



Interoperability • Today

A RESOURCE FOR THE PUBLIC SAFETY COMMUNITY

DIRECTOR'S MESSAGE

Introducing **YOUR** Newsletter: Interoperability • Today

Welcome to the inaugural edition of *Interoperability Today*, published by the Science and Technology Directorate's Office for Interoperability and Compatibility (OIC) and the SAFECOM Program. As its name implies, this newsletter is about interoperability – the ability of emergency response systems or products to work with other systems or products without special effort on the part of the user.

Most of you are familiar with SAFECOM, the umbrella program within the Federal government designed to help local, tribal, state, and federal public safety agencies improve response through more effective and efficient interoperable wireless communications. SAFECOM is the first national program of its kind designed by public safety for public safety.

Building on the SAFECOM "bottom up" approach, the OIC was launched in October 2004 as the first practitioner-driven, national office designed to coordinate all interoperability efforts for the public safety community across all levels of government. The OIC

will focus its efforts on three major areas – communications (SAFECOM), equipment, and training.

In the same way that the OIC and SAFECOM are distinct from other interoperability programs, this newsletter is unlike most other program-sponsored newsletters in that it is designed to go above and beyond basic program updates and highlights to provide you with in-depth coverage of broad issues that affect you and your efforts to improve interoperability in your region, state, or community.

This newsletter will be dedicated to providing "news you can use" regarding interoperability in public safety communications, equipment, and training. This inaugural issue is focused on communications. Future issues will focus on other aspects of interoperability. Regular features will include a "Spotlight" profile of an individual and his/her contributions toward improving interoperability, an "Interoperability Insights" section designed to keep readers up to date on key, priority issues pertaining to interoperability, and an "Industry Report"



including in-depth articles on equipment, the equipment marketplace and technical solutions. Just as the OIC and SAFECOM are your programs, *Interoperability Today* is your newsletter. We hope that it will serve as a valuable tool that will benefit the public safety community at large as we continue working together to improve public safety interoperability.

David Boyd, Ph.D.

Director, Office for Interoperability and Compatibility (OIC)
Director, SAFECOM

INTEROPERABILITY INSIGHTS

Spectrum: Key to Improving Public Safety Communications in 2005

Interoperability Insights will be featured in every issue of *Interoperability Today*. Written from a federal perspective, this section is designed to keep readers up to date on priority issues that affect interoperability.

The public safety community will be paying close attention to the 109th Congress as it takes up the critical issue of reallocating spectrum for public safety communications. This new spectrum in the 700 MHz band will enhance first responder communications and interoperability across the nation.

The 700 MHz band has long been used for analog TV channels. However, as part of the transition to digital television (DTV), stations on those channels will be required to vacate the spectrum December 31, 2006, or when 85% of households have access to DTV, whichever is later. Pursuant to a congressional mandate, a portion of this newly vacated spectrum has been reallocated specifically for public safety communications, and the Federal Communications Commission (FCC) has established technical and operational rules for public safety use of the spectrum.

Public safety experts agree that the disposition of the 700 MHz spectrum must be quickly resolved or

