Cisco Physical Security Solutions

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

Prezenter: Radenko Čitaković, CCIE #16488
Agenda

• Cisco Physical Security Solutions
• Cisco Medianet
• Cisco IP cameras
• Cisco Video Surveillance
• Cisco Physical Access Control
• Cisco IPICS
• Industry Applications
Cisco Physical Security Solutions
Why Cisco Physical Security Solutions?

Cisco Provides End-to-End Solution Framework
Leverage Your Existing Network Investment
Investment Protection as You Migrate
Open Standards to Build Best-of-Breed Solutions

<table>
<thead>
<tr>
<th>Operational Flexibility</th>
<th>Lower Cost</th>
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</thead>
<tbody>
<tr>
<td>Improved Detection, Monitoring, Response</td>
<td>Centralized Management</td>
</tr>
</tbody>
</table>
Cisco Physical Security Solutions

- **IP Cameras**
  - Standard Definition and High Definition IP Cameras
  - Box, dome, PTZ
  - Indoor and outdoor
  - Onboard analytics
  - Medianet

- **Video Surveillance**
  - Video Surveillance Manager
  - Forensic search
  - Health dashboard
  - Open standards
  - Medianet

- **Access Control**
  - Physical Access Manager
  - Biometrics
  - Mapping
  - Web services API
  - Integrated video

- **Notification and Response**
  - Dispatch console
  - Mobile client
  - Rich media
  - PTT to IP phone

- **Cisco Solution Architectures**: Core, Data Center, Video, Collaboration
  - Media Trace
  - Auto Discovery
  - Medianet
  - Auto Configuration
  - Media Monitoring

- **IP Network**
  - Security
  - Health Monitoring
  - Quality of Service
  - Auto Updates
  - Authentication
Cisco Physical Security: Video Surveillance, Access Control, Incident Response

Threat Detection
- Cisco IP Cameras
- Third-Party Sensors
- Third-Party Analog and IP Cameras
- Cisco Access Control

Threat Monitoring
- Video Surveillance
- Safety and Security
- Access Control
- Incident Management
- Virtualized network and storage platforms

Threat Response
- Desktop
- Radios, Mobile Phones, IP Phones
- Digital Signage

Network as the Platform
Physical Security Solutions
Focus areas

**PSS Solution Family**

**Urban Security**
- City Surveillance
- Campus
- Transport
- Education

**Border Security**
- Emergency Collaboration
- Surveillance

**Energy Security**
- Generation Plant SFOC
- Generation
- Transmission / distribution
- Oil & Gas remote Ops

**Healthcare Security**
- Centralized SFOC
- Enterprise-like security

**Connected Physical Security**
- Network
- Datacenter
- Video
- Collaboration
Leveraging foundational architectures, Cisco & Partner products and services, the develops **Solution Architecture** as reusable customer solutions.

**Solution Creation Process**
- Prioritize requirements based on:
  - Customer/Partner business needs
  - Cisco differentiation
- Integrate Cisco & Partner products into building blocks called *Micro-solutions*
- Test, document, publish designs
- Build vertical solutions from multiple solution blocks

**PSS Solution Family**
- **Urban**
  - City Surveillance
  - Campus
  - Transport
- **Border Security**
- **Energy**
  - Generation Plant
  - SFOC
- **Healthcare**
  - Centralized SFOC
  - Enterprise surveillance
- **Connected Physical Security**
  - Network
  - Datacenter
  - Video
  - Collaboration
Cisco Medianet
What is Medianet?

