TRANSCRIPT

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“A Conversation with General Raymond”

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INTRODUCTION
Kathleen H. Hicks
Senior Vice President; Henry A. Kissinger Chair; Director, International Security Program, CSIS

SPEAKERS
General John W. Raymond
Commander of the U.S. Space Command and Commander of the Air Force Space Command

HOST
Todd Harrison
Director, Defense Budget Analysis, Director, Aerospace Security Project and Senior Fellow, International Security Program, CSIS

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Kathleen H. Hicks: Good morning, everyone. Welcome to CSIS. I’m Kathleen Hicks. I direct the International Security Program here at CSIS. And it’s my pleasure to welcome you to this event today featuring General J. Raymond, who’s commander of U.S. Space Commander and commander of Air Force Space Command at Peterson Air Force Base in Colorado. We are so lucky to have him joining us for a public conversation with Todd Harrison, who directs our International – excuse me – directs our Aerospace Security Project. I almost gave you my job. Aerospace Security Project here at CSIS. And General Raymond is going to speak first, and then they’ll have a moderated conversation, followed by audience Q&A.

There are very few things that can be considered bipartisan in nature in Washington, but concern over space and space threats are one of those. And so I hope you’ll join me in welcoming General Raymond.

John W. Raymond: Thank you, Kath. I greatly appreciate the invitation and, more importantly, thanks for your leadership and wise counsel. I always enjoy coming to CSIS. And I had to apologize to the CSIS team, because I always get more out of these engagements than I give. It’s a great – and I hope that we’ll get to that, that we’ll have a really good conversation and there’s something that I can take away and continue to work on. I’ll tell you, about three years ago, just – in fact, a little over three years ago, right before I took Air Force Space Command – the Air Force Space Commander job, CSIS held a dinner series. Dr. Hamre hosted a dinner series where we brought folks in to talk about the challenges in Space. And I always marvel, as I was preparing for these remarks, I marveled at what the folks that were in that dinner would think today, because we have made a ton of progress. I mean, a ton of progress.

We have – we have really put the accelerator down and have made some great gains. There’s still a ton of work to do, but as I reflected back on those conversations and I look at where we are today with the advance that we made, there’s – it’s significant. And I think the thing that’s driving it is one simple sentence. I think there’s eleven words in the sentence: Space is a warfighting domain, just like air, land and sea. You know, it used to be you couldn’t say that in public – space and warfighting in the same sentence. The U.S. wants to keep the space domain safe. And that’s still our goal, is to deter any conflict from beginning or extending into space. But we didn’t say that publicly.

Now, every speech I give I say that, and usually right up front. And it rolls off our lips really easily, but the implications of that are pretty significant. And the implications of that have really been driving my battle rhythm for the last three years, as we have pretty much changed everything that we – on how we operate in Air Force Space Command. And it’s driving how we’re building and standing up U.S. Space Command. And that really will be the focus of some brief remarks upfront. And then I’d really like to get to the Q&A and he dialogue. But it’s a great opportunity for me to talk a little bit about the 11th – the newest command – combatant command, the 11th combatant command in our nation, U.S. Space Command.

And U.S. Space Command is more than just a command focused on space. U.S. Space Command is really helping the department get its arms around global integration. If you look at the national defense strategy and the global challenges that we face, we are intimately involved in those conversations. We’re the best in the world at space. And on 29 August, at a ceremony at the White House in the
Rose Garden, we got a little bit better, because we set up this command. And this command is singularly focused on the space domain. And that alone provides pretty significant advantage. We come to work every day – it's not my tertiary or secondary job. It's my primary job. We come to work every day focused on this domain and providing advantage to our nation.

About a year ago – a little over a year ago – in August of last year, I was told, hey, there's a potential that we're going to stand up a combatant command and start planning. And so I took five people on a TDY to San Antonio, Texas, locked five people in the room and said, OK, we have to plan this command. And in the evenings, when I got done with the work I was doing on that TDY – I was there for another reason – I would huddle with the team and review the planning and give direction.

At the end of the week, we came out with here's how we would build this command if given the opportunity. And it's fascinating for me to be given the opportunity to begin planning and then to plan that command and then to stand it up and then to get it going and lead it at its beginning. It's a great – it's the highlight of my career.

We started with those five. And we brought that plan back to Peterson and we stood up a little tiger team of about 10 people. And we – for the next year we planned that command. And it's pretty unprecedented, if you look at doing all this in one year, from planning to standing up in a year. It's a pretty heroic lift. I'm very proud of that team. Today we're about 400. And here, over the next couple of months, beginning of next year, I think our numbers will raise up to about 500 in the headquarters.

Many of you noticed – know that we had a U.S. Space Command back in – from 1985 to 2002. And some might say, well, why did we bring it back or what's different about this command compared to the one that stood down in 2002? As I said in the ceremony that we had at Peterson Air Force Base that recognized the establishment of U.S. Space Command, this is a different command, custom-built for a different day. It's purpose-built. It's purpose-built to get after the National Defense Strategy. It's purpose-built for the strategic environment that we face today.

If you look at the missions that the president signed in the Unified Command Plan and assigned to me as the commander of U.S. Space Command, it has a much sharper focus on protecting and defending satellites, and not just U.S. satellites but – U.S. military satellites. It's partner, ally, commercial satellites. There's a much sharper focus on offense and defense.

