



# Cisco IP Interoperability and Collaboration System (IPICS)



# The Challenge

- **To provide value and security to the communities we serve while facing increasing threats and responsibilities.**



# A Broad-Based Problem

**Enterprise Safety & Security**



**Public Safety**



**Transportation**



**“How to Deliver the Right Information in the Right Format to the Right Person at the Right Time”**

**State & Local Government**



**Industry Operations**



**Defense**



**Healthcare**



# Lack of Communications Interoperability Has Taken Its Toll

- Billions of dollars
  - Loss of property and widespread impacts to productivity
- Quality of life
  - Can deteriorate quickly during and months after a disaster
- Thousands of lives
  - From natural disasters and tragic incidents

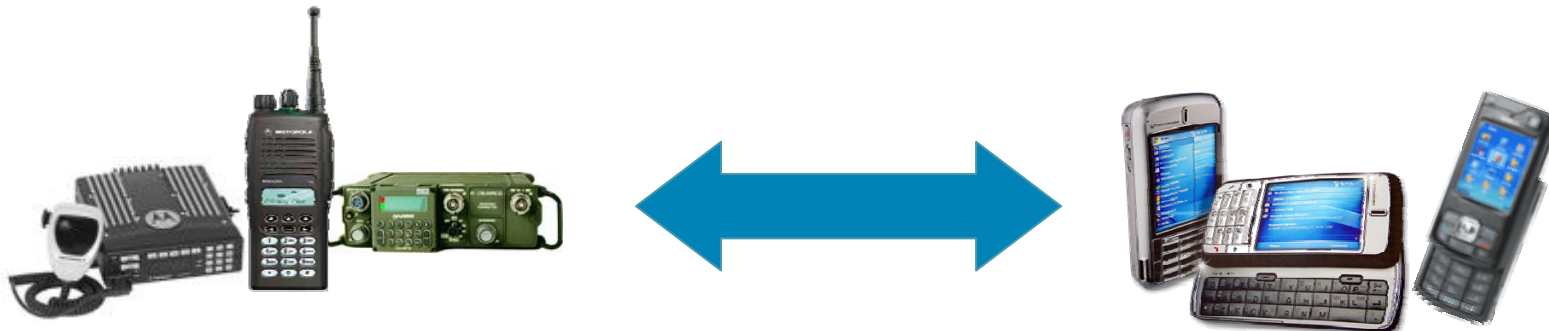


# Communications Needs Have Evolved Due to Increased Threat, Response, and Market Dynamics

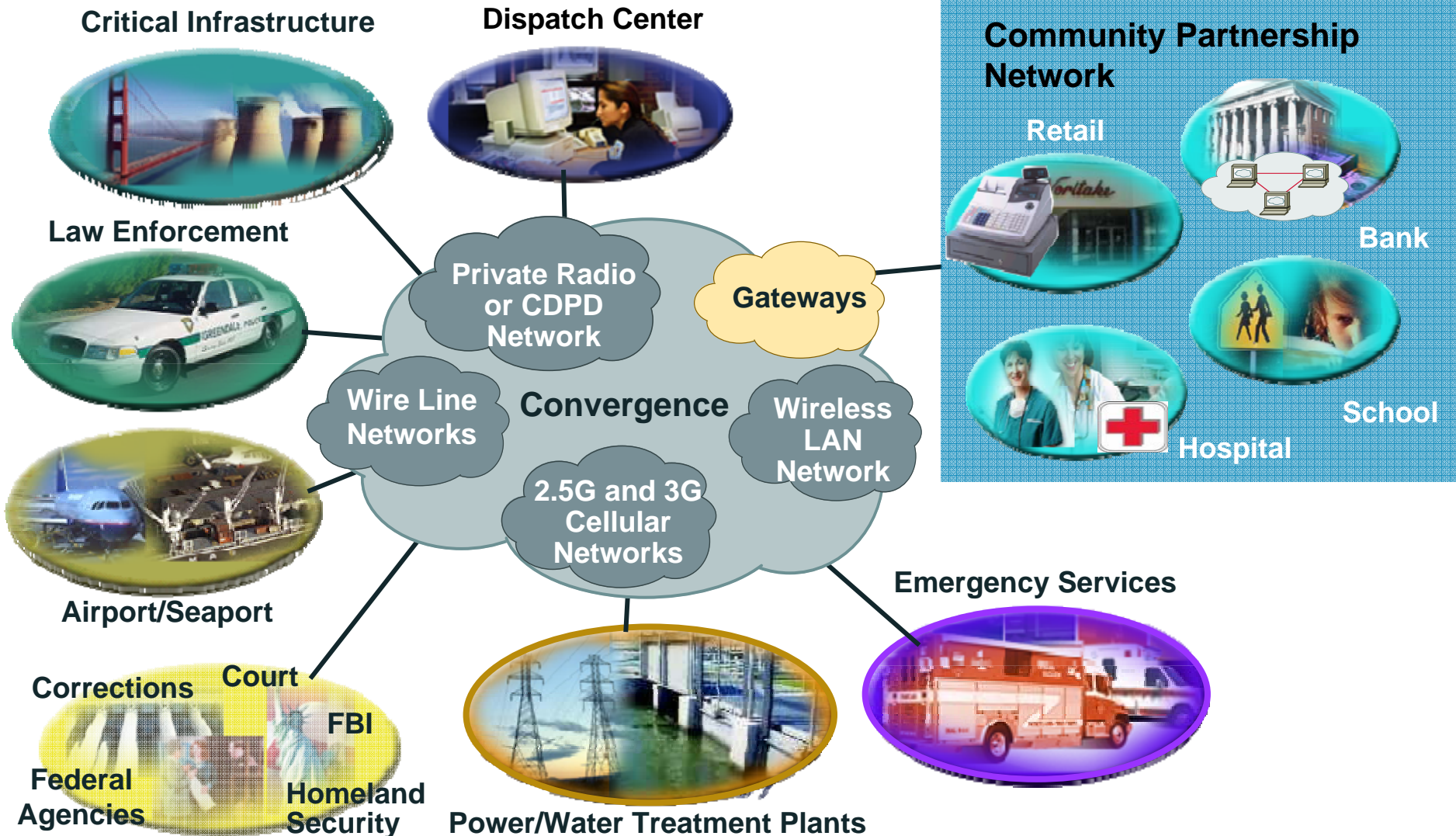
**Delivering Operational Excellence Requires Leveraged Use of New Technologies and Processes**

