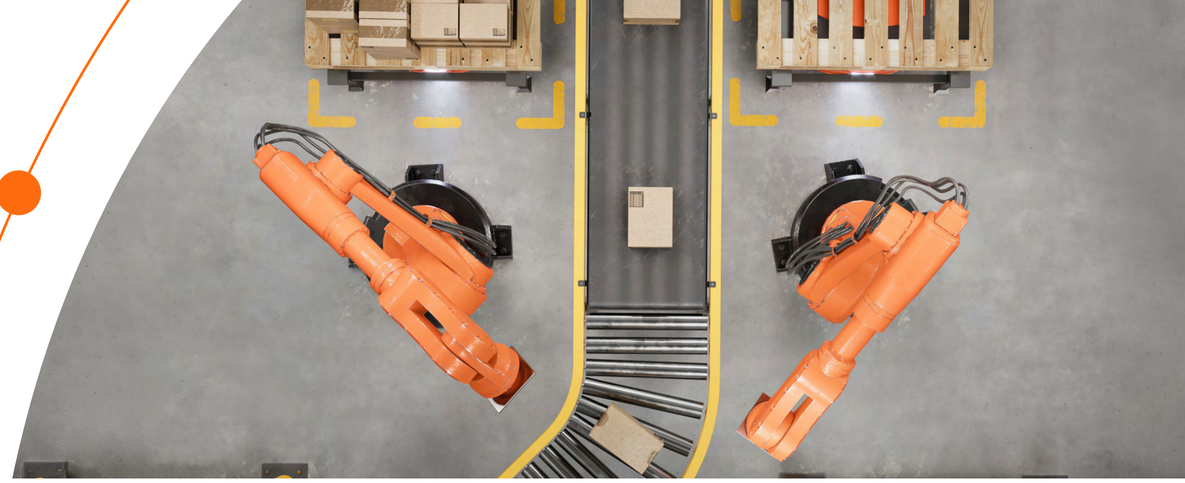
XCOM RAN™ by Globalstar

Private Wireless Reimagined

Powering AI-driven Industrial Automation with Next Generation Private 5G



We've entered a new phase in modern industrial automation where physical AI is driving machine learning for improved operational efficiencies across logistics, manufacturing, and energy. Common applications include predictive maintenance that uses sensors to forecast failures, automated quality control with computer vision defect detection, process optimization that analyzes real-time data to identify and apply improvements, inventory optimization for accurate demand forecasting, and automated forklifts and autonomous mobile robots for safely and efficiently moving material around a factory floor or warehouse.

Each of these applications requires one important element to deliver the promised improvement – a reliable, high-performance network. If the network supporting any of these applications goes down, efficiency gains can quickly become losses. The need for the physical system to act and respond in real time also means that the network needs to act and respond in real time, with the lowest possible latency between a signal and a response. The applications also require maximum throughput, especially in the uplink when robots, automated vehicles and sensors send information back to the network for rapid analysis and response. In the case of an automated forklift or mobile robot, there is an additional worker safety concern if the response is slow or a machine stops dead in its tracks.

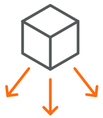
For the first generation of industrial automation systems, Ethernet cables or Wi-Fi were the connectivity options available. As automation systems further developed and became mobile, the first generation of private 4G/5G networks were deployed to improve connectivity. As new physical AI automation systems rapidly come onto the market, the next generation of private 5G is needed to greatly improve network performance and significantly reduce latency. That's where XCOM RAN comes in.

XCOM RAN by Globalstar reimagines private wireless for the next generation of industrial connectivity. Designed to deliver unprecedented performance, XCOM RAN increases network capacity by up to 4x compared to traditional private 5G solutions, enabling flawless connectivity in the densest automation environments.

The result is a high-performance, easy-to-deploy private wireless solution built to support mission-critical operations with reliability, scale, and full operational control.

Unprecedented Performance

XCOM RAN delivers unprecedented performance by taking a new approach to private 5G, increasing capacity by 4x over current private 5G offerings for flawless connectivity in the densest automation environments.



Ease of Deployment/Management

XCOM RAN Supercell architecture reduces the need for site surveys and RF network design, for a private 5G solution that deploys quickly, is easy to manage, and provides full capacity and coverage in industrial environments.

