

General John Hyten
"AFSPC: Defending our Edge"
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General Hyten: Good morning, everybody. Thank you, Lynn. Thank you very much for the introduction. Thanks to AFA this week. It's actually the first time I've stood on the stage at AFA to speak, so I very much look forward to it.

The mission of Air Force Space Command is the mission of the United States Air Force, really. Our mission is to fly, fight and win in three warfighting domains -- air, space and cyberspace. Two of those warfighting domains are in Air Force Space Command. We take those very seriously. So when I think about what I'm going to talk about this morning, there are so many directions to go, it's almost infinite.

Reading the news the last couple of days, I see news on cyberspace all over the place. I see news on the cyber mission force, I see news on the cyber security problems we have in the nation, and I see all kinds of news happening, but there was news that happened on Monday of this week that never showed up in the news. It was a huge event for the Department of Defense, a huge event for the Air Force and for our command, and nobody noticed.

In many ways that's a good thing. What nobody noticed was this weekend we transitioned the Air Force Network at Joint Base San Antonio into a Joint Regional Security Stack. Now that may sound like technical mumbo jumbo to a lot of you, but what that Joint Regional Security Stack is, it's the fundamental gateway for the Joint Information Environment, the JIE that we're working down.

We partner with the Army, we partner with DISA, and the Air Force basically provided the technical knowledge and we moved our entire system onto the Joint Information Environment this weekend and nobody noticed. We are all in on building a Joint Information Environment in the Air Force. We're going down that path. And we're making huge progress with our partners in the Army and DISA. And we're going to be in that Joint Information

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Environment in the very near future. That's going to allow us to defend cyberspace the way we need to.

So when I look at the news, the real big event was completely missed.

But that's not really what I want to talk about this morning. What I want to talk about this morning and today, I'm not going to talk a lot about cyber, a little bit at the end maybe, but I'm going to talk about space. Because space, the missions that we do in space are the most joint missions of any missions we do in the Air Force, because everything that we do in space is fundamental to the fight that we're in today, the fight that we'll be in tomorrow. The capabilities that we provide today have fundamentally changed warfare and they're critical to the fight in Afghanistan, the fight in Iraq.

Capabilities that we have built that we now take for granted in the Air Force, the whole RPA fleet that we fly is impossible without space. It doesn't exist without space. You cannot have Creech Air Force Base without space because the operators at Creech reach out and talk to their RPAs, their remotely piloted aircraft, via satellite links. Those aircraft are guided by GPS. You take away GPS, you take away SATCOM, you take away RPAs. They don't exist anymore. All those things are fundamentally changed in the Air Force.

It is the most joint thing, and one of the best officers I've ever worked with is now an Army colonel, he was an Army lieutenant colonel at the time, Tom James. A brilliant Army officer and a brilliant space guy. Grew up in the Special Forces world, little bird helicopter pilot, knows space backwards and forwards, and can bring space to the fight like very few in the world.

But space is an Airman's story. And this last year I've started asking questions of Airmen. Asking Airmen about some fundamental pieces of Air Force history that everybody in this room should know, and everybody in this room should be able to tell that story.

When I started asking the question the first time, I asked it at an Ops Group Commanders course. I've now asked it at four Ops Group Commanders courses. There are two questions and they're

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basic to the history of the Air Force and the history of space. And I thought when I first asked that question, the first one, easy, was a gimme. It was an easy question to answer. I've now asked it at four Ops Group courses. Pretty much the entire fleet of Ops Group commanders in the Air Force, and not a single person has got the answer yet.

I've asked the question at three large space conferences -- conferences larger than this where I've had a space control conference at MIT, a space conference at the NRO, and a large space conference in Colorado Springs. And not a single person got it. I remember the answers to these questions back when I was in college before I even came into the Air Force. So it just shocked the heck out of me that Airmen couldn't come up with the answer.

So I'm not going to ask you, because I'm sure everybody in this room knows the answer to the questions, but --

Next chart.

