

Retail and Smart Spaces Crowd Management with WaitTime

Lenovo Hybrid AI Advantage™ solutions



AI-powered crowd analytics is transforming how retailers and smart space operators manage visitor flow, optimize staffing, and elevate guest experiences.

Real-time insights led to a 20% enhancement¹ in resource distribution, effectively managing high-traffic areas and reducing bottlenecks. Be able to **observe, measure, and minimize waiting times and operational inefficiencies based on real-time data and historical analysis.**

The Lenovo Hybrid AI Advantage™ solution for Retail and Smart Spaces, built with Lenovo validated design (LVD) for WaitTime Crowd Management, integrates WaitTime's real-time crowd intelligence platform with Lenovo ThinkEdge and Lenovo ThinkSystem infrastructure, empowering businesses to make faster, data-driven decisions using real-time visual insights.

The solution delivers **low-latency, privacy-compliant, and scalable crowd analytics** that enhances both operational efficiency and guest satisfaction.



Figure 1. Operator's Dashboard provides real-time visibility to identify high-traffic areas across the venue

Why build AI powered retail and smart spaces crowd management ?

Retailers and public space operators using manual or outdated methods fail to offer the real-time insights required to proactively address crowding, allocate staff dynamically, or adjust layouts based on behavior patterns.

Challenges:

- **Long queues and unmanaged lines** diminish customer satisfaction and revenue.
- **Misaligned staffing** leads to operational inefficiencies.
- **Lack of real-time visibility into foot traffic** hinders layout and resource optimization.
- **Multi-venue scalability** is difficult with traditional systems.

WaitTime's AI-driven video analytics, integrated with Lenovo Edge hardware, allows venue operators to capture and act on live insights. Algorithms measure crowd density, queue formation, and wait times without capturing personally identifiable information (PII) and enabling operational teams to deliver fast effective responses to live conditions.

Lenovo



The Lenovo Hybrid AI Advantage™: Retail and Smart Spaces Crowd Management with WaitTime solution

The solution leverages edge AI computing and computer vision to generate real-time, actionable insights in high-traffic environments. Powered by Lenovo ThinkEdge SE450 and ThinkSystem SR630 V3 servers, it processes RTSP video streams from IP cameras locally using AI algorithms. Insights are displayed on real-time dashboards, shared via APIs, and integrated with digital signage or mobile apps to enable direct guest engagement.

- ✓ **Real-Time operational intelligence:** Manage queues, congestion, and resource allocation dynamically.
- ✓ **Enhanced guest experience:** Guide visitors in real-time to the shortest lines or least crowded zones.
- ✓ **Business insights:** Use heatmaps and performance data to improve layout, marketing, and promotions.
- ✓ **Scalability:** Pre-validated deployment models support venues from small retail stores to multi-zone arenas.
- ✓ **Compliance & privacy:** Built-in enterprise security features protect sensitive data while maintaining compliance with privacy regulations.
- ✓ **Monetization opportunities:** Unlock data-driven ad placement, premium space pricing, and sponsor value enhancement.

This architecture ensures secure data handling, real-time responsiveness, and operational simplicity for venues of any size—from malls and stores to stadiums and transportation hubs.

Building a Retail and Smart Spaces Crowd Management solution

Lenovo and Intel have jointly developed advanced hybrid AI solutions designed to meet the evolving business needs. Built on Lenovo's hybrid AI factory and powered by modular, scalable Lenovo Validated Designs, these solutions ensure fast, reliable, and simplified deployment. Leveraging Intel-certified Lenovo systems with the latest Intel® Xeon® Scalable processors, they deliver energy-efficient, high-performance computing while minimizing deployment risks. Flexible configurations and right-sized options accelerate development for marketing, sales, and crowd management use cases, reducing timelines from weeks to hours. These hybrid AI factory solutions bring AI to your data, wherever it resides, while maintaining confidentiality and control.

Lenovo's hybrid AI factory option for edge deployments leverages:

- **Lenovo ThinkEdge SE450 V3:** A rugged, compact edge server ideal for small to mid-sized environments.
- **Lenovo ThinkSystem SR630 V3:** A high-density rack server designed for large-scale venues, supporting up to 87 camera feeds.

This hardware foundation enables a future-proof, scalable infrastructure across diverse edge environments. The solution is enhanced by Intel® OpenVINO™, AVX-512, and GeTi AI tools for environment-specific model training and optimization. Intel® VTune™ Profiler with OpenAPI support further enables in-depth performance analysis for continuous improvement.



Why Lenovo for Enterprise AI?

Productivity

Accelerate business value from AI

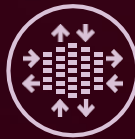


Lenovo AI Library

Deploy, adopt and manage proven AI agents and AI use cases

Agility

Build and operate your Hybrid AI efficiently



Hybrid AI Factory

Optimize for scale, performance and energy efficiency with Lenovo Validated Designs and hybrid AI platforms

Trust

Manage and protect all your AI and data



Lenovo AI Innovators

Access Lenovo-validated AI ISVs and our partner

Transition from manual to AI-powered crowd management today

Optimize foot traffic and create intelligent spaces with **Lenovo Hybrid AI Advantage™ solutions**. Enable real-time crowd insights, reduce wait times, and enhance customer satisfaction.

[Download Lenovo Validated Design for Retail and Smart Spaces Crowd Management with WaitTime](#)

Source:

1. WaitTime internal calculation.

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