



Delivering Net Results

Unified Surveillance Video Analysis and Storage

An innovative approach to improve retention, availability, and expand analytic capabilities.

...Most current surveillance solutions lack useful analytic capabilities...

Evolving from Reactive to Proactive

One of the major challenges most security professionals face today—in light of recent high-profile emergency events such as the Boston Marathon bombing and the DC Navy Yard shooting—is the capability for real or near-time analytic and forensics actions on surveillance video and data, retrieved, or collected from various sources and systems. Most installed surveillance solutions, lack useful analytic capabilities which are important to allowing proactive and preventive actions to be taken on suspicious events.

For events of interest, collection of surveillance data from multiple sources is critical for complete analysis of the situation. The need for automated, near-time forensics capabilities of the surveillance videos and data, retrieved or collected from various sources, is crucial. To support this analytic capability, concern arises around availability, retention, and access capabilities of different the sources of surveillance videos.

Existing Landscapes

Large commercial, educational, and government entities have numerous departments with video surveillance needs. Many of these departments have existing legacy point solution systems in place, which remain isolated to a specific function. Larger departments may have multiple solutions supported based on individual needs and deployment timeframes. Each organization may have different controls on retention time requirements or needs of the surveillance data. Additionally, each deployed solution will have different retention capabilities based on the design and capacity at each tier of the specific video surveillance system (VSS).

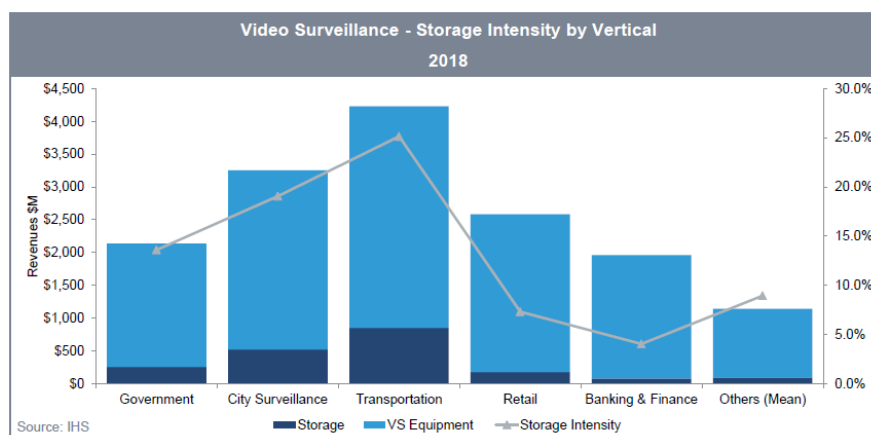
Many organizations lack the ability to access a centralized video repository for all video surveillance sources—add to that the fact that only 3 percent of potentially useful data is tagged—and therefore are unable to leverage automated and preventive analytic capabilities across their entire surveillance landscape. Most of the video traffic of interest for these disparate, departmental surveillance systems will transverse an accessible network either via IP enabled endpoints, encoders, or Network Video Recorder (NVR) systems. As video analytics evolve, so does the industry-wide standardization effort, to ensure reliability and interoperability among components of a total video system as well as enabling

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video analytics to more easily and consistently integrate with video management systems and physical security software platforms through standard interfaces.

Massive growth in surveillance video presents big challenges

Big data continues to grow exponentially, and surveillance video has become the largest source. This massive growth in the amount of data being collected and the need for analysis of the data creates significant challenges in the typical distributed (edge) deployment models for video surveillance systems.



Edge-to-Core Architecture

An edge-to-core model has evolved to answer the various needs that are standard in larger video surveillance environments where systems are dispersed and have high channel and camera counts. In order to enable data movement to and from the core, the edge components are managed via a core platform deployment that provides comprehensive system status, and acts as a repository for data mining and analytics.

Incorporating a data core into a distributed system is a crucial advantage and offers the ability to perform powerful, data-heavy analytic applications otherwise unavailable across all input streams. Another advantage an integrated data core provides is the ability to leverage virtualized platforms for compute and storage. Virtualization reduces the total cost of ownership (TCO) for compute and storage resources, while enabling streamlined consolidation and modular scalability.

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The desire of organizations to leverage security data for business purposes accelerates the trend to merge disparate systems and share data among different lines of business. In the retail industry for example, surveillance video is used to optimize staffing and inventory decisions and reduce theft and accident-related lawsuits. Such applications prompt organizations to extend retention time of the video surveillance footage, which increases the need for storage space. As the business value of video data increases, the corresponding demand for storage space increases exponentially.

Innovative Solution: Unified Video Surveillance System (Unified VSS™)

NFF, in conjunction with its industry leading solution partners, developed an innovative solution, referred to as **Unified VSS™**. The Unified VSS platform was developed to answer the needs of organizations looking to consolidate and expand video storage capacity and analytics functionalities of multiple, proprietary and disparate video surveillance systems.

