just watch Ukraine, and you know that's not true.

But nuclear deterrence is held, but strategic deterrence is a much more complicated effort. So General VanHerck, you talked about campaigning, you talked about a focused effort on campaigning. So talk about campaigning in homeland defense, campaigning for the homeland, and how that relates to strategic deterrence.

Gen. Glen D. VanHerck:

Well, first I would tell you that the foundation of homeland defense is the strategic deterrent. It's our nuclear deterrent. We got to get that right, have a triad that's effective. That's what I talked about all the time. But I think we've been too focused on deterrence by punishment, and that doesn't give our most senior leaders many options. So we need to bridge the gap between the nuclear deterrent and everything else that China and Russia have taken advantage of.

Shock and awe back in Desert Storm actually was shock and awe for the PRC and Russia and they've developed capabilities to hold our way of projecting power at risk, with the goal of basically delaying and disrupting our force flow, and destroying the will of the American people. What we have to do is give options to our most senior leaders to create and fill that space. Those options are what I would say are deterrence by denial. So ballistic missile defense can be viewed as a deterrence by denial, but that's just one small subset of it.

What I'm looking for is the campaigning that you talked about where every day we demonstrate the readiness, responsiveness, capability, and most importantly, the resiliency in our homeland to survive any attack that anybody would ever think about. The reason policy was so crucial for me to get up front was to know exactly what I have to protect. And those things that I have to protect are those things that could bring us to our knees in a time of crisis. If you protect those, and it's a relatively small number, what you do is you make the problem so big for any potential adversary that the strike on the homeland has to be a massive strike.

And now they're looking at that from a standpoint of what comes back at them from a strategic perspective, but also it makes the deterrence by denial really tough. For me, campaigning is not only with my military counterparts and my allies and partners, it's with the interagency. And so I have to campaign with FEMA, Homeland Security, and others to demonstrate our resiliency and readiness.

I would tell you that things that we do, like Allies Welcome, where we built eight small cities in a matter of weeks holding 74,000 Afghans, no other nation on the planet can do what we did. When you message that appropriately, it has a deterrent effect. Responding to COVID, where we gave millions of vaccinations, we treated millions of people across the entire continental United States. Nobody else does those things. When messaged appropriately, they have a deterrent effect. So I think about deterrence more broadly than just what I think the history of deterrence would be.

Gen. John E. Hyten, USAF (Ret.):

So you talked about missile defense real quick there. Let's spend a little time just walk through where you stand now in missile defense, what you're trying to defend, how that defense is structured, and where you see the future of missile defense going.

Gen. Glen D. VanHerck:

Today, missile defense is ballistic missile defense. The Missile Defense Review did not task me to defend against hypersonics. There's a misconception about that, that I'm going to defend against hypersonics. That's the nuclear deterrent. That's what it's for. I support that. So today we defend against ballistic missile defense. And what I would tell folks, and I'll say when I testify tomorrow and Wednesday, is that, "I'm comfortable with where we are against a limited attack from a rogue actor." That rogue actor is North Korea, DPRK, and if Iran got capabilities, I do not and am not tasked to defend against Russia or China for ballistic missiles.

Where I'm lacking for missile defense is actually in cruise missile defense. And I'm very concerned about our ability to defend against cruise missiles, and that's the avenue that's really opened up for threats to the homeland. Cruise missiles launched from airborne platforms, sea platforms, undersea platforms. Think about a container ship parked in the Long Beach port out there or Port of MOTCO or MOTSU. Those are potential threats that we have to deal with and be able to deal with when we look at missile defense going forward.

Gen. John E. Hyten, USAF (Ret.):

So John, deterrence in space, the adversaries looked at us for a long time. They realized we're vulnerable. They're building capabilities to deny us. You said if you were on the general staff or in the PLA, you would certainly be advising the leadership to challenge that. How do you deter somebody coming after you in space, given where you are right now?

Lt. Gen. John Shaw:

So I think you teed that up. Well, I think we're in a position now where it's about strategic stability and vulnerability. We actually have a situation where we actually incentivize an adversary to take out our space capabilities because they can, and because we rely on them so much for everything we do, for the near fight there in the East China Sea, all the way to homeland defense. We need to change that equation around and make our space capabilities resilient to any kind of attack.

