HPE ProLiant Compute

Solution brief

HPE ProLiant DL145 Gen11 server with Vaidio for retail at the edge

Introduction

Edge computing
Data at the edge is expected to exceed all of the data in cloud and data centers. This shift has triggered a new wave of IT build-outs that will digitally enhance your business, enable more informed decisions at the data source, and increase competitive advantage.

Data generated at the edge is growing rapidly and will not slow down any time soon. The real-time window to leverage these data to take actions or make decisions is critical, which is where edge computing comes in. Edge computing can effectively reduce time to action by bringing powerful compute to where data is generated. Key edge computing use cases for retail include video analytics, loss prevention, inventory management, flow analysis, and back-office management, to name a few.

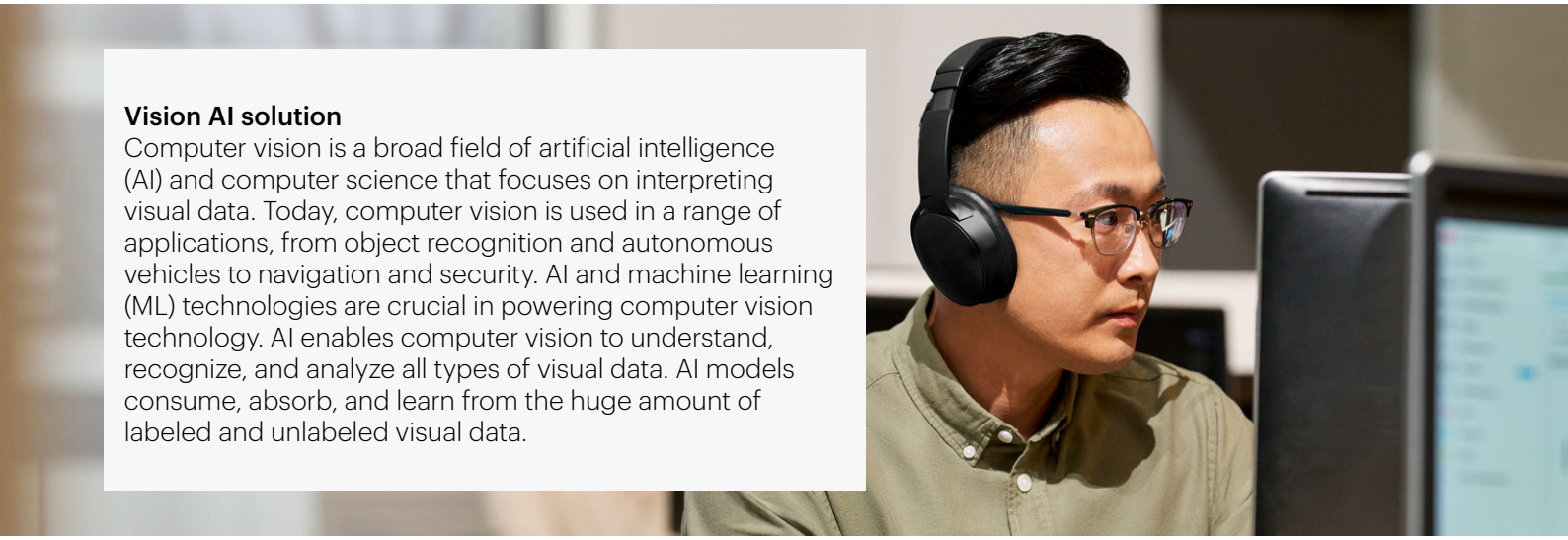
Some challenges organizations face when implementing their edge computing strategies are diverse needs, security, and management. Edge locations have different needs and challenges even within the same industry. A retail shop may require the server to sit under a manager's desk whereas another may have a small rack available. Secondly, as data continues to be generated at the edge, organizations need to ensure data is not accessible to intruders.

Physical security is also a concern when we think about edge computing, ensuring there is no easy access for break-ins to damage or remove the servers. Lastly, organizations need a streamlined process to manage the fleet deployed at the edge. This can be challenging as often they are deployed in hundreds or thousands.

Retailers can increase their efficiency, reduce costs, and create better shopping experiences when they streamline operations. It is costly and time-consuming for individual stores to send data to the cloud or main data center, analyze the data, and send back the results.

