DELIVERING BUSINESS-CRITICAL COMMUNICATIONS CAPABILITIES: WHAT'S BEYOND WI-FI?

Wi-Fi has become a valuable tool for nearly all commercial organizations, from small businesses to sprawling, multinational conglomerates. But as the number—and diversity—of devices, applications and users—proliferate, Wi-Fi's weaknesses and limitations have been exposed, putting tremendous pressure on organizations to quell user frustration, enhance productivity and improve customer experience. This has been particularly apparent in settings where unified communications across wider ranges and in diverse environments has become essential to businesses' success. From large manufacturing facilities that require connection while moving from floor to floor, to sprawling resorts and college campuses where Wi-Fi coverage across the entire property is essential— let's face it, Wi-Fi was not engineered to support these types of business-critical communications.

This whitepaper looks at the reasons for commercial Wi-Fi's shortcomings, the impact of its inefficiency and inadequate performance and why organizations should consider a new approach to meet growing bandwidth, communications, and collaboration needs.

WHY WI-FI IS FAILING YOUR BUSINESS

Wi-Fi is everywhere, but its advantages for home use—no carriers or license fees, no cables to run, inexpensive technology, and ubiquity in nearly every device—translate into disadvantages for business-critical installations. Wi-Fi's low barriers to entry and the resulting large number of devices just can't be supported in a large factory, warehouse, or hotel where device density requires an ever-growing number of access points just to keep up. And challenges surrounding Wi-Fi security continue to plague enterprise network administrators around the globe.

For many organizations, Wi-Fi coverage and capacity can't meet unified communications and enterprise collaboration needs. A temperamental access point that causes a security camera to lose its image or poor sound quality from one end of a facility to the other can translate into big problems down the line. When Wi-Fi issues crop up, solving the root cause can be difficult and time consuming for the business. To make matters worse, most Wi-Fi infrastructure can't scale as business needs change, since access points need to be frequently replaced as technologies evolve.[1]

As a result, the demands on Wi-Fi have increased while the quality often decreases. This leaves users to activate their own personal device access points—which only makes the problem worse. More access points add to the noise, limiting the useful bandwidth available to perform critical jobs. Regardless of these challenges, IT professionals need to provide business-critical customers with a reliable solution for all their voice, video, and data networking needs.

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[1] "10 ways to fix your home WiFi problems," USA Today, March 2 2018; "How Long Should My Wi-Fi Equipment Last?," Hospitality Wi-Fi, 2018

UNIFIED TEAM COMMUNICATIONS AND COLLABORATION TRENDS

Device usage among team members is also changing. The bring your own device (BYOD) trend has become the 'right device for the right application at the right time' explosion of device usage. It's rare to see users rely on a single device; most utilize two, three, or more during a given day to perform business-critical tasks and to collaborate with other team members. A 2019 Motorola Solutions Survey found over three-fourths of workers now use multiple devices to communicate in the workplace, with over 90 percent stating it would be important to seamlessly connect all these separate communications devices.[2] Having the right device at the right time for the right person knocks down communication barriers even when users have the need to work on specific devices due to regulatory or safety concerns.

Access to a network that supports this type of unified team communications environment brings intelligence to the network and confidence to users that they can complete their tasks efficiently. The right communications platform enables businesses to:

- **Communicate instantly** by arming front-line and field workers with operations-critical radio-based devices including push-to-talk, built for professional and commercial split-second communications.

- **Communicate without boundaries** to ensure that on-site or off-site, management, frontline workers and field teams are always in touch with enhanced coverage and device interoperability.

- **Communicate with intelligence** using purpose-built apps designed for specific jobs and responsibilities for immediate team mobilization. A communication platform should enable integration of video, work order ticketing, and leverage artificial intelligence (AI) and analytics with enhanced broadband to support intelligence-driven decisions.

