Centralize with IP Networks: Cameras, Storage and Servers

The Connection: IP Based Surveillance Infrastructure

Over the past few years, physical security is undergoing a transformation. Typical proprietary video servers are being replaced by newer video servers that offer redundancy, open-standard compatibility and high performance. Video images are digital, video servers are networked, and cameras are powered via ethernet (POE), causing a shift from analog to network based video surveillance. With this new move to centralizing over the network, security managers have the opportunity to take advantage of advanced features previously available only in the datacenter: redundancy, high availability and data protection. As surveillance goes digital, and video footage is critical for compliance, safety or asset protection, it is important to make sure each component of your security system is failsafe.

Utilizing your existing IP network infrastructure lowers deployment costs and management overhead, since resources are centralized, and can be shared across the network. Your IP network infrastructure enables convergence of widely distributed systems onto a common IP network for easy access from anywhere on the network. In order to build an efficient security infrastructure, it makes sense to take leverage innovations in workstations, video servers, and storage to increase system performance. Using IP based technologies allow organizations to:

> • **Simplify Infrastructure:** Security managers are charged with managing their surveillance infrastructure with fewer resources, increased demands on time, performance and capacity. With IP you can manage all your cameras, storage, and video data from a single, centralized network.
> • **Reduce Costs for Management and Ownership:** Operational costs are reduced with a centralized storage infrastructure including administration, maintenance and facilities costs. With all your resources centralized on the network, you are able add more cameras without adding more video servers to the mix.
> • **Increase Data Protection and Availability:** Centralizing on the network allows security administrators to leverage advanced features like clustering, mirroring, and split video recording, to keep their infrastructure highly available and protected from system failure.
> • **Boost Surveillance Efficiency:** Centralizing resources allows administrators to be more efficient, saving resources and time for important surveillance duties. A centralized infrastructure enables an increase in the number of applications, terabytes and systems managed without increasing administrators.

Housing video servers, storage and cameras on existing IP network offers organizations a sophisticated solution to reduce management costs, improve efficiency and consolidate resources– enabling you to spend less time managing systems, and more time responding and diffusing incidents.
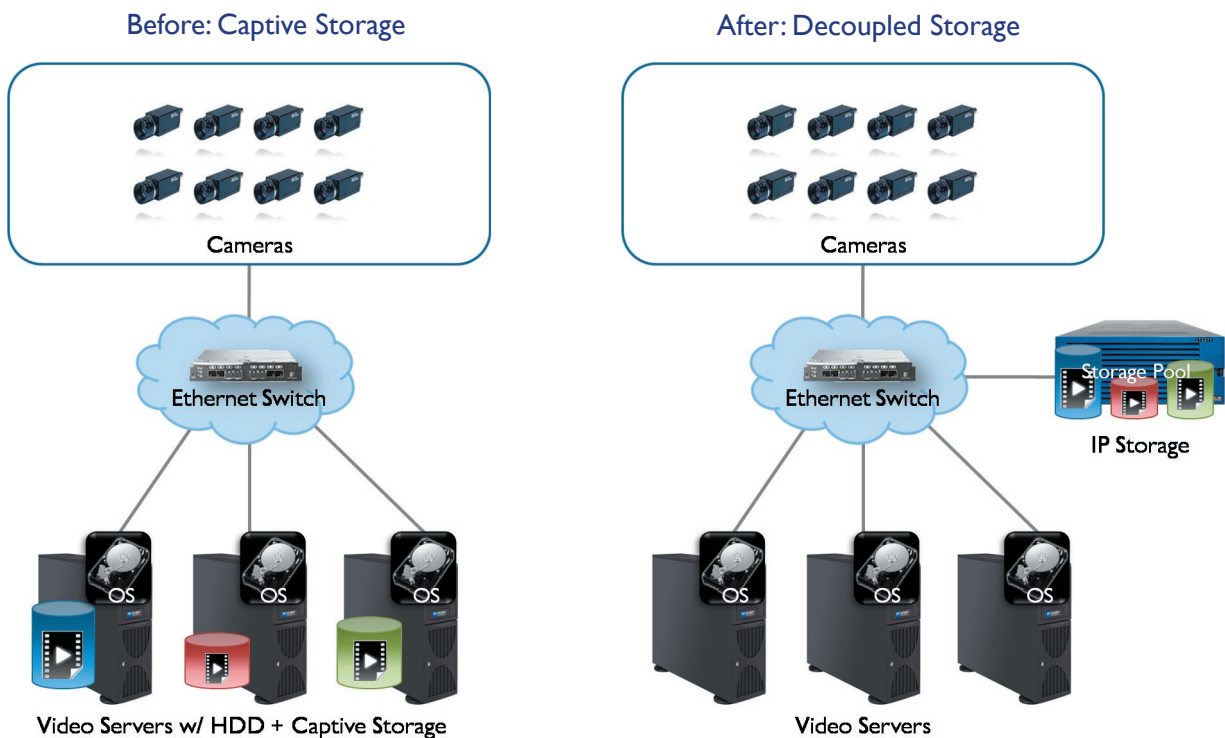
Consolidate Storage Resources to Handle Escalating Video Storage Requirements

