

AIR, SPACE, AND CYBERSPACE POWER IN THE 21ST CENTURY
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DAY TWO

SERVICE AND COMBATANT COMMAND PERSPECTIVES
2:00 – 4:15 PM

General Victor E. "Gene" Renuart, Jr.

DR. CHARLES PERRY: Ladies and gentlemen, can I ask you to come your seats. For those who are standing up could you perhaps come down and take a seat and get settled. Let me welcome you to the final session of this conference in which we will have the unique opportunity to hear from six of this country's most senior and experienced combatant commanders and service leaders. Together they represent virtually the full spectrum of today's major operational commands and strategic planning centers and including key, geographic combatant commands, key functional combatant commands and the top echelons of our military service headquarters. We are delighted to have you all with us.

In their various capacities moreover, each of our panelists today has a decisive role to play in designing, fielding, training, exercising and, unusually together deploying US military forces, including many of the aerospace capabilities we've been discussing for the last two days—to address the increasingly diverse range or regional and global security challenges of that United States and its allies and partners must now prepare for.

But let me just briefly introduce the panelists in the order I've asked them to speak, to give you a little bit more flavor, perhaps.

To open this discussion we will turn first to General Gene Renuart, who as commander of NORAD and US Northern Command is responsible, as you all know, for providing air,

warfare. I'm going to put a little twist on that as we spend a minute or two here to talk about a sort of joint warfare in the homeland.

I've been in this job about three years, and I think the world is about tired of me and will send me out the door in May or so. But over that three year period, I've learned some pretty good lessons about how a whole-of-government approach has to work. So, I would like to spend a minute or two talking about that. When you think about defending the homeland, certainly as you saw there [in the video], it is about some of those traditional missions that we would expect. Air defense -- we've been doing that for 52 years as a binational command with the US and Canada -- focused on a variety of external threats, but not exactly focused on an airliner being hijacked and flown into a building.

So we've had to evolve that traditional defense mission to look at air traffic inside the borders of our country as well as outside. We sort of envisioned the maritime defense of our nation as something that is done in other theaters. We certainly know of great historic battles...naval battles that have occurred in World War II. We know of the operations that we conduct in other theaters today -- in CENTCOM, PACOM, and others.

But we don't traditionally think of maritime defense as interdicting freighters at sea that may have a weapon of mass destruction, sponsored by terrorists. We've had to evolve that concept of maritime defense to something more akin to maritime homeland defense. We partner with civilian agencies -- the Department of Homeland Security and Law Enforcement -- as well as the US Coast Guard, as DHS' maritime arm, in partnership with the United States Navy to ensure that we can create layered defense for our nation starting as far away as the Indian Ocean or the Persian Gulf or the Straits of Malacca.

We ensure that the layers of defense come all the way here to the ports of our nation. In that, there is an inherent partnership with other nations, with other military

capabilities, and, in fact, with the private sector. And Duncan [Gen McNabb] is a big player in that regard.

We've seen the development of rogue nations and their desire to field long range ballistic missiles. Certainly North Korea and Iran come very much to the forefront in how they play in international politics as they pursue, at least, the capability of delivering a nuclear weapon. So, a missile defense system was developed over time to thwart that threat against our nations. We [USNORTHCOM] operate that. I'm not sure people would have assumed that we would be operating ballistic missile defenses from our own shores to defend our own homeland.

So those traditional homeland defense missions had to morph as we applied that air, space and maritime capability to our homeland. We've added partners that we historically didn't expect to have a military role with. Mexico is a perfect example. Mexico is fighting a very significant battle against drug trafficking organizations within their own country that has reached forward to the United States in ways that are unprecedented. We build capacity to be able to find, fix and target those kingpins -- those leaders of drug trafficking organizations.

