



Voice over Internet Protocol (VoIP)

Project Description

SNAPSHOT

Public safety agencies are investing millions of dollars in devices that allow agencies to patch non-interoperable radio systems together. These are commonly referred to as bridging systems, and many of these systems use Voice over Internet Protocol (VoIP) technology. While IP itself is a formal standard that allows for interoperability, the VoIP technology built on top of that standard is often proprietary and prevents interoperability. Therefore, the Public Safety Communications Research (PSCR) program, on behalf of the Department of Homeland Security Office for Interoperability and Compatibility, is leading a coalition of public safety officials and VoIP vendors in an effort to bypass lengthy and traditional standards processes to ensure that disparate radio systems can interoperate using today's VoIP technologies.

BACKGROUND

The nation's emergency responders traditionally have used two-way radios—known as Land Mobile Radios (LMRs)—to communicate with each other when responding to both day-to-day incidents and large-scale emergencies. Even the most powerful of these radios are often not interoperable with each other because they broadcast in different frequency bands or use proprietary equipment. When responding agencies need to connect radio systems, emergency responders rely on bridging solutions, which increasingly use Voice over Internet Protocol-based connections to transmit voice communications. Although VoIP itself is standards based, there are many aspects of VoIP bridging technologies that remain proprietary. As a result, there is no guarantee that one manufacturer's VoIP-based equipment will successfully interface with another's, even though they may both use standards.

AN INNOVATIVE APPROACH

This project is an example of how the Federal government can act as a catalyst to address an interoperability gap quickly and outside of the formal standards process. PSCR:

- Formed the Public Safety VoIP Working Group, comprised of industry representatives, public safety practitioners, the research community, and other Federal partners to develop common requirements for bridging interoperability.
- Worked with that group to develop common ways to connect bridging systems based on usage scenarios. These common ways to connect are referred to as "profiles."
- Brought together six of the leading VoIP vendors (Cisco, Clarity Communications, Motorola, Sytech, Twisted Pair, and Valcom) in April 2008 to demonstrate interoperability using the profiles developed by the working groups.
- Published "BSI Best Practices" to assist agency technicians and administrators in procuring and operating bridging systems to achieve best results.

VALUE TO PUBLIC SAFETY

Public safety agencies are investing millions of dollars in bridging technologies. The recent \$1 billion Federal Public Safety Interoperable Communications Grant Program will be funding the purchase of many VoIP-based bridging systems over the next three years. PSCR's ability to make a VoIP specification available quickly will:

- Reduce costs for system design and installation saving Federal, State, and local dollars.
- Harness the benefits of IP technologies by helping one emergency response agency seamlessly connect its radio system to another agency's system over a network—regardless of manufacturer.

RESULTS

PSCR acted as a catalyst to:

- Coalesce industry and public safety representatives around a technical solution that closes an interoperability gap that would have widened with new Federal grant funding.
- Inform and accelerate industry's development of interoperable public safety products.

"What's most promising about (the VoIP profile) for us is the possibility that we'll be able to quickly share data, in addition to voice, across these different systems. That will be critical for our first responders."

-Boulder County Sheriff's
Office Communications
Chief Jim Smith