Conventional video servers are essentially storage islands. Video servers are limited to the captive storage on the system, with no cost-effective path for upgrading-- aside from adding another costly server. Leveraging your existing network to consolidate surveillance resources allows you to create a network of shared storage, or IP storage.

IP storage allows the security administrator to migrate video data from storage that is directly attached to the video server to storage that is on the network. Consolidating hardware resources increases performance, availability and utilization across the three parts of a surveillance network: cameras, video servers, and storage.

Decouple Storage from the Video Server

IP storage provides a simpler and more effective approach to increase storage utilization, and break down islands of underutilized storage resources into a centralized repository. This repository, or IP storage volume, enables sharing of storage capacity by multiple video servers. With storage decoupled from the server and data is housed in a common pool of shared IP storage, you can improve storage utilization, streamline video access and enhance application availability.

Before: Captive Storage — After: Decoupled Storage

Cameras — Cameras

Ethernet Switch — Ethernet Switch

Storage Pool

IP Storage

Video Servers w/ HDD + Captive Storage — Video Servers

Consolidate Multiple Servers

As your organization's storage needs grow, your system management overhead doesn't have to. Security administrators can easily centralize storage resources amongst multiple servers, and allocate storage without going offline. So as long as your cameras are capturing footage, your video servers will be recording with sufficient storage.

Take Control of your Storage

With centralized IP storage, security managers have total control of their storage, and can allocate to multiple video servers without suffering downtime or video loss. You can eliminate over-provisioning storage to a single server, while also eliminating the risk of running out of space.

Access Video Anytime Anywhere

Conventional CCTV systems fall short of offering the benefits of networked IP storage, such as remote access and remote video management on any control center workstation. Video footage can be viewed and managed from one centralized location or several remote locations for enhanced monitoring. The easy accessibility of networked storage allows security administrators to manage video, archives and protect video to meet compliance requirements.

> **Additional Information**
>
> **Appendix A**
> Complete list of DNF Security IP storage and video server systems
>
> **Appendix B**
> Watch supplementary video on Centralizing with IP Networks

Simplify Camera Management

IP storage allows you to turn any surveillance camera into a network camera. With your cameras and video servers on the network, you are able to digitize video from analog, megapixel, and IP cameras without investing in new network cameras. Since your cameras plug directly into the network via Ethernet, you can easily view video from any workstation connected to the network. With IP-based infrastructure you can add more cameras and have them up and running within minutes.

Remove Physical Hardware Limitations with Networked IP Storage

With everything centralized on the network, reducing the total amount of storage required, and leveraging the latest storage technologies become important for cost-effective storage management. IP storage is utilizing iSCSI and 10 Gigabit Ethernet (GbE) technologies to enhance network performance and speed. iSCSI allows for your network to transport and route data from your video servers (or "initiators") to your IP storage system ("target") on your network infrastructure. A key advantage of iSCSI is the ability to boot, or operate, directly from the network, instead of your disk drive. Booting from the network allows you to deploy diskless video servers for simplified storage administration and eliminate internal drives as a point of failure.