And I believe if we do that properly, we'll not only close that window of vulnerability or will it change the strategic stability equation where we not only deter a war that extends to space, we deter war. Because an adversary realizes, "Hey, if I can't take out their space capabilities then I can't win." And if we can be part of that overall strategic equation, I think we help the nation.

Gen. John E. Hyten, USAF (Ret.):

I'm just a retired guy now that is trying to keep up. I used to know something about space and I can tell you in the answer you just gave, I think you strung together like 28 buzzwords in one sentence. That was pretty impressive. And I used to be really good at that, too. And the reason I was good at that is because you couldn't say anything else except all the buzzwords. And you can't sit here and still talk about some of the details, because so many things are still unbelievably classified in the world that you work in. So what are you thinking about in terms of classification over classification, how you work with allies and partners? How do you look at that problem?

Lt. Gen. John Shaw:



I see it every day, and we have allies on our staff at US Space Command that we repeatedly can't bring to meetings because of the way the security is set up. And I don't know if we really get at this problem without a all hands on deck kind of effort to get after everything all at once. There are so many security classification guides and pockets of secrecy out there that it's almost like whac-a-mole. If you try to hit one, then something else will pop up and we just as a department need to get after it. But I see it a lot. I saw it today. I saw it today when I saw we were having a tour out at Schriever, and I saw something on a slide that was stamped. I said, "Why is that so highly classified? That doesn't need to be that highly classified. It should be way down there. And we need to absolutely fix it."

I would say it's also, it's not just about declassification or reclassification, it's also about how do we share information across the department and with our allies? So it's a slightly different problem. It's analogous to the lessons we learned after 9/11, it wasn't always just about over classification, it's about also we didn't have the mechanisms to share data at the right levels across. So I think it's really this two axis problem of getting classification down to a balance and finding ways to be able to share information better.

Gen. John E. Hyten, USAF (Ret.):

All right, so let's go down that path a little bit just with allies and partners. So you've both talked about allies and partners, when we talk about allies and partners, I think a lot of people think about EUCOM and our NATO allies. They think about the Pacific, you think about Australia and Japan, but when you're US Northern Command and NORAD, which is maybe one of the greatest international partnerships in the history of a military partnership, but both NORTHCOM, NORAD and Space Command have significant efforts to expand the role of allies and partners and how you're doing it. So we start with General VanHerck and then just jump right in General Shaw right after that, talk about allies and partners from your perspective.

Gen. Glen D. VanHerck:

Well, I think, first of all, it's crucial. I kind of want to pile on to what John was just talking about. I have a binational command that's 64 years old, it'll be 65 in May, and I get planning orders that come out secret, NOFORN for NORAD in a binational command. I send emails into the department, secret FVEY that come back to me, the response, with an acknowledgement that comes back secret, NOFORN. It's literally like that's the auto send back for me.

They're crucial. They're part of how we defend North America. We don't defend it without an ally, and that's Canada. For homeland defense, I'm tested to do that through a layered defense. And as I said, that starts forward. Our allies bring domain awareness to us. We don't have to go buy a new capabilities. They bring capabilities that we can have. Our allies bring authorities that I don't have for conducting operations.

And I won't go into a lot of details, but there's some in the information space, there's some in collection of intel even within our own homeland that they can bring that I don't have. And they also bring what I would say is our asymmetric advantage, and that's the network of like-minded nations that the PRC and Russia do not have, that we can utilize as we project power around the globe that we can message with. I think allies and partners are truly our asymmetric advantage, and we don't use them enough.

Gen. John E. Hyten, USAF (Ret.):

General Saw.

Lt. Gen. John Shaw:

Actually, we are at a point now where if we don't address this, we are going to miss a huge opportunity to really allow our allies to work and build interoperable capabilities with us at all levels of the capability sets that we need, because we won't be able to talk to them about a lot of the things that we need. And now's the time to do it, because they're all seeing the same threats that we're seeing. So we're going to miss this opportunity if we don't do it.

