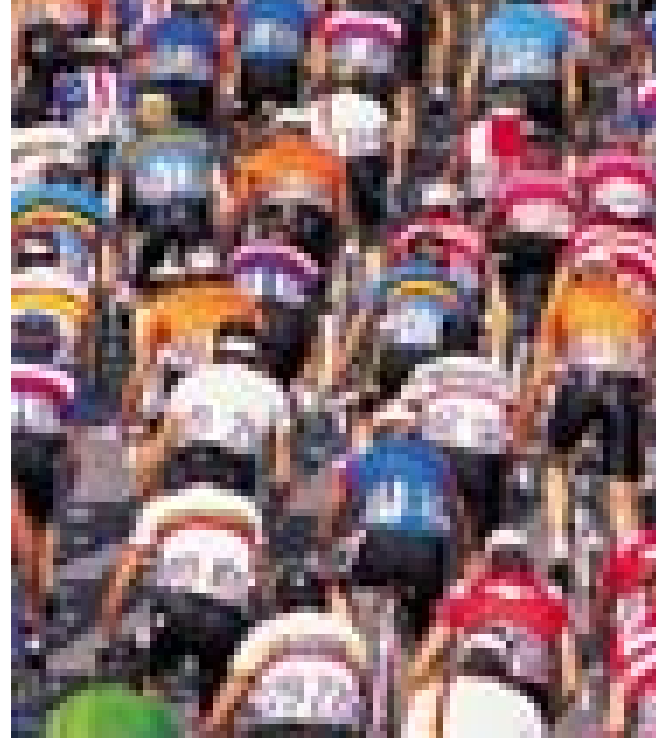




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SEAMLESS COMMUNICATIONS

Approaches for Achieving Interoperability



WHEN EVENTS REQUIRE A JOINT RESPONSE, HOW WILL YOU COORDINATE COMMUNICATIONS?

It happens all too often. Responders arrive at an incident...and discover their radios won't communicate with other crews at the scene. Vital information can't always reach the right people, sometimes with tragic consequences.

At a time when security and preparedness are top priorities, every community, whatever its size, needs a strategy for interoperable communications.

Saving lives and property during large-scale emergencies is a major goal of an interoperable network, but interoperability also pays off during routine operations.

- Nearby towns can share costs and enjoy economies of scale, making the investment more affordable.
- Governments can consolidate their communications planning and operations across departments.
- Local entities can make better use of the assistance available from State and Federal agencies.

efficient



What steps can you take to enable interoperability today?

What plans are you making for the future?

Taking the Next Steps

To help provide a framework for your ongoing communications discussions, we have outlined six different interoperability approaches. You select the approach or approaches to best fit your goals and resources while protecting your community. Interoperability requires coordination, planning, and leadership from all of the organizations involved.

Find the Approach That's Right for You

The solution you implement has to work in your environment, integrate with your existing systems, accommodate your budget, and reflect the way your agency collaborates with others. This is no place to settle for a "one-size-fits-all" approach. As a world leader in public safety communications, Motorola is building upon decades of experience with emergency communications to provide guidelines for communities wrestling with interoperability issues. Funding, involvement from surrounding communities, the capabilities of your current networks and other factors affect your choice.

Utah's Statewide Capability

With the Utah Communications Agency Network (UCAN), agencies within the state can communicate immediately and reliably with each other over a single system infrastructure using their own agency mobile and portable radios. The interoperable system was a key ingredient in the sophisticated security plan put in place for the 2002 Winter Olympics. Over 17 days, the system enabled approximately 3,500 public safety personnel to provide security to 2,000 athletes, 70,000 daily visitors and 30 separate venues scattered throughout the greater Salt Lake City area. The system was also used for the Paralympic Games.



LEVEL 6
Standards-Based Shared Systems

- Best Applications**
- Small to massive scale events
 - Urban to rural locations
 - Any band/bands

- Benefits**
- All radios built to a common standard
 - Talk to each other via infrastructure or talkaround

LEVEL 5
System-Specific Roaming

- Best Applications**
- Small to large scale events
 - Cross band
 - Limited response areas

- Benefits**
- Radios talk to each other via infrastructure from same manufacturer

LEVEL 4
Gateway (Console Patch)

- Best Applications**
- Small to moderate scale events
 - Preplanned events

- Benefits**
- Radios talk to each other via link established by dispatcher, unmanned interface box, or mobile apparatus

LEVEL 3
Mutual Aid Channels

- Best Applications**
- Small to moderate scale events (2-4)
 - Unplanned events (channel plan required in advance)

- Benefits**
- Agencies manually switch to assigned frequencies when instructed to do so

LEVEL 2
Talkaround

- Best Applications**
- Small events
 - Tactical coordination
 - Emergencies only

- Benefits**
- For situations when no infrastructure is available, compatible radios talk directly to each other in conventional mode

LEVEL 1
Swap Radios

- Best Applications**
- Immediately following disaster
 - Small events
 - Preplanned events

- Benefits**
- Agencies and organizations involved physically exchange radios with each other upon arrival at scene

WHICH LEVEL(S) OF

There are a wide range of interoperability solutions available to wireless



INTEROPERABILITY IS RIGHT FOR YOU?

communications users. Your best solution might combine different levels in different applications.

