

Retail

# Shaping the self-checkout of tomorrow

Kroger

How Kroger reduces customer friction and stock losses at self-service checkouts with Everseen's Visual AI™ platform enabled by Lenovo's AI retail solutions, powerful Edge AI servers, and the NVIDIA Accelerated Computing AI Platform.



Lenovo

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1

## Who is Kroger?

Headquartered in Cincinnati, Ohio, the Kroger Co. operates a vast retail network of supermarkets, pharmacies, fuel centers, and multi-department stores throughout the United States. Since its establishment over 130 years ago, Kroger has grown to become one of the world's largest food retailers.

Kroger is also the largest supermarket chain in the United States in terms of revenue, which topped \$132.5 billion in 2020. The company operates some 2,750 grocery stores in 35 states under a variety of local banner names, alongside a fast-growing range of e-commerce services.



2

## The Challenge

Whether customers choose to shop in store or online, Kroger aims to deliver an experience that's quick, easy, and convenient. As part of this ambition, the company has been steadily expanding use of self-service checkouts (SCOs) at locations across the country—and is constantly looking for ways to improve the experience.

“SCOs are great at speeding up and simplifying the checkout process, but there are still sticking points that can cause friction for customers and risk for us as a retailer. One of the biggest involves scanning items: sometimes shoppers just can't get the scanner to recognize a barcode, or they might neglect to scan an item, either intentionally or accidentally. Errors like these negatively impact both the customer experience and our bottom line, which is why we wanted to find a better way of combatting them.”

**Chris McCarrick**

Senior Manager of Asset Protection Solutions & Technology, Kroger

Kroger found a capable solution in Everseen's Visual AI™, which uses high-resolution cameras and a unique combination of computer vision and artificial intelligence (AI) developed on NVIDIA's Accelerated Computing AI Platform to shape shopper and associate behavior at SCOs and staffed lanes by intelligently intervening when errors occur.

The platform captures huge volumes of unstructured video data, which it integrates with structured POS data feeds, infers, and analyzes in real time. Kroger's task was to find a computing infrastructure that was up to the challenge of processing this big data quickly and cost-effectively.



**“We operate in a sector where margins are very thin, so anything that gives us the opportunity to grow sales while reducing losses can be a great source of competitive advantage.”**

**Chris McCarrick**

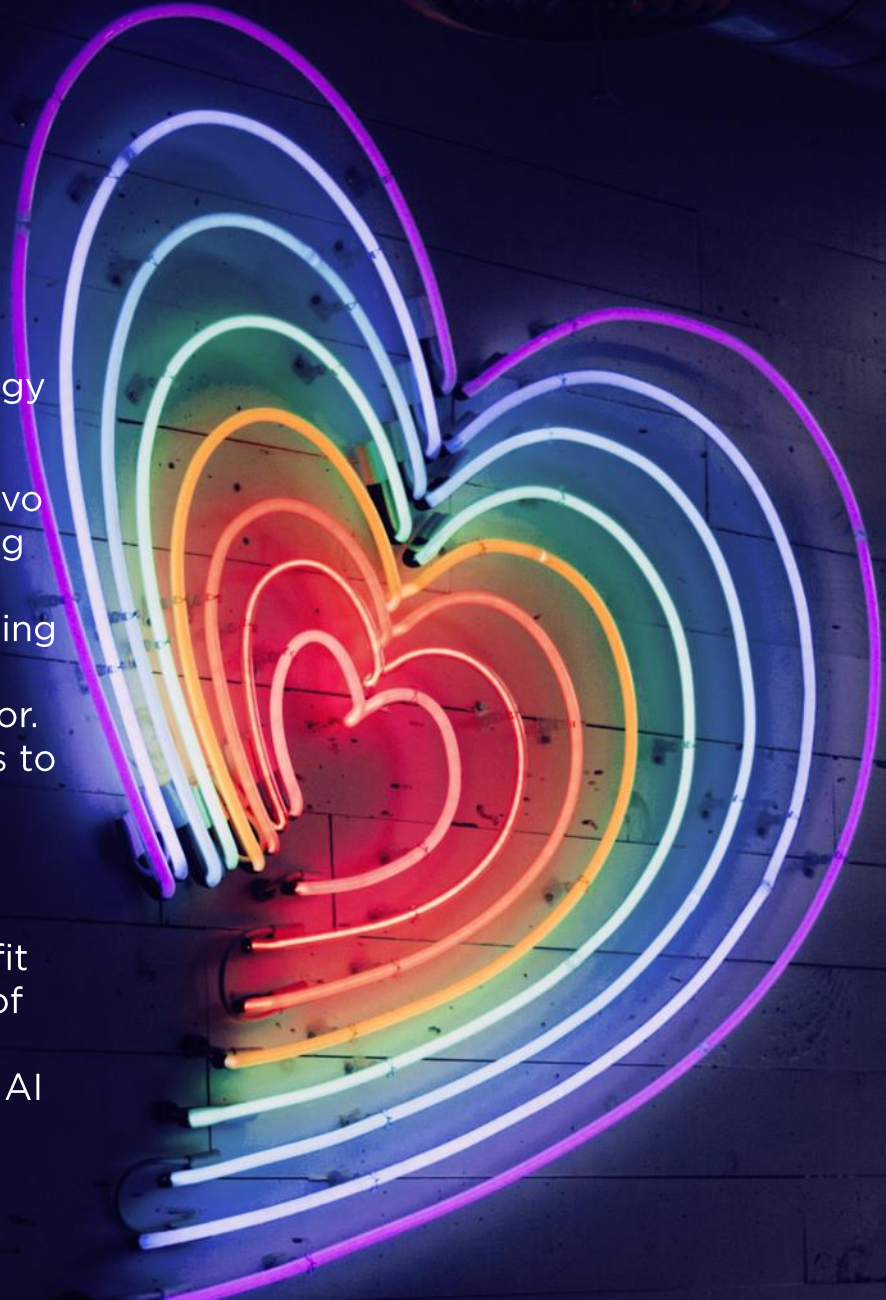
Senior Manager of Asset Protection Solutions & Technology, Kroger

# Why **Lenovo**?

Lenovo AI retail solutions bring together best-of-breed technology partners to ensure customers can launch their AI initiatives.

