



SMARTER TECHNOLOGY FOR ALL

Lenovo

 NVIDIA

SIENA
ANALYTICS 

Lenovo and NVIDIA AI solution for supply chain distribution

Transform every box into traceable, actionable data with Siena Analytics and accelerate the path towards a more automated future of logistics.

Challenge

Distribution and fulfillment operations are undergoing a massive makeover as they transform to meet the growing on-demand economy. The evolving omni-channel landscape, increasing volumes and faster and more transparent delivery requirements demand better visibility into the supply chain operations.

Data and its channels of creation are at the forefront of a much-required innovation to create connected eco-systems that facilitate interactions between internal and external parties up and down the supply chain that directly inform business operations.

The business transformation niche and digitization of the supply chain management is currently at \$17Bn reaching \$37Bn by 2027 at a compound annual growth rate (CAGR) of 11.2%. Procurement and vendor management solutions are primed for high growth given the omnichannel requirements of digitally transformed/transforming enterprises.

Solution

Lenovo in partnership with Siena Analytics and NVIDIA, offers a solution that makes logistics teams more efficient, by using automation to instantly scale manual processes and leverage data that would otherwise be left on the distribution center floor. Siena's analytics tools were developed specifically for logistics by founders with deep industry experience. Siena integrates seamlessly into existing hardware, enterprise software, and IT infrastructure. A single team can implement the solution without significant investment, on any sensor system.

[Solution brief](#)

Siena's suite of products yields intelligence for improved supply chain and distribution to power digital transformation from the heart of the enterprise.

Siena Insights is a modular suite of AI technology providing Package Intelligence across the supply chain. Transform every box into traceable, actionable data and share images and data enterprise-wide. The only vendor-agnostic, no-code AI solution for retail, shipping and logistics, Siena Insights enables true visibility so you can sort non-stop.

 **Tunnel Insights** - Real-time, 6-sided package images, and dimension data to diagnose maintenance and package issues faster

 **Facility Insights** - Dashboard view of all scanning tunnels in a facility with customizable AI reporting and alerts for anomaly detection

 **Learning Insights** - an end-to-end no-code solution for training and deploying AI models unique for detecting and classifying problem packages