Probably the biggest thing – one of the biggest things is it's a geographic combatant command with an AOR. U.S. Space Command before was a functional combatant command; didn't have an AOR. It provided space capabilities around the globe. We still do that today, but to strengthen that view that space is a warfighting domain, the department stood up the command as a geographic combatant command with an AOR that's 100 kilometers above the earth's surface and higher. That's a big AOR, really big AOR.

To get after that protect-and-defend piece, we custom-built this command, if you will, and we stood up a joint task force for space defense. It's the first time we've
had an operational-level component focused on that protect-and-defend mission. And so that's been very, very helpful.

As we are a geographic combatant command, we are planning to have integrated planning elements that will embed in all the other combatant commands to help us stay connected with those commands. Again, that's purpose-built, because the challenges that we'll face in the future are going to be global challenges. That's going to require all combatant commands working together.

We have a stronger connection with our allied partners. We've made great, great strides in that over the last few years, and I'm really proud of where we are. When we stood up the command, we again purpose-built a combined Space Force component. Before I was the commander of a Joint Force Space Component Command that was part of STRATCOM. When we stood this up, we made it a combined command. We're operating off the same order, operating in the same C2 centers. And that's going to provide huge advantage to the folks that are – for us and our partners.

We also have – we'll get additional authorities. Space Policy Directive-4 mandated that the department come back with what authorities does U.S. Space Command need to do those missions. So we've put those together, and I'm very hopeful that those will be approved here in the very near term.

Again, ties to our partners. There's several partners that I'd like to focus on. One is our joint warfighting partners. Again, as our National Defense Strategy states, the challenges that we're going to face in the future are going to be global challenges. The challenge in the Pacific is not just INDOPACOM. That's going to require all the combatant commands together to be able to handle those challenges, for example.

I'm convinced that in the future, if we were to get into a conflict with a peer or near-peer competitor, we're going to have to fight for space superiority. That's a joint warfighting challenge. That's a joint warfighting challenge that's going to require other combatant commands to be supportive of me in our – in our U.S. Space Command hat.

Our partnership with our allies I've talked about. We have over the last several years increased the training opportunities with our allies. We have exercised with our allies. We do wargames with our allies. We've stood up a Combined Space Operations Center. We turned that from a JSpOC to a CSpOC. We now turned the Joint Force Space Component Command into a Combined Space Force Component Command. So I see great, great benefit. We're doing hosted payloads with allied partners like Japan and putting a hosted payload on a QZSS satellite. We're doing a hosted-payload partnership with Norway as well, as examples.

We also have a closer relationship with the interagency. Our relationship with intelligence community has never been better. Our relationship between us and the NRO is at an all-time high. We have a standard shared strategy, a shared concept of operations. We man a C2 center called the National Space Defense Center. I’ll tell you, in speeches that I've given over the last couple of years I've said, you know, we've gone from, like, preschool to about fifth grade.
I just spent a handful of hours out at the NSDC a week or so ago, and I will tell you I’m changing that. We’re in high school. We have made some really, really, really significant gains based on the data sharing that we’re able to do, based on having situational awareness tools. We have really made some great, great strides.

And our partnerships with commercial industry. And I see this as a big growth area going forward. We have a commercial integration cell on the floor at the Combined Space Operations Center. I see great, great steps ahead in being able to leverage this. And I talk about this – I say this in speeches, too – kind of a bad term to use in the space business – but this explosion in commercial space. I think there’s great opportunities ahead.

So as we’ve built this command, again, we’re – we built it to meet the National Defense Strategy. And if you look at the – if you look at the National Defense Strategy and you look at the priorities of the National Defense Strategy – rebuilding the readiness, strengthening alliances and new partners, and reforming the department – those are all things that U.S. Space Command ties into.

Our priorities for the command are five. We’ve laid out five priorities.

First, we’re going to transition space warfighting responsibilities from U.S. Strategic Command to U.S. Space Command in full. And we’ve done that – we did that starting on 29 August. And so we’re responsible for space operations. We do that day to day. And I’ll tell you, not only have we not missed a beat, we’ve actually enhanced the game a little bit. We’re leading this to going to full operational capability, and we’re moving out with a sense of urgency to be able to do that.

So if we’re already doing operations, what are the other things that we’re working on?

Requirements. A component doesn’t have a requirement function; a combatant command does. So we’re building out a requirements team.

Intelligence. I will tell you the – maybe one of the most important things that we do early on is to rebuild that intelligence function that atrophied once the U.S. Space Command that stood down in 2002 went away.

I think the most significant thing and our highest priority action is planning. And not just planning by ourselves but planning in concert with the combatant commands around the world that we partner with. And that’s why the – we’re building these integrated planning elements to embed with the other combatant commands.

The other priority is to expand key allied and commercial partnerships that I talked about.

Then the last one that I haven’t mentioned so far is growing space warfighters, and that’s a two-part problem. That’s growing space operators that understand joint warfighting, and it’s – and it’s building what you and I might consider more traditional joint warfighters that have a better understanding of space.
So what’s our progress to date? Well, we’ve gone from about five people to about 500, and so we’re building that team. And I’m really proud of how we’ve brought this team together and gotten them moving really, really quickly.

We’ve gone through a joint manpower validation process to figure out what the command is going to look like at the end. That’s complete.

