Unveiling the Advantages of Citizens Broadband Radio Service (CBRS)

A Revolutionary Alternative in Wireless Connectivity for the Enterprise

Change is a constant, and more than ever progress has no patience. Modern organizations continue to expand mobility requirements, and the ever increasing cultivating of data. The growing concern over security, and the digitization of enterprise operations is reflected in the demand for private mobile networks on 4G LTE and increasingly 5G technologies. In the ever-evolving landscape of communications, the Citizens Broadband Radio Service (CBRS) is emerging as a revolutionary force, presenting a spectrum-sharing model that promises to provide a reliable alternative in wireless connectivity across industries. CBRS offers a unique approach to unlocking advantages that are reshaping the way organizations deploy and leverage wireless networks.

And, while CBRS is specifically based in the United States, other countries such as Germany, Brazil, Japan, UK and others are expected to follow suit with their own division and auctions of the C-band.

What is CBRS?

CBRS, or Citizens Broadband Radio Service is a specific frequency band and an innovative approach to cellular network deployment known as the “shared spectrum” model.

As a Frequency Band: CBRS, designated as Band 48 (in the United States), unlocks 150 MHz of spectrum within the 3.5 GHz range. This particular band is highly sought after due to its optimal balance of coverage and capacity, making it a prime choice for various wireless communication needs.

As a Deployment Model: The shared spectrum model of CBRS is a revolutionary shift from traditional cellular bands. It allows for both licensed and unlicensed use, allowing for versatile deployment scenarios. Enterprises can leverage unlicensed CBRS for their private networks, bypassing the need for costly spectrum auctions or leases.

CBRS networks are frequently established as “private networks,” which, true to their designation, are networks with restricted access, set apart from the broader public network. This segregation ensures a heightened level of data confidentiality, a critical consideration for sensitive communications. Such private networks can be managed directly by the enterprise itself, offering complete control over the network’s operations and security. Alternatively, they can be overseen by a dedicated service provider, ensuring CBRS merges Wi-Fi’s indoor reach with cellular outdoor coverage, speed, and security creating a versatile network for vast, high-traffic areas.

Why does CBRS matter to your organization?

For many Enterprise customers, their aging wireless infrastructures are approaching the end of their useful life. Adoption of technology trends like AI, autonomous robots, machine vision, IoT sensors, voice/PTT, AR, etc. are proving to overwhelm these legacy 802.11 infrastructures. Furthermore, the need for wireless connectivity to become more ubiquitous is making traditional Wi-Fi a significant cost barrier in specific applications.

CBRS enables enterprise organizations to build their own private LTE or 5G networks, both of which offer wireless connectivity to critical enterprise applications that require wider coverage, interference-free wireless spectrum and guaranteed service level agreement (SLAs) for network performance metrics such as latency and throughput. CBRS enables enterprise businesses, educational institutions, healthcare facilities, and more to deploy private LTE and 5G networks. This availability of spectrum empowers organizations to augment existing wireless infrastructure or extend coverage into areas with limited connectivity, and/or challenging environments.

There are a number of CBRS LTE benefits for Enterprise customers.

01

- Lower deployment cost over large sites / Improved Coverage:

CBRS access points deliver up to 10x wider coverage, creating a significant savings in IT infrastructure, maintenance, management.

02

- Improved Security:

CBRS utilizes SIM authentication and relies on centralized encryption, ensuring a secure solution for device authentication.

03

- Improved Handover:

Mobile devices seamlessly hand over between access points for uninterrupted roaming.

04

- High, Improved Quality of Service(QoS):

A separate network on a dedicated spectrum can improve QoS for critical traffic such as data, voice or point-of-sale.

What vertical use cases should consider CBRS deployment?

While smaller businesses may not see the impact that CBRS brings to business applications, larger enterprises can leverage this new technology to scale their digital automation initiatives as they invest in new generations of use cases and devices.
A few examples are:

- Large outdoor/public venues:
  think concerts, sporting events, festivals with network segmentation over a large area for staff operations, reserving Wi-Fi for guest services in strategic areas
- Warehouse, manufacturing and distribution centers:
  where inventory types/levels are constantly shifting and wireless connectivity at greater range for robots and autonomous vehicles
- Retail:
  dedicated spectrum for staff-operated, enterprise owned devices in congested store environments
- Healthcare:
  private mobile network connectivity for collaboration apps on devices assigned to staff

Enterprises that are considering CBRS as a means of complementing their existing Wi-Fi infrastructure to address a unique wireless application or alternative when replacing a legacy Wi-Fi network need to look for mobile devices that are specifically designed to support the CBRS band, commonly referred to as Band 48 in the US.
Askey Computer Corporation is the world's leading provider of broadband connectivity solutions with a connected portfolio suite of devices, software, management platforms. Askey recently introduced the Askey RC40 - the affordable rugged high performance mobile computer alternative that supports CBRS, integrated barcode scanning and rugged features well suited for Enterprise applications that are taking advantage of CBRS networking solution.

Askey 5G Private Network Solution in US & Europe Markets

01 5G Rugged Mobile Computer

5G Sub-6 CPE

- 3GPP Release 15 / 16
- Support NR Sub-6 Bands
- Support 4x4 MIMO to NR EMEA/Japan/ North America bands
- 5G SA USB-Type-C Dongle

02 5G SA All-in-One Small Cell

SCE-2120 SCU-2070

5G Sub-6 Smallcell

- Qualcomm FSM10016/56+NPU
- SCE 2120 : n48/n77/n78 SA
- SCU 2070 : n78 (3.7-3.8 GHz)
- TX power: 24/37dBm
- 2x2 MIMO
- 32/64 UEs
- GPS/IEEE1588v2
- 2.5G WAN/ 10G SFP+

03 5G Cord Partner

Microsoft Azure

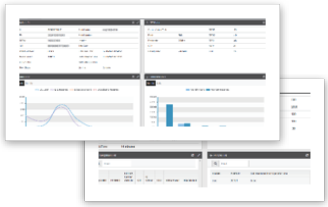
ATAYA

Druid

Saviah
Connecting Intelligence

04 AMP Network Mgmt

Network Management Platform



- Netconf/Yang Model, TR-069, TR-181 and TR-196/TR-262 for Router and Smallcell management
- Init-provisioning for Smallcell
- HTTP/XMPP Connection Request for realtime control
- Customized cellular product management panel

In conclusion, the Citizens Broadband Radio Service (CBRS) unlocks new possibilities for connectivity across industries and applications. CBRS represents a major shift in wireless connectivity, offering a host of advantages that empower organizations to deploy efficient, secure, cost-effective, and innovative wireless networks.

Communication for the future

About Askey

Askey Computer Corporation, a Taiwan-based manufacturer with a global footprint in the United States, EMEA, and Asia, has developed an end-to-end 5G Private Network Wireless Solution. This includes an innovative full-stack private 5G radio solution leveraging 5G indoor/outdoor small cells, CPEs, and mobile devices. The Askey 5G Private Network Solution ensures secure IoT connections and conscious factory operation technologies, driving heightened productivity and efficiency.