Aerospace. The term aerospace. I heard it on the stage. I stopped counting at 12 yesterday. I think General Mullner said the word aerospace seven times in his remarks. People use the term aerospace all the time. In this room there's probably dozens of people who studied aerospace engineering in college. We use aerospace as a term that's common.

So where did the aerospace term come from? Who created the term aerospace?

Next chart.

That's Thomas D. White. Fourth Chief of Staff of the Air Force. He created the term aerospace in 1958, right after sputnik. He created the term aerospace because he says the future of the United States Air Force is "in the indivisible operations of air and space." That's where the Air Force is going to create our power in the future, is from that indivisible medium, and he wanted to call it aerospace.

He wasn't talking about the different physics. He wasn't talking about Kepler and Brounelli, because General White, if you notice his badge there, he's not a space guy. You don't see

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any of these badges on his uniform. You see pilot wings. Because General White was fundamentally an Airman. He flew the Jenny, he flew the Curtis, he was in the Army Air Corps in the early days after the Wright Brothers. He grew up in World War II. He commanded the 7th Air Force. He flew B-24s and B-29s. He spoke five languages fluently. He crashed with the American Ambassador to Russia in Moscow and survived that crash in a crash landing. He was an Airman. He was an Airman's Airman.

But right after Sputnik he looked out and he saw the future. The future of the United States Air Force was in the integration of air and space. And so he went to Congress and in 1958 in testimony with the other Chiefs, the Army Chief sitting right beside him, General Beech. General White made the case for aerospace. Twelve times during his testimony he used the term aerospace as the key to the future. Aerospace, the integration of air and space in the future is the key to the United States Air Force, the key to American power into this century and the next century.

So the Senator, after he's done with his remarks looked at General Beech and said, "General Beech, I don't understand this term aerospace. What do you think about this term aerospace?" And General Beech said, and I quote, and you can look it up, "Senator, I don't know about this term aerospace. Where I come from we call it armospace." True, you can look it up. He said "armospace". Well, "armospace" didn't stick around very long. Aerospace did.

Aerospace is fundamentally what the Air Force is about. We're about the integration of air and space, and we've still, in 2014, only begun to really scratch the surface of that power. But that's the first question I asked. Every Ops Group commander in the Air Force, space, missiles, fighters, bombers, tankers, AWACS. I've asked them all. Not a single person knew where the term aerospace came from. That's our heritage. We should all know that and we should tell that story.

Next chart.

That's my command logo. A pretty cool logo. Formed in 1982. When it was formed, there was an interesting thing about that logo. You know the thing you didn't see on that logo? It was exactly the same in 1982 with one exception. The exception was

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the term Air Force didn't show up on the patch. It was just Space Command. Air Force was nowhere on there. The reason it didn't have Air Force, because there was no such thing as another space command in the world. It was the only space command in the world, and so there was no need to put Air Force on there because the only place that Space Command existed was in the United States Air Force.

So the second question I asked all the Ops Group commanders, all the space zealots of the world. Everybody that was there. A thousand people now I've asked the question and not a single person has got it yet. Who was the officer in the United States Air Force most responsible for the creation of Air Force Space Command?

Next chart.

Jerry O'Malley. That picture, I think he was commander of TAC, Tactical Air Command in that picture. Before that he was the Commander of Pacific Air Forces. Before that, Vice Chief of Staff of the Air Force. Before that, the XO of the Air Force, now the A3, the Director of Operations. It took a lot of work on my staff to find something in his background that looked like space, so it's the SR-71 that you see there in the background, and him flying the SR-71. Because he flew the F-4, he flew bombers, he flew, I think he flew the F-16 in the early days. But he was fundamentally a pilot, an Airman. That's who he was. He flew the SR-71, commanded the wing at Beale, commanded a wing in Vietnam. Amazing career cut tragically short when he and his wife died in an aviation accident in Wilkes-Barre, Pennsylvania. But nonetheless, he was the guy that figured out that we needed to have a separate Space Command.