Frankly, they are murderers who will hold families at risk, who will hold the relatives of those lost in battle to make a point. It is a very different kind of enemy than Mexico ever would have expected to fight. We find ourselves as a partner with them. So building partnership capacity has come very close to our nation and continues to be one of the principal roles that we have played in US Northern Command. Increasingly sharing the common operating picture of air and space situational awareness is something that is valuable to Mexico in that fight. The delivery means of the drug trafficking organizations morph, if you will -- going from sea, to air, to land, back to sea. They have demonstrated the ability to be very agile in changing their delivery means and strategic approach.

We've also had to absorb areas that we really, again, didn't think we would spend a lot of time in. I know Senator Begich spent some time talking to you about the Arctic. I'm pleased to see that he's read the paper that Chris Miller and his team put together when he was a slave in our camp before coming to the Air Staff. I think he made the point that the Arctic is an area that has strategic significance for the U.S., for Canada for sure, but for the other nations of the Arctic and the Arctic rim as well. Yet, we have not well-developed our thought process about how we engage and discuss how we operate in that area.

I think that for those of you that use Air Force, Navy, or Coast Guard equipment in that region, you know that we have probably not configured ourselves terribly well to operate in Arctic conditions. We have to do that in the future because I think we will see increasing relevance of that region to us, both in terms of a security environment -- and also as an economic, and even a tourist environment.

So those are some of the challenges that we see and we face every day. We've evolved our forces to be able to better deal with those environments. Then you take those traditional, defensive kinds of things that I discussed and overlay the need to be responsive to our citizens. You know, the last scene in that video is a family in the sunset. We talk about defending what you value most. The nature of this command is that our customers, our responsibility, really -- our honored debt to the nation -- is to make sure that those families can continue to have that kind of an environment to work, live, and play. When disaster strikes, we are in a position to assist them -- and do it very rapidly.

Now, that comes at a price. We are obviously involved in Afghanistan and Iraq and other places around the world. We cannot lose our focus on the Pacific Rim. I know that if Admiral Willard were here, he would continue to stress the importance of engagement with our partners in the Pacific. We have some real significant relationships that have grown strong over time. Certainly our traditional friends, Japan,

South Korea, Singapore, Australia and many others...Malaysia, Indonesia -- but we also see the emergence of China in very different ways.

Part of this conference is to talk a little bit about cyber. I think those of you who operate in that domain every day know that China is a player there. China is a player in space -- whether it is countering or looking for vulnerabilities that we might have, or demonstration of an anti-ballistic missile / anti-satellite capability, which they have. So they are a developing force that has to be reckoned with. It is not just doing it in a force-on-force traditional Cold War style. In fact, that is probably not the right way to approach it. It's in fact, now, finding the way to engage on the one hand and deter on the other hand. That's an interesting dynamic that has developed and it is not just unique to the Pacific.

So we see a complex world, a world in which threats come from irregular means. Terrorists move through the gray areas that are the seams of our combatant commands and our country's boundaries. Terrorists know no rules. They care less about the value of life. And so the complex challenge of defending the homeland is made more difficult by the transnational nature of some of these unique organizations that have found a way to operate in the world of cyber, in the world of illicit trade and trafficking routes and others -- to hold free nations at risk and to hold free peoples at risk.

Those are the sorts of things that we deal with every day. I think the important element of success is to grow all of you [airmen] in a way that allows you to operate in this complex military environment. Many of you have been to the schools -- you drank the "DIME" Kool-Aid. We live in an environment where "Diplomatic" and "Information" and "Economic" partner side by side with the "Military."

I was just at the State Department today waiting for the Chief of Mission get together for the Western Hemisphere and one of the ambassadors was fussing at me a little bit. He said, "You military folks, you are out there everywhere. You are militarizing foreign policy -- stop." What we are trying to do is cooperate in an environment where none of

has all the skill sets. But let me make a point to you, Mr. Ambassador, today we are sending more men and women in uniform to the “Harvards” and the “Johns Hopkins” and the “Georgetowns” and the “Columbias” and the “Yales,” not to study military science -- but to study political science and to study international relations. We are now sending more officers from our military to language training and to cultural awareness training than at any time in our history.

