

Simple, Scalable, and Comprehensive Communications Interoperability

Cisco® IP Interoperability and Communications System (IPICS) 2.0 facilitates coordinated, interagency response for emergencies and day-to-day operations.

Executive Summary

The public sector agencies, enterprises, and other organizations that are responsible for preparing for and responding to emergency situations are finding themselves in the midst of a technology revolution. Incident response now involves modern networks, computers, and other devices in addition to ubiquitous Land Mobile Radio (LMR). The Cisco IPICS Release 2.0 enables comprehensive communications interoperability between different networks, devices, and agencies, enhancing agencies' operational effectiveness and their ability to save lives and protect property.

Challenge

An emergency by definition is a chaotic event. Whether the emergency is a motor vehicle accident, a crime in progress, or a natural disaster that strikes a wide area, those who are responsible for responding require real-time, accurate information in order to effectively manage the event. Responding agencies - traditional first responders (police, fire, and emergency medical services), allied agencies (such as power utilities or other enterprises), or nongovernmental organizations such as the Red Cross and Red Crescent - need to work efficiently together to mitigate the effects of the incident.

Push-to-talk (PTT) LMR systems have been the backbone of emergency response for decades. Unfortunately, one of the problems of LMR has been a legacy of incompatibility. Radios that do not use the same frequencies, LMR vendor-proprietary enhancements to established standards, and high infrastructure costs have led to a fractured LMR landscape that prevents effective coordination. Agencies that may have to work together may not be able to talk to each other. According to a report prepared by COMCARE, the United States alone has more than 100,000 emergency response agencies, most of which cannot easily communicate with each other or the public.

Another challenge is that responders now need to communicate with devices other than LMR systems, including Sprint/Nextel PTT phones, IP phones, and PCs. Technology is no longer an optional or a luxury item for emergency response. In an increasing number of cases, technology is vital to the situational awareness, span of control, scalability, and efficiency of incident response. However, incompatible communications technologies also build barriers that complicate interagency collaboration. Organizations must be able to break down these communications silos to realize the full benefit of their technology investments and to operate efficiently.

Business Benefits

Cisco IPICS provides simple, scalable, comprehensive communications interoperability that encompasses radio networks, IP and non-IP networks, telephones, cell phones, and PC clients. Benefits of the Cisco IPICS solution include:

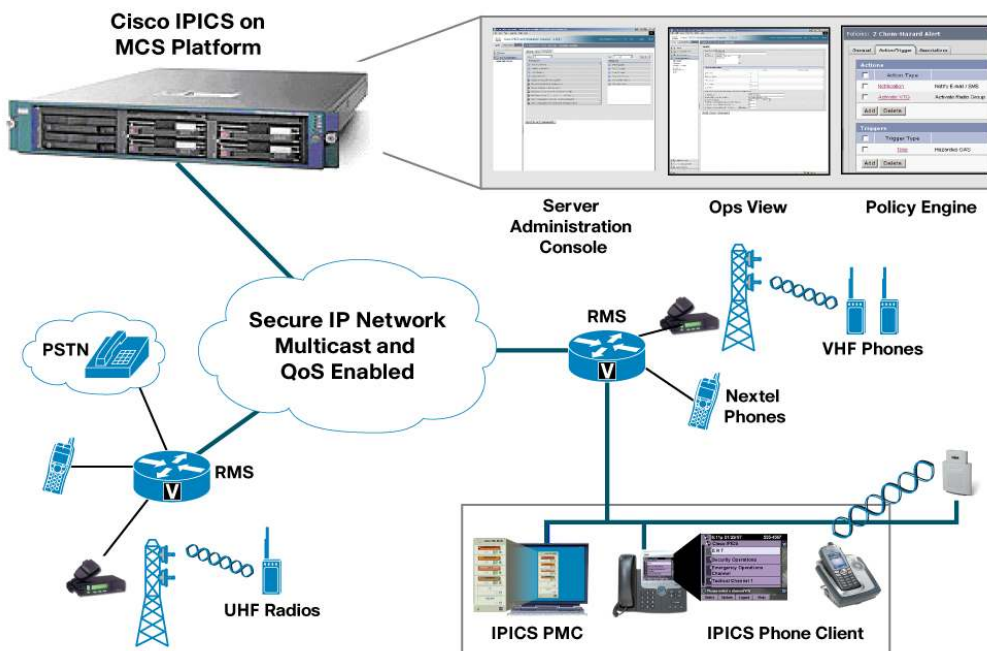
- **PTT everywhere:** By extending PTT and voice services from the LMR networks to IP networks, Cisco IPICS 2.0 provides communications interoperability between wired and wireless networks.
- **Flexible and efficient operations and incident management:** Cisco IPICS 2.0 provides an easy-to-use, Web-based interface for managing users, user groups, and radio channels across multiple networks and operational domains. Resources can be quickly added and then removed when no longer necessary, allowing graceful escalation and deescalation based on the incident scope.
- **One-click activation of predefined policies:** Cisco IPICS Policy Engine, new in Cisco IPICS 2.0, enables administrators to create policies that define standard operating procedures - including talk group establishment and user notification - and then activate those policies with a single click. Notification methods can include radio, cell phone, public switched telephone network (PSTN) phone, Cisco Unified IP phone, Cisco IPICS Push-to-Talk Management Center (PMC) Client, pager, e-mail, or Short Message Service (SMS) text message. (Some methods require a Simple Mail Transfer Protocol [SMTP] gateway.) The agency defines policies using an intuitive, Web-based interface.
- **Customization:** Cisco IPICS 2.0 can be customized to meet organizations' individual requirements. As an organization's needs change over time, Cisco IPICS can adapt with them.
- **Low cost and investment protection:** Cisco IPICS 2.0 enables comprehensive communications interoperability at a fraction of the cost of replacing existing radio systems. By capitalizing on existing communications networks and devices, Cisco IPICS avoids the expense of unnecessary upgrades to existing radio networks. Furthermore, by enabling a graceful migration to IP networks and services, Cisco IPICS protects what can be a significant investment in traditional radio networks and devices. Agencies can also eliminate the expense of purchasing radios for office personnel by using the Cisco IPICS PMC Client for PCs and laptops or the Cisco IPICS Phone Client for IP phones.
- **Unified command and control:** Dispatchers and incident commanders can manage operations from one or more locations using the Web-based Cisco IPICS Administration Console.
- **Standards compliance:** Cisco IPICS 2.0 takes advantage of industry-standard hardware and a proven IP architecture to create a framework for interoperable voice, video, and data communications. Organizations that currently use multiple wireless devices, including PTT, cellular, and wireless LAN (WLAN), can smoothly migrate to Cisco IPICS, which provides the infrastructure and feature set needed to achieve wide-ranging business and service goals. A standards-based solution also gives organizations the flexibility to add communications devices from any vendor.