Unified VSS can provide higher storage capacity and retention capabilities for existing and disparate VSS platforms without the need for any direct software integration or impediment of any operations to the existing system(s). The new platform collects video data directly from the video end points of existing systems. By capturing and storing directly from the endpoints, data can be imported to the new platform to allow viewing of video that may no longer be available on the original system due to limited retention capacity. An added benefit of Unified VSS is the ability to import video data for examination using analytic capabilities unavailable on the original VSS platforms.

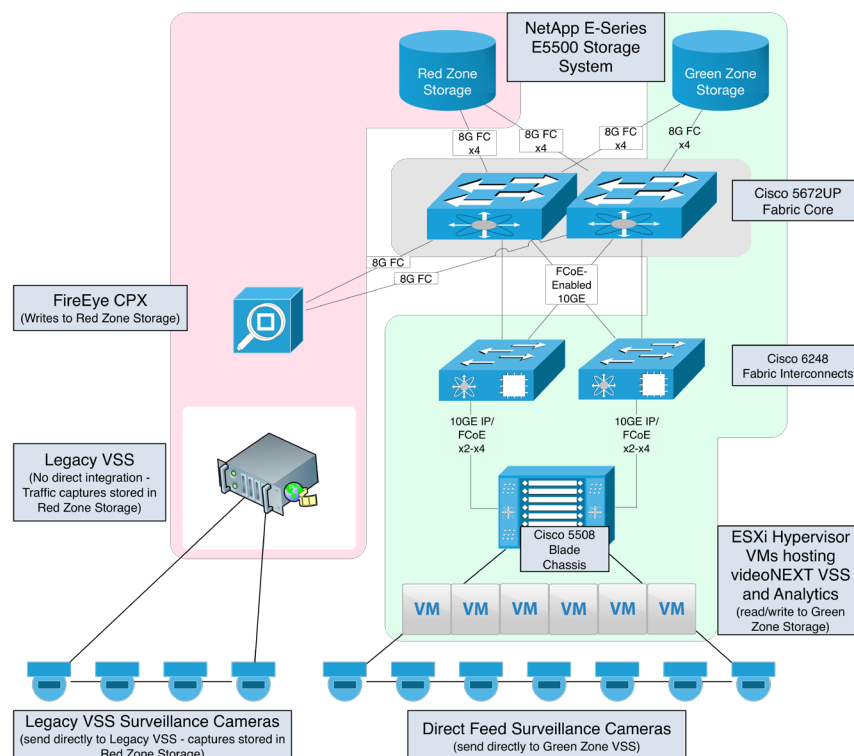
This unique and innovative solution was developed and deployed by NFF and its partners, as a prototype for a prominent customer located in the Washington, DC metro area and utilizes:

- NetApp E5500 Storage enclosures
- videoNEXT Video Surveillance Management Software
- Cisco UCS Blade Servers
- Cisco Nexus switches
- FireEye capture appliance(s)

The platform architecture consists of two independent “Zones” which each have an independent scope and functionality.

...This platform provides higher storage capacity and retention capabilities...

The “Red Zone” provides a high speed, expandable storage solution designed specifically for network packet captures. This solution is commonly deployed for cyber security solutions and utilizes a FireEye Capture Packet Extreme (CPX) appliance combined with a NetApp E-Series Storage system. The integration of the Red Zone into the overall platform allows non-viewable raw packet captures of video surveillance IP traffic using video codec standards such as H.264 or MJPEG. Through the use of this innovative capability, video surveillance data streams from disparate systems can be captured and stored independent of their existing and sometimes proprietary Video Management System (VMS).



The “Green Zone” consists of videoNEXT’s video surveillance management and analytic software running on a Cisco’s UCS/Nexus compute infrastructure using a dedicated NetApp E-Series storage system. The Green Zone provides for state of the art video management software and analytic capacities combined with an import/parsing mechanism that

...an immediate solution for redundant and centralized storage of video data located on disparate and proprietary systems...

takes a raw packet capture file (PCAP) extracted from the Red Zone and converts it into archive video in the Green Zone Video Surveillance System (VSS). This allows for video data mining and extraction from the Red Zone, using a big data approach to video no longer available in the original system(s), for analytics and/or viewing in the Green Zone VSS when necessary.

This new video surveillance platform allows organizations an almost immediate solution for redundant and centralized storage of video data located on disparate and proprietary systems (Red Zone). It also provides a bridge service for transition from legacy systems into a centralized VSS platform (Green Zone). This service is accomplished by providing access to analytics inherent in the new VSS prior to a full migration of all end-points directly into the platform.

The system is fully expandable in a modular fashion for adding compute, storage, and capture capacity independently and as needed.

About NFF

Networking For Future, Inc. (NFF) is a full life cycle IT solutions and services provider, specializing in Data Center, Unified Communications and Collaboration, Network Infrastructure, Cyber Security, Optimization, and Professional Services. Our core competencies are:

- Holistic consulting services
- Network analysis, design, and implementation
- Service delivery and product sales
- Application performance and optimization
- Program management and enterprise governance
- Strategic staff augmentation

NFF's proficiency and experience allows our customers to depend on us as a single source for planning, deployment, and long-term support of their complex IT projects. For more information visit www.nffinc.com or contact Steven Hancock at shancock@nffinc.com