To support the Everseen Visual AI™ platform, Kroger chose Lenovo Edge AI servers equipped with the latest NVIDIA GPUs, delivering optimal performance, security, and management for running AI applications at the edge. Each Lenovo server is capable of handling unstructured data from up to 20 high-resolution cameras in real time—packing big processing capacity into a compact form factor. Video data is sent from the Visual AI™ platform at self-checkouts to the Lenovo Edge AI infrastructure. GPU acceleration for AI and analytics enables the company to analyze data in real time, for instant insights into activity at the checkout.

“Lenovo Edge AI servers powered by NVIDIA GPUs are an ideal fit for our needs,” states McCarrick. “Every day, we have hundreds of hours of video from tens of thousands of transactions coming through the Everseen Visual AI™ platform, and the Lenovo Edge AI servers powered by NVIDIA Accelerated Computing AI Platform don’t even break a sweat keeping up with it all.”



# Reimagining retail operations

Following a successful pilot implementation of the Lenovo and Everseen solutions, Kroger has moved full speed ahead with its deployment. It's already rolled out the AI platform at 1,700 grocery stores and counting, with plans to have the new solution up and running at all locations in the near future.

McCarrick comments: "We were able to move from pilot phase to full implementation very quickly, and I think that's a testament to the quality of the technology and the caliber of support from Lenovo and Everseen."

## Hardware

Lenovo ThinkSystem SR630 with  
NVIDIA T4 Tensor Core GPUs  
Lenovo ThinkSystem SR550

## Software

CentOS  
Everseen Visual AI™, developed  
on NVIDIA's Accelerated  
Computing AI Platform

## Services

Lenovo Warranty Services

The Visual AI™ application from Everseen running on Lenovo servers analyzes the video footage from checkout kiosks in real time to recognize regular processes and intelligently step in whenever something is amiss. This covers the straightforward “non-scan”—when a customer or cashier fails to scan an item—to more targeted and intelligent use cases of product switch, such as when a customer removes the price sticker from a product and places it over the barcode of a more expensive item.

For example, if a shopper fails to scan a particular item successfully, the SCO system will flag the error on screen and prompt the customer to self-correct. If the customer is unable to resolve the issue themselves, the system will alert a store associate via a mobile device, so they can intervene and rescan the item. It gives Kroger all-new insight and control over SCO operations, while making the experience more efficient for customers.



**“Together with Lenovo and Everseen, we’ve established a solid foundation and robust roadmap for AI at Kroger. We’ve only just started scratching the surface of what’s possible and we’re excited to see what the future holds.”**

**Chris McCarrick**

Senior Manager of Asset Protection Solutions & Technology, Kroger



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“The great thing about the Lenovo, NVIDIA, and Everseen solutions is that they’ve allowed us to enable truly innovative capabilities without adding complexity.”

**Chris McCarrick**

Senior Manager of Asset Protection Solutions & Technology, Kroger



3

## Results

With high-performance Lenovo Edge AI servers powered by NVIDIA Accelerated Computing AI Platform, Kroger can process and analyze vast volumes of video data at the edge in real-time, ensuring fast and reliable performance for its Everseen Visual AI™ platform. In turn, this has added an all-new layer of intelligence at the checkout, reducing friction for customers and helping Kroger's associates work more effectively.

McCarrick confirms: "The Lenovo Edge AI servers and Everseen's Visual AI™ platform fit in seamlessly with our existing SCO systems, and make the checkout process more robust, in a way that's non-disruptive for our customers. Now, if customers make an error when scanning, the system will give them a gentle nudge to get things back on track. In fact, over 75% of the time, customers are able to resolve scanning errors themselves, with no intervention from our associates, which makes their job a little easier. It really is a win-win situation."

What's more, the improvement in scanning accuracy helps Kroger reduce retail shrink and increase inventory visibility and on-shelf availability, making operations more efficient, secure, and profitable.

“We’re seeing a fantastic ripple effect from the Lenovo, NVIDIA, and Everseen solutions,” says McCarrick. “We’re already reporting fewer errors at self-checkout. Not only does this translate into reduced retail shrink, it also gives us a much more accurate view of what stock is going out of the store. This allows us to stay on top of replenishing inventory, which boosts on-shelf availability for customers and ultimately increases our sales.”

He concludes: “We’re looking forward to building on these results as we continue to roll out the Lenovo and Everseen solutions across our food retail network, shaping a better customer experience while lifting our profitability.”



Rapid, reliable analysis of unstructured video data



One Lenovo server processes data from up to 20 high-res cameras in real time



Over 75% of self-checkout errors corrected without employee intervention



Reduces retail shrink and maximises inventory availability



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Everseen’s Visual AI™, together with Lenovo Edge AI servers and NVIDIA Accelerated Computing AI Platform, are helping us shape a smarter retail experience that reduces friction for our customers and makes our operations safer and more efficient.”

**Chris McCarrick**

Senior Manager of Asset Protection Solutions & Technology, Kroger

# How Do You Prepare for the Future of Shopping?

Giving customers a smoother self-service checkout experience with Lenovo's AI retail solutions, Edge AI servers and NVIDIA GPUs.

[Explore Lenovo AI Retail Solutions](#)

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