# WHY SETTLE FOR RADIO INTEROPERABILITY? INTRODUCING COMMUNICATIONS INTEROPERABILITY

Lack of radio interoperability has become an urgent problem affecting every level of government as well as citizen confidence in government. In a December 2006 Larstan survey of state and local government managers, only 22 percent strongly agreed that their current radio and voice systems met their agency's needs for interoperability and communications.

"The basic problem is that when different first-responder organizations convene at an incident scene, they cannot communicate directly because their radios operate over different frequencies and use different techniques," says Lindsay Heibert, senior manager for Solutions Marketing Emerging Technologies within Cisco's IP Interoperability and Collaboration Systems. The consequences, underscored by recent manmade and natural disasters, are uncoordinated responses and a fragmented chain of command that can hinder the ability to save lives and prevent widespread loss of property and infrastructure.

## P25: A STEP IN THE RIGHT DIRECTION

Radios based on the new Project 25 (P25) standard mitigate the interoperability problem somewhat because they can communicate with older radios using a variety of frequencies and technologies. However, at least one of the two agencies needs P25-compliant radios to communicate, a situation that is not likely to occur for many years because of funding cycles for radio systems, legislative issues, and lengthy deployment timeframes. In the Larstan survey, just eight percent of agency managers said they have already deployed new P25 radio systems, and 67 percent said they had no plans to do so within five years.

What is more, only 15 percent of respondents strongly agreed that P25 will fully solve all of their interoperability problems. P25 does not overcome the inherent limitations of radio communications:

- A lack of standards
- Exclusion of people using communications devices other than radios
- Inability to communicate from outside the radio range
- Lack of resiliency of the radio infrastructure, such as when towers topple in high winds or fire

"Public safety agencies can be more effective with a system that lets first responders and outside experts join the radio channel from any location, with any device, including cell phones, landline phones, IP phones, or desktop PCs," says Dean Zanone, a Cisco customer solutions manager. "A solution that avoids unnecessary processes speeds up decision-making and results in fewer misunderstandings."

## A NEW APPROACH: COMMUNICATIONS INTEROPERABILITY

A technology that solves the challenges of radio interoperability is available today, in Internet Protocol (IP). Radio traffic from existing radio systems can travel over any IP network just like any other kind of voice, video, or data traffic. IP also enables government to redefine the challenge from radio interoperability to broader *communications interoperability*, including:

- Video sent from surveillance cameras
- Data sent to and from the mobile data terminals in law enforcement vehicles
- Instant messages sent from wireless computers and personal digital assistants carried by field personnel
- Geographic information systems
- Hazardous materials databases

Data from earthquake, air quality, and other environmental sensors

The ability to deliver video and data—not just voice—to field personnel enhances situational awareness. For example, streaming video captured at the scene helps a fire chief deploy resources more effectively. Shared data can also be helpful when a coordinated response is needed across multiple agencies such as fire, police, and EMS services.

## IP: RX FOR INVESTMENT PROTECTION

In the Larstan survey, 47 percent of respondents identified funding as the greatest impediment to communications interoperability. (The other largest impediments were politics, mentioned by 16 percent of respondents, and technology limitations, mentioned by 15 percent.)

IP standards-based interoperability systems protect an agency's existing and future investments in radio and other communications systems. Agencies can continue using their existing push-to-talk radio systems and freely add new radios, IP phones, cellular phones, and other voice devices, which co-exist with existing radios. "The standards-based approach also reduces the costs of acquiring technology, an advantage that public and private sectors have enjoyed for years but that has largely eluded public safety agencies because of their reliance on proprietary radio systems," says Zanone. "Agencies that use the IP network for radio communications are free to purchase whatever systems best meets their needs because all systems can communicate over the IP network."

## PROVEN IN THE FIELD

The Cisco IP Interoperability and Communications System (iComm), already in use in public sector and private organizations in the United States, enables people to join the same talk group using any type of radio as well as cell phones, IP phones, and standard phones. Future modules for the system will integrate video, instant messages, and other communications methods.

For more information about Cisco iComm, including a white paper on communications interoperability and case studies, visit www.cisco.com/go/ipics.


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