Manufacturing

Bringing industrial robots to global clients

Fulnex

How Fulnex—the IT solutions provider to Siasun Robot & Automation Co. Ltd.— used Lenovo ThinkAgile and ThinkSystem solutions with NVIDIA® GPUs to deliver advanced 3D design tools to its parent company's engineers and facilitate Siasun's move to SAP S/4HANA.

Lenovo

NVIDIA.

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Who is Fulnex?

Headquartered in Shenyang, China, Siasun Robot & Automation Co. Ltd. is one of the world's leading robotics companies, with the largest manufacturing base in the country. Founded in 2000, the organization has a presence in industrial parks in Shanghai, Hangzhou, Qingdao, Tianjin and Wuxi, and a national service network covering six major geographic regions in China.

In 2019, Fulnex—born out of Siasun's IT services function—was officially established. Fulnex leverages Siasun's strong talent bench and mature operating model to deliver software development, system integration, and IT operations and maintenance services for internal and external customers.

SIASUN

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The
challenge

Siasun aims to continue its business growth, delivering industrial robots and smart industrial equipment to clients in China and around the world. Robotics design and control systems are a key component of the company's offering, and Fulnex supports Siasun by providing IT infrastructure and software solutions for more than 5,000 employees.

"**Industrial robots are highly customized based on each client's specific use case. To help design robotics solutions that integrate seamlessly with client workflows, Siasun's engineers rely on 2D and 3D design tools, as well as computationally demanding simulation software. Fulnex provides the IT platforms for these tools, and we also support Siasun's back-office teams with business systems to help manage core processes such as financial accounting, controlling, and human resources management.**"

Guo Peng
CEO, Fulnex

In the past, Fulnex used a traditional three-tier IT environment and individual workstations to deliver information services to Siasun. To support its parent company's planned move to SAP S/4HANA, the organization realized it would be crucial to enhance its compute, storage, and networking resources. At the same time, the company looked to reduce the cost and complexity of managing workstations for Siasun researchers and engineers.

"We wanted to help Siasun to maximize the business value of its investment in the next-generation ERP system, SAP S/4HANA," Peng continues. "At the same time, we wanted a more effective way to keep 1,000 high-performance workstations patched and hardened against cyber threats, which was a time-consuming process for our lean IT team."

> "Many Siasun employees use 3D design software with substantial CPU and GPU requirements—and regular refresh cycles for these systems are a significant cost-driver. By switching to a virtual desktop infrastructure [VDI], we were confident we could streamline the patching process while reducing costs."
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> **Guo Peng**
> CEO, Fulnex

Simple management,
lower costs

To host the new VDI environments, Fulnex selected a Lenovo ThinkAgile HX3520-G Appliance equipped with high-density NVIDIA® data center GPUs and NVIDIA Virtual GPU (vGPU) software, running VMware Horizon and Citrix VDI. To enhance security, the environment is partitioned to ensure that application servers are isolated from user desktops, applications, and documents.

For its production SAP S/4HANA database, Fulnex chose two all-flash Lenovo ThinkSystem SR950 servers configured as a local high-availability cluster, with applications deployed on three Lenovo ThinkSystem SR650 NVIDIA-certified servers virtualized with VMware vSphere and connected to a Lenovo ThinkSystem DM5000H Unified Hybrid Storage Array. Finally, the organization selected an additional Lenovo ThinkSystem SR650 server for its SAP S/4HANA development, test, and disaster recovery environments. Both the Lenovo ThinkAgile and ThinkSystem environments are built on the Nutanix Enterprise Cloud OS, managed from a single point of control via Nutanix Prism and Lenovo XClarity software.

