"C2 Battle Management"
Lieutenant General Russell Handy
Lieutenant General Dave Deptula, (USAF Ret)
Lieutenant General John Sattler, (USMC Ret)
Lieutenant General Robert Elder, (UASF Ret)
Colonel Henry Cyr
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Col Cyr: I'm Colonel Henry Cyr, the Wing Commander of the 461st Air Control Wing down at Robins, Georgia. We fly JSTARS. I'll have a few brief comments, and then get you as quickly as I can to our distinguished panel who you are probably more likely interested in listening to.

Command and control is one of the Air Force's five core missions, is a mission unto itself, but it's also a prerequisite for all four other core missions, certainly within the Air Force. It is foundational to military success. Effective C2 is required to turn a commander's vision and intent into successful action. It is the mechanism we use to overcome the fog, friction and chance of operations of war.

C2 is a joint requirement and it is a service requirement and it is applied across all three levels of war. Because of the breath of the mission area, it is complex and oftentimes challenging to accomplish well.

C2 is inherently a human-centered task, but in its objective and in its accomplishment.

Because command and control not only shapes the success, or not, of a mission but is also shaped by the nature of that mission, it's important that we look to the future of full spectrum operations as we discuss lessons learned that we may have learned, and quite frankly may have forgotten in the last 20 years of conflict.

Today's panel is entitled "Reassessing Command and Control at the Operational and Tactical Levels to Meet Emerging Demands." Our three distinguished panel members are uniquely qualified to discuss the complexity and importance of command and control and to provide thoughts on how we must adapt to meet command and control. Also to meet the needs of future conflict.

So as a key element of this discussion, while it is possible to strike or surveil a target a world away without direct human involvement, has technology changed how we will perform this inherently human endeavor?

Our three panel members will speak for about five minutes, each providing you their thoughts on this important topic, after which we will spend the remaining time engaging with you with your questions and hopefully valuable discussion.

Ladies and gentlemen, it's my distinct honor to introduce our first C2 panelist, Retired Lieutenant General Dave Deptula, United States Air Force. General Deptula transitioned from the U.S. Air Force in 2010. He's a world-recognized leader and pioneer in conceptualizing, planning and executing national security operations from humanitarian relief to major combat operations. He has twice been a Joint Task Force commander, was the principal attack planner for the Desert Storm air campaign, commander of the no fly zone operations over Iraq in the late '90s, directed the air campaign over Afghanistan in 2001, was a commander for the 2005 South Asia tsunami relief, and also served on two congressional commissions charged with outlining America's future defense posture. He's piloted over 3000 hours, 400 in combat, to include multiple command assignments in the F-15. He served in his last assignment as the Air Force's first Deputy Chief of Staff for Intelligence, Surveillance and Reconnaissance where he transformed the Air Force ISR and unmanned vehicle enterprises.

He's currently Dean of the Mitchell Institute of Air Power Studies, a Senior Scholar at the Air Force Academy, consultant and board member for a variety of companies and organizations.

Ladies and gentlemen, Lieutenant General Dave Deptula.

Lt Gen (Ret) Deptula: I appreciate that, Henry.

In the interest of keeping things relatively tight so we can open it up to Q&A but at the same time stimulate your thinking a bit I've got a couple of introductory comments.

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My comments focus on a new era for command and control of
aerospace operations and I think everybody in here is very
familiar with the principle that control of the aerospace
environment is fundamental to joint force operations.

Accordingly, command and control of aerospace ops are critical
functions that need to be a continued priority. They must also
keep up with the changes imposed by three major inter-related
trends -- emerging threats, new technologies, and the increasing
velocity of information.

The changes in these three areas since the design and
establishment of our Air Operation Centers have been dramatic.
Therefore, it's time to determine if we can achieve success in
future ops by simply evolving our current C2 ConOps
organizations and processes for modernization or if we need to
seek fundamental change to each of these elements that define
our theater air control system.

Before suggesting an answer, let me offer a brief look at each
of these trends.

First, emerging threats. The organization and configuration of
our AOCs have essentially remained the same since their
inception in the early '90s. Furthermore, for over two decades
we've had the luxury of not being contested in air and space. I
don't have to hammer this point home, but those days are rapidly
changing. Potential adversaries have studied the American way
of war and they now base their strategies on keeping us out of
their neighborhood.

These developments threaten our command and control ability in
three ways. First, through kinetic and non-kinetic weapons
they'll attempt to deny our space-based ISR and com
capabilities. Second, cyber attacks will be used to disrupt our
Air Operation Center operations. And third, accurate long range
missiles threaten large, fixed and exposed Air Operation
Centers.

Then we have new technologies. New technologies enabling new
capabilities will require new ways of command and control. We
need to think beyond the constraints the traditional culture

imposes on new technology. Many of you have heard me use this example before and I'll keep it tight, but fifth-generation aircraft, for example, are termed fighters, but technologically they're not just fighters, they're F-B-A-EA-E-RF-22s & 35s aircraft. [Editor's note: This is an acronym used by Lt Gen Deptula to explain 5th generation fighters as sensors/shooters: Fighter-Bomber-Attack-Electronic Attack, Electronic Warfare, Reconnaissance, F-22s, F-35s, etc.]