Offering Spectrum Flexibility

XCOM RAN runs on private 5G shared spectrum allocated around the world, including Band n48 and Band n78, and it can also uniquely leverage Globalstar's licensed Band n53 as a dedicated band for worry-free private 5G deployments.

Enterprises face rising demands for automation, mobility, and connected devices, and the demands are growing with the adoption of physical AI to enhance automation initiatives across industries. Traditional Wi-Fi and first generation private 4G/5G networks struggle with interference, handoffs, and managing complexity in dense industrial environments. XCOM RAN takes a new approach to private 5G, achieving more from a 5G radio signal than traditional small cell architectures can.

Open RAN Architecture

Built on 3GPP and utilizing O-RAN standards, XCOM RAN separates CU/DU (Baseband Unit) and RU (Radio Unit) functionality for added layers of innovation while ensuring compatibility and security with the global ecosystem of private 5G devices, network elements and applications.

Supercell Design

XCOM RAN utilizes O-RAN architecture to enable a spectrum-agnostic multipoint radio system, with radios that jointly process signals at the edge, creating the XCOM RAN Supercell design for high-capacity and scalable wireless connectivity.

Software-Defined

CU/DU and private 5G core elements are software-defined and deployed on COTS hardware – reducing cost, eliminating forklift upgrades, supporting flexibility for new requirements, and enabling innovation at the speed of software.

Superior Performance

The result is a next-generation private 5G network that delivers greater capacity, flexibility, availability, and reliability than standard small cells, requiring minimal RF planning while eliminating handoff and interference issues for mission-critical industrial applications.

The Technology Behind XCOM RAN Next-Generation Private 5G

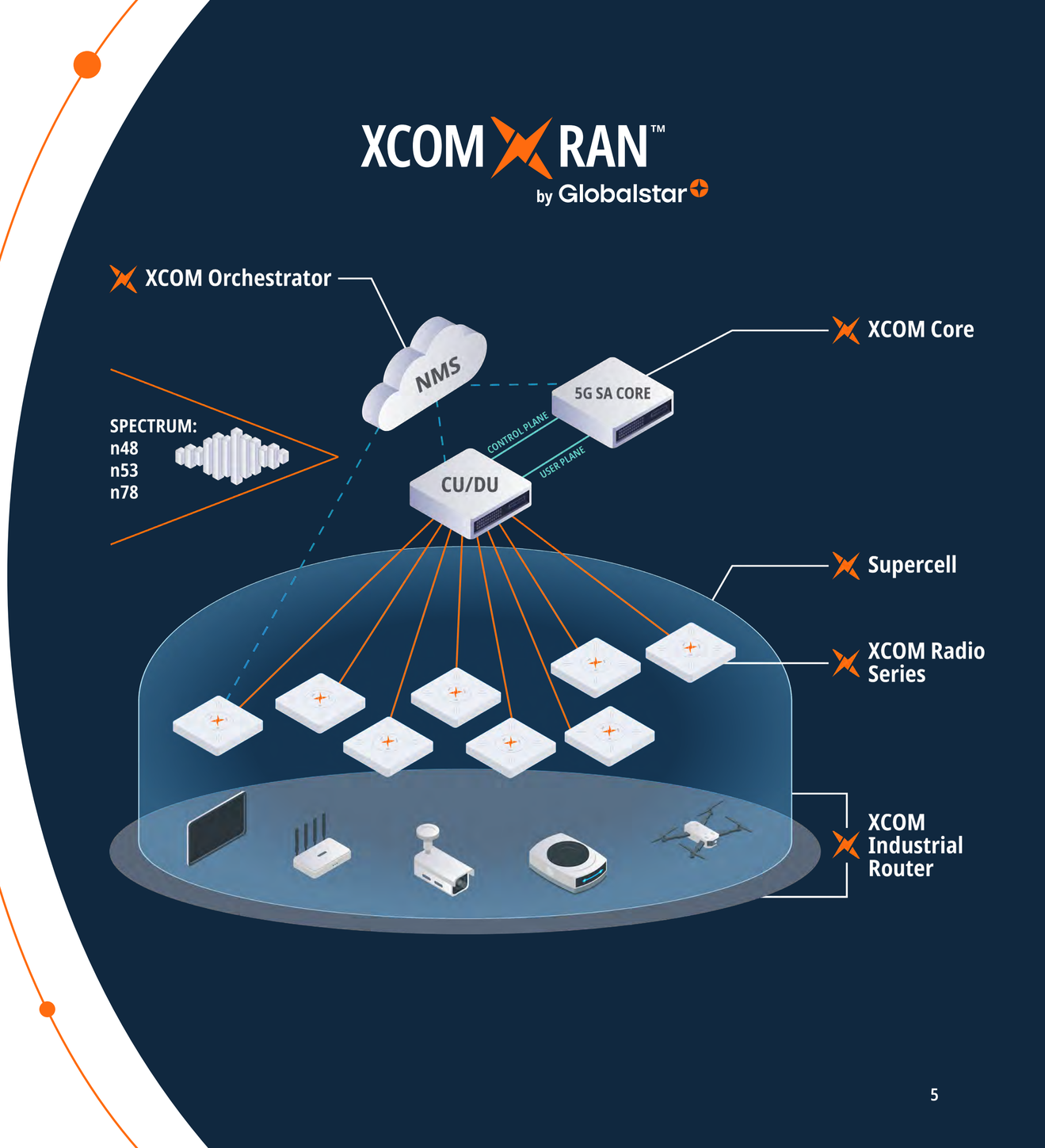
XCOM RAN delivers a unique new architecture that enables distributed Multi-User-MIMO in a Supercell configuration. The XCOM RAN end-to-end solution contains all the components needed for an enterprise to deploy a self-contained private 5G network.

