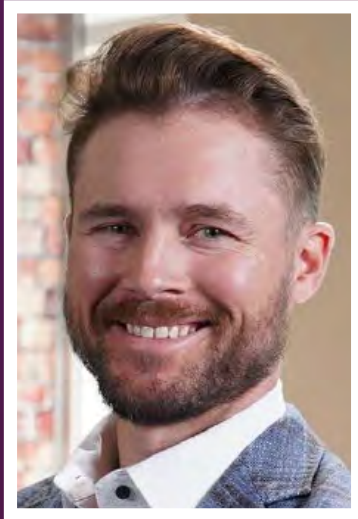Edge AI from Lenovo and Intel®

Your comprehensive guide to unlocking retail AI

intel. + Lenovo

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Introduction

Unlocking retail AI

Welcome to the Lenovo and Intel® guide to unlocking the potential of retail AI. We're here to help you to navigate the power of artificial intelligence (AI) and edge computing so that you can unlock intelligent transformation, drive operational efficiency, and deliver greater productivity.

From immersive shopping experiences to loss prevention, from inventory management to computer vision-enabled quality control and enhanced customer services, Lenovo and Intel® bring power and performance to where retailers need it most.

Our comprehensive portfolio of software, services, and Intel® powered hardware sets us apart, positioning Lenovo as a transformative leader in the competitive AI industry. Discover how we can help you unlock smarter decision-making, accelerate workloads, right-size infrastructure, simplify and scale – all at the edge.

This interactive guide offers actionable insights and use cases to help start your business accelerate its transformation.

Take this journey with us, as we venture into the exciting – and rewarding – realm of edge AI.

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Powering Edge AI with Lenovo and Intel®

Intel® and Lenovo's partnership brings together Intel's processing prowess and Lenovo's powerful hardware. The result? High-performing, secure and reliable computer power where data is generated for fast insights and faster return on investment.

The Intel® and Lenovo partnership also means that your edge deployments will benefit from the very best management tools, such as Lenovo XClarity One, which enables you to deploy edge solutions rapidly and securely, enhancing the performance, reliability and overall efficiency of your infrastructure. The Intel® Tiber™ Platform enables you to leverage mass customization and use-case specific software, so it speeds up your time to market with built-in optimizations and streamlined solution management. Lenovo Open Cloud Automation (LOC-A) expedites the deployment of distributed edge infrastructure, so that you require fewer resources and reduce CO_2 emissions. It also gets you results by bridging the gaps between tooling and your infrastructure management teams.

Plus, you can gain expert advice from the Lenovo AI Center of Discovery and Excellence, offering AI Discovery to AI Advisory Services and AI FastStart POCs in just 90 days. And, if you don't want to invest in infrastructure Lenovo's TruScale offers you flexible pay-as-you-go solutions for your devices, infrastructure, and data management options. This means you can avoid over-provisioning and benefit from real-time cost insights for predictable budgeting with no surprises.

→ Lenovo XClarity One

→ Lenovo Open Cloud Automation (LOC-A)

→ Intel® Tiber™ Edge Platform

Resources:

→ Lenovo and Intel building solutions for tomorrow website

→ Edge computing solutions and technologies from Intel website

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The retail business case for edge AI

Is your organization facing:

- Inventory management challenges?
- High levels of lost stock and shrinkage?
- Uneven in-store footfall?
- Lack of engagement across retail channels?

What if... you could gain near-real time insights from all parts of your business to create dynamic, more meaningful customer experiences, and reduce inventory loss?

71%

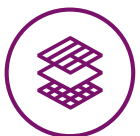of retailers plan to invest in IoT solutions to improve the in-store experience[1]

For retailers Edge AI promises a powerful combination of AI to drive operational efficiency and edge to accelerate time to insights. **It will help you deliver:**

Immersive shopping experiences. Using interactive digital kiosks, and mixed / augmented reality applications.

Improved inventory management. IoT devices, RFID, and smart shelves for real-time visibility.

Targeted loss prevention. Deploying computer vision to reduce theft and shrinkage.

Exceptional customer service. AI-enabled chatbots and virtual assistants for real-time response.

The Lenovo + Intel® approach:

Lenovo ThinkEdge® offers the broadest edge portfolio on the market, featuring the highest performance-per-accelerator (PPA) and most advanced embedded graphics performance. Plus, the **Lenovo AI innovators program** has more than 165 industry and horizontal ISV AI solutions for you to leverage.

