



NitroTM

PRIVATE WIRELESS BROADBAND



NITRO – YOUR TAILORED PRIVATE WIRELESS BROADBAND NETWORK

For organizations needing to connect a variety of mobile devices, IoT sensors, and video cameras, Nitro™ is a private wireless broadband solution that offers secure and reliable communications. With a hybrid core supporting 4G and 5G technologies and cloud-based system management, Nitro can be deployed quickly and scaled as the organization grows.



As a dedicated, private broadband network, Nitro can be tailored to the needs of your organization. We developed it to deliver the right combination of coverage, capacity, capabilities, cost, control and cybersecurity:

COVERAGE

Nitro infrastructure and devices operate at higher power than Wi-Fi, so Nitro requires less infrastructure for the same amount of coverage area. And because Nitro is your private broadband network, you can have coverage where you need it, whether it's a single-site facility, a multi-site operation, a city or an entire region.

CONTROL

With a private network, you have full control over the system requirements, design, priorities, features, operation and access — ensuring that the system is configured for how you need to use it. Spectrum Allocation Service (SAS) dedicates spectrum for your exclusive use, without licensing.¹ And with exclusive spectrum and SIM-based access, you control what gets connected to your Nitro network.

CAPABILITIES

Nitro offers capabilities that are unique in the private broadband space. Its core supports both 4G and 5G operation, ensuring backwards compatibility and future-readiness. Critical core operations are hosted in geographically-redundant, secure data facilities. Network management is done via a web-based portal, with centralized, secure control over network infrastructure. And coming from a leader in radio communications, Nitro offers robust push-to-talk interoperability with radios and mobile phones, using our WAVE PTX™ technology.

CAPACITY

As a broadband network, Nitro offers plenty of bandwidth for the most challenging data applications, whether it's streaming video cameras, large file downloads, IoT sensor data or internal application data. And because it's your private system, you never have to worry about data caps or bandwidth throttling.

COST

Having a single vendor that delivers an end-to-end solution makes it easy to control your spending. We work with you to eliminate guesswork and surprises, from initial design and specification, through deployment and installation, to everyday operation and maintenance. And because Nitro is your private network, you will never see data overage fees.

CYBERSECURITY

From the ground up, Nitro is architected for security. Your data is encrypted both in transit and at rest. Payload data never leaves your premises; only information necessary to the operation of the network travels to the core. As the core runs in our data center, it is not only secure against physical and data intrusion — it is also always up-to-date with the latest security software. To ensure continued data security, we follow best practices from NIST: the U.S. government agency at the forefront of data security best practices.