We’ve hired integrated planning element leads. And we’re going to stand up the first integrated planning elements both at INDOPACOM, EUCOM, and STRATCOM. And we’re working very closely with NORTHCOM as well. We’ve reached out to other combatant commands, visited with AFRICOM. So we’re very linked into with U.S. Strategic Command, as you can imagine, NORTHCOM, INDOPACOM, EUCOM, and now AFRICOM. And really appreciate that engagement.

We’re embedded in the global integrating piece of the department. So we’re playing in war games and exercises as part of that. And I think not only are we playing in it, but we’re help leading that effort for the department. We’ve enhanced our engagements with our allies. I went over and briefed the military committee at NATO to try to get a more formal relationship going with NATO. NATO is about to declare space as an operational domain. And I think that’s going to be very important, that we have that linkage.

On the planning side, we’re developing the campaign plan for space. That’ll be done here the beginning of next year. We’ve published our first integrated priority list. So we’re beginning to have much more of a – of a(n) influence on the budget, if you will. And that’s, again, a much strengthened – much more heightened voice at the combatant command level than we were at a component level. The list goes on and on, but you can kind of get a sense for where we’re headed.

We’re ready now, and we’re going stronger each and every day. We’re in line with the direction from the National Defense Strategy. We’re building a fighting force to respond to the competitive, congested, and contested strategic environment that we face today. And we have a great opportunity, as I tell our team, that we’re not wedded to the past. We’re starting kind of from scratch. And so we can build this command in a way that gets after the challenges that we face.

With that, I think I’ll close and open it up for a dialogue. I really, again, appreciate the opportunity to be here. I think I’m extremely, extremely proud of airmen, soldiers, sailors, Marines that I’m privileged to lead in the U.S. Space Command. I couldn’t be prouder – more proud of how quickly they’ve come up on the step and provided advantage to our nation – and not just our nation, but to our allied partners as well.

I’d like to – I was remiss – I’d like to take a minute and introduce Chief Towberman. Chief Towberman is our senior enlisted advisor for the command as well. And he’s here with me. So, again, thank you for the opportunity. I look forward to the dialogue.

Todd Harrison: General Raymond, I want to just thank you again for coming here to CSIS to share your thoughts on the future of the United States Space Command. I wanted to start with kind of a basic definitional question, because I was telling a friend earlier, you know, what I was going to be doing Monday morning you know, doing this event
with the commander of United States Space Command. And she asked me, well, what was his job before that – because, you know, it’s a new command. And I said, well, you know, he’s the commander of Air Force Space Command. And of course, the question was, what’s the difference. So you know, just can you help define for folks, you know, what are the roles and responsibilities of Air Force Space Command and United States Space Command, and how are they different in how they function?

John W. Raymond: So it’s a great question, and one I get quite frequently. And not only did I get a new job, I kept my old job as well. So I get to do both. And I get to yell at myself from the one hat. And I’ve gotten the opportunity to do that over the last couple weeks. Like, how could you be so stupid? And it’s kind of fun to have that conversation.

Back in the ‘80s there was a law that was done called the Goldwater-Nichols Act. And the Goldwater-Nichols Act divided the department kind of into two functions. One is an organize, train and equip function and one is a warfighting function. Services do organize, train and equip. Army, Navy, Air Force, Marines. And in my Air Force Space Command hat, I’m in the organize, train and equip business. We procure satellites, we train operators, we have the C2 capabilities to be able to conduct those operations. But we – that’s the focus, on organize, train and equip. And in that hat, I work for the chief of staff of the Air Force and the secretary of the Air Force.

In a joint hat, in the warfighting hat, that’s joint business. And so U.S. Space Command falls on the warfighting side. So it’s – and I’ll just – EUCOM, INDOPACOM, NORTHCOM, STRATCOM. We have a U.S. Space Command that is warfighting focused. So it’s a completely different function. In my Air Force hat, I organize, train and equip Air Force forces and I present them to myself in my U.S. Space Command hat to be able to execute. I also will have an Army – and that’s called a service component. I’m a – Air Force Space Command is a service component to U.S. Space Command. I’ll also have an Army service component. I’ll have a Navy service component, a Marine service component. And so it’s two different functions, two different roles, but there’s a close partnership.

Todd Harrison: Oh, so then, you know, thinking ahead to the future, one of the things Congress is still debating and considering is whether or not to create a Space Force. So can you talk about how a Space Force would be different?

John W. Raymond: Absolutely. And let me state I’m really eager for Congress to pass this NDAA so we can have a Space Force. In both hats and – in both functions, the organize, train and equip function and the warfighting function, the U.S. is looking to elevate space, to have – to have an entity that’s singularly focused on the space domain. And so in the warfighting hat, we did that when we took a component command that used to work for U.S. Strategic Command and elevated that to its own combatant command.

Similarly, on the organize, train and equip side, today Air Force Space Command is a major command working for the Air Force. What we’re looking to do is to elevate space and separate it from the Air Force, have a – have a singularly focused service focused on this domain. And the way it’s envisioned is it’s very similar to the Navy/Marine Corps model. You have a secretary of the Air Force that would have both a chief of staff of a Space Force, or however the law comes out, and a chief of staff of the Air Force that would work for the secretary of the Air Force. Just like on
the – on the Navy side, there’s a secretary of the Navy that has a commandant of the Marine Corps and a chief of Naval Operations on the Navy side, so it would be analogous to that.

Todd Harrison: And so in U.S. Space Command, putting on that hat for a minute, you mentioned in your remarks how it’s different this time. We used to have a U.S. Space Command; it was a functional command. Now it’s been reestablished as a geographic command.