Your edge AI checklist:

- [ ] Identify priority business use cases
- [ ] Develop AI and edge proof of concept
- [ ] Create technology foundation framework
- [ ] Develop a go-to-market plan

Resources:

→ Revolutionizing retail with edge computing infographic

→ AI Solution for End-to-End Retail Analysis in the Physical Space case study

1. Source: Lenovo Intel Campaign – Retail Infographic

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Optimizing retail data on the edge

What if... you could gain near-real time insights from all parts of your business to create dynamic, more meaningful customer experiences, and enable just in time delivery?

66%

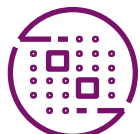of retailers running or plan to run AI workloads at the edge[2]

Edge computing has the potential to revolutionize retail, helping you:

Process data closer to where it is created, facilitating real-time analysis

Increase scalability of retail applications thanks to its distributed architecture

Reduce data in transit, minimizing the risk of data exposure

Process vast datasets to maximize smarter technologies

2 IDC's Global Retail Operating Models Survey, August 2022

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The Lenovo + Intel® approach:

Retailers are combining ThinkEdge, powered by Intel® with software-defined, high-performance ThinkAgile® clients and servers, and ThinkSystem® storage solutions. Lenovo also offers AI advisory services as well effective data and cost management through its **Lenovo TruScale** flexible pay-as-you-go solutions for your devices, infrastructure, and data management options. Plus, Lenovo's open partner ecosystem offers integration paths with partners such as NetApp™ AIPod, and Cloudian.

Your edge AI checklist:

☐ Create short and long-term milestones for your AI and edge strategy

☐ Outline investment needed for data infrastructure

☐ Set-up processes for data quality and accessibility

☐ Develop a performance monitoring framework

Resources:

→ How to unlock smarter decision-making at the edge website

→ Unleashing the power of edge computing flyer

→ Harnessing the power of edge computing flyer

Protect all your AI data

What if... you could manage and protect your organization's physical and digital security at the edge, safeguarding personal and private data, and protecting your IP?

50%
of CISOs believe encrypting sensitive data both at rest and in transit is a top priority[3]

Across outlets, stock rooms, and your omnichannel presence, edge computing is transforming retail connectivity and productivity. And while data processed closer to the source reduces latency and enhances real-time decision-making, it also decreases the attack surface for potential cyber threats.

The Lenovo + Intel® approach:

Address the evolving threat landscape with **Intel vPro®** and **Lenovo ThinkShield** offering your organisation:

- **Multilayered security;** from the hardware level up to the application level

- **Hardware-based protection**; provide a secure foundation for the device

- **AI-powered threat detection;** identifying and mitigating potential threats quickly

- **Remote management;** allowing IT teams to remotely discover, configure, update, and repair devices

- **Enhanced performance;** with up to 59% better application performance[4]

- **Comprehensive lifecycle protection**; from development to disposal

- **Virtualization security;** enhances protection for virtualized environments

- **Data encryption;** to protect sensitive data efficiently

Your edge AI checklist:

- [ ] Establish a multi-layered security framework

- [ ] Develop robust data and compliance policies

- [ ] Safeguard AI models and pipelines

- [ ] Create an incident response plan

Resources:

→ Fortifying the edge with advanced security flyer

3. Source: Lenovo Intel Campaign - Security Flyer
4. Source: with Intel Core™ Ultra processors

Cost management and sustainability

What if... you could harness the benefits of edge AI while minimizing your organization's environmental impact and maximizing cost effectiveness at the same time?

As data processing demands increase so environmental sustainability obligations increase. That's why Lenovo offer services designed to address the issue.

Lenovo Premier Support
Your IT teams need to be able to focus on your growth and innovation. With our Premier Support you get prompt issue resolution with advanced technical support 24x7x365 via a dedicated phone number routed to a Lenovo engineer.

Lenovo CO$_2$ Offset Services estimate carbon emissions and offset them through global climate action projects, which are verified third-party organizations such as the United Nations.

Lenovo Asset Recovery Services (ARS) helps you minimize waste and maximize circularity by securely managing the lifecycle of your IT hardware and effectively managing your end-of-life IT assets.

