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SUMMIT
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Inter-Agency Communications Systems Save Lives

Gary Breed
Editorial Director

State, county and municipal governments are struggling with the planning and cost issues for new emergency communications systems for first responders. Following the September 11, 2001, terrorist attack, and further driven by the problems after the landfall of hurricane Katrina in 2005, federal authorities have required that communications systems be upgraded to allow coordinated actions among public health, safety and law enforcement agencies.

Of course, the current recession has caused serious problems in justifying funding for such systems. Things are especially difficult for local communities, where major capital equipment purchases are always a challenge. Even when there are significant grant funds available for the initial equipment acquisition and personnel training, the costs related to maintenance of a complex system are significant. Where I live, the issue of maintenance cost sharing between the county and local entities appears to be the most contentious issue.

One more factor in the cost is the present communications infrastructure. Here in Wisconsin, there is no strong statewide network to build on, but neighboring Minnesota has a network that provides the core for expansion to meet new requirements. The situation varies widely across the U.S. Federal, state and local officials need to solve these funding issues to bring our emergency communications to a higher level of capability.

Flexible Communications is Essential

Inter-agency communications is required in many situations. Major events like a hurricane, flood or, sadly, a terrorist incident are clearly cases where federal, state and local agencies must coordinate their actions. Duplicated efforts waste valuable time and resources, while failures to respond can cost lives and result in greater damage.

Even at the local level, flexible communications can make the difference between controlling an emergency situation, or having it get out of control. One example scenario is a fire at an industrial plant. The local fire department will certainly be the first agency on the scene. However, the

state police may be in contact with the company's management, who can provide information about the materials in the plant. The fire department needs to know if there are explosive materials or chemicals that cannot be extinguished with water.

That type of critical information also needs to be provided to the proper people, not to everyone. In the above situation, the Fire Chief should be told about the contents of the burning building. He can then direct his men to respond appropriately. Confusion is common with the open channels of most current radio systems. Individual firefighters don't need to hear a conversation between the Chief and the state police, and communications between the Chief and his firefighters shouldn't occupy a channel that could be available for other agencies' operations.

Maintaining the chain of command is as important as sharing essential information. The military depends on clear orders, delivered efficiently from HQ down to the squad level. Every local public safety agency will operate best with the same kind of well-managed command system, supported by the proper radio system architecture.

The technology need not be advanced at this time. Present mobile radio hardware will handle the initial inter-agency systems. However, in the future, as those systems are expanded to include communications with the military, Homeland Security, FBI, Border Patrol, and other federal agencies, technologies such as software-defined radios and self-organizing networks will be required to make public safety communications as effective as possible.

Once the current effort to have all states complete an interoperable system is finished, expansion into a truly national network will require the kind of large system planning and development techniques described in this month's Technology Report. The largest radio systems—wireless networks and communications for all branches of the military—are already using advanced hardware and software, along with innovative network management techniques. The lessons learned from development of those systems will be valuable in the expansion of our public safety radio network.

Although tight budgets make some people question the need for a better system, I believe this is a clear case where technology will enable much greater capability for our emergency responders.

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