- Radio, Phone ↔ Integrated Mobile/Fixed
- Single Device ↔ Any Device
- Voice only ↔ Voice, Video, Data
- Closed ↔ Dynamic Networks
- C2 Centric ↔ Tip of the spear
- Reactive ↔ Proactive

**Opportunity for Significant Workflow and Productivity Benefits**

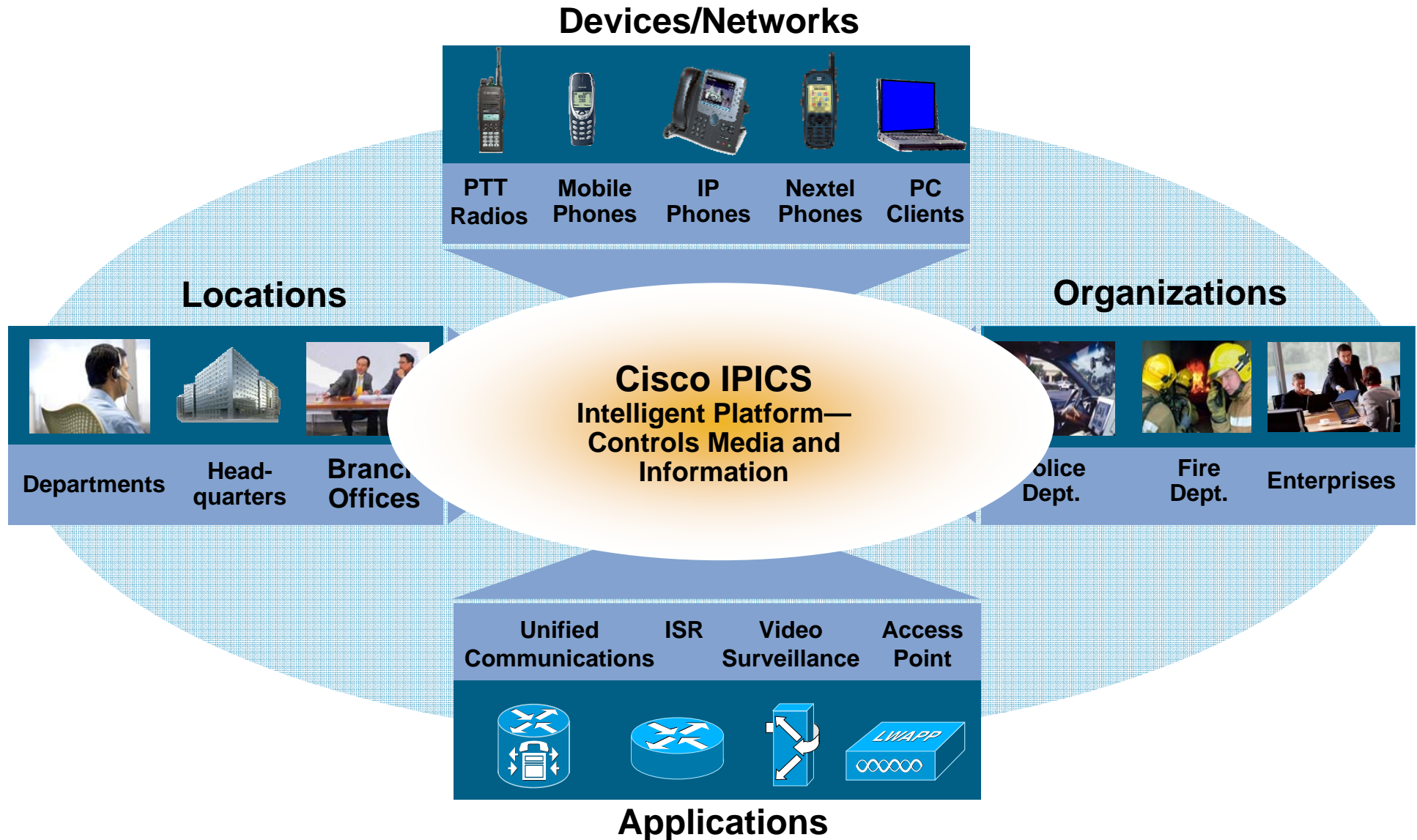


