Cisco IP Interoperability and Collaboration System (IPICS)

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CISCO CERTIFIED CCIE ROUTING AND SWITCHING

Agenda

- Cisco Physical Security - Revisión
- IPICS
  - Beneficios
  - Solución
  - Componentes
  - Integración con Comunicaciones Unificadas
  - Consola de Operador/Dispatch
  - Integración Apple iPhone
- Caso de estudio – Codelco División Andína
- Q&A

A Broad-Based Problem

Defense

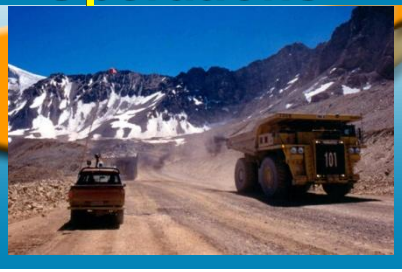
Transportation

Public Safety

Enterprise Safety & Security

State & Local Government

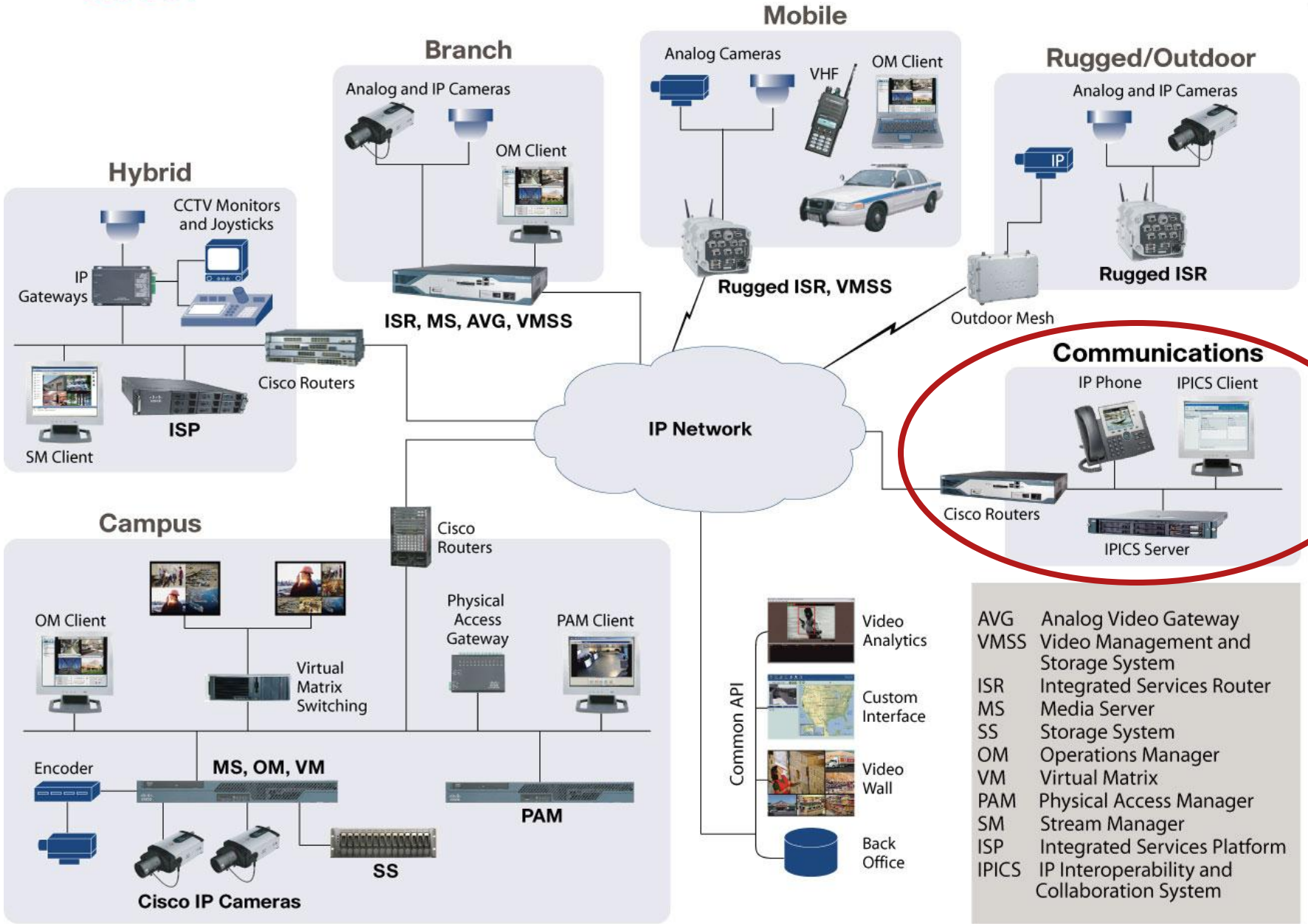
Industry Operations



Healthcare Retail Financial

"How to Deliver the Right Information in the Right Format to the Right Person at the Right Time"

Physical Security Solutions Overview

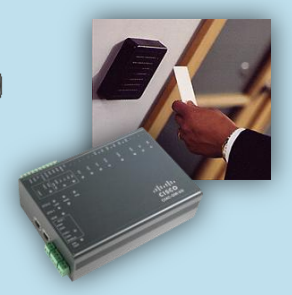


AVG	Analog Video Gateway
VMSS	Video Management and Storage System
ISR	Integrated Services Router
MS	Media Server
SS	Storage System
OM	Operations Manager
VM	Virtual Matrix
PAM	Physical Access Manager
SM	Stream Manager
ISP	Integrated Services Platform
IPICS	IP Interoperability and Collaboration System

Cisco Physical Security

Video Surveillance, Access Control, Incident Response

Unified Command and Control

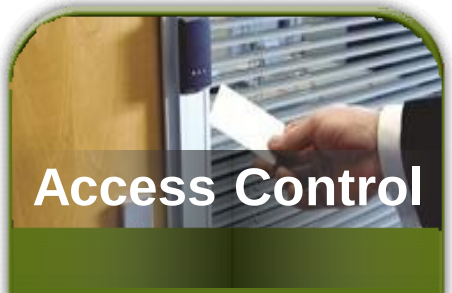
Threat Detection	Threat Monitoring	Threat Response
