

Automotive

Analyzing data at the edge to keep production lines rolling

VHIT

Using Lenovo technologies and OEM solutions, powered by NVIDIA® T4 GPUs, to analyze video feeds of manufacturing equipment, act on potential issues fast, and deliver high-quality products to automotive clients on time.



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Who is VHIT?

VHIT (Vacuum & Oil Pump Products Italy) SpA is a leading producer of vacuum and oil pumps for the automotive sector. Headquartered in Offanengo, near Milan, the company offers high-quality products and services to clients around the world. VHIT was founded in the late 1950s, and throughout its history, spanning more than sixty years, the company has pioneered major developments, eventually becoming part of the Weifu High-Technology Group Co., Ltd. in 2022.

To keep just-in-time automotive supply chains supplied with crucial components, VHIT must run its manufacturing lines at peak efficiency. Avoiding manufacturing errors and equipment malfunctions are key goals for the company, as these issues can delay deliveries to clients—leading to missed sales opportunities and possibly even damaging hard-won business relationships.



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The Challenge

To reduce the risk of downtime in its production lines, VHIT depends on data. Corrado La Forgia, CEO at VHIT, explains: “We use programmable logic controllers [PLCs] and a manufacturing execution system [MES] to help control and automate key workflows on the factory floor. Previously, we supported this environment using traditional PCs distributed across the manufacturing facility.”

With numerous standalone traditional PCs—not designed for the manufacturing environment where things like continuous operation, high temperature, and vibrations are common—to maintain, the organization faced considerable challenges in managing and maintaining its IT estate. Namely, driving up operational costs and increasing the risk of unplanned downtime in its monitoring and control systems.

“We are passionate believers in the concept of mechatronics: combining the disciplines of mechanics, electronics, and computing to create smarter systems,” continues La Forgia.

“We aimed to use the latest AI, Internet of Things [IoT], and machine learning technologies to unlock new insights and maximize asset availability. We knew the legacy PCs would be unable to support our long-term mechatronics goals—so we looked for a fresh approach.”

“By harnessing real-time data from the factory floor, we can predict faults before they occur—allowing us to perform preventative maintenance and minimize the risk of manufacturing delays. The goal was to analyze data from a video system positioned on the assembly stations for production monitoring, and detect potential issues automatically.”

Corrado La Forgia
CEO, VHIT

Why **Lenovo**?

To turn its concept into a reality, VHIT selected purpose-built edge solutions from Lenovo. To incorporate the typical requirements of embedded computing (security, real-time and safe, deterministic behaviors) into modern networked, virtualized, containerized lifecycle management and rich computing, Lenovo partnered with Lynx Software Technologies to harness its LYNX MOSA.ic for Industrial software offering—a platform capable of running mission-critical environments and part of the Lenovo OEM ecosystem of solutions for smart manufacturing.



High performance in harsh environments

Together, Lenovo and Lynx developed two distinct edge solutions to address several different scenarios.

The first, based on Lenovo ThinkEdge SE50 hardware and LYNX MOSA.ic for Industrial software, was designed to securely consolidate and orchestrate the virtualization of both the PLC as well as the video inspection and quality control application, with analytics models developed by VHIT. This solution delivers the reliability and computational capacity of a modern industrial PC directly on the production line, replacing poorly connected, fragmented, and aging subsystem controllers.

Hardware

Lenovo ThinkSystem SE350
Lenovo ThinkEdge SE50
NVIDIA® T4 GPUs

Software

LYNX MOSA.ic for Industrial

The second, based on two high-performance Lenovo ThinkSystem SE350 edge servers equipped with NVIDIA® T4 GPUs, enabled VHIT to consolidate the data from several production lines, and to apply advanced machine learning algorithms at the edge.

La Forgia comments: “The factory is a harsh environment. On some operating machines there is a thermal load on the electronics and vibrations, so we wanted platforms that were highly resilient. The Lenovo edge solutions deliver exactly what we were looking for: rugged devices able to run both modern and legacy applications at different levels, spanning from a small industrial PC footprint to a high-density compute server with GPU-class performance in just a 1U half-rack.”

Thanks to these solutions, VHIT can analyze video footage from cameras on the factory floor in real time, apply advanced machine learning algorithms at the edge, and alert employees to irregularities in materials or equipment, enabling them to take prompt action to resolve issues and avoid downstream delays.



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“The edge solutions from Lenovo send machine-learning insights directly to our MES—allowing our employees to make better-informed decisions, faster.”

Corrado La Forgia
CEO, VHIT

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Results

By implementing robust industrial solutions, VHIT has boosted the reliability of its production systems, improving availability. The company is also driving a double-digit percentage improvement in IT management efficiency, contributing to a significant reduction in operational costs.

Most importantly, the new solutions help the company to identify potential manufacturing issues faster, reducing the risk of costly delays to its production lines.