Hand-in-hand with environmental responsibility, there is an obligation to manage the cost of edge AI projects as they move from proof of concept to full deployment.

Lenovo TruScale
Infrasctructure As A Service is a pay-as-you-go model. It aligns infrastructure with your demands, avoiding over-provisioning and providing real time cost insights and predictable budgeting.

Your edge AI checklist:

- [ ] Offset edge AI hardware emissions
- [ ] Prep for asset recovery in all locations
- [ ] Estimate usage across project lifecycle
- [ ] Opt for pay-as-you-go model

Resources:

→ Lenovo and Intel know sustainability matters website

Retail case studies

Learn how other retailers have benefited from moving to the edge.

GUISE AI
AI AT THE EDGE

Guise AI

Providing anomaly detection, computer vision, and predictive maintenance – how Guise AI and Lenovo joined forces to deliver actionable insights from real-time data.

Learn more →

Sensormatic

Sensormatic Solutions

Discover how Sensormatic is embracing computer vision to pave the way for a whole new retail experience, backed by Lenovo edge computing and Intel AI solutions.

Learn more →

Eggs 'n Things

How one restaurant created a quicker, more convenient casual dining experience with a new customer tracking system, powered by Lenovo ThinkSystem SE350 edge servers.

Learn more →

C2RO

C2RO

Learn how C2RO teamed up with Lenovo to create an AI solution for end-to-end retail analysis for the physical space.

Learn more →

enoc

ENOC

Emirates National Oil Company's retail division equipped its national network of almost 200 gas stations with robust Lenovo Edge servers, boosting availability and customer service.

Learn more →

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Our ThinkEdge product portfolio

Light   Performance   Heavy

Data Capture & Translation

- X-BUS
- A/D : TCP
- Connectivity Bridge
- HMI

SE10

Featuring Intel Atom® processors for unconstrained performance for all your data-capturing challenges at the edge, in a convenient modular design.

Learn more →

Sensor Aggregation & Vertical Workloads

- Data Structuring
- Industrial Protocols
- Reduction Filtering

SE30

Powered by 11th Gen Intel® Core™ i5 vPro® processors, the high-performing SE30 is purpose-built for challenging edge applications.

Learn more →

SE50

For superior computational capabilities at the edge. Featuring an Intel® Core™ processor, it's perfect for growing IoT environments.

Learn more →

AI-Enabled

SE100

A compact, AI-ready edge solution, perfect for constrained spaces without compromising performance, featuring Intel® Core™ Ultra processors.

Learn more →

Consolidation & Accelerated AI Workloads

- Local AI/ML Workloads
- Intelligent Video Analytics (CV)

- Deep Learning
- Hyper-Converged Infrastructure

SE350 V2

Purpose-built edge computing server featuring an Intel® Xeon® D processor suitable for harsh environments with extended temperature range, high shock, and vibration tolerance.

Learn more →

SE360 V2

Compact server featuring an Intel® Xeon® D processor with rugged reliability, ideal for space-constrained environments.

Learn more →

SE450

A compact edge server designed for remote location needs and with the power to run AI workloads. Featuring an Intel® Xeon® Platinum processor and increased security and manageability.

Learn more →

A **Lenovo solutions expert** can help to bring the most secure and reliable compute power closer to data generation for faster business outcomes.

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Our infrastructure portfolio

Lenovo ThinkSystem

Explore our range of Intel® Xeon® and Intel® Optane™ powered servers and storage arrays for unmatched value, flexibility and industry-leading efficiency. Designed to meet mission-critical demands with legendary quality and reliability.

Learn more →

Lenovo ThinkAgile

Manageable and easy to deploy software-defined infrastructure from Lenovo, the ThinkAgile portfolio based on Intel® Xeon® processors simplifies infrastructure adoption and accelerates time to value.

Learn more →

Intel® Xeon® processors

Intel® Xeon® processors are specialized CPUs designed for high-performance computing, servers, and workstations. They offer key benefits that set them apart from consumer-grade processors.[4]

Are designed for AI, with more data centre accelerators than any processor on the market

Are the most sustainable, lowering costs and shrinking carbon footprints

Deliver 21% better overall performance

Have the most comprehensive data centre security technologies

4. 5th Gen Intel Xeon Processors Explained in 60 Seconds

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