



Cisco Expo
2009

Cisco Physical Security Video Surveillance



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Agenda

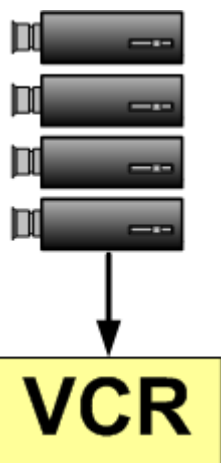
1. Trends and Evolution
2. Open IP Components
3. Cisco's Solution
4. Deployment Models
5. Other Design Considerations
6. Summary

Trends and Evolution



Video Evolution

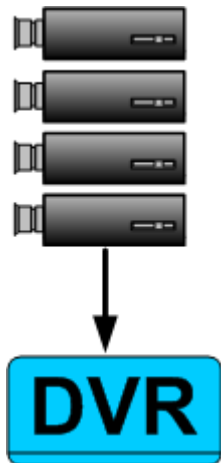
Analog Cameras



VCR & Analog

- Standalone box
- Poor image
- Hard to search
- No remote access

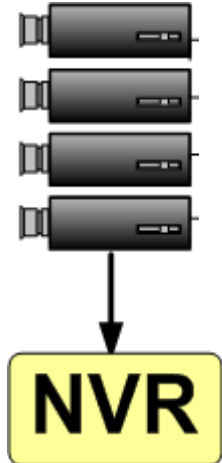
Analog Cameras



DVR

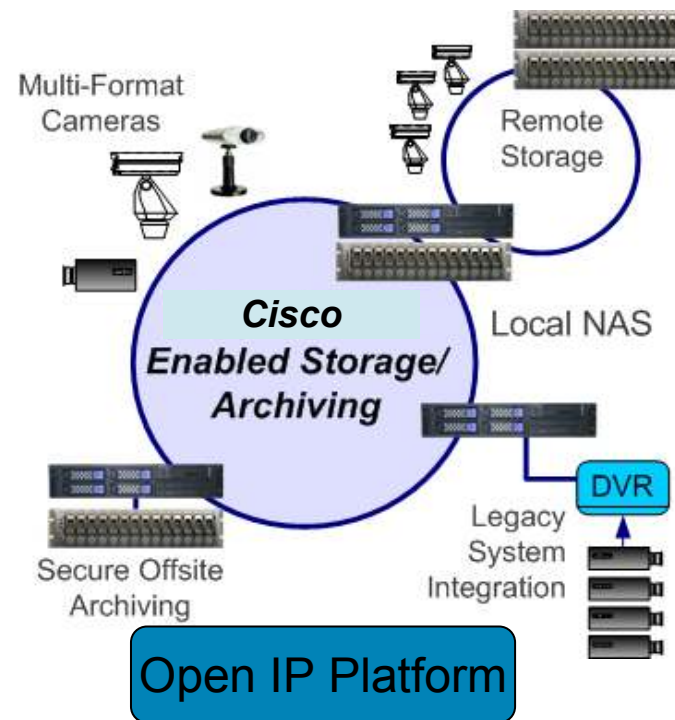
- Easier to search
- Consistent Quality

Analog Cameras



NVR

- DVR benefits
- More storage options
- Limited network connection



Cisco Video Surveillance Platform

- Secure viewing from anywhere
- Fail-safe redundant storage
- Easy integration with other systems
- Enterprise class storage and support

Open IP Components



Open IP Components

- 1. Infrastructure:
Network
Storage



- 2. Video Encoders/IP
Cameras



- 3. Client Stations



- 4. Video and Application
Servers



Cisco's Solution



Video Surveillance Media Server (VSMS)

Video Surveillance Media Server is the core component in the Media Platform, enabling distribution, archiving and management of video feeds.