One of the roles of the geographic commands is that they put together operational plans within their area of responsibility. So CENTCOM will have operational plans, you know, for contingencies that might arise in the Middle East. EUCOM would be responsible for Europe and INDOPAYCOM for the Pacific Region and so on. Is U.S. Space Command developing operational plans that are exclusively for the space domain?

John W. Raymond: Yeah, absolutely. And so that, as I mentioned in my remarks, that’s probably the highest priority – our highest-priority activity to do. We’ve started with building the campaign plan first. We’ve made great progress on that. Again, early next year that should be done. And then as we build our planning team, we’re beginning the work on doing the OPLAN development.

The thing that we’re going to work really hard to do is to do that development in concert with the other combatant commands. And that’s why those integrated planning elements are so important. They’re going to be – those integrated planning elements will live in those other combatant commands and will help us plan together.

If you look at the – again, if you look at the challenges that we’re going to face in the future, they’re global challenges, and the need to be interconnected between combatant commands is very, very important. And we’re going to build these plans in partnership with the other combatant commands that we largely support, but they will also be supporting to us.

Todd Harrison: Yeah. So I want to talk about kind of those organizational seams, if you will. And we already have this with the other geographic commands and, you know, an OPLAN that might deal with a Russia incursion and Europe could also have impacts. You know, Russia may do things in the Pacific Region at the same time, so we already have some seams between these different AORs.

Can you talk about a little more detail? How are you working the seams between U.S. Space Command, 100 kilometers and above, and all the other geographic commands that are 100 kilometers and below, especially when there might be a warfighting scenario where someone launches a missile, it goes above 100 kilometers, but it’s going to come back down below 100 kilometers? Or as part of a contingency of one of the other theaters, as part of what’s going on on the ground, another nation may choose to attack our assets in space? Who – how do you integrate those plans and who’s in charge operationally if we get into a warfighting situation that starts on Earth but extends into space?

John W. Raymond: Yeah. So one of the – I mentioned in my remarks, if you look at the National Defense Strategy, it talks about global challenges. And the Joint Staff has really
been pushing under the former chairman's leadership, and now with General Milley, really focusing on global integrating – global integration and having a globally integrated plan that addresses those seams because, as I mentioned, if there’s a conflict in one part of the world, it’s not just going to be the combatant command for that part of the world. It’s going to – it’s going to bleed over.

So, for example, in the scenario that you laid out, if there’s a conflict with Russia, if deterrence were to fail and there’s a conflict with Russia, that would require EUCOM, obviously, as the primary combatant command focused on that region. It will also require support from U.S. Space Command. It will require support from USTRANSCOM. It will require support from USNORTHCOM, U.S. Strategic Command, U.S. Cyber Command. And you can just see how those plans have to be integrated so those – so we don’t have those seams. And if you plan together and do that work together, we think there’s – it’ll provide great benefit.

Todd Harrison: So in most situations you envision U.S. Space Command would be a supporting command rather than a supported command.

John W. Raymond: In most cases we would. But there are – the inverse holds true as well. As we – in the future, as we have to fight for space superiority, we are going to require support from other combatant commands as well to conduct those missions.

Todd Harrison: All right. You mentioned deterrence. Can you talk a little bit about how do you think about deterrence in your judgment and the space component of deterrence?

John W. Raymond: A lot of people ask me about space deterrence. And I – my view is there is no such thing as space deterrence. It’s just deterrence. And traditionally we have thought about deterrence with our nuclear forces. But I think deterrence is much broader than that. I think there’s things that we can do in space to amplify that deterrence message, along with others.

And so, as we look at global integrators, if you will, I think we also need to look at who’s the integrator for deterrence, because each combatant command has a deterrent role. And we need to make sure that we’re – that, working together, we are sending a coordinated deterrence message, because our primary goal, our primary mission, if you look at – I should have said this in my remarks. If you look at U.S. Space Command, our mission really is – we call it the four Ds.

First is deterrence. We do not want to get into a conflict that begins or extends into space. And so there are things that we can do to change the calculus of a potential adversary to deter, and again, doing that in concert with the other combatant commands.

The second area that we’re focused on is to defend. I talked about there’s a sharper focus on protecting and defending the space domain. So that’s the second D.

The third D is what we’ve been really good at for years, and that’s to deliver. We deliver capabilities in the joint and coalition war fight. We do that – you know, largely since Desert Storm, we’ve been focused on that.
And the fourth D I mentioned in my remarks is to develop those joint warfighters. So deter is number one; defend, deliver and develop are the four Ds for the command.

Todd Harrison: I would note, in those priorities, you’re not talking about any kind of aggressive offensive actions in space. I think, you know, there have been a lot of discussions among folks outside in the military, and especially in international forums, worrying that the reestablishment of United States Space Command and the creation of a Space Force is somehow signaling that the U.S. is taking a more aggressive offensive posture in space. How would you respond to those critics?

John W. Raymond: I think, you know, our mission state is clear. We are a warfighting command. And any warfighting command – and if you look at the mission statement, it says U.S. Space Command will conduct offensive and defensive operations. As I said up front, our goal is to deter that from happening. And the way you do that is to deter from a position of strength. That’s the best way I know how to do it.

But that’s our primary focus. We do not want to enter into a conflict that begins or extends into space. Our focus is making sure that we do so from a position of strength and that we have the ability to protect and defend those capabilities that fuel not only our American way of life but fuel our American way of war.