So, let me talk to you about our commitment to the DIME and encourage the State Department and others to ramp up that kind of capacity. By the way, all of us need to advocate for the appropriate funding of our State Department friends so that they can continue to grow that capacity over time. We need folks who can operate in cyber. The old guys up here are not the right people. In fact, looking at the audience, you all may be too old, too. [Laughter] We must grow that young cyber warrior who is digitally agile, who can operate in that domain in a way that is sort of unbound by our traditional paradigms, and who understands that to be successful in cyberspace you’ve got to be a bit nonconventional. That’s the future for us. That’s what this 21st century is going to hold. I think for many of us, we are handing you off a problem that is going to grow and diversify in geometric proportions. You will get the joy and opportunity to lead in that kind of environment.

I do want to make one other point -- and it is back to a quick lead into Haiti. When Haiti occurred, Doug Fraser gave me a call and he said, “Hey! We’re [USSOUTHCOM] not configured as a command to do large-scale disasters. You guys [USNORTHCOM] are configured as command. You do that every day. Can you help us?” And, of course, we said, “Absolutely.” So today, US Northern Command, has about 125 of our staff deployed forward into Florida, some with FEMA and DHS, some with CDP -- and then about 97 or so in Doug Fraser’s headquarters, providing him with that disaster response expertise.

My interagency, two-star civilian is there. My Marine J-4, one-star, not only was there but now he is forward running the logistic operation in Haiti for General Keene. My

expanding partnerships, including untraditional partnerships, to work across seams, both geographic and functional, in ways that we did not anticipate even just a few years ago—and to do that using key enabling technology that perhaps we didn't understand a few years ago in very innovative ways—and to do that as well in more distant, complicated and austere operational environments. You all seem to be hitting on that theme. Let's ask for some questions from the floor first, if we could. Who would like to ask a question first?

AMY BUTLER: Amy Butler with *Aviation Week*. I'm just curious. You are talking about future capabilities. This is probably best for General Trautman and Admiral Greenert. How do you guys see electronic attack evolving? The *Growler* has been fielded but that is primarily legacy technology. And I'm curious where that is going.

GENERAL TRAUTMAN: Well, I'll go first, Admiral Greenert. That will let you trump me if you want.

ADMIRAL GREENERT: Sure.

GENERAL TRAUTMAN: The Marine Corps' view of electronic, airborne attack is that we are going to keep our *Prowlers* going until about the 2019 timeframe. We have four squadrons of five *Prowlers* and they are being used heavily in the current fight. And they need to be available for some unexpected future fight.

We see the future of airborne electronic attack, at least in the Marine Corps, as being to leverage the inherent capability of the F35. But also key is the next generation jammer. OSD has wisely, I think, laid out that the next generation jammer will have as a threshold both the F18G and the F35. They've done that because it just makes sense to take advantage of the 3,000 to 3,500 F35s that will be in the battle space.

And so you may end up with a situation where you fly VSTOL F35s and then, when it makes sense, and when threat drives you to this position, that you would put a next

generation jammer on some of the F35s in the force. That is a potential path. But beyond that we see the expansion of UAS capabilities, and putting some of these EW systems on unmanned aerial systems in the next decade that heretofore had been mostly on manned systems.

So that is the path that we have taken. The Admiral can talk to the path that the Navy has taken, which is the *Growler*. As for the next generation jammer, as long as it can be a multi-platform system, I think we are going to be in very good shape as we wait for the unmanned aerial systems to evolve as we hope they will.

We have a couple of things that we are doing, a JCTD called *Corporal*, where we are getting our nose wet with regard to unmanned systems in the electronic support, electronic warfare area. And also, we are very excited about software reprogrammable payloads, which also will have a role to play in the unmanned environment.

ADMIRAL GREENERT: I think George summarized it pretty well. I think if I were to put it in a category, we've got to go digital, just as the ISR radar, you know, did with the electronic scan, what that did for us versus a moving scan, if you will, moving parts. So I think it needs to be digital, and expanded in the frequency spectrum to be broader. Also it's about pods, not hard mount in the future. So you can go to UAVs if you need to. You can go to prop. You can go to helo I guess.