Make video an information resource

- Proxy and stream live feeds

- Store and stream recorded media

Infinitely customizable

- Add custom UIs

- Use best-of-breed codec: Motion JPEG, MPEG-2, MPEG-4

- Highly Scalable – Cameras, Clients, Storage

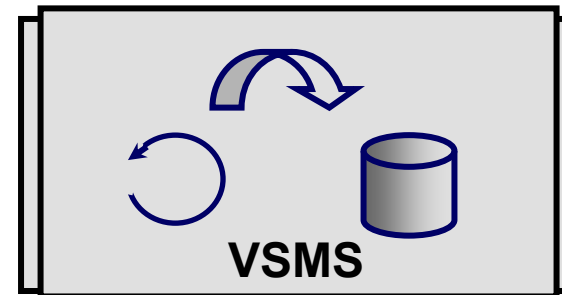
- Share IT Infrastructure intelligently – Storage Systems and Bandwidth

Open and distributed

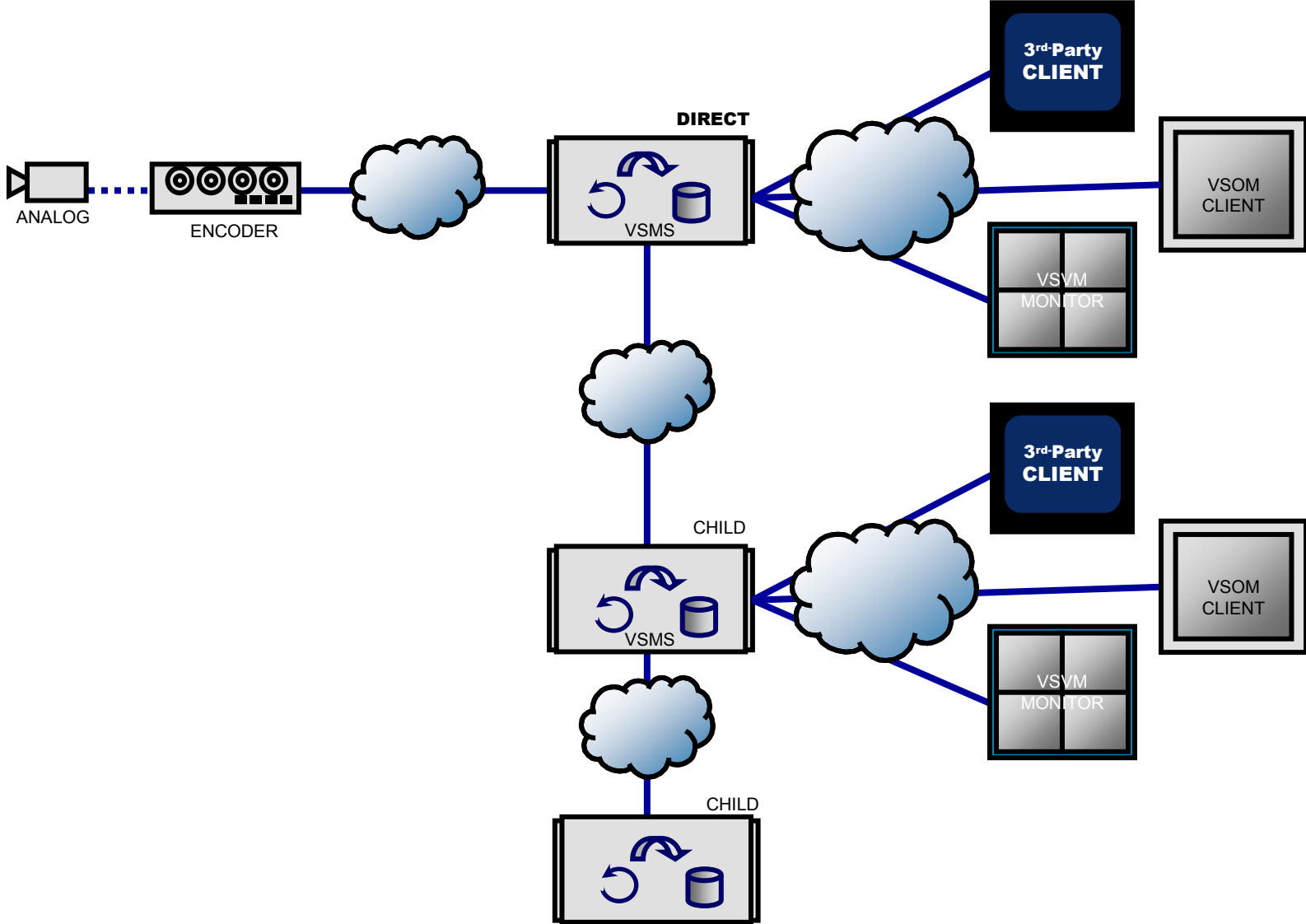
- Integrate with other systems

- Expand system as needed

- Harden System as needed (fail-over and redundancy)



