# NVIDIA METROPOLIS:

# INTELLIGENT VIDEO ANALYTICS (IVA) FOR RETAIL

## NVIDIA AND DELL IVA SOLUTION STACK

### PLATFORM FEATURES

- A modular, future-proof, scalable platform for real-time insights in stores

- A proven edge-to-cloud solution tested with multiple applications on predefined server configurations

- A comprehensive list of retail applications that are fully tested and optimized on Dell EMC PowerEdge R740xd servers and containerized for ease of installation, deployment, and management

- Designed to optimize inference of ISV applications

### PRODUCTS USED

- NVIDIA T4 GPUs
- Dell EMC PowerEdge R740xd

### Industry Challenges

Shrinkage—the loss of inventory from theft, errors, fraud, and damage—is a persistent problem in retail. The industry is losing $100 billion a year globally and $50 billion a year in North America alone. And it's only getting worse: Over 23 percent of retailers have seen their shrink rate increase from 1.4 to 2 percent.
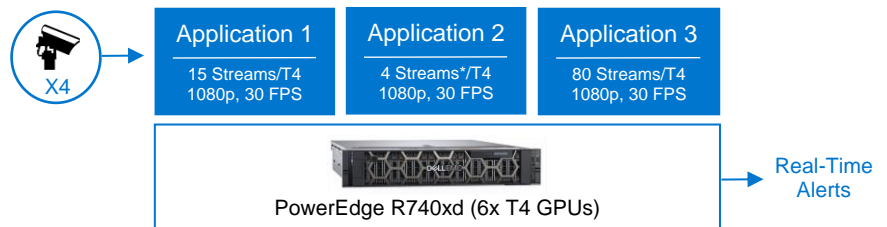
Intelligent video analytics (IVA) is key to reducing shrinkage and increasing revenue through customer and store analytics. These solutions are a combination of hardware and applications from independent software vendors (ISVs). But, they need to be designed, sized, integrated, and configured—a complex process that can increase capital and operating expenses.

### Video Analytics Challenges



Effective Monitoring of Video Feeds

Lowering Operational Costs and Risk

Extracting Insights

Regulatory and Compliance

### NVIDIA Metropolis: The Simple, Scalable Video Analytics Solution
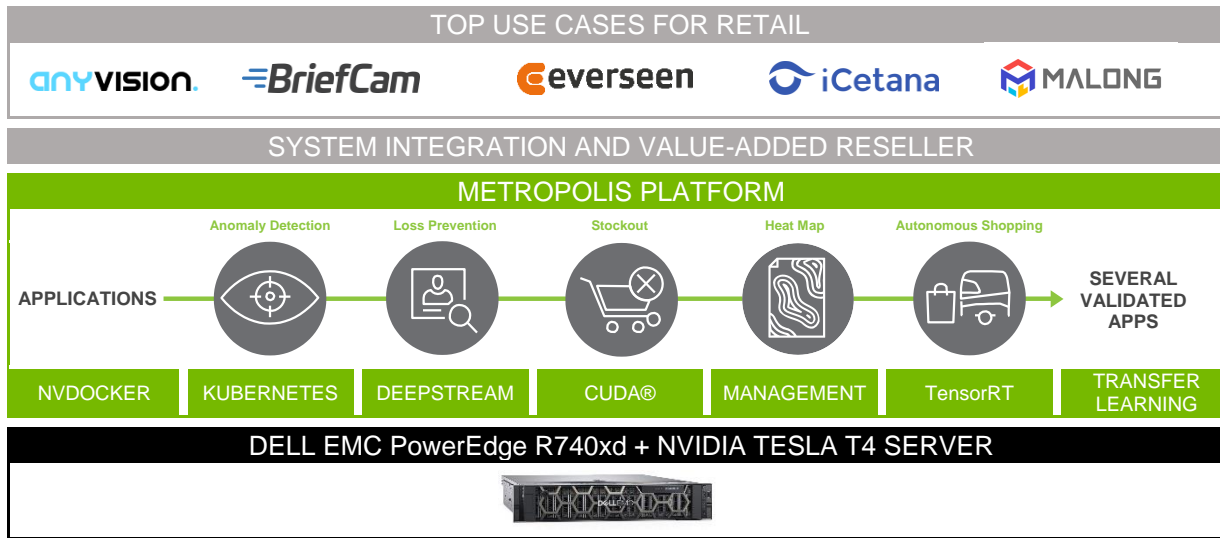
The NVIDIA Metropolis video analytics platform, combined with Dell EMC PowerEdge R740xd servers, makes IVA easy to deploy, manage, and scale. This enables multiple video analytics applications to co-reside on a single server in a containerized manner.



| Application 1 | Application 2 | Application 3 |
|---|---|---|
| 15 Streams/T4 1080p, 30 FPS | 4 Streams*/T4 1080p, 30 FPS | 80 Streams/T4 1080p, 30 FPS |

X4

PowerEdge R740xd (6x T4 GPUs)

Real-Time Alerts

Number of streams are based on the entire application workflow, including video decode on 1080p, 30 FPS, H264.FPS = frames per second.

## IVA for Retail Reference Architecture

NVIDIA has partnered with Dell and leading IVA software vendors to develop a containerized Docker solution for ease of deployment. Customers can download the software applications from NVIDIA NGC using Docker containers and deploy multiple IVA algorithms on a single server with as many GPUs as needed.

### TOP USE CASES FOR RETAIL

anyVISION.    ≡BriefCam    everseen    iCetana    MALONG

### SYSTEM INTEGRATION AND VALUE-ADDED RESELLER

### METROPOLIS PLATFORM

**APPLICATIONS**    Anomaly Detection    Loss Prevention    Stockout    Heat Map    Autonomous Shopping    **SEVERAL VALIDATED APPS**

| NVDOCKER | KUBERNETES | DEEPSTREAM | CUDA® | MANAGEMENT | TensorRT | TRANSFER LEARNING |

### DELL EMC PowerEdge R740xd + NVIDIA TESLA T4 SERVER

| Application | Customer Challenge | Application Capabilities |
|---|---|---|
| **AnyVision** | Loss prevention<br>Reduce shrinkage<br>Understand customer demographics and behavior inside stores | A face-recognition solution that can detect a thief and alert staff when the thief goes to other stores<br>Provides access control and seamless payments<br>Detects heavy shopping aisles, tracks shoppers, and creates heatmaps |
| **Malong** | Point-of-sale (POS) loss prevention | Loss prevention at the POS from mis-scans, non-scans, and ticket switching |
| **Everseen** | POS loss prevention | Loss prevention at the POS from non-scans, mis-scans, and ticket switching<br>Reduces errors from overcharges, irregular voids and refunds, and basket-based losses |
| **ThirdEye Labs** | POS loss prevention<br>In-store and in-aisle loss prevention | Prevents POS theft by detecting non-scans, non-payments, substitute scanning, and fraudulent refunds |
| **AiFi** | Provide frictionless shopping for customers | Detects in-aisle fraudulent behavior in real time<br>Predicts when queues are about to occur<br>Detects shelf stockouts<br>Provides customer journey, conversion rate, and footfall measurements |
| **iCetana** | Loss prevention<br>Reduce shrinkage | Prevents theft and vandalism<br>Detects and reports unusual behavior |

**Learn More** about NVIDIA Metropolis solutions with Dell EMC servers

**Contact** a NVIDIA Metropolis Expert

**DELL**Technologies