They're flying sensor/shooters that will allow us to collect information inside contested air space and pass that to decision-makers. And oh by the way, they also have the ability to employ weapons. But that's only if we fully exploit their non-traditional capabilities.

New capabilities also require a new way of designing our force. As new long range ISR strike aircraft enter the Air Force inventory we can amplify their effects through integration with the array of other forces through networked sensor/shooter capability from sea bed to space.

Information velocity. Significant advancement in telecommunications, sensors, storage and processing are popping up every day. As a result, the targeting cycles move from months to weeks to days to minutes and from multiple specialized separate aircraft to the ability to find, fix and finish from just one aircraft.

Increases in information velocity are enabling increases in the effectiveness of combat ops. But guess what? There's also a downside. That's because modern communications also allow tactical execution to be micromanaged by folks at operational and strategic levels. I'm sure there are quite a few of you in here who have experienced that phenomena. Information synthesis in execution authority must be shifted to the lowest possible levels while senior commanders and staffs must discipline themselves to stay at the appropriate level of war.

With these trends in mind, what then are the elements of a new architecture for aerospace command and control? I'd suggest there are two that are critical. First, new concepts of operation, and then organizational change.

With respect to concepts of operation, the velocity of information, advances in stealth, precision and sensors are permitting a shift from traditional combined arms warfare to what some have called combined effects power. The combined effects approach is about integrating multi-domain means within an agile operational framework to create an ISR, strike, maneuver and sustainment complex enabled by interconnected distributed operations.

We now have the potential to link aerospace capabilities with sea and land-based means to create an omnipresent defense complex that's self-forming and self-healing.

The enabling ideas cross domain synergy where the complementary employment of capabilities is such that each enhances the effectivensss and compensates for the vulnerabilities of the others. This is going to require a command and control paradigm that enables automatic linking that's transparent from the user, as well as seamless data transfer without the need for human interaction between the combat cloud nodes.

This combat cloud approach will drive a different architecture of the conduct of warfare and you'll hear more about that in a panel later on today.

Regarding organization. While we need to realize and exploit the advantages of technology to build new concepts of operation, we need to also realize that innovation can be applied to organization as well as from technology. But that's a hard thing to do.

Current AOCs were the outcome of command and control lessons learned from Desert Storm. We're facing a very different future. Command and control architectures, processes and organizations need to evolve and advance at the same pace as threats, information and technology.

Centralized control and decentralized execution has been a fundamental command and control tenet for years, and while still fundamentally sound, threats, information and technology are

driving us to consider an approach of centralized command, distributed command and decentralized execution.

So let me wrap this up. The challenges of new threats, accelerating information, and advanced technologies demand more than linear evolution of current command and control paradigms. So do we require significant new approach or simply evolution of our current C2 architectures?

As many of you won't be surprised, I suggest that future success will not occur through incremental enhancements. Industrial age approaches to warfare have lost currency. We will not be able to achieve operational agility without dramatic changes to our current command and control concepts of operation, organizational paradigms for planning, processing, and execution, acquisition processes for command and control capabilities, and finally, a determined effort to match new C2 paradigms to the three critical trends that we briefly reviewed.

My bottom line is that it's time to think beyond the organizational constructs that history has etched into our collective psyche and get on with a new approach to command and control.

With that I'll pass it to my good friend Job Handy.

Col Cyr: It's an honor and a pleasure to introduce our next C2 panelist, Lieutenant Colonel Russell Handy, Commander of Alaska Command within U.S. Pacific Command; Commander, Joint Task Force Alaska for U.S. Northern Command; Commander, 11th Air Force Pacific Air Forces; and Commander, Alaskan Region, North American Aerospace Defense Command. General Handy is the senior military officer in Alaska responsible for the integration of military activities in the Alaskan joint operations area.

General Handy has held a variety of flying, command and staff assignments including command of the 57th Wing at Nellis, the 9th Air and Space Expeditionary Task Force Iraq, Join Task Force Support Forces Antarctica, as well as serving as the PACAF A3-5.

General Handy is a command pilot with more than 3,600 flight hours, primarily in the F-15 and F-22A. He has participated in

numerous combat operations and deployments including Operations
Desert Shield, Desert Storm, Desert Fox, Southern Watch, Noble
Eagle, Iraqi Freedom and New Dawn.

Ladies and gentlemen, Lieutenant General Russell Handy.

Lt Gen Handy: Thanks, Henry.