Proxy-to-Proxy Feature



Video Surveillance Operations Manager (VSOM)

Enterprise solution

Highly configurable to effectively manage complex video applications

100% browser-based UI

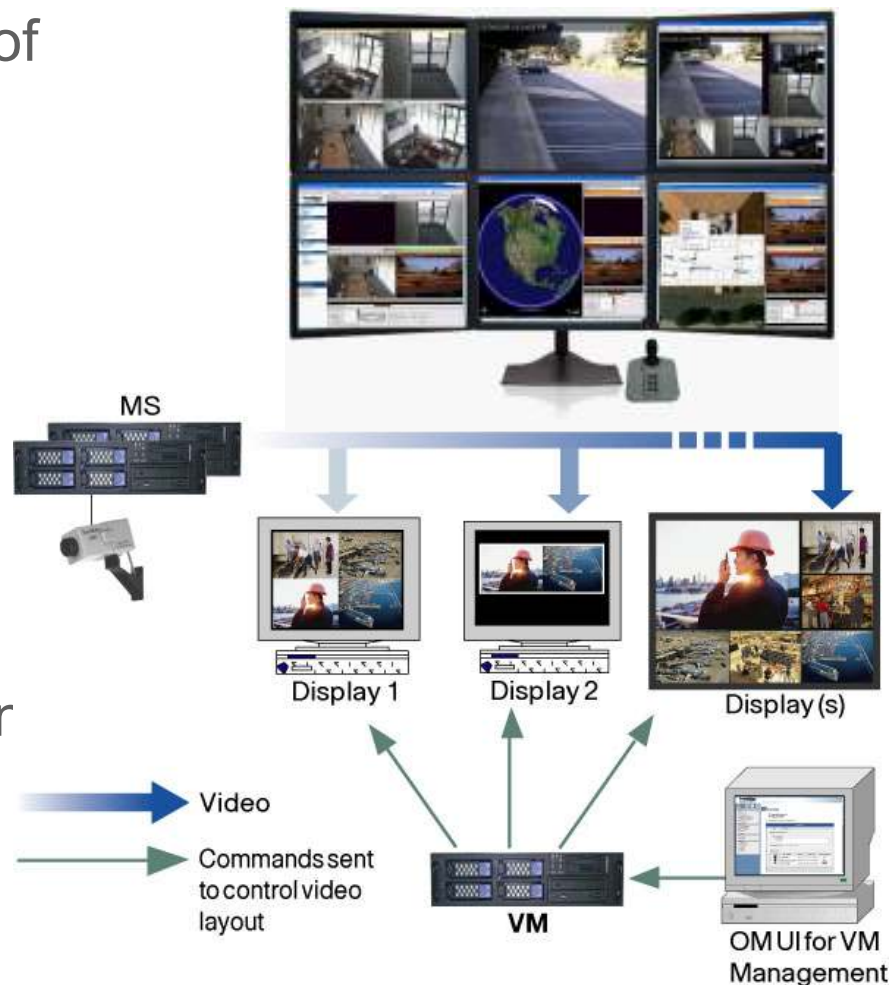
Multiple web-based consoles to configure, manage, display, and control video throughout a customer's IP network.