At the same time, I like to think that we are making positive progress, at least with the integration and interoperability with our partners in the space side. When I was in my last job out at Vandenberg is when we made the first deputy of the combined space operations center, it was a UK colonel, who's a deputy, it's an Australian colonel today. And I don't know what nation it'll be next, but I can't wait to see. That's great. And we have allied members on our staff. We did not have that when we first stood up. We managed to bring them in and they're actually part of our staff, for those meetings that they can come to.

And we're continuing to extend partnerships. Now, it's interesting, there's not a single nation that we engage with or that I'm sure Space Force engages with that's not interested in space, not a single one. There might be some nations that aren't interested in a Navy, because they're landlocked. But every nation seems to be interested in space and what it can bring to them. And so there are opportunities for partnerships there and we're reaching out to them. And we usually start with their space situational awareness agreements as sort of getting your entry into the door, and how we start talking about space and then we go from there. So we're making progress slowly, but if we don't move faster, we will miss a huge opportunity.

Gen. John E. Hyten, USAF (Ret.):

All right. So let's talk about some things that everybody wants to hear about, things that you actually talk about all the time. I'm just not sure anybody broadly is listening. So here you are on the stage with all your family and friends in front of you. And so what do you know about a big white balloon?

Gen. Glen D. VanHerck:

Well-

Lt. Gen. John Shaw:

That took all the helium out of the room right there.

Gen. Glen D. VanHerck:

So I know a lot about balloons right now. It's amazing. So what we know is China's had a program for years that they're utilizing to gain collection to places they haven't been before. For me, it was an eye-opener. I didn't find out about balloons flying over the homeland until January 27th of this year. I was aware of balloons around of the globe in August as they presented that to us. And at that time I tasked my team, I said, "It's just a matter of time before one of these approaches the homeland or flies over the homeland. Let's go figure out, from a legal standpoint, where we are and what our options are."

And so lo and behold, there we were on January 27th getting notified of the potential of a high altitude balloon flying over our country. What I would tell you is the United States Air Force did incredible work with multiple platforms to take down that the high altitude balloon from China, and the other objects that we took down. It was PhD level work against these objects, if you will, and the high altitude balloon. Shooting something down at 65,000 feet that's only going 20 or 30 knots, everybody thinks that's easy. And I get asked questions like, "Well, couldn't you just go up there and lasso it?" And I'm not kidding, I get questions like that.

But when you're talking to the president about success rates for shooting this thing down, I call up the weapons folks down at Tyndall and go, "What kind of intel can you give me on success rates?" "We don't have any of that info." Okay, so we're guessing essentially. And so I tell the president, "Hey, it's 50/50 to take this thing out." But going forward, we know a lot more now. In an unclassified environment, I can't really talk about that.

I will tell you that we learned a lot about our domain awareness, and the fact that these things had flown over before and we didn't see them, that ought to concern all of us folks. That we didn't see them. I'm convinced now that we'll see them, but we need to see them further out. And I think that this experience, not only for me and the commands I get the privilege of commanding, but for our nation will make us better going forward.

Gen. John E. Hyten, USAF (Ret.):

Awesome. Thanks very much. So General Shaw, US Space Command 2.0 stood up at Peterson's Space Force base now, provisionally. So it's provisional headquarters right now as the leadership decides where it's going to end up, finally. Is it going to be Colorado Springs? Is going to be Huntsville? Is going to be someplace else? If you would just talk to the audience about the status of where the command is right now in terms of readiness to deal with the threats you're dealing with, and how you're standing that up and how you're dealing with what if drills as you look forward?

Lt. Gen. John Shaw:

Well, so on the basing decision itself, I'll just say what General Dickinson's been saying publicly, and he's probably going to say in his hearings, because he's going to be at in front of the HASC on Wednesday and the SASC on Thursday, that, just a decision as soon as we can will be helpful.