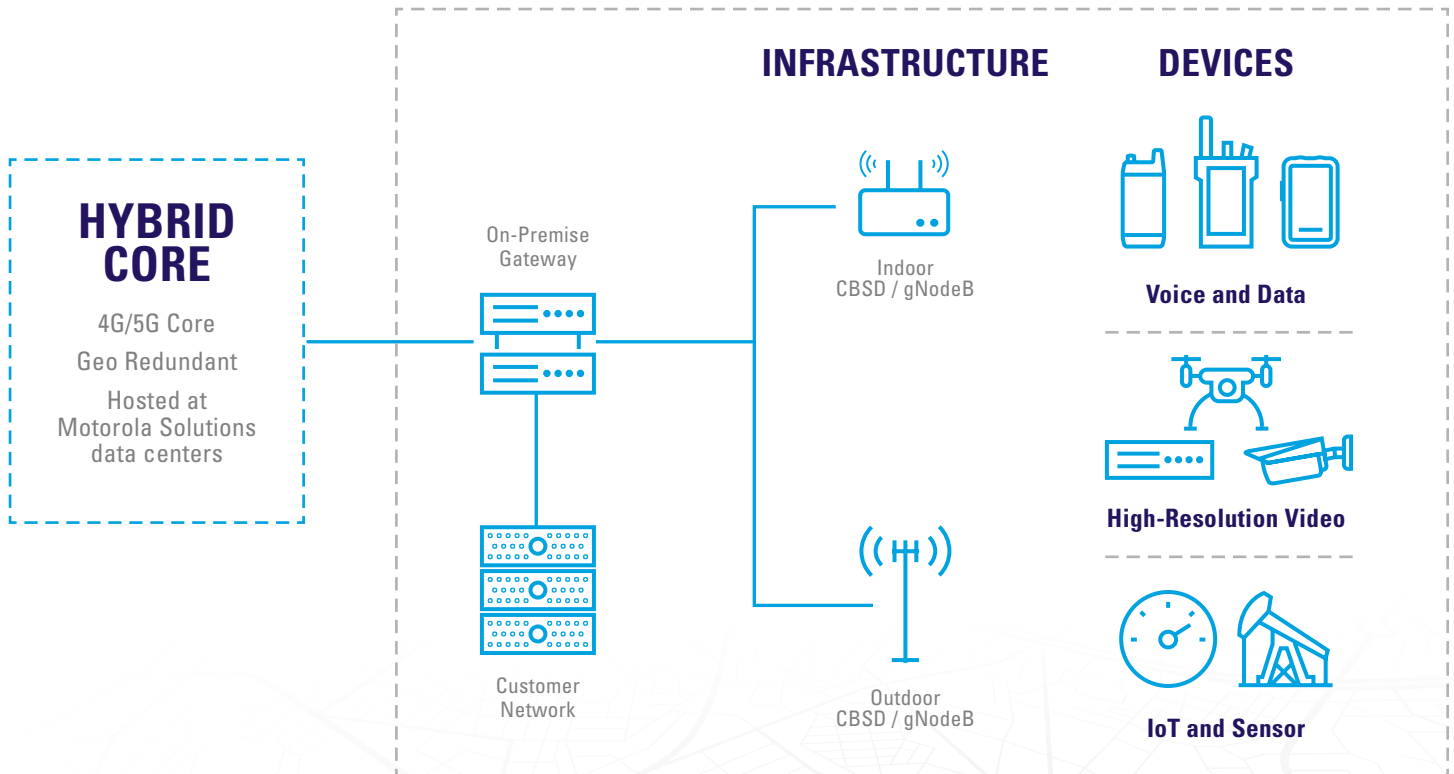
¹ Spectrum Allocation Service is only available in the United States



CASE STUDY

Pittsburg School District Brings the Classroom Home for All Students

The City of Pittsburg, Kansas and Pittsburg Community Schools successfully launched a private broadband network, connecting students in the community with at-home educational resources. Pittsburg officials sought to create widespread community access to reliable internet connectivity to address both the immediate challenge of remote learning and the district's long-term goal of leveling the playing field so all students have the same, immediate access to educational services.



4G AND 5G TECHNOLOGY

You've probably heard a lot about 4G and 5G. 5G technology will provide lower latency and better throughput, to support more advanced applications. The Nitro core will support both 4G and 5G communications and share configuration and user credentials, providing a smooth transition and simplifying the work of system administrators.

SLX SERIES CBSDs



INDOOR SLX 2000



OUTDOOR SLX 4000



OUTDOOR SLX 5000



OUTDOOR SLX 5000

NITRO COMPLEMENTS WIRELINE AND WI-FI NETWORKS

Whether you use Wi-Fi, Ethernet, or fiber, Nitro™ can complement and extend your current networks, making it easier and more cost effective to deliver data.

A Nitro access point offers more coverage and capacity than Wi-Fi, meaning you need fewer access points to cover the same area. Nitro access points operate at higher power levels resulting in the need for fewer access points. Thanks to its scheduled air interface, Nitro can avoid collisions seen with Wi-Fi systems. And unlike Wi-Fi, Nitro supports full and seamless handovers, so a client moving between access points will not experience connection drops.

Nitro also provides a cost-efficient way to extend your wireline broadband network. A Nitro access point can attach to this network and extend coverage more cost-effectively than running new wires — for example, to support a new fixed-video system in a parking garage across the street from your building, or create a temporary coverage area for a special event.

HOW IS NITRO DIFFERENT FROM WI-FI?