# Integrated Networks Critical for Effective Operations and Emergency Management

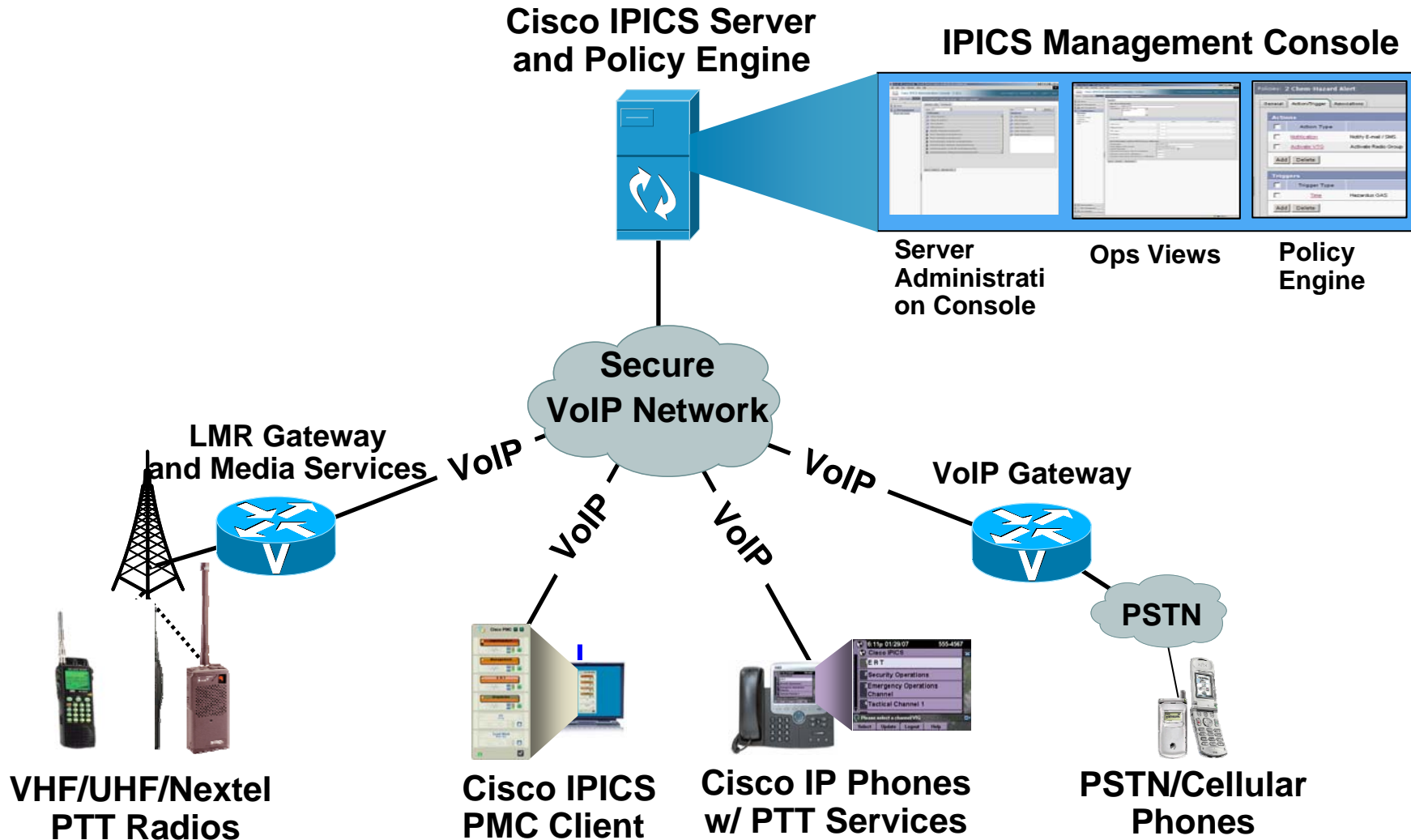


# Cisco IPICS Solution

## Dissolving Communications Silos

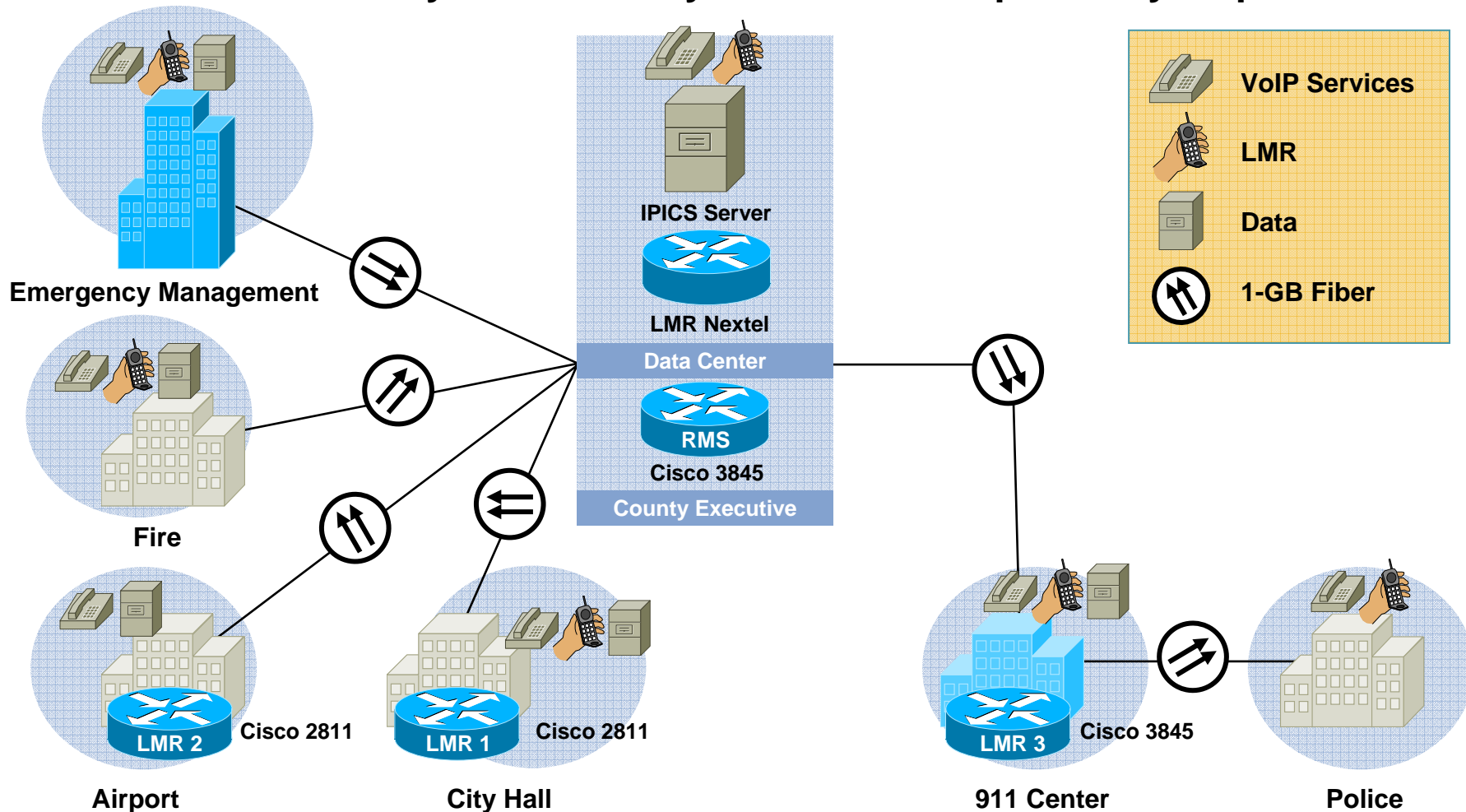


# The Cisco IPICS Solution



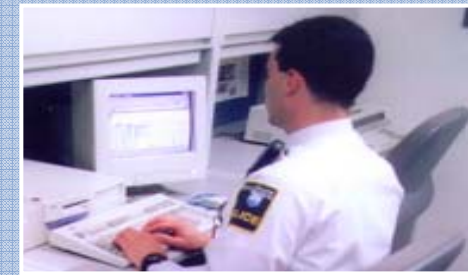
# Cisco IPICS Ties Together City, County, Regional Agencies and Enables Collaboration

