

Ep. 24: Cyberspace and Space Force

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Good morning, welcome to another episode of the Sword and Shield. I am Chief Master Sergeant Chris Howard. And today I have... - Hello, Major Jeremy Leader. I'm the commander of the 50th Network Warfare Squadron. - Welcome, sir. Appreciate you taking the time today to talk to our listeners, fellow gladiators out there. And just kind of wanting to give everybody a little bit of insight. You and I used to work together years ago. Where was that at? - At 9SOPS, Vandenberg, as the Reserve Associate Unit for the 614th Space Operation Center. At the time, it was the Joint Space Operations Center. - Right. - Now it's the Combined Space Operations Center. Kind of a hub for Space Command and Control. There's quite a few of us former Knights officers now. - Right. - In the 960th Cyber Wing. - We picked up another one over at one of our other units, over at 854. But one of the things that we really wanted to talk about today was some of your insights, right? On the civilian job side, what do you do? - So, as a civilian, earlier this year in July timeframe, I took a job as the deputy director of ECX, which is Cross Mission Ground Communications director in Los Angeles Air Force base. Again, it's currently known as the Space and Missile System Center. There's a lot of change happening right now - Okay. - In Space Force. A lot of re-designations and things. Can't speak on some of the final namings but SMC will definitely be part of whatever ends up becoming part of Space Systems Command. - Right, I know from an outside observer being an individual that used to work within a space as a whole, right? So working prior to becoming a reservist, I worked in one of the space unit and then went to J Spock or 9SOPs with you. And then I moved on to eventually work in the range out in Colorado Springs. You know, as an outside observer, I'm really interested in how space is evolving. And I was kind of hoping that we could kind of talk about not necessarily specifics but just our new, sister service coming on board. What's that looking like in some of the nuances of those changes? - Yeah, again, a lot of change with the birth of the space was actually a... The official birthday is December 20th, 2019. So they're gonna have a birthday coming up 20th of 2020 and I know that they're looking at doing a bunch of different activities and events to kind of help solidify and create that a unique culture and identity for the Space Force but then also pay homage to the history that we had in the Air Force. So the current plan, there's basically Deltas and Garrisons. - Okay. - And three main branches of the Space Force. And that's gonna be your Space Operations Command, your Space Systems Command would be the second and then Space Training Command or STARCOM. - Okay. - The only one of those three has been officially where they've sent out kind of like here's our Deltas and Garrisons and that's the Space Operations Command in that we've that was about last month

where they came out with a bunch of the different Deltas and how the, you know, the Wing Squadron Construct would align to the Delta Construct. - So when we talk about that specifically, right? So we hear these new names, we hear Deltas and Garrisons when we take Air Force lingo together, right. What is the equivalent to a Squadron then I guess? - That's a good question 'cause it's not necessarily always a one for one. - Okay. - But I would say for Garrison's, that's pretty much, you know, translation of a base. - Right. - Or a physical location. Whereas a Delta. So when you think, you know, Wing Group Squadron and the hierarchy there. - Right. - One of the things that they wanted to do is kind of flatten the organization. - Okay. - So you'll have typically multiple Squadrons but no real, like... So you could say a Delta is kind of a group or a wing. - Okay. - Or if the Air Force were to remove the group layer and just have wings... - Okay - And Squadrons, that's kind of like, it is with Deltas - Right. - And yeah, it is kinda hard to, you know, when you look at some that have quite a few organizations in there, and then some that only have or some that are really, really vast. And so it's really not the size of the Delta. It's the core mission and what they're - Okay. - Kind of focused on. - Gotcha. So, I mean, yeah, I think that even the Air Force has played a with removing the groups and it kind of flattened out the organization removing overhead in some of the bureaucracies, I guess, that come with too many layers, right. So I think that'll be interesting, again, from an outside perspective, to see how the Space Force evolves, how that structure looks and what the pros and cons might end up being. What other changes would you say that's a really significant with Space Force compared to the Air Force, right? So I'm trying to get our listeners to understand a little bit more about this sister service. - Well, there are quite a few differences but I think, personally, the strengths that I see are a lot of our similarities. - Right. - Especially, when you look at the overall push for agility, innovation, boldness, those are really the touchstones that General Raymond laid out for the Space Force. And those are very... They're very much in line with the Air Force. And you look at how acquisition processes have evolved over time. And we've gone from being... Technology added in late into a program that's technology creep, and it's going to cost more time and money and watch out, yeah. Program managers and to, you know, let's go demo stuff. We're ready to. - Right. - Try new technologies, bring on new industry partners. So it's the willingness to try new things, again, I don't think it's a difference from the Air Force but it's one of those things that help set the Space Force and Air Force apart from a lot of other. - Right, going from a traditional acquisitions programs, we were talking, cold war, post cold war era before we get into what, you know, more of today. Those acquisition lines were years, right. And we're just trying to speed that up so that we can meet the speed of technology, right. - Yeah and you know, we even see this from the reserve, the cyberspace side, where, Lieutenant General Hawk from 16th Air Force recently said, "One of the biggest problems that we have is getting out from our current infrastructure." - Right. - Our current network infrastructure, you know, moving on to that next thing is really hindered by the stuff that we're dependent on today. And again, that's kind of across the board, when you look at whenever the Air Force wants to do a new aircraft or a new spacecraft, it's always what's currently out there. - Right. - And it can become a contentious battle to move to whatever that next thing is or even try the next thing. So, like I said, the willingness to do that, that