Where the command is, again, to continues to grow and get better every day. And when I say grow, it's not only bringing personnel in, it's also going through the activities that a combatant command needs to do. The initial capabilities documents, the integration with the other combatant commands and developing our plans at various levels to be able to do campaigning from the space perspective. And we're at a better point than we've ever been today. I think General Dickinson would say we're approaching full operational capability, and he'll be the one to judge more eventually there.

Gen. John E. Hyten, USAF (Ret.):

Very good. Let's kind of look at the future. One of the terms that has bugged me a lot for a long time is the term arms race, like, "We need to avoid an arms race at all costs." This nation has always been in an arms race. We will always be in an arms race as long as we have adversaries that are challenging us. That's just the nature of the beast.

Now, there's ways to control it, there's ways to influence it, there's ways to structure it. But we're in the middle of something right now that I think is hugely important to the country and it's hugely important that we win. John Kennedy in his speech at Rice University back in the early '60s talked about space science and nuclear science, and neither one of them has a conscience. And whether it's going to be used for good or evil depends on man, and only if the United States has a position of preeminence in that world can we define where that world is going to go. And we've done that in nuclear and space.

But now we have artificial intelligence coming along. We have quantum coming along that are going to challenge us. It's going to be really important that we understand that. So from your command perspective, talk to the audience a little bit about artificial intelligence and machine learning, what you're doing. And talk about the future of quantum, the way you see it.

Gen. Glen D. VanHerck:

Thanks, that's a great opportunity to talk about those things. So I said time is the only thing I can never have enough of, and I think we have to utilize the software and data driven capabilities to be able to gain time for us. What we've been doing in the two and a half years I've been there is focusing on digital transformation in our headquarters and across our commands, the regions and components and subordinates, and getting away from PowerPoint driven briefings.

When I first got to the command, everything in my daily ops and intel briefs was a look at what happened yesterday. I'm like, "That's really not that interesting to me. What I want to know is what's going on right now? And what are we going to do about it tomorrow?" And the only way you do that is you take data and information and you present it live and you can manipulate that to see what the future's going to look like, if you will.

That's where we've been going. We've conducted, for us. Four global information dominance experiments. We took publicly available data and information and we were able to take not the recent Russian Ukraine, in this past year, but the one before where they moved south towards the Donbas. And we were able to take the information, both military information and commercially available information, anonymized cell phone information. And when you take it and you use machines to really analyze it, machines know exactly how many cars are in a parking lot for the last 60 days, and they can tell you when that changes. They know you, they know exactly how many weapons are parked on the flight line or in the weapons area, and they can cue you to look at that and cue satellites to look at it. We were able to gain three days of decision space that we didn't see in real time.

Three days of decision space is incredible for our nation's leaders to be able to conduct deterrence operations, pick up the phone and message. For me as an operational commander, I can posture forces to take advantage of that as well from a deterrence by denial perspective. And so those are things we've done. We've done four global information dominance experiments, and they're truly global and they're all domain.

What we're talking about is fundamentally changing the way the department makes decisions. You're able to now imagine a single pane of glass where all the J2s and our allies and partners can look at that and see a all domain picture of what's going on versus potential adversary and even an opportunistic adversary. And simultaneously the J3s can look and create deterrents or defeat options. And the J4s can actually validate those options because the data tells them is the fuel in the right place? Are the crews ready? Is the platform ready? Are the weapons all ready? All of that can be done simultaneously, and now you can save enormous amounts of time.

The way that happens today, folks, is you get a regional perspective, where a plan order comes out to a combatant commander who produces a regional plan that comes into the Pentagon. And the first time you actually get a global look at that is when you have three and four stars sitting around the table and typically it's a week or two weeks after the fact. Now you can do that in real time. Imagine how you change making decisions. Now you have AOs who have that information, who can make it in real time, where today it takes days and weeks and we have to make it at my level or your level. Think about fundamentally how that changes the way we can do business. That's what we're doing with data and information in AI and ML.

Lt. Gen. John Shaw:

Let me first pile on to General VanHerck's thought on global integration. We find ourselves as combatant commands usually on the same side of that discussion. You have to look at everything from a global, or we would say at Space Command, a supra global perspective, because it's bigger than just the

planet. It's everything that's going on around it as well. And if you start to narrow in and start in a region, then you're going to miss a lot of the big picture that you need to get after.