Better Coverage

- **Transmission power** - Nitro infrastructure and client devices transmit with more power than Wi-Fi. This gives them more range and requires fewer access points to cover the same area.
- **Spectrum** - As Wi-Fi networks use unlicensed spectrum, at 2.4 GHz or 5 GHz, there are no means of controlling how many users or networks are consuming bandwidth in a certain area. Nitro supports both licensed and unlicensed spectrum, making it easier to avoid interference, improving network performance.

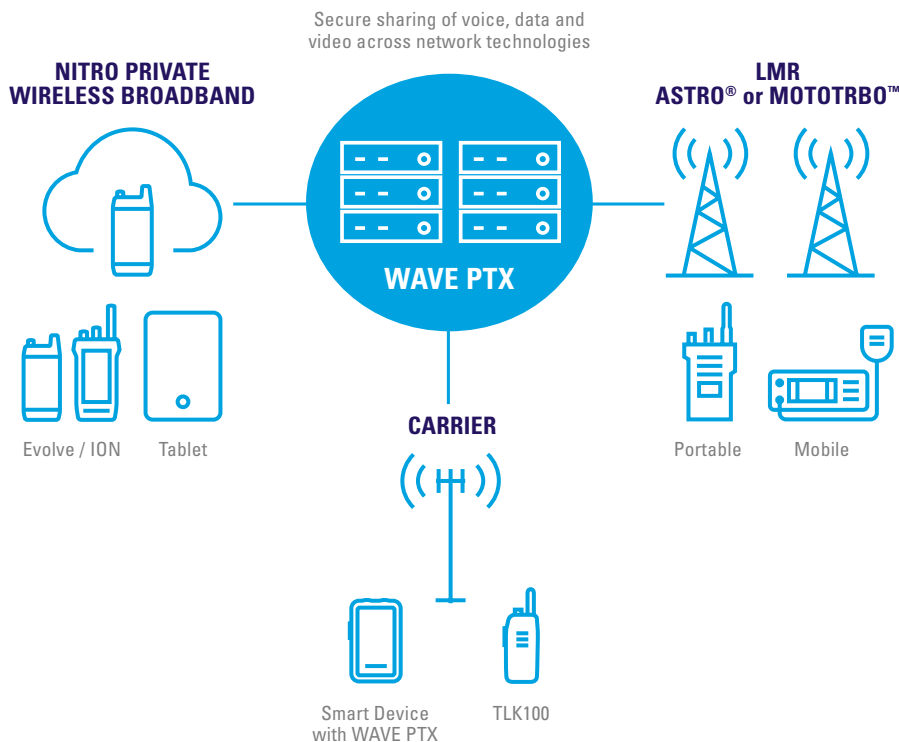
Supports Clients on the Move

As it's based on cellular network standards, the Nitro network proactively and automatically manages device connections on the network and supports seamless handoff when a client device moves between access points. With Wi-Fi, a device breaks a connection to an access point before the next connection is established. If the connection is being used for a voice call or streaming video, the service will be unavailable until the client connects to the next access point. With Nitro's cellular broadband technology, each device/access point connection is managed with a controlled lossless handover between access points, so the call or stream can continue.

By bringing your critical communications over to Nitro - you can also free up your Wi-Fi network for other activities. For example, an airport can use Nitro for operations critical communication and as the network backbone, freeing Wi-Fi for passenger use.

NITRO & WAVE PTX - INTEROPERABILITY IN ACTION

When combined with our WAVE PTX™ technology, a Nitro broadband system enables users utilizing LMR networks or Carrier Broadband systems to talk to one another.



CASE STUDY

Logan Aluminum - Driving the future plant safety and Efficiency

With a massive, 1110-acre campus and nearly 1500 employees, Logan Aluminum's security team sought a solution that could integrate its many systems: from radios, to security cameras, to access control systems and sensors. In addition, the company knew its security needs would continue to evolve over time and sought an ecosystem that made it easy to integrate additional components and solutions at their own pace.

