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"Space & Cyberspace:
Future Challenges and Opportunities"

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General Kehler: Thank you Mike. Good morning to everybody.

Let me just say, Mr. Secretary that I heed your advice, so let's see -- nope. Nope. Here we go. In conclusion. [Laughter].

Thanks Mike, for the very kind introduction, and thanks to AFA for providing this forum again. I think this is a very valuable forum and it certainly gives us an opportunity to focus on some subjects that are of great interest not only to our Air Force and the nation, but certainly to the folks that we find here in the LA basin, both our military people and our large industry partner complements that exist here. And of course our FFRDC Aerospace that is side by side with us in everything that we do in space.

Especially to Secretary Donley and General Schwartz, thanks for your leadership through what has been another busy year for the Air Force and for Air Force Space Command. Secretary Reed, sir, it's a pleasure to have you here with us and I look forward to your remarks as well.

It's Thanksgiving season reminds me of a story, and I don't think there's a whole lot of risk here, but what the heck. We'll see. [Laughter].

A man was looking for a pet so he went to the pet store. After looking at the cats and dogs, the standard pets he looked at, he decided on a parrot. He did that because he wanted a pet that could actually engage in conversation. So he buys the parrot and he takes the parrot home. Unfortunately as the days go by he begins to learn that the parrot not only has a bad disposition, but has a terrible vocabulary. The kind of vocabulary that makes people blush. He would be rude when guests would arrive. He would sometimes be so rude that guests would leave.

So the man decided that he was going to try to change the parrot's disposition and coach the parrot on his vocabulary. The problem is, it wasn't working. The harder he tried, the worse it seemed to get.

One day in frustration the man was so angry with the bird

that he picked the bird up, opened the freezer door, threw the bird in and slammed the door. Sort of a version of parrot time-out. [Laughter].

On the other side of the freezer door there's a terrible commotion. There's flapping and squawking and cussing and all kinds of things go on. Then in an instant it gets deathly quiet. The man begins to get worried and is afraid maybe he harmed the bird somehow. So he opens the door and the parrot says, "I'm terribly sorry. My behavior has been atrocious. I promise you that if you just give me another chance I will work extraordinarily hard to become a better pet and by extension, a better person. By the way, what did the turkey do?" [Laughter].

I felt a little bit like that at the confirmation hearing. [Laughter]. I must say, there's a little bit of, I'm terribly sorry, what did the turkey do?

We classified 2009 as the Year of Transition for Air Force Space Command, and I believe that it was. 2010 I think we can classify as a year of execution. Again, I don't mean what the turkeys are facing or what the parrot was afraid of. The changes executed during the past year positioned Air Force Space Command and the Air Force to provide unique space and cyberspace capabilities in support of joint operations. A number of successes I think are successes that will be with us for a very very long time. We'll be able to look back and say we were there when some of these things occurred.

One of those is, of course, we declared full operational capability for 24th Air Force. We did that on the first of October, and with that I think we signaled that the Air Force is ready to provide forces to United States Cyber Command as a full partner on that joint team.

In space we delivered more capability to joint force commanders with new systems coming on line. We operationally certified WGS3. We continued, thereby, to deliver flexible high capacity communications for joint warfighters.

We certified the first GPS-2F, continuing our long legacy of GPS modernization efforts, in this case with military signals that are more resistant to jamming and a new civilian signal for enhanced commercial aviation and safety of life.

But as Secretary Donley said, past accomplishments aren't the focus. In our business, I would offer everywhere in the U.S. Air Force, nostalgia is a luxury we can't indulge.

So I think some important questions remain for us as we look to the future and one that I'll pose to you today is where are our opportunities and how will we exploit them? So let me offer

where I think some opportunities exist for us as we look to the future.

I don't have to remind anybody in this room that space and cyberspace capabilities provide our warfighters with a distinct military advantage and they're critical to our ability to conduct operations of all types. They're must-have capabilities, so we must take advantage of every opportunity that they present.

We have a unique perspective today, I believe, with airmen who have combat experience from the current conflicts and many of these warriors have space and cyberspace specialty codes -- something I would offer is unique in our history as a fighting force.

So we have an opportunity here with many of our space and cyberspace warriors who have been out side by side with the rest of the U.S. Air Force and the joint team not only learning more about joint military operations but specifically seeing what space and cyberspace contribute to those operations. And as they have been returning, we have been putting them to work to try to tell us more about the opportunities to exploit those systems.

So I would offer that maybe our biggest opportunity as we look to the next few years is in leveraging the world class systems that we already have. How do we go with these programs of record to capabilities that are not currently part of the programs of record?