In terms of the technologies you mentioned, I'm fond of saying that space and cyber are BFFs. They were kind of grew up together and rely on each other more than pretty much any other domain the way that they're connected. And I think there's two macro ways that we'll need to leverage the technologies that cyber will bring us in the future.

The first General VanHerck just talked to, and that is going through huge amounts of data, huge amounts of data to detect patterns of what's going on, and then get predictive on what's going to happen next. The second major use for space capabilities in particular is as we move further and further up and out of the gravity well, until we have Guardians actually onboard them, and maybe we will someday, but probably not anytime soon, we're going to need those platforms to be largely autonomous. And they can't just be operating under code that's already programming into them, they're going to probably have to learn as they go, and we're going to have to leverage those technologies as well.

Gen. Glen D. VanHerck:

Hey, can I-

Gen. John E. Hyten, USAF (Ret.):

Yeah, [inaudible 00:45:56]-

Gen. Glen D. VanHerck:

... address one more thing? So I just had my commander's conference last week and I had previously done an engagement in New York City at a forum called Ergo, and Tristan Harris was there. Many of you have probably seen The Social Dilemma, he's the producer of that. You talked about AI and what it can do for us. What I can tell you also is it can also do a lot of negative things for us. And every day what we need to understand is that our culture is being manipulated, our kids are being manipulated through the use of artificial intelligence and machine learning as they use their phones and their computers. And so it can actually do a lot of negative things.

What I would tell you is the data's only good as the data. And if you manipulate the data and you produce, see what they want you to see, they're actually manipulating us. So we have to also make sure we have resilient, secure, safe systems put in place. And that's that foundational piece that we're getting after right now to be able to do the C2 and everything we need to do.

Gen. John E. Hyten, USAF (Ret.):

It really is all about the data. If you think about the ChatGT stuff that's out there that everybody's playing with now, think about the database that artificial intelligence algorithm's running on. That database is the internet. It is truth and falsehoods and false narratives and stuff that people insert. That's what it's running on. But if you can control your data, protect your data, run on that enterprise, everything changes. And you didn't pick up on quantum, but we had better win the quantum race as well, or this country's in a significant world of hurt.

So one thing before we close, I'm going to give you guys an opportunity to give some final remarks, but before you do that, there's a lot of Airmen, a lot of Guardians in this room, the Air and Space Forces Association embraces them all. You both have something very much in common with me, and that is you're old, so I'll give it to you easy. Go back to when you were a lieutenant and just share with the

Airmen and Guardians in the crowd something that somebody told you that changed everything, or something you wish you knew back when you were a lieutenant. Because there's nobody that can ever think you're going to be a three or four star, it's impossible. But go back to when you were a lieutenant and think of a piece of advice or something you wish you'd had known.

Gen. Glen D. VanHerck:

Gosh, you didn't tell me you were going to ask me that. That's a really tough question. So as I go back, just to think about it, first, I had the fortunate opportunity to spend four years at Kadena Airbase, as my first assignment. I look back at the people that were there at that time, many of those people went on to be great leaders. All of them tended to focus on the basic of leadership and war fighting.

And that's what was instilled in me from day one and the opportunity to lead. And what is really what I would say the foundational aspect, for me at least, was the opportunity to lead at different levels. Don't be afraid of risk. Don't be afraid to take those risks. Don't be afraid to take failure and move forward is what I'd say.

Gen. John E. Hyten, USAF (Ret.):

Yep, that's perfect. Thanks.

Lt. Gen. John Shaw:

I think for me it was, the biggest learning experience I had in my first operational assignment was just it's really about working with other people and teamwork and trust. And I've kind of learned as I've gotten old that I also believe that that's a core competence of our nation and our society and of our Department of Defense is that we can trust each other. I'm not sure that authoritarian societies can work on trust as well as we can. And it's the core competence that we should never forget and realize that we're all in together and we need to trust one another and build that greater confidence in working together. And I think we underestimate that as, again, a core competence of our nation and our society.

