



IN THE EVENT OF

A Guide to Mission Critical Communications



“No man, woman or child should lose his or her life because public safety officials cannot talk to one another.”¹

—THE PUBLIC SAFETY WIRELESS NETWORK

¹ *Public Safety and Wireless Communications Interoperability: Critical Issues Facing Public Safety Communications*, Public Safety Wireless Network (PSWN) program/SAFEKOM, available at www.pswrn.gov

Critical incidents impact everyone.

Whether a large-scale emergency is caused by a natural disaster, an accident or even a terrorist act, a critical incident is dramatic and intense. A rapid, coordinated response among all responders is imperative when countless lives are at stake—including those of law enforcement officers, fire fighters, justice and public service workers.

Recent critical incidents, combined with the establishment of the Department of Homeland Security, have heightened citizens' understanding of the need for networks and interoperability on the local, state and federal level. They expect a quick response from public safety and federal agencies, as well as from enterprises such as utilities.

Public pressure necessitates a move from independent operations to interdependent collaboration.

The Public Safety community is under increasing scrutiny, not only to respond, but also to detect and prevent crises. Interoperability provides the means to positively and effectively manage situations in both crisis mode and on a daily basis. But creating a system that lessens the impact of crisis situations by allowing communication and coordination among different agencies is a formidable challenge.

According to Douglas County, Colorado, Sheriff's Office Division Chief, Mike Coleman, "Interoperability between multiple jurisdictions is critical to homeland security and is one of the biggest hurdles for most states to overcome. In Colorado, many responders can now be confident they will be able to talk with each other at the scene of an emergency or confer with other experts located in another part of the state. The interoperability might just be the difference that saves a life."

Responders want access to the large repositories of data that are already available.

Historically, Public Safety agencies have relied primarily on voice communication and used data in a limited sense. Networks were set up to allow users to talk to others *within* their agency, providing little or no communication with agencies or departments outside their jurisdiction.

Today, large repositories of vital data are available at all levels. Public Safety organizations are demanding the ability to have this information available at every incident. As the magnitude of an incident escalates, the need for a coordinated effort and instant mobile data increases exponentially.

“It is my goal that by 2008, every police officer, fire fighter, emergency medical professional and every first responder at every level of government will be able to talk directly to each other in any emergency. When Michigan’s citizens call for help, we must ensure that police and fire personnel can respond.”²

—MICHIGAN GOVERNOR JENNIFER GRANHOLM



² *Our Determination, Our Destination: A 21st Century Economy*, State of the State Address, January 22, 2004, available at www.michigan.gov

³ *The National Strategy for the Physical Protection of Critical Infrastructure and Key Assets*, Department of Homeland Security, February 2003, available at www.dhs.gov

A Mission Critical solution enables the move from independent operations to interdependent collaboration by letting first responders communicate as one via networks that are always available and provide information when and where it’s needed.

**Creating a Mission Critical Solution:
3 Key Requirements**

According to the Department of Homeland Security, states should engender coordination of protective and emergency response activities and resource support among local jurisdictions and regions in close collaboration with designated federal lead departments and agencies.³

In order to provide that level of coordination and collaboration across local, regional, state and federal agencies, a truly Mission Critical solution has three key requirements:

1. True Interoperability enables instant communication among multiple responders and different agencies. It allows all responders, no matter what their agency, to communicate as a team and perform their job at the highest level possible.

2. Critical Networks provide the availability, information security and reliability that responders require. The network operates as a “lifeline” that keeps all responders in contact and up-to-date with vital information, every day and especially during a crisis. Public Safety needs a network that is “always available.”

3. Mission Critical Data fosters informed, rapid response via secure information distributed by networks and applications. The valuable combination of shared voice and data communication gives each responder the power of pre-emptive intelligence.



Requirement 1 True Interoperability

Communicate as One

⁴ *Public Safety and Wireless Communications Systems: A Priority Investment for America's Future Safety* booklet, Public Safety Wireless Network (PSWN) program/SAFECOM, available at www.pswn.gov

What determines True Interoperability?