Hardware
Lenovo ThinkAgile HX3520-G Appliance
Lenovo ThinkSystem DM5000F SAN Flash Storage Array
Lenovo ThinkSystem DM5000H Unified Hybrid Storage Array
Lenovo ThinkSystem SR650 Server
Lenovo ThinkSystem SR950 Server
NVIDIA® data center GPUs

Software
Citrix VDI
Lenovo XClarity
Nutanix Enterprise Cloud OS
Nutanix Prism
NVIDIA RTX™ Virtual Workstation (vWS)
NVIDIA Virtual PC (vPC)
SAP S/4HANA
VMware Horizon
VMware vSphere

Working with a team from Lenovo, Fulnex deployed the new solutions at its primary data center. By embracing HCI, the organization benefits from a simplified IT architecture and lower costs.

"Orchestrating all compute, storage, and networking resources from a central point greatly reduces the management workload for our IT team," says Peng. "Thanks to data compression and deduplication, we can also shrink our storage requirements—further increasing the overall cost-effectiveness of the solution."

Fulnex is now gradually replacing standalone workstations with virtual desktops, scaling out its Lenovo ThinkAgile HX3520-G Appliance to 21 nodes with NVIDIA GPUs and NVIDIA vGPU software—NVIDIA RTX™ Virtual Workstation (vWS) and NVIDIA Virtual PC (vPC). This deployment addresses the deficiencies of VDI by bringing graphics and compute acceleration to the data center, supporting 800 3D design users and 600 standard virtual desktops. The organization has also provisioned a brand-new high-performance computing (HPC) environment to run its simulation software.

Peng adds: "Our HPC solution is powered by 11 Lenovo ThinkSystem SR650 servers equipped with NVIDIA GPUs and connected to a Lenovo ThinkSystem DM5000F SAN Flash Storage Array—delivering advanced analytics capabilities to 100 Siasun users."

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"By selecting Lenovo servers equipped with NVIDIA GPUs and NVIDIA vGPU solutions, we can deliver maximum performance for even the most demanding 3D design software."

Guo Peng
CEO, Fulnex

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Results

Equipped with the new HCI solution, Fulnex is achieving its goal of delivering a future-ready IT platform to support Siasun's continued growth.

"Our HCI platform offers linear scalability, which means it's fast, straightforward, and cost-effective to add more virtual desktops in line with business requirements," confirms Peng. "The combination of Lenovo flash storage, NVIDIA GPUs, and NVIDIA vGPU software solutions also allows us to eliminate performance bottlenecks for both VDI and SAP S/4HANA workloads, delivering excellent stability for our end users."

