Crisis Talk

GTRI helps implement statewide interoperable communications system.

By T.J. Becker

When a crisis occurs, it’s critical for public-safety officials to coordinate their efforts. Yet in Georgia, law enforcement agencies and first responders use radio systems that operate on different frequencies and technologies, making it difficult for various agencies to communicate quickly and effectively.

In response, the Georgia Office of Homeland Security/Georgia Emergency Management Agency (OHS/GEMA) asked the Georgia Tech Research Institute (GTRI) to help implement a statewide communications system that enables interoperability among public-safety agencies. The $8 million project is funded through the federal Department of Homeland Security’s Law Enforcement Terrorism Prevention Program.

“One of the advantages of this system is that it allows agencies to use their existing equipment,” explains Douglas Cobb, a principal research engineer at GTRI’s Information Technology and Telecommunication’s Lab (ITTL) and the project’s technical lead. Instead of replacing legacy radio equipment — which would carry a stiffer price tag of $200 to $300 million — interoperability will be achieved through a “gateway approach.”

How it works: Internet-networking components and a type of voice over Internet protocol (VoIP) software will be installed in selected 911 dispatch centers throughout the state. This will allow radio calls from law officials and first responders to be routed over the state’s private Internet Protocol (IP) network, which uses multi-protocol label switching (MPLS) technology designed to carry voice, data and video traffic.

Cobb points out that the new system won’t increase radio-frequency coverage or channel capacity. “It’s not like adding more towers or more channels to a radio system,” he says. “Instead, the system is IP-based with level-4 radio interoperability. Through the use of the state MPLS and network components, it provides dynamic statewide and regional radio interconnections (trunked and conventional) for public-safety first responders and allows agency dispatchers to access and control multiple legacy-radio systems. With this system in place, an authorized police officer in Rome, Ga., could talk to a police officer in Savannah — something that isn’t currently possible.”

The new interoperable communications system is significant on a number of levels, says Dan Brown, special projects manager for OHS/GEMA, which is administering the project. “Not only does this help facilitate the National Response Plan,” Brown explains, “but this begins to accomplish a goal that Georgia has had for more than 30 years.”

The new system could be used in a variety of scenarios, such as:

- Transporting prisoners from one jurisdiction to another.
- Man hunts like the one for Brian Nichols, Atlanta’s alleged “courthouse shooter,” where lookouts were posted in different counties.
- Chemical spills or other accidents that might require re-routing of traffic.
- Hurricane or other disaster evacuations.

Radio communication systems for police, fire and emergency medical workers have existed for decades, but these systems were primarily developed to serve local communities, points out Jay Sexton, a GTRI-ITTL research engineer assisting with the project. “As we enter a new era of homeland security and mutual aid, there’s a greater need for interoperable systems,” Sexton says. Interoperability not only
enables officials to respond faster to a crisis, he explains, but also prevents information from being misconstrued.

As the project’s technical adviser, GTRI has been involved in a variety of ways, from conducting feasibility studies to helping the Georgia Technology Authority (GTA) identify potential technology vendors.

In September 2005, Motorola was selected to provide networking equipment and service. Installation of the system has begun at four 911 centers in Cobb, Floyd, Glynn and Muscogee counties, along with one mobile communications unit. After these pilot sites are up and running, the system will be rolled out to the rest of the state.

By the end of 2006, more than 80 percent of Georgia’s population should have access to the system through fixed assets in 911 centers with remaining areas of the state served by mobile communications units.

Installing the equipment, however, is just one aspect of the project. Developing proper operating procedures — such as what constitutes an emergency and who will turn the system on — also will be critical to the system’s success.

“You can have the greatest technology in the world, but unless you have the right procedures in place, you’re toast,” says Doug Cohen, another GTRI engineer at ITTL involved in the project.

In addition to its other responsibilities, OHS/GEMA will take the lead in developing those operating procedures, as well as marketing the system to end-users.

“Although the project is a relatively low-cost statewide system, it’s very complex — both from a technological and implementation perspective,” Cobb notes. In addition to the project’s principal partners — OHS/GEMA, GTRI and GTA — representatives from the Georgia State Patrol, the Georgia Bureau of Investigation and the state’s sheriffs, police, fire and emergency response associations have participated. “It’s unusual to have so many partners involved in a single project,” Cobb says.

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