



Cisco Connected Physical Security Solutions

Transforming the Way Organizations and
Communities Protect People, Property,
and Critical Infrastructure

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May 22nd, 2012



Physical Security Is Changing

Moving From:

Proprietary legacy systems

Siloed organizations and “point products”

Dedicated architecture for hardware, applications, and storage

Geographically dispersed facilities and personnel

Separate network and physical security

Legacy technology: Analog, DVRs, standard definition

Manual processes: Increases TCO

Local storage

Moving To:

Network based solutions

Solutions focus and converging organizations

Virtualized architecture for security, applications, and storage

Centralized security management via IP

Converged network and physical security

IP, high definition, network video surveillance

Drive automation and efficiencies through new technology

Local, data center, and cloud storage

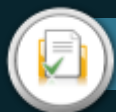
Cisco Solutions for Physical Security



IP Cameras



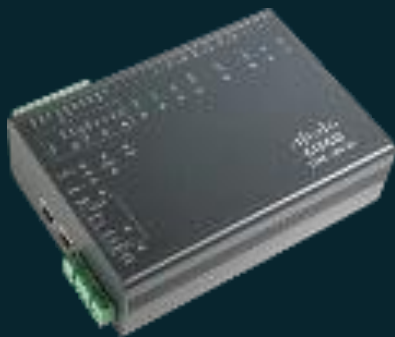
Video Surveillance



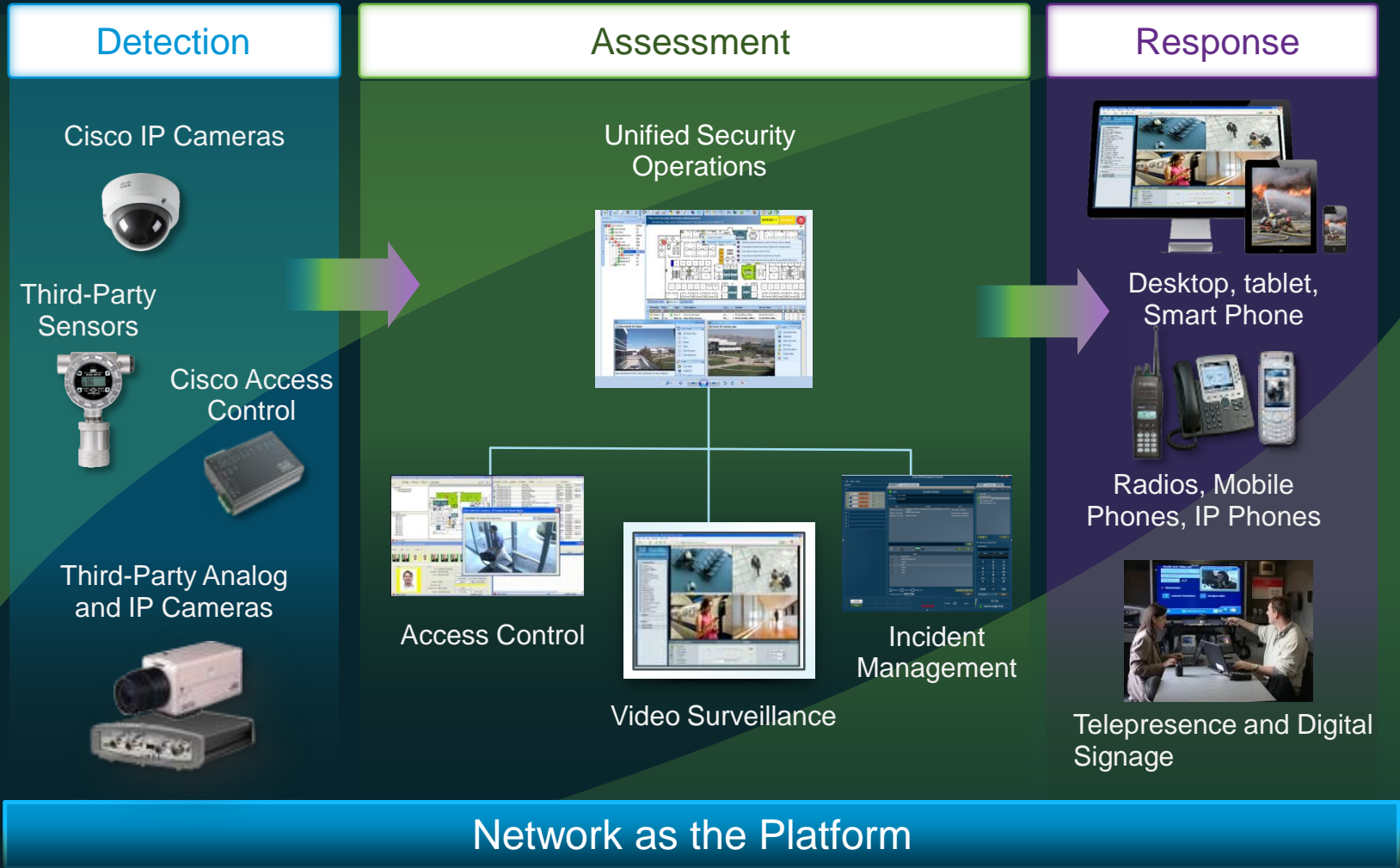
Access Control



IPICS IP Interoperability and Communications



Unified Incident Management



Cisco makes it easy to integrate

Sensors, LPR/OCR Integration and Policy



Analytics



Command and Control



Notification and Access Control



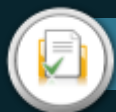
Cisco Solutions for Physical Security



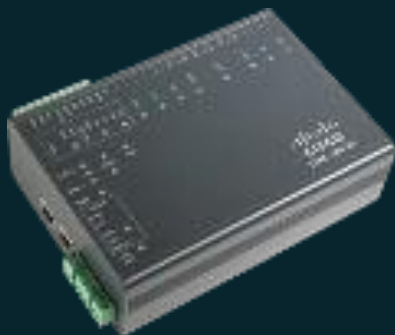
IP Cameras



Video Surveillance



Access Control



IPICS IP Interoperability and Communications










IP Cameras

Cisco Video Surveillance IP Cameras

- High definition, standard definition, box, dome, and PTZ IP cameras
- Access to video at any time from any place
- Embedded security and networking
- Motion detection and event notification
- Edge video analytics
- Easy to deploy with power over Ethernet
- Support for 3rd Party

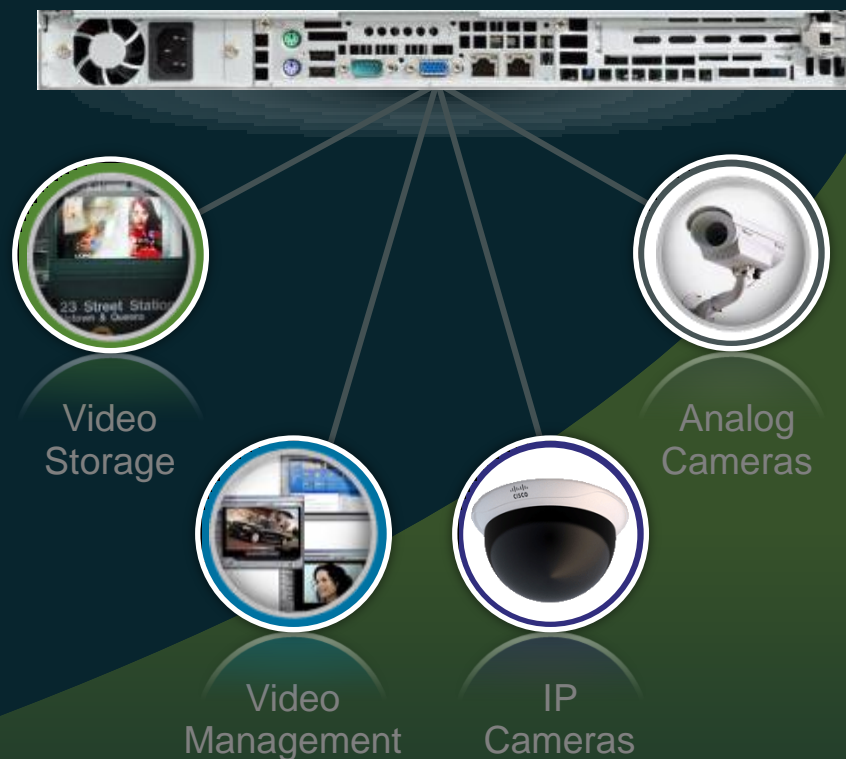


Cisco Video Surveillance IP Cameras

	Model	Description	Features
	5000 Series	1080p HD Dome IP Cameras	<ul style="list-style-type: none"> • Auto back focus • Super low light
	4000 Series	1080p HD Box IP Cameras	<ul style="list-style-type: none"> • Medianet support • Edge-based video analytics
	2900 Series	SD PTZ Dome IP Cameras	<ul style="list-style-type: none"> • Indoor 27X and outdoor 35X models • 360° continuous pan and 256 presets
	2600 Series	SD Dome and Box IP Cameras	<ul style="list-style-type: none"> • Motorized focus and zoom lens • Indoor and outdoor mounting options
	Encoder Card	8- and 16-Port Video Encoder Card	<ul style="list-style-type: none"> • Hardware-based DSP encoding • Remote camera control

Cisco Multiservices Platform Encoding Server

- High density video encoding
 - Options for 8- and 16-ports cards
 - Up to 16 ports on 1RU, 48 ports on 2RU
- Flexible encoding options
 - H.264, dual streams, 30 fps and 15 fps, D1 and CIF
 - Motion JPEG, dual streams, 15fps and 10fps, D1 and CIF
- Other features
 - Hardware-based DSP encoding on cards with lower TCO
 - Remote Camera Control with MSP RS-232 daisy chain for serial pan-tilt-zoom (PTZ) control for up to 32 cameras
 - Embedded motion detection



Typical Resolutions

User Expectation of Image Quality is Increasing with Adoption of HDTV

Size / Format	NTSC based	PAL based
QCIF	176 x 120	176 x 144
CIF	352 x 240	352 x 288
2CIF	704 x 240	704 x 288
4CIF Standard Def	704 x 480	704 x 576
D1	720 x 480	720 x 576

Size /Format	Pixels
3M	2048 x 1536
HDTV	1920 x 1080
2M	1600 x 1200
1M	1280 x 1024
1M	1280 x 960
HDTV	1280 x 720
VGA	640 x 480
QVGA	320 x 240
QQVGA	160 x 120

Resolution and Aspect Ratio

IP Cameras More Optimal Than Analog



480

720 (D1)



1080 (HDTV)

1920

Wider Aspect Ratio – SD 4:3 while HD is 16:9

Effectively Deploy All Forms of Business Video with Medianet

Video Is > 50% of Traffic on IP Networks, Growing to 90% by 2013



Cisco
TelePresence



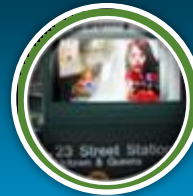
Webex



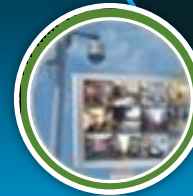
Digital
Signage



Unified
Communications



Desktop Video
Show and Share



Physical
Security



Cisco Medianet Architecture

Use Cases

Entertainment

Business Meetings

Safety and Security

Events

Education

Broadcast Communications

Advertising

Customer/Patient Care

Video Endpoints

Cisco
webex



Media Services

Any-to-Any Transcoding Content Distribution Directory
Auto Discovery Optimization Analytics Intercompany