So you're wondering what's the Alaska guy doing, talking about
this topic. Although I do serve day-to-day in Alaska and talk a
lot about the high north, and we have entirely different command
and control challenges in the Arctic which I'd be happy to talk
to you about as a sidebar. I'm really here more to talk about
command and control in the big picture. And I will tell you,
just sort of as an aside, in 1991 when Captain Handy was taking
direction from Lieutenant Colonel Deptula, I never dreamed in a
million years he'd be introducing me on a panel. But that being
as it may, my last job was at PACAF, at Pacific Air Forces,
working for General Carlisle and working together with General
Carlisle and Admiral Locklear on the evolving strategy in the
Pacific. Which carries with it a lot of command and control
challenges that General Deptula so aptly addressed.

I think in the short term we need to have an evolution of the
way we look at command and control. We're behind. We've got a
lot of work to do and in the long term a fundamental shift in
how we think about the problem.

The concept for how we link forces not just in the Pacific but
for any big theater in today's day and age has fundamentally
changed. In addition to working together with Admiral Locklear
and General Carlisle on the strategy I'm also part of a wargame
now that many of you may be familiar with called Unified
Engagement. It's a game series that goes on for about 14
months. It culminates in a national level wargame that examines
a theater problem from the National Security Council level down
to the operational and sub operational level. We are taking on
this problem, examining the command and control challenges in a
Pacific context as one of our key topics for this game. So it's
a nice venue to be able to hear the types of interaction you
would hear from the National Security Council and we've got some

very talented and very qualified people to play those roles and
then try to implement them at the theater level.

What we are learning and what we learned I think in building the
strategy as we sat with Admiral Locklear. He is looking at
command and control of his forces in the Pacific fundamentally
differently from his predecessors.

I will tell you, however, a lot of the way he's examining that
focuses on that theater-level command and control. That
exquisite ability from a Joint Operation Center or a Combined
Air Operation Center to be able to do the kinds of things we've
done in support to counter-insurgency in the Middle East. Of
course the problem with that is although that is exquisite and
it's brilliant in its ability to have that theater-level impact,
it won't be practical through all levels of war and we will be
contested and in some cases regionally or in a short term
fashion denied the capacity to exercise that command and
control.

So am I saying that you want to dismiss the big CAOC in Hawaii
and the big Joint Operation Center for PACOM and all his other
components? I will tell you, I think that is still going to be
a requirement as you look at the types of problems we may see in
these big theaters. There are some decisions and some
authorities that will remain centralized, and that type of
interaction will still happen at the theater level. There are
some effects that will be synchronized best at the theater
level.

So if we're not completely shut off, and I think what we're
looking at here is not a light switch, completely denied or
allowed, will have bits of a contested environment. That
theater capacity is still essential. However, we need the
ability as General Deptula has outlined, to be able to push both
command and control, and I look at that as two words. There's
command which comes with a certain set of authorities; and there
is control, the ability to move bits and pieces of air and space
and maritime and land component power around a battlespace in a
very dynamic and contested environment.

That requires a different set of tools and a different set of capabilities than what we have built to operate in this permissive environment.

I'll keep it short. I'll outline just a couple of questions, if you will, then I'll get off the stage. I want to make time for your questions.

The first thing I will say is we must carefully examine when and where and by whom we exercise command and control at the component level, and when this is fundamentally a joint issue. I would contend that we have some work to do there. Not only doctrinally but in working together with our combatant commanders.

I think we do a pretty good job of outlining what we all know and love as supported and supporting components and in fact there's a lot of that in Admiral Locklear's strategy. I will say that although that's useful in some cases, that's stifling to true joint employment of combat power. When we start looking at the ability to command and control forces forward, we need to examine where we do that by component and where we do that as a joint force, IA commander with joint authorities.

Second, I will say that command and control across the continuum of the theater that we're examining has to be capable at all levels and be able to expand and contract at those levels like we just talked about. So at that regional level or forward level, in some cases with systems that we haven't designed yet and the ability to communicate and coordinate with each other, and in some cases at that theater level.

The third thing I will say is the concept by which we will present forces in these types of theaters is evolving and will continue to evolve from what we grew up to think about in a big theater and that is forces at main operating bases with big communication nodes and copper and fiber connecting those nodes. In today's environment to remain resilient and survivable, we will be more expeditionary. You can see a lot of the types of things that we saw in World War II for an entirely different reason. You can see resilient forces that are operating from

more expeditionary locations without those types of
communications environments.

Finally, I think the tools and the information required for
command and control as General Deptula outlined, they are a two-
way street. In other words, oftentimes I think we focus too
much on command and control as a push environment in which a big
commander pushes a lot of taskings down to lower commands and to
tactical forces. Remember that as in most cases, more important
is the ability to bring data back from those forces that are
employing. And as General Deptula outlined, we need to move
forward with thinking about those types of forces and the types
of information they can gather and distribute back to commanders
in an entirely different way than third and fourth generation
aircraft. This is not just about aircraft. Our maritime and
our land component forces have similarly evolved to the capacity
to bring different types of information to the battlespace.

With that, I'll say thank you for allowing me this opportunity
to be the only active duty guy on the panel and I'll stand by
for your questions.