## County Public Safety Network Interoperability Map



# Cisco IPICS Benefits

- **Improved ease of use and management for comprehensive communications interoperability**  
Personnel in the same or different agencies can communicate across previously isolated radio, IP, and non-IP networks
- **Improved Response, Flexibility, and Reach**  
Delivers information to any type of communications device: radio, telephone, IP phone, cell phone, or PC client
- **Investment protection, reduced costs, enabling new applications and technologies**





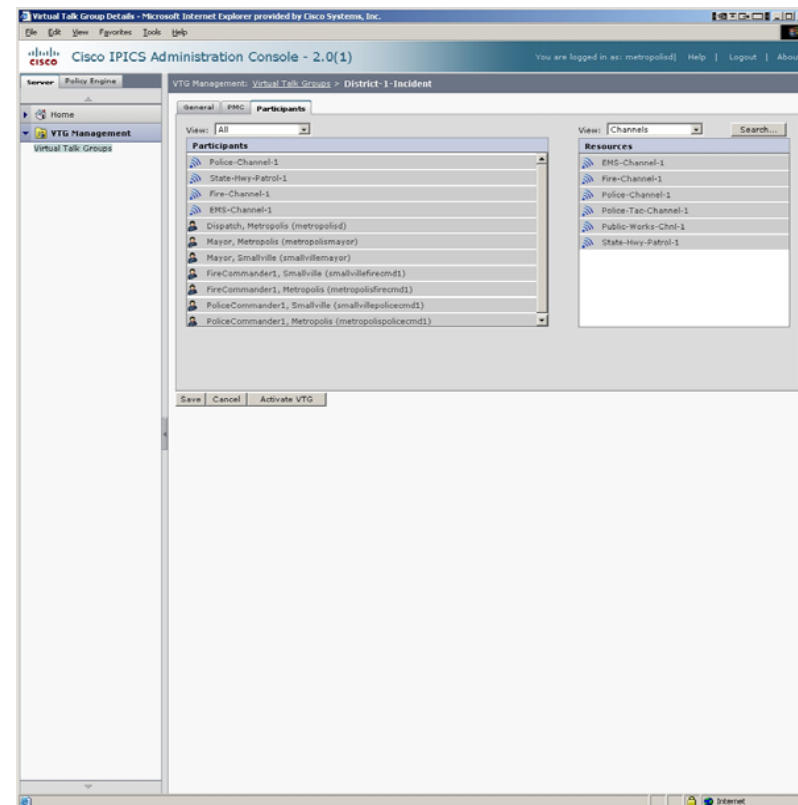
# Cisco IP Interoperability and Collaboration System (IPICS) **Components**



# Cisco IPICS Server

## Cornerstone of the complete Cisco IPICS system

- Web-based server that provides a simple to use incident management console
- “One Stop Shop” for coordination of all IPICS resources
- Built for real world deployments - scalable and secure



**Intelligent resource management application that orchestrates resources, media and information**

# Cisco IPICS Phone Client

## Push-to-Talk service for Cisco Unified IP Phones

- Enables push-to-talk (PTT) functionality on select Cisco Unified IP Phones
- Extends voice reachability of PTT radio-only or broadcast networks
- Allows communications over a channel with a push of a button



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

# Cisco IPICS PMC

## Push-to-talk (PTT) client for PC users

- Allows PC users to monitor multiple channels simultaneously
- Enables PTT communication from the office or a remote site
- Provides flexibility through remote tone control, voice replay, multiple user interface options



**Push-to-Talk  
Management Center**

**Extends to PC users PTT capabilities previously reserved for radio-only users**

# PMC Features & Benefits (cont'd)

- Quick access to various channel types
  - PTT radio channels
  - Virtual talk groups made up of multiple channels
  - Direct 2-way channels to other PMC users
  - Direct dial channels for dial-out (requires dial ports)
  - Listen only (broadcast) channels