And it has to be agile enough, if you will, to be used for IW, irregular warfare, and perhaps MCO. Again, that could involve change in the frequency spectrum, the amplitude, whatever. So it's more about mobility and transferability I think in the future. And you got to be able to share it. So there is an international dimension, probably.

DR. PERRY: Another question?

BRIAN GREEN: Brian Green with Systems Planning and Analysis. Hybrid warfare is a term that has gotten some attention recently in town. I know that the Secretary has used it and it was used several times earlier in the conference. The term of choice among the

panelists is still irregular warfare. And I was wondering if I could solicit from the panelists if they have any views about whether there is a difference between the two terms, hybrid warfare and irregular warfare? And if so, what the difference is and whether they think hybrid warfare is a term or concept that has any legs to it.

DR. PERRY: Who wants to take the first cut at that? General McNabb?

GENERAL MCNABB: I will just tell you that to me we are just going to have to be very flexible on the systems that we have that can move all these different ways. Again, the warfighter is going to say, “Sometimes I’m going to need this. Sometimes I’m going to need that”, and we are going to have to have multipurpose platforms that we can swing as we need to in support of the warfighters.

And that is across the board. That is every service. And you can see it where we’ve had those systems and we have been able to adjust them very well. And we have to be thinking that way that you can—and really, hybrid warfare requires that kind of flexibility. Because we don’t have the money to have systems for everything. We have to have a system that supports the concept that the war fighting commander will say, “This is what I need to do to win.” And we’ve got to be flexible enough to deal with that.

PANELIST: Brian, I might just add that I think this construct captures a bit of a strategic struggle that is going on in the defining what adversaries might do in the future. I think it clearly acknowledges that you can’t discount a conventional, more conventional kind of enemy and a threat. But increasingly, you see actors growing in a spectrum that grows from theater security cooperation through terrorism to countering space threats, countering cyber threats—and an enemy, if you will, that is agile among all of those domains.

So I think this term hybrid warfare is an attempt to try to capture that it is not just irregular. It is not just conventional. It is really a spectrum in between. And we have to be organized, trained and equipped to operate across that spectrum. You know, the war

colleges will muse on this some more I'm certain. But I think that is where the Secretary is trying to come up with a way to not limit us but to force us to adapt across a very broad series of operations.

GEN Fridovich: I would like to jump on that one a little bit. It is going to be talked about for a long, long time. And it is going to, I guess, remain still to be defined completely. Probably never will get there completely. If you think in terms of ...(inaudible) in that they know how to politically empower but not avail themselves of the target. Below the line they have got everything they need to project power. They've got everything they need to politically, you know, help run a government or be part of a government and be recognized legitimately. Yet, they still can do things globally with a wide variety of tactical operational, even strategic outcomes engineered with a chain of command.

That might be one of those places to point to and say, "That is truly a hybrid enemy that understands political power, understands not gaining too much where you become an absolute target and then can be disenfranchised from that political power. And they know right where those operations design lines are and stay beneath those. Thinking about that as the higher end of a hybrid enemy, then there are other, lesser I suppose, cases out there that know a little bit about that but haven't crossed over.

Or you might look from an Israeli perspective. Hamas helped themselves to cross over. And as soon as they do, they become the governance. They avail themselves of the target, especially when they start applying some of their weapons technology outside and breaking the red lines that the Israelis might have.

So when you start thinking about it in those notions, and look and understand globally where there are linkages between those players, then we can start saying, if we understand that part of it, now how do we engineer ourselves to be able to counter that, if that is at all possible. This gets you into alacrity, flexibility but probably more than anything else a very deep understanding of the operational and strategic environment that they are using against you and getting into your decision cycle.

Which is one of the things that I failed to mention, one of the strategic notions of a SOCOM is not to be reactive. It's to finally get out there and be pro-active and think about where are the opportunities in the globe that we need to get to, where a small investment might have huge dividends in the future—and start mapping the future that way instead of always reacting to things, trying to get out ahead of that. And I think that is really where our next steps are going to be for the next year or two at a minimum if not longer.