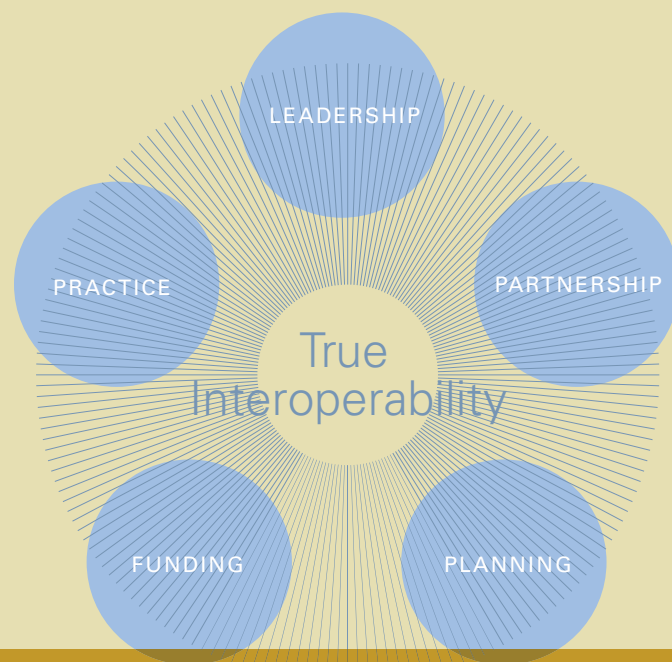
Interoperability is a word used with increasing frequency. According to the Public Safety Wireless Network (PSWN), it allows “public safety personnel in different agencies or jurisdictions to communicate with each other on demand in real time.”⁴

We’re taking it one step further: True Interoperability enables instant communication among multiple responders and agencies and more coordination, regardless of network type or agency affiliation. True Interoperability also allows all responders seamless access to voice and data intelligence when and where it’s needed, so that they can communicate as a team with the touch of a button and a coordinated response can happen in seconds, not hours or minutes.

Standards make True Interoperability possible.

True Interoperability is based on the user-developed Project 25 standard, a digital benchmark for wireless communication networks to ensure the safety and security of communities around the world. Currently operating in 54 countries, supported by 13 Public Safety associations and the federal government and supplied by 16 providers, solutions built using this cost-effective standard are backward compatible with current investments and forward compatible with next generation communication devices and networks, regardless of manufacturer.

Commercial networks are *not* designed for critical incidents. Since they are not based on the Project 25 standard, they cannot communicate with other standards-based networks. They can only “interoperate” with their own networks or via telephone. Commercial carrier systems can also become overloaded or lose power and service in a disaster, leaving responders in a dangerous, potentially life-threatening situation.



5 Steps to True Interoperability

1. LEADERSHIP

- Creating a team helps you answer questions about current and future requirements
- Establishes a workable governance model

2. PARTNERSHIP

- Bring officials from the involved agencies together
- Agree on funding
- Select the technology solutions
- Manage the cultural change

3. PLANNING

- Determine best practices, leveraging the experience of others
- Include end users to facilitate the adoption of standard policies and procedures
- Actively prepare for migration to new technology and operations

4. FUNDING

- Cost sharing lets stakeholders enjoy economies of scale
- By consolidating communications, planning and operations across departments, administrative and personnel costs can also be controlled

5. PRACTICE

- Regularly practicing the plan is essential to its success
- Review the plan periodically to ensure that all stakeholders are ready for action

5 "Regional Communications System Plays Vital Role in Resolving Two High School Shootings," *The Police Chief*, November 2001, page 55

6 *Strategies for States to Achieve Public Safety Wireless Interoperability*, NGA Center for Best Practices, March 12, 2004

In an emergency, the need for True Interoperability is obvious.

The case for interdependence through True Interoperability becomes even clearer in a critical incident. For example, San Diego County, California, was faced with a horrifying situation when school shootings happened twice in 17 days.

The county had an emergency response plan in place and its Regional Communications System provided the True Interoperability needed for all of the agencies dispatched to talk to each other and coordinate efforts at the scene. **Former San Diego County Assistant Sheriff Tom Zoll put it this way: "We never would have been able to handle these incidents as efficiently if we had to depend on the many communications systems used by individual county agencies only a few years before."**⁵

True Interoperability doesn't mean giving up autonomy.