Col Cyr: It's my distinct honor to introduce our next C2
panelist, Retired Lieutenant General Robert Elder. General
Elder served as the Commander of 8th Air Force and U.S. Strategic
Command's Global Strike component until his retirement in 2009.

Additionally he serves as a senior advisor to Georgia Tech
Research Institute and the Cyber Innovation Center in Louisiana.
He currently conducts research in areas of command and control,
cyber enterprise resiliency, electronic warfare, and the use of
modeling to support national security decision-making.

General Elder served as the Central Command Air Forces Deputy
Commander for Operation Enduring Freedom and later as the Air
Operation Center Commander and Deputy Air Component Commander
for Operation Iraqi Freedom. He was the first commander of the
Air Force Network Operations and led the development of the
cyberspace mission for the Air Force.

General Elder also served as the Commandant of the War College and holds a doctorate in engineering from the University of Detroit.

Ladies and Gentlemen, Lieutenant General Retired Robert Elder.

Lt Gen (Ret) Elder: It's great to be with you all. I see a lot of old friends here. One of the things worth pointing out is when we talk about command and control, some of the people here are international officers and a very good friend of mine, Retired General Wadnabe is here from Japan. I want to call that out because command and control is not only just a U.S. Air Force problem or even just a joint problem, but for the types of things we're doing now, we always operate in coalition so it's great to see our partners here.

Now that I'm an academic, although I have to admit I do research, I work with grad students all the time. I never have to deal with undergraduates except to bump into them in the hall. But it is worthwhile in the current function that I have, the real work I do from a command and control standpoint is actually command and control architectures. And to explain this to you just very briefly, if you were going to have a house built you don't go to the civil engineer first. You go to an architect and you say here's how I kind of want my house to look and here's what I want it to do. I want it to be able to do these things with the house.

It's the same thing with command and control. Before you start designing your systems, you ought to decide what you want to do with them. That's what an architect does. You work with the people that will use it and then you try to turn that over to an engineer who will then try to turn that into systems. Unfortunately that's how it probably should be done. Fortunately we build houses that way. Command and control, that is not typically the way we do it. We build the system and then we try to figure out a way to put them together.

I also think it's worthwhile, and this has been hugely important. In fact you've had two speakers already talk about this idea of distributed control. The big thing that we've done in the past is we've talked about command and control like it

was one word. It's really two words. There's the command word and there's the control word. We always used to talk about having centralized control to preserve unity of command, but in fact you can have unity of command without necessarily having unit of control. That's the key. That's what's enabled this whole idea of moving from centralized control, decentralized execution; to centralized command, distributed control and decentralized execution.

So understanding that command is this authority that really resides -- there's one person that has command at each level; and then that commander has a lot of people who are helping to control and exercise those authorities and that's what the control is all about. That's why you do the monitoring and assessing, you do situation analysis, situation assessment, you try to develop courses of action, you evaluate which ones are going to best do that, then you assign tasks, then you go out and execute it. That's the control piece of this thing.

Then you monitor again what happened and you start all over again.

So breaking those pieces up is important to begin with, and these are done at places typically today like a Joint Ops Center, an Air Ops Center, the Joint Space Ops Center, those types of things, and that's what we typically think of. But those are they physical locations where we put people and equipment and information.

That's the other thing, we don't have to put them all in the same place now. Some of these people are going to need to be in the same place but the whole key to this is to take a commander's intent and translate that into action on the part of forces somewhere and then get the information back to the commander about how well that execution is taking place.

That is what command and control is all about. There are a lot of different ways to get there, and that's the whole point.

We also want to talk about battle management. I flew the JSTARS, I was mainly a bomber guy. We kind of roll the C2 battle management off of our lips here, but the battle

management piece is a little bit different. Battle management really is about synchronizing the actions of forces in a space, in a given area, and these days it's become a lot more about information sharing. In the past this has been typically a largely service function, although the ATOCS for example, for a long time have been involved with moving information, synchronizing activities between ground forces and air forces. But a JSTARS, for example, with the types of functions that it does, does that exact same function. It's doing battle management that basically transcends not only services but domains as well.

Just a short kind of a vignette here, for example going back to OIF, JSTARS was used for border control. And you guys say how does the JSTARS do border control? Well, because they can see people trying to come across the Syrian border and they can basically direct forces to go deal with that. That capability to that in real time is really a huge advantage.

There's a point, the reason I bring that up is at the same time it was doing that, it was collecting intelligence information that was then being used forensically to gather intel on how some of the insurgent forces were operating. The point is, that platforms that we have today, you've had a couple of speakers say the same thing, they're not single mission platforms. They can do more than one thing. But to really leverage this you have to take advantage of the fact and you have to plan for it.

So if you send a fighter out there that's got a good pod on it and you have a plan for collection that's not really going to really be able to collect. Conversely, if you have something like a JSTARS and you send it out there with only a collection deck and you don't set it up to be able to do battle management, it's going to have a hard time doing that, but it can do both at the same time is my point there.