 IP Surveillance Cameras	 Physical Access Manager	 IP Interoperability and Collaboration Solution
 Sensors	 Video Surveillance Manager	 Radios, Mobile Phones, IP Phones, Soft Phones
 IP Gateways for Access Control		

IP Network

Physical Security Core Applications

IP Cameras

Video Surveillance



Access Control

Notification & Response

Products

IP Cameras	Video Surveillance	Access Control	Notification & Response
Standard Definition High Definition	Video Surveillance Manager Stream Manager	Physical Access Manager	IPICS

Strategies

IP Cameras	Video Surveillance	Access Control	Notification & Response
▪Full line of Cameras ▪Differentiation on Quality ▪Wired and Wireless ▪Support Open API ▪Diverse Analytics Support	▪Convergence (VSM & SM) ▪Simplified Deployment (auto discover/configuration) ▪Storage & Bandwidth Mgt ▪Forensics & Analytics	▪Flexible Policy Management ▪Certification (UL/FIPS/HSPD) ▪Biometrics ▪Location/Presence Aware	▪Flexible Policy Management ▪Digital & Analog Radios ▪Rich Media Video & Text
▪Interoperability & scalability ▪Networking Features	▪Interoperability & scalability ▪Networking Features	▪Interoperability & scalability ▪Networking Features	▪Interoperability & scalability ▪Networking Features

Open API

Open API

Open API

Network

General
(IPv6, SAF, MediaNet)