Medianet is:
- An **architecture** for successful deployment of multiple media and business applications

Medianet solutions include:
- Automatic, plug & play deployment
- Media performance monitoring, troubleshooting and capacity planning
- Media Awareness for bandwidth management

Medianet solutions require:
- Compliant products and features in both Smart Endpoints/Applications and Smart Network Infrastructure
- **DO NOT** require an entirely end-to-end Cisco network with medianet enabled in every hop
Cisco Medianet Architecture

- Use Cases
  - Entertainment
    - Education
  - Broadcast Communications
  - Business Meetings
  - Advertising
  - Customer/Patient Care
  - Events

- Video Endpoints
  - Cisco Webex

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

- Network Infrastructure

- Management
  - Security
Plug & Play: Saving Operational Costs

**PAIN POINTS**
- Need for high-skilled personnel to deploy endpoints
- On-going support is a challenge

**CISCO SOLUTIONS**
- Endpoints and network elements discover each other
- Network elements provide pre-defined configurations and policies
- Endpoints request the necessary resources and policies

Endpoints embedded with the Media Services Interface

- Endpoint announces itself
- Endpoint learns the location
- Endpoint discovers the necessary services (e.g. Digital Media Mgr, NMS, etc.)

Switches/Routers automatically configure the switch port, assign the right policy & provide location information

Cisco Prime LAN Management Solution (LMS) 4.1

WAN

Workflows to deploy and provide location awareness
Embedded Medianet Capabilities

Autoconfiguration: Simplifying deployment

**Without Medianet**
- Manual, and error prone network setup and management

**With Medianet**
- Auto-Discovery, and Auto-Configuration with the network
- Faster, simplified deployment
- Manage large deployments

Benefits
- Ensures quality of the video experience
- Automates connections to the network
- Reduces operating costs
- Tracks Assets

Now, embedded Medianet capabilities extended to certified IP Video Surveillance Partners
Embedded Medianet Capabilities

Media Monitoring: Saving Operational Costs

Without Medianet

- Inability to pinpoint network video surveillance problems

With Medianet

- Real time Performance Monitoring and Troubleshooting
- Fast Pre-deployment plans

Benefits

- Cost savings
- Monitoring without probes
- Fast pre-deployment planning
- Better Network usage/capacity management

Now, embedded Medianet capabilities extended to certified IP Video Surveillance Partners
Cisco End-to-End Advantage with Medianet

**Phase 1**
Auto Switchport Configuration

**Phase 2**
VSM Auto Camera Discovery

**Phase 3**
End-to-End Video Monitoring

Plug and Play

Simplify Network IP Video Surveillance Solutions
Improved End-to-End Video Management
IP Cameras
## Cisco Video Surveillance IP Cameras

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>7000 Series</td>
<td>5MP Outdoor Dome IP Camera</td>
<td>• 5 MP Resolution (2560x1920 @ 5 fps)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IP66 and VR resistant with available accessories</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PoE, built-in IR illuminator ring, Medianet</td>
</tr>
<tr>
<td>6000 Series</td>
<td>1080p IP Cameras for outdoor and indoor</td>
<td>• Variety of form factors (box, dome, bullet)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Feature-packed, PoE compatible cameras</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Indoor and outdoor (IP66, IK10) rated, Medianet</td>
</tr>
<tr>
<td>4000 Series</td>
<td>1080p HD Box IP Camera with analytics</td>
<td>• Edge-based video analytics (security, counting)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet, PoE support</td>
</tr>
<tr>
<td>3000 Series</td>
<td>1MP indoor and outdoor IP cameras</td>
<td>• Entry level HD cameras</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Indoor and outdoor mounting options</td>
</tr>
<tr>
<td>2900 Series</td>
<td>SD IP PTZ camera 35X</td>
<td>• Indoor and outdoor model available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 360° continuous pan and 256 presets</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Up to 35X optical zoom (outdoor model)</td>
</tr>
<tr>
<td>Standalone Encoders</td>
<td>4 &amp; 8 port video encoder</td>
<td>• H.264 dual stream</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 4/8 I/O ports</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PTZ Control interface</td>
</tr>
<tr>
<td>2800 Series</td>
<td>SD IP PTZ camera 12X</td>
<td>SD, H.264, dual stream</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PoE+ or UPoE 12X Optical Zoom</td>
</tr>
<tr>
<td>6900 Series</td>
<td>1080p HD IP PTZ camera 20X</td>
<td>Full HD, H.264, dual stream</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PoE+ or UPoE, 20X Optical Zoom</td>
</tr>
</tbody>
</table>
# Introducing the 6000 Series IP Camera Portfolio