Why did he decide that we needed to have a separate Space Command? Because as he got into the senior positions and he got in the SR-71, and he got to be the Director of Operations in the Air Staff, he looked out and he started seeing the capabilities that space could bring to a fight, and he realized that nowhere in the Department of Defense was there a way to bring space to the operational community. Space, even with General White, General Eisenhower and the others at the beginning starting it up, space had grown up really in the classified world. And space was black. And space was only for the nuclear warfight.

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And space was a strategic element of the United States, not really meant for support to tactical warfighting.

General O'Malley looked at it and said that's not right. There is power that can be brought to bear, and the power of the United States Air Force can be fully implemented only when we integrate air and space, and we need to have a separate operational command that's focused on bringing operational effects to the warfighter. That's what we need to do in the Air Force.

So he worked. General Allen was the Chief at the time, and he convinced General Allen before he left, and then General Gabriel after that, that we need to have an Air Force Space Command and he stood it up. He was the guy that drove it.

I get all kinds of answers. General Hardinger, General Schriever, General pick your great American aviator, American Airman. You find lots of answers, but that's the guy.

And you look at his badge, they're pilot wings. But it was a pilot that realized we need to have a separate command. And he realized that the power of the United States Air Force was going to be the integration of air and space.

Then as you go through history, it's amazing because the next big time was Desert Storm. General McPeak called Desert Storm the first space war. But he also looked at that war and he realized we've barely scratched the surface. So in 1992 General Tony McPeak, the Chief of Staff of the Air Force stood up a Blue Ribbon Panel for Space. I got to sit on that panel. It was an amazing thing. It was half fighter pilots and half space geeks. That's what General Horner and General McPeak called us. Space geeks. It was a loving term, I'm sure. But we got together at Maxwell and the whole focus was to try to figure out how to do a better job of bringing space to the fight.

Then you fast forward again, and again that was General McPeak, not what you would call a space zealot. You would call him an aviation hero. But nonetheless that Airman realized that that was the key to the future.

Then when I deployed in 2006 as the Director of Space Forces I saw space fully integrated into the fight. And it's remarkable

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and amazing. The capabilities we brought to bear and the difference we make in Iraq and Afghanistan, the difference we make in every position around the world today is truly remarkable. And to see it up close and personal in 2006 was amazing.

But our adversaries also saw that same thing. They saw that what we were doing in space provided us such a huge advantage that if you're ever going to contest the United States in any environment, you better be able to contest space. And our potential adversaries are walking down that path now, doing things that are very concerning to us and it should be concerning to everybody in this room.

So what are we going to do about it?

So Air Combat Command a couple of years ago, and I was involved in it, did a study called The Day Without Space. Where they looked out and they said what would it be like if we went to war today without GPS? What would it be like if we went to war today without MILSATCOM, without missile warning, without overhead ISR? What would it be like if we had a day without space? It was a great study but a horrible, horrible title. It still makes me angry every time I think about that title because there is no such thing as a day without space. It does not exist. It will never exist. And I always go back to our history again as Airmen.

Next chart.

I'm going to keep this chart up for the rest of the presentation today. But you can see the caption on that chart. It's a pretty interesting chart. I asked the staff to dig out a picture of the inter-war years in the Air Corps Tactical School at Maxwell. This is a picture they came up with in 1931.

You probably recognize a few faces. The most memorable face on that is probably the back row, second from the left. That face, I don't think I ever saw a smile on that face in the history of -- That's Claire Chennault, Captain Claire Chennault at the Air Corps Tactical School. Other great Airmen there, and their goal was to figure out how to apply air power in a big fight. And if you think about what they did when they came through there they really developed the construct that the armada of bombers will

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always get through. We can mass forces, fly at high altitudes, higher than the fighters that can get to us, and we can take that massive bomber formation with a defensive structure and the bomber will always get through.

Then World War II began and all of a sudden we realized that the bombers were vulnerable.

