SOLUTION BRIEF

Unifying the Manufacturing Edge: Centralized Management for Rugged Plant Deployments

Introduction

Unifying your industrial ecosystem is no longer just an IT goal; it's the foundation for smarter, more responsive manufacturing. As Industry 4.0 continues to reshape the landscape, integrating Information Technology (IT) and Operational Technology (OT) is mission-critical to enable smarter, faster, and more secure operations. To process the massive amounts of data generated across manufacturing floors and logistics operations, manufacturers are pushing computing power away from centralized data centers and out to the plant floor periphery. Yet, deploying and managing these distributed edge systems across multiple physical locations remains a significant hurdle.

OnLogic and ZEDEDA address this challenge together. By combining rugged industrial hardware with a centralized edge management and orchestration platform, the joint solution enables manufacturing enterprises to deploy, operate, and scale edge workloads across their entire global footprint with confidence. The result is a practical, production-ready foundation for modern smart factories.

Let's dig in



ONLOGIC × ZEDEDA

The Challenge

As manufacturers strive to implement smart factory initiatives such as predictive maintenance, high-speed computer vision for quality control, and digital twins, the inherent limitations of traditional cloud architectures become apparent. Several challenges repeatedly surface across the industry:

1. **Harsh remote environments:** Manufacturing floors expose equipment to extreme temperatures, dust, vibration, and limited physical access. Hardware failures in these locations directly impact plant throughput and revenue.
2. **The IT/OT divide:** Legacy OT networks and modern IT systems are often siloed, making it difficult to turn real-world operational data into actionable insights and limiting enterprise-wide visibility.
3. **Lack of local IT expertise:** Deploying and troubleshooting devices in remote plants often requires sending specialized personnel, which exacerbates talent shortages, drives up operational costs, and delays time to value.
4. **Scaling edge workloads securely:** Managing hundreds or thousands of edge nodes across multiple plants without a traditional network perimeter introduces significant cybersecurity vulnerabilities and compliance risks.

Together, these challenges slow digital transformation and limit the value of edge computing.



The Solution: A Full-Stack Edge Platform

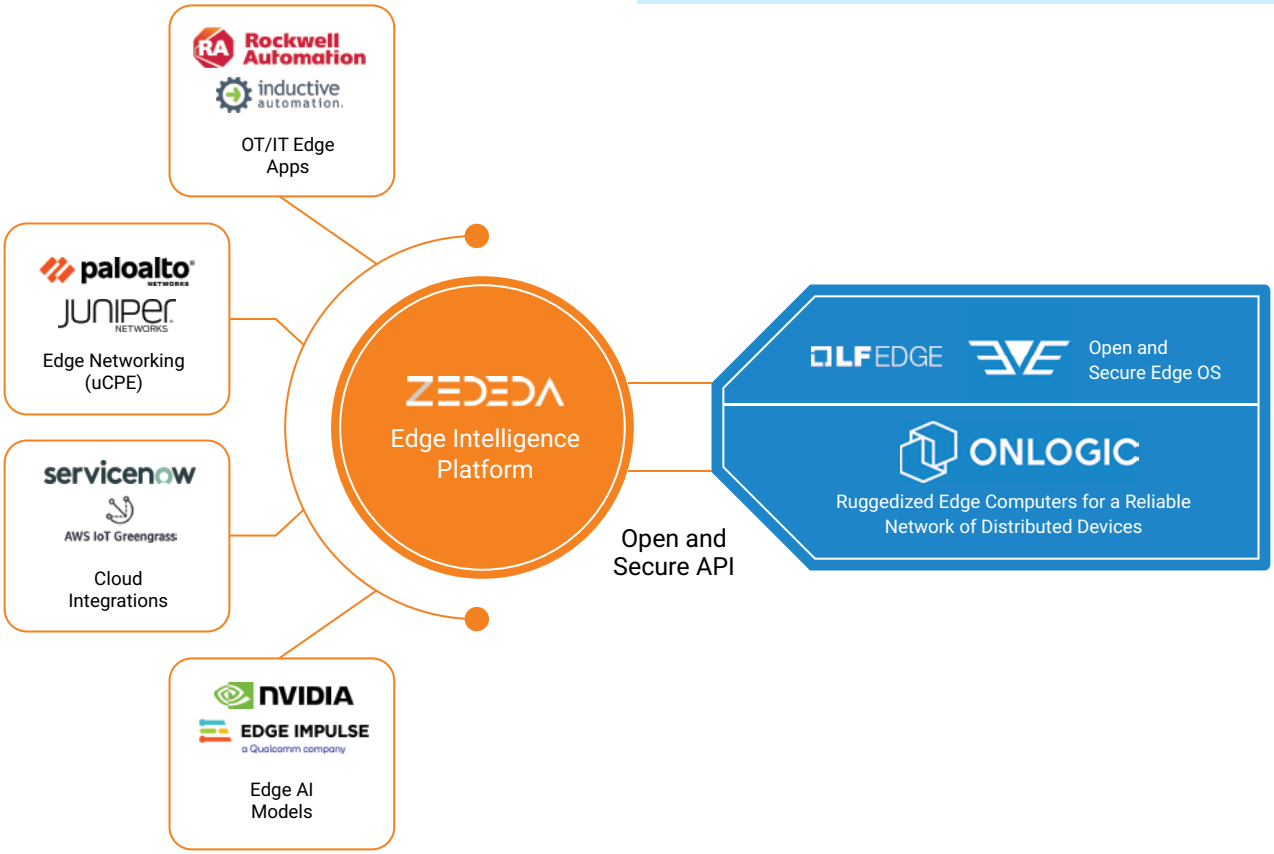
OnLogic and ZEDEDA deliver a turnkey, integrated edge solution engineered specifically for modern manufacturing environments.