Issues around interoperability are not just about technology or funding. Being interoperable is also about changing processes and culture and determining how independent agencies become interdependent—perhaps the biggest challenge. However, through True Interoperability, each independent agency still controls its own communication, yet with the flip of a switch, communicates with other groups.

UCAN: A model of True Interoperability.

An excellent example of statewide True Interoperability is UCAN (Utah Communication Agency Network). Created for the Salt Lake Games in 2002 by the Utah legislature, UCAN manages a multi-jurisdictional, shared communication system and includes local law enforcement, fire and EMS departments, state agencies and the U.S. Forest Service.

This kind of interdependence has been invaluable for the agencies within Utah. **"With this communication system, 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,"** explained Gary Whatcott, former UCAN chairman and South Jordan, Utah, fire chief. **"Before we had this capability, there were more than 100 individual communication systems in use that provided no interoperability."**

The National Governors Association Center for Best Practices offers excellent guidance on how to institutionalize a governance structure that fosters collaborative planning among local, state and federal government agencies.⁶

Requirement 2

Critical Networks

“Always Available”

⁷ *Our Determination, Our Destination: A 21st Century Economy*, State of the State Address, January 22, 2004, available at www.michigan.gov

What is a Critical Network?

Unlike commercial carrier systems, which are designed for the general public’s use, Critical Networks are created specifically for Public Safety situations. They are an “always available” lifeline for responders that provides up-to-date information at all times.

In many emergency situations, commercial systems become overloaded, or worse, they lose power. When a disaster hits, the public reaches for cell phones—resulting in overloading commercial systems or a down network. Public Safety simply can’t afford to be without communications.

According to City of Austin Project Manager Robert Turner, “The risk that anyone runs by using a commercial system is that you’re just another customer. On our system, our folks are the users and they have direct input into how the system is operated. And if you ask any firefighter or police officer or paramedic out there, that’s the most important thing because their lives depend on it.”

Being “always available” makes the difference in a crisis.

With a Critical Network, police, fire and government agencies can count on calls going through. Other options, such as switches, can be used for planned

events, but without thorough planning and coordination up front, they are ineffective in an emergency situation.

“Always available” Critical Networks are already in operation throughout the world providing True Interoperability of voice and data when and where needed. During the August 2003 Blackout, the state of Michigan’s over 12,000 public safety radios experienced no interruptions in communication. This was a marked contrast to the commercial carrier networks in Michigan and surrounding states.

By creating a statewide network designed for catastrophic situations and events, Michigan had complete control over their network. **According to Governor Jennifer Granholm, “During the Blackout, our State radio system was the only [radio system] in the state that performed flawlessly and continued to provide uninterrupted communication for police personnel, fire fighters and emergency medical teams.”⁷**

Data is as critical as voice.

With a Critical Network, real-time data is provided at high speeds and multiple applications can operate simultaneously at varying data rates. Because the network is built only for public safety use—the public has no access—and all data is encrypted for security, responders have complete control.



“Pre-emptive data is critical from a public safety standpoint. It makes you take a new approach with a heightened awareness, not only for yourself, but also for the people that you’re trying to protect...or save.”