Solution

The Cisco IPICS portfolio of products and applications provides cost-effective and comprehensive communications interoperability between push-to-talk (PTT) radio systems and devices such as mobile phones, IP phones, public switched telephone network (PSTN) phones, and PC clients (Figure 1). Based on proven IP standards, Cisco IPICS takes advantage of ubiquitous IP networks to extend the reach of traditional communications networks and also to provide notification using email, pager notification, and Short Message Service (SMS). Using Cisco IPICS, public sector agencies and enterprises can intelligently apply resources to streamline operations and rapidly respond to routine events as well as emergencies.

Cisco IPICS can be deployed in mobile command vehicles and included in tactical communications kits, connecting to IP or non-IP wired, wireless, or satellite networks.

Figure 1. Cisco IPICS Solution



Solutions components include the following:

- [Cisco IPICS Server](#): The core foundation for the Cisco IPICS solution, the Cisco IPICS Server is a security-enhanced, Linux-based platform that provides an administration console and resource management and hosts the optional Cisco IPICS Policy Engine and Operational Views applications.
- [Cisco IPICS IP Phone Client](#): The Cisco IPICS IP Phone Client enables personnel to use their Cisco Unified IP phones to collaborate with other personnel on PTT channels.
- [Cisco IPICS PMC](#): The Cisco IPICS PMC is a Windows-based PC client software package that enables personnel to use their PCs to collaborate with other personnel on PTT channels.
- [Cisco Serial Radio Control](#): The Cisco Serial Radio Control allows enhanced remote control of iDEN and EFJ radios, supporting capabilities such as unit-to-unit calling, dynamic group calling, talkgroup select and emergency "man down" indicator.
- [Cisco IPICS Operational Views](#): Cisco IPICS Operational Views allows different organizations to manage and share resources across ownership and organizational boundaries.

- [Cisco IPICS Policy Engine](#): The Cisco IPICS Policy Engine enables one-click activation of predefined policies for notification and talk-group establishment, and includes the ability to dial in and dial out to the PSTN.

Intelligent Networking

Cisco IPICS takes advantage of the Cisco Service-Oriented Network Architecture (SONA), an architectural framework that enables organizations to maximize the value of their network services and resources. The Cisco SONA framework makes it possible to centrally manage all radio systems, other voice systems, and data over a common, unified platform, increasing efficiency and the value of the agency's network assets while lowering capital and management costs.

Why Cisco?

Industry-leading expertise: Cisco is the worldwide leader of networking equipment and network management for the Internet and for the enterprise. By adopting a Cisco IP-based solution, customers can take fuller advantage of their investments in routing, switching, security, and IP telephony, and lay the foundation for enhanced rich-media based collaboration.

Financial stability: Radio systems have very long life spans, and agencies look for a vendor with financial health and stability to provide continued support.

Independence from radio vendors: Cisco IPICS works with any vendor's radio system, giving agencies the flexibility to deploy whichever system best meets its business needs at the time.

Availability of local partners for support: Organizations that deploy Cisco IPICS can receive deployment assistance and ongoing support from Cisco Advanced Services or local Cisco Advanced Technology Partners.

Integrated IP: Whereas other vendors have approached radio interoperability by layering an application on top of the IP network, Cisco designed Cisco IPICS from the beginning to take full advantage of the inherent advantages of IP, including open standards, availability, redundancy, resiliency, and scalability. Integrated IP makes Cisco IPICS a comprehensive communications interoperability platform that is faster and has a longer life than interoperability systems that use IP for transport only.

For More Information

For more information about the individual components of the Cisco IPICS 2.0 solution, visit:

<http://www.cisco.com/go/ipicssolution>.



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