Deploy Diskless Video Servers

Deploying diskless servers eliminates costly replacement disk drives and system downtime related to video server failure. DNF Security's Falcon Video Management Engine (VME) offers a standalone management gateway for high availability, redundancy, and complete video management control at your fingertips. The Falcon VME integrates easily with our Seahawk Series IP storage, for superior scalability and storage utilization. Each Falcon VME and Seahawk IP storage system offers advanced functionality: data consolidation across multiple locations, redundancy, failover and support for tiered storage.

Key benefits:
- Diskless video servers
- Easy storage scalability with no application downtime
- Centralized and consolidated images, archives and applications
- Seamless compatibility with existing CCTV and analog investments
- Increased storage availability for recording and archiving
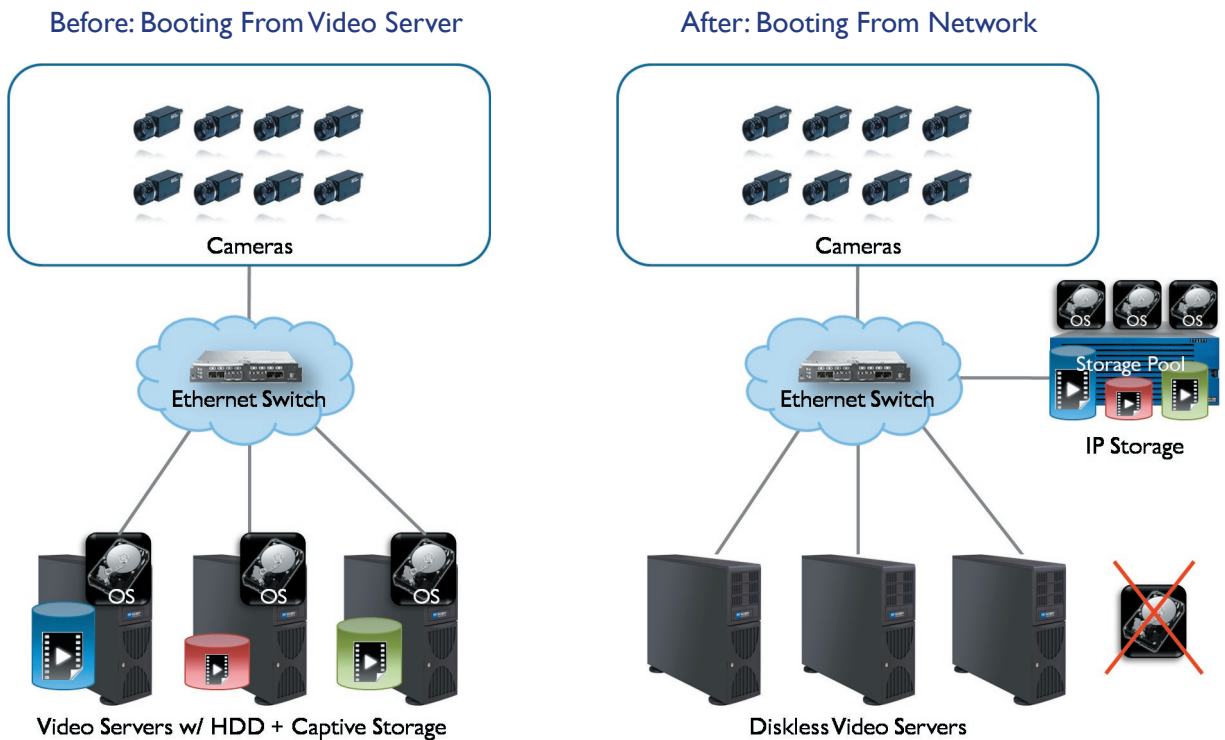- Advanced video management to keep video data safe and protected

Before: Booting From Video Server   After: Booting From Network

Cameras   Cameras

Ethernet Switch   Ethernet Switch

Storage Pool

IP Storage

OS   OS   OS

Video Servers w/ HDD + Captive Storage   Diskless Video Servers

No System Downtime with Highly Available Storage

If a video server becomes faulty, unavailable or fails, it can be swapped out for a replacement server with the same configuration in minutes. With the IP storage housing all the data, you eliminate single points of failure with High Availability (HA), redundancy and advanced RAID features on the IP storage. Administrators do not have to swap out hard drives, reconfigure arrays, or restore data and applications on the server– saving valuable time, and protecting valuable data.