The other thing that's happened in terms of this cross-domain that I think is worth pointing out because most people don't know this is, and the JSTARS, this is another case where the JSTARS are being used quite extensively is in the maritime role. And its ability, just like it can do on the ground, to see that there's some type of forces massing, it can see the same type of

thing. If you're worried about swarm attacks, it's a big deal for the Navy that they have a platform that can go out there and see this type of thing happening. It's valuable to them. And here's another case of crossing domains and where a platform that's operated by the Air Force can be very helpful to the joint fight.

As we talk about this, there's been a lot of efforts to try to do this distributed control, and one of the ways to do this is to say do we have platforms that can do this? Well, the point is the platform, if it's a battle management platform, it can do C2 functions if you extend those C2 functions to the platform. So an AWACS can do that. A ground platform like a CRC can do this. And certainly a JSTARS can do it and they've done some of that in the past quite frankly.

The idea though is you are going to distribute some of the functions from the AOC to the platform that's going to be exercising not just battle management responsibilities but some command and control. What that means is that they have the commander's intent and if something happens to where you get cut off from the commander they continue to exercise the commander's intent until they get it back. It's really fairly simple. There's been a lot of work done, and you can talk to Henry. In fact he'd be a great person to speak in here about all the different things they've been doing in that regard in the past few years. It's been a big effort, and PACOM and particularly the PACAF folks have really been pushing this as General Handy can attest to there.

One of the things that I wanted to point out, that we don't think about some of our platforms. It's not just across services because, and here's another case for a JSTARS. JSTARS is used with SOUTHCOM for law enforcement purposes. So what are they looking for? Well, they're looking for these little submarine things that are trying to run drugs into the country. They can see that stuff going on. They are able to actually battle manage these forces that then can go out, intercept these drug runners and support the SOUTHCOM mission.

So these are things that when we think about command and control or we think about battle management, we tend to think in terms

of dropping the bomb. But I wanted to point out there's a lot of other things that we really can do with this when we think about this.

One point I would like to make about this. If you're going to use it for battle management, I started to make the point that today, and this is a complaint that I have so I'll make my complaint. For the most part the JSTARS is being managed within the Air Force, within the ISRD, as the, that's the Intelligence, Surveillance and Reconnaissance Division, and then the direction from the joint level is coming out of the J2. I think the J2 needs to be part of this, but if you're going to use it effectively to do battle management involving troops and contact, then it's helpful for the J3 to be involved and for the master attack planners working in combat plans and combat ops to be involved.

It's not done that way, and I think to optimize that -- I've got a crowd here that might be receptive to that. Take that back. I think that could be helpful.

I think technologies are really changing the way that we do C2 and battle management processes. We have machine-to-machine data transfers that reduces human error but it increases the cyber threats so we have to deal with that.

We're able to do data fusion and correlation that we couldn't do before and it greatly speeds the analysis but it also adds resiliency. If you put the correlation piece in, it makes it harder to do a cyber attack. At least you can detect that there's been a problem. You can use it for machine cognition, pattern recognition. So things we typically have used a person to do, the machines can do this for you and as a result, you can significantly reduce the number of people that are required on the platform. We're starting to see that already in a number of our platforms that we use.

We have improved visualization tools that are tailored to the situation, so it makes it more natural for the user to use it. Therefore, it makes them more efficient in terms of their being able to do this.

Collaboration tools have been improved. It allows you to take, in one case, some work and take it off the platform. The other thing it allows you to do is when you're doing team tasks, instead of throwing it over the transom you actually can basically point to one another as you collaborate about these things. So you can be looking at the same display. So it's something that we haven't really been able to do in the past.

We have new parallel processing capabilities which basically mean that before we would run a single course of action and then you didn't have time to look at anything else. With some of the high speed processing we have we can do these things in parallel, and that's being leveraged into our platforms today.

We have improved sensors and sensor processing. What that means is in the past the sensor was married to a visual display and then they put all the processing in the middle. Now you have sensors. They are processed as part of a network. They go to displays that are basically tailored for the user, so that line [like] thing is not there. It significantly improves your ability.

There have been some good examples of this I think are worth highlighting. On the JSTARS again, I'm very familiar with the JSTARS having flown it. They're getting imagery servers now. They're going to have a lot of imagery already on the plane which is going to significantly enhance some of the things they do, reduce the workload for them.

They've got software that automatically tracks. Before, the operator had to watch the dot move. Now they can mark it, it tracks, and they don't have to spend all their time watching that dot move across the display to make sure they don't lose it.

They're able to detect dismounts now. They can actually differentiate something that's on the ground from something that's in the air, and as I mentioned before, they started using it with the Navy with a mode that's called the Enhanced Land Maritime Mode that allows them to support some of the Navy things.

So the JSTARS in particular I think has seen some really big changes and I think that we're going to continue to see those changes developing in the future.

Some of those changes I think we'll see are lessons from gaming. One operator, performing multiple roles. Once again, same displays, but as the thing changes, you adapt to it.