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIVS-IPC-6000P</td>
<td>1080P Box camera</td>
<td>• P-Iris Lens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PoE</td>
</tr>
<tr>
<td>CIVS-IPC-6400</td>
<td>1080P Bullet Camera</td>
<td>• Integrated IR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IP-66 Rated enclosure for outdoor use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Integrated IR illuminator, range up to 30m (100 feet)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet, PoE</td>
</tr>
<tr>
<td>CIVS-IPC-6020</td>
<td>1080P Indoor Camera</td>
<td>• Indoor dome: Flush and surface mount options</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motorized focus and zoom lens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PoE</td>
</tr>
<tr>
<td>CIVS-IPC-6030</td>
<td>1080P Outdoor Camera</td>
<td>• Outdoor camera, IP-66 enclosure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motorized focus and zoom lens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• -40 to 55 ° C temp range</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet, PoE</td>
</tr>
</tbody>
</table>
# 3000 Series IP Cameras

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIVS-IPC-3421V</td>
<td>Indoor 3” VR Dome</td>
<td>• 720p Resolution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Support for PoE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 3” mini dome</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Basic camera functions only</td>
</tr>
<tr>
<td>CIVS-IPC-3520</td>
<td>Indoor Dome</td>
<td>• 720p Resolution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Support for PoE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Surface/Flush/VR mountable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Similar to 6000 Series features</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MicroSD Slot</td>
</tr>
<tr>
<td>CIVS-IPC-3530</td>
<td>Outdoor VR Dome</td>
<td>• 720p Resolution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Support for PoE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Similar to 6000 Series features</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IP66, VR dome available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MicroSD Slot</td>
</tr>
</tbody>
</table>
# 7000 Series IP Cameras

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<tr>
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<th>Description</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIVS-IPC-7030</td>
<td>5 MP Outdoor Dome IP Camera</td>
<td>• 5 MP Resolution (2560x1920 @ 5 fps), H.264</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IP66 and VR resistant with available accessories</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Integrated IR illuminator ring (up to 20m – 66 feet)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Medianet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Remote Focus and Zoom</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PoE Support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MicroSD Slot</td>
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</table>
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

Advantages
- Base software at no charge with every camera
- Scalable, edge-based architecture: No need for external video analytics server
- New security and business applications

Cisco 4500 IP Camera

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

- Video Surveillance Media Server
  - Software
    - Collect, Archive, Route Video
- Video Surveillance Operations Manager
  - Manage and Control Users, Video, and Devices; View Video
- Safety and Security Desktop
  - Control and Display Video on Any Video Walls

Secure Medianet-Enabled Cisco IP Network

- Embedded medianet
  - IP Cameras
  - Analog Cameras
- Physical Security Multiservices Platform
  - 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

Physical Security Multiservices Platform / Cisco UCS / Storage
• Easy-to-use and easy-to-deploy server suite
• High storage density and high-performing motherboard
• Optional video encoder card

Cisco Safety and Security Desktop
• Remotely controlled video display application
• Simply push a defined layout of cameras to many operators
• Video Walls
Optimized IP Physical Security Solution: Cisco End-to-End Platforms

Cisco Storage Series Platform

- 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
New Virtualized UCS Solution Architecture
To support up to 500,000+ Video Cameras

Connected Physical Security Solutions
- Network
- Datacenter
- Video
- Collaboration

Cisco Unified Computing System
10 Gigabit Ethernet and Fibre Channel Uplinks
Cisco UCS Manager (Embedded)
Cisco UCS 5100 Series Fabric Extender
Cisco UCS 2100 Series Blade Server Chassis
Cisco UCS 5000 Series Blade Server Chassis
Cisco UCS B-Series Blade Servers
Cisco Nexus 5000 Series Switch
Cisco Nexus 2000 Series Fabric Extender
Cisco Nexus 5000 Series Fabric Extender

Cisco embedded Medianet technologies used by Cisco and industry vendors
Access Control
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