Gen. John E. Hyten, USAF (Ret.):

It's interesting because we were talking about deterrence and artificial intelligence and quantum and campaigning and all of these things that are really important to our nation. And I didn't tell them, because I was listening to the chiefs in the last panel at the end, and I didn't tell them I was going to ask that question, but I knew the answer they would give me. It would be about leadership and trust, because that's really what it comes down to. That is the most important thing of everything that we do. So-

Gen. Glen D. VanHerck:

Can I follow up with one thing?

Gen. John E. Hyten, USAF (Ret.):

Yeah, absolutely.

Gen. Glen D. VanHerck:

So I happened to be a lieutenant colonel when I got this advice and I was a squadron commander and happened to be at the weapons school and my boss happened to be a guy by the name of CQ Brown. You guys may know him.

Gen. John E. Hyten, USAF (Ret.):

Heard of him.

Gen. Glen D. VanHerck:

And he pulled me in and it was my very first formal feedback, and I'm an O5, that ought embarrass us all. Okay? And what he told me was... First of all, I'm in a unit now that has 17 different squadrons from all different cultures across our Air Force and everywhere, and everybody approaches problems differently. And the first thing he said, and I won't say exactly what he said to me, but he said, "Do you know, come across as an abrasive blank."

Gen. John E. Hyten, USAF (Ret.):

I know what that word is.

Gen. Glen D. VanHerck:

The best advice you could ever get, fundamentally change me and how I lead and how I approach problems didn't change who I was and how I thought about things. But I can tell you I wouldn't have gone much further if I didn't get that feedback from our current chief of staff of the Air Force, and understand how much relationships matter. And he gave me that feedback. Now, he may deny that, but it's true, he gave it to me.

Gen. John E. Hyten, USAF (Ret.):

No, I think that's perfect. So we're down to three minutes, so you got 90 seconds each just to share your thoughts as we close out the evening.

Gen. Glen D. VanHerck:

Well, first, thanks for the opportunity. Really appreciate it. Every day I get up, I think I have the most noble, humbling job on the planet, and that's defending your homeland. I don't think it gets any better than that. And two and a half years into it, still have the passion to do this mission each and every day. I would tell you that we're challenged folks, and we got to think differently. This recent events with the altitude balloon and the other objects has given us a platform to go after that.

Now's the time to take advantage of that. Never let a good crisis pass. That's my motto right now. We're going to take the opportunity, but we've got to go faster, the field capabilities to defend our homeland. I didn't talk about it, but from a deterrence perspective, I think I'm one part of the equation. Before a PRC or somebody else is going to make a decision, whether they're going to try to take a Taiwan or something else, in their mindset, they have to be able to stymie our flow from the homeland and deter or dissuade us from intervening. My job each and every day is to make sure that they, on their mindset and their gray matter, believe that they could never bring us to our knees each and day. And that's what I get to do and it's very humbling. So thanks.

Gen. John E. Hyten, USAF (Ret.):

Awesome. Thank you. General Shaw.

Lt. Gen. John Shaw:

I'll close by making a very bold prediction. Now, make sure you take good notes here, this isn't happening anytime soon, but someday. So right now, the US Space Force is the smallest service in the

Department of Defense in terms of its personnel and in terms of its budget. One day, I don't know how many years or decades from now, the US Space Force will be the largest service in the Department of Defense and probably have the largest budget.

And that will only be because our society's advanced to the point that we're projecting power across such vast distances that only the Space Force can deliver the ability to protect and defend in those distances and project power across those distances. So just want to leave with that thought that it may be small now, but just you wait.

Gen. John E. Hyten, USAF (Ret.):

All right, thanks very much everybody. You guys go do great things. Have a good evening tonight, and we appreciate your time.

Voiceover:

With that, ladies and gentlemen, our first day of sessions has come to a close, but the symposium is only getting started. We're right back here tomorrow, starting with morning coffee at 0700, and keynotes from senior Air and Space Force Leaders beginning at 0800, with panels all day long. Be sure to also visit our exhibit hall featuring more than 100 exhibitors, which opens at 0910. We've got a packed, exciting schedule. We'll see you tomorrow.