MFA - The Alliance for Private Networks

Easing The Private Cellular Networking Journey

Executive Summary

Private cellular networking (PCN) is poised to disrupt enterprise operations and accelerate digital transformation, especially in operational technology (OT) environments that have been unconnected or comprise a mishmash of connectivity modalities that do not scale. There are many positive PCN considerations, including improved capacity and coverage, greater control of on-premises data security, enhanced network reliability, availability and performance from a throughput and latency standpoint — all leading to a compelling return on investment. The latter is proving impactful in smart manufacturing, transportation and logistics, and other industrial use cases that integrate IoT sensors supported by PCN's massive device support.

Unfortunately, multiple deployment paths to PCN make it a challenging endeavor for enterprises. The lack of technical understanding of cellular connectivity relative to Wi-Fi is the most typical roadblock. The underlying PCN infrastructure that encompasses core and radio access network (RAN) elements, as well as the required automation and management software, is also new and requires a different level of expertise through the design, testing, deployment, and ongoing management phases. Furthermore, navigating the spectrum requirements to support PCN presents unique challenges in the form of both licensed and unlicensed options. Consequently, enterprises require guidance in navigating a PCN journey.

MFA, the Alliance for private networks, is uniquely positioned to help simplify enterprises' PCN journey. It is a global industry alliance whose mission is to support a modern, ecosystem-wide approach to fill in the invariable gaps that will materialize given PCN nascency. To this end, MFA can provide critical learnings and resources to facilitate successful PCN deployments. This capability spans understanding how to acquire, use, and manage licensed, shared, and unlicensed spectrum. Furthermore, organizations can benefit from MFA's Uni5G technology blueprints that guide device requirements and network deployment scenarios, eliminating potential guesswork that could result in poor deployment. MFA is also aligned with key industry organizations such as 5G-ACIA to further enterprise education through collaborative insight, additional resources, and the latest available spectrum options.

Moor Insights & Strategy believes that given the myriad of available devices, converged core and RAN infrastructure vendor choices, automation and management platforms and use cases — MFA can play a vital role in PCN's long-term success.

Why Consider Private Cellular Networking Today

Is PCN a viable consideration today? This is a conversation that is occurring within many organizations. Cellular connectivity is quickly moving from a business redundancy to a mainstream networking option, especially given the interest in 5G and the new standard's promise of lightning-fast throughput, ultra-low latency, massive device support, including objects in motion, and improved encryption over Wi-Fi. Many PCN 4G LTE use cases exist and are still viable, but 5G is compelling given its recent, highly impactful applications tied to cold storage tracking of vaccines during the pandemic, automobile manufacturer improvements in material distribution, production line configuration and yield, and autonomy in dangerous mining operations aimed at improving worker safety. Subsequently, 5G's dramatically improved core features over 4G LTE make it a logical consideration for certain workloads and use cases, and in greenfield PCN deployments to provide future investment protection.

Identifying the need for PCN is the first step in the enterprise journey, but the second is determining what encompasses a complete network design and deployment. There are many options to consider, including the domain choice that can deliver core infrastructure as a service through the cloud or on-premises, as well as licensed, shared, and unlicensed spectrum. Equally important is the role of system integrators and service providers in non-public mobile network operator PCN service offering scenarios that can serve as a "one-stop shop" to reduce the complexity associated with PCN deployments.

Why MFA

MFA is engaged in several strategic initiatives intended to reduce complexity and accelerate the adoption of PCN.

- MFA's Uni5G technology blueprints are designed to simplify 5G PCN deployments. These tools provide key guidelines related to which 3GPP features, relevant to industrial and enterprise use cases, are necessary to meet expected business objectives and outcomes. Consequently, MFA's Uni5G technology blueprints can also facilitate the healthy growth of the broader PCN ecosystem,

highlighting and recommending ideally suited connected devices and network features and capabilities.

- MFA's Network Identifier (ID) Program allows enterprises to securely deploy PCN with unique identifiers so that smooth operation between neighboring private networks is achieved while avoiding device exclusion due to ambiguous public land mobile network (PLMN) IDs.
- MFA also aggregates resources that track PCN deployments, share lessons learned, and provide the latest available licensed, shared, and non-licensed spectrum options.

CALL TO ACTION

PCN is poised to disrupt enterprise operations, and the resulting benefits are undeniable. However, multiple deployment paths, lack of technical understanding of cellular connectivity, and inherent complexity within the enterprise present roadblocks.

MFA is helping enterprises of all sizes overcome these PCN hurdles by creating an ecosystem that delivers 5G use case blueprints, ongoing education, and spectrum advice that should be wisely leveraged. Regarding the latter, the combination of locally licensed and unlicensed spectrum could prove vital for the long-term success of PCN, a consideration that will deliver needed flexibility to support broader industry demand. Moor Insights & Strategy believes that MFA continues to be instrumental in this regard and in assisting enterprises in the overall PCN journey.

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