

Improve efficiency and reduce operational cost in retail, warehousing, and logistics

HPE-Infosys AI-based computer vision solutions using multispectral drone images drive efficient inventory management and store operations and enhance customer experiences.

Computer vision, then and now

In the early 2000s, computer vision was in its infancy, consisting of stationary cameras that simply recorded video footage, with programs capable of recognizing only the simplest forms and shapes such as squares, circles, and lines. Back then, computer vision technology included no analytics capabilities and supported no real-time decision-making.

Over the next decades, computer vision grew smarter, able to recognize various objects such as dogs, cats, houses, and cars based on their “typical” appearances. Any deviations from an object’s expected “typical” appearance, however, deterred early computer vision solutions from recognizing the object.

Today, computer vision is mature technology, made smart through artificial intelligence (AI) and machine learning (ML). Today’s AI-based computer vision applications can detect features and characteristics on complex sets of objects. They can also be trained and retrained — making them dynamic and robust.

These advanced capabilities make AI-based computer vision the perfect solution for inventory management at even the largest warehouses with the most diverse inventories. And for a growing number of retail enterprises, HPE-Infosys Solutions for Retail and Logistics are the AI-based computer vision solutions of choice.

Benefits of AI-based computer vision

When you choose HPE-Infosys Solutions for Retail and Logistics, your organization can benefit from:

- Automation of day-to-day, error-prone tasks
- Increased accuracy
- Enhanced safety
- Immediate responses to problems before they impact productivity
- Scalability to meet changing business needs
- Reliability
- Improved customer experiences



Purpose-built solution for computer vision at the edge

To achieve economies of scale, retailers and logistics providers have built warehouses the size of multiple football fields, enabling them to stock millions of products across tens of thousands of shelves and aisles.

HPE-Infosys AI-based computer vision solutions for retail, warehouse, and logistics leverage drone-based cameras that can traverse down each aisle in a warehouse, taking high-speed multispectral images of products on the shelves. The images are transmitted securely via HPE Networking solutions for private 5G/Wi-Fi 6 to the high-performance HPE Edge AI platform designed for computer vision. In addition to secure image transmission, the network also provides an accurate image/product location within the warehouse.



The HPE Edge platform runs the Infosys AI computer vision inferencing application. Using ML, this application can be taught to search for key characteristics such as bar codes, label information, and product brand in each image. This information enables the application to identify inventory stock levels and product locations within the warehouse.

Images from multiple warehouses can be securely archived on HPE Ezmeral Data Fabric, which provides seamless access to the Infosys AI modeling application running in the data center. The modeling application is constantly learning and fine-tuning the Infosys Computer Vision application.

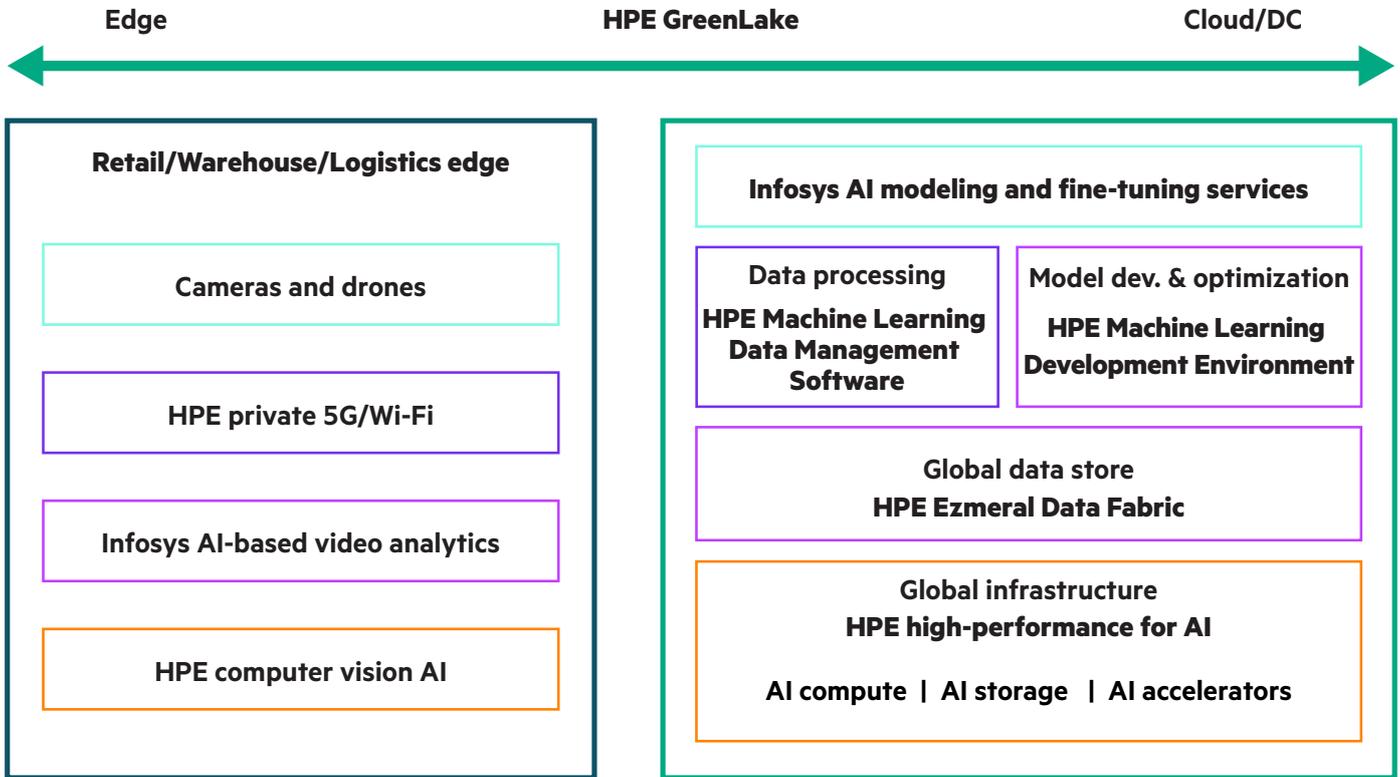


Figure 1. HPE-Infosys Solutions for Retail and Logistics architecture

Enhancing employee safety

Loaders and flatbeds are used extensively in today's warehouses. To improve employee safety, HPE-Infosys AI-based computer vision solutions can be used to predict accidents between human operators and machines before they occur.



Extending the value

AI-based computer vision applications can also be used in retail and logistics to detect and deter shoplifting, as well as enhance shopping experiences.





Top use cases for AI-based computer vision

While this document focuses on using AI-based computer vision for warehouse logistics, the technology can also support a wide range of other use cases including:

- Worker safety
- Business operations efficiency
- Smart cities
- Transportation analytics
- Retail operations
- Campus security
- Traffic analysis
- Intelligent airports

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