Belden

Why a robust OT network is non-negotiable for OEMs and sytem integrators

White Paper

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Delivering automation solutions for warehouses and distribution centers presents complex challenges for the original equipment manufacturers (OEMs) and systems integrators (SI) that design, deploy and support them. This is where the race for speed, reliability and future-ready innovation can be won ... or lost.

But simply checking the box on performance isn't enough when it comes to the networks that drive automation at scale. The operational technology (OT) networks you build and integrate must be robust, resilient and adaptable to support today's requirements and tomorrow's innovations.

You already understand the pivotal role OT network design plays in your customers' success. What truly differentiates your services is how you execute and support these networks in the field—and how confidently you can deliver, upgrade and stand behind them.

Warehousing isn't known for being the most "digitized" or "industrialized" industry. Although automation is often deployed in these environments, its functionality is basic.

Because their operations are often considered a cost center, warehouse and distribution center leaders aim to reduce costs whenever and wherever possible. They also typically see slim profit margins and cost-sensitive competition, which makes them even more cautious about technology adoption. Will it even pay off?

The industry is also considered less complicated than others. This perception leaves many decision-makers to assume that low complexity equals no need for technology.

Because OT networks haven't been prioritized, warehouse operations were left to rely on IT networks to meet operational demands. For years, this approach worked "well enough." Warehouses got by without dedicated OT networks. But what about now?

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Change is coming—and fast. The rise of e-commerce, tight labor markets, high real estate costs and increasing demand for speedier delivery are pushing warehouses to explore new technologies like autonomous robots, automated inventory identification systems and artificial intelligence (AI). As they do, it's only matter of time before they turn to OEMs and SIs for purpose-built OT networks.

OT network quality and design can be a major differentiator when it comes to the systems you deliver and support. The networks you engineer for these environments and their automated solutions—and how you deploy them for your customers—matter now more than ever.

Why you need to bridge the gap between IT and OT networks for warehouse customers

Simply layering automation and technology on top of IT networks holds everyone back. You and your customer face more troubleshooting, integration headaches and performance bottlenecks that threaten success. You also put your reputation on the line.

If your warehouse customer still runs on an IT network, they may not realize the differences between an IT network and an OT network. In their eyes, a network is a network.

Here's how you can better explain the differences to them.

What is an IT network?

IT networks support their front-end office and business activities and involve the use of computers for information processing and management. They're designed to monitor, manage and secure information involving core enterprise functions and applications, such as email and software for accounting, sales, marketing and HR, in the data center and/or cloud.

To meet the changing needs of warehouse IT users (typically office staff) and applications, IT networks and the devices that connect to them are frequently updated and reprogrammed.

What is an OT network?

OT networks manage their back-end business activities and support the devices, processes and infrastructure in industrial settings. They're designed to connect, monitor, manage and secure the information that controls physical equipment processes. This includes real-time data processing and devices for floor operations and warehouse management.

OT networks also support applications like robots and cobots, control systems, manufacturing execution system (MES) and scheduling systems and SCADA software. Because these industrial systems aren't updated or upgraded as frequently as those managed by IT systems, OT networks remain fairly static.

Bringing IT and OT together

Communicating these distinctions in actionable terms is key to guiding your customers toward strategic decisions that improve uptime, enable seamless automation and prepare them for ongoing digital transformation.

While it's important for your customers to understand the differences between IT and OT networks, it's also critical for them to realize that establishing separate OT and IT networks doesn't mean the two should never interact.

In fact, by helping them establish the right level of convergence between OT and IT as you build intelligent solutions and integrate high-performance systems, you can enable both groups to function individually but come together to collaborate when it makes sense.

The benefits of helping warehouse customers deploy an OT network

Deploying a dedicated OT warehouse network connects warehouse customers to new opportunities. Here are some examples of what you can help them achieve by establishing their OT network.

1. Gains in operational efficiency

A dedicated OT network lets your solution support even more automation so warehouses can support faster deliveries, reduce waste and downtime, and optimize resource allocation.

Sensors, equipment and automated devices, as well as asset management and MES, can use the OT network to transmit the data they collect so it can be analyzed to reduce downtime and improve production.