Unlimited cameras, storage, viewers



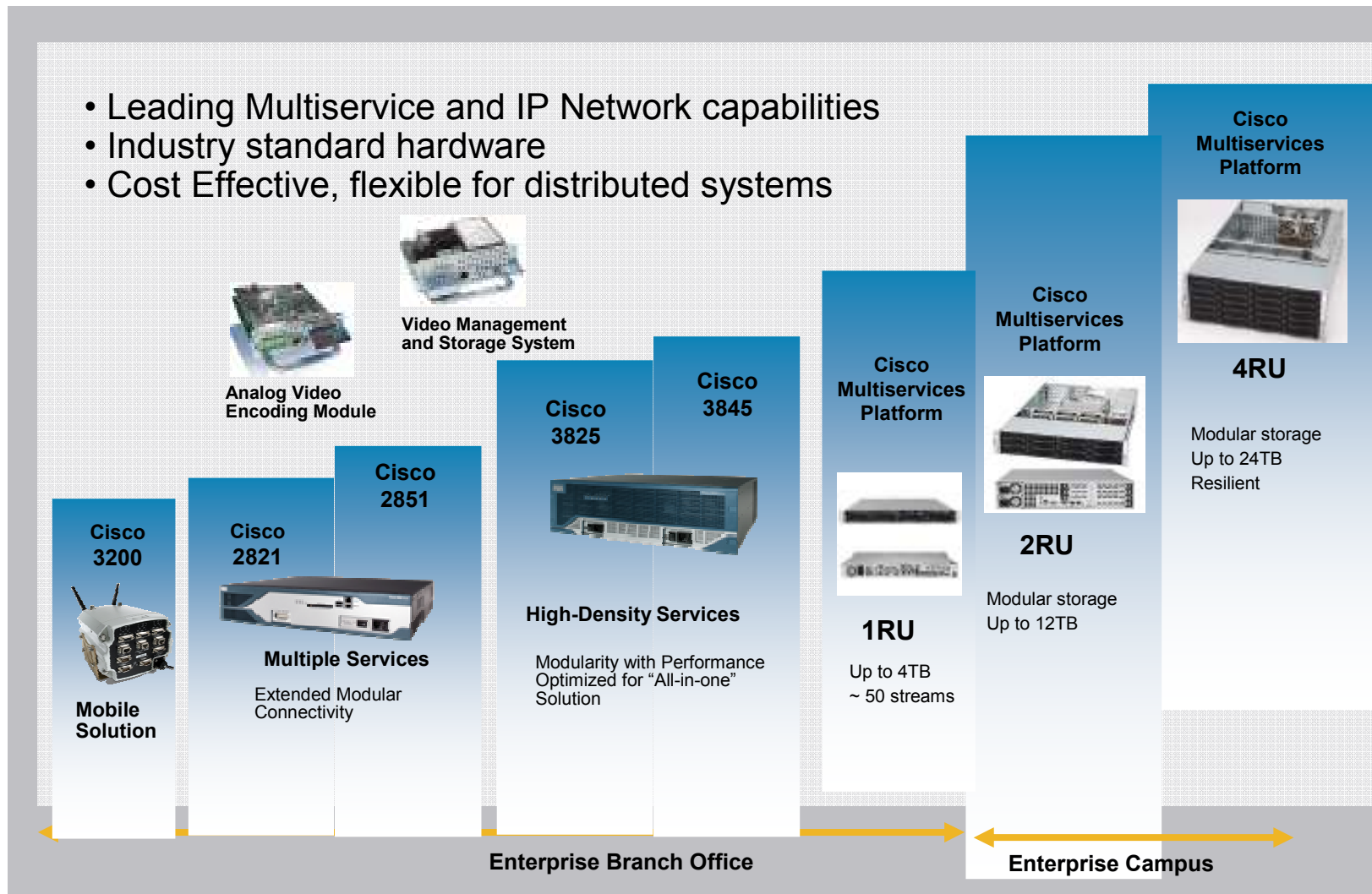
Video Surveillance Virtual Matrix (VM)

1. Controls an infinite number of video displays on network
2. Easily integrates with other systems
3. Flexible delivery of live & archived video
4. Distributes to Video Wall
5. Controls multiple video displays from a single station
6. Event/Action
Push video to remote screens



