Affirmed Private Network Service

Solution Brief

5G promises to be a game-changer for enterprises, enabling everything from augmented reality experiences to automated manufacturing floors. But for enterprises to play in that game, many will need to deploy a private cellular network that can support the low latencies, high bandwidth, strong security, and flexible scalability that these new applications will require.

Unlike current Wi-Fi networks, these new enterprise wireless networks will need to be much faster and more responsive, blend seamlessly with 4G/5G networks, and support a cloud architecture where new services can be readily deployed, orchestrated, and managed for optimal efficiency with full automation. Recognizing the need for this new kind of private network experience, mobile network operators (MNOs) have taken the lead by deploying next-generation private cellular networks at the network edge and in the cloud edge—in effect allowing enterprises to manage and operate their own private networks with minimum capital expenditure and, in some cases, consuming the network as a service.

The network edge is, in a very real sense, a new frontier for operators/managed service providers (MSPs) and enterprises. Instead of delivering everything from a centralized core network, edge networking disaggregates compute, network, and storage resources from the core and places them at the edge, closer to the enterprise. With edge-based private networks, enterprises gain ultra-low latencies (under five milliseconds), dedicated and scalable bandwidth, network isolation for improved security, and higher performance through guaranteed service level agreements. Private network services provide operators with a unique opportunity to modernize and monetize their networks in order to meet the needs of the next-generation of enterprise applications.

Private Networks as a Revenue Driver

The telecommunications industry is expected to invest hundreds of billions of dollars in 5G network infrastructure over the next several years. This investment is in response to the enormous potential of 5G applications, from IoT devices to mobile gaming. The first generation of 5G applications is expected to include:

Augmented Reality

As the market moves to immersive, augmented and virtual reality (AR/VR) experiences, companies will need to deliver these high-bandwidth applications to devices at ultra-low latencies. For some companies, these experiences might look very different – e.g., a service technician performing remote repairs through AR video or a retail customer viewing a product in virtual 3D – but the network requirements will remain largely the same. In nearly all cases, enterprises will want applications closer to the end user, whether that user is in a store, at home, or on a mobile device. Affirmed is partnering with Netmore Group to deliver innovative private enterprise services such as AR/VR and IoT.

Factory Automation

Industry 4.0 promises to bring technologies such as IoT, automation, and robotics control to manufacturing. These technologies will require robust wireless connectivity that extends beyond the current capabilities of Wi-Fi. Creating private cellular networks for manufacturers is a natural application for edge-based mobile services and can include a dedicated mobile core in the enterprise's data center for additional control and security. Affirmed is delivering secure private 5G connectivity to Inventec, a leading Taiwanese manufacturer of consumer technology, to enable smart manufacturing as part of Inventec's Industry 4.0 initiative.

M2M & IoT Systems for Oil & Gas

Mining and energy-related industries such as oil and gas production, refineries, and transport systems are known to generate large amounts of data for logging, recording, storage, and analysis. 5G private networks will allow enterprises to move these high-bandwidth, low-latency services closer to the data source, where traffic can be broken out for local processing and storage on premise-based servers or through high-speed connections to cloud-based servers.

The Core, the Cloud, and the Competitive Edge

Mobile network operators have traditionally centralized services, policies, and network functions in the network core. Moving some of those services and functions to the network edge presents a new challenge, as each private network is essentially a unique network. In order to help operators and enterprises build and manage these networks while leveraging technologies such as mobile edge computing (MEC), Affirmed has combined its industry-leading mobile core technology with Microsoft's cloud capabilities to create a complete turnkey solution for private LTE/5G networks called Affirmed Private Network Service (APNS).
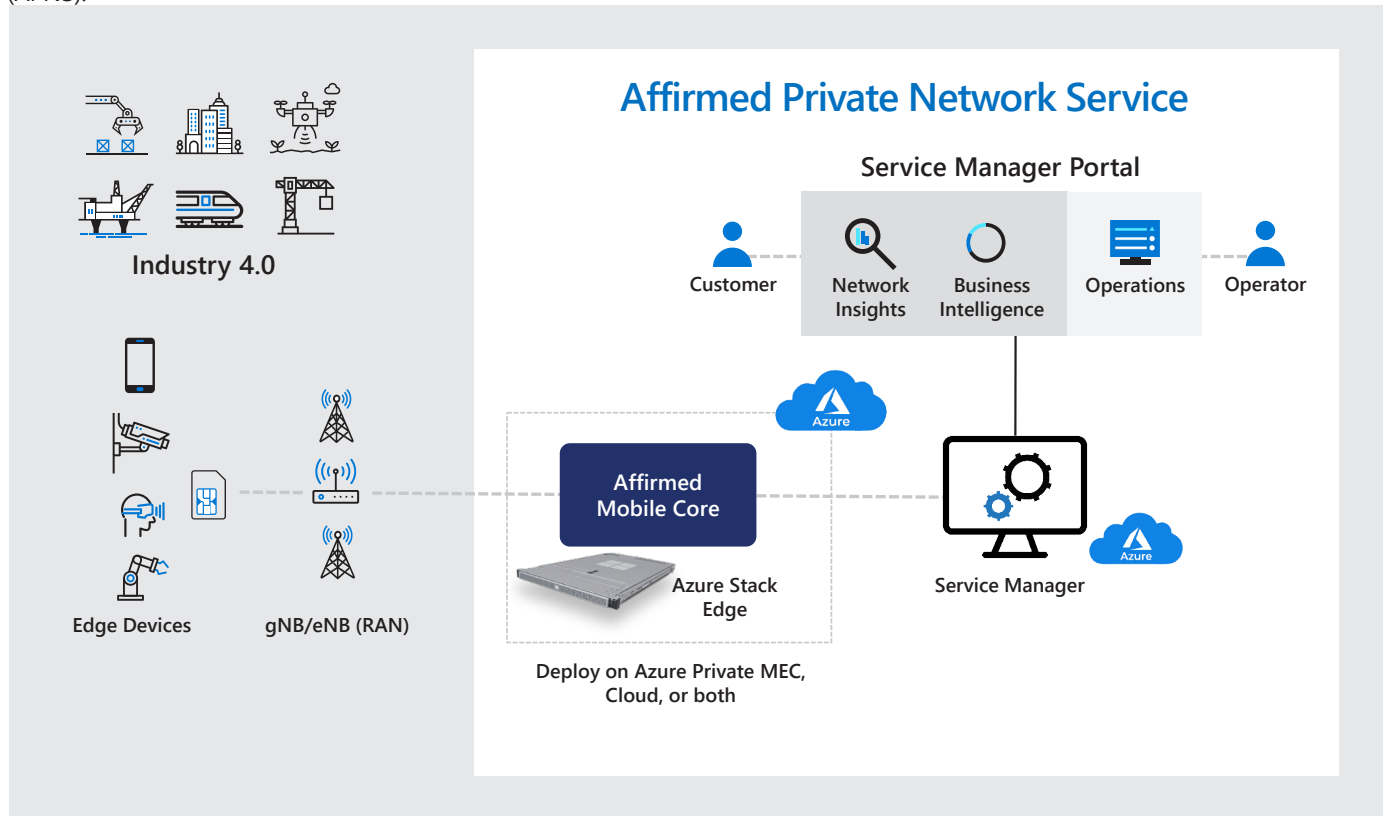