Network Infrastructure

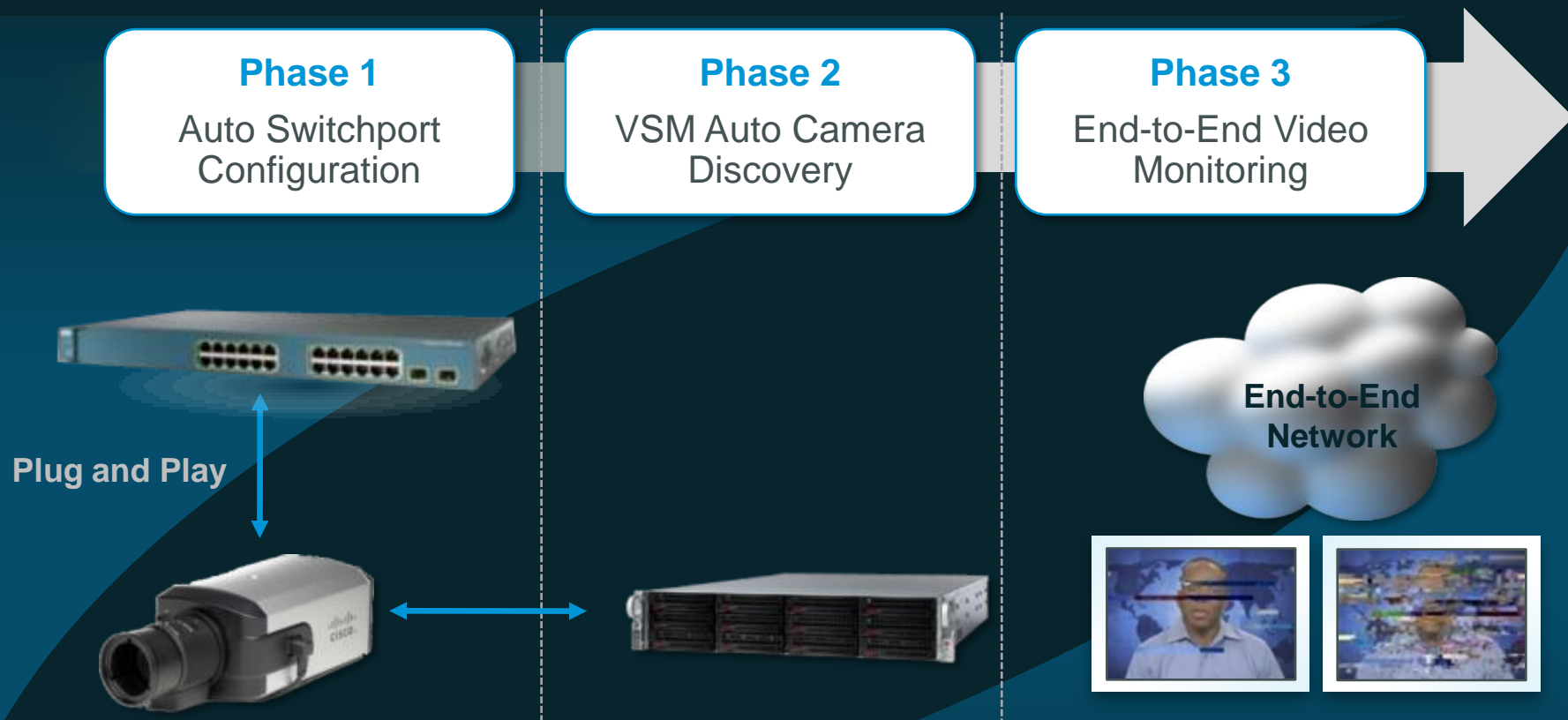


Security

Management

Medianet

Cisco End-to-End Advantage with Medianet



Simplify Network IP Video Surveillance Solutions
Improved End-to-End Video Management

Cisco Video Analytics

Cisco Video Analytics Base Package

- Security
 - Tripwire
 - Camera tampering
 - Loitering
- Counting
 - Multiline tripwire
 - Object classification

Cisco Video Analytics Optional “Plus” Package

- Security
 - Multi-tripwire
 - Object left behind
- Counting
 - Entry/exit
 - Dwell time
 - Occupancy

Cisco 4500E
IP Camera



Events

Cisco Video
Surveillance Manager



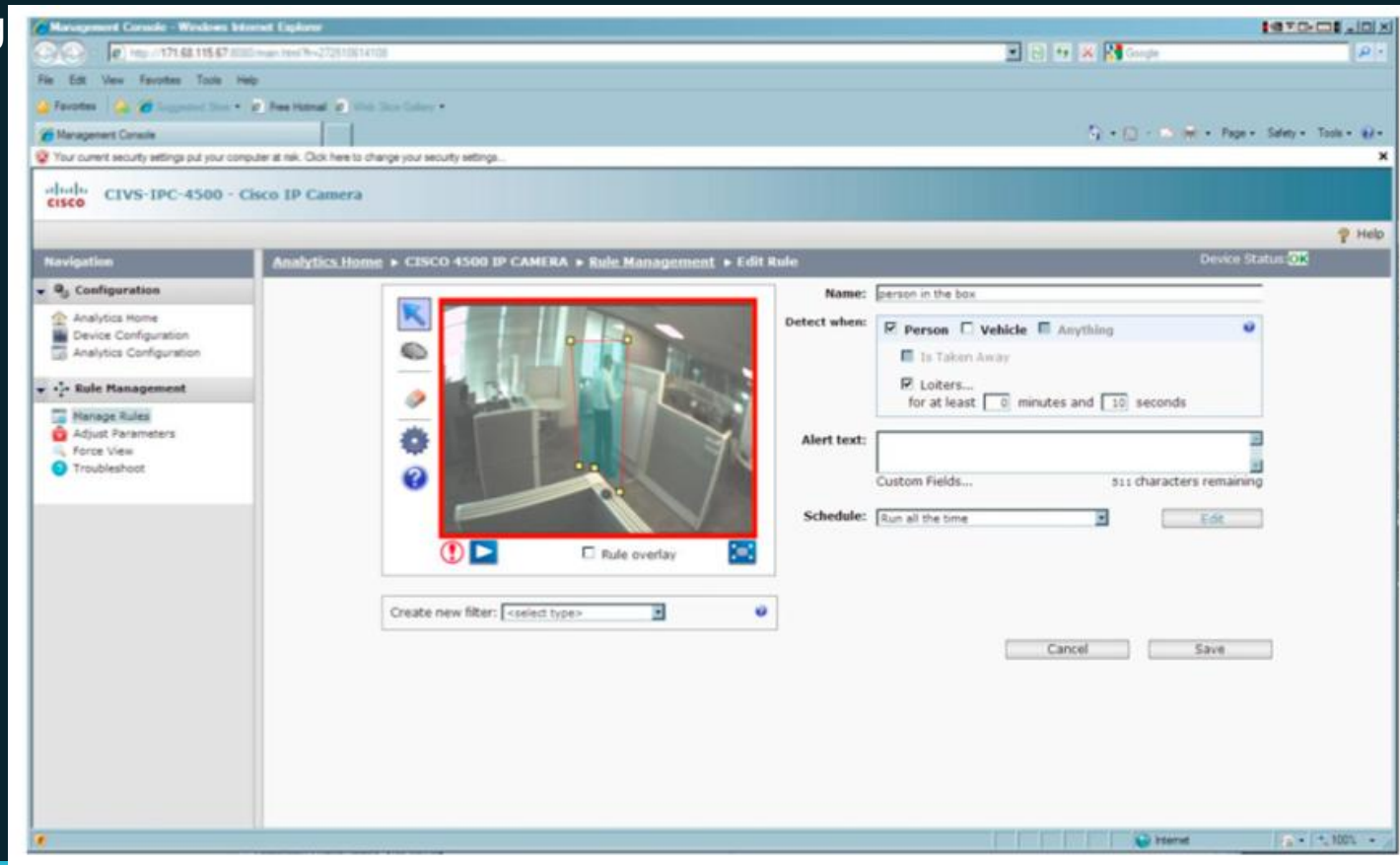
Simple and Cost-Effective IP Video Surveillance and Video Analytics Solution with Processing in IP Cameras at the Edge of the Network

Video Analytics Interface

Native Camera Interface

No Special SW needed

Free Reporting





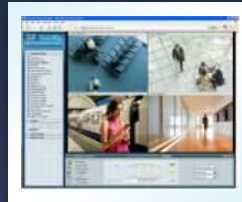
Video Surveillance

Cisco Video Surveillance Manager

Video Surveillance Media Server



Video Surveillance Operations Manager



Video Surveillance Virtual Matrix*



Software

Collect, Archive
Route Video

Manage and Control
Users, Video, and Devices;
View Video

Control and Display
Video on Any Video Walls

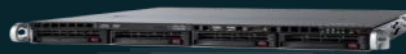
Secure Medianet-Enabled Cisco IP Network

Embedded
Medianet

IP Cameras



Analog
Cameras



Multiservices Platform
and UCS Express



4-24 TB
Storage



Physical Security
Storage Series Platform



120-240 TB
Storage

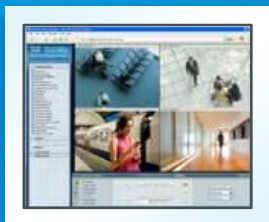
Hardware

Cisco Video Surveillance Manager



Video Surveillance Media Server

- Core engine for the surveillance solution
- APIs for third-party integration (analytics, command, and control)
- Support for Cisco's portfolio of endpoints
- Capable of supporting third-party cameras and encoders



Video Surveillance Operations Manager

- “Thin” web user interface for real-time/archived video viewing
- Integrated administration of all devices and storage
- Systemwide health monitoring
- Forensic tools to speed investigations

