Industry Connect

Smart connectivity in the warehouse
How much smarter could your warehouse be with better connectivity?

Digital transformation is coming to a warehouse near you. In fact, it may already be in place. Consider this: there were 4,000 robotic warehouses in operation worldwide last year. By 2025, four million commercial robots will be at work in 50,000 warehouses across the globe, forecasts say. That’s a 12-fold increase in the span of just six years. The key to the success for a smart warehouse? Not the robots. Or the management systems. It’s connectivity that is making the industrial internet of things (IIoT) a reality on a massive scale. 4G LTE and 5G networks are up to the task.

Thanks to the rise of e-commerce with its burgeoning consumer demand, warehousing is big business—about EUR 300 billion of big business. You only need to look to retail giant Target, e-tailers like Amazon and JD.com, and global logistics company DHL to understand that investing in warehouse automation and digitalization enhances the customer experience, boosts efficiency and lift profits. These companies are not alone. To stay competitive, retailers, e-tailers, logistics and fulfillment service providers, large and small, are looking to digital technologies and connectivity to make warehouse operations far more efficient and agile than they are today.

Many existing connectivity solutions come with constraints, forcing enterprises to:
- Keep machinery in a fixed spot or incur expensive cabling costs and extensive downtime to move them
- Work around dead spots in a wireless network
- Work within bandwidth constraints, e.g., using still images instead of streaming video—or no images at all
- Accept latency fluctuations that limit the applications that can be run wirelessly, such as AGVs
- Find security workarounds such as having a separate network for external suppliers to keep the corporate network secure

With existing wireless connectivity solutions, there is often a limit to the number of devices that can be on the network before reliability is compromised, and there are often challenges with handover between access points. These constraints became ingrained and enterprises grew used to working with them. These problems will become more apparent because the network today serves far fewer devices than what will be needed for Industry 4.0.

Another consideration is device density. The number of devices per square foot or per square meter in the warehouse environment is multiplying dramatically. We’re moving from proof of concept to the reality of dozens of workers using connected devices all at once in bustling warehouse areas. The network must be able to handle this surge of demand without hesitation or bottlenecks.

Not just wireless. Your own dedicated cellular network.

Ericsson Industry Connect, a private cellular network designed specifically for the industrial environment, provides fast, secure wireless capability that not only enables Industry 4.0 today, it also readies your operations for all the promised benefits of 5G.

And a private cellular network requires less hardware and therefore less cabling than other wireless connectivity solutions.
What could you do with additional bandwidth and lower latency?

Smarter connectivity enables:

— **More accurate robots.** High throughput will allow greater use of video throughout the warehouse, enabling mobile robots to see where they are going and what they are doing.

— **Human-robot communications.** Low, predictable latency will enable greater cooperation between people and robots as well as greater use of virtual reality or augmented reality to increase efficiency, accuracy and safety. It will also help improve areas such as process and security monitoring.

— **Telematics.** High throughput will also allow faster wireless transfer of large datasets, such as enabling the wireless download of telematics data from a delivery truck in the 10 minutes that it is parked at the dock — without incurring data costs per gigabyte.

— **Centralized control.** Predictable latency will enable faster reaction time so that processing can move from individual robots to the cloud. This not only reduces the cost of each individual robot, but also makes it possible to introduce centralized control and coordination of the robots.

**Minimize interference, enhance security**

Cellular technology uses interference management to mitigate network disturbances and provide reliable coverage throughout the warehouse. Because there is no handoff between access points, cellular connectivity eliminates dead spots and provides reliable connectivity throughout the warehouse.

Data security also poses challenges. With the cellular technology of Ericsson Industry Connect, each trusted device has a unique SIM card to access the network, and with a private cellular network, the network owner has complete control over the SIM cards and therefore complete control over which devices can connect.

**A comparison of the main connectivity options according to the most crucial dimensions for digital and industrial success.**

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**Security: Completely controlled by enterprise**

- Access control via SIM card
- Encryption is per device
- Only the enterprise can provision

**Based on proven security architecture and protocols of cellular networks**

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**Cellular LTE/4G/Industry Connect**

**High security**

**Fixed network with cables**

**Low service enablement**

**Unlicensed wireless (Wi-Fi, Sigfox)**

**Low security**

**High service enablement**

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Data protection— all data stays on-premise

Wireless data encrypted end-to-end
Small footprint. Huge improvement.

Upgrading to 5G-ready Industry Connect is easy

Ericsson Industry Connect makes Industry 4.0 innovation possible. It is a robust and reliable solution for providing cellular connectivity at industrial sites. It enables predictable latency, high device density and broad, reliable coverage throughout the warehouse.

- Reliable high-speed data. Up to 600 Mb/s downlink and 100 Mb/s uplink
- Deterministic latency. Roughly 20-50 milliseconds
- Large number of devices. Up to 1,000 devices connected simultaneously
- Increased network control. Factories can now easily self-provision connected devices
- Data stays on premise. Warehouse has control of where data goes
- Path to 5G. Start now with 4G/LTE and upgrade to 5G

Features

- Quick deployment. Easy to set up
- Device, network and data management. IT-centric orchestration and customization
- Scalable. OPEX delivery, ability to grow with demand
- Guaranteed quality of service. Continuous support of real-time applications
- Robust reliability. Eliminate dead spots
- Industrial-level security. Resistance to hacking

Benefits

- Higher productivity gains. Enables automation
- Facility optimization. Use every inch of space in the warehouse effectively
- Downtime reduction. Enable predictive maintenance with always-on connectivity
- Increased safety. Low latency connectivity for faster reaction times
- More agility. Wireless connectivity enables rapid configuration or re-configuration of your facility

Your connection to all the value of Industry 4.0 — and a path to 5G

Next-generation connectivity. Robust security. No weak areas or dead spots. Ericsson Industry Connect steps you up to Industry 4.0 with amazing simplicity.

5G will enable a slew of new use cases and release the full potential of smart warehousing. Industry Connect is ready for 5G, which means you will be too.

Let us show you how Ericsson Industry Connect can lay the foundation for higher productivity and greater agility in your warehouse.
About Ericsson
Ericsson is one of the leading providers of Information and Communication Technology (ICT) to service providers, with about 40% of the world’s mobile traffic carried through our networks. We enable the full value of connectivity by creating game-changing technology and services that are easy to use, adopt and scale, making our customers successful in a fully connected world. For more than 140 years, our ideas, technology and people have changed the world: real turning points that have transformed lives, industries and society as a whole.