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Homeland Security

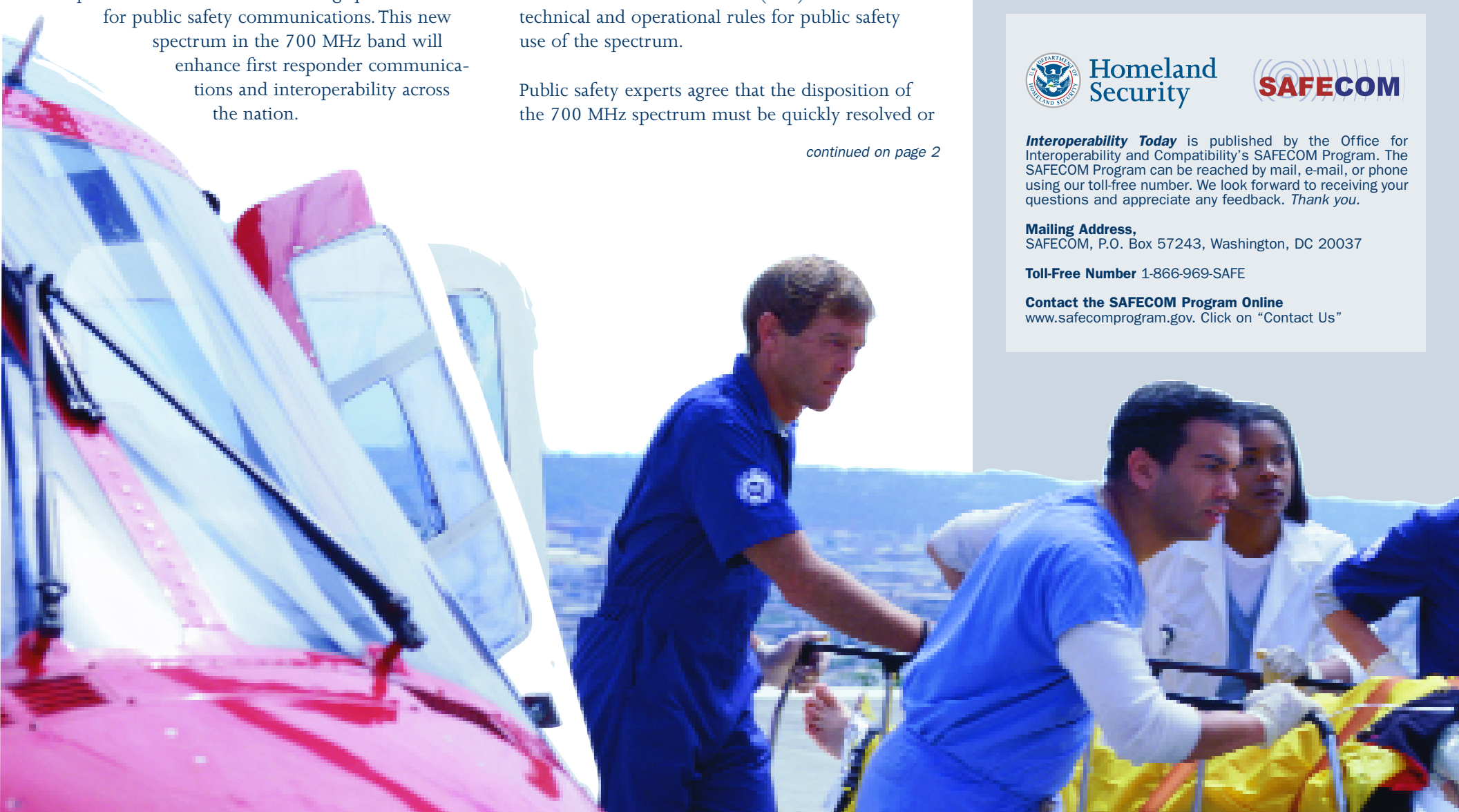


Interoperability Today is published by the Office for Interoperability and Compatibility's SAFECOM Program. The SAFECOM Program can be reached by mail, e-mail, or phone using our toll-free number. We look forward to receiving your questions and appreciate any feedback. *Thank you.*

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planning leading toward interoperability could be stalled. So far this year, the House Energy & Commerce Committee has held hearings on proposals to establish a firm end-date for the DTV transition. Much of the focus to date has been on mitigating the impact on those households that still rely on over-the-air television. If Congress manages to pass band clearing legislation, the 700 MHz band will finally be available for public safety use.

The 700 MHz band is particularly beneficial for interoperability due to its proximity to the 800 MHz band, where many public safety systems already operate, and because the new spectrum will provide capacity for new and expanded multi-agency radio systems.

While the original public safety allocation in the 700 MHz band is for a total of 24 MHz, there has been increasing interest in identifying additional

spectrum in the band for high-speed mobile broadband capability. The Intelligence Reform Act included a requirement that the FCC and DHS study public safety spectrum needs, including the need for new broadband spectrum, and to report back to Congress by December of this year.