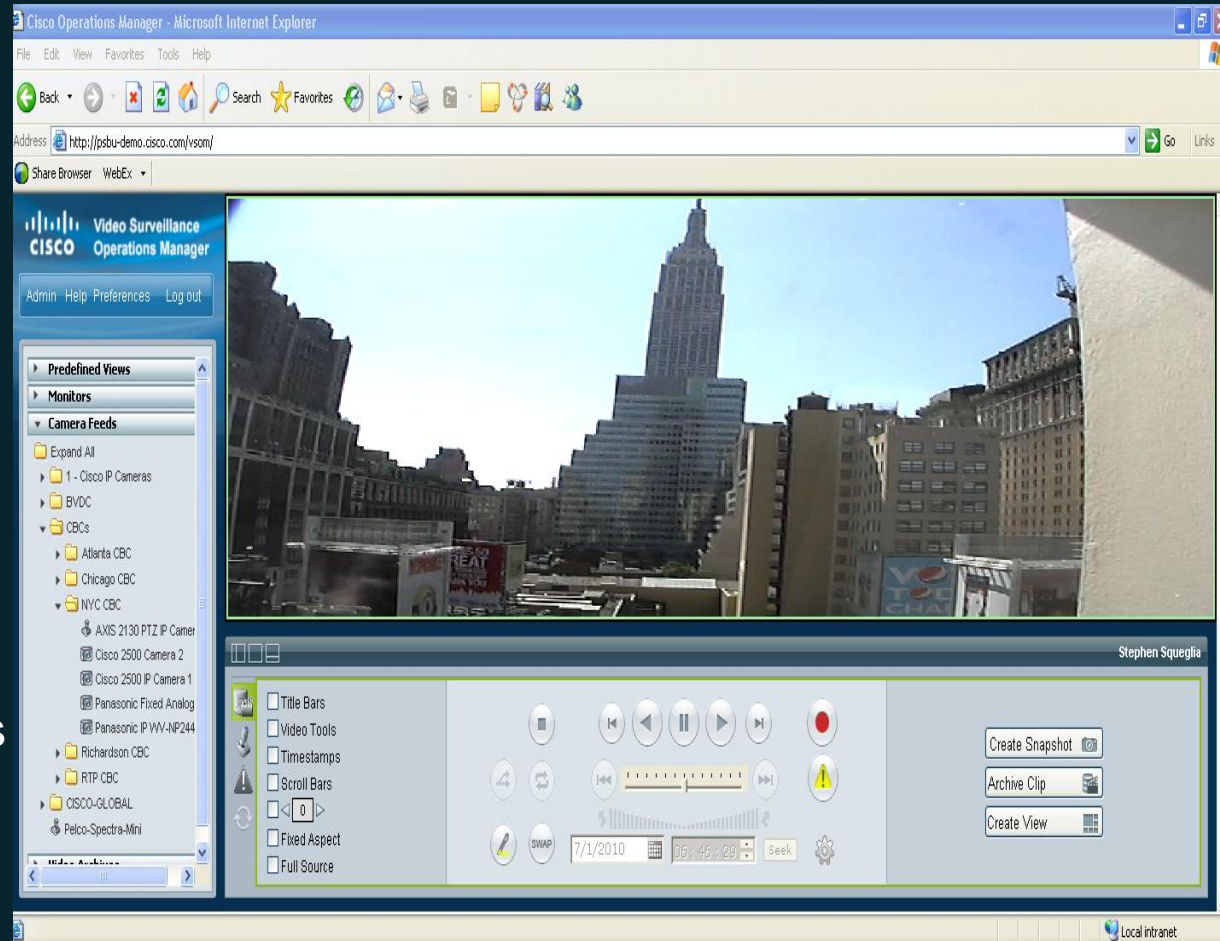


Video Surveillance Virtual Matrix

- Remotely controlled video display application
- Simply push a defined layout of cameras to many operators

Operations Manager - Operator Mode

- Display live and archived video streams simultaneously
- PTZ controls
- Archive controls – play, pause, step forward and backward
- ‘Record Now’ feature while viewing live video
- Control of viewing attributes (aspect ratio, title bars, etc)
- Snapshots



Forensic Search

Thumbnail Size ▾ Actions ▾

Video Archives 7-day Loop (Range 7/5/2011 09:15:24 - 7/5/2011 23:33:59 [0 Days, 14 Hours, 18 Minutes, 35 Seconds])

- My Archives
 - Axis-Thermal Camera (1)
 - C03 RTBC C2500W Privacy (1)
 - C04 RTBC C2520 Intrusion (1)
 - C07 LAB Axis210 (1)
 - Cam 2 0 (1)
 - Cisco 2600 Parking Lot (3)
 - 7-day Loop
 - Cisco 2600 Recording
 - Record Now(Cisco 2600 Parki
 - Cisco 4500 with 2.8-12MM Lens
 - Cisco 5000 Outdoor-enclosure (2)
 - Cisco 5010 Indoor-HD 1 (2)
 - Cisco_2500_165 - Live (4)
 - Encoder-Cam-1 (2)
 - Encoder-Cam-4 (2)
 - Encoder-Cam-5 (2)
 - Lab-Door-Cam3 (1)
 - Pal-Camera (1)
 - RTP Demo Circle Ceiling AnSD (
 - S1 ATL CBC 1 (1)
 - S1 ATL CBC Equipment Room 1
 - S1 ATL CBC Physec Dome 1 (1)
 - S1 BVDC-Pelco-5000 1 (1)
 - S1 BVDC Podium 1 (2)
 - S1 BVDC Retail 1 (1)
 - S1 C02 RTBC C2500 1 (1)
 - S1 C05 LAB C2500 1 (1)
 - S1 C06 LAB C2500 1 (1)
 - S1 C09 LOBBY C4500 1 (1)
 - S1 Cisco-2600-StreetTraffic 1 (2)
 - S1 Cisco-4500-Building-View 1 (1)
 - S1 Cisco-4500-StreetTraffic 1 (2)

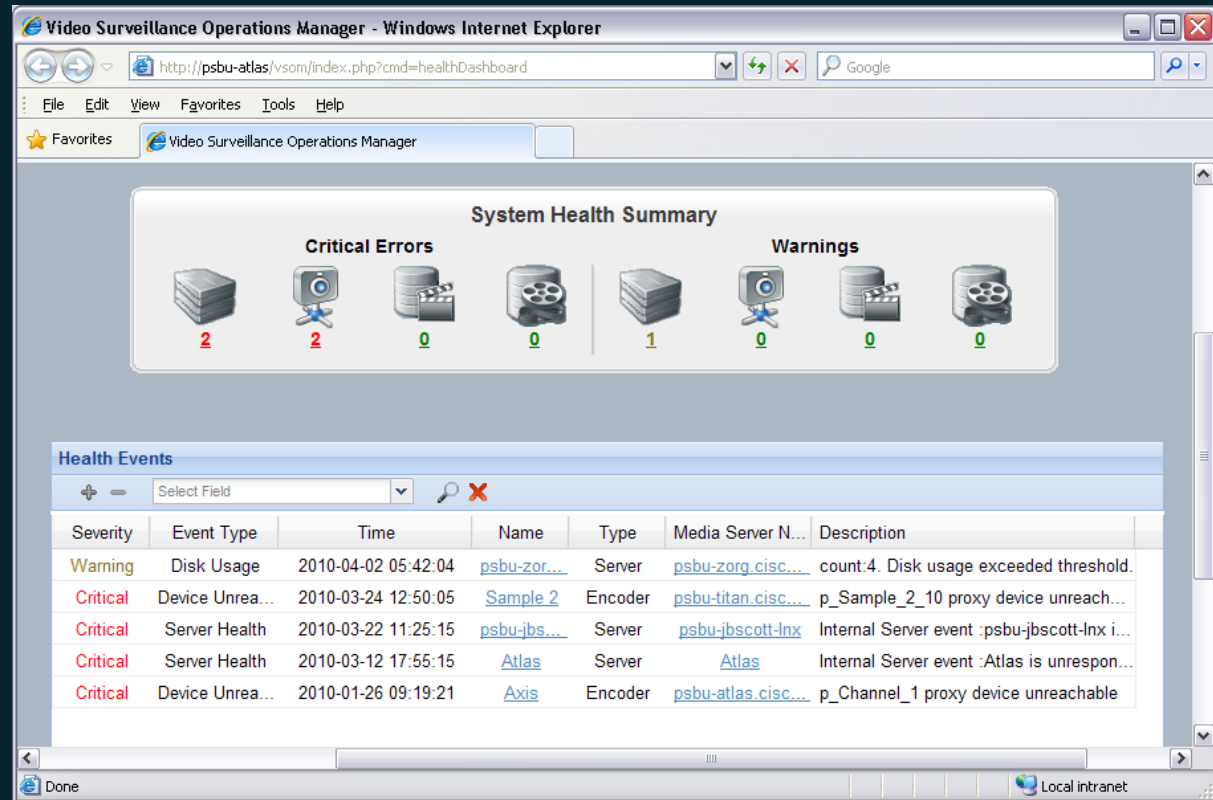
6/29/2011 10:45:59 7/6/2011 10:53:54

07/05/2011 09 :15 24 Set Start Duration Custom Show Timestamps Version 6.3.2

Health Dashboard

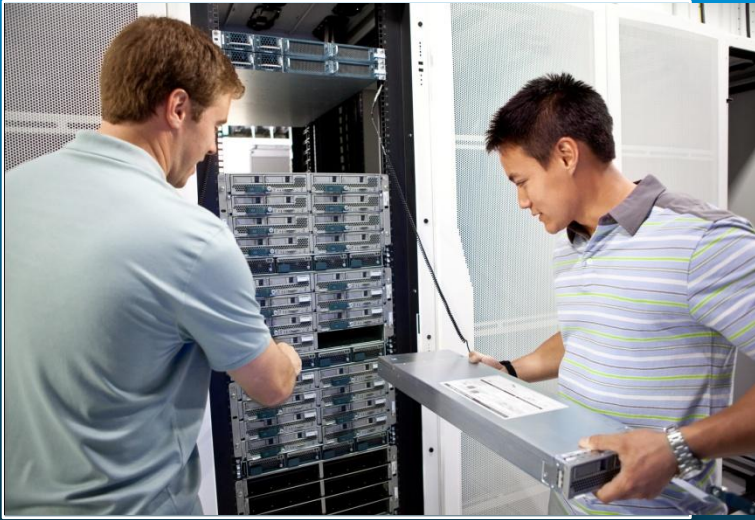
- **Simple presentation of system health**

- Disk Space
- Devices Up/Down
- Configuration Failures
- Media Loss
- Recording State
- Default Grooming Notification
- Client bottleneck warnings