climate's changed. And I will say, there's always been different roads to do stuff quick. It's just, again, there has to be the money and the willingness to give it a shot. - Right. - And space definitely has that history of trying some of those things out. But now that it's becoming a more contested environment, more people are in the game, it makes it even more important that we put some extra focus there. - Right, and now I think that that leads to two pieces I was hoping to discuss today (clears throat) is we look at some of the similarities of cyberspace versus space. I would argue and this is just me, personally, not my position or necessarily anybody else's opinion that space and cyberspace are the two domains that are consistently contested, versus some of our other domains, right. So I think that puts us in a unique position, knowing that no matter where we're at, we're pretty much in some kind of a battle, right. I don't know what your opinion on, on what that looks like? - And go back to the National Defense Strategy. And we'd be term was Global Competition. I think there's a lot of activities that kind of fall into a gray space and the way you phrased it, like kind of like a continuous battle, there's always pressures. There's always a push and pull. So actually, before I went out to a SMC in July this year, I worked at the Pentagon doing a committee on the Foreign Investment in the United States where we would look at when foreign companies invest in U.S. companies and the security implications that has for the Air Force. So when we talk about economic warfare that was definitely the forefront of that. I got to see quite a lot of things and different perspectives. And I think not only talking about Space Force today but I think that the underlying current is just talk about the value proposition of reservists and all the different experiences and things that each one of us brings to the fight. It's just a broad swath that... And each person's unique. - Yes. - So, you never know what job you had is going to help out for future jobs. And so I love the organization structure of the Air Force and Space Force for the career fields, et cetera. - Right. - And all that lining up but I definitely think there's a huge advantage for getting those different experiences and into the organization. - Right, when we talk about contestant, we're not talking about necessarily, you know, malicious adversaries, we're talking about just general. It is when we look at space, you have the commercial aspect of it, then you have the national aspect of it. And a similar within cyber, we have industry involved. We have individuals involved and then of course we have our traditional adversaries in there So, I think that from a cyberspace perspective, as we see space grow, I'm kind of hoping that we see some leading edge stuff that leads into Cyberspace, right. Space is actually a little bit further than we are as, Cyberspace is fairly new as a domain and we've progress. - Yeah. Yeah. It's a great point and a lot of changes. It talked about infrastructure changing kind of underneath our feet. You look at how we moved to a lot of cloud environments. So all the great work that folks at like a cloud one platform, one are doing here in San Antonio. And then in terms of technology development, Air Commercial is moving out. Yeah, Starlink, you look at these space-based mesh networks that may not have to rely on, you know, ground nodes, if all your nodes are in space. So, I think the key thing from a war-fighting perspective is having options. - Right. - Right so if when we talk about resiliency, and having options is definitely all part of that resiliency. - Right. Just to pick your brain a little bit, when we look at it from a global network perspective, right. Now we really greatest space