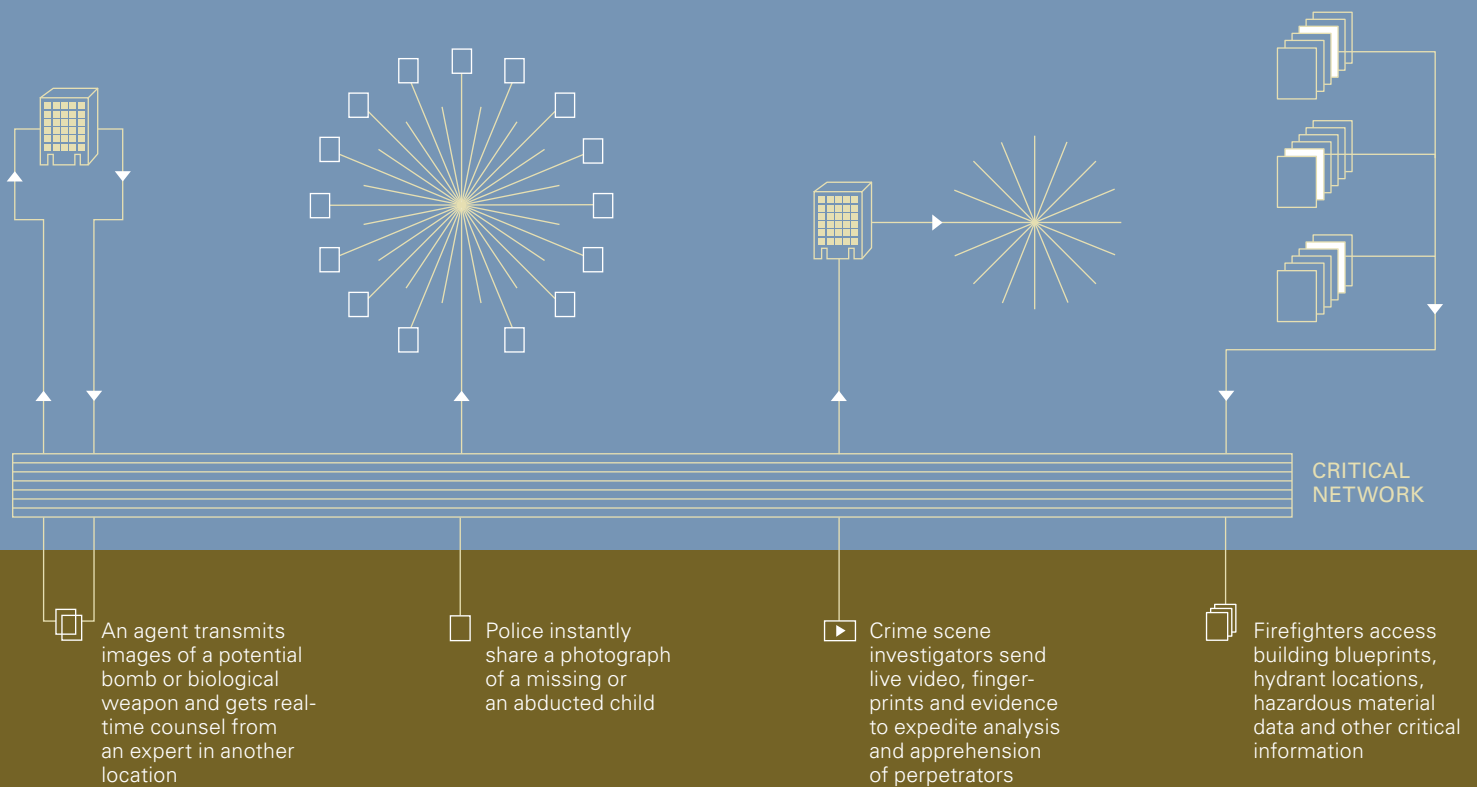
—STEVE JENNINGS, CHIEF INFORMATION OFFICER, HARRIS COUNTY, TEXAS

Requirement 3 Mission Critical Data

The Power of Pre-emptive Intelligence



Examples of Mission Critical Data Uses



What is Mission Critical Data?

Today, wireless data makes it possible for responders to share information securely wherever they are. By sending Mission Critical Data directly to the officer on the street and the fire fighter in the truck, they can be better prepared to detect, prevent and respond in critical incidents—and feel more confident at the scene.

Mission Critical Data is intelligence delivered to users on a reliable, secure IP-based Critical Network with high-speed performance and integrated applications. It's information that's instantly shared by all responders who can benefit from its collective value, whether they're on the front line or in the dispatch center. It also helps keep officials up to date and prepared when they arrive on scene.

Mission Critical Data offers unprecedented flexibility to users.