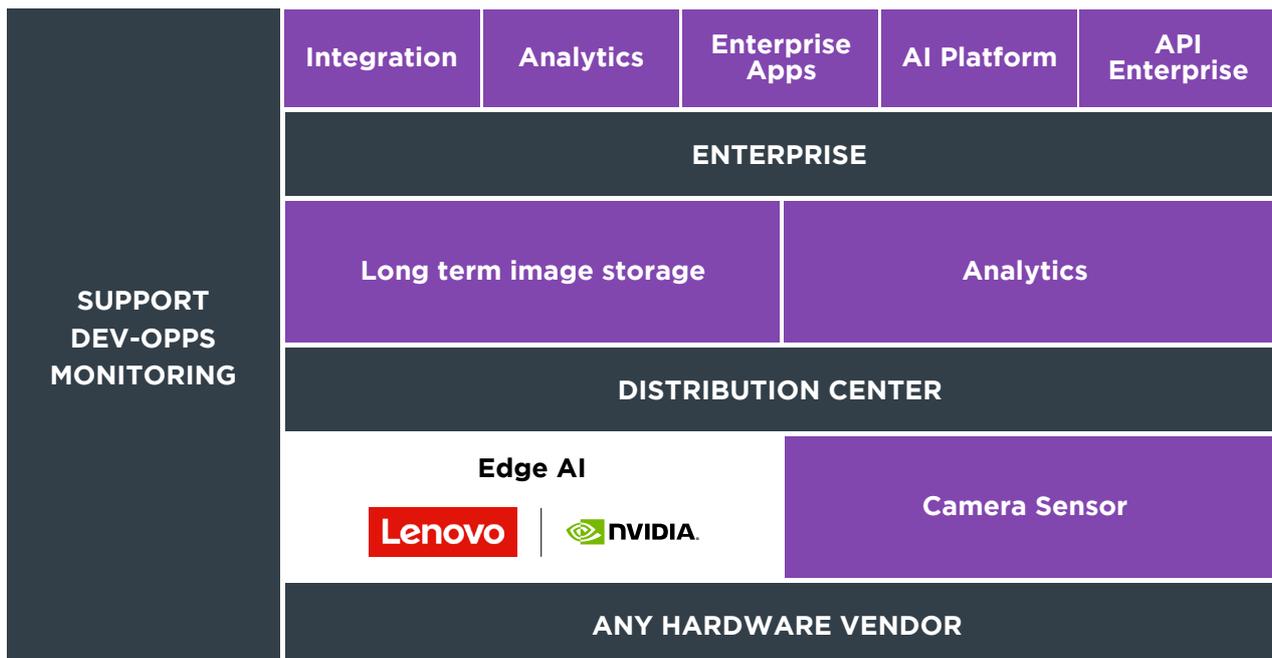
Validated Architecture

The Siena Insights solution captures images and data from sensors inside an automated warehouse to provide real-time visibility at scale.

Our Edge Appliance connects directly to your existing logistics sensors. It combines the images and data captured by sensors and feeds into our proprietary algorithm. Our AI models are used to look at all sides of every package flowing into and out of the warehouse each day in real-time.

The Siena Insights Analytics platform creates a virtual inventory that includes details for features recognized by the AI models including package type, label type and all relevant markings related to each case.

The solution can be deployed on-premises, in-the-cloud or in a hybrid infrastructure. Our Edge AI appliance with Lenovo uses their ruggedized NVIDIA-Certified ThinkSystem SE350 edge server powered-by NVIDIA A2 GPUs.



Design Components

Servers	Storage	Networking	Accelerator	Software
Lenovo ThinkSystem SE350	2x 1.92TB SSD for data 2x 128GB SSD for OS	2-Port 1/10GbE RJ45 2-Port 10/100/1GbE RJ45	GPU: NVIDIA A2 CPU Intel Xeon D-2143IT 8C	OS and Container – Red Hat Enterprise, Docker Camera Sensors – Cognex, SICK, Datalogic and others AI technologies – Google (TensorFlow, AutoML), Intel (OpenVino Toolkit, Intel Core), NVIDIA (A2 GPUs and Triton)

Summary

As package volume increases, manual processes become failure points and bottlenecks. The immediate opportunities for supply chain leaders to exploit billions of gigabytes of data being produced is game changing.

- Gain visibility into your real-time inventory.
- See everything moving through your distribution center.
- Share package images upstream and downstream for traceability and quality assurance.
- Search by barcode, tunnel, facility, and time period.
- See live read rates for your entire supply chain.
- Grant remote access to show maintenance providers how your sorting equipment is performing.
- Apply predictive analytics to fine-tune camera and laser tunnels.
- Run no-code AI, linking data and images across your supply chain.
- Open fewer boxes to see what is really inside.

Enabled by Lenovo and NVIDIA, Siena Analytics' Siena Insights helps organizations with flexible deployments of AI capabilities at the edge to provide immediate insights into vendor compliance, QA, and problem packages.

Resources

- [Explore the Lenovo HPC and AI Innovation and Briefing Center](#)
- [Lenovo Validated Design for AI Infrastructure on ThinkSystem Servers](#)
- [Siena Analytics Website](#)
- [Lenovo and NVIDIA Power of 2](#)

Why Lenovo

Focused on a bold vision to deliver smarter technology for all, Lenovo is developing world-changing technologies that create a more inclusive, trustworthy, and sustainable digital society. By designing, engineering and building the world's most complete portfolio of smart devices and infrastructure, we are also leading an Intelligent Transformation – to create better experiences and opportunities for millions of customers around the world. To find out more visit www.powerof2.nvidia.lenovo.com.

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