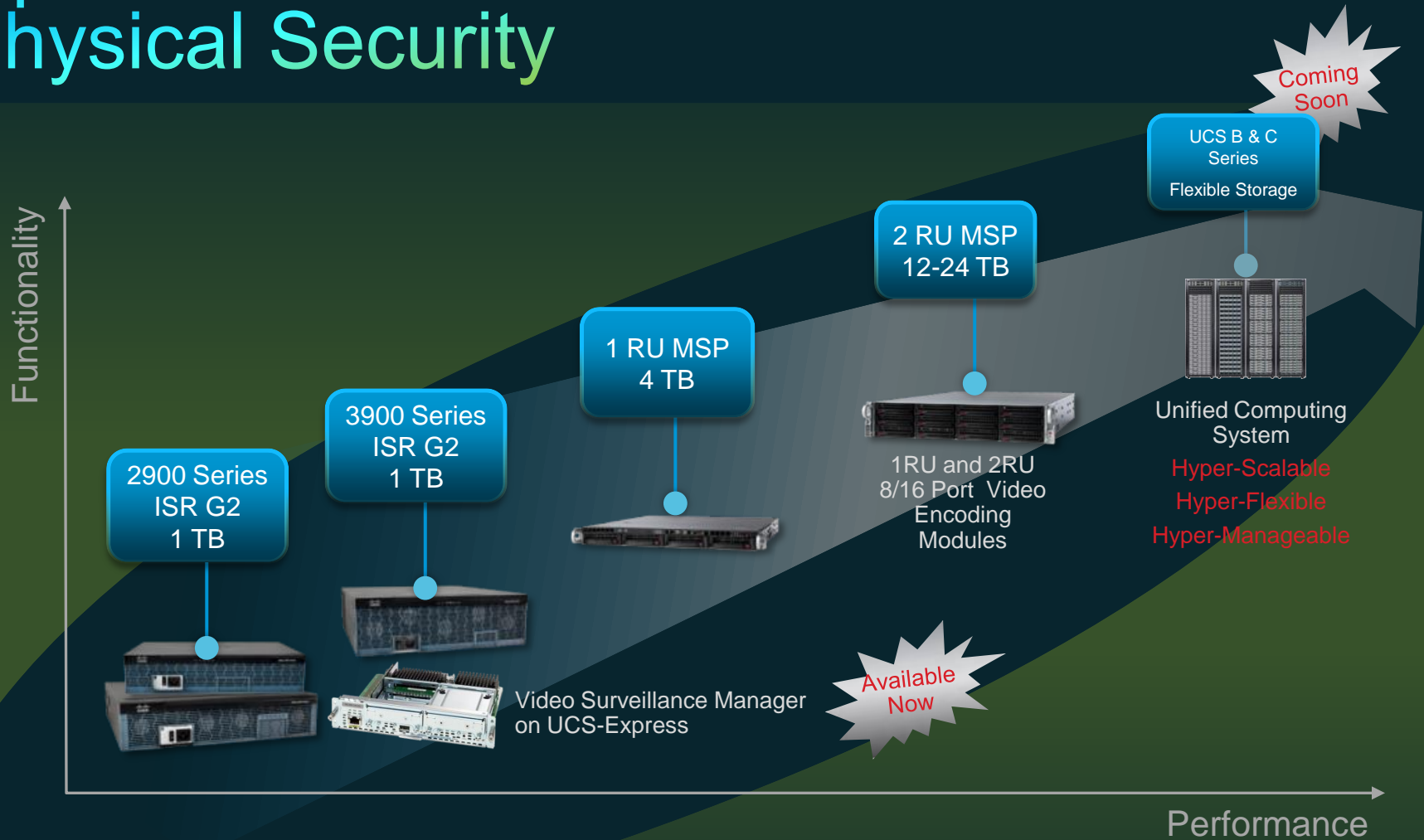
- **Media Server Software Updates**

- CLI free Media Server updates



Platforms

Optimized Portfolio for Virtualized Physical Security



A Complete Platform Portfolio for Optimized Security Systems Solutions

Virtualized Video Surveillance:

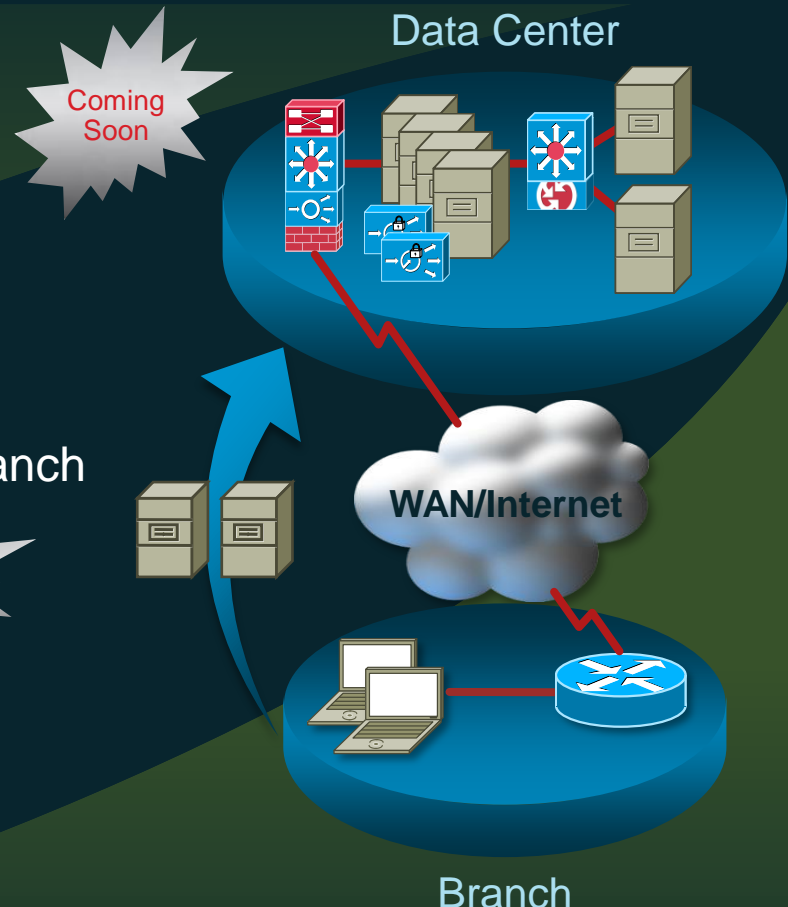
A Complete Solution from the Branch to the Data Center

VSM on Unified Computing System

- Unified compute platform for infrastructure consolidation in the Data Center

VSM on UCS-Express

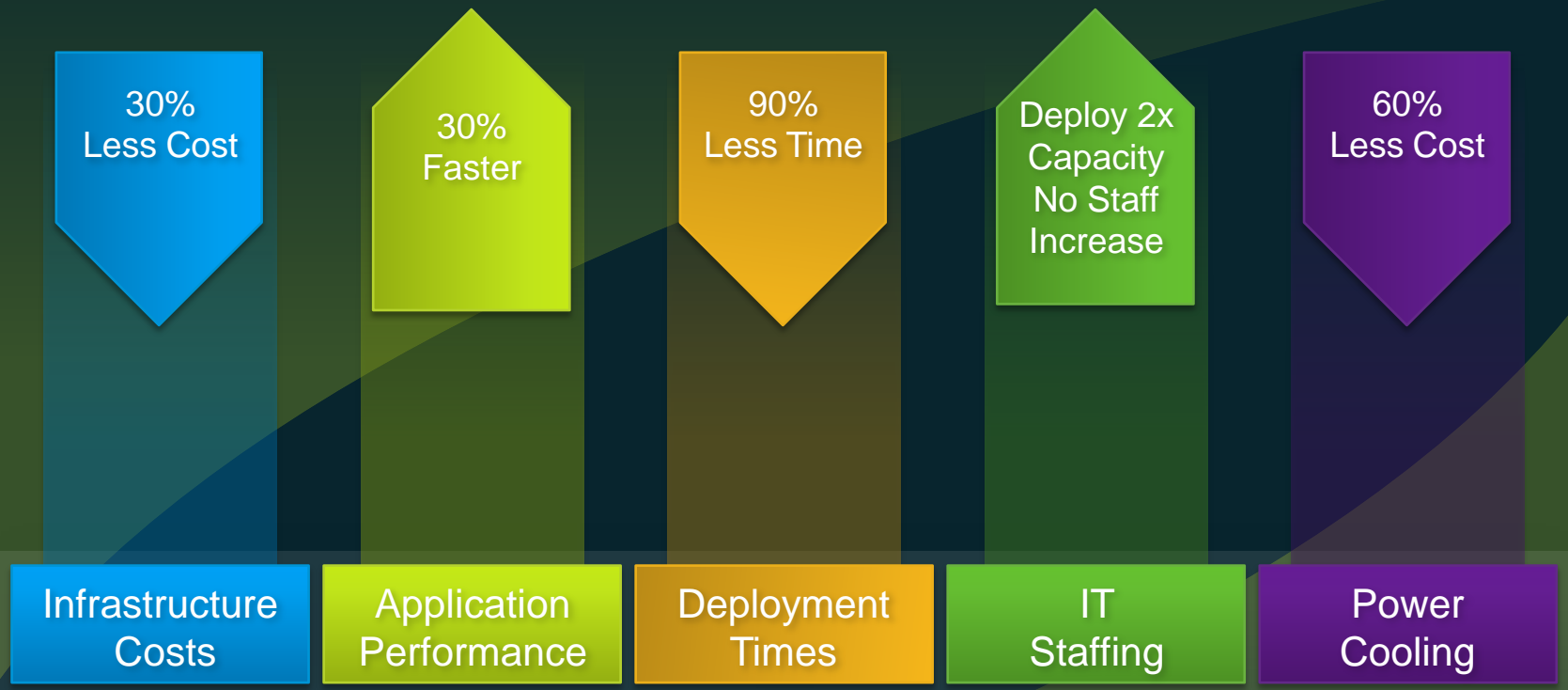
- Integrated compute platform with all-in-one device convergence for centralization of branch applications into Data Center



Consolidated Infrastructure, Centralized Applications
Location-Suitable Form Factors, Consistent Device Management

Benefits of Virtualization:

Unified Data Center Business Advantages



Creating Industry-Wide Advantages for Customers and Partners
to Attain These Benefits

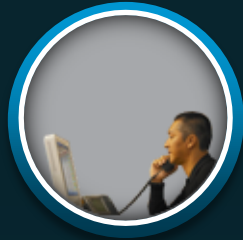
Cisco ISR Generation 2



Virtual Office



Secure Mobility



Customizable Applications



Secure Collaboration



Scalable Rich-Media Services

860, 880, 890



No UCS Express

1941, 1941W



No UCS Express

2901, 2911,
2921, 2951



1 or 2 UCS Express Blades

3925, 3945
3925E, 3945E



Up to 4 UCS Express Blades

Range of Branch Services

Network and Security Services

Network Services



**Control, Accelerate,
Analyze**

- Wireless LAN Controller (WLC)
- Network Analysis Monitoring (NAM)
- Wide Area Application Services (WAAS)
- Application Performance Monitoring (NetScout and Visual Network)
- IP Address Management (Infoblox and BlueCat)
- Log Management (LogLogic)
- Automated Device Management (Uplogix)

Network Security



**Secure, Protect,
Compliance**

- Anti-Virus and Anti-Malware
- Voice Policy Firewall (SecureLogix)

Collaboration Services

Unified Communications



**Reach, Communicate,
Collaborate**

- Cisco Unity Express (CUE)
- Unified SIP Proxy (CUSP)
- Unified Messaging Gateway (UMG)
- Survivable Remote Site Voicemail (SRSV)
- Fax over IP (Sagemcom and OpenText)
- Paging over IP (Singlewire)

Compute Services and Applications

Application Infrastructure



**Consolidate, Simplify,
Future-Proof**

- Services Ready Engine Virtualization (SRE-V)
- Microsoft Windows Server on SRE-V