So I guess in today's Air Force we would form a study called The Day Without the Bomber and we would say well, the bomber's not going to get through. I guess we'll just ground the bomber and that will be the end of that discussion.

That's not what we did. What did we do? We figured out new TTPs, new tactics, techniques and procedures. We figured out new ConOps, new ways to operate, and we built pursuit aircraft and we deployed pursuit aircraft into theater, and those pursuit aircraft fundamentally changed warfare because now the packages we put together with fighters and bombers fundamentally changed the war in Europe and fundamentally opened the way for June 6, 1944.

The folks at Maxwell, and the folks in the Air Force that sat down and tried to figure those things out, they were visionary. They were innovative. They were the kind of Airmen the Secretary and the Chief were talking about yesterday. And they didn't get it right the first time. But the one thing they didn't do was the first time that somebody threatened their concepts they say well, I guess we'll do a Day without the Bombers; or I guess I'll do a Day without Space. That's not the issue. You figure out how to fight through that capability.

That's what we need to do in the United States Air Force today when it comes to space. We have to figure out how to fight through the challenges we face and still deliver the capabilities that our warfighters absolutely are fundamentally dependent on. We have to do that. It is our sacred responsibility.

When we have Airmen in harm's way today that are providing support to forces in Afghanistan or Iraq or wherever they are, they're going against ISIL, a horrible adversary that wants nothing better than to destroy the United States. Every Airman, Soldier, Sailor, Marine. Everything that represents the United

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States. It's our sacred responsibility to make sure that they have every capability that is necessary to provide that support. Everything. And we cannot let it go down. That is a sacred responsibility. I think I've said that three times. Hopefully that's enough to get it across.

But we have to think like these gentlemen in the picture, and our Airmen have to think visionary, in visionary ways about the future so that we can move forward and continue to provide those capabilities. So we're doing a number of different things. I'll talk about a few of them.

Number one, you've heard the term we need to have a resilient space architecture. Resiliency is the term of the day. We also need resilient Airmen. We also need a resilient fighter force. Why are we building so many F-35s? Isn't the F-35 going to be the greatest fighter in the world? It will be. It will be unbelievably amazing. Why aren't we just building one squadron then? We're not building one squadron because it needs to be resilient in the face of an adversary threat. It needs to be resilient in the face of an aggressive adversary threat. It needs to be able to fight through.

Resilient is a warfighting term. It is not a number. We need resilient Airmen. We need Airmen that can fight through a difficult situation in their personal lives and come through the other side. We need a resilient space architecture that can fight through any threat and come out the other side. Resilience in that case is a warfighting term. So it really bugs me when, and it happened as recently as last Friday, when I'm in the Pentagon last Friday and somebody comes up to me and says, so what number do we need to put on resiliency in your space architectures? Is .8 of a resilient architecture enough? Is .85 the right number? I don't even know what that means. But I get asked that question.

It only gets asked about space because the world does not realize that space is a warfighting domain. It is today. And we have to be resilient to be able to operate through that warfighting domain. And so resilience is made up of a number of things. Disaggregation could be a big piece of that, because right now we have a very small number of satellites on orbit and our adversaries know exactly where they are. If you know

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exactly where they are, then it's fairly easy to figure out how to deny the capabilities that comes off those satellites.

If you can spread out those capabilities across a number of different platforms including hosted payloads, free-flying payloads, smaller satellites, strategic and tactical capabilities. If you can spread that out it makes the problem on an adversary fundamentally different. That's a big piece of the puzzle.

But we also need to be able to defend ourselves. We also need to be able to deny an adversary the use of space if we're called upon to do that.

All of those things together is what make up resilience.

If you want to work a number, you can figure out -- Survivability you can put a number against because you take a certain threat, you take a certain capability, you apply that threat against a capability, and there's a number that comes out the end about can it survive. But resilience is a warfighting construct that has to be able to handle any challenge that you come through. That's what we're talking about in resilience.