between space and cyberspace. Don't wait. I mean, you, you hit the point of that. Where is a node, right? Location might not. It's really unimportant when it comes to a global network but when it comes to infrastructure and then also... - In targeting - In targeting (giggling) In targeting as well, right. It starts to come into play, right. I guess sitting there in both of these positions, right. One is a reservist within cyberspace and secondary as a civilian within space. Where do you kind of see those demarcation lines just theoretically? - A lot of them are I would say categories that we create ourselves in terms of... Like you can even go back to the OSI layers... - All right. (Giggling) - And Larry Air. Right? - Yeah - So, we create these artificial constructs to help organize information. - Right. - But I would say, you know, again, there's a lot of different options out there and where that it's only yet where we want to define it. So if we want to change the calculus then than we can and shouldn't necessarily let those artificial boundaries stop us from developing new technology. Especially when you start looking at even farther down the road, like the 20 year, 30, 50 year... - Yeah, the way things are gonna continue to interact. How much, just in the number of years that we've served, how that's all changed, right? You know, it went from a very small amount of data but important data move in to vast amounts of data to include very important to my new items. It's insane how fast this has grown. And it can only imagine the acceleration pace that we're going to hit as technology continues to grow. - I used to have a 2,400 baud modem and a BBS with where I would have text-based computer games - Right. (Giggling) (Indistinct) - It's yeah, quite a long way. - Right, we were joking before we started the podcast about some of those old school sounds right. That modem sound, how that's going away. - I still have a Hotmail account. (Laughing) And when I tell people this, I get these weird looks. Like what's wrong with Hotmail? And I guess it's like one step above AOL but not why it's just kind of telling my age. - Don't tell anybody I've got a Hotmail account too. - So its cyber secure. (Laughing) - No and I think that that's really where I see cyberspace and space being very symbiotic, especially currently even and into the future. What other things do you think from your perspective, are relations with Space Force and cyberspace? - Well, again, some of those, the skills and just that knowledge is foundational. And so I would say as reservists and civilians, you never know where some of the experiences that you have either in the reserves or on your civilian job will benefit the other. And just that cyber experience in general is very foundational. And as we move to new technologies, it's still important to understand kind of where it came from - Right, the baseline. - Yeah I mean, we joke about the old technology now but you know, when high-tech stuff... - Starts to fail. - Starts to fail, you need to have some foundational backups there. - Right, I mean, almost feels like you're recruiting for Space Force, right? - Always. (Laughing) - No, but I think that that holds true, sir. Right, so when we look at a baseline, let's even look at cyberspace for a second and take a step back. It is based out of Comm, right. Communications, same thing with space predominantly, right. When we talk about early space, we're talking about satellites. And even today, that of robustness of space and how contested it is with the vast amount of equipment in space, just for the purpose of moving data from point A to point B. As well as other portions of those platforms. The basis of the one and zero hasn't changed, right? - Well, this is kind of when we get to the plum stuff that... - Right. - It has the potential

too. - Gotcha. But as general information theory, Claude Shannon, your theory is safe for now. - Gotcha (giggling) Right, and it will continue to evolve but how we move ones and zeros as it evolves as we go faster. And then we start to pack it in a different ways, in different formats and using different algorithms to speed up the transfer, as well as the amount of transfer per second. I think that those skill sets that we learned in space and cyberspace go hand in hand and really lead us to the next piece. What else can you kind of tell us about Space Force and where it's kind of heading? - Well, I don't know if folks have heard Major General Crider talk about they want Space Force to be born digital. You typically get a lot of questions about what does that mean? - Right. - But then when you work with the young airmen and see just their technical fluency and a lot of the new technologies and how a lot of that can change and accelerate decision space and how we use that data analytics today and that we didn't use in the past. So it's really just having that foundation again, to then lead to a lot of these higher tech systems, very, very complex. But you know, every airman has just that foundational level of digital fluency. - Right. - It just enables us to move farther faster. - Right. - So it's a great initiative and I think they're starting at right. From the training up and so forward to some of those. - So when we worked together 9SOPs, the big push back then was Space Situational Awareness. Right, and then now you work, your unit has a vast amount of Intel individuals in it. So when we put those two pieces together, at least in my mind, we talk about situational awareness in, and that the born digital piece, how important do you see the Intel piece with cyberspace and space? - It's huge. So when you go back to the original Space Situational Awareness or SSA construct, it was kind of, it came out of the 2007 SSA test were full, yeah. It didn't work out well, it kind of caused a stir with, Oh my gosh! What happens with when people start blowing up satellites? - Great. - So SSA was all about where things are when that's your situational awareness from. But I would say that it's a lot more than that. And so having Intel folks involved is really important. I've used the term Electromagnetic Situational Awareness. So, and then from terrestrial or in space. So I know this is a huge domain and ACC is looking at setting up a new double wing but having people that can sort through all that information or build systems that can do that in short order... - Right. - And give battle ready decision criteria to the decision makers is really, really important. - Right, now I definitely see that there's a lot of value added there, right? And in effort to quickly analyze the environment we're in, through keeping that sustained situational awareness, whether it's Space Situational Awareness, or if we're talking about cyber a situational awareness, right. Both of these environments that are consistently changing throughout the every moment, right. When going back to Space Situational Awareness, that single piece of metal of a blown up satellite, traveling at high speeds can make a huge difference, if it's on a trajectory to hit a communication satellite, right. In the same thing within cyberspace understanding what kind of systems are out there in the domain that may be causing other issues. And that allows for leaders with the situational awareness to make those decisions in a quick manner, without an analysis piece. And that's where that Intel troop comes in, correct? - Yeah. Yes. I definitely think again, Intel, when you look at how those airmen are trained traditionally in the Air Force, it's a different type of foundation in the Cyber Training Foundation, but still