One Storage Pool for Multiple Servers

Transitioning from multiple video servers with individual storage, to lots of storage with one storage pool helps reduce the management overhead associated with traditional distributed environments. Multiple homogenous video servers can boot from a single storage volume, reducing storage requirements, and simplifying access. Centralization of hardware resources can streamline administrative workflow and require fewer administrators to maintain the environment.

Reduction in Server Cost of Ownership

Booting from IP storage enables the deployment of diskless servers. Depending on the network topology and number of video servers, organizations can gain significant savings in power, cooling, space and cost.

Video Management Software and Cameras are Safeguarded

Eliminate the chance of losing your data while recording or retrieving an archive or during playback. Your software and cameras will stay safe on the network, so you don't have to worry about losing access if a server goes down.

Conclusion

IP storage consolidation offers a smart strategy for doing more with less, enhancing the return on your surveillance investments and simplifying management with the latest technology changes. Using iSCSI technology is a simple and cost-effective option for organizations looking to reduce the total cost of ownership through improved storage consolidation. Deploying IP storage and diskless video servers offers security professionals the ability to recover servers quickly, while also making it easier to centralize surveillance resources. Security managers now have more time to focus on solving their everyday physical security challenges, not their storage.

About Dynamic Network Factory

Dynamic Network Factory (DNF) takes pride in its innovative spirit, engineering excellence, and broad product line. DNF's six business units focus on specific vertical markets and technologies to cover the business and government technology space. Since 1998, DNF has focused on delivering storage solutions from direct attached storage for small business to enterprise applications, networked storage, iSCSI and file servers in capacities from 1TB-10PB. In 2006, its acquisition of iSCSI pioneer StoneFly Networks expanded DNF's storage portfolio to include enterprise class iSCSI and storage virtualization technology. With the expertise of DNF Storage, DNF Systems and StoneFly, Inc, DNF Security leverages innovative storage and server technologies for mission critical IP surveillance solutions. For more information visit **www.DNFsecurity.com**.

DNF SECURITY
DYNAMIC NETWORK FACTORY

www.DNFsecurity.com
toll free: 800.947.4742
fax: 510.265.1565
email: sales@DNFcorp.com

Corporate Headquarters
21353 Cabot Boulevard
Hayward, CA 94545
main: 510.265.1616

Appendix A

Available IP Storage Models

Seahawk Series Integrated IP Storage

Seahawk Series 401

Seahawk Series 802

Seahawk Series 1602

Seahawk Series 2402

Seahawk Series High-Availability (HA) IP Storage

Seahawk Series-SX

Seahawk Series-HA

Seahawk Series External Expansion Options

Seahawk Series EMS 1600

Seahawk Series EMD 1600

Seahawk Series ESS 1600

Seahawk Series ESD 1600

Seahawk L-Series Cost-Effective IP Storage

Seahawk L-Series 40td

Seahawk L-Series 80td

Seahawk L-Series 400d

Seahawk L-Series 800dz

Seahawk L-Series 1600dz

Seahawk L-Series 2400dz

Eagle Series Mission Critical IP Storage

Eagle Series (Modular)

Available Video Server Models

Falcon Series Video Management Servers

Falcon Series 20t

Falcon Series 40td

Falcon Series 62tq / 80tq

Falcon Series 20M

Falcon Series 50M

Falcon Series 40cd

Falcon Series 40cq

Falcon Series 400q

Falcon Series 620S / 802S

Falcon Series 1602S / 1620S

Falcon Series 2402S / 2420S

Falcon Series 4820S

Falcon Series VME

Appendix B

Watch the supplementary short video

Appendix B