So the next piece that is interesting to me is that we continue to have arguments today about the need for space situational awareness. The need to have robust situational awareness of everything that's going on in space at all orbital altitudes. We don't have that argument about the air. I think we got over that argument a long time ago. We stopped arguing about that. We said we need to fundamentally have full knowledge of what is going on in the airspace around us so that we see an adversary and do something about an adversary before he can do something to us.

Space situational awareness is the same thing. So we're building a great architecture of sensors. In the last year we've had enormous success. We've had a contract award for the space fence going to Kwajalein in the Pacific. A perfect place for the space fence. That will allow us to see what we now catalog as 22,300 objects in space. When we get the space fence up it's going to grow to about 200,000 objects because we'll be able to see things that we haven't seen before.

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Part of me is a little concerned about that because going through life fat, dumb and happy and not knowing what's there is a pretty good way to go, but it's important for us to know what is there so we can do something about it.

We're building, we have defined the next generation of the Space Based Space Surveillance System Follow-on. We understand what that is. We're trying to put that into the budget to get that through in the near term. You combine that with our ground architecture that is improved. We're moving a C-Band radar from the United States to Australia. We're moving the space surveillance telescope from New Mexico out to Australia. Australia has become a great partner in space surveillance because they understand that's important to the international community and they have an important geographic place on the planet. We're moving those capabilities out there.

You combine that with what's going on in geosynchronous orbit right now. We have two geosynchronous space situational awareness program, GSSAP satellites, that are on orbit now, going through check out. Everything is going well. They'll provide us great insight and characterization of everything that is in the geosynchronous orbit. Way beyond what we've ever had before. That will fundamentally change the game.

Then we have to integrate all that information. We have to integrate all that information because data is just data until you turn it into something you can use. So the JSPOC, the Joint Space Operation Center in California, is the key piece of the puzzle. The JSPOC mission system, the capability that we're putting in there has to be able to command and control. And if you look at the plan, and I give the acquisition community enormous credit for building a plan that is delivering great capability. By 2016 as we get through the final [DRV] in 2016, we'll have finally gotten rid of the old Space Defense Operation Center, SPADOC, software. We'll be on a new system, a new database, new capabilities to bring that in.

But then I look at the end state of that and I see a big problem. Because the end state gives the commander of the Joint Functional Component Command for Space in California, General Jay Raymond, gives him great knowledge, but it does not give him prescriptions to act and action is the next step because we have

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to be able to act when we see something that is of concern to us. That's the next piece that we have to work.

Then we talk about what are we going to do next? Ultimately we have to defend ourselves. So the last thing I'm going to do today is I'm just going to read to you. I'm going to read to you two things.

Number one is our National Space Policy, signed off by the President of the United States in June of 2010. "The United States will employ a variety of measures to help ensure the use of space for all responsible parties, and consistent with the inherent right of self-defense, deter others from interference in attack, defend our space systems, and contribute to the defense of allied space systems, and if deterrence fails, defeat efforts to attack them."

I think that's pretty clear. I think that tells us what the next step is. We have to be prepared to do all those things the President has told us to do and if deterrence fails, defeat efforts to attack us.

The American people expect us to do that. If we're attacked in any domain, the American people expect us to be able to defend ourselves. We fundamentally have to do that.

I'll give you one more quote. This will be a test. "The United States must win and maintain the capability to control space in order to assure the progress and preeminence of free nations. If liberty and freedom are to remain in the world, the United States and its allies must be in a position to control space."

Who said that and when?

General Thomas D. White, November 1957. One month after Sputnik at the National Press Club, downtown Washington, DC. It's amazing how close that is to our current National Space Policy. General White saw that in 1957. An Airman saw that.

Space is an Airman's story. As Airmen we need to be able to tell that story to each other, to our nation, and to the world. And we're not doing that as well as we should. Space really is fundamental to everything that we do, but the power of the United States Air Force comes from the integration of air and

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space. And that concept dates all the way back to General White.

