CHAPTER 6

UNIFYING INFRASTRUCTURE FOR 5G WITH CITIZENS BROADBAND RADIO SERVICE PRIVATE LTE NETWORKS

Healthcare, transport and logistics, manufacturing, large venues, municipalities, and utility sectors will be major spenders in private LTE and 5G networks from 2020 to 2025, according to ABI Research. With the arrival of Citizens Broadband Radio Service (CBRS), enterprises and other organizations have a readily accessible means of deploying private LTE/5G networks.

Unlike traditional cellular spectrum, CBRS is not owned by mobile operators but, rather can be accessed on a localized basis, enabling enterprises and a new wave of managed service providers (MSPs) to deploy private networks to address business and mission-critical use cases that are unaddressed or poorly addressed by alternative connectivity methods. Dozens of devices already support CBRS capability and handsets are in the pipeline.

SPECTRUM

CBRS provides 150 MHz (3550 to 3700 MHz) of spectrum and offers the ability for organizations to acquire spectrum when needed, in a local area at nominal cost, making enterprise-owned private cellular networks possible.
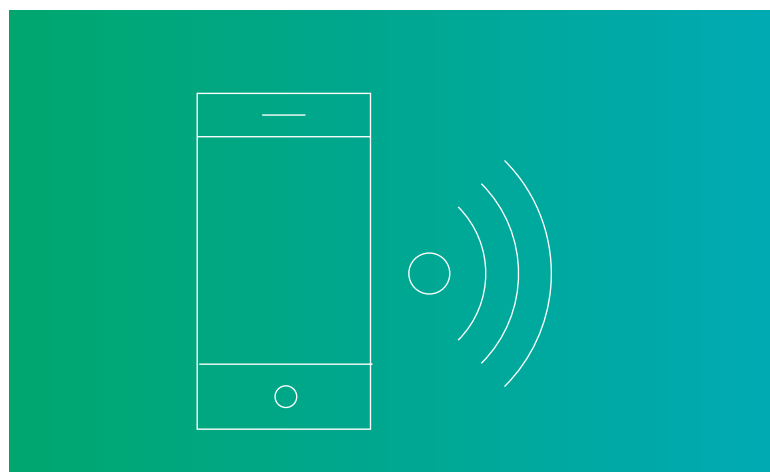
Private network solutions such as the RUCKUS CBRS portfolio make use of the dedicated spectrum to allow enterprises to build a local, private LTE network in-building or outdoors. These private LTE networks enable cellular-like reliability, mobility, security and quality of service but are managed like Wi-Fi networks. The CBRS

Alliance, in coordination with the U.S. FCC, has released specifications to expand CBRS spectrum allocation to 5G.

CBRS COMMERCIAL DEPLOYMENTS AND PORTFOLIO

In 2019, the US Federal Communication Commission certified CommScope's spectrum access system (SAS) to support CBRS for initial commercial deployment. CommScope's Environmental Sensing Capability (ESC) sensor also passed the Institute for Telecommunication Sciences' testing.

While CBRS opens the 3.5 GHz band to wireless networks, neutral hosts, broadband providers and other networks, all operators

need to access a SAS to tap into this new spectrum. SAS allows efficient frequency sharing, interference reduction and the prioritization of the traffic from incumbent users, such as government radar installations.

With the addition of RUCKUS CBRS-band LTE APs and associated cloud services, CommScope's end-to-end solution consisting of SAS and ESC gives organizations the ability to deploy LTE-based wireless solutions quickly and confidently.

Ruckus Networks was a founding member of the CBRS Alliance and CommScope RUCKUS has offered the industry's first FCC-certified CBRS-band LTE APs. RUCKUS equipment

has been deployed across a wide variety of enterprise verticals.

CommScope is not just a developer of CBRS technology; we are also a user of it. At a manufacturing facility in the US, CBRS devices managed by the CommScope SAS provide high-bandwidth, low-latency connections to remote video equipment monitoring the facility while select IoT devices are also connected to the private LTE network.

SIGNATURE SHOWCASE:

COMMSCOPE/RUCKUS DEMONSTRATES CBRS FOR PRIVATE LTE

In 2019, CommScope demonstrated the RUCKUS Citizens Broadband Radio Service (CBRS) portfolio and Attabotics' 3D robotic supply chain automation system as part of Microsoft Azure capabilities for private LTE networks. The demo also highlighted how IoT applications can take advantage of the security, latency and bitrates provided.

Integration of the RUCKUS portfolio with Microsoft Azure's networking and edge connectivity solutions paves the way for dedicated, secure, ultra-high-quality private LTE networks that feature end-to-end encryption.

Ruckus Networks also showcased a CBRS-based private LTE network in partnership with Amazon Web Services, Athonet, and Federated Wireless in late 2018. The CBRS networks enabled the rapid deployment of industrial IoT applications, such as real-time surveillance devices, smart meters, and worker safety monitoring.

More than 120 programmable Amazon DeepLens video cameras were configured and set up in a matter of hours. DeepLens runs deep learning analyses locally on the camera to take action on what it sees.

The FCC-certified RUCKUS Q710 3.5 GHz indoor APs enabled access to CBRS shared spectrum for private 4G and 5G applications

with Athonet BubbleCloud as a mobile core. The network delivered a plug-and-play experience that made it easy to connect, monitor and manage IoT assets at scale.

Typically, network congestion can be an issue with many devices trying to share the wireless bandwidth simultaneously. However, the LTE network was able to do this seamlessly with no performance impact.

Such demos inspire possibilities of other applications using DeepLens and similar devices leveraging AWS applications running locally and in the cloud.