

4 Ways 5G Can Help the Warfighter and the DOD

The Department of Defense has long led the way in the adoption of cutting-edge technologies in times of both peace and war. Sometimes innovative technologies like radar, which was heavily developed during World War II, have helped to turn the tide of battle. And although we are not in the midst of a global conflict right now, 5G wireless technology is well on its way to supporting the warfighter in future battles.

Game changing 5G wireless testbeds are already proliferating throughout the DOD, with many early applications based on 5G getting ready for testing and deployment. Many other 5G uses and applications will not be far behind these early prototypes.

The focus on 5G in the military was the subject of a lively discussion between four of the top experts in this field during [a FedInsider webinar](#) entitled Leveraging 5G Wireless Connectivity to Support the Warfighter. The following are four of the key reasons that are helping to drive 5G adoption throughout the DOD.

1. 5G for DOD Is Not Just About Speed

When most people think about 5G, the speed of the new networks is the first thing that comes to mind. That's because most of the advertisements being put out by major wireless carriers focus on that one aspect of the new technology. But within the DOD, while the speed of 5G is certainly a benefit, the fact that the

technology is supported by a software-defined network brings with it many other advantages. Some of those advantages may end up ultimately being even more important than speed within DOD operations.

"5G is a lot more than what people see on the TV commercials," said Kurt Jacobs, the Director of Solutions for JMA Wireless. "5G does offer 100 times the speed, but also 100 times less latency, more reliability, more availability and less power consumption. It really is a game changer when you add all those things together."

Removing the hardware requirements that bogged down 4G deployments will also be a key to future innovations, according to Jacobs, because 5G networks only need software infrastructures. He likened the difference between the two by describing 4G like trying to store different size rocks in a jar so that you always have to worry about whether or not the hardware fits. Working with 5G is more like pouring liquid in a glass according to Jacobs, because you can deploy the technology anywhere it's needed.

2. The DOD Already Has Innovative 5G Programs in Prototype Phases

While there was a lot of talk about the future uses of 5G technology in the military, the experts pointed out several programs that are already being tested right now, and which are seeing very good results. One of those is the Defense Innovation

Featuring:

■ Dr. Jeff Kleck

Director, Cyber Portfolio,
Defense Innovation Unit



■ Chris "CT" Thomas

Lead Systems Architect,
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■ Robert Chung

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■ Kurt Jacobs

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Unit (DIU) Private 5G Program designed to drop full 5G connectivity anywhere it is needed, even in bandwidth constrained or contested environments. It could be just as advantageous to a platoon of warfighters operating in hostile territory as it would be to smoke jumpers or National Guard troops working to fight fires far from traditional cellular networks.

"Our Private 5G Program allows us to drop an umbrella network with private 5G connectivity anywhere it's needed," said Dr. Jeff Kleck, the Director of the Cyber Portfolio for DIU. "You don't have any infrastructure requirements or connection requirements, so you can drop it in place and support an entire geographic area."

Another program that is already seeing good results with 5G technology is in telemedicine, where it can support both military bases and field hospitals in equal measure.

"DOD is pursuing a 5G telemedicine prototype at Joint Base San Antonio that is really cutting edge, and what DOD is doing is giving industry a pretty good-sized incentive to flush out those telemedicine ideas that they may have on the shelf within the federal space," said Robert Chung, a Senior Consultant

with the Telecom Systems Business of Dell Technologies. "Clearly there is a dual use civilian capability with telemedicine."

3. 5G Is Inherently More Secure than 4G or 802.11 Wireless Technology

Security is always going to be a big concern with any military operation, and especially when deploying new technologies. The good news, according to the experts, is that 5G is inherently more secure than other wireless technologies that came before it, and the DOD can then layer even more security on top of that.

"We are working right now hand-in-hand with organizations around best practices in security as it pertains to 5G," said Chris "CT" Thomas, the Lead Systems Architect with Dell Technologies Public Sector. "5G also has inherent security benefits that Wi-Fi doesn't provide. For example, most of the data traffic can be encapsulated within the IP tunnel, and that has encryption by default."

4. Innovation Will Follow Once 5G Networks Are in Place in the DOD

There is a lot of work within the DOD right now trying to implement 5G connectivity. And everything that is being done with that in the military is both cutting-edge and innovative. But ultimately, it will really provide the foundation for

some of the amazing technology that will follow once the networks are able to support it.

"We are actually shaping 5G outcomes, and DOD is executing on five tactical areas," Dr. Kleck said. "Those include the supply chain, security, radio access networks, networking and services, and AI and architecture."

Once in place, innovation will surely follow across the board. One example is with augmented reality (AR) and virtual reality (VR) technologies, which already show a lot of promise, and should only get better with a 5G infrastructure.

"We see AR and VR eventually moving from training and simulation scenarios by evolving to the point where they are going to be trusted by maneuvering forces down the road," said Chung. "It's like what we saw when GPS first came around back in the 1980s and 1990s, when a lot of folks did not trust it because they were used to doing things the old way through maps and compasses. But I don't know any soldier today who does not use the GPS system. Once 5G helps the technology to grow, I believe that AR and VR systems will eventually become just as prolific for the DOD and the warfighter."

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