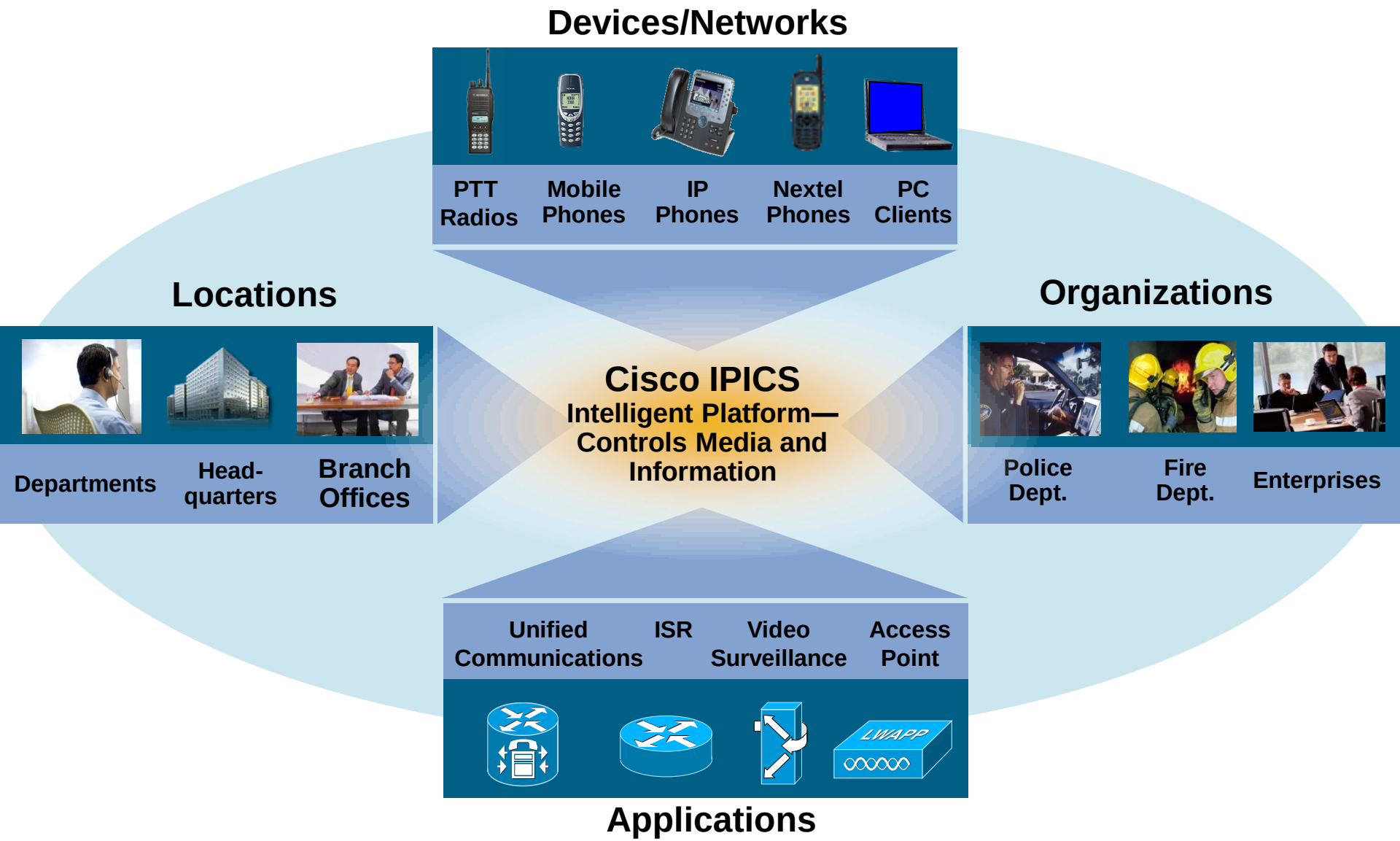
Provisioning
(Auto Detection, Auto Configuration, etc)

Security
(Encryption, Authentication, Rights Mgt, etc)

Network Availability
(Bandwidth Mgt, QoS, Resiliency, etc)

•System Maintenance and Mgt
•(Health, Updates, etc)

