

AI-POWERED COMPUTER VISION FOR THE NEW WAVE OF RETAIL

Addressing retail challenges at the edge with HPE systems and the NVIDIA EGX software stack

Challenges faced by retailers

- Shrinkage
- Stock outages
- Inventory management and demand forecasting
- Store analytics and people movement

AI to reinvent retail

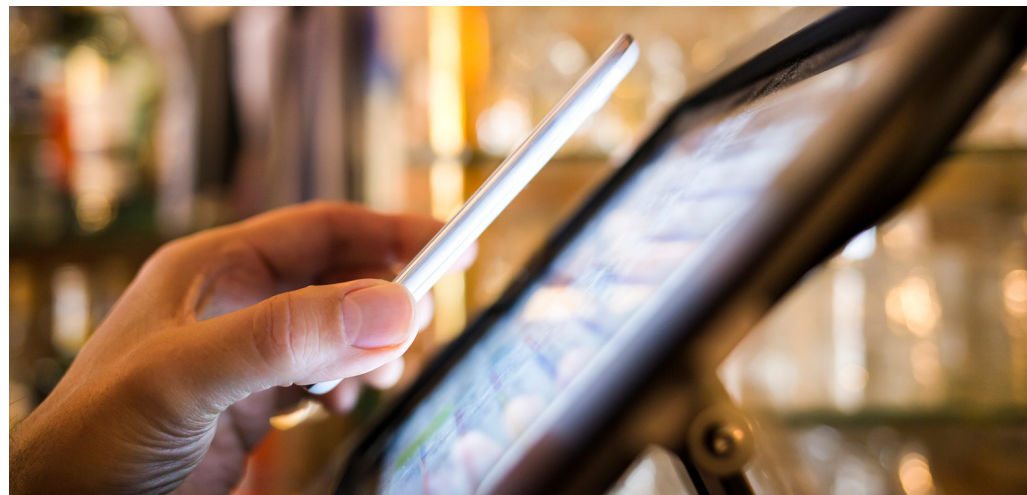
HPE and NVIDIA® are uniquely positioned to help retailers meet evolving demands for precision and performance, with a broad range of computing solutions and HPC leadership.

Solution components

- HPE ProLiant DL380 Gen10 Server
- HPE Edgeline EL4000 Gen10 Server
- HPE Edgeline EL8000/EL8000t Servers
- NVIDIA T4 GPU Accelerators
- NVIDIA EGX Software Stack
- HPE Pointnext Services

Challenge

Changing industry landscape is driving retailers to operate more efficiently than ever before



The global retail industry is losing \$61.7 billion in inventory shrinkage each year due to theft, errors, fraud, and damage.¹ And with customer and employee safety concerns rising to the forefront, selecting and deploying the right technology is critical to success. Today, retailers are utilizing advanced analytics fueled by artificial intelligence (AI) to mitigate these issues and ensure smart and sustainable operations.

One area, AI-powered intelligent video analytics (IVA), provides extreme visibility into store and customer behavior, equipping retailers with valuable insights to reduce shrinkage and boost margins. Using IVA,

intelligent stores can leverage data from cameras and sensors to improve operational productivity and create a fully optimized shopping experience.

However, the demands of AI-powered IVA far exceed the capabilities of traditional in-store infrastructures.

Most infrastructures cannot support numerous video feeds, as well as the intensity of processing and analytics to deliver cost-effective, reliable outcomes. These retailers struggle to plan, implement, and scale their solutions and miss the vast potential of AI-powered IVA.

¹ cdn.nrf.com/sites/default/files/2020-07/RS-105905_2020_NationalRetailSecuritySurvey.pdf

Solution brief

Today's retailers need access to advanced resources, including state-of-the-art infrastructure, an ecosystem of software, and expert guidance. Without an optimized AI architecture to innovate quickly and effectively, companies will miss the new wave of smart retail.

INFRASTRUCTURE FOR AI-POWERED INTELLIGENT STORES

Retailers need a new breed of in-store technology to analyze the data-heavy streams that come from cameras and sensors. The right technologies must support the compute-heavy demands of video analytics and must be simple to deploy and manage—allowing retailers to operate with confidence while increasing cost-efficiencies, driving operational and employee productivity, and boosting profit margins.

HPE and NVIDIA are working closely with innovative independent software vendors (ISVs), bringing cutting-edge AI technology to retailers to reinvent the retail industry. Our combined hardware and software capabilities create highly advanced solutions that couple the performance, security, and reliability of HPE servers with NVIDIA GPU Accelerators for peak speed and flexibility. With systems designed for retail in-store environments, our customers can leverage a range of applications to bolster loss prevention and significantly reduce shrinkage.

Resources

hpe.com/us/en/servers/edgeline-systems.html

nvidia.com/en-gb/industries/retail/

nvidia.com/en-us/autonomous-machines/intelligent-video-analytics-platform/

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HPE's retail solution features the industry-leading HPE ProLiant DL380 Gen10 Servers and HPE Edgeline EL4000/EL8000 Converged Edge Systems. Both platforms deliver high levels of performance, expandability, reliability, security, serviceability, and availability in a dense form factor.

- For diverse workloads and environments, the reliable HPE ProLiant DL380 Gen10 delivers world-class performance with the right balance of expandability and scalability.
- The HPE Edgeline family is purpose-built, compact, energy-efficient, and ruggedized platforms for converging real-time data acquisition such as IVA at the edge.

With a high concentration of NVIDIA GPUs, HPE systems can analyze video data as events occur in real-time, enabling retailers to extract and operationalize rapid insights.

RAPID AI ANALYTICS AT THE EDGE

The NVIDIA EGX software stack, in conjunction with HPE Edgeline and HPE ProLiant servers, is strategically engineered to accelerate AI computing at the edge. The platform features a user-friendly cloud-native software stack, validated on HPE servers and a range of devices. With the NVIDIA EGX software stack, traditional IT issues of installing software on remote systems disappear. Using Helm Charts, containers, and continuous integration and continuous delivery (CI/CD), organizations can now deploy updated AI containers effortlessly in minutes.

Additionally, the NVIDIA, NGC community a hub for GPU-optimized software—pretrained frameworks, models, and workflows—lets retailers manage applications from any location—in the data center, in the cloud, and at the in-store edge.

COMPREHENSIVE SUPPORT FOR SMART RETAIL APPLICATIONS

HPE Pointnext Services and HPE partners deliver in-depth technical knowledge to support retailers as they deploy smart retail solutions. The experts from HPE Pointnext Services offer a comprehensive portfolio of operational, advisory, and professional services that help retailers plan, build, and implement their IVA solutions. HPE Pointnext Services can access and help eliminate roadblocks, identifying target applications, as well as setting workflow and performance requirements.

HPE GreenLake makes AI-powered IVA more accessible than ever. HPE GreenLake as-a-service offerings allow retailers to leverage on-demand capacity and planning, combining the agility and economics of the public cloud with the security and performance of on-premises technology. HPE's preconfigured software and flexible, pay-per-use models drastically reduce IT complexity for AI innovation, enabling customers to shift their focus to areas where IVA can drive higher value.

CONCLUSION

The rise of AI is driving massive innovation for retailers. HPE and NVIDIA are empowering retailers to transform end-to-end operations with the development of a comprehensive AI architecture that has been tuned and validated with IVA applications. HPE and NVIDIA technologies are purpose-built for AI-powered IVA at the edge, integrating robust HPE Converged Edge Systems and NVIDIA EGX solution with support from experts around the globe. It also includes a broad network of software partners to deliver ready-to-use smart retail solutions.

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hpe.com/partners/nvidia

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