XCOM Orchestrator

The XCOM Orchestrator is the centralized nerve center that automates the deployment, management, and optimization of the private 5G network. It streamlines operations by providing an intuitive tool for provisioning end user devices and pushing QoS and security policies while providing real-time visibility into performance KPIs via a single-pane-of-glass. Through its multi-site management capability, it bridges the gap between geographically dispersed facilities, allowing a central network administrator to monitor the end-to-end health of the XCOM RAN deployment across the entire global enterprise.

XCOM Core

XCOM Core is a 5G standalone core that provides an enterprise-ready foundation for ultra-reliable, low-latency communications (URLLC) through a fully programmable, cloud-native framework. It is designed to support AI-driven Industry 4.0 applications and bridges the gap between high-performance private 5G technology and modern IT DevOps workflows.



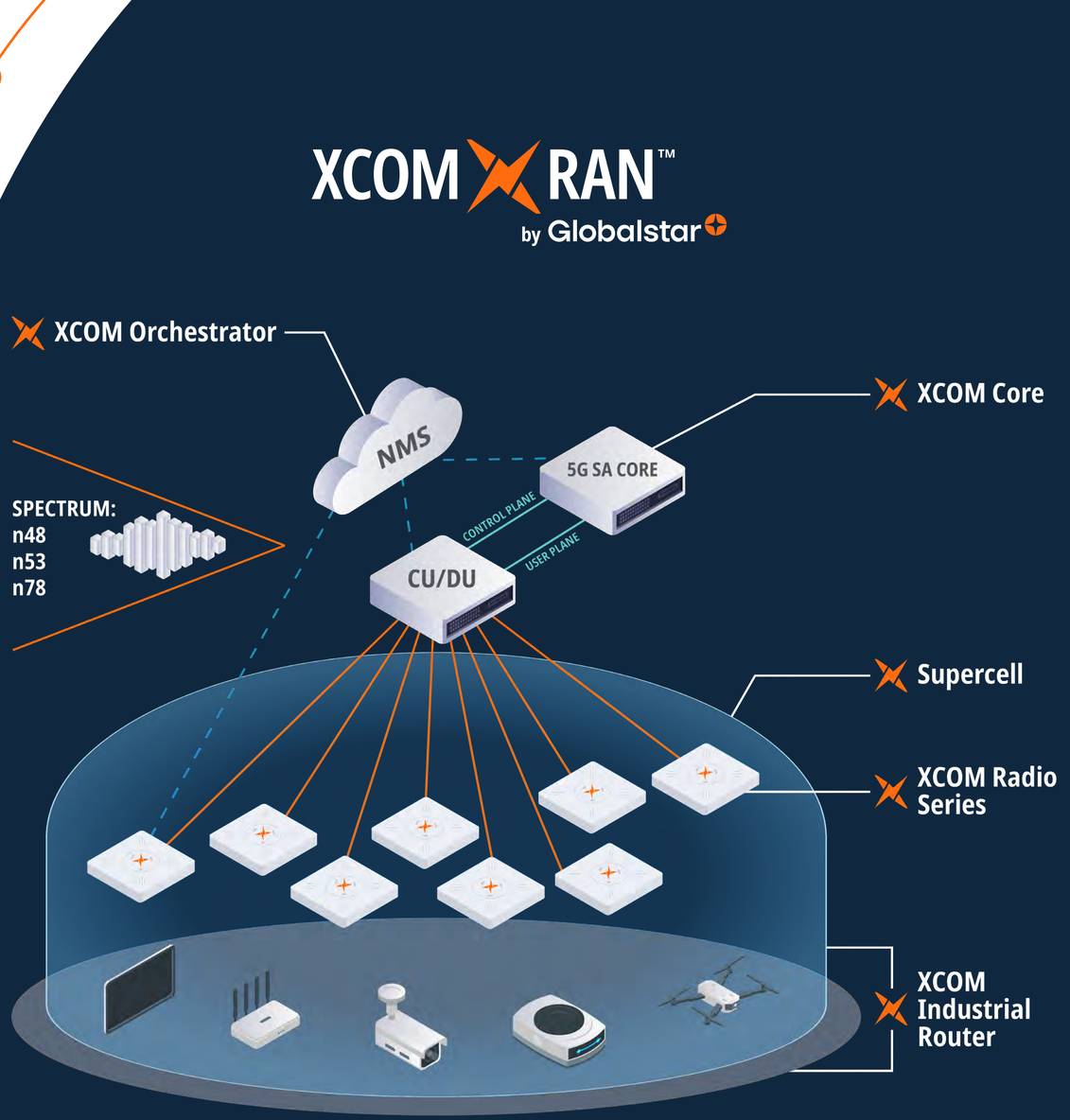
XCOM Radio Series

XCOM RAN includes a portfolio of radios to meet the specific requirements of an industrial enterprise, from inside a warehouse to the most rugged outdoor environments. The O-RAN radios act as the high-performance edge of the network, translating software-defined intelligence into physical wireless coverage. The 4T4R (4-Transmit, 4-Receive) radios are high-capacity units, connected with fiber or copper with POE++ support, providing maximum flexibility for mission-critical private 5G deployments.
The 4T4R configuration is the foundation for the distributed multi-user MIMO functionality that allows the system to serve multiple high-bandwidth devices simultaneously on the same frequency.