I think we're going to have this ability to act with non-U.S. forces. It's going to get to be very important. The Libya operation should be a pretty good point of this. In the Libya operation you had, the UK had their ISTAR aircraft there. They were actually passing data to the JSTARS. They were using that to basically direct NATO combat forces to go support indigenous forces and they weren't even able to talk to them.

Just think of what would happen if we have a capability to deal with those indigenous forces even if they're not our partners. But definitely we'd want to have those capabilities with our partners as well.

There's a recap program for the BMC2 for the JSTARS. You have work that's being done to basically integrate these different platforms together like Rivet Joint, the JSTARS and the AWACS so that they're sharing information between each other and not just passing little bits over a radio. There's a lot of work being done to allow operations of these platforms in a contested environment.

There's a lot of good work going on in this area and the future for C2 and particularly the stuff that the Air Force is doing with our joint partners is bright.

Thanks for letting me talk to you today.

Col Cyr: It's my privilege to introduce our next C2 panelist, United States Marine Corps Retired Lieutenant General John Sattler. General Sattler served as the Director of the Strategic Plans and Policy in J5 on the Joint Staff from September 2006 until his retirement in 2008. He served as Commanding General of the 1st Marine Expeditionary Force, Commander Marine Corps Forces Central Command, as the Director

of Operations for Central Command. He stood up and commanded
the initial Combined Joint Task Force Horn of Africa and
established the headquarters in the country of Djibouti.
Additionally, he commanded the 2nd Marine Division, Camp
Lejeune, North Carolina. Lieutenant General Sattler brings 37
years of Marine Corps experience to the panel.

He currently sits on a number of boards of directors and
consults. He holds the Leadership Chair in the Vice Admiral
James Stockdale Ethical Leadership Center at the United States
Naval Academy.

Ladies and gentlemen, Lieutenant General Retired John Sattler.

Lt Gen (Ret) Sattler: I'm going to bring this back down to the
tactical level. It was reinforced, everybody up here has an
8x10 little notebook to take notes on. This is what they gave
the Marine to take notes on. So I promise I won't go long.

On my background, we're all victims of our own experience. When
I had the opportunity to be the J3 at Central Command, I did not
quite understand, to be totally candid, battle management
command and control outside a ground atmosphere. Whether you
had your command vehicle you moved forward, we knew the aviation
was controlled by the CAOC. They were synchronized by the ATO.
But it wasn't until later on that I understood, and I know
General Elder just talked about Joint STARS.

That's where I'm going to focus in today, because my ignorance,
my lack of knowledge on how to employ the Joint STARS, first of
all as the J3 for a combatant commander was actually
malfeasance. I turned the JSTARS, the Joint STARS, over to the
J2 who was more than happy to go ahead and take it from me.
That was then Brigadier General John Custer, later Major General
John Custer. And the Joint STARS did an amazing job, mainly
collecting for the future, forensics, picking up, finding out
where IEDs were laid, taking the films. We could bring them
back. Then we could walk the dog back and find out where the
perpetrator originated from. So justice would be administered
at a later date but the key point is, real time. Trying to get
left of boom instead of right of boom. Most of the time when
that happened on a good day we found it and then we got the

tapes and walked it back. On a bad day it went off and some young man, young woman, some warrior paid the price.

So I won't want to pooh-pooh the collection deck. I think it's a fantastic thing and I'm all about that. But the key point here is, battle management command and control in real time. If you start to take a look at the type of operations, what we're going to expect our young men and women to be engaged in in the future, General Deptula already used the word expeditionary. If you look out there, the Army, building expeditionary units that can be forward deployed with a very light footprint, and when they go in, taking pretty much what they have on their back and what they can carry in to support them.

The same thing happens if you look at the crisis response, Marine Air Ground Task Force, the MAGTFs that are set out there. Now with the Osprey and the refueling capability, along with the 53 Echos with a refueling capability, we can launch from distant shores and fly long distance and refuel. So that young commander who's on board, that assault force, whether it's a raid, whether it's a cordoned force, whether it's a reinforcement type force, we don't want them to leave and land with the same knowledge they departed with. And a platform like Joint STARS in concert with some of our other unmanned aerial vehicles or air-breathing vehicles is the perfect platform to provide that battle management command and control. They can feed what they see and find, whether it's by a ground moving target indicator, or if it's on a coast line. They have the ultimate capability to pick up ships moving. They can synthesize that on the aircraft. With the right people and the right seats, to include somebody from the [raid] force. We ought to be smart enough to take someone from the operations section, put them on the aircraft so when they see the dots move they know what's going on on the ground. They know if reinforcements are coming in. They can change the LZ for the assault force, whether it's Soldiers, Marines or Special Forces, I don't care. But they can give them up-to-date information. And almost more importantly, we can then vector in fixed wing, rotary wing aircraft and we can go ahead and engage the enemy where they are, not where they were when we launched out hours ago, in some cases many hours ago.

