DIGI Ventus
Managed Connectivity Solutions

celona

Accelerating Safe, Scalable Robotic Systems with Private 5G

Overview

Mobile robotics is revolutionizing warehouses, manufacturing floors and logistics hubs. However, most robots are equipped with Wi-Fi, which quickly reaches its limits in demanding environments. Adding more Wi-Fi access points doesn't solve the core issues, making large-scale deployments difficult. **Key challenges of Wi-Fi-based robotic systems include:**

- Unreliable handoffs causing robot stoppage and collisions
- Network interference and contention while scaling robots
- Dead zones and inconsistent coverage in dynamic indoor/outdoor spaces
- VPN re-establishment delays as robots move, disrupting operations
- Unpredictable latency compromises productivity and safety

Wi-Fi may work for a few robots — but at scale, it introduces downtime, safety risks and high integration costs.

The Solution: Private 5G and Robots-as-a-Service

Digi and Celona offer a fully managed network for Robots-as-a-Service that combines Private 5G, edge connectivity and turnkey network management in a subscription-based (OpEx) model. This means robotics manufacturers and integrators can quickly deliver this solution to their customers without CapEx costs, thereby accelerating time-to-value. **This integrated technology bundle includes:**

- Celona's enterprise-friendly private 5G architecture provides pervasive indoor/outdoor coverage, performance, mobility and security
- Industrial-grade Digi 5G mobile routers attach to each robot
- Digi Ventus Genesis® software provides centralized visibility, telemetry and control
- Deployment guidance and ongoing monitoring ensure network reliability and performance

Together, these elements deliver reliable, scalable and secure connectivity for robotics applications.

For more information, visit:

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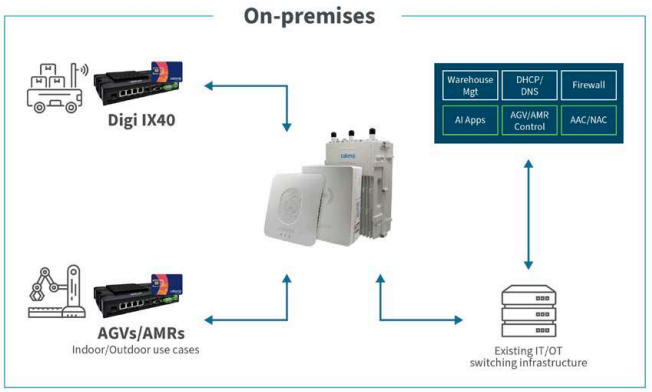
Robots–as-a-Service: Private 5G for Robotics Made Simple



How It Works

- Robots (AGVs, AMRs) connect to a Celona Private 5G network via Digi IX40 5G routers.
- Private 5G integrates directly into existing enterprise networks, providing visibility to warehouse management systems, robotic controllers, firewalls, NAC, AI Edge and more.
- Genesis oversees device management and monitoring — ensuring centralized visibility and control.

Key Benefits

This solution offers integrators and end-users a faster path to scalable robotics by addressing common wireless limitations.
Key benefits include:

- **Plug-and-play deployment:** A complete system that works out of the box for rapid time-to-value.
- **Superior coverage:** Private 5G provides predictable, low-latency connectivity to eliminate safety risks and interrupted operations caused by Wi-Fi latency.
- **Operational efficiency:** The OpEx model simplifies decision making for project approval and eliminates the burden of network management.
- **Ease of scale:** Simply add Digi IX40 equipped robots as fleets expand — no re-engineering or additional access points required.
- **Mobility across environments:** Seamless indoor and outdoor connectivity keeps robots operating as they move between warehouse, yard and campus environments.
- **Enterprise integration:** Leverage existing enterprise network switches, cabling, firewall and NAC, providing full control for the AGVs/AMRs on the 5G network.
- **Risk management:** Faster, more reliable connectivity to robots improves worker safety.

The Outcome

Integrators and enterprises gain a reliable, high-performance robotics solution — without the overhead of deploying or managing a complex wireless network. The Robots-as-a-Service model helps accelerate adoption, improve safety and reduce operational costs.

Learn more from an expert at www.digi.com/contactus/digi-sales.

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