Edge computing helps retailers process data right where it's collected, making their systems stronger, avoiding unexpected downtime, and quickly finding useful information in a cost-efficient way. This allows them to take advantage of time-sensitive opportunities more effectively.

Hewlett Packard Enterprise and Vaidio® AI Vision Platform have partnered to deliver purpose-built, accelerator-optimized computing at the edge, and provide computer vision AI for security and safety.



Vision AI solution
Computer vision is a broad field of artificial intelligence (AI) and computer science that focuses on interpreting visual data. Today, computer vision is used in a range of applications, from object recognition and autonomous vehicles to navigation and security. AI and machine learning (ML) technologies are crucial in powering computer vision technology. AI enables computer vision to understand, recognize, and analyze all types of visual data. AI models consume, absorb, and learn from the huge amount of labeled and unlabeled visual data.

How Vision AI is automating our spaces

Vision AI is a type of computer vision technology that leverages AI algorithms and deep learning models to analyze images and draw insights based on a set of criteria. Analyzing IoT sensors requires a lot of data input, and in order to manage both the camera's input and the AI workflows there's an important need for a robust infrastructure to capture, store, and process the data in a timely manner. This technology has tremendous benefits: improved operational efficiency, ability to react instantly to concerns, and provide public and worker safety.

What are the top benefits of computer vision AI?

— Automated tasks

— Increased accuracy

— Enhanced safety

— Immediate response

— Scalability

— Intuitive and user-friendly

— Affordability

— Reliability

— Improved customer experience





Vaidio AI Vision Platform architecture

Vaidio AI Vision Platform features more than 30 advanced, proven AI video analytics that add intelligence to any new or existing IP camera.

Vaidio accelerates the power of AI to provide safety, security, and peace of mind.

99.9%
reduction in false alerts[1]

30 plus
AI-enabled video analytics on a single platform[2]

75%
less resource requirements[3]

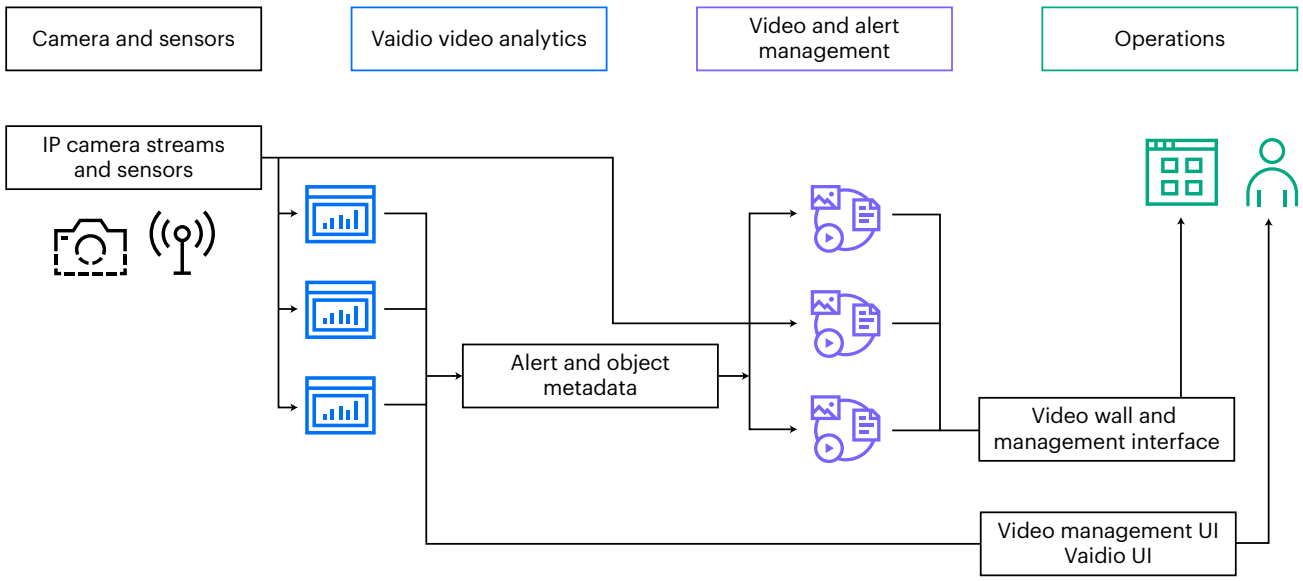


Figure 1. Vaidio AI Vision Platform architecture



[1, 2, 3] "Vaidio accelerates the power of AI to provide safety, security, and peace of mind."