OnLogic provides rugged, configurable industrial computers designed for long-term operation. ZEDEDA delivers a cloud-native centralized platform for deploying, managing, and securing infrastructure and applications across distributed locations. With systems from OnLogic arriving pre-imaged with the Edge Virtualization Engine Operating System (EVE-OS) from ZEDEDA, businesses can achieve zero touch provisioning.

When a device arrives at the factory floor, it simply needs power and a network connection to automatically phone home to the ZEDEDA cloud controller. This allows IT and OT teams to remotely deploy applications and security policies immediately, without requiring specialized personnel on-site.

Use Cases

- Standardized edge platforms across multiple distributed plant locations
- High-speed machine vision and automated quality inspection at the edge
- Predictive maintenance and condition monitoring to reduce unplanned downtime
- IT/OT convergence and real-time operational data processing
- Workload consolidation running legacy virtual machines alongside modern containerized applications
- Secure remote access and monitoring for OT and IT teams





Why Onlogic

- Reliability and longevity are critical for manufacturing operations. Hardware failures directly impact safety, production schedules, and revenue. Systems from OnLogic are purpose-built for industrial environments where downtime is not an option
- Built-to-order systems tailored to specific application requirements, including CPU, memory, storage, and I/O
- Fanless cooling designs that eliminate moving parts and help prevent the ingress of dust, debris, and metal shavings
- Rugged platforms supporting wide temperature ranges, variable power input, and resistance to damage from shock and vibration
- Flexible I/O for direct connection to sensors, GPUs, cameras, PLCs, and legacy infrastructure
- Long lifecycle product portfolio and support aligned with multi-year factory deployments

OnLogic Features for the Edge

- Flexible I/O for direct connection to sensors, GPUs, cameras, PLCs, and other existing infrastructure.
- Fanless designs for enclosed cabinets and particulate-rich edge environments.
- Rugged platforms supporting wide temperature ranges and variable power input, and resistant to damage due to shock, vibration, and interference.

Why ZEDEDA

ZEDEDA enables manufacturing enterprises to operate distributed edge applications and infrastructure as a centrally managed fleet rather than a collection of isolated, vulnerable systems.

Key Capabilities

- **Zero touch provisioning:** Instantly onboard and manage edge infrastructure from the cloud without requiring on-site IT expertise, providing massive cost savings.
- **Zero trust security:** Protect valuable intellectual property, mission-critical systems, and production data with hardware root of trust, measured boot, remote attestation, full encryption, port disablement, and more – all designed for perimeterless factory environments.
- **Zero limits flexibility:** Prevent vendor lock-in with an open architecture based on EVE-OS.
- **Extensive application support:** Deploy legacy virtual machines and modern containers on the same device, allowing you to evolve plant operations over time without replacing hardware.
- **Application marketplace:** Accelerate solution deployments with pre-validated applications, reducing internal integration effort and shortening time to value.
- **Eventual consistency architecture:** Ensure continuous operation and centralized management even when plant edge nodes experience intermittent, disconnected network connectivity or air-gapped environments.





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Next Steps

Discover how OnLogic and ZEDEDA can help your manufacturing enterprise bridge the IT/OT divide, improve operational resilience, and scale smart factory initiatives with a proven edge computing platform. Visit onlogic.com/zededa to learn more.

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