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WIRED FOR GROWTH

Building Infrastructure Fit for the Future of Logistics

INTRODUCTION

Developing the Logistics Infrastructure of the Future

Logistics firms are under intensifying pressure to deliver quickly, accurately and without failure. This is against a backdrop of increasingly complex supply chains. To keep up, automation, AI, and robotics are rapidly becoming integral to operational efficiency.

Nowhere is this more critical than in high-throughput environments, such as pharmaceutical distribution, where companies process vast transaction volumes and manage temperature-sensitive shipments in real-time. This demands infrastructure that's scalable, ultra-reliable, and built for low latency.

Yet modernisation efforts often clash with entrenched legacy systems. There is still a heavy reliance on monolithic IT frameworks that inhibit integration with cloud-native platforms or AI. What's needed is a new framework for IT infrastructure, including high-performance warehouse networks, edge computing environments, supported by globally consistent rollouts.

This viewpoint explores the five foundational infrastructure considerations that will determine whether infrastructure will be an enabler in logistics, or an inhibitor.

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1. SCALABILITY AND REAL-TIME PERFORMANCE: FOUNDATIONS FOR FAST-MOVING LOGISTICS

High transaction volumes are now the norm across logistics. In sectors like pharmaceuticals, the demands are particularly intense: cold chain logistics, real-time tracking, and data-rich processes such as high-throughput screening and genomic sequencing all depend on infrastructure that can scale dynamically while maintaining real-time responsiveness.

Meeting these demands requires more than cloud capacity. Automated fulfilment centres and AI-powered workflows rely on low-latency networks to maintain performance without delay. As global supply chains expand and e-commerce accelerates, infrastructure must be designed to flex and scale, without introducing latency or data bottlenecks.

A critical, often underestimated component in this equation is cabling. High-quality structured cabling forms the backbone of connectivity. In high-throughput environments, poor cabling leads to repeated data transmission and performance drops. This creates delays in order picking, disrupted inventory tracking and increased error rates on the warehouse floor. For AI workloads in particular, the physical layer determines how quickly and efficiently compute nodes can exchange data. Getting it wrong is not only expensive to fix later, it directly undermines scalability and operational agility from day one.

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CASE STUDY

At a fulfilment centre handling thousands of transactions per hour, Onnec installed over 200km of Cat 6 cabling to support real-time connectivity across 550,000 sq ft, and five floors – an area the size of seven football fields. With so many devices and systems in constant communication, structured cabling was critical to avoid signal degradation, delays, and data loss. In environments like this, poor cabling isn't just an IT issue – it directly impacts order accuracy, inventory tracking, and overall throughput.

2. MODERNISING LEGACY SYSTEMS: BALANCING INFRASTRUCTURE, PEOPLE AND UPTIME

Many logistics organisations are still constrained by legacy IT systems that were never designed to support modern automation, cloud integration, or AI-driven operations. These rigid environments struggle to interface with today's flexible, API-led ecosystems. Yet despite the clear need to modernise, the process itself remains daunting: infrastructure upgrades are complex, capital-intensive, and carry operational risks if not executed with precision.

A structured, phased approach is essential to minimise downtime and ensure seamless integration with cloud-based platforms and automation tools. But modernisation is not just a technical challenge. It's a people challenge. Warehouses and logistics sites don't just depend on servers, machinery and power. They also rely on skilled professionals to keep systems running. However, the logistics sector faces a persistent shortage of infrastructure expertise.

The skills gaps remain one of the most significant barriers to transformation. This is where trusted infrastructure partners are indispensable. By acting as an extension of the internal team, partners can deliver the engineering talent, strategic support, and operational continuity required to modernise legacy systems without compromising ongoing performance.

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3. WAREHOUSE CONNECTIVITY: GETTING THE PHYSICAL LAYER RIGHT

Modern warehouses are dynamic, high-throughput environments where robotics, automated picking systems, and real-time analytics will depend on fast, uninterrupted connectivity. Yet these facilities present unique physical challenges, from high racking and metallic interference to vast open spaces. These demand tailored network design and robust infrastructure planning.

While optimised Wi-Fi is critical to ensure coverage and consistency across the floorplate, the foundation lies in the cabling. High-performance cabling is essential, not just for connectivity but also to support AI compute demands, where high current and power requirements generate heat and quickly expose any quality shortcomings.