Todd Harrison: Now, before we go to questions from the audience – so you guys can start getting your questions ready – I have family down in Alabama, and every now and then they send me articles about how, you know, U.S. Space Command, they’re trying to pick a headquarters. I don’t expect that you’re ready to make an announcement right now. But feel free if you are.

But what’s the process that goes into figuring out, you know, where you’re going to put the permanent headquarters of U.S. Space Command?

John W. Raymond: Yeah. So there’s a basing process. The Air Force has been named the lead for that process, and the Air Force is running that process. It’s a very transparent process. It’s used for all of the – not just U.S. Space Command, but for all the basing decisions that the – that the Air Force makes. And there’s a list of candidate bases. Those bases are fully vetted and analyzed to be able to support the missions of that command. And then the Air Force secretary then makes that – makes that decision. So we’re in that process and it’s underway.

Todd Harrison: Any idea about when that process might be completed?

John W. Raymond: I don’t – I don’t have any idea. Hopefully –

Todd Harrison: We’ll ask the Air Force secretary.

John W. Raymond: I hope – they’re running that process.

Todd Harrison: All right. All right, so I want to open it up here for questions from the audience. Alright, let’s see here. Sandra, I’m going to go to you first.

Sandra Erwin: Thank you.
John W. Raymond: How are you?

Sandra Erwin: Thank you. I –

Todd Harrison: Here. Wait for the microphone.

Sandra Erwin: Yes. Good morning, General. Sandra Erwin, Space News.

I wanted to ask you about an initiative from Air Force Space Command that we heard. You hosted a meeting with agencies to talk about the future of space ranges and launch facilities. You want – you have a vision for some sort of national spaceport. Can you give us some details of what you have in mind, what’s going to be happening on that issue? Thank you.

John W. Raymond: Sure. You know, I – one of the areas I think we have great opportunity – this is on my Air Force Space Command hat side – one of the things that we’ve been working is to take advantage of where commercial industry’s heading. Our ranges today are large ranges with lots of infrastructure, both on the East Coast and on the West Coast. If you look at where commercial industry’s hearing, commercial industry’s heading towards autonomous ranges.

And so today, for example, SpaceX, when they launch a rocket, they don’t use our radars. They don’t use our telemetry. They don’t use what we call command destruct antennas, which we have – antennas with people on console that if a missile were to start going astray they would send a signal to the rocket to blow it up. They do it all – it’s all autonomous. That saves significant amount of dollars, and saves – and allows for a more rapid turnaround of the range, and a more resilient range in my – in my perspective.

So this what we’re calling range of the future is all based on how do we position ourselves to get after the warfighting requirements that we’re going to need from a joint capability. And that’s to be able to have assured access to space, to do it with less cost and a faster turnaround time.

And so we’re working this with – collaboratively with commercial industry, with all of the range partners. And we’re just furthering that dialogue to see how we can transform those ranges to best support the total population that uses them.

Sandra Erwin: Do you need more money to do that?

John W. Raymond: I’m hoping to do this with less money. You know, today our ranges are really significant. I mean, they’re lots of – lots of infrastructure. With autonomy, you get to reduce some of that infrastructure, which I think will be – which will be very important and would also be a cost savings as well.

Todd Harrison: All right. Question over here?

Kurt Hagmayer: Thanks, Todd.

Good morning, sir. Kurt Hagmayer from Northrop Grumman.
My question, sir, is it seems like you’re the single focal point for everything space. And so with that there are requirements – CDDs – that are being developed, you talked about accelerating. You also talked about starting with a clean sheet. From –

John W. Raymond: Starting what?

Kurt Hagmayer: From a clean sheet.

John W. Raymond: Right, right, right.

Kurt Hagmayer: You said at the end you basically have a clean sheet.

From industry’s perspective, we are trying to understand where that direction is going and what the priorities are. How are you looking at requirements – the CDDs – that are coming out, and then balancing that with the programs that are already being developed and those things that you need in the future to satisfy what you’re being told you need?

John W. Raymond: Yeah, so a couple things.

First of all, I’ve been – I try to be as transparent as I can be with industry. One of my friends told me – all my old friends have all retired from the military and they’ve all told me, you don’t understand just how hard industry tries to understand what’s in your head. And I said, well, they don’t need to try; I’ll just tell them. I’ll tell them. I don’t want you to spend a dime trying to figure out what I’m thinking. I need you to help me – help us get to where we need to go.

And so we have a concept of operations on how we’re going to operate. And I invited industry to come in and say, OK, we’re going to give it to you. The problem was, it was so classified that very few could come in. And so we’re working very hard to reduce the classification on issues that allow a – more conversation back and forth. I think if you look at the requirements going forward, it’s not – it’s not good enough just to be able to get a satellite in orbit and have an exquisite satellite that provides exquisite capability. You also have to be able to protect and defend it. And it has to be defendable. And so balancing that – the mission cost and being able to defend it are all things that we’re looking at in our requirements. As a combatant command we have stronger voice in joint requirements. And I think that’s going to be very helpful for the space community.

Kurt Hagmayer: Can I just say one thing?

John W. Raymond: Sure.

Todd Harrison: Wait for the microphone here. As loud as we can be in this room, it just somehow doesn’t make it out to the internet.

