



Capitalize on industrial data at the edge

With Converged OT and IT, only from HPE Edgeline
Converged Edge Systems

Manufacturers are looking at digital technologies to speed and enhance decision-making for both existing and new processes. Deploying analytics within the plant or factory can dramatically improve decision speed, lower cost, and reduce risk.

The new face of manufacturing

Getting smarter, faster, leaner, and greener

Today's manufacturers are under increasing pressure from new digitally native competition, as well as from societal and regulatory changes. These pressures are directly affecting production processes.

Digital technologies can release these pressures by capturing more data from assets and systems to create and speed new insights. As part of a digital transformation, edge computing can turn sensor data into insights from the industrial environments where the data is created. By analyzing data where it is created, advanced edge computing can be utilized to:

- Improve productivity by monitoring, aggregating, and processing industrial data in near real time to reduce unplanned downtime.
- Provide an autonomous IT environment for remote sites that have limited or sporadic connectivity.
- Improve worker safety by deploying connected worker technologies.
- Speed maintenance with augmented reality to show system performance and warning signs of failures.

To help industrial companies get on the path to digital transformation, HPE designed HPE Edgeline Converged Edge Systems. These systems are the first in the industry to converge data center-level computing, storage, and connectivity (IT) with operational technology (OT) devices, such as data acquisition, control systems and industrial networks.

“The edge is increasingly becoming a centerpiece of the digital enterprise where things and people generate and act on massive amounts of data. Our edge-to-cloud solutions help bring enterprise-class capabilities from the data center to the edge. This reduces software and IT administration costs, while accelerating insight and control across the organization and supply chain.”

– Dr. Tom Bradicich, Vice President and General Manager, IoT and Converged Edge Systems, HPE



Accelerating data insight, action, and control across the enterprise

By converging enterprise-class IT, unmodified data center analytics capabilities, and OT (control systems, data acquisition, and industrial networks) in one ruggedized system, HPE Edgeline enables data center-class computing close to sensors, actuators, and systems utilized in a manufacturing environment. With HPE Edgeline systems, data can be ingested and analyzed to enhance the entire value chain, including support assets, products, workers, suppliers, and customers.

HPE Edgeline Converged Edge Systems enable manufacturers to gain immediate insight and speed decision-making. Consider the following examples to better understand how HPE Edgeline systems can enhance manufacturing processes:

- **Product design:** Enable engineers to make assumptions based on real-life test results using digital twin technology (generating digital copies of physical assets).
- **Manufacturing processes:** Monitor and control production machines to guard against anomalies that could impact/stop the production process.
- **Production test:** Utilize video analytics to assure quality across the manufacturing process.
- **Workers' safety and security:** Extend video analytics to ensure proper operation of pumps, motors, and transformers, as sensed by thermal images.

HPE Edgeline EL1000 Converged Edge System

Entry-level infrastructure with converged IT and OT (Operational technology, including control systems, data acquisition systems, and industrial networks) features a single compute blade—HPE ProLiant m510 (Intel® Xeon® D—8 or 16 cores each) and/or HPE ProLiant m710x (Intel Xeon E3—4 core with embedded GPU)—with two data capture/control slots and multiple I/O and storage options.

HPE Edgeline EL4000 Converged Edge System

Dense and scalable infrastructure that features converged IT and OT and supports up to 4 compute blades—HPE ProLiant m510 (Intel Xeon D—8 or 16 cores each) and HPE ProLiant m710x (Intel Xeon E3—4 core with embedded GPU).

HPE IoT gateways

Optimally configured with CPU, memory, connectivity, and an expansive I/O selection to address a host of IoT needs; choose from the HPE GL10 entry-level solution or HPE GL20 mid-level solution.

HPE Edgeline Extended Storage Adapter

The HPE Edgeline Extended Storage Adapter option kit adds up to 4 TB per adapter of software-defined storage to HPE Edgeline Converged Edge Systems. This system enhancement enables storage-intensive use cases such as artificial intelligence, video analytics, or databases at the edge, while also leveraging industry-standard storage management tools such as Microsoft® Storage Spaces Direct, HPE StoreVirtual VSA, and VMware vSAN™.