Description

All radios are built to the Project 25 standard and talk to each other via the 'flip of a switch.' Agencies retain control of their own communications, while sharing a common infrastructure. The network can be immediately reconfigured as needed to support routine and emergency situations, allowing users to communicate with advanced features over a wide area.

Similar to the way roaming works in a cellular network, users stay in touch when outside the range of their home network. Roaming requires pre-arranged agreements with neighboring jurisdictions and is best suited for events where three to seven agencies may become involved. Each system must have enough capacity to handle radio traffic from everyone who responds to an incident in its area. Some solutions are vendor-specific, while others support standards-compliant systems from multiple vendors.

Gateways are switching devices that allow incompatible users to communicate with each other. In the event of a disaster, a dispatcher or gateway works as a central point to patch two different radio users together. Gateways require pre-incident planning to be successfully implemented and are considered temporary solutions.

Mutual aid networks are the most commonly used approach by many agencies. Users must operate compatible radio units and manually switch to assigned frequencies when instructed to do so. This approach delivers coverage over a medium range for a small (2-4) number of agencies.

Users can talk directly to each other, at least within a small geographic area. Many legacy networks support this approach, which is best used in situations where only two or three different agencies are collaborating.

This strategy is dependable and fast to implement as long as one agency has enough spare radios and network capacity. Best applied to small, pre-planned events when there's time to distribute the equipment in advance.

Fort Wayne/Allen County, Indiana

Interoperability occurs between city and county police, EMS and fire agencies. The network also links local public safety agencies with the Indiana State Police and Federal agencies including the FBI, Alcohol, Tobacco and Firearms and the Drug Enforcement Administration. More than 2,000 radios were also purchased for use with the system.



INTEROPERABILITY IS A PROCESS, NOT AN END RESULT

Motorola recommends a two-step approach:

1. Develop a quick and relatively simple interim solution
 - Swap Radios
 - Talkaround
 - Mutual Aid Channel
2. Start planning for a more ambitious, regional standards-based solution by getting other agencies in your region to work together.

Planning helps prepare a community for seamless, quick and responsive interagency communication.

The following are aspects you should observe when developing your plan:



State of South Carolina

After Hurricane Hugo hit South Carolina in 1989, Motorola teamed up with the State and South Carolina Electric and Gas to create a statewide network. State agencies and local governments, as well as with major utility companies and health care providers, share the public safety communications network. South Carolina has been recognized by the Public Safety Wireless Network (PSWN) as one of the few to implement interoperability in a statewide communications plan.

Plan for Interoperability

Identify Leadership

A team of individuals needs to start asking the right questions about current and future requirements. Duties consist of planning, securing funding and implementing interoperable systems and processes.

Establish Partnerships and Shared Goals

Individual agencies cannot address interoperability alone and so partnerships are crucial to success. Officials representing all of the involved agencies need to determine best practices, agree on funding and define general system operation standards.

Include End Users

Planning should begin with the end users including police, fire, EMS, and other first-response personnel. Interoperability involves more than just equipment. It is also about adopting standardized policies and procedures for people working together.

Identify Funding Sources

Costs alone should not dictate your interoperability objectives. There are a variety of creative ways to fund your interoperable communications projects. Imagine the cost advantages that are available by sharing networks with neighboring jurisdictions. Other considerations include developing migration plans to assist in upgrades over time or transferring asset ownership. Another option is state-issued membership agreements and fee-for-service arrangements with local public safety agencies. Local communities essentially 'buy-in' by adding on their mobile or portable radio users, onto a state funded network.

Practice the Plan

Developing the plan is not enough. You need to practice the plan, then periodically review the plan to ensure that your interoperable communications are ready for action when needed.



expertise



WORKING TOGETHER TO IMPROVE COMMUNICATIONS INTEROPERABILITY

When you turn to Motorola, you can rely on a company that understands mission critical solutions. Our professional teams can help you analyze your needs, track the current flow of information across departments and jurisdictions, and design both optimal and interim solutions.

For more than 70 years, Motorola has actively supported the public safety community and has been committed to working with governments on behalf of their citizens' safety. We work with agencies to ensure that their interoperability issues are being addressed by:

- Assisting and developing interoperability strategies for multi-jurisdictional emergency response
- Monitoring legislation for funding impact that will enhance responders ability to prepare, prevent, respond and recover
- Educating legislators about the critical need for wireless interoperability and about the specific need for adequate spectrum to operate those systems
- Supporting Project 25 as a national standard for achieving interoperability

Whatever the scale of the project you envision, we can assist with a full range of products, services and advice. We will be happy to answer any questions you have about interoperability and help you explore the ways enhanced communications can positively impact the safety and security of your community.

Contact us at 1-800-367-2346 or visit: www.motorola.com/publicsafety



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