Industry Applications



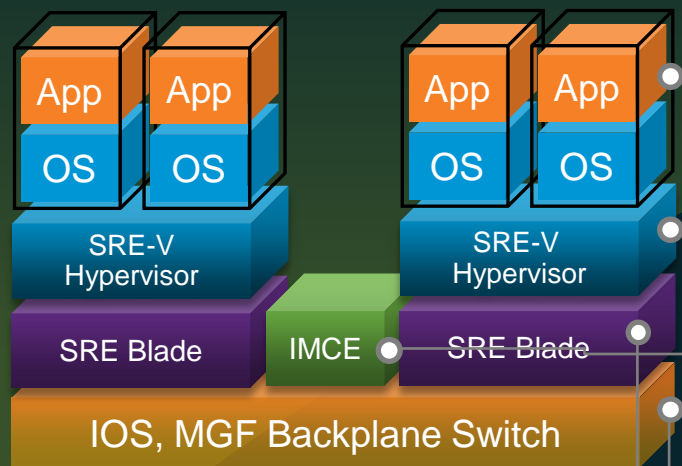
**Deliver Value-Add
Custom Solutions**

- Tiani Medical Data Exchange
- Orion Health Rhapsody Medical Data Exchange
- Industry Weapon Digital Signage

Cisco Partner

Cisco UCS Express Components

Simplifying Lean Branch Office Infrastructure



Platform for WAN Edge Applications

- Cisco Video Surveillance Manager

Server Virtualization

- Cisco SRE virtualization powered by VMware vSphere Hypervisor™ (ESXi)

Dedicated Blade Management

- Cisco integrated management controller
- Consistent management for UCS family

Multipurpose x86 Blades

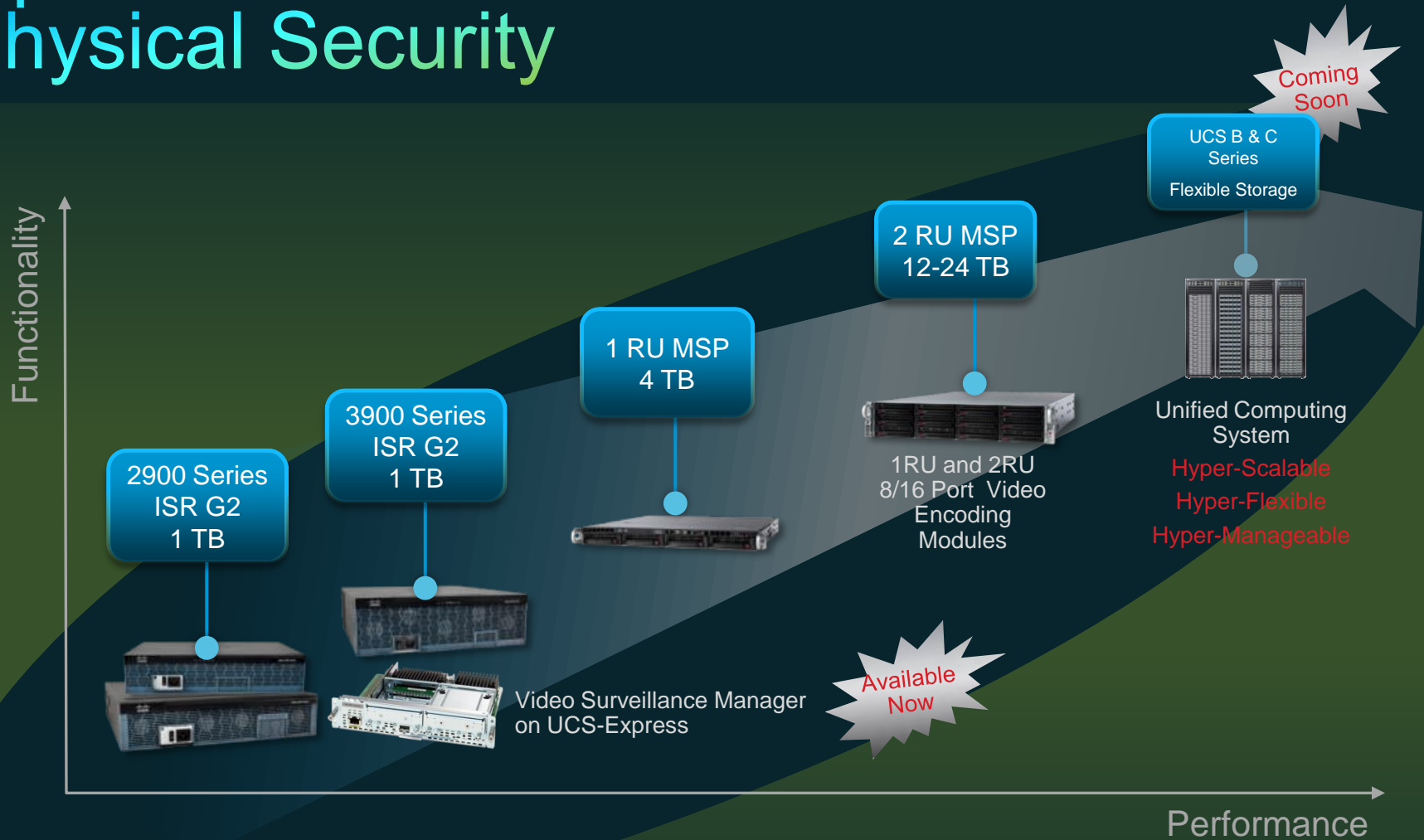
- Cisco service-ready engine modules
- House up to four server blades in ISR G2

Single-Device Network Integration

- House all devices in ISR G2 chassis
- Multigigabit fabric backplane switch



Optimized Portfolio for Virtualized Physical Security



A Complete Platform Portfolio for Optimized Security Systems Solutions

Cisco Storage Series Platforms

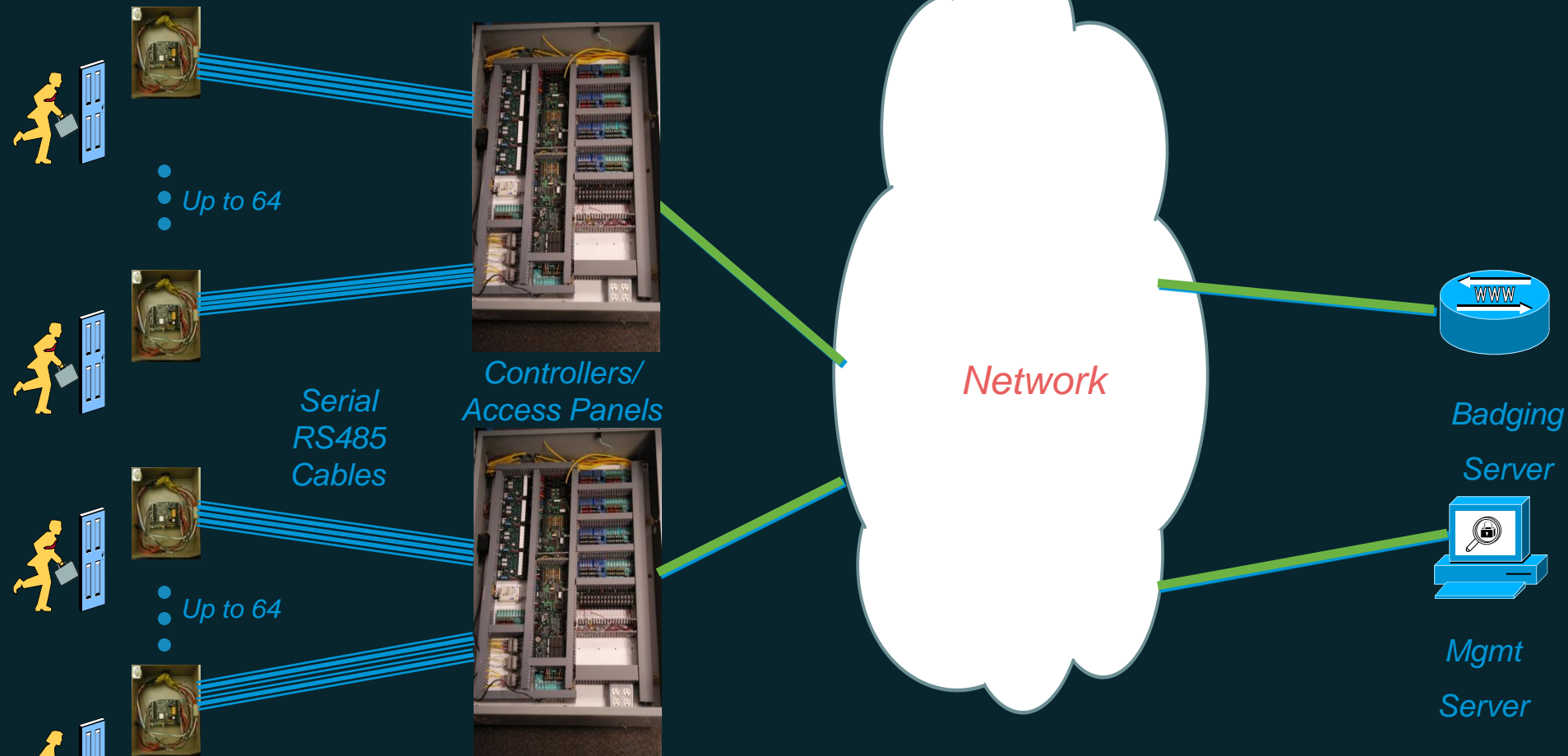
- Two New Storage Models
 - CPS-SS-4RU
 - CPS-SS-4RU-EX
- Scalable, high storage capacity
 - 60 Disks in 4U for 120TB with CPS-SS-4RU
 - Scalable to 180 Disks in 12U (360TB) with CPS-SS-4RU-EX expansion chassis
- High Reliability
 - Redundant controllers, power supplies, and interconnects
 - Hot-Swappable active components
 - Anti-vibration Design
 - Counter-Rotating Drive Mounts
 - Cool Drive Technology™
- Active Drawer Technology
- Up to 85% Energy Savings





Access Control

Access Control Architectures Today



- Proprietary Interfaces, Complex installation, test and turn-up
- Not capable of incremental deployment
- Upfront design cycle required

Cisco Physical Access Control Overview

- A Comprehensive Solution for Electronic Access Control
- Leverages IP infrastructure by integrating with other Physical Security apps