Kurt Hagmayer: Thanks, sir. Understanding that, sir, when the requirements come out of the combatant commands, and they go to the acquisition agency, they then come out as requirements that we in industry respond to. Those two don’t align, sir. The requirements that we’re responding to as industry and the expectation that you have as a combatant commander, they don’t align. And so that’s a challenge, sir,
that we in industry— we want to give you the capability that you need. But the folks who are writing the requirements, the section—

John W. Raymond: Well, it's kind of interesting because in my two hats I have a foot in both of those camps, so they better align because if not I'm not aligned with myself. I'm the Air Force guy.

Kurt Hagmayer: They don't yet, sir.

John W. Raymond: So then let's have a conversation and we'll work and bring that into alignment, if it's not. From what I can tell, I think the alignment is—I think we're getting much better at alignment. I think elevating—re-standing up U.S. Space Command, and as a combatant command, is going to even help that further. So I'd love to have that conversation with you.

Kurt Hagmayer: Thank you.

Todd Harrison: All right. We had a question up front here.

John W. Raymond: Yes, ma'am.

Shirley Ross: Hello, sir. I'm Shirley Ross from the RAND Corporation. As we transition to more of a warfighting focus in space, can you kind of go down a level and address what human capabilities you think our service members will need to have that perhaps they do not have now?

John W. Raymond: Yeah. So let me just answer it this way. I give a talk. And the talk that I give—I've given it—I'm in the process of giving it to every airman in Air Force Space Command. And that's trying to drive a warfighting culture. And the way I describe it—I have a PowerPoint slide. And half of the slide is a picture of Sully Sullenberger. Everybody knows Sully Sullenberger. And he's the pilot that when the birds got just in the engines safely landed the plane on the Hudson River, everybody survived. Spectacular pilot. Absolutely spectacular pilot. If I was on an airplane, I would want Sully to be my pilot, because I know I might get a little wet, but I'm going to live, right? And he is spectacular.

On the other half of the chart is a fighter pilot. Equally spectacular pilot but operates in a different domain. Nobody's shooting at the fighter pilot. Nobody's shooting at whatever airline Sully was flying for. It requires a different set of training. And so what we have done, because we've had the luxury of it, is we have grown up building Sullys. We have—we have the world's best space operators. And if you want somebody to operate the space capability, you want United States airmen, and sailors, soldiers, Marines to do that, because we're world-class trained at that. We now have to shift that to a fighter pilot method—mentality, have a better understanding of the threats, having a better understanding of how to operate your capabilities through those threats, having a better understanding of potential adversaries. It's a different way of doing business.

And so we have completely transformed how we go about developing our operators. We've revamped our schoolhouse over the last year and a half or so. Now, Todd, at a different classification level, with threats from day one they get—
they start learning this. We have revamped our professional development courses in Space 100, 200 – what we call Space 100, 200 and 300 to get more after this domain. We have – we have recategorized our operators into four distinct mission areas to give them greater depth. So we’ve completely transformed how we do business. But it’s to get after that – as you mentioned – that shift from a benign domain to a warfighting domain. And the best analogy I can use is the Sully versus a fighter pilot.

Todd Harrison: Yes, sir.

Gil Klinger: Good morning, sir. Gil Klinger from Raytheon.

John W. Raymond: Good to see you.

Gil Klinger: Nice to see you.

Two questions.

John W. Raymond: You’re only allowed one.

Gil Klinger: I take your point completely. It’s not deterrence in space. It’s deterrence as applied to space. But there’s an entire intellectual foundation in, for example, nuclear deterrence that simply doesn’t exist with respect to space. And so, as you know, over the years technology and the threat have paced the policy community.

You’ve now staked out – the United States has now staked out a frontier that to many sounds very aggressive. And it probably sounds all the more aggressive because we’ve been silent about space entirely for so long. So, inasmuch as the credibility of deterrence anywhere depends on having capability – in part depends on capability one can point to, you don’t have much you can point to. Jammers, everything else, is behind 27 doors. And at some point there’s going to have to be an impedance match between those two. But the DNA of the space community is almost 180 degrees away from that. So I’d be struck – interested in your comments on that.

And my second question is really related to that. Last time I checked, there aren’t a lot of planners at the NRO. It’s also not in their DNA. So can you speak to the same transition you’re making with respect to the COCOMs turning joint warfighters into space-smart folks and space warfighters into joint smart? Can you talk to that with respect to the NRO?

John W. Raymond: Sure.

On the first question, that had, like, 10 questions as part of it you actually asked, like – you actually asked, like, 16 questions on that two.

On the first part, I would just say, again, our number one priority is to deter. I agree with your premise that to deter you have to change the calculus. You have to either impose costs or deny benefits. And to do that – and I think that calculus is foundational to whatever deterrence. That’s the foundation of deterrence. I agree with you. To do that, you have to – there’s a messaging part of that.
And so one of the things that we're working on is to develop that strategy on what we will talk about and what we won't talk about. So that work is under way as we speak.

On the second part of your question, we have a really strong partnership with the NRO. The NRO largely does their mission set. We largely do our mission set. But where we come together is on protecting and defending. And we have – we stood up a National Space Defense Center, which is manned by both organizations, and we're planning together.

We're – again, we've built CONOPS together. We've actually – now not only have a strategy, the CONOPS, the organizations that are jointly manned. We now are actually doing programs together. And we – I canceled a program that we were doing on space situational awareness because it wasn't going to meet our mission needs, and we partnered with the NRO.

We have something called – it's an acronym – Joint Space Warfighting Forum that's chaired by myself and the director of NRO, where we get together very frequently and talk about those warfighting challenges. So I think they're coming right with us, and I think the alignment's really, really close.