Cisco IPICS Solution
Dissolving Communications Silos



Cisco IPICS Benefits

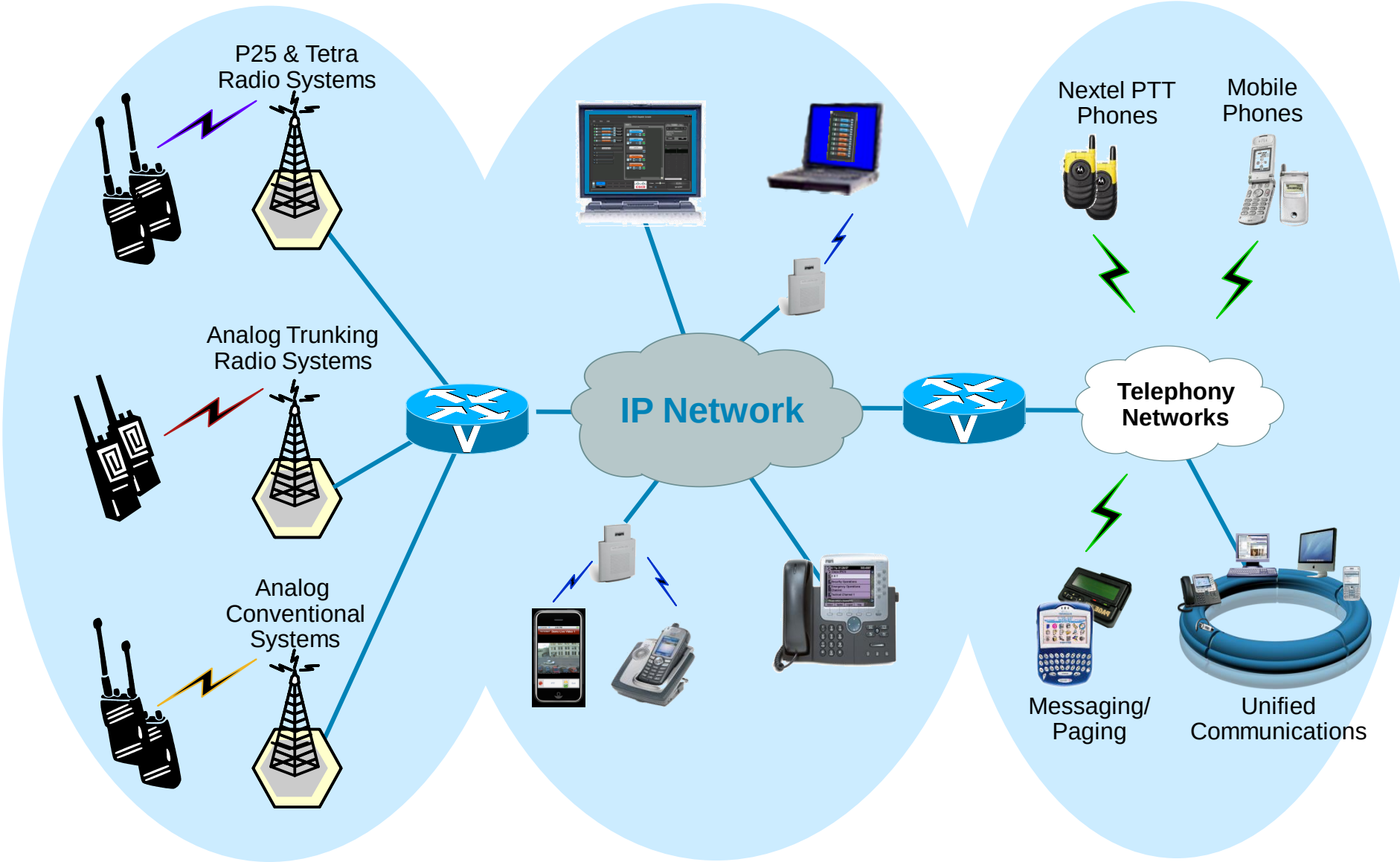
Examples of Such Disparate Networks Include:

- Legacy push-to-talk (PTT) radio networks (analog or digital at different frequencies) that are used for voice communications within groups. Communication is usually restricted within a specified group or network because of radio frequency (RF) limitations and proprietary protocols.
- Traditional hoot bridges that are connected over time-division multiplexing (TDM) circuits. These deployments cannot provide audit trails and they do not seamlessly integrate with other PTT or Voice over IP (VoIP) networks. In addition, they do not offer the mobility and serviceability that an IP deployment provides.
- VoIP networks that are used to carry packetized voice on wired or wireless IP phones or on other IP clients. These clients do not interact with the PTT services.