Logan deployed an integrated technology ecosystem from Motorola Solutions, which included Avigilon cameras with next generation analytics, license plate recognition systems, MOTOTRBO radios and infrastructure, WAVE PTX, Orchestrate software and Nitro Private Broadband. Logan's Nitro network and MOTOTRBO LMR system provide a foundation of connectivity, while the Orchestrate platform allows them to apply automatic workflows across the ecosystem, connecting video cameras, radio systems, and other technologies to support comprehensive plant communications and monitoring solutions.





PROTECTED NETWORK FROM START TO FINISH AND BEYOND

Security should never be an afterthought when deploying and maintaining your wireless broadband network. Nitro has you covered from the start of your deployment right through to daily operations.

Threats against communication systems and critical infrastructure are growing in reach and sophistication. Attackers are becoming increasingly pervasive, persistent and proficient at evading security and disrupting operations. Today's organizations can best combat these threats by adopting a comprehensive, multi-layered approach to security. Nitro follows the National Institute of Standards and Technology (NIST) Cybersecurity Framework², a recognized international standard.

² <https://www.nist.gov/cyberframework>

WHAT IS NIST?

NIST: PROTECTING ORGANIZATIONS, PEOPLE AND ASSETS

The NIST Cybersecurity Framework relies on a risk-based strategy by identifying and reviewing the complete range of risks an organization faces. It then identifies five steps required to reduce risk or remediate a situation:



IDENTIFY
Assess Risks



PROTECT
Develop Safeguards



DETECT
Make Timely Discoveries



RESPOND
Take Action



RECOVER
Restore Functionality

The Nitro on-premise gateway allows your data to securely stay in your control and within your local network. Only the absolute minimum signaling data is securely sent to our cloud.

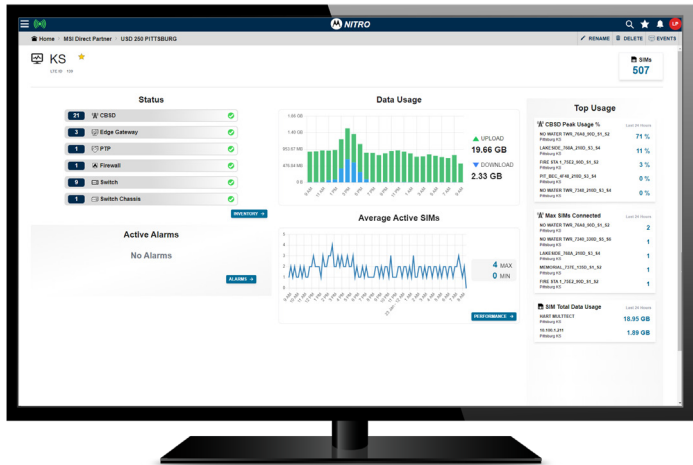
WHAT'S PROTECTED?

Motorola Solutions Hosted Data Centers	On-Premise
Hardened and secure data center protected by firewalls	Equipment is hardened and protected by a firewall
Subject to ongoing fault and security monitoring	Dedicated cybersecurity policies and routing infrastructure protect your private network
All data is encrypted, in transit and at rest. IPsec tunnels from hosted data centers to customer premise	IPsec tunneling extends out to the CBSDs, eNodeBs and gNodeBs

EASY TO SET-UP & MANAGE

As data networks grow more complex, operating and maintaining them can be a challenge. Nitro simplifies your private broadband deployment, with all of its components coming from Motorola Solutions — including its managed core, access infrastructure and end-user devices. We'll make sure that all the components work together, so you can focus on your organization's mission, not its data network.

The Nitro portal provides you a complete view of your system, from infrastructure components to end-user equipment, with a single software platform allowing for increased productivity.





OPERATE AT PEAK PERFORMANCE

We can help you with every step of the way when you are designing and deploying your Nitro™ system — from site surveys, RF planning and design, to system installation and system integration.

Once your Nitro system is up and running, and to support your investment and keep everyone connected, there are a variety of service packages that help keep your system secure and up-to-date.

Learn more at
motorolasolutions.com/Nitro



Motorola Solutions, Inc. 500 West Monroe Street, Chicago, IL 60661 U.S.A. motorolasolutions.com

MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. All other trademarks are the property of their respective owners. ©2023 Motorola Solutions, Inc. All rights reserved. 03-2023 [BG06]