Delivering unified team communications capabilities puts ever-increasing demands on connectivity and data consumption—but Wi-Fi alone can't deliver on "all of the above." **What can? Citizens Broadband Radio Service (CBRS).**

2   2019 Motorola Solutions Communications Survey Report

PUT WI-FI OUTAGES IN THE REAR-VIEW MIRROR WITH CBRS

To address these challenges, the Federal Communications Commission (FCC), in conjunction with a group of technology leaders, has allocated a new type of radio spectrum to complement Wi-Fi. This new standard is known as Citizens Broadband Radio Service (CBRS), not to be confused with the CB Radio service popularized by truckers decades ago. Based on LTE radio technology, CBRS is neither 5G nor Wi-Fi 6, although it will co-exist with both.

CBRS operates on a 150 MHz slice of the 3.5 GHz radio spectrum, that was formerly allocated to little-used U.S. government satellite and radar systems. This spectrum is managed and licensed to users through a service called Spectrum Allocation System (SAS), which ensures the band is allocated and utilized properly for the licensed users, without the need for users to apply for a license from the FCC. What does that mean in real-world terms?

First, because the spectrum isn't shared like Wi-Fi, the FCC allows businesses to use more powerful transmitters, so fewer access points are needed to cover the same amount of real estate. In a large space such as a factory floor, a convention center, or a hotel lobby, a single CBRS access point can cover the same area as five or six Wi-Fi access points would have. That translates into fewer installations, lower maintenance costs, and major savings—all with no performance penalty. This reduction in access points is even more critical for large manufacturing or mining operations where many metal surfaces can cause interference from multiple Wi-Fi access points. Adopting CBRS instead of Wi-Fi substantially reduces this "hall of mirrors" effect.

CBRS is also inherently more secure than Wi-Fi. All you need to connect to a corporate Wi-Fi network is an SSID and password, but since CBRS utilizes SIM cards instead of SSIDs, network administrators have complete control over who is—and is not—on the network. No SIM, no access. And if employees leave or devices are lost, SIMs can be disabled to protect the enterprise and device security.

Quality-of-service (QoS) features ensure that an enterprise's CBRS network gives priority to the applications that matter most to the business, whether that is voice, video, data, or inputs from IoT sensors. Because the platform is based on LTE, CBRS devices are optimized to deliver seamless handoffs between access points, which has traditionally been a challenge for Wi-Fi devices as employees move between floors in a building or from one building in a campus to another.

When the economics and performance are considered together, it's not surprising that some industry experts have predicted that services like CBRS could make Wi-Fi outmoded, by delivering a wireless LTE solution that provides the QoS needed as businesses continue to grow.[3]

CITIZENS BROADBAND RADIO SERVICE

MORE POWERFUL TRANSMITTERS, FEWER ACCESS POINTS NEEDED, FEWER INSTALLATIONS, LOWER MAINTENANCE COSTS

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3   "A World Without Wi-Fi Looks Possible as Unlimited Plans Rise," Bloomsberg, March 9 2017

THE ART OF POSSIBLE: INTRODUCING MOTOTRBO® NITRO™ (CBRS)

Motorola Solutions, a company with nearly nine decades of radio experience and a pioneer in mobile communications solutions, is a member of the CBRS Alliance. The CBRS alliance was created to support the development, commercialization and the adoption of LTE solutions for the 3.5 GHz Citizens Broadband Radio Service.

Motorola Solutions has designed a range of CBRS offerings that integrate with other enterprise communication solutions to deliver a completely unified data and voice platform called MOTOTRBO Nitro. Here's what makes Nitro different and ready to help your business overcome your Wi-Fi shortcomings.

Motorola Solutions delivers CBRS as an integrated service, offloading management of the network so that businesses can focus on their operations. Whether a large resort, hospital, or manufacturing facility, Motorola Solutions operates the MOTOTRBO Nitro core in their own data center in the cloud. This approach ensures that everything in the network is up to date and secured. When a software update or firmware change is required, the update is automatically propagated through the network with no IT or user intervention required. The result: No downtime due to updates, and increased security since access points have no external connections for hackers to tamper with.