For Organizations That Use Disparate Networks, the Cisco IPICS Solution Provides the Following Benefits:

- Incident management framework graphical user interface (GUI)—Facilitates tasks that are associated with operations and command and control.
- Easy-to-use installation, management, and operational features—Enables a migration path to more robust IP applications, devices, and IP-based solutions to achieve greater operational efficiencies.
- Effective solution—Streamlines operations, and command and control while protecting investments in deployed radio networks or legacy hoot bridges and applications.
- Efficient deployment—Leverages current IP infrastructure with minimal upgrades required, decreasing total cost of ownership.
- Resiliency—Eliminates communications silos and single points of failure.

IPICS Comprehensive Communications Interoperability

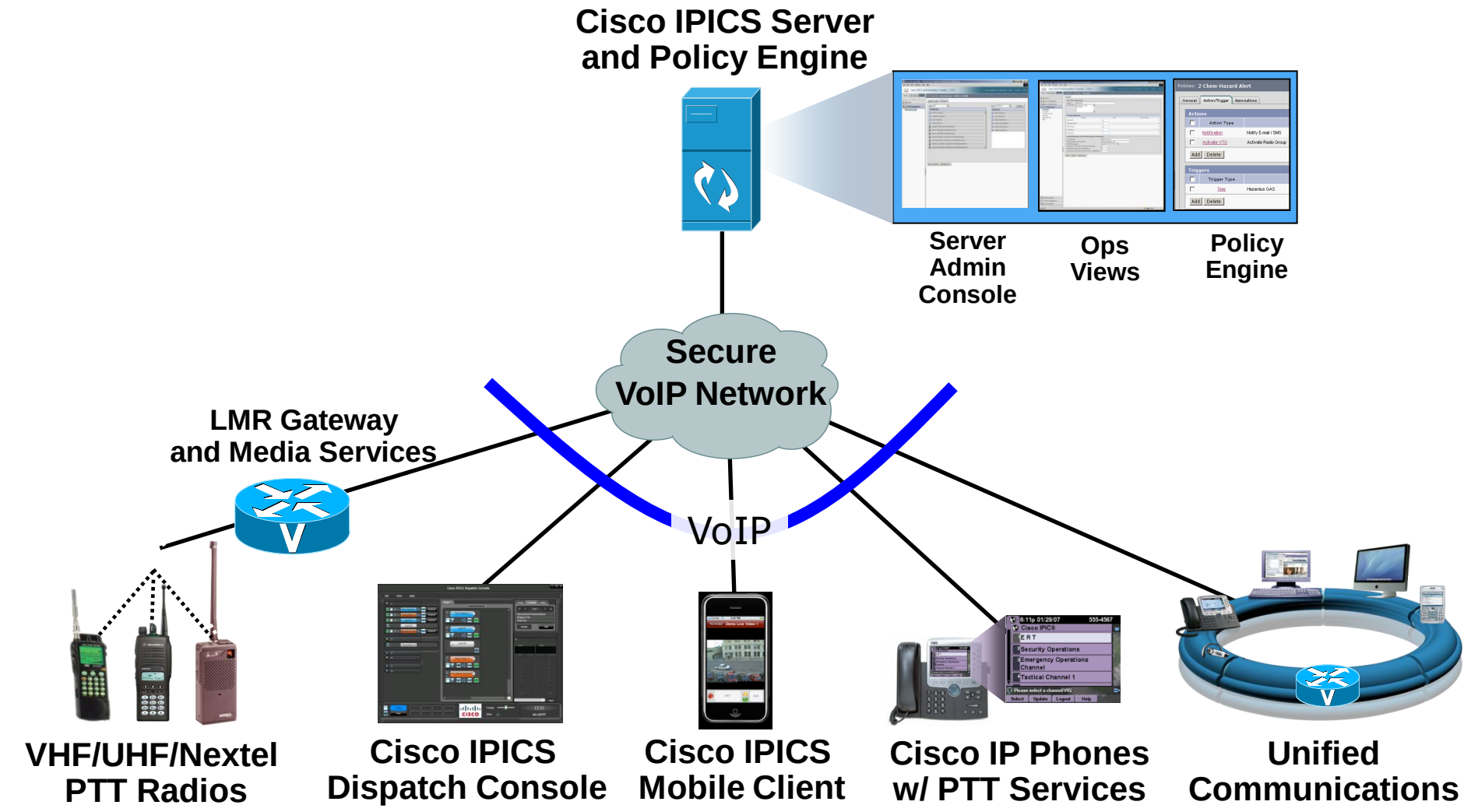


Integration Across Radio Systems

Interoperability to PCs & IP Phones

Interoperability to Telephony and Notification Systems

The IPICS Solution



Cisco IPICS XML IP-Phone Client (IPICS 1.0)

Push-to-Talk service for Cisco Unified IP Phones

- Secure access to radio PTT talkgroups and channels from anywhere in the UC network
- Available on a wide range of IP-phones including wireline and WiFi IP-phones
