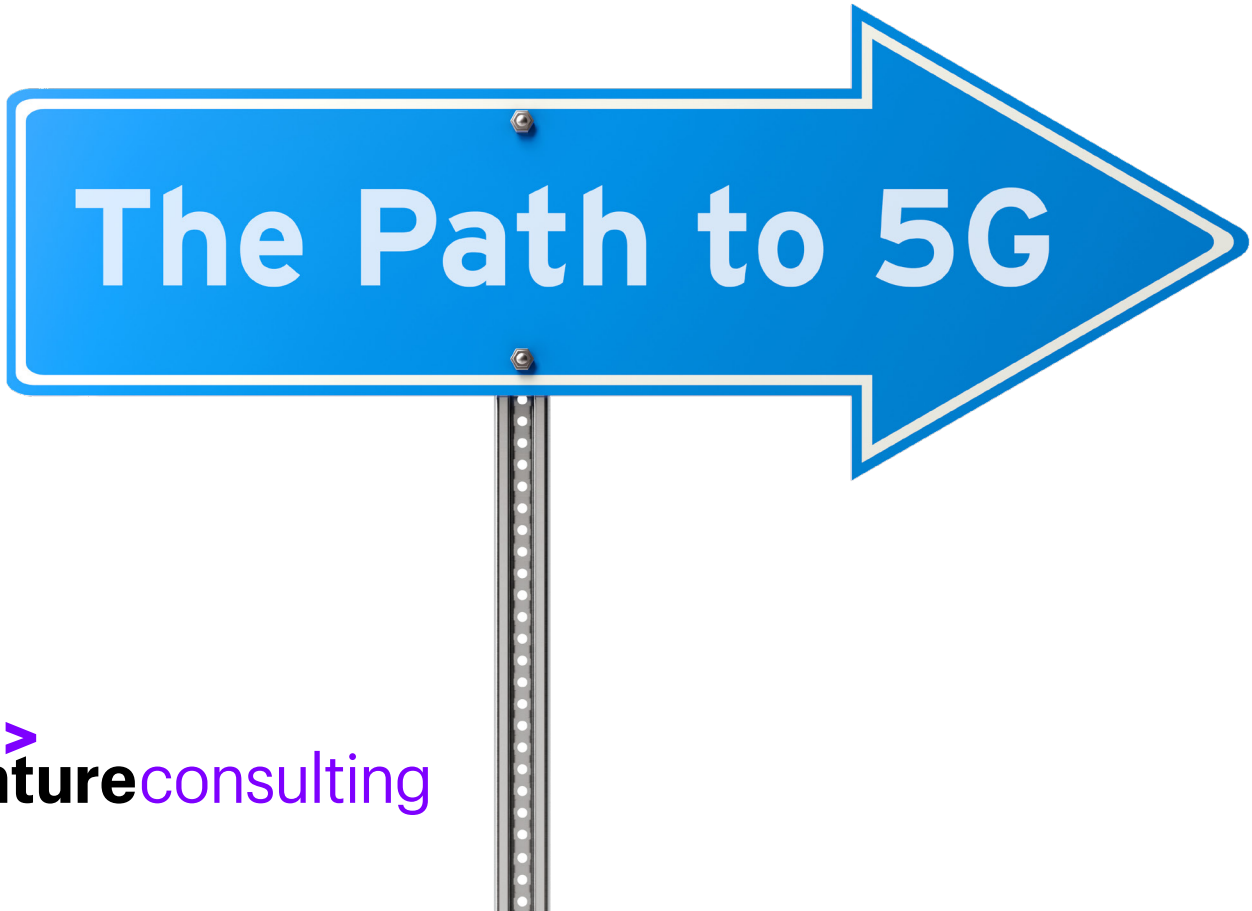
KEY OPERATIONAL IMPLICATIONS FOR THE NEW 5G PARADIGM

The Path to 5G: Are We There Yet?