1RU Server Platform
Scalable Storage, Video Encoding

4–24 TB Flexible Storage

Physical Security Multiservices Platform
Cisco Physical Access Manager

- Management application for configuring hardware, monitor activity, and enroll users
- Supports a comprehensive list of access control policies
- Easy integration with other IT systems
- Flexible reporting capability
- Easy access to video through integration with Cisco Video Surveillance Manager

Quick Launch Bar, Integrated Video
Cisco Physical Access Gateways

- Connects door locks and readers to the IP network
- Controls up to thousands of doors
- Directly configurable through a built-in Web server
- Supports offline operations if network connectivity is lost
- 250,000 credentials can be cached and encrypted
- Buffering for 150,000 events
IPICS
Incident Response
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
IPICS 4.5 New standard IP interface

IPICS 4.0
- IPICS Mobile Client
- IP Dispatch Console
- IPICS IP Phone PTT App
- LAN/WAN
- Donor Radio
- Radio System
- Universal Media Server
- P25 ISSI Gateway

IPICS 4.5
- IPICS Mobile Client
- IP Dispatch Console
- IPICS IP Phone PTT App
- LAN/WAN
- P25 Radio System

- Direct IP Connection
- End to end encryption
- Enhanced dispatch

Enhanced
NEW
NEW
Cisco Physical Security Operations Manager

- Scalable command and control interface that unifies Cisco Video Surveillance Manager, Physical Access Manager, and IPICS
- Improved security operations with unified command and control
  - Interactive maps
  - Control sensors and devices
  - Video matrix and guard tour
- Powerful incident management with policy-based event correlation
  - Correlates security events and alarms
  - Event-based video recording
  - Predefine operator tasks for events
- Advanced trend and incident reporting

- Video surveillance
- Access control
- Incident response
- Other systems
Industry Applications
Enterprise Application

Identify Occupancy of Buildings, Rooms, Lobbies (Virtual Lobbies)

Cisco 4000 Series IP Camera with Cisco Video Analytics

Cisco Video Surveillance and Cisco IPICS

- Virtual Lobby Ambassador
- Energy savings in buildings
- Accurate occupancy counts/usage/traffic for buildings and rooms

“Three people in lobby of building 10 need help.”

Cisco TelePresence Virtual Lobby Ambassador Solution
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

Unauthorized entry into emergency room area.

Automated Workflow
Live/Recorded Video
Collaboration
Asset RFID
Newborn Protection
Response

- 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

“Pedestrian traffic incident at 1st and Main.”

City Public Safety Command Center
- IP speaker/intercom
- Email to employee
- Text to security
- Voice call
- Paging
- Radio alert
- Digital signs

- Effective public safety
  - Force multiplier
- Deter crime
- Safer community
- Identify and prosecute

- Port/border security
- Traffic management

911 Response
Transportation
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.”

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

Oil Rig

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

Ensure Secure Manufacturing Operations

Cisco 4000 Series IP Camera with Cisco Video Analytics

Cisco Video Surveillance and Cisco IPICS

“Malfunction: Line stop in sub-assembly area.”

- Worker safety
- Ensure secure operations
- Reduce liability
- 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
Cisco Physical Security for Education

Security Can Respond to Student Concerns in Real Time

- Campus police issue lock-down through automated building controls.
  - Cisco Access Control
- Emergency notification sent to campus digital signs.
  - Cisco Digital Media System
- A suspicious person is following a student on campus.
- Wireless video stream sent to campus police and first responders.
  - Cisco Video Surveillance and Unified Wireless Network
- Student feels threatened and calls campus police.
- Emergency notification sent to campus community (IP phone, SMS, email, etc.)
  - Cisco IPICS

A suspicious person is following a student on campus.

Emergency notification sent to campus digital signs.

Student feels threatened and calls campus police.

Wireless video stream sent to campus police and first responders.

Campus police issue lock-down through automated building controls.

Emergency notification sent to campus community (IP phone, SMS, email, etc.)
THANK YOU

info@com-4t.rs