This information can also be used to enable predictive maintenance. By tracking when maintenance needs to be performed based on equipment monitoring instead of performing maintenance after an issue arises, you can help customers optimize uptime and lower repair cost.

2. A potential increase in revenue capture

A high-performing OT network allows you to deliver warehouse solutions where throughput and reliability drive top-line results for your customers. You can provide tools to identify bottlenecks and inefficiencies, promote continuous improvement and demonstrate measurable impact on profitability.

When your customers' operational processes and systems are more streamlined (thanks to the advanced automation solutions you deliver), they benefit from faster material flow, lower costs and reduced production time.

A dedicated OT network enables you to provide your customers with access to valuable data points, such as temperature, vibration and energy use, which are critical for identifying inefficiencies. With the right network and analytics in place, your customers gain actionable insights to optimize equipment performance and improve overall operations.

By enabling these improvements, you help them capture more revenue and achieve greater profitability, making your solutions integral to their success.

3. Better cybersecurity posture

Establishing an OT network provides better protection against the consequences of cyberattacks. By separating IT and OT correctly, you can reduce your customers' potential attack surface and help them protect their assets. For example, if a threat actor gains access to an IT network, they won't have access to OT network or operations—and vice versa. Isolating workloads means an incident in one area doesn't disrupt everything your customers depend on.

Running separate IT and OT networks also lets your customer grant workers and third parties access only to the parts of the network they need. For example, contractors only require access to equipment maintenance and monitoring, not to sensitive business systems.

By enabling efficient monitoring and simple detection of unusual behavior on the OT network, your customers can act fast to address vulnerabilities and limit impacts, strengthening your credibility as a solution provider.

4. The ability to "sync" with IT to extract value from data

As mentioned earlier, creating an OT network doesn't mean IT and OT must always run separately. IT-OT convergence allows the two to come together when appropriate, supporting data flow between automation and enterprise information systems.

When you implement the right OT network and integrate it with enterprise IT, your customer can acquire and share large amounts of operational data. This gives you a competitive edge as a partner that powers transformation, not just automation. You enable their systems to automatically monitor, analyze and improve performance.

5. Real-time visibility into key metrics and KPIs

If your customers want to improve performance, they must start by measuring where they're at. Your OT network solutions give them the backbone for efficiency, providing ways to gain real-time visibility across their infrastructure, detect anomalies and failures, and quickly act to prevent disruptions.

By enabling data-driven monitoring and fast incident responses, you can help your customers manage key metrics (from order cycle to inventory costs) and maintain high standards for reliability and accuracy.

6. Happier IT and OT teams

Before your customers can understand how to use and manage OT systems and networks, they need proper training.

When OT data moves through the IT network, for example, this puts additional strain and stress on warehouse IT team members. They aren't trained or educated on how to use or manage OT systems or networks, so they often face confusion, increased burdens and delays in issue resolution.

By providing solutions with clear boundaries and network segmentation, you help each team focus on what they do best, reducing cross-team friction and support burdens. The result is a smoother experience for everyone involved and higher satisfaction with your work. A dedicated OT network lets OT focus on OT systems while IT focuses on IT systems. When needed, they can come together to make the most of the data these systems offer.

The power of an OT Network: an example in action

We've seen many OEMs and SIs struggle to deliver automation solutions to clients due to network challenges during deployment. For example, as an SI worked to deliver a complex automation solution to a Fortune 500 industry supply company's new distribution center, network failures were occurring multiple times every day. The company was only operating at only 20% capacity, but the SI needed to help the distribution center ramp up capacity to 100%. With ongoing network problems, however, the facility wasn't ready for the increase.

The SI recognized the need to bring in deeper network expertise, so it partnered with Belden and the OEM to diagnose and solve network issues. Together, we conducted a comprehensive network assessment, which revealed a flat network design and lack of segmentation that magnified outages and operational challenges. IT and OT devices were connected to a single network, and devices had to contend with irrelevant network traffic. There was no network monitoring in place, so OT teams were unable to quickly detect or address network issues, resulting in disruptions and downtime.

With Belden's guidance, the SI and OEM redesigned the network, separated IT and OT environments, implemented segmentation by control area and introduced robust network monitoring.

