

Connecting Government to the Future with 5G Private Wireless

5G Private Wireless offers the government a simple path to modernize IT and accelerate IoT deployments with improved security advantages, control and cost-efficiencies.

Government investments in IT modernization, increased IoT deployments and multiple cloud applications have raised the issue of the need for secure, reliable networks across the federal, state and educational landscape. To solve for these requirements, industry and government are joining together to build programs to provide high connectivity with security and reliable access.

The 5G opportunity is high on the list of intriguing new initiatives for IT leaders in the federal, state, and public education space. But many public sector leaders are still trying to learn how to get started with 5G technologies and understand the best use cases to pursue for 2022 and 2023. Fortunately, numerous programs in government are already tapping into 5G to streamline operations, connect underserved communities to reliable internet, and introduce groundbreaking tech like robotics and IoT. This is all becoming possible by setting up their own 5G private wireless networks with no telecom carrier required.

Several 5G experts from government and industry recently gave their thoughts about ways to best use next-generation wireless solutions in government service at a [FedInsider roundtable discussion](#). The following are some key points they talked about regarding this emerging technology and the amazing capabilities it delivers.

5G Offers Private Connectivity Options for Specific Use Case Requirements

When 5G was created, part of the highly valuable mid-band spectrum that it can operate on was set aside so that anyone could use it without going through a typical cellular carrier like T-Mobile or Verizon. This allows organizations to create a so-

called private wireless network which can operate within a small area like a military base or a college campus, completely independent of a public or national network. Private wireless networks can also be used for the final leg of broadband connectivity in rural areas, offering high-speed internet to homes and businesses without needing to run hardlines into every building.

"It's now entirely possible to own and operate a network independent of a carrier, which is a unique ability of 5G and the new spectrum model," said Kurt Schaubach, the Chief Technology Officer of Federated Wireless, a company that helps to set-up and deploy 5G private wireless networks. "And when we talk about these new private networks, we truly mean that it's private from the context of the radio access network and the core network functionality. Even the data traveling through the network remains entirely on premises."

Schaubach added that the new private wireless networks enable a higher level of security compared with having to rely on a public infrastructure. And it also affords greater control, because the agency or organization deploying it owns every single piece of that network. For example, applications like virtual reality-based training or end-to-end tracking and automation programs within massive warehouses can be given all of the bandwidth they need to operate flawlessly within a private 5G network.

Shared Spectrum Improves Communication Efficiency

Shared Spectrum allows the military, civilian agencies and even private organizations to use this new spectrum access model to create private 5G networks with unique security advantages,

Featuring:

■ Sal D'Itri

Public Sector Technology Advisor, National Spectrum Consortium



■ Amanda Toman

Director, 5G Transition Office & 5G Cross-Functional Team, DoD



■ Edward Jennings

Solutions Architect Chief, Systems Engineer & Mobility Subject Matter Expert, Defense & Civilian Sector, SAIC



■ Veneeth Iyengar

Executive Director, Louisiana Broadband & Connectivity



■ Kurt Schaubach

Chief Technology Officer, Federated Wireless



and without interfering with one another. That is because private 5G networks can be designed to work within set geographic areas, and also because there is more than enough spectrum for everyone to use without overlapping.

"So, the military is able to use the spectrum at the same time that commercial industry is building 5G networks in that same area," said Sal D'Itri, Public Sector Technology Advisor for the National Spectrum Consortium. "We've also seen the evolution where folks in the public sector are able to leverage the new 5G networks while also building

their own purposeful networks, enabling them to leverage an incredible ecosystem that has never been available before."

This has led to better communication on numerous fronts including building smarter and more streamlined logistical networks. Nowhere is this more evident than within the military, which has become a leader in the use of private 5G wireless networking. Currently, private 5G pilot programs within the DOD are deployed and operating at many bases and test sites across the country.

"We currently have 12 different military bases that have stood up 5G programs and are working with various stages of experimentation," said Amanda Toman, the Director of the 5G Transition Office and the 5G CFT for the Department of Defense. Toman oversees shepherding those new 5G programs into the DOD, and says she is excited to see the new capabilities that they offer.

"We have two smart warehouse efforts already stood up," she said. "And we also have augmented reality and virtual reality programs supporting the tactical training environment."

Toman said that future efforts will include getting more 5G programs to come online within the DOD and working to define how groups within the DOD can share assets using the 5G spectrum.

5G Offers Robust Security for Government

Whenever any new technology starts to deploy, there are always going to be security questions. However, 5G has many advantages when it comes to cybersecurity compared with traditional wireless networks. That is especially true when talking about private 5G wireless networks, because almost the entire infrastructure is software based, owned by the organization deploying it, and only exists within a very tightly defined and highly controlled environment.

Edward Jennings, the Solutions Architect Chief and the Systems Engineer and Mobility Subject Matter Expert for the Defense and Civilian Sector at SAIC has worked on many cybersecurity programs involving private 5G networks. Jennings says that one of the things that makes 5G really good for government use is the fact that because almost the entire infrastructure is software-based, it enables agencies to take a layered security approach that can stand up to any attack.

"If appropriately configured with an appropriate infrastructure, you can easily develop a campus-wide solution to protect classified information," he said.

Another property of private 5G wireless that makes it especially useful for the military is the fact that communications over a private 5G spectrum do not natively travel very far and can be further directed to only cover very specific areas. Someone standing outside of a private 5G network may not know that the network exists, and probably won't even be able to detect it.

"Because of the spectrum, you can create a very tactical cloudlet for the military," Jennings said. "With 5G, you're already operating at millimeter wave frequencies, so their penetration into the surrounding environment is very small."

5G For State and Local Government

For state and local governments, the new 5G wireless technologies coupled with massive federal funding from post-pandemic programs is creating a once in a generation opportunity for states to connect all of their underserved communities to broadband.

Louisiana is a perfect example of a state with broadband challenges. It's a large state where even the geography can be challenging for broadband access because of its many water-

ways and low-lying areas. It also has a high number of rural areas that have never had access to reliable, fast internet. But Veneeth Iyengar, Executive Director at Louisiana Broadband and Connectivity, says that the new funding coupled with 5G and other communication options will enable the state to finally provide broadband to connectivity to everyone who lives there. Iyengar arrived to the FedInsider panel discussion late because he was attending a groundbreaking ceremony where one of the first rural communities in Louisiana to take advantage of those new programs was starting the process of getting connected to fast internet for the first time in its history. He said he looks forward to providing connectivity to underserved communities across the state, and then adding even more applications, programs and capabilities on top of that.

"Our goal is to invest in making sure people have access to something that's scalable, reliable and affordable," Iyengar said. "And then we're going to continue to work with that same level of urgency to drive home the investments that we already have, but also leverage those investments for some of the more cutting-edge stuff we also want to focus on."

More communication and connectivity options, the ability to create a private 5G wireless network, full control over the infrastructure, multiple and layered security options, and even the ability to hide networks from anyone outside of a designated area makes 5G a great option for government agencies, state and local communities. Underserved communities are also demanding access to support their citizenry with carrier level services sooner rather than later. All of that means that 5G has a bright future in government, with many more great use cases just waiting to be discovered and deployed.



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