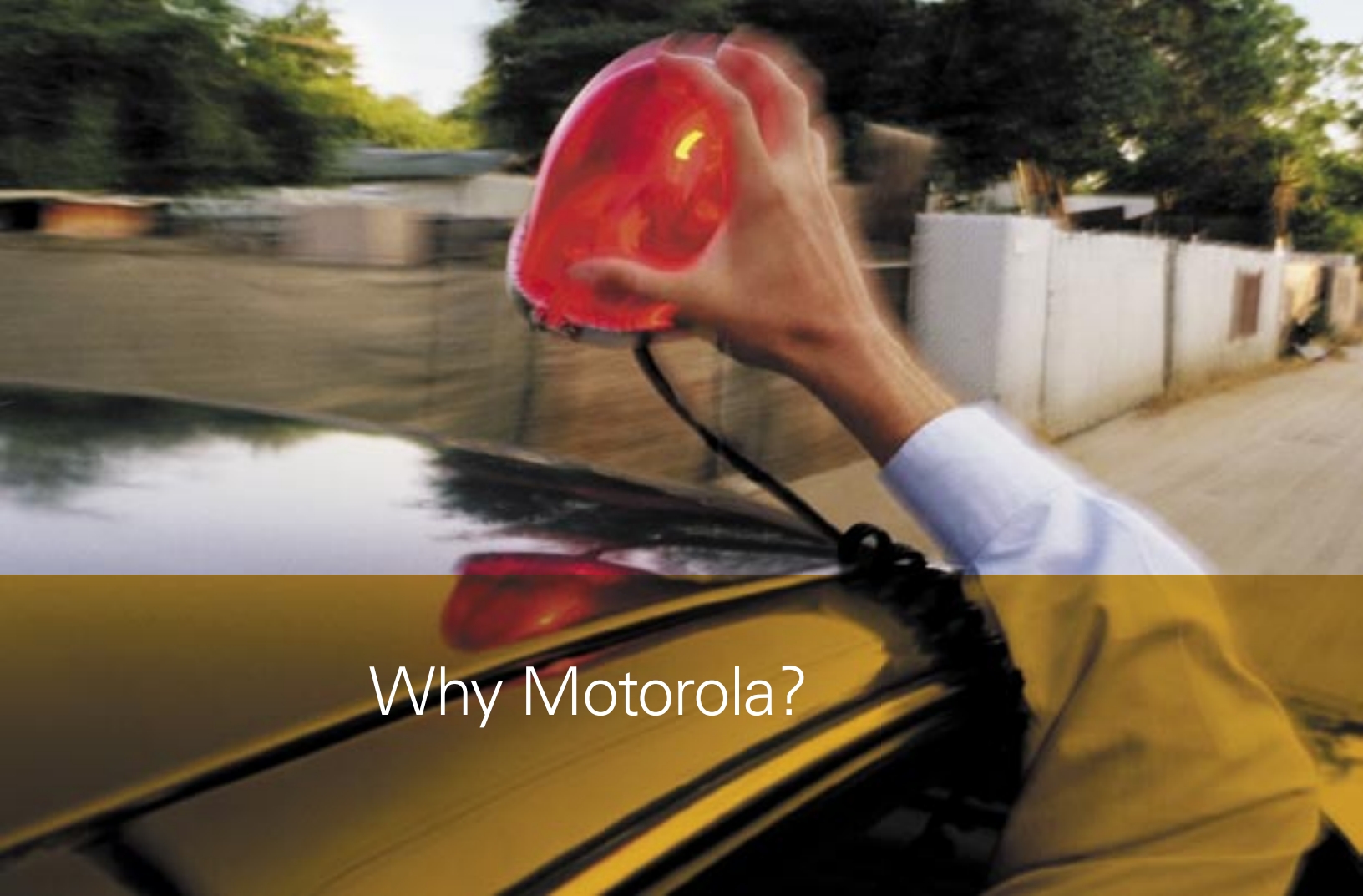
By allowing its users to customize data and voice capabilities, capacity and coverage to maximize critical performance, Mission Critical Data provides Public Safety organizations with the flexibility to coordinate and respond to urgent situations with increased effectiveness. Outcomes of situations can be redefined with the use of this pre-emptive intelligence.

Mission Critical Data provides users with intelligence due to sophisticated routing. The network knows how, when and where to send, manage, present and archive information. There are also numerous applications, from license plate look-ups to sending fingerprints wirelessly, so users can help prevent and respond to incidents more effectively.

Mission Critical Data provides added security.