So I will say that on the tactical side, as we look at joint distributive operations which is the way of the future. Whether it comes from land based, whether it comes from some type of a sea basing or refuels and goes a long distance, we need to be able to have somebody airborne who has the big picture in real time and can feed information back to that young commander coming in so A, they land at the right space, at the right zone; B, that they get their cordoned forces or they knock those positions out utilizing kinetics from unmanned vehicles or manned aircraft. It doesn't matter to a ground guy. Once you hear -- There's nothing more reassuring than to hear a forward air controller or an airborne air controller say wings level clear hot. They're coming in close to go ahead and deliver that ordnance where it needs to be.

So if you look at the target, the way the targeting equation runs now it's find -- you've got to find them. Out there somewhere. Find the bad guys. Find the enemy.

Then you have to fix them. You can find them with a broad sweep, and then you want to fix them to get that six or eight digit grid that you can then, after you do the find and the fix, then you can go ahead and track them if they start to move in closer.

Then the next step is to target. Who's working up the targeting to go ahead and bring in whatever's going to engage, which is the next step.

Then you have to do the analysis. The battle damage assessment on the ground.

I believe Joint STARS, I don't think, my humble opinion is on the fix piece I don't think they have the cameras and they're able to get that high fidelity degree to go ahead and fix the target, but I'm convinced the find, I don't think there's a better platform out there. The fix, they can either do it or vector in something to do the fix. Then they can do the target, the track, the engage, and then they can come back in and do the analysis. A lot of this stuff can be done before the [raid] force, whether it's Soldiers or Marines even get in there.

If I was a combatant commander or a J3, an ops guy for any of the combatant commanders, I can't think of a combatant commander who would not want that capability. Not only in the ISR side on the find, fix, track, target, engage and analyze but also battle management command and control. An air breather who has common sense and judgment, who can call back to the [raid] force commander in-bound and give them updated information, or updated intelligence if you have the right people on the aircraft.

My bottom line is, battle management command and control, I realize we have to modernize, I realize there's going to be something for the future that's going to be different than what we have right now. But I believe strongly, we cannot sell short the men and women that are going to have to prosecute these types of operations by taking a high demand/low density asset and starting to gear it on down before we know the phase-in plan of the new one coming in. Because it is called Joint STARS. I got it. The J means Joint. And Joint means somebody, in this case the United States Air Force, has to pay the price. I realize it's decreasing budgets. I realize times are tough. And I'm not going to say the Marine Corps' not parochial and if we were in a situation like this we wouldn't look to sustain the capability because we all have other bills we have to pay. So I'm not throwing stones at anyone. I just wish there was a joint pot of money where programs like this that were truly, truly joint, these are enablers and these are concluders. They don't only enable the ground force, they can help conclude the mission and drive the point home. I just wish there was a pot of money that the Air Force could go to to keep this capability sustained at a level that meets the capacity.

I guess I'll close by saying sometimes combatant commanders, and I'm sure there's probably none in the room so I can get away with this, but sometimes as an operations officer for a combatant commander you look at a high demand/low density asset and there are many of them out there. You'll look at who else is asking for them because they're all smart. All the ops folks are smart. They talk to each other. And if you realize it's a limited resource, sometimes we self-restrain. We don't ask for it because we're team players. And sometimes the demand signal, and I saw this on the Joint Staff also, the demand signal can be artificially depressed because folks don't ask for things that

they know there's no chance in hell they're going to possibly get them.

So I would throw that out. As you take a look at a high demand/low density resource or asset, in this case I'm talking Joint STARS, which does give us the battle management command and control and can facilitate the targeting cycle and is really, really, it's early indication and warning which is the life blood for any distributive operation that's going in a long distance, not mutually supported. Not landing next to another unit but going in by themselves where those indications and warnings may possibly mean the difference between not only success of the mission, but in some cases the force getting on the ground safely to accomplish the mission.

With that, thank you very much. I appreciate the opportunity to be here, and I'll say Hooah as I sit down. Thank you.

Col Cyr: We have a limited amount of time for questions so I will go with one and then several of the panel members will be available afterwards. I think several have to leave but they have graciously offered to stay around and talk for a few minutes afterwards.

The first question to the panel overall. Philosophically, how does a commander exercise self-discipline in exercising command and control to not micromanage the tactical operations with the amount of information available from the macro down to the micro.

Lt Gen (Ret) Deptula: It's easy. It's absolutely easy. What you do is you trust your tactical level commanders. What you do is you delegate engagement authority to the lowest possible level. You give engagement authority to the people who are closest to the problem and who can observe what's going on. But you have to create the culture such that we get rid of a mother may I approach. Micromanagement is a disease and it has to be treated as such. We need to teach this from the most basic level on up. But it's all about leadership. And it's all about courage as well in terms of folks who are the subject of the disease to inform the carrier that they need to go see a doctor. [Applause].