Vision AI solution from HPE and Vaidio

Vaidio AI Vision Platform provides AI-enabled video search and analytics for security, health, safety, and operations. It is powered by HPE ProLiant DL145 Gen11 Server and up to three NVIDIA® L4 Tensor Core GPUs with a unique compact design, purpose-built for fast, efficient, and accurate AI video processing.

The Vaidio AI Vision Platform uses advanced AI to deliver three key functions: active real-time monitoring for accurate alerting; intelligent, accelerated video search for incident investigation; and rich video metadata for business intelligence. Vaidio provides enterprises with reliable, real-time situational information, faster response and search times, and valuable operational data. Vaidio can quickly and cost-effectively improve the security and safety posture of any enterprise.

Solution

- Vaidio AI Vision Platform
- 30 plus advanced, AI-enabled video analytics on a single platform
- Monitor 1000s of cameras in real time
- Search 1000s of hours of video in seconds
- Mine the video stream for business intelligence data

Differentiation

- **Scalable —** From 10s to 1000s of cameras
- **Open —** Works with existing IP cameras and video management systems
- **Comprehensive —** 30 plus advanced AI video analytics for security, safety, and operations
- **Flexible —** Deploy analytics a la carte as needed and multiple analytics per camera
- **Validated —** Architecture and performance tested and certified by NVIDIA



Simplify and secure AI with HPE ProLiant Compute

AI is everywhere, transforming every industry — including retail — and creating limitless opportunities. Empower your organization's AI journey with optimized solutions designed for edge deployments. HPE ProLiant Compute has a portfolio of solutions optimized for the edge, providing a foundation for everyday operations with next-level security, performance and efficiency.

Optimized for the edge — meet the HPE ProLiant DL145 Gen11 Server

The HPE ProLiant DL145 Gen11 Server with 4th generation AMD EPYC 8004 processor is a compact, affordable, yet powerful edge server designed to support critical business applications, virtualization, and AI workloads, making it ideal for diverse industries such as retail.



Figure 2. Key features and benefits of HPE ProLiant DL145 Gen11 Server

Deploy and manage with ease everywhere with enterprise-grade multilayered security

Deploy securely and manage everywhere with ease, featuring HPE Compute Ops Management, a secure, cloud-based compute management solution for unified control and automation of server operations with low touch provisioning. HPE iLO provides enterprise-grade multilayered security that starts in the factory, is rooted in silicon, and is enhanced in firmware to protect your data and servers.

Table 1. Solution overview

Small deployment 45 cameras	Medium deployment 120 cameras	Large deployment 300 cameras
45 Vaidio analytics licenses	360 Vaidio analytics licenses	900 Vaidio analytics licenses
1 server	4 servers	10 servers

Note: For medium and large deployments, the ratio of 10 cameras per GPU was used. The number per GPU reduces to 10 if running 3 or more analytics

If using one or two basic analytics, 1 GPU/15 cameras; and if using 3 or more analytics of any kind, 1 GPU/10 cameras.



[4] Depth of DL145 vs DL365 (excl. air-filtration bezel)

[5] 35db at 50% CPU load

[6] Select configurations

Table 2. HPE ProLiant DL145 Gen11 Server specifications



Features	Specifications
CPU	4th Generation AMD EPYC 8004 processor, up to 64 cores
GPU support	Up to three NVIDIA L4 or one L40S GPUs
Memory	6 memory channels, 1 DPC, 4800 MTs, up to 576 GB (using 96 GB DIMMs)
Storage	6 EDSFF Hot Pluggable Drives or 2 SFF drives; up to 90 TB, Self-Encrypting Drives
Storage controller	Hot Pluggable Boot and Data RAID (RAID-0 or RAID-1)

Next steps
See how HPE ProLiant Gen11 Server can unleash real-time insights wherever your data lives with the performance, efficiency, and scale to empower your data teams

Learn more at

HPE.com/ProLiant/DL145-gen11

Vaidio.ai

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