# PMC Features & Benefits (cont'd)

- Multiple user interfaces for user flexibility

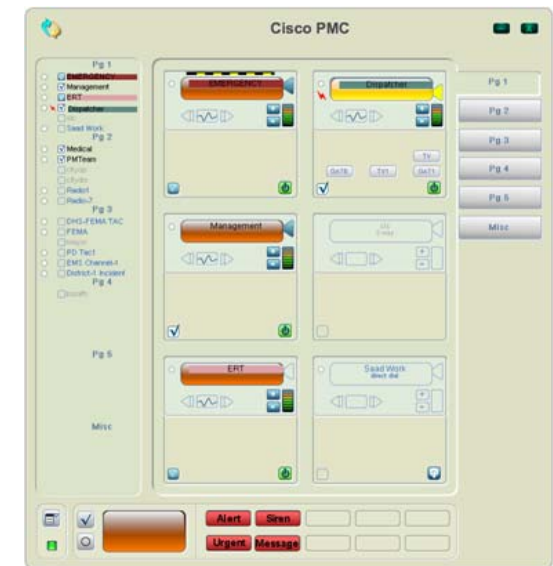
Touch-screen optimized

Bright and dark environments

18-channel advanced console

**New** 36-channel radio console

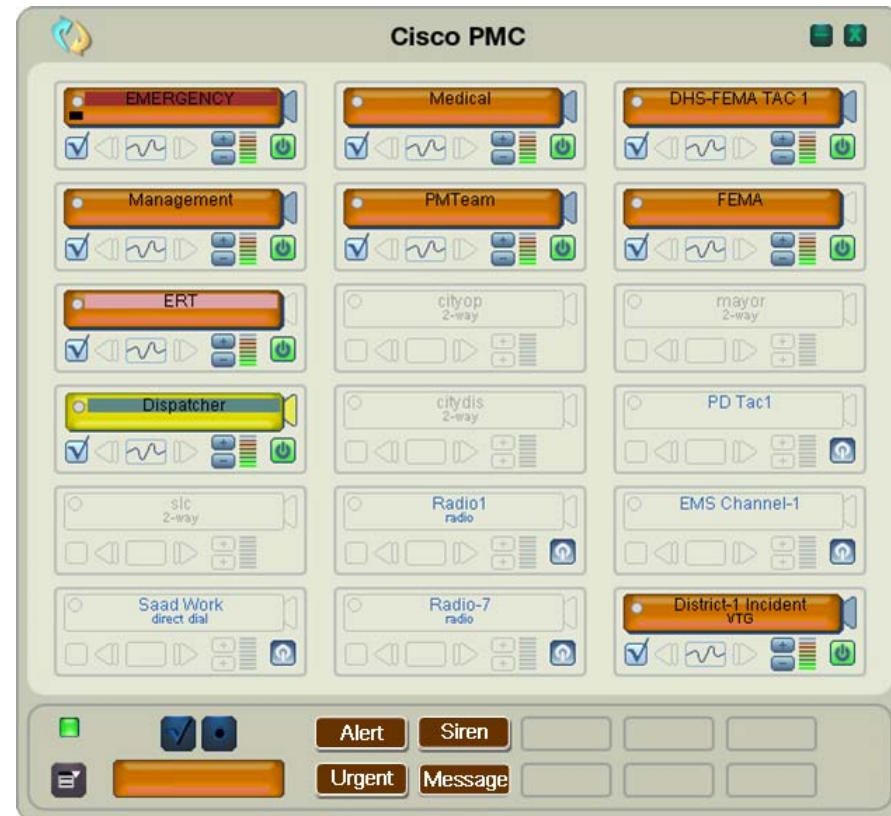
- Voice replay for play back of buffered audio
- Channel state indicators for online or available channels
- Channel Colors to uniquely identify channels



# PMC Features & Benefits (cont'd)

## Advanced Console

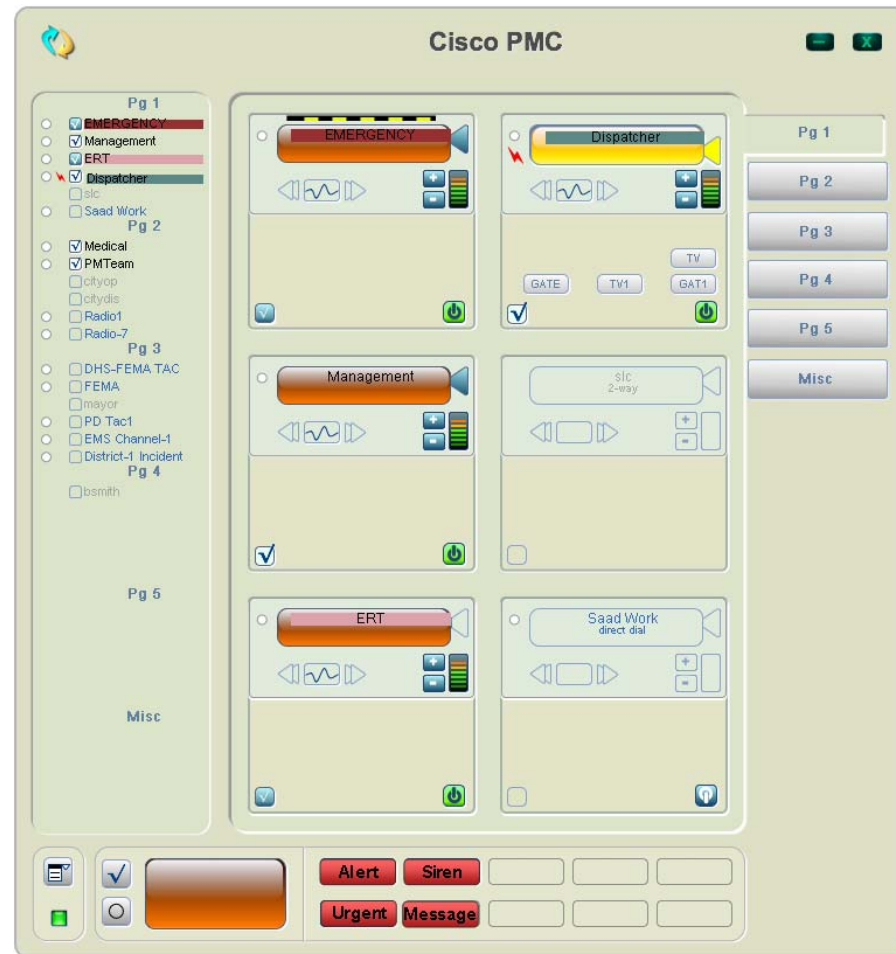
- Up to 18 active channels supported
- Alert tones for notification over specified channels
- Channel select button to select channels for simultaneous transmit
- All talk button to simultaneously transmit over multiple channels



# PMC Features & Benefits (cont'd)

## Radio Console

- Up to 36 active channels supported
- Administratively assigned regions to organize channels
- Tone remote control to dynamically control functions of radios or other devices
- Tone signaling on per channel basis



# PMC Features & Benefits

- Easy remote access from anywhere with VPN
- Rapidly deployable and easily managed remotely by Cisco IPICS server
  - Privileges
  - Configurations
  - Channel associations
  - Authorized downloads
- **High jitter support** for high latency and low bandwidth environments
- Uninterrupted communications through **offline mode** and **alternative sever login**