But that does start getting back to the notion of the hybrid. Does that come close to answering?

GEN Trautman: I think we are on a slippery slope when we try to characterize warfare with stark terms. We better be ready as warriors to flex between various types of things that we will encounter in the battle space. You may think that you are on occupation duty in Lebanon or the Gaza for years. And you may, indeed, be there. But then, the next thing you need to do is figure out how to integrate fire and maneuver rapidly, and operationalized intelligence—and respond in a wholly different way from the way that the force has been used in the previous months.

Same thing in Iraq. You may be in a COIN environment in Al Anbar and find out you have a very tough urban fight in Fallujah. It is the nature of warfare that you need to be able to flex among the various options that the enemy chooses to place you in.

So I sort of like the term hybrid warfare. I don't know why none of the panelists said it. In my mind, and I think in most of the Marines' mind, a fair description, an apt description of what the future holds for us.

DR. PERRY: General Edgington, did you want to weigh in on this at all?

GENERAL EDGINGTON: I guess I probably need to because General Mattis is one of those who has kind of embraced the hybrid concept. And when he was first reading about it and was just starting to embrace it, it was the Hezbollah, as General Fridovich points out, using RPGs in the second Lebanon war—that a traditional, terrorist enemy is having modern weapons. And so where is the line being drawn?

Getting back to the question, specifically, it dawns on me that we are a society of labels. We need to label something and define it. And there is certainly purpose in that. But as soon as we do, we create the opportunity for seams. And so I think hybrid is probably the best word in the English language to define that. We just have to put aside the boxing, the container-izing of exactly defining what this type of warfare is—and realize, especially in light of the cyber world that we are going into now, and the potential of where we can get challenged—that warfare can encompass just about anything that we have thought about and probably some things that we haven't thought about.

So let's continue to be open to define the fact that war is not uniformed militaries across the Maginot Line fighting it out like what we had studied in school. It has evolved. But I would tell you that probably in World War I there were flag officers discussing something of this nature of, "Hey! This is a new way of warfare. What is this?" And trying to work on a label for it at that time, too. So I would just resist trying to fully define it and get the concept of the fact that warfare can include just about anything.

DR. PERRY: Does anyone have one, last, burning question? This gentleman right here. And then we will close it there.

Japan Self-Defense Force Officer: I have a question with regard to missile defense. Admiral Greenert, you touched on the missile defense capability somehow. Do you have somehow a joint doctrine or concept of operation to respond to ballistic missile and cruise missiles simultaneously?

ADMIRAL GREENERT: We don't now. I mean we have a concept. If we had what we wanted for radar fire control, but you are talking about a ballistic missile launch simultaneous with a cruise missile launch. I think that is what you said. If you are talking about the same vessel, then that is part of what we would look toward a future radar for, a multi-volume, if you will, radar, multi-level radar. But we do have that concept within the sea base if you will and defense therein.

So, in other words, the concept of operations among several platforms is there today, but we don't have a platform right now today that does both simultaneously.

DR. PERRY: General Renuart.

GENERAL RENUART: I might just add, Jon, there is a joint, integrated air and missile defense construct that is being circulated through the services for final approval. It is designed to acknowledge that you could have air, ballistic, or cruise missile threats near-simultaneously. What it attempts to define, and we've been involved with PACOM, the Navy, and others in developing this concept -- but it depends upon a system of sensors that allows you to look for both and can capture, characterize, and assess -- especially low-altitude, high-speed, low-visibility targets, like a cruise missile.

So we are pursuing this forward in the area of homeland defense, but it also has significant impact for deployed forces. I think we still have a little work to do. We don't yet have sensors that allows us to be highly confident that we can capture all of those pieces simultaneously. There are pieces and parts and we are working through.

DR. PERRY: Well, it only remains for me to thank you all for being with us and giving us your time and the benefit of your vast knowledge, and it was vast. And I appreciate it very much. This is the end of the session and we will have closing remarks by Dr. Pfaltzgraff and General Schwartz.

END OF SESSION