Todd Harrison: I think Tony had his hand up there in the back.


The national intelligence community is updating the NIE on space threats from China and Russia. Do you expect the conclusions to show exponential or major advances in their capabilities or more incremental, based on what we know?

And second, what mechanism do you have for taking those types of threat findings and incorporating them into acquisition requirements and programs, like for GPS III, SDA's constellation, and the overhead infrared constellation you're planning?

John W. Raymond: Yeah, I won't speculate on what a report that's going to come out might say. I can tell you, from my perspective, the scope, scale and complexity of that threat is alive and well and very concerning.

On the how do you – how do we take information from those assessments and get those into programming, it gets back to the conversation that we had talked earlier. It is no longer good enough to think that you can build a satellite that just has to survive the launch and survive what we call infant mortality – you know, that is comes off the launch vehicle and it operates when it first gets – first gets to space. You now have to – you now have to be able to survive in a – in an environment that's contested. And so we build those – we take – we take things from that assessment and then build those into future satellite programs to make sure that we can protect and defend those.

Our joint force and coalition partners rely on those space capabilities. Every U.S. citizen relies on those space capabilities. And our job is to make sure that they're always there for us.

Todd Harrison: Can I ask you a related question?
John W. Raymond: Sure.

Todd Harrison: You know, you see a lot of the commercial space companies now are talking about building large what we call proliferated constellations of satellites. Many of them are small satellites but fielded in quantities of hundreds or thousands. You know, how do you think the military can utilize those kind of capabilities that are being fielded commercially? And how can that help contribute to countering the threats that we’re seeing and helping to deter adversaries?

John W. Raymond: Yeah. So, first of all, there is – it’s beginning. You saw I think it was April SpaceX launched their first 60 satellites of Starlink. Just a week or so ago they launched their second batch of 60. So you’re already seeing this growth.

To date, of all the satellites that we track, the numbers are – don’t quote me on this – it’s in the – in the order of 1,500 to 1,600 objects in space that are satellites. The rest is debris of the high twenty thousands, the things that we track. Very small numbers are satellites. That’s going to change. That’s changing significantly if these materialize.

We do think – I think the biggest thing – we talked a little bit about this earlier. One of my former jobs I worked in an office called the Office of Force Transformation, back with a gentleman named Admiral Cebrowski when he was alive. And one of the things that – a project that I was given at the time was to try to develop a new business model for space. And that’s to, you know, build – the challenge that I was given was build a satellite and launch it and operate it for a year for about $10 million. It was called TacSat-1. It was to try to change that business model.

And I think the thing that this – besides the fact of proliferated architecture with large numbers of satellites and what that might do for the protection and defending piece, I think what it really does, though, is change the business model for space and allows you to change the risk calculus. And so if – today, if we were to build a satellite and we know it’s going to take a significant number of years, we put a lot of mission assurance into it because, you know, the national security of the United States rests on it and we need to make sure it works. Well, if – and we – and we know if it doesn’t work it’s going to take another bunch of years to get another one. If you know that, well, the next one’s coming off the assembly line in a week from now, it changes that calculus and I think allow us to move with a little bit more agility.

And I think what you’re going to see is kind of a hybrid approach because you also have to have those really good capabilities. But I think there’s also a layer of operationally good enough capabilities that can really make a difference and change that business model, which I think is so important to do.

Todd Harrison: This gentleman back here. Stand up.


Other combatant commands – AFRICOM, Cyber Command – had an industrial base that could support them fairly quickly as the new IPPO came in. Do you see –
Todd Harrison: I’m sorry, as the new what came in?

Jose Ocasio-Christian: As an IPPO came in, as requirements came from that command.

John W. Raymond: Right.

Jose Ocasio-Christian: Do you – we see it a little different, that your command will have new innovation that is coming through as a result of your new warfighting domain. How do you see industry - you know, now that you just finished talking about that transformation, how long and how do you see the hybrid happening in order to support these future requirements?

John W. Raymond: Well, I think you see it beginning to happen now. I mean, there is – again, not – the explosion of companies building these capabilities I think – I think are going to be very helpful to us.

I think the – I think there’s two things that have happened: launch costs have gone down and technology has allowed smaller satellites to be more operationally relevant. And those two factors have reduced launch costs, and now operationally relevant small satellites are going to really provide us an opportunity to leverage those going forward. And I think it’s coming.

Jose Ocasio-Christian: The challenge, though, is that that industrial base is a lot smaller than the other ground-based or air-based deployments. Just something I think we should look at.

John W. Raymond: Yeah. And I think the industrial base, though, expands, right? Because other companies that – you know, nontraditional companies now have an ability to get into this market because – so I think – I’m pretty excited about where this is going. I think you also have to have a bridging strategy. You just can’t – you just can’t say to the United States: We’re going to turn off GPS for the next five years and wait till we get to the next thing. You have to bridge. And so we’re working that strategy as well.

Jose Ocasio-Christian: So from an – from an industry, there’s that gap. But from a finance that bridging strategy, it’s a means – (off mic).

John W. Raymond: We’ll, we’re – yeah, I would push back a little bit. We’re making some progress on that front.

Todd Harrison: I want to – a question over here in the front.

Andrea Rutte: Thank you very much, General. My name is Andrea Rutte. I’m a researcher with a German think tank affiliated with the governing conservative party.