And although the network management is handled by Motorola Solutions, organizations have complete browser-based control over the aspects of the network that matter to them, such as user accounts, passwords, and channel configurations.

One key difference with Nitro is Motorola Solutions' rich radio heritage. Although email and text messaging are very prevalent in the business environment, at the end of the day nothing is faster than voice communication. Many organizations rely on push-to-talk (PTT), and Motorola Solutions offers a broad range of purpose-built devices for nearly every environment and industry. Businesses can rely on MOTOTRBO Nitro for devices that will always work, access point handoffs that deliver continuous and uninterrupted calls, and that will even act as a Wi-Fi hot spot and bridge to the CBRS network.

Nitro is further enhanced by Motorola Solutions' WAVE™ Work Group Communications, which further extends the power of CBRS by enabling radio-powered devices to communicate with any other device, whether PC, landline, or smartphone.

Here's what enterprises of all kinds can expect from their Nitro deployment:

- **Enterprise grade private broadband:** Don't bring consumer broadband to a commercial site. Get lightning-fast, enterprise-grade CBRS data flowing securely across every level of your operation with MOTOTRBO Nitro. Nitro offers broadband CBRS data speeds, so your teams can share information quickly and efficiently. And with up to four times the range of Wi-Fi, your people will be able to access the network from virtually anywhere on-site, using far fewer access points—whether they're on densely-packed factory floors, at busy airports or by the loading dock. Nitro also has twice the capacity of Wi-Fi, so you'll be able to add more devices to the network without being constrained by low bandwidth or slow speeds. You'll also be able to free your Wi-Fi for other purposes, like increased or enhanced guest access.

- **Full management and control:** With 24/7/365 support and predictive network monitoring, you can offload day-to-day hassles like security patches, maintenance and management to Motorola Solutions. Motorola Solutions will make sure your network keeps pace with technological change and stays up to date with the latest developments and trends. They will also ensure any new network improvements get implemented seamlessly, with zero impact on your productivity levels.

- **Simple infrastructure:** The MOTOTRBO Nitro core is in the cloud, so there's barely any setup, management or space required. And the hardware is ready to go as soon as you are. All it needs is power and an internet connection. And because Nitro is a service, you'll be paying a predictable monthly fee instead of incurring a major upfront capital expense.

- **Extending voice:** Nitro delivers highly reliable push-to-talk over broadband. That means voice conversations will sound clearer and more natural. With excellent indoor coverage, your people will be able to talk freely across coverage zones without losing connection—whether they're on the ground or in elevators. And thanks to Nitro's ability to connect with MOTOTRBO DMR and WAVE PTT clients, instant, seamless voice conversations can occur with a radio in a neighboring facility—or a smartphone across the country.

- **Primed for the future:** Unlike Wi-Fi equipment that can become obsolete every 2-4 years, Nitro is the result of Motorola Solutions' commitment to innovating the future of business-critical communications. As long as the communications landscape evolves, so too will Nitro. Whether that means future integration of video surveillance, a secure operations center, or leveraging AI and analytics, Nitro is capable of growing with you.

SUMMARY

No matter the size of your business or the type of environment you work in, chances are Wi-Fi has become a valuable tool for your business-critical operations. But as the number of devices, applications and users continues to grow along with your business, the weaknesses and limitations of your Wi-Fi network continues to become more exposed. Now, enterprises of all kinds can take advantage of better, more secure and more predictable communications by deploying MOTOTRBO Nitro, thanks to Motorola Solutions' decades of experience delivering voice, data, and edge computing solutions. Where it's impractical—or just too expensive—to install ethernet or fiber, Nitro powered by CBRS can provide the secure backhaul that increasing voice and data pressures demand.

With Nitro, enterprises can bring secure push-to-talk to the smart devices their team is already using, connect radio systems together to support enhanced unified team communications, and freely use the device that suits each worker best, from virtually any location.

For more information on ways to overcome the shortcomings of Wi-Fi networks and ways to reimagine private broadband for your business, please visit: motorolasolutions.com/nitro

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