- **Hardware:**

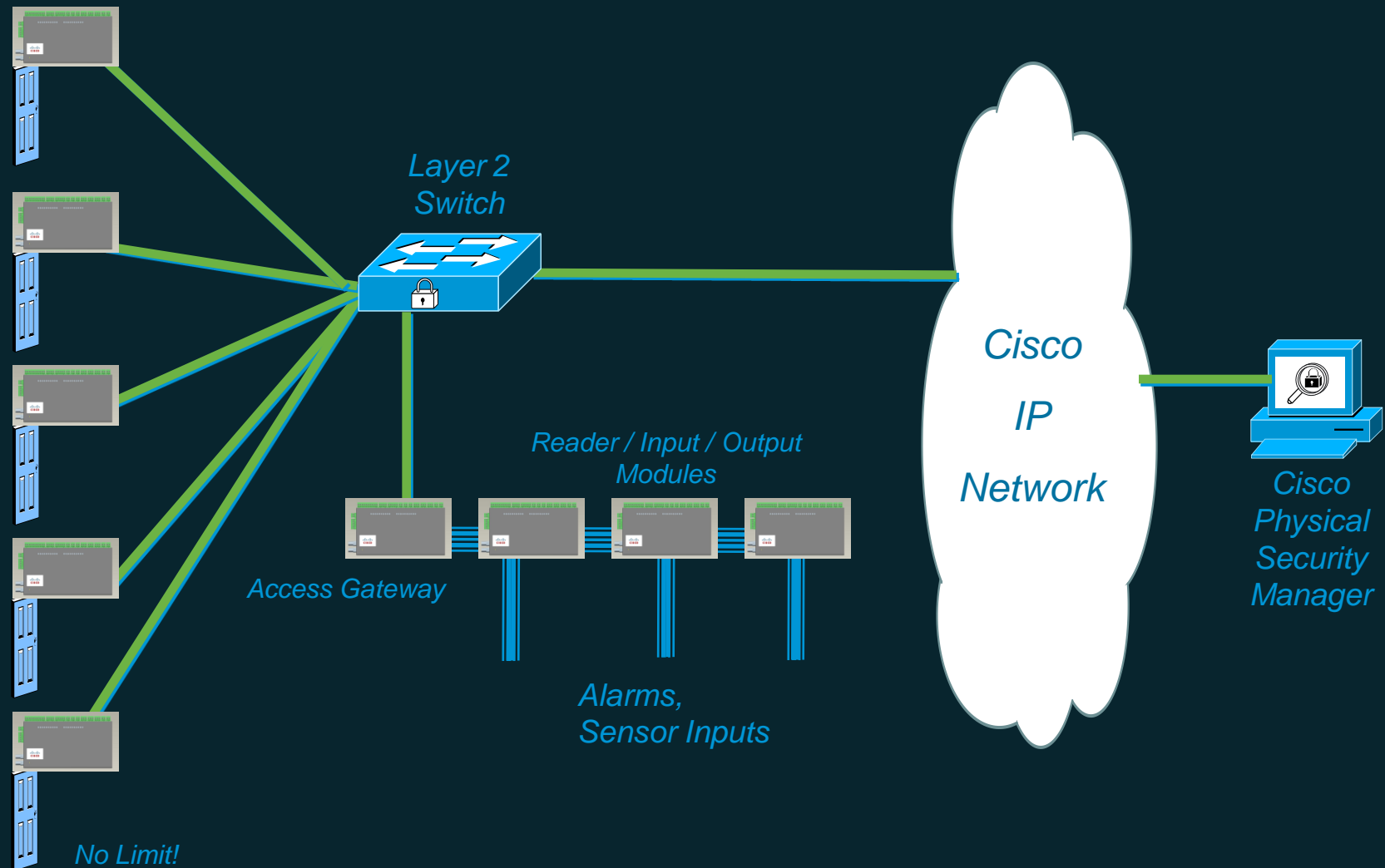
Cisco Access Gateway connects door hardware (readers, locks, etc.) to the network.

Additional doors can be managed by connecting expansion modules to the Access Gateway.

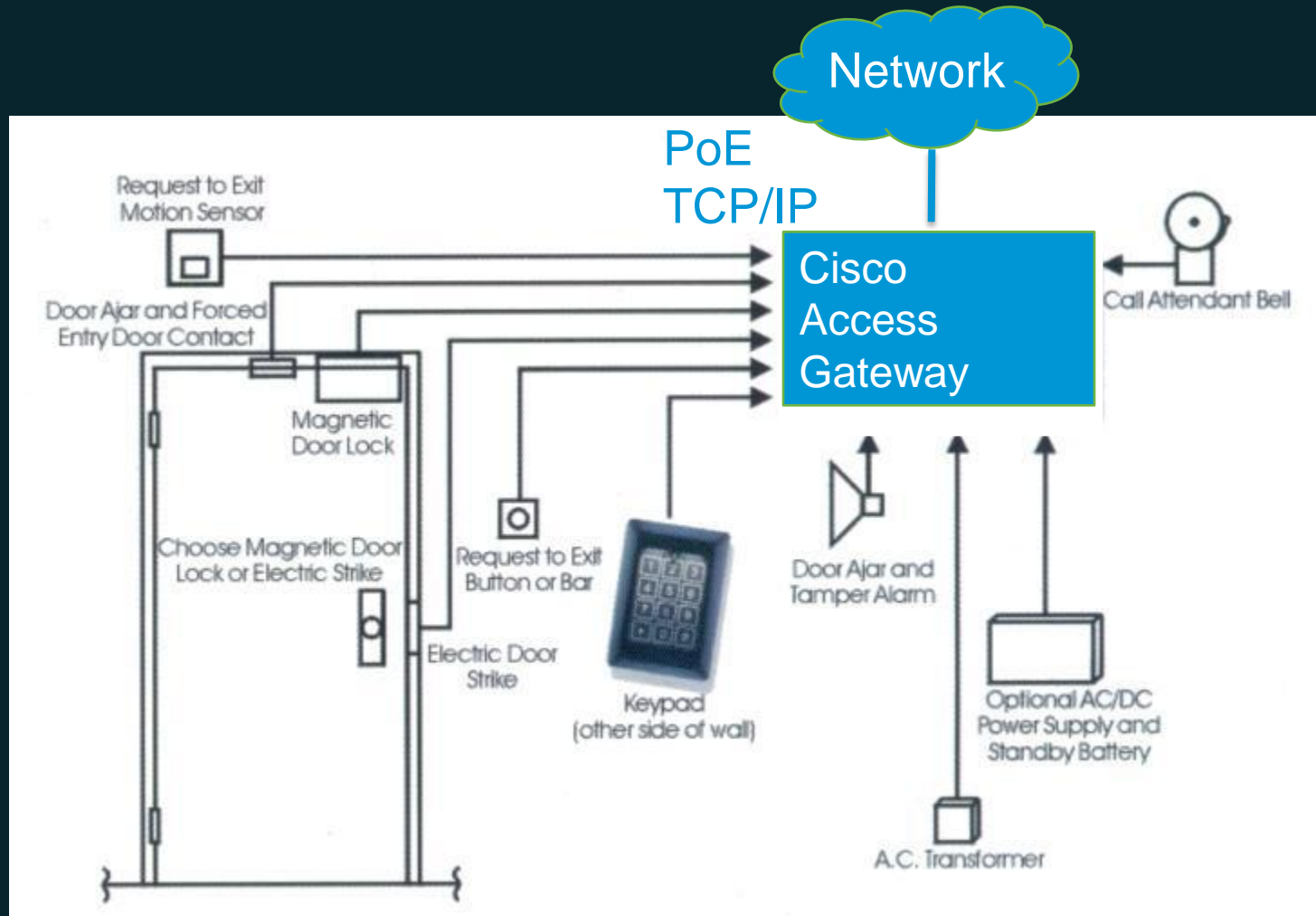
- **Software**

Cisco Physical Access Manager (PAM) is a Management Appliance for configuration, monitoring and report generation.

Cisco Access Control Architecture



Door Connection Diagram



Cisco Access Gateway Embedded Software

Feature	Benefit
250K Cardholder cache, 150K Transaction buffer	Door continues to function in case network connectivity is lost
Web server built in	Simplifies configuration and monitoring
All communication is 128 Bit AES encrypted	Protects credentials, preserves security
Device pre-provisioning using network services	Simplifies deployment
Plug & Play support	Modules can be added or deleted without disrupting service

Hardware Overview

Input Module



- Requires Access Gateway
- Connects up to 10 inputs to the Cisco Access Gateway via a CAN bus.
- Example inputs are: Pushbutton switches, Glass Break sensors, or any contact closure input circuit
- Power: 12V to 24V DC
- 10 Supervised inputs

Output Module



- Requires Access Gateway
- Connects up to 8 outputs to the Cisco Access Gateway via CAN bus.
- Example outputs are: lights, LEDs, or any contact closure output circuit.
- Power: 12V to 24V DC
- 8 Form C (5V, 30A) outputs

Reader Module



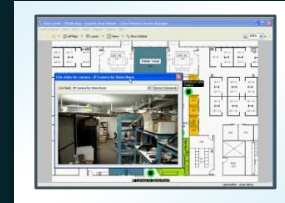
- Requires Access Gateway
- Connects up to 2 doors, to the Cisco Access Gateway via CAN bus.
- Power: 12V – 24V DC
- 10 pin Weigand Reader port (two 5 pin Weigand ports)
- 1 RS-485 port
- 3 Outputs (Form C Relays)
- 3 Supervised inputs

Cisco Physical Access Control

CPAM: Badge Enrollment



CPAM: Access Control Map Interfaces



CPAM: Video Surveillance Integration



Cisco Physical Access Manager Software

Secure IP Network

Hardware



Physical Access Gateway



Input Module



Output Module



Reader Module



1RU Server Platform

Physical Security
Multiservices
Platform

Cisco Physical Access Manager (Cisco PAM)

1 RU Appliance

Java Thin Client Architecture

Policy Support: Two-Door, Anti-Passback

Report Generator (Canned & Custom)

Badge Design & Enrollment

Microsoft Active Directory integration

Fine grained user rights

Global I/O

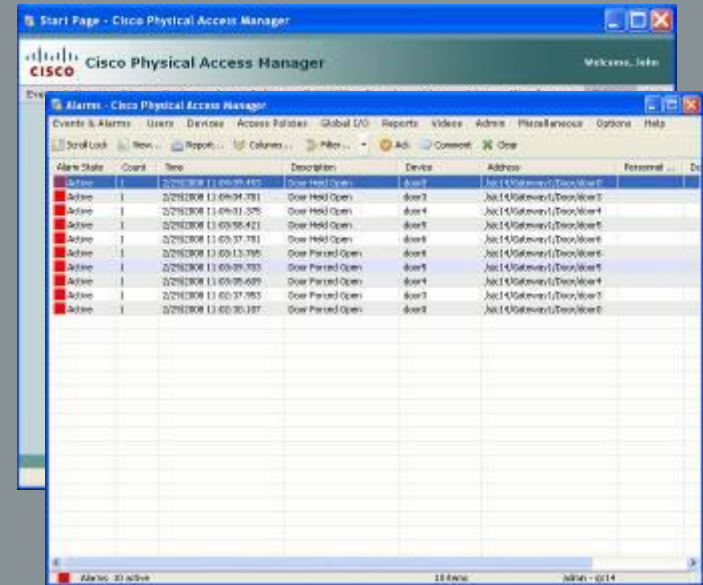
Device Pre-Provisioning

Capacity & Feature Licenses

IT Data integration

Warm Standby High Availability

Audit Trails



Alarm State	Count	Time	Description	Device	Address	Personnel
Active	1	2/25/2008 11:00:39:455	Door Held Open	door1	Net14-Gateways/Door/door1	
Active	1	2/25/2008 11:00:39:391	Door Held Open	door4	Net14-Gateways/Door/door4	
Active	1	2/25/2008 11:00:38:421	Door Held Open	door5	Net14-Gateways/Door/door5	
Active	1	2/25/2008 11:00:37:781	Door Held Open	door6	Net14-Gateways/Door/door6	
Active	1	2/25/2008 11:00:13:795	Door Partially Open	door1	Net14-Gateways/Door/door1	
Active	1	2/25/2008 11:00:09:793	Door Partially Open	door5	Net14-Gateways/Door/door5	
Active	1	2/25/2008 11:00:08:609	Door Partially Open	door1	Net14-Gateways/Door/door1	
Active	1	2/25/2008 11:00:07:985	Door Partially Open	door7	Net14-Gateways/Door/door7	
Active	1	2/25/2008 11:00:06:187	Door Partially Open	door8	Net14-Gateways/Door/door8	



Cisco PAM



Java Thin Clients



Cisco Video Surveillance Manager (VSM) Integration

Event Video integration with Cisco VSM

Dynamically acquires camera inventory stored in Cisco VSM. Automatically tracks inventory.

