DHS Science and Technology Directorate

Voice over Internet Protocol

Investments in innovative technologies are closing gaps

The nation's first responders have traditionally used two-way analog radios to talk to each other, yet today even the most powerful of these radios are often unable to interoperate with each other. Challenges such as numerous operational frequency bands, the increasing use of proprietary equipment, and the integration of new digital systems have made continued use of existing investments nearly impossible for some agencies. Agencies spend millions of dollars on bridging systems that use Voice over Internet Protocol (VoIP) technology to patch these non-interoperable radio systems; however, without a single adopted VoIP standard, the presence of these expensive bridging systems does not guarantee interoperability.

Public Safety VoIP Working Group

The Department of Homeland Security Science and Technology Directorate (S&T), in partnership with the Department of Commerce's Public Safety Communications Research (PSCR) program, is enabling legacy analog radio systems to interoperate with similar systems, as well as with new digital systems, such as Project 25 and future broadband. To help manage expectations and achive the right outcomes, S&T and PSCR created the Public Safety VoIP Working Group to provide a forum for public safety practitioners, industry representatives, and federal partners, to share perspectives and inputs related to developemnt and implementation requirements.

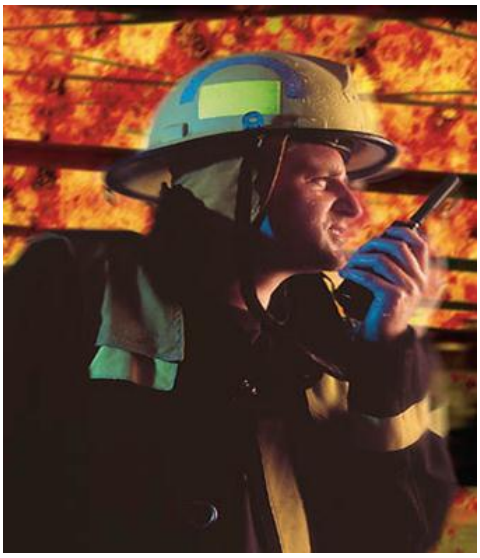
By creating an agreed-upon language, all current and future public safety voice communications systems will be able to decipher messages in the same way. The language's standard terms and data formats will be consistent regardless of the system at point of origin or receipt. This ensures that the recipient is able to receive a transmission that is clear as anticipated and not in need of translation.

Working to improve interoperability in eight areas

- Bridging Systems Interface (BSI)
- Radio Site Interface
- Radio System to Radio System Interface
- Dispatch System Interface
- Broadband System Interface
- Bridging Systems Enhanced Interface
- Subscriber to Subscriber Interface
- System to Subscriber Unit Interface

The working group addressed the interoperability of the BSI with the creation of the BSI Core Profile. The BSI Core Profile was successfully tested in 2012 at Super Bowl XLVI in Indianapolis, when a team of first responders communicated from the Federal Bureau of Investigation fusion center at the Super Bowl to an individual in Boulder, Colorado, using it. Test results are available at: http://www.safecomprogram.gov/SiteCollectionDocuments/VoIP_BSI%20DEMO_report_FINAL_4-23-12_v13%20_2_.pdf

The working group created a complementary set of best practices, case studies, and an enhanced version of the BSI Core Profile to inform emergency response procurement and deployment decisions. With the release of the validation report in April 2012, S&T's work on the BSI is complete. Nearly all major manufacturers have adopted the BSI platform and others are committed in their next product cycle. VOIP members will support future interfaces of the Broadband System Interface, which will work to connect land mobile radio systems with the future release of the Public Safety Broadband Network.



VoIP Interface Architecture

Homeland Security
Science and Technology

To learn more about Voice over Internet Protocol, please contact SandTFRG@dhs.gov.

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