An additional benefit of Mission Critical Data is the invaluable effect it can have on a responder's peace of mind. **Captain Jutta Chambers of the Henderson, Nevada, Police Department explains: "When you are in the business of solving crimes and saving lives, failure is not an option. We need to get the right information immediately to those that need it. It is mission critical that our technology is able to assist us in achieving these goals."**

Furthermore, when a responder knows that the necessary tools and information will be there when and where they're needed, it can translate into a more secure community.



Why Motorola?

Trusted by those on the front line.

Over 65 years ago, we began providing responders with voice communications. We continue our commitment to Public Safety by providing advanced voice and data solutions that set the standard in the increasingly complex Mission Critical world. Only Motorola offers this unique combination of innovative technology, extensive market experience and the ability to design, integrate and implement seamlessly the multiple technologies you need today for a truly Mission Critical Solution.

Motorola Mission Critical Solutions are performance tested before a crisis hits.

The confidence that the Public Safety community has in our products is one of the reasons that Motorola powers the majority of existing statewide networks. Like Michigan, Connecticut also found that the Blackout was a successful test of their Motorola system's capabilities. **Lt. Col. Ralph Carpenter of the Connecticut State Police explained: "The investment that the Connecticut State Police made in our communications system was well worth it. During the Blackout of 2003, our system operated without any interruption, while numerous other communications systems failed."**

Both the Michigan and Connecticut networks were ready for a crisis. Through our customized process for testing and fully optimizing networks before they are installed, we're able to reduce installation cycle time and provide an extra level of assurance that the network is ready to perform, especially when it's needed most. **Bob Eanes, Chesterfield County, Virginia, Administrator, explained: "No doubt they put our system through tests that we'll never see in Chesterfield County."**

A Motorola Mission Critical Solution is designed with the highest levels of network performance and availability in mind. Reliability, redundancy, security and network management should be regularly evaluated and enhanced. Motorola has the expertise and support services to help you maximize your investment throughout its entire lifecycle.

5 Important Questions to Ask When Choosing a Mission Critical Solution

- Does the provider offer extensive market experience?
- Is the solution performance tested and designed with the highest levels of network performance and availability in mind?
- Does the provider offer the ability to design, integrate, implement and support multiple technologies seamlessly?
- Can the provider develop migration plans that work within your budgets and system needs?
- Is the solution standards-based, allowing compatibility with multiple agencies and jurisdictions?

Each Mission Critical Solution is specific to each agency's individual needs.

Every approach must fit the needs and circumstances of the agency and the migration must be at a pace that's appropriate. That's why we offer a suite of life-cycle services and integrated solutions that can provide your organization with maximum preparedness. Because of our deep understanding of the Public Safety environment, we have the resources and experience to help you look at your own unique situation, budget, geography and personnel to create a Mission Critical Solution that's right for your agency.

What can you do as a decision-maker?

You're already taking the first step. By educating yourself about new and emerging technologies, you'll understand what's involved in their implementation and help your agency take full advantage of the funding available for improving Homeland Security.

Next, you'll want to explore technology choices and supplier capabilities and look for field-proven experience. Once you compare all of the options, you'll find only Motorola offers a complete solution—including experience, technology and peace of mind. We're committed to bringing you the knowledge, innovative thinking and support services you need so you can focus on what you do best—serving and protecting the public.

To continue your ongoing commitment to education, we invite you to subscribe to the Motorola Mission Critical Solutions series. You'll receive in-depth white papers on important Public Safety topics, including True Interoperability, Critical Networks and Mission Critical Data. Simply visit www.motorola.com/missioncritical or call 1-800-367-2346.

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Looking out for the needs of Public Safety...for over 65 years.

Motorola is the leading provider of interoperable communications systems for Public Safety, First Responders and government agencies. Based on our unique experience, we have an in-depth understanding of the flow of an emergency, from initial dispatch through final resolution.

Our experience, skills, people, partnerships and alliances enable us to integrate innovative technologies designed to help your organization share information with ease and confidence. When it comes to the needs of Public Safety and First Responder communications, we are committed to bringing all of our knowledge and technical experience together so you can focus on what you do best—serve and protect the public.



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