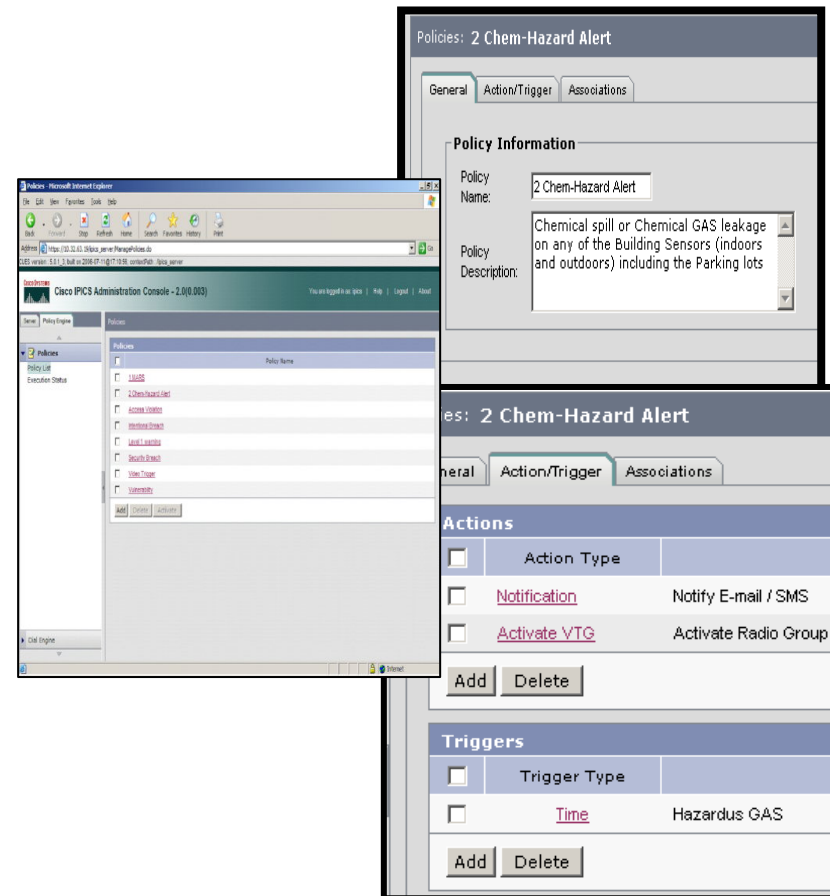
# Cisco IPICS Policy Engine

Enhanced application platform to streamline operations



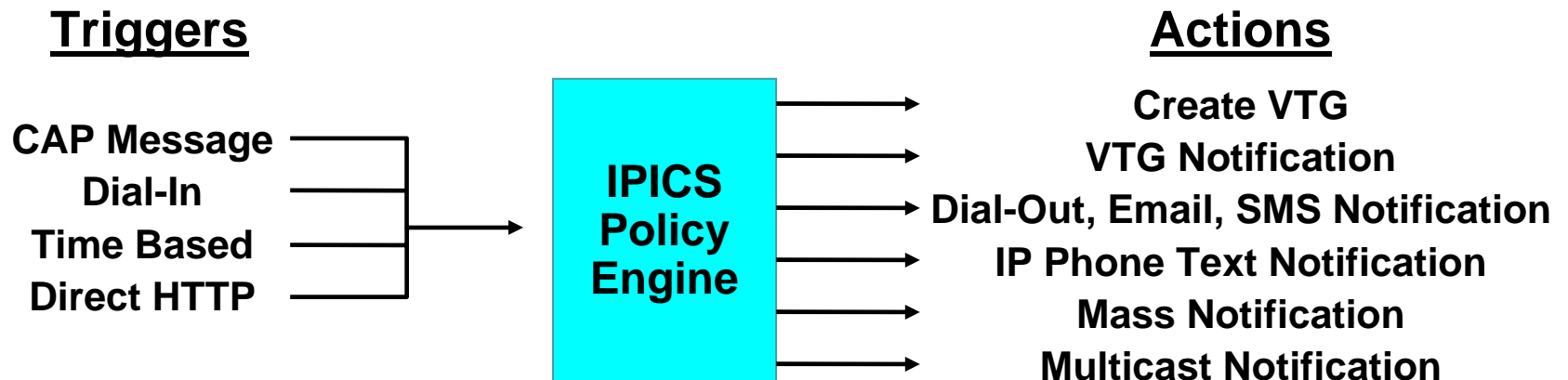
## Flexible IPICS application platform:

- Supports user-defined rules to automate existing incident procedures
- Brings together the right people to address an incident
- Notifies the broader population when time is critical



Flexible application platform to automate the most demanding public safety SOPs

# The Policy Engine Drives Advanced Services



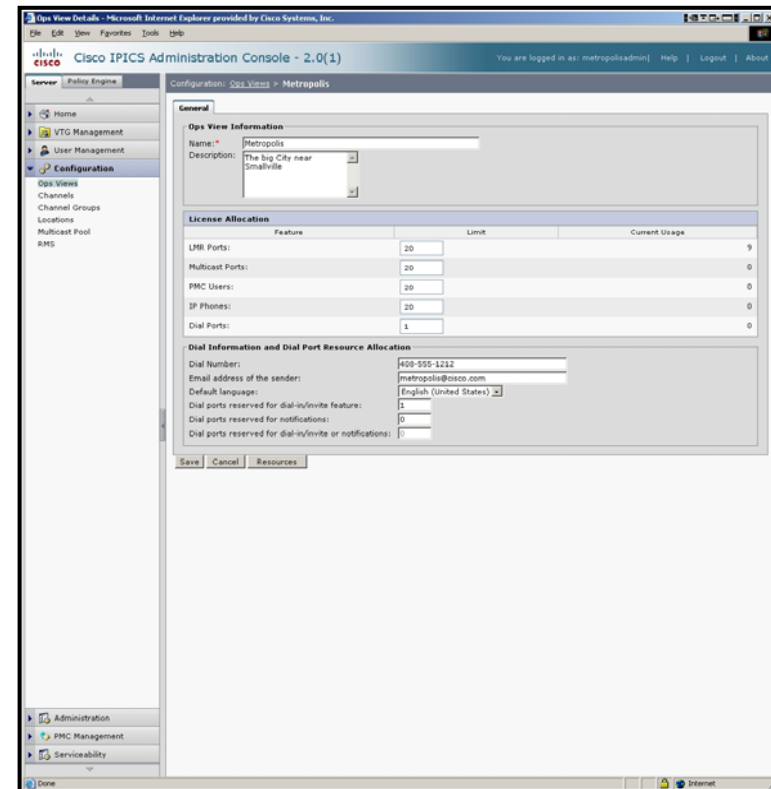
## Advanced Application Examples

- **Trigger: Accident w/injuries**
  - **Action: Create VTG and notify responding agencies to join VTG**
- **Trigger: Security event at a University**
  - **Action: Priority notification to first responders via phone and radio**
  - **Action: Mass notification to student body via email, page, cell phone, text**

# Cisco IPICS Operational Views

## Enabling Inter-Agency Collaboration

- Allows each entity to maintain visibility and control of its own resources
- Facilitates authorized sharing of resources and communications
- Provides authorized communications across ownership and organizational boundaries