The need to be able to understand the space environment, the need to bring operational capabilities to bear goes back to General White and General O'Malley. That's our heritage, and that's what we're called to do by the nation.

I thank you for your time this morning and I look forward to taking any questions that you might have.

Moderator: We've got a number of questions. A lot of them can be summed up with the three A's. A little bit more talk about assured affordable access to space.

General Hyten: The prime directive, so to speak, the prime directive of the United States in space has got to be assured access to space because fundamentally a rocket does nothing for a warfighter. But without a rocket the warfighter gets nothing from space. So the rocket is essential to our capabilities. So having assured access to space is fundamental.

Now I think like every American, I love competition. I love entrepreneurs that take chances and put out the risk. And I want you to know that I root for SpaceX to come into the competition. I think my own personal background kind of puts me out wanting them to succeed, but my fundamental requirement as the Commander of Air Force Space Command, as an officer in the United States Air Force, is to make sure the United States has access to space, assured, all the time. That means it has to work every time.

We have put ourselves in the position with our constellations, every constellation except GPS is still a little bit fragile and it's important for us to always be able to access space. If you look back in history there have been two times where we've made that fundamental mistake. One was on the shuttle. The Department of Defense in the early 1980s put everything over on the shuttle. And then the tragedy of 1986 happened, the Challenger exploded on the way to space. When that happened we lost our access to space and we had to go through this huge effort to try to build this expendable rocket fleet again from nothing, and get back to that.

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And then in the late 1990s we had that series of accidents. Where we blew up Titan IV's, we blew up Deltas, and all of a sudden we had no access. Every time that happened we ended up with huge voids in our warfighting capability. Huge voids in our ability to provide access to national security space. So the fundamental prime directive has got to be assured access to space.

So goodness knows I want competition in this area, but the most important thing for this nation is assured access to space that works all the time, and we always have to remember that. That's why the certification of SpaceX hopefully by December the 1st is a big event. But, if they're not ready on December the 1st, we have to stand up and say that, and that's going to be difficult because I want competition.

Moderator: A few questions about any role of man in space.

General Hyten: Any role of man in space? From a military perspective I don't see that, not in my lifetime anyway. We started down that path a long time ago. We ended up with Airmen, and we were going to have our own shuttle and we were going to have military missions on the shuttle and we were going to have man in space doing that. Some of the folks in this room were actually some of the manned astronauts that were going to do that. But I don't see that.

I look at what NASA does with remote capabilities on Mars, and I look at what we need to do in space, and there's, I don't see a need to put a man in space to do the missions we need to do as a military.

As a nation I want NASA desperately to figure out how to get men and women back into space. Yesterday. Because my background was initiated, ignited by the Apollo program and astronauts growing up. I grew up in Huntsville, Alabama. My dad worked on the Saturn V. I got to go to Cape Canaveral and look at the Saturn V when I was a kid. That ignited my imagination and it still ignites my imagination today, and we desperately need that for the youth of America. I think space can provide that. I think that's on the NASA side. We need those folks in the Air Force, we need science, technology, engineering and mathematics students across the nation. It's a huge issue, and we need to

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have that kind of excitement in our business, and I think NASA needs to provide that.

But if you want to do GPS, if you want to do SBIRS, if you want to do MILSTAR, you want to do some amazing things, man, the Air Force is a pretty amazing place to do it.

Moderator: A number of other questions about our readiness for kinetic warfare in space and/or offensive cyber capabilities.

General Hyten: There's a landmine sitting right there. So offensive space capabilities. Let's talk about that first.

Offensive space capabilities is always a very difficult subject to talk about, and most of the things we can't talk about in a room like this. You just can't get there from here. But fundamentally, I go back to the nation's space policy and what President Obama signed on June 28, 2010 when it said if attacked we have to defend ourselves. We'll be ready to defend ourselves. But the one thing I point out to you is that when you talk about offensive space capabilities, it's always a little bit of a misnomer because if the United States is attacked, wherever we're attacked, whether it's by radical terrorists in the middle of Iraq and Syria; whether it's in Afghanistan today; or whether it's in space; it's the United States of America that responds. It's not just Space Command.