“Our automotive clients depend on us to keep their own manufacturing processes moving smoothly, so it’s critical that we can deliver high-quality products on time, every time,” says La Forgia. “Thanks to our IT platforms from Lenovo and NVIDIA, and our mission-critical virtualization software solution from Lynx, we can ensure maximum levels of availability for our mission-critical manufacturing assets.”



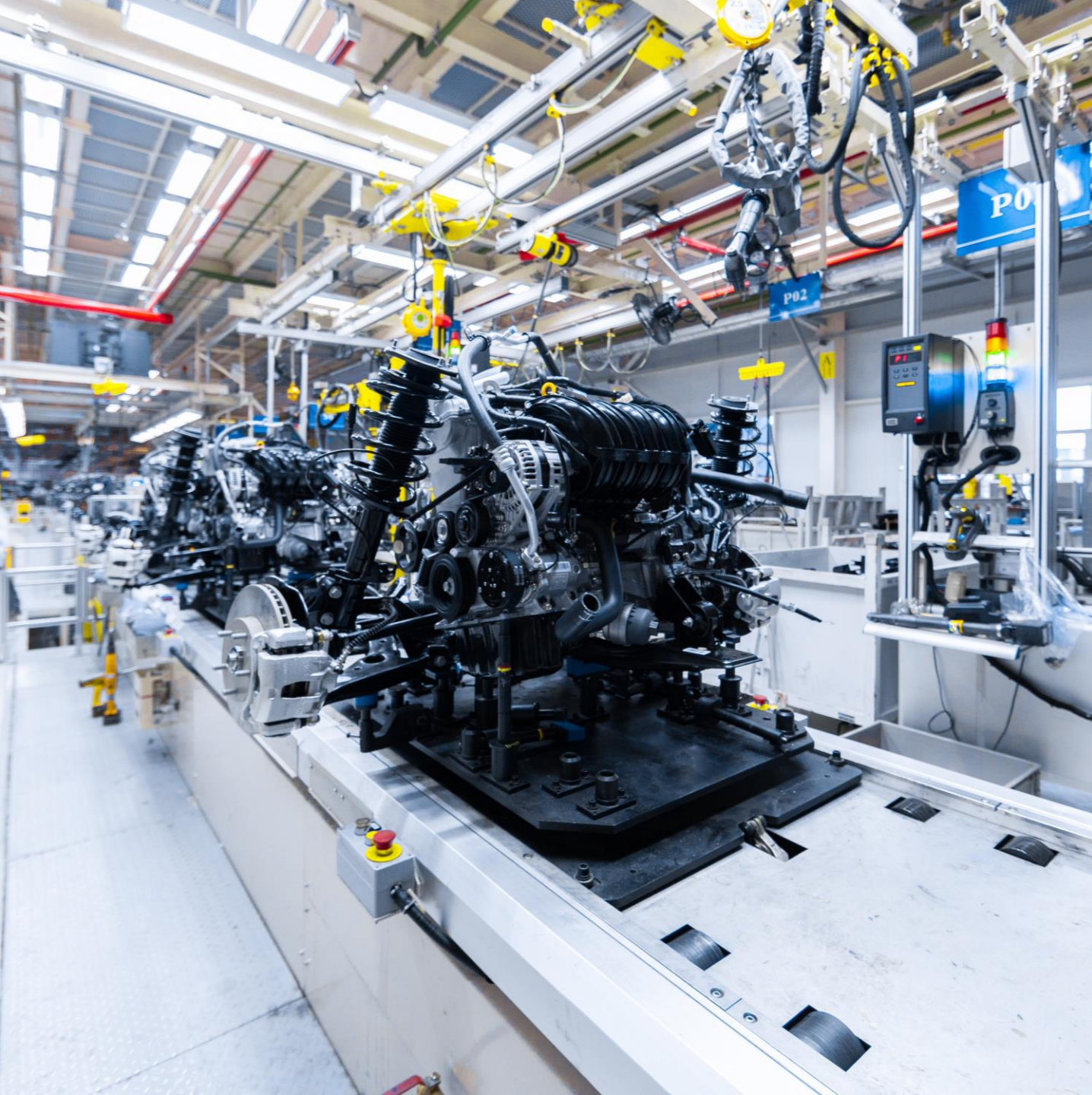
Enables machine learning at the edge



Minimizes operations downtime



Reduces IT operational costs



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“With our Lenovo edge solutions, we can analyze video footage right at the time and place that it’s created—allowing our employees to investigate possible manufacturing issues before they impact our production lines.”

Corrado La Forgia
CEO, VHIT

How can you predict manufacturing issues before they occur?

Acting on potential issues fast and delivering high-quality products to automotive clients on time with Lenovo and NVIDIA® technology.

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