Allows association of cameras to doors.

For every event by the door, recorded and live video can be viewed.

The screenshot displays the Cisco Physical Access Manager interface. The main window shows an 'Alarms - Cisco Physical Access Manager' window with a table of active alarms. A video clip player is overlaid on the table, showing a recorded feed from 'Bldg 14 First Floor Camera 1'.

Alarm State	Count	Time	Description	Device	Addr
Active	1	3/13/2008 11:59:37.773	Door Forced Open	5314-Lobby	/San

Video Clip for camera : Bldg 14 First Floor Camera 1

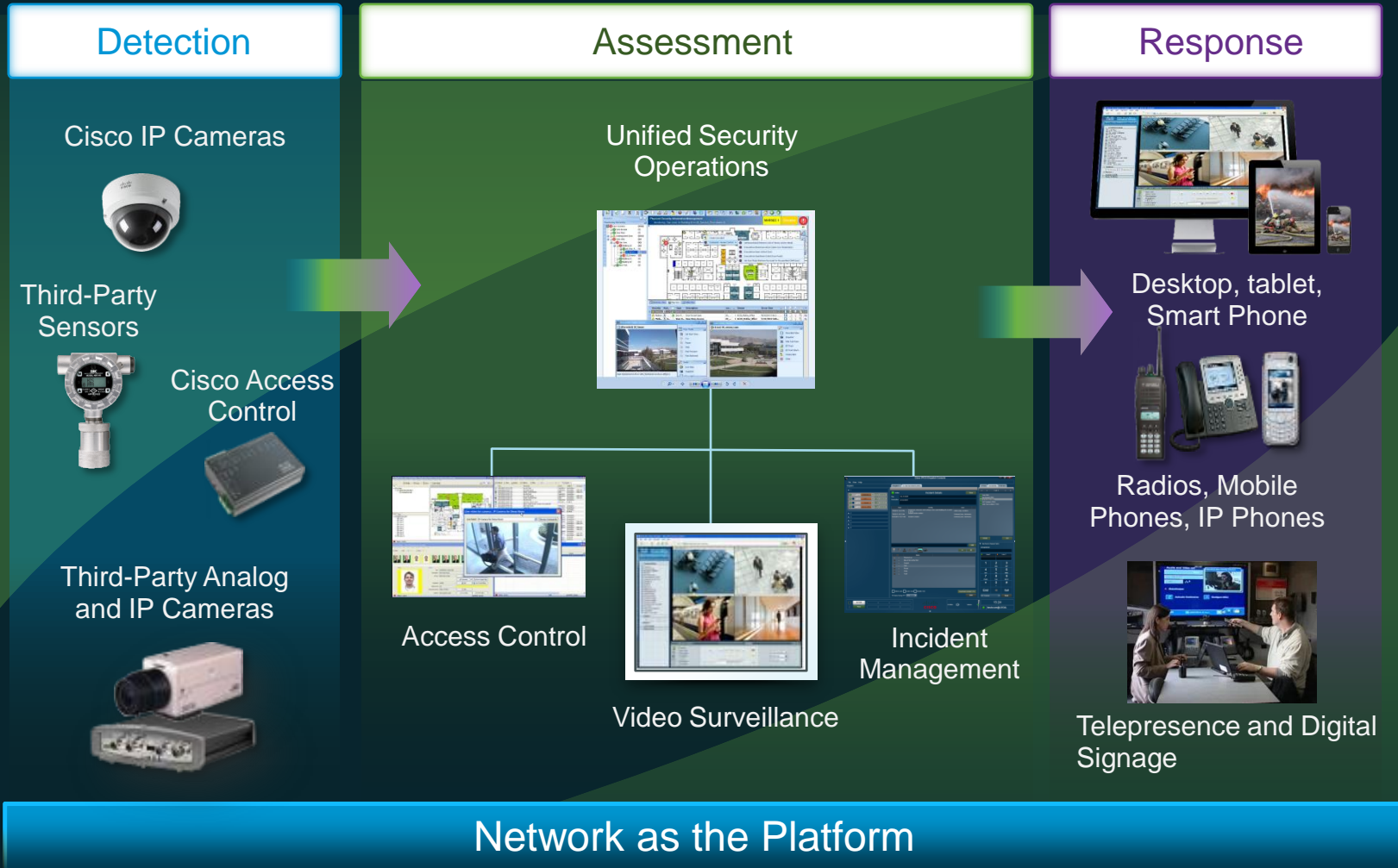
Recorded Feed: Loop-MPEG2e

Alarms: 1 active | 1 item | admin - SanJose

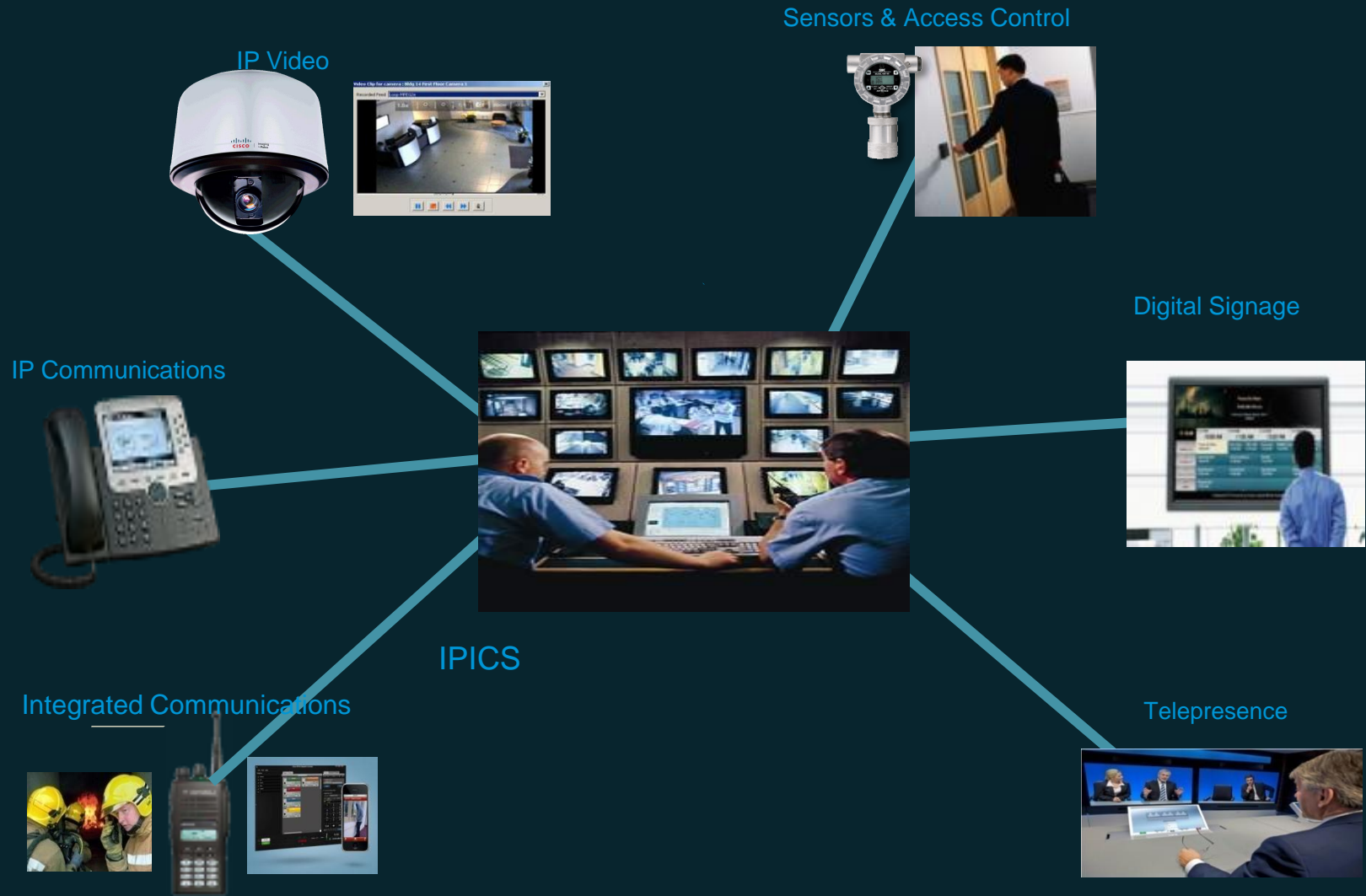


Incident Response

Unified Incident Management



Physical Security using the Network as a Platform



Network as the Platform

Cisco IPICS

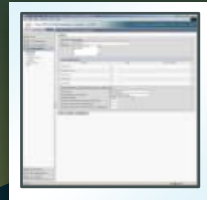
IP Dispatch Console



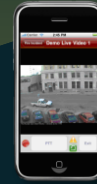
IPICS Server Software



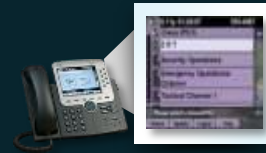
P25 ISSI Gateway Software



Mobile Client App



IP Phone PTT App



LMR Gateway Software



Cisco IPICS Software

Secure IP Network

Hardware



P25/VHF/UHF PTT Radios



1RU, 2RU Server Platforms
Scalable Storage,
Video Encoding



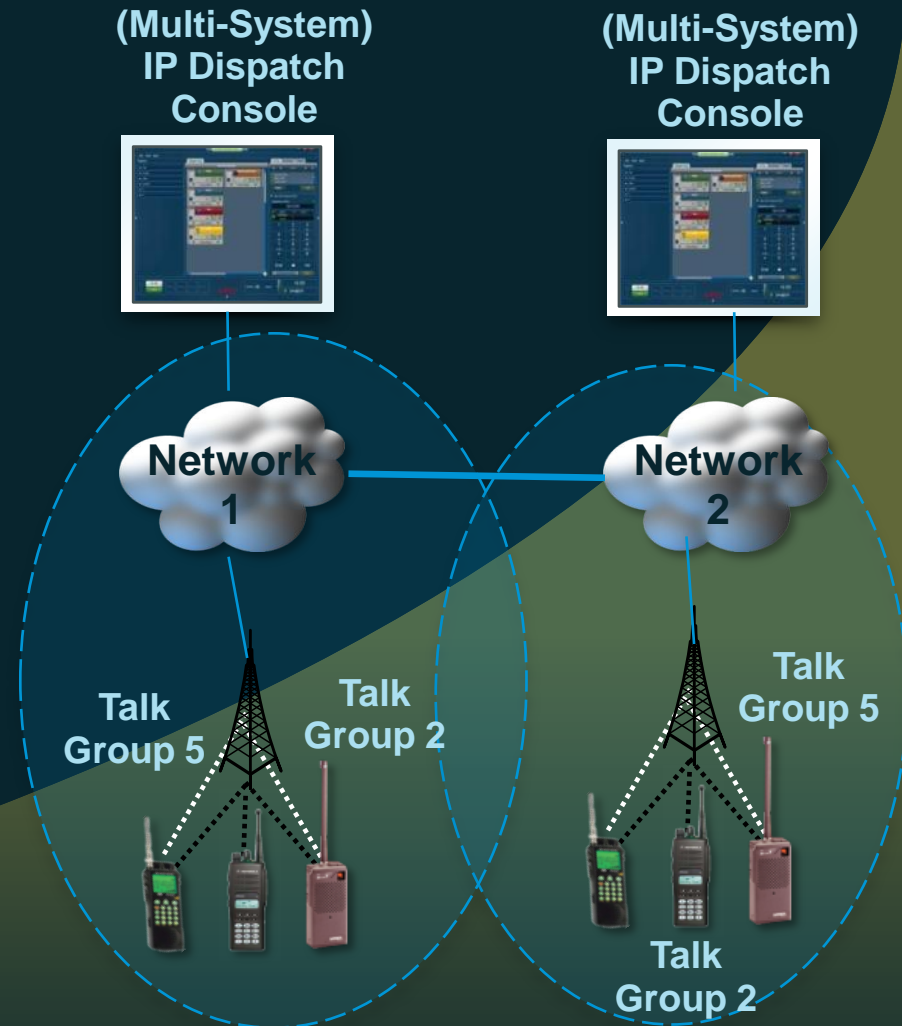
4–24 TB Flexible Storage

Physical Security
Multiservices Platform

Cisco P25 and Tetra Gateway

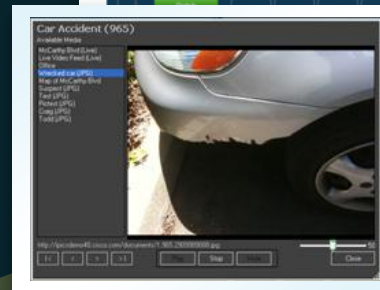
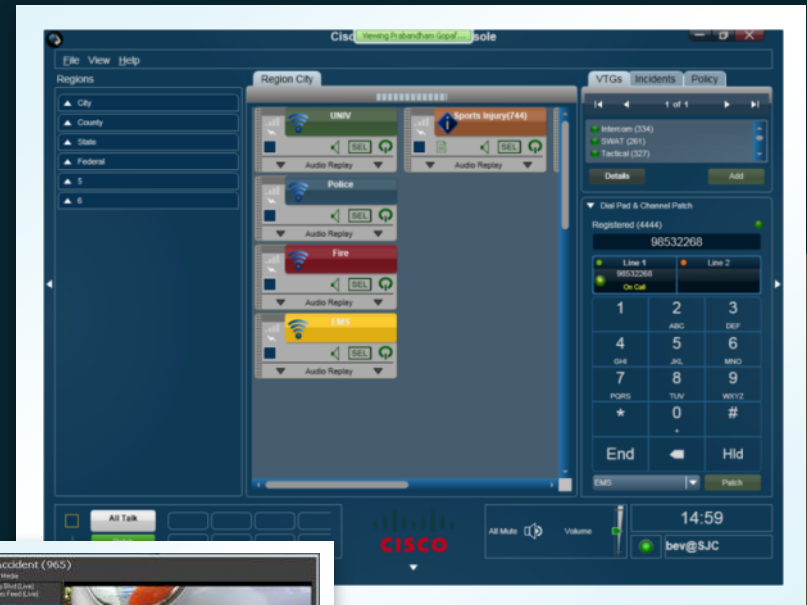
Network of Networks Interoperability

- Open Standard TIA-102 P25 interface for APCO P25 Land Mobile Radio interoperability between RF subsystems (RFSS) using the Inter-RF Subsystem Interface (ISSI)
- Secure communications across P25 radio sub-systems, radio frequency bands, and coverage areas
- Secure roaming, coordination with group calls monitored by multi-system dispatch
- Open Standard to use with any existing radio network for smooth evolution to new radio protocols



Cisco IPICS Dispatch Console

- Communicate with onsite personnel using all media
- Push video images and data to first responders
- Collaborate with first responders and other organizations
- Use with any radio network for smooth evolution to new radio protocols (P25, Tetra)



Cisco IPICS Mobile Client

- App for Apple iPhone
- Integrated PTT with radio interoperability
- Rich-media incident management
 - Increased situational awareness
 - Increased collaboration: Citizens/others
 - View incidents, status, media
 - Receive/send video, images
- 3G and Wi-Fi support
- Secure access





Applications

Hospital Security Application

Secure Hospital Operations, Entrances/Exits, Visitor Areas

Cisco 4000 Series IP Camera with Cisco Video Analytics

- Cisco PSOM
- Cisco Video Surveillance
- Cisco Physical Access Control
- Cisco IPICS



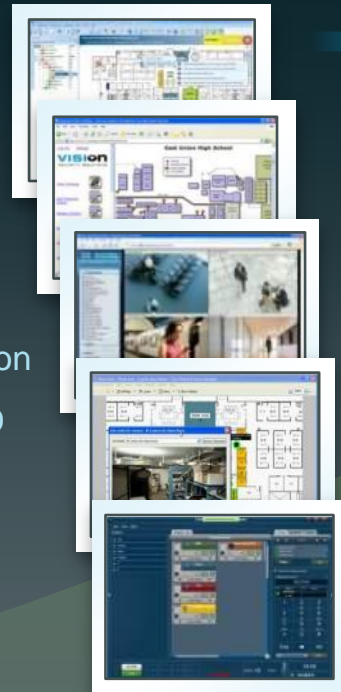
Automated Workflow

Live/Recorded Video

Collaboration

Asset RFID
Newborn Protection

Response



“Unauthorized entry into emergency room area.”



- IP speaker/intercom