So if we're attacked someday it won't be just the space guys that have to figure out how to respond to that attack. It will be the United States of America. And if it's the United States of America, we have all kinds of means to bring to bear against the problem. It's one of the reasons I like talking about General White and General O'Malley, because it's an Air Force problem. It's a national problem. It's not just a space problem.

And every time we think about it as just a space problem, we end up in all these sensitive discussions. Well, it's a national problem. We have to do something about that.

On the cyber side, the cyber side, offensive cyberspace capabilities, there's very specific legal requirements that we have to go through before we engage in anything on the cyber

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side. We have very active lawyers in the cyber world that have to be there all the time as we go through that.

But if we're attacked in cyber, we have to be able to do something about it just like would in space, just like we do in the air, just like we do on the ground, and we have to be able to take actions, and we will in a legal, proper way. We will not go outside the law to do that. We understand what the law reads, but we have to be able to respond. So a lot of those things don't show up in the press very much, but we will have the capability to respond across the board.

Moderator: A follow-up, the vulnerability of our ground segment.

General Hyten: The vulnerability of ground segment is an interesting history story too because if you look at the space side of the house, our space capabilities all used to be operated out of Sunnyvale, California, Onizuka Air Force Station, named after Ellison Onizuka from the Challenger accident. Why is it not there anymore? Well, if you've ever been to the Blue Cube, or if you've ever been to Sunnyvale, it's at the intersection of three freeways. In my youth when I had a shoulder, I could stand in the back of a pickup truck and with a grenade take out our entire space force. Probably more than one grenade, but I had a pretty good arm, so I could hit all the antennas I'm pretty sure, driving by in a pickup truck on the freeway.

The capabilities now are headquartered at Schriever Air Force Base in Colorado. Anybody ever been to Schriever? Anybody ever got all the way into Schriever? There are multiple levels of security, all the way through. Difficult levels of security to get through. Armed response forces around it. Then we have backup places around the country to get to as well. Same story at Buckley. We have built a defensible architecture.

The concern I have with our ground segment continues to really be the physical threat as well as the cyber threat, and the cyber threat is significant because GPS, for example, if you think about GPS, GPS is hooked into so many civilian capabilities and those civilian capabilities are hooked in through the network. So we have to figure out how to segment

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our critical data, our critical capabilities and defend that in cyber. We're working that extremely hard.

One of the great things about having space and cyber in the same command is that the synergy between space and cyber is enormous. A lot of people ask me, why is cyber in Space Command? Well you think about what do we do in space? We provide information, we provide pathways for information, and we try to control who has that information. Was I just talking about space, or was I talking about cyber? It's the same missions in cyber. The synergy of those missions are enormous, and again we're just scratching the surface and taking advantage of those synergies.

Moderator: The last one I call the commander's question. What keeps you up at night?

General Hyten: What keeps me up at night? Actually, not much. I actually sleep very well at night and I sleep very well at night because I have 40,000 of the greatest Airmen in the history of mankind that are in my command.

When I think about right now, on shift at Schriever, at Buckley, at Peterson, are some of the most amazing Airmen you'll ever see. If you go to Schriever Air Force Base and you walk in to the 2nd Space Operations Squadron, in a little room about as big as this stage you'll find seven Airmen today. Average age will be about 23 years old. And those Airmen are providing everything that is GPS for the entire world. Everything.

So if you're on a bass boat in the middle of Alabama; if you're on a golf course in the middle of Scotland; wherever you happen to be using GPS, those seven Airmen, average age 23, are providing those capabilities. That's pretty amazing.

So when I lay my head down at night, my wife will tell you, I fall asleep pretty fast. Sometimes I wake up a little early and I've got things going through my head, but it's usually what do I have to do to take care of the Airmen, because they're doing the job that we really have to worry about.

So thanks for that question.

Moderator: Thank you, General.

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