Lt Gen (Ret) Sattler: That's pretty hard to improve on. But Stephen Covey wrote a book called *Speed of Trust*. There's an equation right there in the middle of it that says, his simple equation in the middle of the book is "Trust equals competence plus character." The men and women in your command, if they're competent, they know their business, they can be trusted to execute appropriately. They don't need, as General Deptula said, somebody looking over their shoulder. They have established that competency.

Then you go over to their character. Are these men and women of character who are going to do what's right, follow the rules of engagement, and they understand commander's intent. So if you're a commander and you've got warriors who are competent and they are men and women of character, then you empower them. You empower them to go forth and do great things. But the first time you sell them out when they use their judgment and their knowledge at that point, you throw them under the bus or go in and you sell them out and don't stand behind them, that breaks the speed of trust not only for that individual, but all eyes are watching you as the commander.

I think we probably all have some bad examples, but I will also say we have a hell of a lot more good examples where it's been done appropriately.

Lt Gen (Ret) Elder: Let me give you one good example and that was General Buzz Moseley during OIF. He spent very little time on the floor. The trick to that was that he spent a lot of time trying to think through ahead of time all the -- In fact I see a few people that have worked for him nodding their heads. He spent a lot of time trying to think of what all the different possible directions, branches, sequels could be. They'd talk all that stuff through. They basically huddled up.

A football coach can't stop the play and say hey, wait a minute, I really want you to do this. It's all done ahead of time. So a commander to be able to really delegate this down has to have thought this thing through, met with the team, said here's how we're going to deal with these situations so that they know the

intent. So the preparation is really the key to being able to do this.

Lt Gen Handy: I would echo. The preparation is the key in training these men and women to be able to exercise that authority and having those kinds of conversations. I think the places I've run into problems is where it's a little bit fuzzy. Many of us lower level commanders have been there where you're being looked upon as being responsible but you're not being given the appropriate authorities or the authorities are a little fuzzy. So I agree, the preparation is key and understanding where those lines are drawn and then allowing them to exercise that.

Col Cyr: Next question. First to Lt Gen Handy and then to the panel.

For our training requirements for C2 on a day-to-day basis, do you see the shortfalls as technological training or material, some other challenge?

Lt Gen Handy: Yes. [Laughter]. No, really, I'm not trying to be cynical. They span the continuum of all of those things. So as I think General Elder outlined, you really have to back up and be the architect and you have to design the system that you want to aspire to and then you build that, you figure out what tools you need to get there and then you train the men and women that are going to have to execute that.

At this point we are, as General Deptula said, we're executing with a pretty old system and a pretty old set of constructs on how to do command and control, which were once again exquisite and brilliant for a particular day and time and a particular threat. And not so much for the threat that we face in the future.

So I think it's all of the above. The hard part is in a resource constrained environment, what do you give up to get that? Where is the knee in the curve between an evolution in the short term and then a long term fix. But I think what I keep coming back to is all of these great tools for employing

air, space and cyberspace power are useless if you don't have an effective ability to command and control.

Lt Gen (Ret) Sattler: Education up the chain of command also. Sometimes service components or commanders, they know the capability of their system, but don't take for granted a ground person coming in understands what these great tools bring. They may understand the tool, can point to it on the runway, but when it comes to getting the most juice out of it they probably, and I hold myself accountable, hell, we had el Anbar Province. We had all that desert out there. We called it security area. Security area is a way for ground guys to say I don't have a clue. Just hope it's not bad out there.

But the occasion in an F-18 or an F-16 or F-15 coming back, we'd ask them to fly through, looking through a LITENING pod or looking out through the canopy. Just think if I'd had a clue what the hell Joint STARS or other assets that we don't own as Marines but we count on, so shame on the commander for not being smart enough. But I'll take it one step further. Shame on those who do know the capability that these systems can bring, and maybe you're sitting back on their hands when they ought to be beating down the door to drive it home.

Col Cyr: Initially a question to General Deptula. You stress interconnected distributed operations and information sharing data distribution. Today we're not investing in the elements of the system. Can you provide a prioritized discussion of what you think we need the most first?

Lt Gen (Ret) Deptula: Yeah, first we need arecognition of the architectures that you outline or one needs to impose to be able to achieve the objective of distributed control. Clearly a comprehensive answer takes much longer than I've got to be able to give you today, but it's recognition of what I outlined briefly in my remarks, and I think that there needs to be greater awareness of the fact that we need to start paying attention to those critical functions that will allow us to actualize distributed command and control operations. And probably the biggest lynch pin here, and it doesn't take a thermonuclear brain surgeon to figure it out, is the reliability, the redundancy, and the anti-tamper nature of the

links that quite frankly we haven't solved yet. And it is one of the biggest challenges that we're going to have because we are not going to have the luxury of permissive operations in the future, whether they be in air, space, on the ground, under sea, wherever.

Col Cyr: In the interest of time and that the room will be used here in a couple of minutes, again I would like to thank our panel members for their participation and their insights. I'd also like to thank the audience members for your stack of questions. Wish we could have gotten to all of them.

Thanks very much.

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