By fine-tuning its HCI environment with assistance from Lenovo, Fulnex is exceeding its predicted resource utilization—enabling it to achieve an excellent price/performance ratio. "During the planning stages, we predicted that we would be able to utilize around 60% of our CPU, GPU, and memory resources, but the actual figure is 85%—an outstanding result," says Peng.
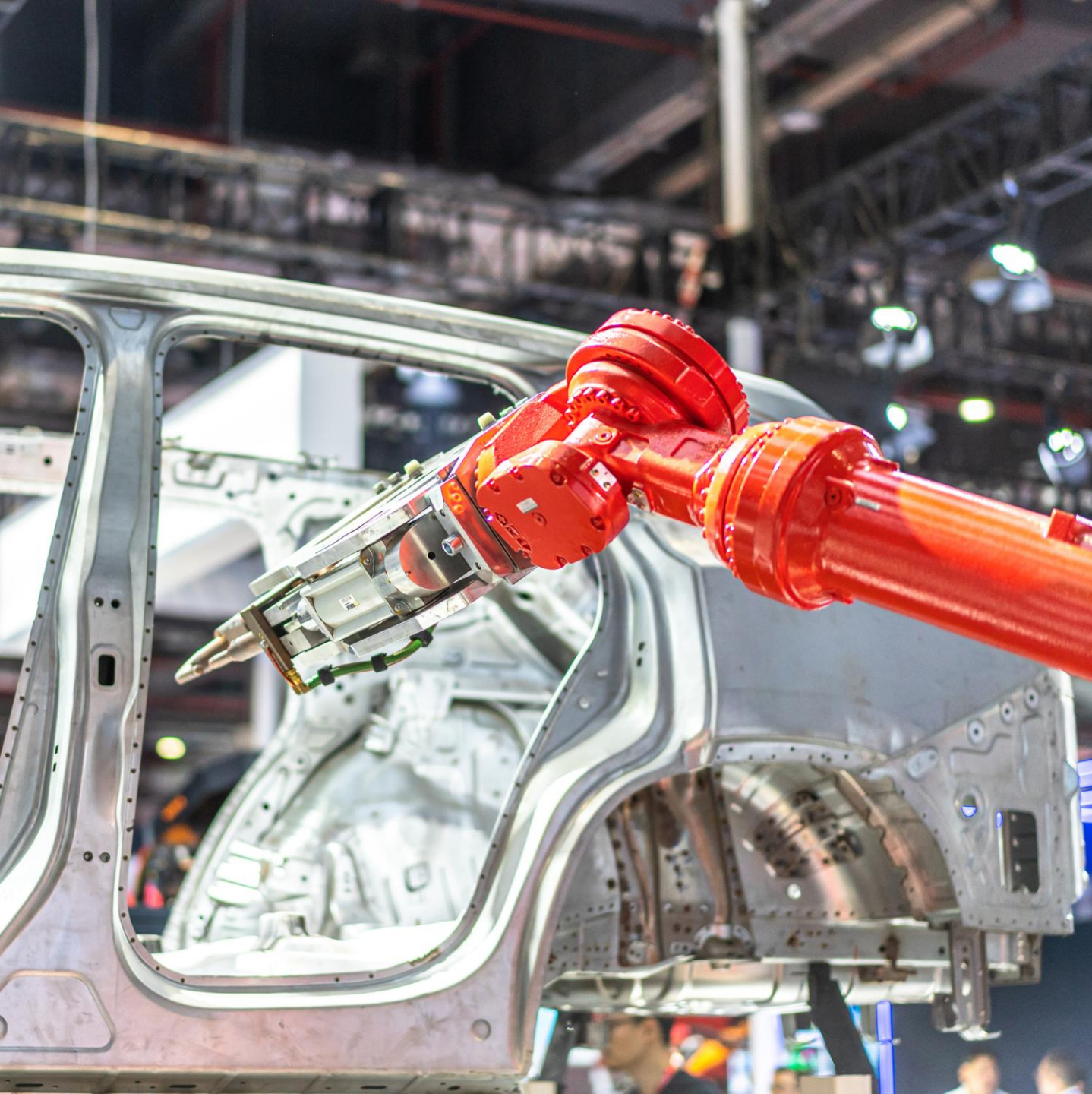
✓ Enables 85% resource utilization with no loss of performance

✓ Supports 1,500 VDI users, including demanding 3D design applications

✓ Offers seamless scalability, facilitating business growth

"Thanks to Lenovo and NVIDIA solutions, we can provide a high-performance IT environment that empowers Siasun's engineers to design high-quality robotics solutions for clients all over the world."

Guo Peng
CEO, Fulnex

Why **Lenovo**?

After evaluating solutions from a shortlist of market-leading vendors, Fulnex selected Lenovo and NVIDIA to deliver its new IT infrastructure. By replacing a traditional three-tier environment with a hyperconverged infrastructure (HCI), Fulnex improves resiliency and scalability while ensuring it has the compute performance to meet the requirements of SAP S/4HANA. The new infrastructure also allows Fulnex to replace standalone workstations with VDI, delivering cutting-edge 2D and 3D design applications to Siasun employees at reduced operational cost.

"Through a rigorous process involving more than a year of testing and analysis, we confirmed that the Lenovo and NVIDIA solution offers the most stable performance for Siasun's key applications," says Peng. "We were also impressed with Lenovo and NVIDIA's international reach, which will be valuable as Siasun continues its global expansion."

How Do You Design the Next Generation of Industrial Robots?

Empowering engineers with a HCI solution from Lenovo and NVIDIA.

Explore Lenovo Software-Defined Infrastructure