The capability on orbit is tremendous. Our actions with GPS this year demonstrate this. Again, everyone in this room and I would offer maybe most people today around the world know what GPS does for us. Joint warfighters in the mountainous terrain of Afghanistan rely on GPS without question, but mountains pose problems for GPS. That system obviously relies on line of sight so we needed to do something else. One way we addressed this was by going to something called the Expandable 24 Concept which increases the number of GPS satellites that are in view worldwide, but specifically for both those real canyons in the mountains and those urban canyons that our joint team finds itself needing to operate in. We're in the process of moving satellites to three additional orbital slots, which is going to help our warfighters as well as help the civil, commercial and recreational users worldwide. It's an effective way to increase GPS accuracy by spending Delta V, not by spending dollars.

The good news is that there is more capability on the way and more opportunities to exploit existing capability maybe in different ways. Think for a minute, we are within a year of launching the first space-based infrared geostationary satellite, SBIRS GEO-1 in shorthand. Right Roger? [Laughter].

I told Colonel Tieg, by the way, that he is going nowhere until that first satellite goes somewhere. [Laughter]. And what we expect to see on the pad camera is Roger Tieg running away from the pad at T minus 10 seconds going, "It's okay." [Laughter].

Let's think a minute about space-based infrared. We put some people to work in our A-2 about a year ago. I said to them, look, we've got tremendous opportunity here to exploit space-based infrared in ways that we have not been able to exploit it before. Think of the capacity and capability of the new sensors we're about to put on in orbit. The problem is that the program of record isn't going fast enough. Go figure out a way to make this go faster without spending any money. They said right. The doorway closed, and I could hear them going, "That guy's crazy." Slamming the door shut.

But it's amazing what they've done in a year, working with our partners and looking at ways that they can exploit the capabilities that we have already bought and paid for. In this case it's not Delta V. In this case it's we're going to go exploit electrons. Instead of spending dollars, we're going to spend electrons. By the way, those electrons are already there.

What about Advanced EHF? We've had the difficulties in getting it to its orbit but it's going to get to its orbit and when it does it will have tremendous capabilities in capacity that we don't have today. How are we going to exploit that maybe in ways that we aren't thinking about today?

Another way that I think we have an opportunity for the future is to use our existing capacity more effectively. One way is capability, in another way is capacity. Let's think about the launch schedule we have coming up for both the eastern and western ranges. In fact two launches are planned for today. One from Kodiak and one from the Cape. That trend will continue. The schedule is busy. We know that the schedule is busy. Everybody is focused on the success of the next launches, because we take this one at a time. By doing so we've resulted in about ten years now of launch successes.

We've been able to use our capacity better to increase our throughput and manage our schedules better. We recently launched the first space-based space surveillance satellite from a Minotaur. In the next six months we're going to launch the first SBIRS GEO, as I said. Five more NRO satellites. So we're finally at a point where these new capabilities are in the launch schedule with firm dates, and that's a step in the right direction.

The date we focus on within the command, by the way, is not the launch date. That's an important date, but it is not the one

that gets the big red circle. The big red circle goes around the day we hand the capability over to the warfighters. That's the date that's important, but to get there you go through a very important day called launch day. If we can't get to a launch date, we can't get to that other date.

So we have made progress in increasing our ability to get to orbit because we are now going to use our launch slots as launch opportunities that will not go by the wayside if a satellite isn't ready. We will set the satellite aside and move on to the next one. That means the schedule will look a little bit different coming up to about a year in advance where we will keep perhaps multiple contenders in individual launch slots. We will not lose launch opportunities because a satellite isn't ready. The days of playing schedule roulette are over. We've already made decisions in the last six months to operationalize that way of exploiting our capacity as another opportunity.

So we're going to pair the boosters and satellites closer to the launch date, instead of joining them years in advance when there are still too many uncertainties. We're going to be able to take advantage of more opportunities that way, to increase our ability to get to orbit that way, and then once we get to orbit, of course we're going to continue to weave these capabilities throughout the joint fight.

In fact I think that's where our third opportunity is. That's to harness the integrated power of the air, space, and cyberspace domains together as a cross-domain approach. I would argue today that probably the best known, the best integrated air, space, cyberspace platform that the U.S. Air Force has today is our Predator, our Reaper and our Global Hawk, our RPAs. If there is ever an example of the synergy of air, space and cyberspace together to get the mission done, that's it.

Think about what is happening when that RPA is out there executing the mission. That fleet is invaluable. It provides long dwell, surveillance, tracking, positive ID, collateral, and strike damage assessment, and in some cases strike itself. Next month the Air Force's fleet of RPAs will reach one million combat hours.

Now elsewhere this cross-domain synergy is providing other opportunities as well. Think about the cross-domain synergy that allows our units to operate in Afghanistan in small distributed organizations that rely on space and cyberspace and air to get their mission done. Those three domains together allow our warfighters to operate in small groups, but when necessary apply the power of a large force. Whether that's resupply, whether that's strike, whether that's ISR, whether that's somebody watching their back, whatever it is. That cross-domain synergy and the opportunity that somebody saw in applying that as cross-

domain I think is what provides the advantage.

