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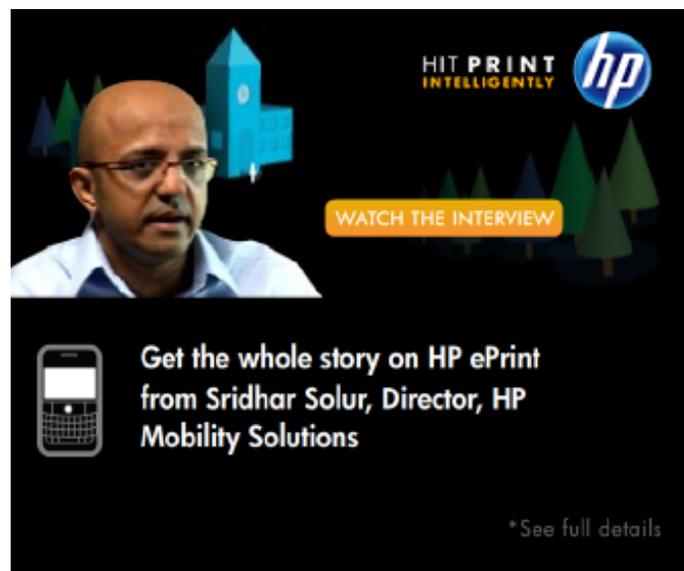
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21 years later, public safety networks still can't talk to each other

Lack of standards continues to hinder efforts toward interoperability

- By [William Jackson](#)
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A lack of technical standards is hindering deployment of interoperable public safety networks despite more than two decades of work on a suite of interoperability standards, according to Dereck Orr, the National Institute of Standards and Technology's program manager for Public Safety Communications Systems.



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Orr testified before the House Science and Technology Committee's Subcommittee on Technology and Innovation, at a hearing on the status of Project 25, a 21-year-old effort to develop standards that would let police, firefighters and other first responders communicate across departmental and jurisdictional lines using equipment from various manufacturers.

P25 is a suite of standards that specify the eight open interfaces between the various components of a land mobile radio system, Orr said.

"To date, only the conventional portions of the Command Air Interface and the Inter-RF-Subsystem Interface have a completed suite of documents," Orr said. The more complex trunked CAI continues to lack conformance test documents although trunked CAI products have been sold for almost a decade, he added.

"The remainder of the six interfaces are in various states of document completion. Therefore, since its inception in 1989, one-and-a-half of the eight interfaces have been completed," he said.

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Standards-making is a consensus-based process to ensure broad buy-in from industry, said David Boyd, director of the Homeland Security Department's Command, Control and Interoperability Division of the Science and Technology Directorate.

"The need for consensus throughout this effort often sets the pace for how quickly they are completed," Boyd said.

"Some not involved in the standards development process might comment that standards development takes a long time," said Ernest Hofmeister, senior scientist in the Public Safety and Professional Communications area for Harris Corporation. "The standards are developed by top engineers from industry who have the knowledge and perspective to assure successful product implementation to the standard. Getting to consensus and developing the requisite detail of the standard takes time, but the resultant standard product is technically solid and long lasting."

This lack of completed standards has not stopped deployment of P25 networks, however. "Since the P25 standard was first adopted by the [Federal Communications Commission] in 2001, 36 states have deployed statewide P25 networks, as have 165 cities and counties," said John Muench, director of business development for radio manufacturer Motorola, Inc. "Nearly 70 percent of the U.S. population is covered by a P25 public safety network."

But this does not ensure interoperability.

"A few years ago, it was discovered through testing that much of the equipment advertised as P25-compliant was unable to interoperate with P25 equipment manufactured by other companies and, in some cases, even with earlier P25 equipment manufactured by the same company," Boyd said.

This spurred development, in coordination with NIST, of the DHS P25 Compliance Assessment Program (CAP). The first group of laboratory assessments under CAP began in December 2008 and by April 2009 DHS had recognized the first eight laboratories. Four manufacturers have had emergency communications equipment complete the P25 CAP process -- EF Johnson, Harris, Motorola, and Tait -- out of 11 manufacturers making P25 walkie-talkies.

This program is voluntary, however, and testing so far is available for only the two completed standards. Companies are free to market products as P25 compliant without certification, although DHS grant money can be spent only on CAP-approved equipment.

"NIST hopes that within two years, the P25 CAP has a fully functional program including performance, conformance, and interoperability testing for at least the CAI and ISSI interfaces which are crucial to interoperability," Orr said. "Achieving this will require significant commitment and focus by all parties, and for its part, NIST is prepared to assist in meeting this worthy goal."

Project 25 was established in 1989 as an end user-led effort between the Association of Public Safety Communications Officials, the National Association of State Telecommunications Directors and the Justice Department. It is being carried out within the Telecommunications Industry Association, a recognized industry standards-making body, and NIST and DHS have since become involved in the program.

It is a suite of standards that will specify eight open interfaces for land mobile radios:

Common Air Interface: Defining wireless access between mobile radios, and between mobile radios and base stations.

Inter-RFSubSystem Interface: Permitting users to communicate between systems in differing departments and jurisdictions.

Fixed Station Interface: Describing the signaling and messages used to administer the fixed station as well as the subscribers

communicating through the fixed station.

Console Sub-System Interface: Similar to the fixed station interface, but it defines the signaling between the RFSubSystem and the console, the position that a dispatcher or a supervisor would occupy.

Subscriber Data Peripheral Interface: Characterizing the signaling for data transfer between the subscriber radios and the data devices that may be connected to them.

Network Management Interface: Allowing administrators to control and monitor network fault management and network performance management.

Data Network Interface: Describing the connections to computers, data networks, external data sources, and so on.

Telephone Interconnect Interface: Allowing field personnel to make connections through the public switched telephone network by using their radios rather than cellular telephones.

About the Author

William Jackson is a senior writer for GCN and the author of the [CyberEye](#) column.



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