- Intuitive user interface with smooth transition between telephony and radio communications

Phone users can now respond to incidents or emergencies, boosting responsiveness and operational effectiveness

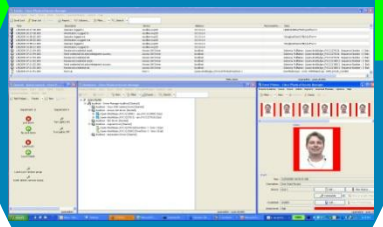
Cisco IPICS Dispatch Console Opportunity

Threat Detection

• Cameras
• Access Control Gwys
• Sensors, etc.

Rich Media

Threat Monitoring



• Video Surveillance
• Access Control
• Intrusion Detection, etc.

Rich Media

Threat Response

• IP Dispatch Console
• Notification
• Collaboration

Rich Media

Audio

Audio

• Dispatch Console
• Radio

Benefits of the Unified Dispatch Console

- **Simplifies Process:** Brings together multiple dispatch controls into single platform (phone, radio, video, text)
- **Price:** Simultaneous UDC versus physical old world dispatch console
- **Dispatch Mobility:** UDC moves with the user versus old world dispatch console stays where it is installed
- **Radio Interoperability and Beyond:** UDC built on IPICS technology and supports multi-agency patches versus old world dispatch console locked to fixed radio channels/talkgroups
- **Differentiation:**

  incident with live/stored video, pictures, journal, etc

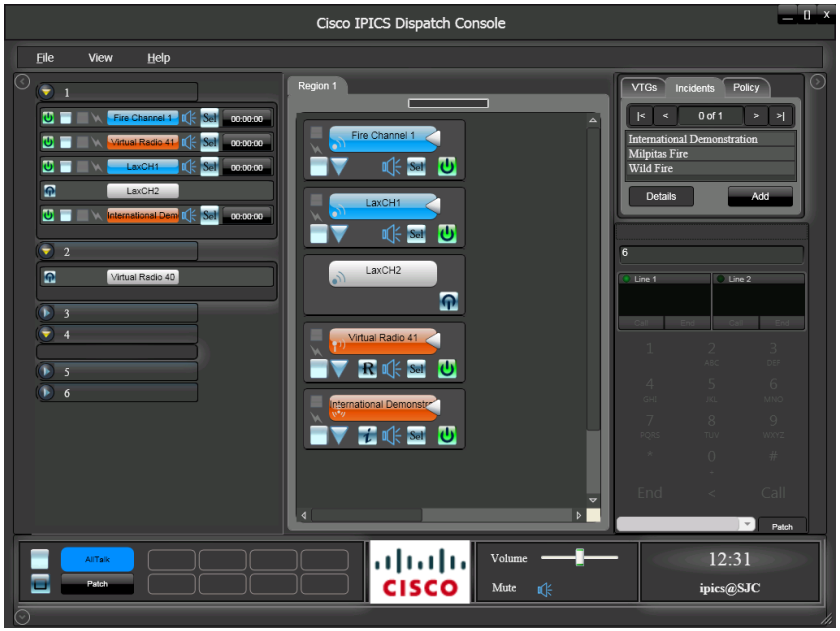
  incident recording

  IP-Based mobility clients

  Integrated Policy Engine
- **Smooth evolution to P25, Tetra and other radio protocols**