You know there are other examples here about how we link our warfighters together, how we use cyberspace to do that, how those cyberspace pathways go through space. We've been talking around our command that there is something unique that occurs here at the intersection of space and cyberspace. I think there are opportunities there as we look to the future.

So we know there are a lot more opportunities out there to leverage this synergy. Our job is to help lead our people to find them and exploit them.

So if opportunities abound, and I think they do, so do the challenges. You heard the Secretary mention the three C words -- congested, contested, competitive. Those words will get a workout when the National Security Space Strategy comes to the fore. And I think that those three words are good definitions that help us understand the fundamental changes that have occurred in space and they define ways that I believe we have to go deal with those.

This is one of those cases where you can say yep, substitute the word cyberspace for space and I think you can use the same three words -- congested, contested and competitive. The differences here are that if there are certain speed, times, distance, boundaries, ambiguity, asymmetry issues with air, they are magnified in space and they go off the chart in cyberspace. Cyberspace people of 24th Air Force talk about operating at the speed of the network.

I remind people in certain audiences that Mach 3 doesn't help you when the fight is at the speed of light. So this is what we have to be adjusting to as we look to the future, because my belief is that soon you won't be able to tell, other than the physical characteristics of the domain, the operating medium won't make a difference in terms of those kinds of factors like time, distance, speed, boundaries, et cetera. The picture in the middle of the chart that we show should no longer be a spacecraft of an aircraft or a link. It should be a target. All those things go around the outside as parts of an integrated whole to deal with the target. And it might not be a kinetic target. It might be a non-kinetic target. The target might be something to focus ISR on. The target might be something to go find. But those are the difficulties that I think we're going to have to confront and the challenges that we're going to have to address as we go forward. Because in the future we will not be able to say that one of these domains is supported by the other two. It will depend on the phase of the mission you're in, I believe, as to whether or not one of these domains or the activities in that domain becomes the predominant activity that needs to go on.

So we have some real challenges here as we look to the future. We also know that the demand is going to continue to go up. Just as it does for our air platforms. Think about the demand on our airlifters. Think about the demand on our special operations platforms. Think about the demand on those RPAs. I believe that the demand across the board, think of the demand in space, think of the demand on GPS.

Not so long ago we were meeting with Microsoft and they were talking about the half a billion computers that they are connected to. We reminded them that there are three quarters of a billion GPS receivers out there that we know about. That's an enormous activity for us to maintain stewardship for, and it says something, I think, about the nature of our business and the demand on what we do. So we're going to have to rethink our approaches and our processes. We're also going to need to have to innovate, because while we are finding those opportunities in those places that we know are programs of record, we need to be cautious that the programs of record don't ultimately squeeze out our ability to innovate.

So how do we do that? How do we keep innovation? How do we keep that edge that we as Americans have come to rely on? Where are we doing those innovative bits of business? I will tell you, inside Air Force Space Command, we've just gone back and taken a hard look at the functions of the Space Innovation and Development Center. In fact we have adjusted some priorities inside our command to send a little bit more money in the direction of innovation so that we are not losing our edge in these areas.

We've also come a long way in the acquisition process. We've turned a number of corners, and I can't come to Los Angeles without thanking and praising the work of the great professionals -- Tom Sheridan and your team, at SMC. We are not out of the woods and we must control costs as we look to the future in space programs. We're not going to be able to afford to do things the way we have done them in the past, but we have turned some very difficult corners and some very difficult issues are behind us. I can't say enough positive things about the hard work and dedication of the folks at SMC and the aerospace team and the industry team that is all part of that partnership that gets these capabilities on orbit.

Let me just say in conclusion, and this really is a conclusion, 46,000 men and women of Air Force Space Command are dedicated to the joint fight every day. It's what we come to work to do. In fact I've told people before, there really isn't anything in Air Force Space Command we do for Air Force Space Command. Much like Air Mobility Command. Much like Air Combat Command. We really exist in order to provide our capabilities to the joint team, and they are relying on us to continue to provide

that.

So I'm proud to be part of this command. We've made some great strides over the last year. The last three years I've had an opportunity to write sort of an end of the year note about our achievements and accomplishments. We get to four or five pages, small type, and I finally just have to make a cutoff and talk about some of those other things by rolling them up because of all the impressive accomplishments that you have made.

We have much more to do. I look forward to continuing to work with each and every one of you, and I thank you and the AFA for all of your support and advocacy, and I look forward to continuing as we go to the future as a member of the team.

Thank you very much.

[Applause].

Moderator: General Kehler, it's been my impression that your leadership has been extraordinary. I know you're going to be missed. Senate willing you're going to be missed.

General Kehler: If confirmed.

Moderator: What do I know, though, really?

I do want to say thank you on behalf of AFA for a great presentation and for your presence here today. Good luck in the future.

General Kehler: Thank you.

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