**Only Available from Cisco, Only with Cisco IPICS**



# Cisco IP Interoperability and Collaboration System (IPICS) **Feature Roadmap**



# IPICS Feature Roadmap Summary

IPICS 1.0 (available)	IPICS 2.0 (available)	IPICS 2.1 (3Q'07)
<p><b>IPICS Server</b></p> <ul style="list-style-type: none"> <li>▪ Web application framework</li> <li>▪ User profiles               <ul style="list-style-type: none"> <li>▪ Sys administrator</li> <li>▪ Ops Mgr / Incident Mgr</li> <li>▪ Dispatch</li> <li>▪ First Responder</li> </ul> </li> <li>▪ System Administrator               <ul style="list-style-type: none"> <li>▪ Group,user,contact database</li> <li>▪ Resource admin</li> <li>▪ Server config</li> <li>▪ Statistics and reports</li> <li>▪ Diagnostic/troubleshooting tools</li> </ul> </li> <li>▪ Ops Mgr / Incident Mgr               <ul style="list-style-type: none"> <li>▪ Channel management</li> <li>▪ User privilege/channel assignment</li> <li>▪ Statistics and reports</li> </ul> </li> <li>▪ Dispatch               <ul style="list-style-type: none"> <li>▪ Ad-hoc incident mgmt</li> <li>▪ Ad-hoc conference</li> <li>▪ Channel record control</li> </ul> </li> <li>▪ First Responder               <ul style="list-style-type: none"> <li>▪ Tune into select channels</li> </ul> </li> </ul>	<p><b>IPICS Server</b></p> <ul style="list-style-type: none"> <li>▪ Enhanced GUI interface</li> <li>▪ Operational Views for securely managing shared resources</li> <li>▪ Dial-in / dial-out and prompt mgmt</li> <li>▪ API for enhanced applications</li> <li>▪ Enhanced activity logging               <ul style="list-style-type: none"> <li>▪ Audit trail</li> <li>▪ Per OpsView audit log</li> <li>▪ Dial-in users audit trail</li> <li>▪ Dial-out logging</li> <li>▪ Historical reports</li> </ul> </li> <li>▪ PMC direct 2-way channels</li> <li>▪ Downloadable tones</li> <li>▪ User/Channel/VTG association attributes</li> <li>▪ PMC interface enhancements</li> <li>▪ IP-phone support</li> </ul> <p><b>PTT Management Console (PMC)</b></p> <ul style="list-style-type: none"> <li>▪ Transmit enhancements               <ul style="list-style-type: none"> <li>▪ Multi-select channels</li> <li>▪ Predefined alerting tones</li> <li>▪ Latch control by channel</li> </ul> </li> <li>▪ Instant replay / playback</li> <li>▪ Visual indication of secure channel, listen-only channels and IPICS server status</li> <li>▪ Enhanced keyboard support</li> <li>▪ Up to 50 channel support</li> </ul>	<p><b>IPICS Server</b></p> <ul style="list-style-type: none"> <li>▪ Regions               <ul style="list-style-type: none"> <li>▪ Region administration</li> <li>▪ Channel/VTG to region mapping</li> </ul> </li> <li>▪ Tone Remote Control               <ul style="list-style-type: none"> <li>▪ Radio-specific admin enhancements</li> <li>▪ Radio-specific activity logs</li> <li>▪ Radio-specific tone definition</li> </ul> </li> </ul> <p><b>PTT Management Console (PMC)</b></p> <ul style="list-style-type: none"> <li>▪ Regions               <ul style="list-style-type: none"> <li>▪ Allocate channel to region</li> <li>▪ Custom skins</li> </ul> </li> <li>▪ Tone Remote Control               <ul style="list-style-type: none"> <li>▪ New radio control skin w/features</li> <li>▪ TRC encoding/decoding</li> </ul> </li> </ul> <p><b>Signalling / Codec / Gateways</b></p> <ul style="list-style-type: none"> <li>▪ Tone Remote Control</li> </ul> <p><b>Policy Engine</b></p> <ul style="list-style-type: none"> <li>▪ Notification Enhancements               <ul style="list-style-type: none"> <li>▪ Text to IP-Phone notification</li> <li>▪ Dial notification</li> <li>▪ Talk group notification</li> <li>▪ Custom scripts</li> </ul> </li> </ul>
<p><b>PTT Management Console (PMC)</b></p> <ul style="list-style-type: none"> <li>▪ LMR console</li> <li>▪ Channel control:               <ul style="list-style-type: none"> <li>▪ Basic: Display, control, signal, PTT, playback</li> <li>▪ Enh: Mute, record, activity, select, emergency</li> </ul> </li> <li>▪ PTT SW client</li> </ul> <p><b>Signalling / Codec / Gateways</b></p> <ul style="list-style-type: none"> <li>▪ SIP / H.323 VoIP signalling</li> <li>▪ G.711, G.729 codecs</li> <li>▪ Gateways:               <ul style="list-style-type: none"> <li>▪ Land-Mobile Radio gateway</li> <li>▪ VoIP PSTN gateway</li> </ul> </li> </ul>	<p><b>Signalling / Codec / Gateways</b></p> <p><b>Policy Engine</b></p> <ul style="list-style-type: none"> <li>▪ Dial-in / dial-out capabilities</li> <li>▪ Notification</li> <li>▪ Logging and monitoring</li> <li>▪ Customizable policies</li> </ul>	<p><b>Other Planned High Priority Features</b></p> <ul style="list-style-type: none"> <li>▪ P25 ISSI infrastructure</li> <li>▪ High availability</li> <li>▪ Radio signalling control</li> <li>▪ Notification enhancements, triggers, and sensors</li> <li>▪ Active Directory integration</li> </ul>