To learn more about the latest addition to the HPE Edgeline product portfolio, please visit hpe.com/info/edgeline.

Advanced edge analytics—delivering more control to manufacturers

HPE Edgeline Converged Edge Systems are the first systems to shift enterprise—class IT from the data center out to the edge and converge it with OT systems. Designed to withstand the potentially harsh, hot, and dusty conditions of industrial environments, HPE Edgeline solutions are designed to harness the value of the data generated at the edge that cannot be practically sent to the cloud. With HPE Edgeline, you benefit from:

- **Lower latency.** Gain faster insight from critical data to support immediate corrective action, rather than waiting for the data to be sent from the edge to the core and back again.
- **Lower bandwidth utilization.** Make decisions locally to reduce data transferred to the cloud, which reduces bandwidth costs.
- **Reduced costs.** Analyzing data at the edge saves on costly network infrastructure and storage, required by a traditional cloud or data center-only solution.
- **Enhanced security.** With fewer data transfers to and from the central data center, data remains at the edge, not exposed to security breaches.
- **Improved reliability.** By managing data locally, the risk of data corruption during transfer is lowered; data is computed at the edge rather than at a distant data center or cloud.
- **Streamlined management.** Rather than use different boxes to connect, collect, and analyze data, and then take actions on machines or environments, HPE Edgeline systems converge those functions in one box. HPE Integrated Lights Out 4 (iLO 4) manages the entire system—including maintenance, updates, and security patches—and can be used remotely.
- **Data policy and compliance.** With data being held locally, and not shipped across boundaries, manufacturers can maintain compliance with local standards of data usage and transfer.



Why HPE Edgeline systems for edge-to-cloud computing?

- **Purpose-built for the edge.** In addition to providing remote management and handling high shock and vibration levels, rugged Edgeline EL1000 and EL4000 systems are designed to withstand environmental conditions from 0°C to 55°C during full operation.
- **Convergence.** Offering the ultimate convergence of IT and OT at the edge HPE Edgeline systems include PXI cards, PLC, and manufacturing execution systems, as well as SCADA, CAN, and Digital IO. In addition, HPE Edgeline systems optimize efficiency in terms of space, energy, latency, cables, deployment time, and the time to build and manage OT and IT solutions.
- **Comprehensive services and support.** HPE Pointnext and Industry Partners leverage broad and deep technical expertise and innovation to help accelerate digital transformation and support manufacturing companies as they move to edge computing. A comprehensive portfolio of operational, advisory, and professional services helps manufacturers evolve and grow today and into the future.
- **New prospects for innovation.** HPE Edgeline systems are opening doors for innovation across industries. Organizations are using data from connected assets to extend beyond predictive maintenance to optimize process performance from the same asset information.

HPE Edgeline solution portfolio

Solutions	HPE components	Partner components
Condition Monitoring and Predictive Maintenance	HPE Edgeline EL1000 Converged Edge System Aruba secure wireless network, including ruggedized access points, access control, and location-based services	National Instruments LabVIEW data analytics software PTC ThingWorx Industrial IoT Platform
End-of-Line Quality Testing	HPE Edgeline EL1000 or EL4000 Converged Edge System with HPE ProLiant m710x or m510 Server Blades	National Instruments LabVIEW data analytics software Relimetrics video machine learning and analytics
Turnkey IoT for Manufacturing	HPE Edgeline EL1000 or EL4000 Converged Edge System with HPE ProLiant m710x or m510 Server Blades	PTC ThingWorx Industrial IoT Platform National Instruments CompactRIO Measurement System Deloitte Digital Strategy and Implementation Consulting Services
Industrial IoT Starter Kit	HPE GL20 IoT Gateway	Softing dataFEED OPC Suite Microsoft Windows® IoT Enterprise Edition Microsoft Azure IoT Connected Factory Solution Accelerator Technical support
Smart Product Engineering	HPE Edgeline EL1000 or EL4000 Converged Edge System with HPE ProLiant m710x or m510 Server Blades	PTC ThingWorx Industrial IoT Platform PTC Creo CAD ANSYS software National Instruments LabVIEW data analytics software

Our solution partners



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Texmark Chemicals deploys IIoT at the edge

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