

Kyndryl Private Wireless Helps Navigate Network Transformation

Highly secured and reliable enterprises need highly secured and reliable networks. Today's enterprises must adapt as private wireless networks are positioned to be the next key to networking success.

According to Paul Savill, Global Practice Leader for Network and Edge at Kyndryl, enterprises must prioritize the ability to rapidly deploy products and platforms in an agile manner. As operational costs rise along with application pace, data volume, and user requirements, global industries are pivoting away from traditional network infrastructure.

A recent report from global technology intelligence firm ABI Research showed the overall market for private networks within enterprise industry segments will reach \$109 billion by 2030. These networks offer enterprises transformative opportunities.

WHAT IS A PRIVATE WIRELESS NETWORK?

An enterprise private wireless network is deployed using spectrum frequencies reserved exclusively for a customer environment. That spectrum is separate from frequencies controlled by commercial mobile network operators.

"It's important for customers because by having that ownership and control they can make sure that [a network] performs to the level that it's needed for," Savill said.

Enterprise private wireless networks have traditionally used WiFi technology. However, recent regulatory changes have opened access to new spectrum frequencies targeted at private wireless networks.

Consequently, a new cellular tool has been added to the private wireless tool belt; private LTE and private 5G.

Cellular technology is designed with dedicated radio and localized equipment that can support IoT and artificial intelligence in strategic indoor and outdoor operations. These cellular-based networks can be deployed in standalone or hybrid models, and incorporate technologies like multi-access edge computing to support low-latency applications.

"When we have very high mobility applications, such as workers walking around a plant, walking around the warehouse, we can virtually guarantee coverage as you move throughout the building with no drops," Ben Brillat, Global Domain Leader for Advanced Wireless/5G and Edge Computing at Kyndryl, explained. "With these new use cases able to move wirelessly, it's really going to change the business model."

PERKS OF GOING PRIVATE

One of the primary benefits of a private wireless network is increased control for the enterprise as there is no reliance on traditional telecommunication service providers. That control has a number of dimensions.

Savill explained this includes control over managing network throughput and bandwidth, determining what gets to connect to the network and how it connects, and the usage policies around what a device can access once it's on the network. Private networks can also tap into optimized spectrum bands that allow for broad coverage across indoor and outdoor environments.

"With relatively few antennas for a cellular solution you can provide coverage of your entire port or your entire lot," Brillat said. "Whereas with WiFi it's much lower range. That's just one way that cellular has an advantage over WiFi."

Other benefits include seamless performance for highly mobile devices like driverless vehicles at ports, warehouses, and factory floors, as well as high bandwidth and low latency for applications such as augmented reality and video analytics.

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In addition, private networks allow enterprises to apply their own security model. This includes the use of SIM-based authentication, strong air interface ciphering, and equipment, user, data, and network layer security.

"The ability to dynamically rearrange power, deliver service where you need it, and individually allocate different security roles to devices just based on the provided wireless identity is very important," Brillat added.

PRIVATE NETWORKS IN PRACTICE

Private network use cases can be found across most industry verticals. Savill said the industrial sector is a primary example.

“Probably the most widely adopted use cases are found at industrial sector deployments and factories, where private 5G and LTE solutions really make a lot of sense because of the amount of security that’s required to support what’s going on in a factory environment,” he added.

Cellular network technologies like 5G and 4G LTE rely on licensed spectrum and embedded security standards that provide a stronger security posture if implemented correctly.

Private wireless networks also support extreme quality of service requirements. The alternative – connections failing – can have costly implications financially and for worker safety.

Brillat pointed to one example where Kyndryl implemented private wireless networks for energy production environments. These facilities are made up of large buildings that are difficult for traditional wireless penetration and have areas where flammable gasses are present.

Unlike with WiFi, which requires installing a router in each area of a facility, private cellular networks are able to cover these spaces with only a handful of base station antennas.

“This has meant going from a facility which measures in square miles having no wireless connectivity because it was just impractical and cost prohibitive to do so before, to having complete wireless coverage of the facility,” Brillat said.

This changes the day-to-day workflow of employees, he added, as they’re now able to more easily accomplish certain tasks. Something as simple as pulling up the PDF manual of a part while out at a site – not having to drive back, look up the PDF manual on a computer, print out a page, and then drive back – can save hours per day.

NETWORK DEPLOYMENT DETAILS

A private wireless network is compelling in theory, although enterprises might be discouraged by the deployment details.

“It’s not something that a typical enterprise IT department is going to just be able to say, ‘oh yeah, I would love to deploy a private 5G network – I’ll get the manual out and read how to do it and get it turned up next

week,” Savill explained.

Network implementation is a complex process. For a smooth deployment, enterprises have to understand the spectrum they’re going to use and match it to technology they’re going to deploy. In some cases, just acquiring spectrum can be a headache.

Technology selection, design, and deployment can also be tricky. Every environment is unique, and networks need to be deployed specifically to meet distinct use cases and customer operating environments. There needs to be considerations for connecting to local area networks, wide area networks, and the public cloud so data can be transferred or analyzed.

“All these things have to come together for an enterprise to effectively use it,” Savill added. “But, I’ll turn the corner on that and say that for enterprises that do leverage this technology there are tremendous advantages that take place and great opportunities that it creates for them because this technology really allows them to transform their operational processes.”

KYNDRYL SERVICES FOR ENTERPRISE PRIVATE WIRELESS NETWORK

Kyndryl recently launched a partnership with Nokia aimed at alleviating the complexities of leveraging private wireless network technology. As a service provider, Kyndryl provides optionality by analyzing an enterprise environment and pulling together all available technology choices.

Kyndryl can also assist enterprises in understanding the cost structure of building, running, and maintaining this type of network, as well as integrating IoT devices and services.

“We have experts who know how to do wireless site surveys, who know how to engineer wireless networks to meet the coverage of the particular use cases,” Brillat said.

Once a private network is installed, tested, and running, the Kyndryl day-two managed services organization provides ongoing management and monitoring for operations of the network to keep it running and healthy for the lifetime of the project.

Visit the [Kyndryl website](#) to learn more about their private enterprise network services.