

# ACCELERATE YOUR PATH TO SMARTER MANUFACTURING

## Use AI to monitor equipment at the edge

The Internet of Things (IoT) has brought intelligent devices, networked sensors, and more to the shop floor, driving a massive increase in the amount of data available to manufacturers about the state of their operational technology (OT). The challenge is using that data so that you make smarter equipment-based decisions tailored to your needs, your system, and your environment.

For example, maintaining and monitoring this equipment is not easy. But unexpected malfunctions and even regularly scheduled maintenance can be costly in terms of downtime, lost productivity, and risk. As a result, some organizations spend countless hours performing manual inspections and analyses of their assets.

With the right solution, manufacturers should be able to rapidly analyze time-sensitive data about any given asset, such as temperature and pressure, and then take immediate action based on that data. To achieve that, you must transform the IoT data into meaningful, actionable information, and that requires expertise in multiple areas, from manufacturing OT and production processes to IT hardware, software, and enterprise systems. And you must do it without incurring the latency, burdensome network bandwidth, storage, and security issues of moving data to the cloud.

PTC and HPE solutions enable you to use IoT technologies to digitally monitor your critical assets at the industrial edge, where data is generated and captured. Our solutions help you better understand the health and performance of your equipment in real time and improve asset maintenance decision-making so that you can maximize revenue, reduce costs, and drive operational efficiency.

PTC provides ThingWorx and Vuforia, two industry-leading industrial IoT solutions that power applications and augmented reality (AR) experiences that you can deploy via HPE Edgeline Converged Edge Systems or by HPE GreenLake, according to your plant's unique needs. This combination lets you rapidly ingest and analyze IoT data at the edge, while avoiding the costs, latency, and security risks of different system designs associated with large data transfers.

HPE Edgeline converged edge systems converge operational technology—such as data acquisition, control systems, and industrial networks—with enterprise-class IT in a single, rugged system suited for harsh edge environments to enable innovative new abilities at the edge. These industrial-grade network edge devices are hardened for IoT edge environments and can operate in virtually any environment to deliver secure, uninterrupted connectivity. Upgradability and I/O options provide an enduring foundation for your future IoT plans, enabling you to expand your IoT infrastructure beyond the confines of the traditional data center and avoid vendor lock-in. And HPE GreenLake offers a pay-as-you-go model that allows you to mitigate risk and complexity.

PTC ThingWorx software is flexible and purpose-built for IoT. The platform empowers industrial enterprises to digitally transform every aspect of their business with innovative solutions that are simple to create, easy to implement, scalable to meet future needs, and accelerate time to value because the ThingWorx architecture incorporates modular functionality that simplifies development and includes prebuilt applications for fast, easy implementation of IoT solutions for common use cases in a variety of industries.

## KEY FEATURES AND BENEFITS

By combining the HPE industry-leading portfolio of edge-to-cloud solutions with the PTC innovative software, you can:

- Automate costly, risky, remote, error-prone, and time-consuming manual processes and enhance your ability to monitor asset status in real time.
- Leverage machine learning (ML), a type of AI, to automatically predict and avert failures, thereby reducing asset downtime and increasing asset productivity.
- Connect disparate devices and applications to enable access to multiple data sources, and leverage data from those connected products and systems to increase productivity, reduce costs, and increase efficiencies.
- Analyze complex industrial IoT data for real-time insights, predictions, and recommendations.
- Manage the performance of connected devices, processes, and systems.
- Facilitate remote collaboration, supervision, and maintenance to reduce downtime and increase asset productivity with AR capabilities.
- Build complete IoT solutions and AR experiences quickly and easily.
- Unlock new business models, such as product as a service, to realize value-added opportunities, scale to new markets, and improve throughput.

- Get to market faster using a rich set of industrial IoT capabilities.
- Wrap and extend existing assets within your connected solution.
- Make product, service, and factory operations more secure and scalable.
- Improve service quality, reliability, and satisfaction.

HPE and PTC solutions put factory data at your fingertips, generated and processed at the industrial edge. We bring together a specific set of products, advisory, integration, and runtime services that are tested and proven to enable deployments with minimum risk and cost. With purpose-built AI-optimized solutions that makes use of industry-specific best practices while taking into account your unique situation and needs, you can use real-time insights into machine status and factory performance to maximize efficiency, lower costs, and increase safety and compliance. With insight available precisely where and when you need it, you can react in real time and accelerate your IoT time to value and ROI.

## Our solution partner



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