Radio Series 1000 is a compact, low power indoor unit designed for discreet ceiling or wall mounting. Radio Series 3000 is a ruggedized low power outdoor unit for campus-wide or large industrial yard coverage. Radio Series 5000 is a ruggedized medium power outdoor unit designed to meet the stringent demands of environments like mines and oil rigs that require extreme physical durability, high reliability, and superior security.

XCOM Industrial Router

The XCOM Industrial Router is a ruggedized, secure, high-speed gateway between XCOM RAN private 5G and local industrial equipment, including PLCs, sensors and robots, providing data collection and protocol conversion into a unified format for AI-driven analysis and response. The router enables reliable ultra-low-latency wireless connectivity to support Industry 4.0 applications such as AI-based quality inspection, autonomous mobile robots (AMRs), and predictive maintenance. The XCOM Industrial Router includes VPN support, firewall protection, and remote monitoring and management for large scale deployments, and is the only industrial router available on the market today that includes support for Globalstar Band n53 dedicated spectrum in addition to Band n48 and Band n78.



Tap Into the Full Potential of Your AI-driven Industrial Automation Platform

Robotics, automation, and mission-critical applications demand more than a basic private 5G network. To truly scale, streamline operations, and stay competitive, you need a solution designed to handle high-density environments, heavy data loads, and zero-downtime requirements. XCOM RAN delivers with the next generation in private 5G.

Private Wireless Reimagined.

Ready to transform your business?

Contact our team of experts to learn how XCOM RAN can support your automation journey.