Cisco IPICS Dispatch Console (IDC)
Dispatch Console for PC users

- Allows PC users to perform radio dispatch enabling PTT communication from office or remote locations
- Integrates IP-Phone for incoming/outgoing calls
- Provides simple patch capabilities
- Extends dispatcher ability to share live/stored video, pictures and text with field



IPICS Dispatch Console

Extends to PC users radio dispatch capabilities previously reserved for hardwired dispatch consoles

Cisco IPICS Mobile Client

Mobile phone application for responders in the field

View:

- incidents
- status journal
- media (video, pictures, etc.)

Add:

- status updates
- media (video, pictures, etc.)

PTT w/radio interoperability

Secure access to media

3G and WiFi support

IPICS Mobile Client

Puts mobile rich media incident collaboration into the hands of the responder in the field

IPICS
Codelco
División Andina

El Cliente

- División Andina de Codelco Chile está ubicada a ochenta kilómetros al noreste de Santiago, entre 3.700 y 4.200 metros sobre el nivel del mar. En la actualidad esta división realiza la explotación de minerales en la mina subterránea de Río Blanco y en la mina a rajo abierto Sur Sur.
- División Andina produce unas 210.000 toneladas métricas anuales de concentrados de cobre que son materia prima fundamental para obtener el metal refinado. Además coloca en los mercados 2.000 toneladas métricas de molibdeno al año.

Problemática

- La operación de una mina subterránea combinada con un rajo a cielo abierto presenta numerosas dificultades y en particular la necesidad de contar con un sistema efectivo de comunicaciones, especialmente ante incidentes de seguridad, que permita conectar instalaciones dispersas a lo largo de varios kilómetros en una complicada geografía de alta montaña.

Requerimientos

- Integrar sistema de radiocomunicaciones Motorola existentes en diversas ubicaciones en Andina:
  - Mina subterranea
  - Mina rajo Sur Sur
  - Canaleta de relaves Huechún
- Proveer 5 consolas para operadores en el Centro Operativo y otros puntos de la red.
- Permitir crecimiento para otras aplicaciones futuras como interconectar sistema de radios con clientes remotos en laptops, conectividad con red de telefonía pública (PSTN), teléfonos fijos, celulares y otros.

Beneficios

- Mediante este sistema, División Andina pudo aprovechar su inversión existente en infraestructura de radios sin necesidad de invertir en la implantación de nuevos troncales ni agregar más dispositivos (antenas, radios), lo que implicaba un alto costo y muy poca flexibilidad de comunicaciones.
- Además la solución le permitirá a futuro integrar la comunicación radial con la telefonía, permitiendo a los usuarios lograr un nivel de comunicaciones altamente efectivo en caso de incidentes, utilizando la infraestructura actual.

Radios - ámbito del proyecto

- Consola Motorola MC2000

- Motorola 5100

- Radios portátiles

Canales – ámbito del proyecto

- Cantidad de canales sobre IPICS

Sistema mina subterránea	*7*
Sistema mina rajo Sur Sur	*2*
Sistema canaleta relaves Huechún	*1*
Total	*10*

Desarrollo del proyecto

- Reuniones multi-disciplinarias con gente de sistemas, redes, radio y personal propio de la operación minera para la definición de requerimientos y revisión de la tecnología.
- TICA apoya con la implementación del proyecto poniendo en marcha el soporte necesario de multicast en la red.
  - PIM Sparse-Dense Mode
  - EIGRP
- Adicionalmente, TICA ya había hecho un gran aporte normalizando las redes, y preparándola para este tipo de aplicaciones de voz critica, con esquemas de priorización de tráfico basadas en QoS y otras tecnologías.
  - Catalyst 6500
  - Catalyst 3750
  - Catalyst 2960
  - VRF Lite
- Instalación y puesta en funcionamiento por parte de C^2 Mining Solutions

Esquema de red - high level