For more information on spectrum efforts, visit www.safecomprogram.gov.

SPOTLIGHT

Spotlight On Chris Essid

*Interoperability Coordinator,
Commonwealth of Virginia*

Chris Essid understands what it is like to rely only on radio communications during potentially dangerous situations. During the 1990's, Essid served with the U.S. Army Military Police with postings both abroad and at home. While stationed in Germany, he was charged with providing round-the-clock security for a top-secret military imaging facility. At any given time, three or four officers would be guarding the facility. Essid knew that number could be quickly overrun so he depended on his radio to share information with other officers on duty, confident that he could call in more troops for back-up if needed.

"If the radio didn't work, it put me and everyone else in the field at risk," Essid said.

Fast forward ten years and Essid serves a role where radio communications are as important as ever. He now holds the post as the first Commonwealth Interoperability Coordinator (CIC) for the state of Virginia – a position he has held since December 2003.

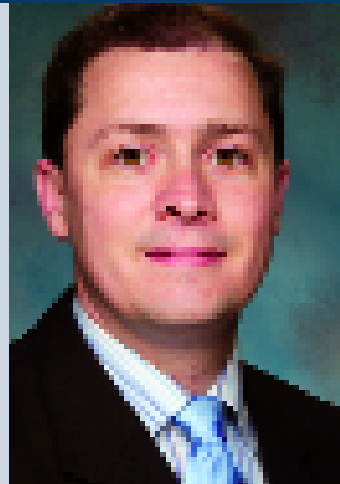
Essid's first major task as the CIC was to develop a statewide communications interoperability plan. Drawing heavily on his first-hand military training and experience, Essid knew that he should call on other field specialists for help tackling his task, so he immediately turned to the people he calls "the experts"—men and women who rely on radio communications daily, often in life and death situations. To encourage collaboration from practitioners in the field, Essid also enlisted the support of SAFECOM.

Beginning in February 2004, Essid and SAFECOM convened six focus groups of first responders representing 39 localities across Virginia. They were asked to assess and analyze existing interoperability in their areas, and to detail what they needed to enhance it.

In each focus group, Essid said that he was continuously reminded that radios are of vital importance to the public safety community. At one gathering of police officers, the group was asked which was more important, "Your weapon or your radio?" One of the officers put both on the table. He pointed to his weapon and said, "I've used this once in 15 years. But, I use this radio 20 or 30 times a day to relay information or call for support."

Overall, Essid said he heard two things in both urban and rural areas across Virginia that became his top priorities—first, training to date has been inadequate, and second, plain language, rather than code, is needed to assist with interoperability in crisis situations. Essid said he had not anticipated the consistency of information that would be garnered from the focus groups.

"We were very surprised that 75% of what we got from each focus group held true for others." It was this level of consistency that has made Essid's job easier going forward. "It reinforced the need for a



strategic plan to address the challenges out there that were universally agreed upon."

Essid, who has a Masters of Public Administration from the University of Oklahoma, determined that the next step in the process of fostering statewide interoperability in

Virginia would be to generate a plan based on the input from the focus groups. In May 2004, again supported by SAFECOM, Essid convened a working group of leaders from the public safety community for a strategic planning session in Richmond. The input from the focus groups was carefully reviewed and became the basis for the Commonwealth of Virginia Strategic Plan for Communications Interoperability, released this past fall after being signed by the state's Governor, Mark Warner.

The plan outlines a strategy for the next two years and sets four high-level goals based on some of the input from the focus groups. They include:

- Establishing interoperability as a high priority, including conducting a campaign to raise citizen awareness and developing a strategy for getting funding to local officials;
- Expanding statewide use of common terminology and coordinated communications protocols;
- Maximizing existing communications systems and coordinating planning for future technology purchase; and
- Enhancing proper use of communications by providing frequent and routine training, such as tabletop exercises, and then analyzing and sharing lessons learned.