Figure 1. Affirmed Private Network Service

Affirmed Private Network Service (APNS) is a fully managed and configurable private cellular network offering that allows mobile network operators and MSPs to launch Private LTE and 5G core networks for enterprises. The APNS solution consists of Affirmed Mobile Core, Affirmed Service Manager, Microsoft Azure Stack Edge platform, and Azure Network Function Manager. APNS provides the critical core capabilities to support 4G and 5G deployments for private networks at the enterprise edge.

Affirmed's advanced control and user plane separation (CUPS) technology provides maximum deployment flexibility to match a wide variety of customer use cases. Microsoft Azure provides a world-class cloud experience that significantly reduces CapEx and OpEx costs, supports rapid scaling, and allows for an API-driven service platform. Affirmed Service Manager features a complete set of management capabilities including simple self-activation and management of private network resources through a programmatic GUI-driven portal.

Affirmed Private Network Service is built on a cloud-native architecture that allows operators and MSPs to deploy a private mobile network in the enterprise customer's data center cloud or scale the network in the public cloud. No other private mobile network solution offers this kind of flexibility. APNS can be quickly deployed in Azure's public and private cloud to create a seamless, scalable 4G/5G experience that extends to the enterprise edge and beyond.

APNS uses Azure to deliver enhanced security across private networks and enterprise applications, a key requirement for data privacy and regulatory compliance. Together, Affirmed and Azure remove the technology, complexity, and cost barriers to deploying a private LTE and private 5G network. Affirmed's integrated and validated private network solution delivers six important benefits to operators/MSPs and their customers:

Lower Cost of Entry

A private wireless network historically meant deploying new hardware, software, and network functions in a physical location. By enabling operators to deploy a virtualized 5G core in the cloud, APNS helps to significantly reduce the cost of deploying 5G technology. Enterprises, with help of their MSP partners, can simply consume 5G network services in the Azure cloud or on premises using Azure Stack Edge technology. This flexibility enables MSPs to offer a compelling, smart-sized solution to enterprises for initial consumption that can easily scale on demand.

Standards-based Design

APNS features proven 5G mobile core technology that supports 3GPP's 5G architectural recommendations and addresses standardized LTE and 5G network functions to interoperate with third-party solutions, from mobile devices to virtual RANs. Microsoft Azure supports a myriad of standards for network computing, enterprise applications, security compliance, and more. Together, Affirmed and Microsoft ensure that private network deployments can be easily and securely integrated into existing enterprise infrastructures for a true best-of-breed solution.

Simplified Operation and Management

Seamless integration between Affirmed's mobile core technology and Microsoft's cloud technology enables operators to easily deploy and manage private 5G networks remotely, from service orchestration and lifecycle management to maintaining and monitoring KPIs. It further allows MSPs to open network management capabilities to their enterprise customers for self-service tasks such as SIM provisioning, traffic slicing, and network status monitoring.

Flexible Deployment Models

APNS, through its unique CUPS technology, supports all deployment models to deliver the best mix of cost efficiency, performance, and scale. It is the only solution that gives the flexibility to deploy mobile core in standalone mode for site survivability or data residency, in hybrid mode with centralized control plane and distributed data plane at the enterprise edge for faster processing, or all in cloud for massive number of sensor type of devices requiring longer battery life.

MNO Integrated Mobility

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Deep Business Insights

With APNS, operators/MSPs and enterprises can leverage advanced services from Azure marketplace partners, including analytics, AI, machine learning, and other technologies. Enterprises, for example, could analyze their network data through Azure Power BI to gain new insights that could improve business decisions and optimize processes.

Learn More

To learn more about how Microsoft and Affirmed can help your business embrace the future of 5G, visit us at affirmednetworks.com.

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