New line of Multiservice Platforms

- Leading Multiservice and IP Network capabilities
- Industry standard hardware
- Cost Effective, flexible for distributed systems



Scalability, Resiliency, Serviceability

Multi-Services Platform (MSP)



Integrated Services Router (ISR) Video Surveillance Modules

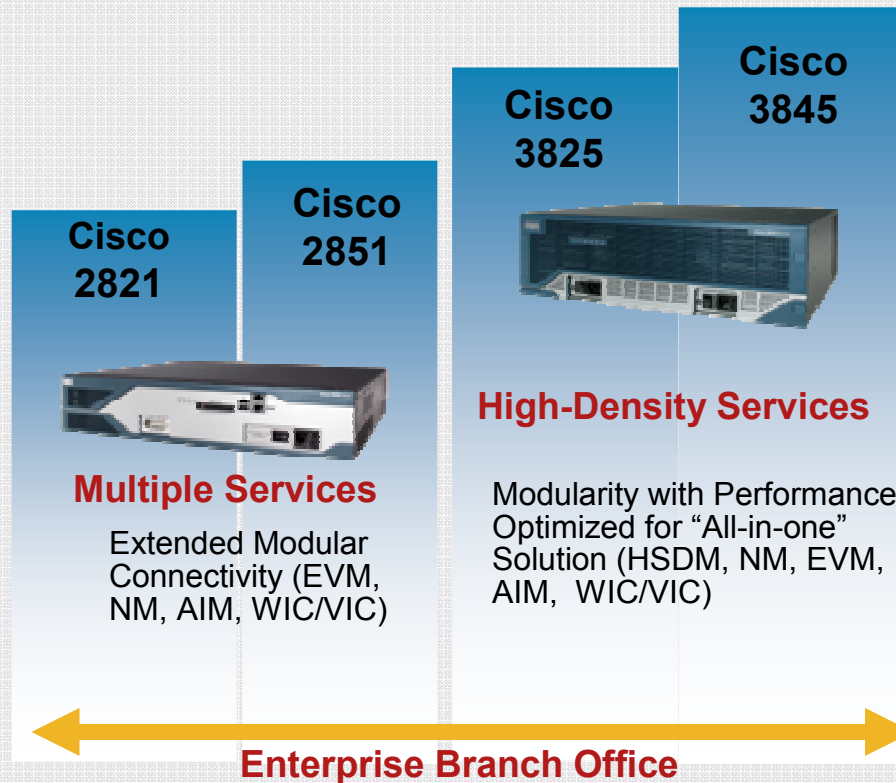


EVM-IPVS-16A: Analog Video Encoding Module



NME-VMSS: Video Management and Storage System

Cisco IP Video Surveillance Solution



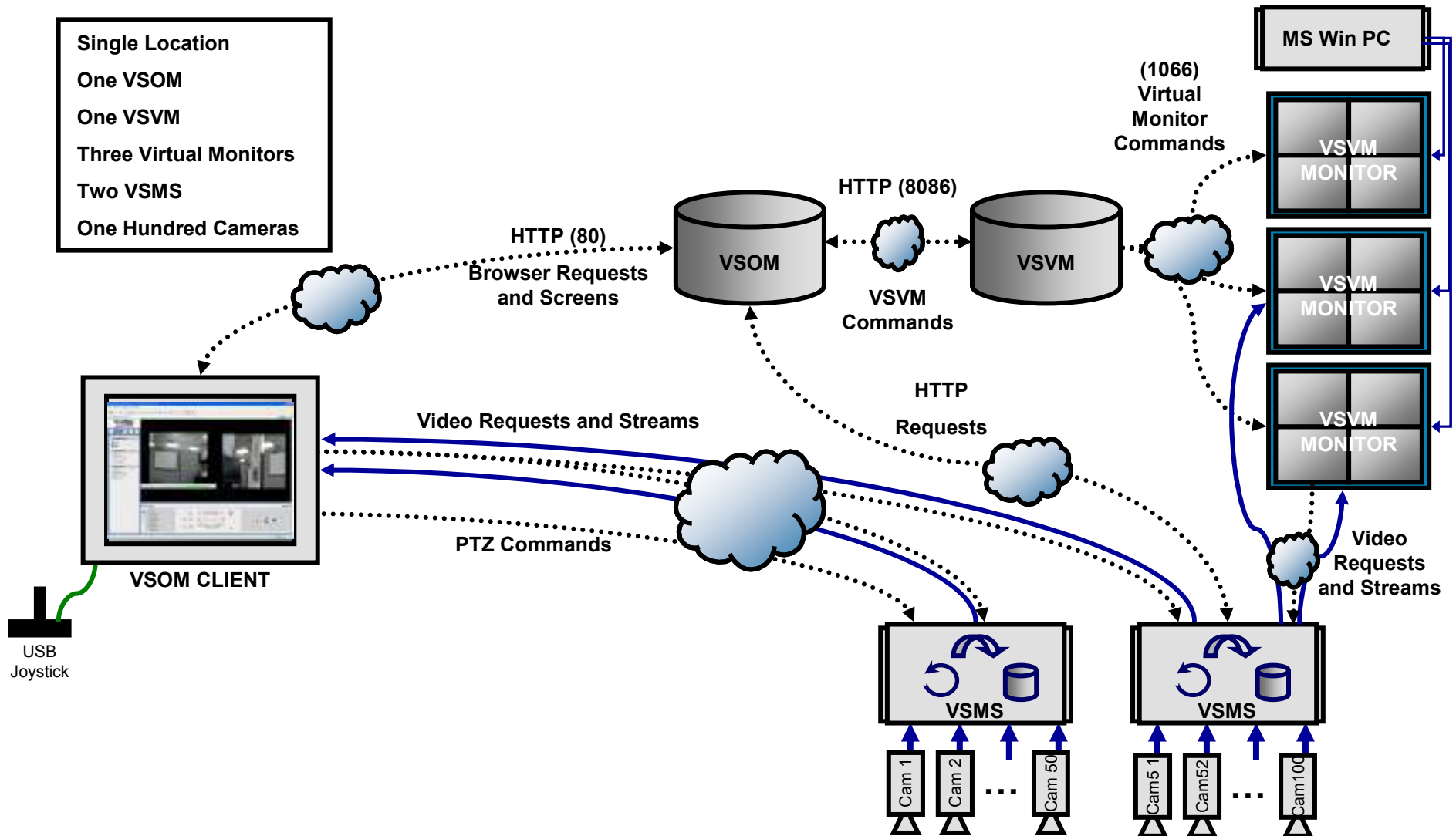
Cisco IP Video Surveillance Cameras and Encoders