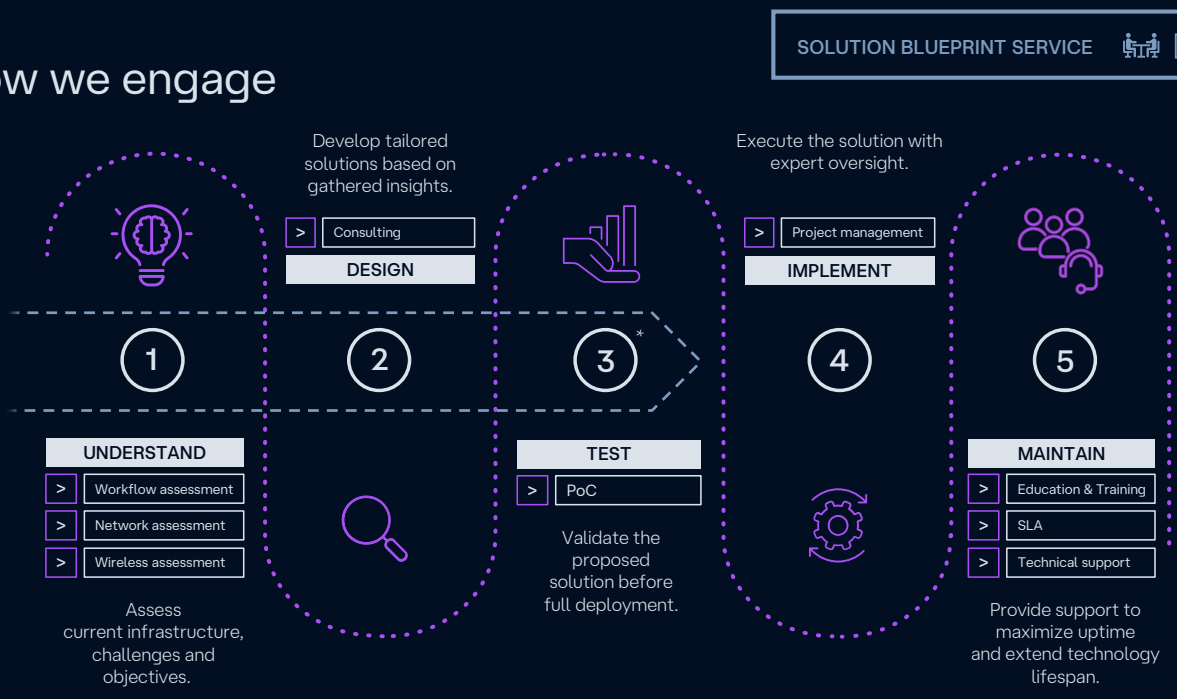
This strong partnership between the OEM, SI and Belden delivered a stable, resilient network to support automation, helping the Fortune 500 client accelerate to full operational capacity without continued network downtime.

Get the support you need to empower your warehouse customers

As an OEM or SI, you guide your customers through network planning, assessments and solution deployment. You become their trusted advisor as you unlock new opportunities, ensure lasting results and earn continued business.

Alongside our complete connection solutions, Belden offers a comprehensive suite of services catered to the needs of OEMs and SIs. Whether you're looking for expert guidance, technical support or hands-on implementation, we have products, services and solutions for you.

How we engage



* Step 3 is optional in the Solution Blueprint Service

In this industry, leaders perform better than followers. We'll help you stay ahead of the competition. Whether you're an OEM looking to build intelligent solutions, or an SI ready to integrate high-performance systems, we're here to help.

Ready to design better OT networks for your customers?

Let's discuss your challenges and requirements.

Request a consultation

Connect to what's possible.

White Paper

About Belden

Belden Inc. delivers complete connection solutions that unlock untold possibilities for our customers, their customers and the world. We advance ideas and technologies that enable a safer, smarter and more prosperous future. Throughout our 120+ year history we have evolved as a company, but our purpose remains – making connections. By connecting people, information and ideas, we make it possible. We are headquartered in St. Louis and have manufacturing capabilities in North America, Europe, Asia and Africa.

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