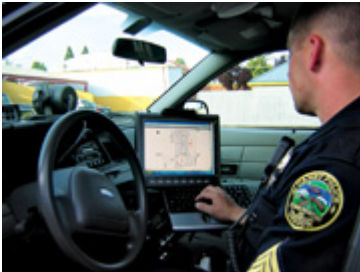


Interoperable Public Safety Networks Take Many Forms, but What Is Mission Critical?

May 18, 2009, By [Bob Galvin](#)

[Interoperability](#) takes many guises, but the basic concept of communicating between and within U.S. agencies and jurisdictions is an essential issue that's being worked out, albeit slowly. Public safety agencies typically have operated independently, but 9/11 and other events showed the importance of sharing vital information to enable more effective, rapid decision-making.

Unfortunately a large percentage of public safety communities may be woefully unprepared for major incidents. These include emergency medical events; hazardous material spills; terrorist attacks; natural and man-made disasters, such as industrial accidents or structural fires; search-and-rescue operations; and hostage crises. These require a large-scale, multiagency response.



"How well [agencies] work together is entirely dependent on what they've done to plan for major incidents well before they occur," said Alan Caldwell, governing board member of the National Public Safety Telecommunications Council (NPSTC). Caldwell was also a volunteer firefighter in Fairfax County, Va., for 30 years and operational fire chief for more than 20 years.

To achieve true interoperability, all communities ideally would have a public safety network that combines voice, data and video on an IP platform, say many public safety officials. This would enable all first responders to communicate with one another, share information and deploy assistance in a single jurisdiction or across county and state lines.

However, such networks usually come with huge price tags and may be a solution that many cities can only dream of having. So what other choices do cities have?

One alternative is to use available, affordable technology for information sharing as part of incident response. This doesn't constitute advanced interoperability, as a converged network would provide, but it's still a huge step forward.



Sharing Preincident Plan

The Canby, Ore., Fire Department uses Fire Zone software from Beaverton, Ore.-based The CAD Zone to draw building layouts. It utilizes a library containing hundreds of predrawn building templates and fire industry symbols.

Each layout shows the building's floor plan and key details, like type of roof, exits, rooms, presence of hazardous materials, hydrants, standpipe location and more. Fire

Zone also imports digital photographs and converts two-dimensional prefire diagrams into three-dimensional views.

First Look Pro, a companion CAD Zone software program, retrieves building layouts created with Fire Zone, provides instant access to critical preplanning information, and allows instant viewing of the associated map, photos and other images. First Look Pro also has a separate user mode for police, so fire and police departments can share the same critical preincident planning information.

Val Codino, Canby fire captain and medic who also serves on the Canby Police Department's tactical entry team, decided that sharing Fire Zone and First Look Pro would benefit both fire and police personnel. "I approached my fire chief and the police chief about it, and coincidentally, our 911 center," Codino recalled. "We all decided this made a lot of sense and it was readily accepted."

Canby's collaboration paid off. Successful raids on [methamphetamine](#) labs at 300-unit apartment complexes have been launched as the city's fire, police, EMS personnel and 911 center communicated with one another by using the CAD Zone preincident planning software.

"You need to have good, solid information when you're en route [to an incident]," Codino said, "and when you're en route, you want to bring up that information quickly." So far, the software that Canby's public safety agencies are using meets this need. Codino said he believes a large-scale incident could be managed with the city's public safety agencies tied together via the preincident planning software.



Operability' Is a Focal Issue

Helping public safety agencies achieve interoperability is a major priority for the Communications and Technology Committee of the International Association of Chiefs of Police. According to Harlin McEwen, the committee's chairman, interoperability is only one aspect requiring attention

McEwen said many public safety response systems are older analog systems that must be replaced, and most often are converted to digital systems. "You can buy subscriber equipment from more than one vendor [to build a public safety response system]," McEwen said. "But this gets into the proprietary nature of the system installed." That leads to incompatibility among equipment used by public safety agencies located in the same jurisdiction or region.

McEwen, a retired police chief and former volunteer firefighter, feels the real goal to effectively achieve uniform interoperability is to establish a national broadband public safety network. In the meantime, he and his committee are working to ensure that there's adequate federal funding to support local and state agencies in their efforts to achieve some level of interoperability, and the FCC's spectrum requirements are in place for regulating the licensing and use of radio transmitters by local government public safety agencies.



GIS Good for Planning, Tactical Use

Wayne Senter, fire chief of the South Kitsap Fire and Rescue in Port Orchard, Wash., considers GIS to be an important technology for achieving interoperability. GIS captures, stores, analyzes, and displays location-referenced information, as defined by the U.S. Geological Survey.

Senter cites two trends in sustainable emergency service information systems. The first one points to GIS as a foundation for sharing information, and the second trend favors a Web-based model for updates and access. "There is so much data available within the public safety arena that if we stay on the same system of GIS, then we can connect our data," he said.

South Kitsap Fire and Rescue has 1,300 buildings identified in its jurisdiction that require a detailed prefire diagram. Senter said there are 10 key items that responders need to know before they arrive at the scene. All of these are placed on the prefire plan for each building.

"If we put this information in a [Microsoft] Visio format, which interfaces with GIS, we're able to locate buildings on a GIS map when crews are responding," Senter explained. "Often the automated map systems used by emergency responders are GIS-based, and this reinforces the need to integrate rather than use a different format that is incompatible. An icon that says 'prefire' comes up, they click it and then this drawing comes up," he said. "This is an inexpensive service, and yet you have the information available for planning and tactical use."

GIS also can work across a wide range of records-management systems. "We've got to get away from all the information being on a hard drive," Senter said. "Everything should be Web-based. [With this in place], the information is accessible by fire and law enforcement in the vehicle. Secondly we [fire and police] need to train together."

Wide-Reaching Network Is Ideal

There isn't an easy generalization to explain what type of public safety network a community should choose and how much to pay for it. "It all depends on how much interoperability a city wants to achieve," Caldwell said. "Do you want it just within your jurisdiction or in other jurisdictions in surrounding counties?" This choice can mean a huge difference in both the capabilities and limitations of the public safety system, plus its cost.

What's important to remember is that large-scale incidents may easily affect an entire region, not just one isolated jurisdiction. Coordinated mutual aid can be essential. The IACP's McEwen and NPSTC's Caldwell agree on one point: "The most desirable option is an interoperable backbone," as Caldwell said.

Information sharing among public safety agencies is already under way in most communities. With public safety funding still a major hurdle for many communities, information sharing is a good start toward nationwide interoperability based on a wireless communication network.

Bob Galvin is a Portland, Ore.-based writer who covers interoperability issues and trends and technology tied to the public safety field.