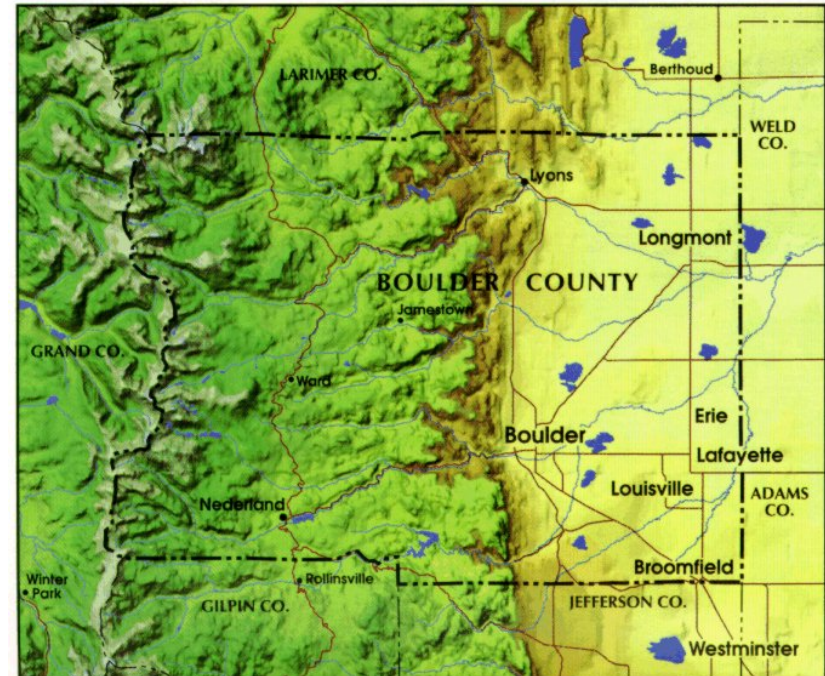


Cisco IP  
Interoperability  
and Collaboration  
System (IPICS)  
**Customer Case  
Studies**



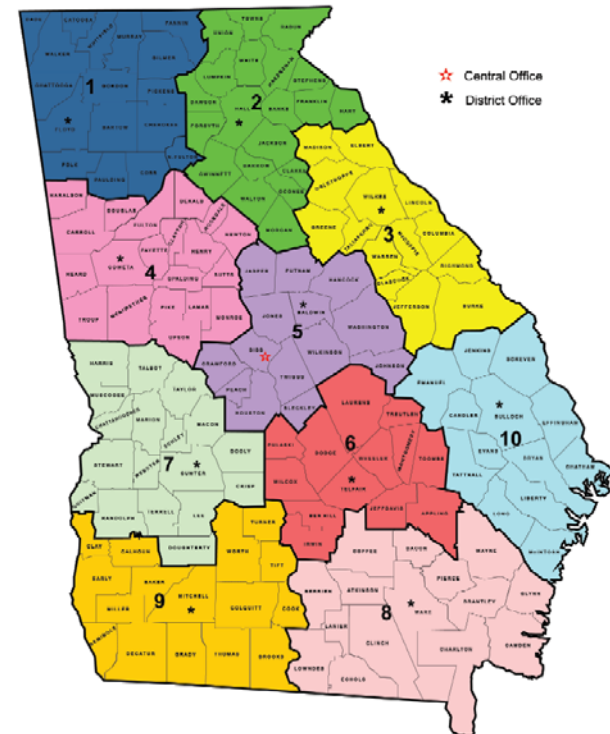
# Boulder County, Colorado

- 294,000 residents
- 1600 employees
- 741 square miles
- Varied mountain, flat terrains
- Service to cities and towns
- Challenges
  - Public safety communications
  - Fire and disaster (flood) response
  - Search and rescue
- Benefits
  - Improved response
  - Improved reach and flexibility
  - Cost effective



# State of Georgia Forestry Commission

- 9,000,000 Georgia residents
- 159 counties
- 10 districts
- 620 GFC employees
- 8,700 forest fires per year
- Challenges
  - Protect safety and property
  - Improve service effectiveness
  - Reduce costs
- Benefits
  - Increased reliability
  - Improved response and flexibility
  - Reduce costs



# Bryant University

- **The Challenge**
  - Improve student safety and coordinated public safety response
  - Improve management of campus events among work teams
- **The Solution**
  - Cisco IPICS system enabling integration and interoperability among disparate radio and communications systems
  - Cisco IP Phone PTT application enabling communications to and from radios
  - Cisco PMC enabling desktop-to-radio monitoring and communications
- **The Benefits**
  - Improved student safety and security in collaboration with local law enforcement for incident management
  - Improved campus facilities, engineering, help desk operations for students during enrollment, and for University events
  - Cost saving and reduction with ROI in one year



## a Cisco IPICS case study



# Cisco Safety and Security

## RTP Operations Center (1 of 4 WW centers)

- 2 people on duty 24/7 to monitor:
  - U.S. east of Mississippi, Canada and SA
  - 105 sites
  - 15,000 employees
  - 700 cameras

## IPICS:

- Enables effective response to over 150 events and 40 “Life Threatening” events per year
- Improves coordination with local fire, police, EMS agencies, and Cisco internal departments
- Enables location independent dispatch and control of security and ERT resources
- Reduces cost of operations avoiding leased line costs
- Delivers radio push to talk services to IP Phones and Desktops



# IPICS Summary

- Enables radio interoperability and beyond
- Leverages legacy radio technology for smooth migration to newer technologies
- Takes advantage of newer innovative application technologies
- Deployable today
  - Cost effective
  - Supports major radio vendors
  - Low operating costs
  - Flexible

**Cisco Systems – the single point of interoperable communications solutions**



# More Information

- More Information on Cisco Interoperability Systems
  - <http://www.cisco.com/go/ipics>
  - <http://www.cisco.com/go/ipicssolutions>
- Flash Demo
  - [http://www.cisco.com/cdc\\_content\\_elements/flash/ipics/index.html](http://www.cisco.com/cdc_content_elements/flash/ipics/index.html)
- Videos
  - <http://newsroom.cisco.com/> \*Search for “IPICS” on Video Archives
- Case Studies
  - [http://www.cisco.com/en/US/products/ps6718/prod\\_case\\_studies\\_list.html](http://www.cisco.com/en/US/products/ps6718/prod_case_studies_list.html)
  - Boulder County, Colorado
  - State of Georgia Forestry Commission
  - Bryant University
  - Cisco Safety and Security
  - Solution Overviews for Municipal, State, Emergency Services
- Technical Resources:
  - [http://www.cisco.com/en/US/products/ps7026/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps7026/tsd_products_support_series_home.html)