



NVIDIA and SAFR Solution Stack

Industry

> Retail

Platform Features

- Modular, future-proof, scalable platform for applications, from watchlist management to consumer analytics
- Proven edge-to-cloud solution tested with multiple applications on predefined server configurations
- Fully tested and optimized on NVIDIA T4 GPUs, SAFR can be deployed and managed with one touch using NVIDIA EGX
- Efficient platform that allows retailers to scale to more cameras, sync watchlists to all stores, and aggregate events from all stores to a central location
- > Enables retailers to collect anonymous shopper data, including age and gender predictions, attention scores, viewed impressions, sentiment, and dwell times - without collecting PII or storing biometric data
- Fully optimized for NVIDIA Jetson[™] devices, making it a perfect solution for cost sensitive SMBs
- Low bias and one of the most uniformly accurate algorithms across all skin tones, as measured by NIST
- > GDPR compliant

Products Used

- > SAFR Platform
- > NVIDIA T4 GPUs
- > NVIDIA Jetson Devices
- > Dell or HPE Servers
- > Any IP camera

AI IN RETAIL: FROM SHRINKAGE TO CONSUMER ANALYTICS

Combating Shrinkage in the Retail Industry

Shrinkage—the loss of inventory due to general theft, errors, fraud, damage, and organized crime—is a persistent and growing problem in retail. According to **McKinsey Global Institute**, the industry is losing \$100 billion a year globally and \$50 billion a year in North America alone. In fact, according to the National Retail Federation (NRF), over 23% of retailers have seen their shrinkage rates increase by up to 2%.

In some regions, organized retail crime contributes to more than half of this growing shrinkage problem, with loss rates of up to 63% in Spain.

Organized gangs raid retail stores for high value items, such as liquor, jewelry, cosmetics, technology, and gourmet food items. After targeting shops in a given region and selling the stolen merchandise, they move onto their next target repeating the process in a new region.



NVIDIA has partnered with RealNetworks, maker of SAFR, the world's premier facial recognition platform for live video, to provide technology solutions to retailers experiencing loss. Together, we're helping retailers prevent repeat crimes, collect detailed consumer insights, including demographic and sentiment analysis, and provide in-store analytics such as line management, dwell time, and heat maps.

Solutions in Response to COVID-19:

SAFR is committed to expanding our solution set to help the world stay safe and healthy as we get back to work.

- 1. PPE detection and facial recognition with face masks
- 2. Secure access or restricted area control in real-time
- 3. Overcrowding detection and alerting in real-time
- 4. Crowd and consumer density trends across time and location
- 5. Contact tracing of virus carriers using facial recognition
- 6. Contact tracing of virus carriers using license plate recognition
- See: How SAFR maintains accuracy in the age of COVID-19



NVIDIA and SAFR Deliver AI-Enabled Theft Prevention

Increasingly, innovative retailers are working with NVIDIA to deploy solutions like SAFR to both combat shrinkage and collect useful information on shopper behavior. Leading in real world performance and accuracy, as evidenced in testing by the National Institute of Standards and Technology (NIST), SAFR is enabling new applications for security, convenience, and analytics.

SAFR also enables loss prevention by providing effective watchlist management tailored to the Retail Loss Prevention Workflow and with deep integration to many leading VMS. With SAFR, you get best-in-class, real-time monitoring on live video with virtually any IP camera.

SAFR's application is optimized on NVIDIA[®] inference GPUs, using the Metropolis Application Framework. As a result, SAFR's applications have more than 5 times the compute performance than if they were run on CPUs, alone, and can scale from 3-5 to 12-19 cameras per server, reducing the total cost of ownership by at least 60%.

In addition to improved performance, the NVIDIA Metropolis Application Framework enables retailers to install multiple applications on the same server and dedicate specific GPUs to each application, addressing both shrinkage and customer insights.

The NVIDIA Metropolis video analytics platform makes intelligent video analytics (IVA) easy to deploy, manage, and scale. It enables multiple video analytics applications to co-reside on a single server in a containerized manner so retailers get the most performance-per-square-foot.

In addition to preventing shrinkage with inexpensive automated monitoring across many stores, retailers can also track crowd and traffic analytics to uncover trends, better target advertising, and improve retail design based on consumer behavior data (i.e. attention, sentiment, viewed impressions, dwell times).





NVIDIA EGX: Bringing Real-Time AI to the Edge

Intelligent retail stores are powered by AI and easily managed with the NVIDIA EGX platform, which brings accelerated AI computing to retail stores. AI computations are performed entirely in-store and deliver real-time insight notifications to store associates. Alerts can be programmed for both shrinkage and consumer insight events, allowing retail associates to immediately respond to theft alerts or improve shopper experience based on real-time data.

NVIDIA EGX Stack enables device orchestration and software provisioning to thousands of distributed servers deployed across stores—with a single click. Any updates to SAFR algorithms can be similarly deployed easily and securely across all store-installed servers. The NVIDIA EGX platform also delivers the power of accelerated AI computing to the edge with an easy-to-deploy cloud native software stack on a range of fully-supported, validated servers and devices. This allows customers to deploy critical applications like SAFR entirely at the edge with full confidence that the underlying infrastructure will be supported.

NVIDIA Retail Reference Architecture

The Metropolis Application Framework and EGX platform provide retailers with the peace of mind that SAFR is optimized for any T4 Server from major hardware vendors, including Dell and HPE.



Get Started:

See for yourself how NVIDIA and SAFR can help you reduce shrinkage and improve store security and intelligence.

Contact your NVIDIA or RealNetworks rep to learn more about getting started.

LEARN MORE

To learn more about NVIDIA Retail Solutions, visit: www.nvidia.com/retail

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