equally important to take a lot of disparate information, coalesce it, views it and into something meaningful and timely. And I think that skillset will always be in demand and not only in the Space Force but in corporate world. - Right. - It's just as a... as we get more and more systems, there's always more and more data. I mentioned data analytics and the ability to be able to sort through so much data, it definitely takes a very logical Intel focus. - Right. - Is that true? - It's almost like mind numbing to how much information has to be looked at in any given moment to make even the simplest decision. So I think that having those analysts get some of those tools that as we see information progress and systems progress so that they can provide real time data and real time situational awareness for leaders is gonna be interesting to see how that progresses. What else do you see is the future of Space Force and maybe some of those interactions with cyberspace? - Well, I would say that Space Force right now is really, really small that in terms of like how they're transitioning. So it's very, we'll just say maneuver over mass. Like it's a very focused on creating, creating effects, not only for Comeback Commanders, but for our international partners. But in terms of how those two worlds really, really collide. Space is very dependent on a very dependable organized infrastructure. - Right. - And so in my role, my civilian role, it's really about making sure that we modernize and maintain those communication capabilities, 'cause if you can't control your satellite and then you can't really do quite a lot in space. - Yeah so it's a floating rock. - Yeah, there you go. And hopefully it's not running windows XP 'cause that's a whole nother subset of problems. We'll get into some other time. - Yes, sir. Right in form of cyber space perspective, right, I know that sometimes we simplify on what a satellites do and is just a router in the sky. But it's amazing how much different things that can happen and how important those two pieces are when we talk about that global network. I didn't know if you had any kind of parting shots or ideas that you wanted to share with our listeners today. - Well, I think the important piece is that again, people always try to be the best that the job that they have own those skills, because you never know how they're gonna be beneficial in other areas. So be it your reserve job or your civilian job. - Right. - A lot of those Cyber Intel type related skills can be used by both the Air Force and the Space Force. And I will say the Space Forces is hiring, right? So you look across the board, (laughing) they're hiring civilians. And again, the partnerships that we have with industry are huge. We're creating partnerships. We're not existed in the past. And so if people have great ideas and want to do startup companies, we're planting a seed funding. - Okay. - So many of those. And so it's just a great opportunity a great time to get into the space business. - Now, I agree, I think that this is a great moment for us to have this conversation because as Space Force, is born essentially, right? We're hitting that one-year mark, it's in its infancy but it's not infinite in its capability, right. It's definitely one of the higher speed services coming right out of the gate, has a lot to offer. - You have to be high speed to get into orbit. - Right, yeah. - It's the prerequisite. - There you go. (Clears throat) But we're able to see a lot of changes and at least a lot of opportunities and the connection between cyberspace and space is just infinite. So, really appreciate your time, sir. Today really appreciate that the sharing, what you know, and kind of helping some of our cyber troops out there, kind of understand where space is going and some of those connections. So... - Thanks for having me. And I will be there in

the future. So I know what's out there. - Yes, sir. Well, gladiators. Appreciate your time. Thank you for listening today. Wish you the best. Thank you for all you do, and have a great day. (Upbeat music)