Voice over Internet Protocol Working Group

Background

The Nation's emergency responders typically use two-way radios—known as land mobile radios—to communicate with each other when responding to incidents. However, even the most powerful of these radios are often not interoperable with each other when they broadcast in different frequency bands. To connect disparate radio systems, emergency responders rely on bridging solutions, which are increasingly using Voice over Internet Protocol (VoIP) technology to transmit data and voice communications. Although based on Internet Protocol (IP), VoIP technology is not always interoperable because it can be implemented in a number of different ways that are essentially proprietary. As a result, there is no guarantee that one manufacturer's VoIP-based equipment will connect with another's.

VoIP Working Group

The U.S. Department of Homeland Security's Office for Interoperability and Compatibility and the U.S. Department of Commerce's Public Safety Communications Research program are leading the Public Safety VoIP Working Group to address the lack of interoperability between VoIP-based devices. Rather than going through the lengthy process of creating new standards, this coalition of public safety practitioners, industry representatives, and Federal partners is creating VoIP specifications, or implementation profiles. A VoIP implementation profile is a collection of existing standards, parameters, and values necessary for VoIP-based devices to connect with one another. Bridging systems with interfaces built to these specifications will allow emergency response agencies to seamlessly connect radio systems over an IP network—regardless of the manufacturer.

Through a consistent series of face-to-face Roundtable discussions, bi-weekly conference calls, and Plugfest testing sessions, the Working Group created the first VoIP specification: the BSI Core Profile. Once developed, the Profile was tested at three different Plugfest events where manufacturers brought their bridging devices and connected to one another using the BSI Core Profile specification. With the BSI Core Profile finalized in September 2008, the Public Safety VoIP Working Group is now creating a set of best practices that will allow users to implement the BSI Core specification with even greater ease. The Working Group will convene another practitioner Roundtable to determine their next VoIP specification.

Benefit to the Public Safety Community

When implemented in bridging equipment, the BSI allows emergency response agencies to seamlessly connect radio systems over an IP network—reducing costs for system design and installation. Because it was based on the implementation profile technique mentioned previously, the BSI Core Profile was developed in months instead of years. As a result, manufacturers were able to implement the Profile earlier and with greater ease.

Ultimately, the Working Group's efforts will allow manufacturers to create VoIP-based radio equipment that can interoperate across all interfaces of a radio system. While the Working Group's creation and dissemination of these interface specifications alone will not solve the interoperability problem, they will allow VoIP-based devices and standardized computer networks to further enhance public safety communications.

Through a practitioner-driven approach, the Science and Technology Directorate's Command, Control and Interoperability Division (CID) creates and deploys information resources—standards, frameworks, tools, and technologies—to enable seamless and secure interactions among homeland security stakeholders. With its Federal partners, CID is working to strengthen capabilities to communicate, share, visualize, analyze, and protect information.