Unfortunately, cabling is an overlooked element. Budget limitations, improper installation, and poor planning frequently lead to substandard cabling. Think loose terminations, poor labelling, and unsuitable materials. This results in degraded performance, frequent maintenance, and premature infrastructure refreshes. To avoid this, logistics operators must adopt detailed cabling standards for each build and engage infrastructure partners early.

By investing in quality cabling upfront and designing with headroom for future demands, warehouses gain a resilient, high-capacity network backbone ready for AI, automation, and scale.

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4. EDGE COMPUTING FOR AUTOMATION

As AI and automation become more deeply embedded in logistics, edge computing has emerged as a critical infrastructure component. Edge data centres are smaller, decentralised facilities located close to where data is generated. This enables high-bandwidth, low-latency processing that centralised cloud models can't match.

This is essential for time-sensitive operations like robotic picking, autonomous vehicles, and IoT-driven monitoring within warehouses and distribution hubs.

By processing data locally, edge computing reduces reliance on distant servers and ensures faster decision-making. It also supports compliance with data sovereignty requirements by keeping sensitive data within national or organisational boundaries. Edge sites become "AI factories," where logistics machine learning models can be trained, deployed, and iterated directly on premises.

The Edge is particularly useful for real-time applications such as predictive maintenance. Edge nodes can analyse sensor data continuously to detect anomalies and trigger preventative action. This helps to reduce downtime and protect mission-critical equipment. Redundant edge infrastructure further ensures resilience, maintaining operations even during network outages.

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5. GLOBAL INFRASTRUCTURE: SCALING SEAMLESSLY ACROSS BORDERS

For logistics operators expanding across regions, consistency of infrastructure is as important as speed of deployment. Facilities in different geographies must meet the same high standards— whether for automation, connectivity, or compliance. But differences in local regulations, site conditions, and supply chain availability make this a major challenge. On-site support becomes critical not just for assessment and installation, but for aligning technical requirements with real-world constraints.

This is where strong global partnerships are invaluable. Skilled vendors and expert systems integrators act as an extension of in-house teams, bridging skills gaps while maintaining momentum across builds. These partnerships help to align people, timelines and standards across every site globally. This includes navigating compliance documentation, managing equipment sourcing, or responding to last-minute design changes, trusted partners reduce pressure on logistics teams and help ensure quality outcomes.

They also bring scale: enabling rapid staffing, offering training, and integrating seamlessly with local supply chains. In a sector facing persistent labour shortages and intensifying infrastructure demands, these relationships are essential. They empower logistics operators to modernise quickly, reduce risk, and build resilient, scalable operations that keep pace with global demand.

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CASE STUDY

As a global medical logistics provider expanded across Europe, it needed consistent, reliable IT infrastructure at every site. Onnec supported upgrades across multiple countries, handling cabling, network gear, and compliance – adapting to local regulations and layouts without disrupting operations. With weekend work and on-site teams, we kept distribution running smoothly while bringing each location up to the same high standard. Six years on, we're still supporting them as they grow.

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Future–Proofing Logistics Operations

To remain competitive in a rapidly evolving market, logistics companies must invest in infrastructure that can support the demands of automation, AI, and real-time analytics.

From high-performance cabling and edge computing to scalable global rollouts, every layer of the stack matters.

But technology alone isn't enough. Success also hinges on the strength of your partnerships. This means working with expert partners that can extend your capabilities and scale with your needs. Futureproofed infrastructure isn't just a technical advantage, it's the foundation for long-term efficiency, resilience, and growth.

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ABOUT ONNEC

A global infrastructure partner like Onnec helps logistics modernise, automate, and maintain regulatory compliance without operational risks.

Onnec is a leading Infrastructure Solutions and Services company for tech and enterprise, specialising in structured cabling, managed services, and network solutions. Our team of experienced designers, project managers, and engineers, supported by world-class vendor partnerships, delivers top-tier services and solutions.

Onnec's expertise spans all environments and can support customers with:

- Structured cabling design and installation
- Installation of cabling, ODFs, PDUs and containment solutions
- Network hardware installations, changes and support
- Connectivity and equipment upgrades and changes
- Smart Hands support services

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