Globalstar™

AI at the Edge

Why Your Private Network Needs to Be Smarter

Executive Overview

The rise of automation and artificial intelligence is no longer confined to research labs or tech conferences. It is unfolding on factory floors, in warehouses, at ports, and across sprawling logistics networks. Businesses are pushing intelligence closer to where decisions are made, moving compute power out of distant data centers and toward the edge.

Edge AI allows machines to process and act on data locally, in real time. This shift reduces latency, cuts backhaul costs, and enables new use cases such as autonomous mobile robots, real-time video analytics, and predictive maintenance. For organizations operating in mission-critical environments, the ability to process data at the edge is fast becoming a competitive necessity.

Challenges at the Edge

But there is a problem. Traditional networks, Wi-Fi or public cellular, were never built for the unique pressures of modern industrial environments. Warehouses, manufacturing facilities, ports, and construction sites are packed with interference sources, heavy machinery, thick walls, and constant change.

Wi-Fi access points often require complex planning and dense deployments to achieve reliable coverage. As operations expand, so does the cost and complexity of maintaining them. Public cellular networks, while broad in coverage, introduce security concerns and unpredictable performance because they don't necessarily provide ubiquitous indoor coverage and are shared with consumer traffic. Both options struggle with seamless handoffs and guaranteed uptime: two factors critical for automation and AI-driven processes.

In environments where every second of downtime can stall production or disrupt a supply chain, these limitations are no longer acceptable.

What's Needed for AI Success

Edge AI thrives on a network that can keep up with high volumes of data, handle interference, and maintain consistency as operations scale

The ideal private network must deliver:

- ✓ High throughput and low latency for real-time control and analytics

- ✓ Scalability to handle hundreds or thousands of connected devices

- ✓ Security and control that only a private, dedicated system can provide

- ✓ Resilience in RF-dense or remote environments

Without these characteristics, even the smartest robots or analytics platforms cannot reach their full potential.

Introducing the Supercell Approach

A new class of private networking is emerging to meet these needs. Unlike traditional small-cell networks or dense Wi-Fi deployments, a software-defined private 5G platform can create a single, seamless "Supercell."

Within a Supercell, multiple radios work together as if they were one giant cell. Devices, such as robots, sensors, or video cameras, stay connected with no handoff interruptions, fewer latency spikes, and greater spectral efficiency.

This architecture delivers:

- ✓ Greater coverage with fewer radios

- ✓ Significantly improved throughput

- ✓ Consistent connectivity in challenging environments

For operators of warehouses, logistics hubs, and industrial facilities, that means improved productivity and less downtime. Robots can operate at full efficiency, video analytics stream without interruption, and operations teams gain the confidence that their network will scale as their automation strategy grows.

Beyond Connectivity: A Foundation for Growth

A software-defined private network also evolves at the speed of software. As AI models, automation tools, and operational demands change, network capabilities can be updated without forklift hardware upgrades. This futureproof approach ensures that investments made today will continue to deliver value for years to come.

How to Get Started

Assess your current infrastructure with a simple question:

Can your network support the next generation of automation and AI at the edge?

If the answer is anything but a confident yes, it may be time to explore a new approach.

Ready to see how a smarter private network can unlock your automation strategy?

Contact our team of experts to learn more.

Globalstar.com