Deployment Models

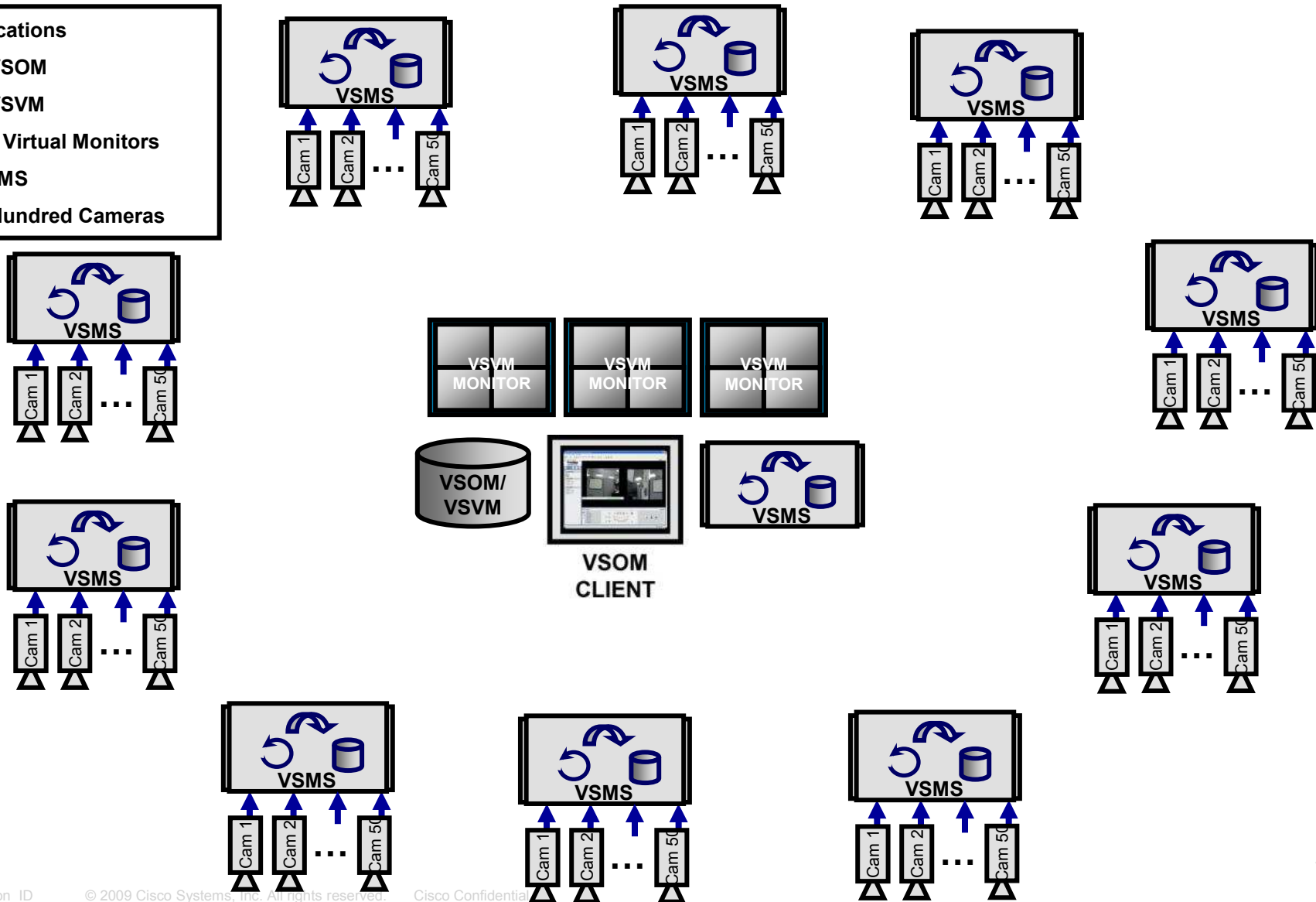


Single Site System Example Diagram



Multi-Site With Central Command & Control

- 10 Locations
- One VSOM
- One VSVM
- Three Virtual Monitors
- 11 VSMS
- Five Hundred Cameras



Design Considerations



Video Resolution

Dimensions	Resolution
VGA	640 x 480
SVGA	800 x 600
XGA	1024 x 768
QCIF	176 x 144
CIF	352 x 288
2 CIF	704 x 288
4 CIF	704 x 576
D1	720 x 576
HD 720	1280x720
HD 1080	1920x1080

Resolution Comparison

CIF [VCD] Resolution (352x240) vs. 1080 (1920x1080)



Resolution Comparison

4CIF/D1 [SDTV] Resolution (720x480) vs. 1080
(1920x1080)



Resolution Comparison

1080 (1920x1080)



HD Cisco Video Surveillance IP Cameras 4X00 Series

1. 1080p (1920 x 1080) 30 FPS
2. 720p (1280 x 720) 60 FPS
3. H.264, MJPEG Compression
4. USB Memory Card
5. IPv6 Capable
6. Dedicated Digital Signal Processor (DSP) for Video Analytics
7. 4 Models:
 - CIVS-IPC-4500 (DSP)
 - CIVS-IPC-4500W (DSP)
 - CIVS-IPC-4300W
 - CIVS-IPC-4300



Example Storage Calculations

Initial System Requirements:

Compression: MPEG4

Resolution: 4CIF

Frame Rate: 15fps

Archive Period: 30 Days

No. of Cameras: 500

Results:

Data Rate: MPEG4, 4CIF, 15fps = **1.5 Mbps**

Daily storage/Camera: $1.5 \times 3600 \times 24 / 8$ = **16 GB/day**

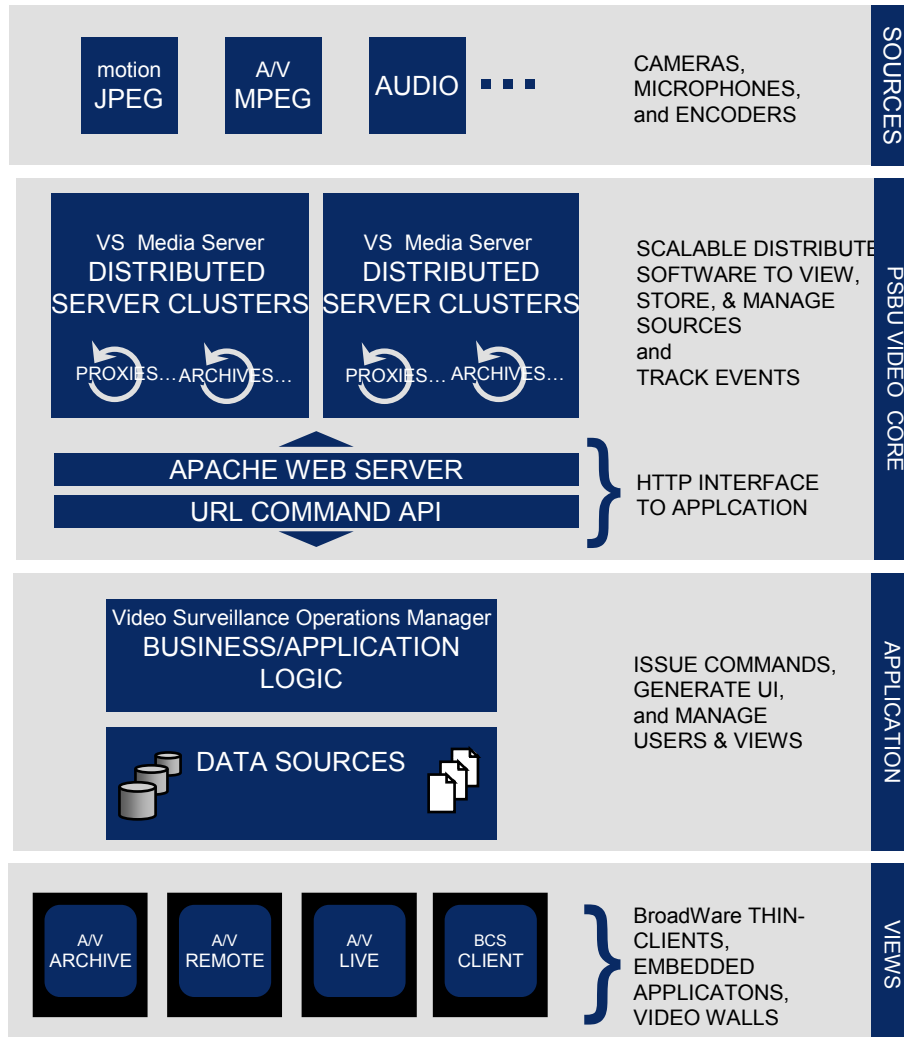
Daily Storage for 500 Cameras: 500×16 = **8 TB/day**

30 Day Storage for 500 Cameras: 30×8 = **240 TB**

Summary



Platform for Video Systems



- Multiple formats and devices supported for video and audio sources

Video Surveillance Media Server (VSMS)

- support multiple simultaneous viewers with low latency
- support any required storage capacity
- HTTP command interface integrates easily with other applications

Video Surveillance Operations Manager (VSOM)

- Applications created using any standard development environment
- Open interfaces for database, image analytics, and other functionality

Video Surveillance Virtual Matrix (VSVM) Interactive Media Clients (IMC)

- Thin-clients provide a broad range of viewing options

For More info:

1. The Web cisco.com/go/physicalsecurity

2. Email Me dosary@cisco.com

