



GlobalstarTM

EBOOK

Breaking Through the Walls: Private 5G for Complex Facilities

Why Enterprises Need a New Approach to Indoor Connectivity

The New Connectivity Paradox

Enterprises face a growing paradox. As buildings become smarter and more energy efficient, they also become far more resistant to wireless signals. Mid-band 5G struggles to penetrate modern construction materials like low-emissivity glass, steel composites, and advanced insulation.

Despite significant investments in public 5G rollouts, reliable mobile connectivity inside large facilities remains a challenge. Adding new macro cell towers is slow, expensive, and often insufficient for indoor coverage. For enterprises running operations that rely on automation, robotics, and always-on data, those gaps translate directly into inefficiency and risk.



Why Traditional Approaches Fall Short

Private networks deliver a lot of key benefits, but can reach a ceiling when it comes to complex facilities. Traditional networks can fail in a few critical ways.



Public Cellular Networks

Public networks were never designed for highly specialized indoor environments. Signals must penetrate walls, travel deep indoors, and support thousands of concurrent connections with low latency. Even where 5G coverage appears strong outside, indoor performance often degrades to a crawl.



Wi-Fi Networks

Wi-Fi remains a valuable tool for offices and light-duty environments. But in large, RF-dense facilities like warehouses, manufacturing plants, and logistics hubs, Wi-Fi's limited range and interference-sensitive design mean endless access points, high maintenance costs, and frequent dead zones.

The Result

In high-stakes operations, both approaches leave critical devices disconnected or unreliable, which is an unacceptable scenario for robotics fleets, asset tracking systems, or safety equipment that must work every time.



Private 5G: Purpose-Built for Modern Demands

A new generation of private 5G networks is redefining connectivity. Purpose-built for enterprise environments, private 5G delivers:

- Dedicated bandwidth and low latency to support robotics, sensors, and automation with confidence.
- Seamless mobility with no handoff interruptions across large, complex facilities.
- Greater spectral efficiency that carries more data with fewer radios.
- Improved security and control by keeping traffic on your own network.

Because these networks run on enterprise-controlled infrastructure, they can be tailored to site-specific needs and scaled rapidly across new locations without waiting for carriers to expand public coverage.

The XCOM RAN Factor: Software-Defined Radio Access

Modern private 5G platforms go beyond connectivity. They integrate software-defined capabilities that turn multiple radios into a single “supercell,” which delivers stronger coverage, fewer handoff issues, and higher throughput. This architecture makes every connected device more productive, whether it is a robot, a handheld scanner, or a safety system.

Key Benefits of a Software-Defined Private 5G Platform

- ✓ **Reduced infrastructure complexity** with fewer radios covering more ground
- ✓ **Faster deployment** with minimal RF planning and easy scaling across sites
- ✓ **High reliability** in RF dense or high interference environments
- ✓ **Future-proof innovation** with upgrades delivered at the speed of software

The Payoff

When automation, logistics, and manufacturing operations depend on consistent data, connectivity cannot be an afterthought. A software-defined private 5G network transforms connectivity from a bottleneck into a strategic advantage: delivering the performance, scalability, and control modern enterprises demand.

Ready to learn more?

Download our [latest insights on private 5G networks](#) and discover how next-generation connectivity can power your next leap forward.

And when you're ready to talk about deploying and scaling private networks at the speed of software, [reach out](#) to our team of experts.