- Email to employee
- Text to security
- Voice call
- Paging
- Radio alert
- Digital signs

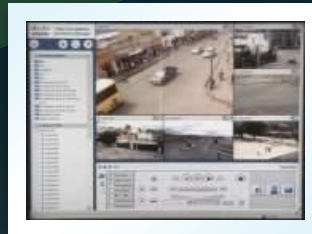
S+CC Application

Urban Security, City Surveillance, Emergency Response

- Cisco IP Cameras
- Cisco Video Analytics



- Cisco Video Surveillance
- Cisco IPICS
- Cisco Ecosystem Applications



Traffic Jam on Main Street

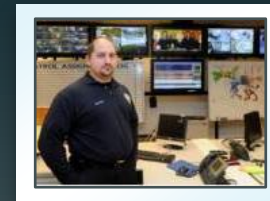


911 Response



Transportation

- Effective public safety
 - Force multiplier
 - Deter crime
 - Safer community
 - Identify and prosecute
- Port/border security
- Traffic management



City Public Safety Command Center

- IP speaker/intercom
- Email to employee
- Text to security
- Voice call
- Paging
- Radio alert
- Digital signs



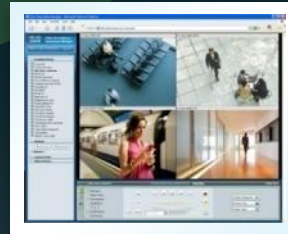
Energy Security Example

Remote Monitoring of Oil Pressure Gauges

Cisco 4000 Series IP Camera with Cisco Video Analytics



Cisco Video Surveillance and Cisco IPICS



“Warning: Oil pressure too high.”



Oil Rig



Pressure Gauge

- Remote platform monitoring
- Ensure secure operations
- Reduce lawsuits/costs
- Improve response

- IP speaker/intercom
- Email to employee
- Text to security
- Voice call
- Paging
- Radio alert
- Digital signs

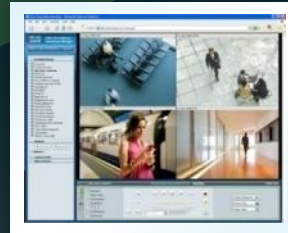
Education Application

Identify and Help Reduce Loitering

Cisco 4000 Series IP Camera
with Cisco Video Analytics



Cisco Video Surveillance and
Cisco IPICS



“Student in
restricted area.”



- Effective campus safety
 - Enables safe learning
 - Provides unified security
 - Efficient use of IT network
 - Ease to use and operate
 - Lower costs

- Door annunciator
- Email to employee
- Text to security
- Voice call
- Paging
- Radio alert

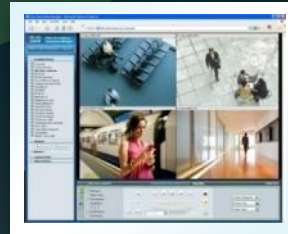
Financial Services/Banking Application

Secure Finance and Banking Operations

Cisco 4000 Series IP Camera
with Cisco Video Analytics



Cisco Video Surveillance and
Cisco IPICS



“Remote banking
assistance needed
at area 1.”



Cisco Remote Loan Officer
Using TelePresence

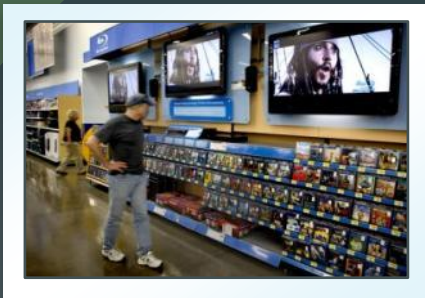


- Secure bank operations
- Boost profits
- Improve customer service
- Energy savings in building
- Improve marketing programs

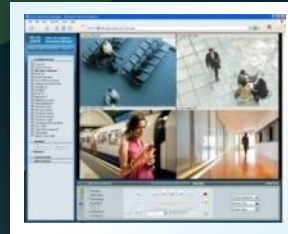
Retail Application

Improve Retail Store Operations

Cisco 4500 Series IP Camera
with Cisco Video Analytics



Cisco Video Surveillance and
Cisco IPICS



- Improve customer experience
- Boost profits/grow revenues
- Reduce shrink
- Point of sale video auditing
- PCI compliance
- Energy savings in buildings
- Improve marketing programs

“Customer in
electronics aisle
needs assistance.”



- Text
- iPhone PTT call
- Voice call
- Paging call
- Radio call

Why Cisco Physical Security Solutions?

Cisco Provides End-to-End Solution

Leverage Your Existing Network Investment

Investment Protection as You Migrate

Open Standards to Build
Best-of-Breed Solutions



- Operational Flexibility • Lower Cost
- Improved Detection, Monitoring, Response • Centralized Management

Thank you.