And I would like to draw your attention to the, well, the U.S. engagement with NATO and European allies. You mentioned NATO possibly declaring it an operational domain as well as national space programs, Norway or space. But still, when I see the debate in Europe, and especially in Germany, it’s we are still lacking the sense of urgency. So when we discuss space it’s more or less under commercial considerations. So my question for you would be: What are the main obstacles for transatlantic cooperation in this field? Is it the technological gaps? Is it the lack of
awareness? And what would you like us Europeans to do more in this respect? Thank you.

John W. Raymond: Yeah, so we – as I mentioned, we are working really hard to develop partnerships in the space business. We haven’t – we haven’t really needed them in the past. Space was a benign domain. You didn’t – they weren’t that as important. That’s really critical today. And so we’re working very closely with our Five Eyes partners plus your country, France, Japan, and others. We hope to attract others.

I think there’s just – there’s an awareness issue that, you know, the average person in the world I don’t think understands just how linked – how their way of life is linked to space. It really fuels our collective ways of life. And I don’t think the average person understands that. And I don’t think the average person understands the threat that exists today. And so I really believe we’re at this critical inflection point. And I’ve been very – we’ve got a great partnership with your country. They participate in exercises with us. They participate in war games with us.

I really would like to get these partnership to be more than just data sharing partnerships and really move towards mission sharing. So for example – well, I talked about hosted payloads on satellites. We have other satellites that feed information into our situational awareness catalogue. And I think there’s other – there’s other – we have partnerships in communications systems. So I think there’s great opportunity here to develop capabilities that will be mutually beneficial for all of our countries. And primarily it gets back to the sixteen-part question that Gil asked me on deterrence. (Laughter.) And it’s – you know, we’re stronger together. And if you want to deter from a position of strength, I mean, that’s been the core of NATO, right, is to deter that. And so I really believe it gets to that foundation as well.

Todd Harrison: All right, so I see we are basically out of time here. I want to ask one final question. And I know that this has really been a burning question for everyone. So Netflix has announced they’re going to create a new series about the Space Force starring Steve Carell, John Malkovich. What advice do you have for the makers of that show?

John W. Raymond: So it’s funny that you say this. I didn’t plant this question, but I – so about a year ago I think this started to come out. So about a year and a half ago, I was going through my bank statements and I see I was getting money taken out for Netflix every month. And I, at the time, really was not a Netflix watcher. I said, well, what am I doing this for? And I cancelled it. And within about 35 seconds, from three different places around the country, my three children came up: Hey, what happened to Netflix? And I said, well, I’m not watching it. And they said, oh, Dad. And so turned it back on.

And then about a couple months later, about a year ago, my one daughter calls me and says: Dad, space is really going big. I said, well, what do you mean it’s going big? Who said that? Well, they’re doing a show about space. And Steve Carell is going to play you. I said, well, he’s going to have to get a really significant haircut if that’s the case. That ain’t going to happen. And then on Twitter – this is no kidding – there was a Twitter thing going around on who’s going to play who. And so then the big joke was, who’s going to play Raymond? Well, we were hoping it was going
to Bruce Willis. So that’s the – if there was any advice, I’d say get Bruce Willis, because that would be pretty cool.

But in all seriousness, though, people ask me about this show. And it’s going to be a comedy. And, well, yeah, but I’d tell you, there’s a bunch of excitement about space today – a bunch of excitement. In every sector. If you look at – if you look at what NASA’s doing in the civil sector with, you know, Moon to Mars, and if you look at what’s going on in commercial industry, and, you know, with all the large constellations, the satellites, the different launch vehicle providers that are being developed. And then you look at what’s going on in national security space with the U.S. Space Command and hopefully a Space Force here, there’s a lot of excitement.

We have – we have more people knocking on our door saying: How do I become a part of that? And I remember, as I started off in my remarks, I remember talking about this dinner series that CSIS hosted a few years ago. And one of the things was how do you – how do you inspire the next generation of folks about space? You know, I remember, I was a little kid at West Point, New York sitting on my floor in the living room watching a man walk on the Moon. What’s that today? I think there’s lots of that today in all segments.

And to give you an example, two years ago out of a thousand cadets that graduated from the Air Force Academy, only 13 came to space – out of a thousand. This last year, there was 35. Now they've stood up a space ops major, and there’s more coming. I’m getting – I made the mistake of – I gave a talk to the 4,000 cadets – 2,000 cadets in the morning, or in the evening in the first hour, and then they were freshmen/sophomores, and then the next hours were juniors and seniors. And I made the mistake of saying, hey, if I can ever be of any help to you I’m on the boat. And I – no kidding – emails are coming routinely that say: Sir, how do I get into space? I've been set to go to job whatever and I want to come to space. I say, OK. And in those cases where they reached out I was able to provide a little help and shift them over to the space mission.

So that's just one example. But this is – I think is a great thing for our nation that there’s this excitement about this domain, which I think is going to pay huge dividends for our country going forward. And I am really, really, really, really privileged to play a part in this. I feel very, very lucky. My whole career has been spent in this business. And to think that we’re at the point where we are at today, it’s really exciting. And I’m excited because I think we’re going to provide a significant advantage for our nation and our partners who we partner with.

So, Todd, thank you for what you do. Thank you for being a leading voice in the business. And I really appreciate the opportunity to be here with you today and share some thoughts. So thank you very much.

Todd Harrison: Well, thank you for coming.

(END)