

Empowering Smart Manufacturing

Benefits of VMware Edge Compute Stack

Transform operations at the manufacturing edge with a software-defined approach leveraging purpose-built solution.

Extend the power of IT automation and software defined capabilities to OT applications and infrastructure.

Increase the agility of manufacturing operations with a scalable and flexible platform

Industry 4.0 ushers in a new era of digital manufacturing with smart technologies throughout the factory floor. The incorporation of AI, including computer vision and machine learning, improves decision-making for increased quality and overall efficiency. Agility increases with new technologies that enhance production line flexibility to address supply chain issues, labor shortages, or changes to product mix. When implemented correctly, these new technologies reduce energy consumption and waste to support sustainability goals.

Despite investments, many companies fail to scale Industry 4.0 technologies beyond the pilot stages. The reliance on traditional single-function systems leads to inefficiencies and high support costs. The lack of visibility, outdated software, or no standard processes to back up these systems pose security risks, making manufacturing vulnerable to cyberattacks.

Manufacturing edge needs a platform approach

By adopting a platform approach, manufacturers can overcome traditional barriers, embrace Industry 5.0 benefits, and drive future success.

However, not all edge computing solutions are created equal. Manufacturers can transform operations at the edge with a software-defined approach powered by VMware by Broadcom. VMware offers a practical and efficient solution by running modern and legacy applications on commercial off-the-shelf hardware. This approach lowers support costs, increases uptime, simplifies backup and restore processes, and improves agility and sustainability.

VMware Edge Compute Stack

VMware Edge Compute Stack is an edge-optimized runtime and orchestration platform for frictionless management of edge apps and infrastructure across many sites with limited resources. VMware Edge Compute Stack includes VMware Edge Cloud Orchestrator, which provides zero-touch provisioning and lifecycle management of applications and infrastructure. This enables manufacturers to modernize and simplify the delivery and maintenance of technology in their operations.

Learn more

VMware Edge Compute Stack,
www.vmware.com/products/edge-compute-stack

Many manufacturers already run all their enterprise workloads, network, and server infrastructure on VMware for years. With VMware Edge Compute Stack, manufacturers can now extend the power of IT automation and software-defined capabilities to enhance manufacturing processes and infrastructure.

VMware Edge Compute Stack powers key edge use cases for the smart manufacturer



- **Computer vision for quality inspection:** Use AI/ML and computer vision to identify defects in the parts being produced. Manage application lifecycle and update through the desired state. The process at the edge decreases the risk of sending intellectual property information to the cloud and reduces bandwidth requirements.
- **Data acquisition for OEE and predictive maintenance:** Data from machines are captured and analyzed to gain insight and better predict maintenance cycles to improve uptime of machinery or optimize processes. This reduces machinery downtime and increases overall equipment effectiveness (OEE).
- **Secure edge app management:** Secure distribution and management of application life cycles for suppliers, internal teams for production development and testing. Ensures standardization of application and the software stack and enables full control of application security and life cycle.
- **Computer vision for worker safety:** Use computer vision to improve worker safety (such as PPE checks) and compliance with regulations. Identify potential hazards (smoke, fire) to prevent injury. This reduces injury risk, eases regulatory compliance and lowers insurance cost.
- **Virtual production station:** Replace industrial computers (IPCs) and human machine interface (HMI) used in the assembly line with software virtual machines. Enables centralized management and easy software patching to reduce cyber/ransomware risk while increasing uptime.
- **Virtualize PLC:** Convert physical PLC used to drive processes or automation to virtualized software PLC. Centralizes operation and management, reduces dependency on proprietary hardware, and increases flexibility.