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A Frost & Sullivan White Paper

# Connecting the Enterprise With On-Premises 5G

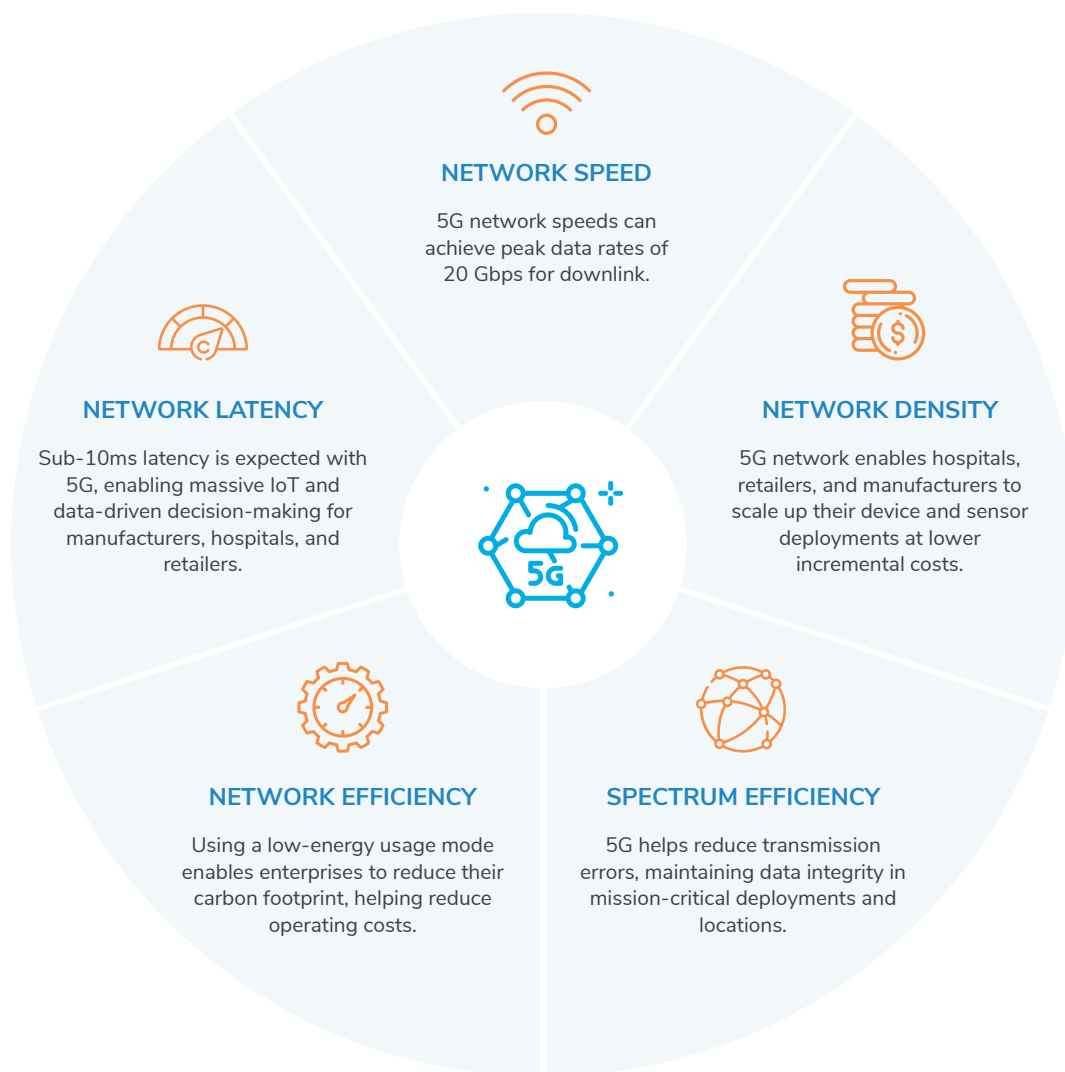
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The rapid advancement of connectivity solutions has given enterprises the option to gain more comprehensive on-premises network coverage. High capacity 5G networks are an evolution of 4G LTE with markedly superior speed, efficiency, latency, and density. A customized mix of 4G LTE and 5G (supplemented by existing fixed-line and Wi-Fi networks) enables enterprises to optimize connectivity at each facility and support all use cases—enterprise performance, user experience, and innovation.

**Exhibit 1: 5G Network Superiority**



Source: Frost & Sullivan, Qualcomm



Cellular infrastructure coupled with existing fixed-line and Wi-Fi solutions will provide uniform connectivity to a whole building and remove all dead zones. This makes it easier for enterprises to prepare for scalable connectivity for any purpose—office equipment, staff mobile devices, IoT, digitization, and innovation—without the fear of network capacity overload.

Costs play a significant role when determining which technology to use to improve connectivity and optimize IT operations. Small cell deployment and the eventual indoor connectivity convergence (e.g., a wireless floor with Wi-Fi and 5G small cells in the ceiling) may ultimately save money by eliminating cabling costs and increasing flexibility for the enterprise to adjust capacity or evolve with device ecosystem changes.

High-speed broadband, beginning with 3G and then 4G, sets the stage for IoT by delivering ubiquitous device connectivity. Very soon, the IoT ecosystem will lean heavily on 5G to enable a wide range of applications as customers leverage IoT to improve their operations. High bandwidth applications such as computer vision, robotics, and magnetic resonance imaging typically transmit tens of megabytes (MB) of data per second. Numerous devices cause congestion, increasing latency and reducing network and spectrum efficiency.

5G and new massive machine-type communications (mMTC) devices will help address data capacity issues. The new devices will not consume as many resources, as much power, or as much data, allowing enterprises to focus their efforts on fully implementing digitalization strategies. The cost savings from the eventual wireless convergence can be reallocated to create a seamless integration of systems and cloud migration.

The ability to use mobile-edge computing (MEC) to shift computing resources away from centralized cloud infrastructure to the network edge will enable enterprises to capitalize on lower latency and bandwidth optimization for near-real-time data-driven decisions. IoT deployments augmented with MEC add tremendous value to enterprises because they deliver business insights that can help increase ROI on their connectivity investments.

5G and MEC together can offer compounding benefits, especially for applications and data use cases that require optimal responsiveness and security:

- In manufacturing, use cases include predictive machine maintenance, remote quality inspection using high-resolution images, and collaborative robots (cobots).
- In retail, 5G and MEC enable use cases such as the optimized fusion of virtual and physical (phygital) worlds for a personalized shopping experience and predefined preferences depending on customer location.
- In healthcare, 5G and MEC enable use cases including near-real-time mobile delivery of rich medical data sets, cloud robotics for assisted living or rehabilitation, remote health monitoring, and precision telerobotics surgery.

Across all use cases, security is of paramount importance. As 5G networks are entrusted with communication and connectivity across all aspects of the economy, the amount of resources and breadth of capabilities that major network operators invest in their security eclipses anything available to a typical in-house IT team.

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