

Voice over Internet Protocol Working Group

Background

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

VoIP Working Group

To address the lack of interoperability between VoIP-based devices, 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. 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, also known as "implementation profiles." A VoIP implementation profile is a collection of existing standards, parameters, and values that are necessary for VoIP-based devices to connect with one another. Bridging systems with interfaces built to these specifications will allow emergency responders to seamlessly connect radio systems over an Internet Protocol (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 1.0. 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 1.0 specification. The BSI Core Profile 1.0 was published in September 2008 and the Working Group continues to improve the Profile with subsequent releases. In addition, the Working Group is creating a set of best practices to accompany the Profile that will assist users in implementing the BSI Core specification. The Working Group is also beginning development of Profiles for other VoIP interfaces.

Benefit to the Public Safety Community

When implemented in bridging equipment, the BSI allows emergency responders to connect radio systems over an IP network, thereby reducing costs for system design and installation. Because the BSI Core Profile was based on the previously mentioned implementation profile technique of pulling existing standards, parameters, and values into one document instead of creating new criteria, it 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.

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