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A wide variety of 5G capabilities are driving diverse use cases ranging from low-latency IoT to high-bandwidth video. In the process, the complexity of 5G networks is being impacted by the delicate balancing act among several factors, including throughput, latency, reliability and the number of devices.

Addressing the challenge of maintaining this balance will require a new paradigm for network funding, design, build and operations. This new paradigm will have implications across several important operational areas, including spectrum requirements, partnership arrangements, network features, management tools and data analysis.

SPECTRUM

Compared with 4G, 5G will address a wider portfolio of spectrum. The mmWave (millimeter wave) band, with wider channels and limited propagation distance, can help in scenarios where higher bandwidth is needed within a limited geographic area. For example, in dense urban hotspots, malls or stadiums, mmWave band can be a good solution for providing high-throughput and/or low-latency services, while low-band spectrum may be useful for services that demand higher reliability but do not require a great deal of bandwidth. For mixed services such as VR, which requires both low latency and high bandwidth, suitable aggregation of multiple spectrum bands will be key.

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PARTNERSHIPS

Deploying 5G at scale will require the use of asset partnerships. Many high-reliability services will demand coverage in far-flung areas that are on the fringe of current networks. For example, utility power plants tend to be in remote areas where providing high-bandwidth services is cost prohibitive for carriers. However, a partnership with a utility, where the carrier leverages the utility's communication infrastructure and network and is accessible to both the utility's and the carrier's retail customers, can be a win for both. This will require a commercial agreement between the carrier and the utility, based on the delivery of service quality and assured mutual benefit.

Another example where asset partnerships can be helpful is an indoor mall, which, in addition to being indoors, must accommodate a high concentration of people. The challenge here can be alleviated through a partnership with the mall operators, who can enable the mounting locations, power supply or cabling infrastructure that leads to a viable solution.

NETWORK FEATURES

5G provides several additional network capabilities that support the coexistence of mixed-use cases with divergent requirements. Unlike previous generations of wireless technologies, the NR (New Radio) interface enables several structural flexibilities that permit network resources to be split between high-bandwidth and low-latency applications within the same frequency channel. Network slicing, another relevant capability, permits end-to-end service with predefined qualities and a predetermined level of data security, thus affording a more comprehensive framework than the QoS capabilities of 3G or 4G networks. However, even for some commercial customers with mission-critical requirements, adoption can be hindered by a lack of comprehensive services, quality assurance and data security.

MANAGEMENT TOOLS

When we look at the need for a larger number of nodes due to short propagation distance or mmWave bands, a great deal of network complexity is introduced by new capabilities such as network slicing, flexible air interface with NR, and the need for new types of asset-sharing agreements and SLA monitoring. Under such circumstances, introduction of a new breed of network management tools that leverage AI and other advanced analytics will be critical for the success of 5G.

DATA AND MORE DATA

The full potential of 5G will not be met by designing a one-size-fits-all, best-effort network. On the contrary, a sophisticated data set must be analyzed in order to determine what types of network capabilities will be required, and in which locations. This analysis will be based on such factors as user locations, profiles, behavior, and availability of facilities.

The commercial success of 5G will also be hugely influenced by the adoption of B2B revenue models and customer care capabilities. Modeling the needs and behaviors of B2B customers will entail additional complexity, and as a result will demand careful analysis.

The changes promised by 5G will not happen overnight, but instead through a gradual yet fundamental shift away from how wireless networks have traditionally been operated and toward a more solution-centric approach. The pace of this shift will be hugely influenced not just by wireless ecosystem players, but also by enterprises, consumers and regulators. Ultimately, it will utilize a richer inventory of tools that enables cooperation and co-creation of solutions among network operators and other industry players.

Accenture helps empower the digital businesses of fixed, mobile and cable operators as well as software, high tech and adjacent industries by capturing the promise of the Pervasive Network. Applying our end-to-end framework, we help companies realize immediate value from 5G, while building a defensible position for the future by untethering innovation across the organization and developing next-generation service portfolios.

FOR MORE INFORMATION

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