The plan also incorporates important performance measures, such as ensuring that local and regional government representatives make up at least half of Virginia's State Interoperability Executive Committee and Advisory Committee by June 30, 2005.

Essid said the first 90 days of roll out and the initial phases of implementation will be critical to the eventual success of the plan. Essid, who said he took his current job because it gave him an opportunity to make a difference in people's lives, now finds himself overseeing this critical process. "We are taking things one step at a time to make sure that we can better protect the people of Virginia."

He also said he is approaching his new position with an open mind.

"My field experience was limited to my Army experience, so I know there are limits to my knowledge," Essid said. "I came in with no assumptions, on the front end. I learned as I went, and I was amazed at the information that I got."

Essid emphasized that the Strategic Plan is currently in its first phase of implementation and will probably undergo changes before the final goal is reached. But one thing will remain constant—the involvement of local public safety teams.

"That's why we went to them in the first place: we wanted to get it right," Essid said.

Q&A with Chris Essid

Chris Essid is originally from Lexington, Kentucky. He lives in Hanover, Virginia with his wife, Susan and their son, David.

Q. What has been your biggest interoperability challenge?

A. Getting everyone involved to coordinate.

Q. What do you think is the best interoperability solution?

A. Technology that hooks up various systems across various frequency bands and/or databases which allows systems to become compatible.

Q. What prepared you for your current job?

A. Nothing could prepare anyone for this challenge. It is kind of like jumping out of a plane and skydiving, you have no idea what it is like until you are doing it.

Q. What have you learned from your job?

A. That the various localities, state and federal government agencies all have more in common when it comes to interoperable communications that we first thought.

Q. If you weren't doing this type of work, what would you do?

A. Hard to say what I would be doing but if I never got out of the Army Military Police I would be 8 years away from retirement!

IN YOUR OWN WORDS

Florida's Statewide Interoperability Network – the Real Super Bowl Champion

By Marilyn Ward



From clarifying play calls to expediting requests for a “coach’s challenge”, wireless technology has played a key role at the Super Bowl in recent years, enhancing communications between coaches, players, and officials. This year, the real success story was the way wireless

technology improved communications off the field.

A new interoperability network for public safety wireless communications was implemented in Jacksonville, Florida for Super Bowl XXXIX. This network enables law enforcement, fire, and emergency medical services agencies, using different radio systems and frequencies throughout the state, to communicate with one another. It also allows for communication between headquarters and dispatchers across the state. The State Technology Office (STO) anticipates that all Florida counties will be connected to the system by the end of 2005. This will make Florida the first state in the nation to have a truly seamless, statewide interoperable first responder radio system.

Major national events like the Super Bowl create tremendous challenges for public safety officials in any city, let alone Jacksonville – the smallest city to ever host the “big game”. Overall event security, security for the players and VIPs, traffic control, parking, crowd management, a week of pre-game festivities,

and the participation of two former U.S. Presidents necessitated a level of unprecedented coordination at the local, state, regional, and federal levels.

For such coordination across agencies and levels of government to be successful, planning must begin – at a minimum – months in advance. Fortunately in Florida, this planning process was underway long before anyone knew the Philadelphia Eagles would meet the New England Patriots at ALLTEL Stadium.

Florida's Interoperability Project: Background

Shortly after 9/11, Governor Jeb Bush met with members of Florida's law enforcement community and commissioned a “cross-entity” committee – including first responders, members of the business community, and representatives of other public and private sector entities – to form Regional Domestic Security Task Forces. Working in close collaboration with the State Working Group on Interoperable Communications and the Florida Executive Interoperable Technologies Committee, and with the support of the Domestic Security Oversight Board, these Task Forces quickly identified development of a statewide interoperability network as a priority initiative.

One major benefit resulting from this locally-driven approach is that first responder entities from local, regional, and state levels have been involved in developing the project's specifications, selecting products, and making implementation decisions from the outset. “Participants were able to examine interoperability challenges on a statewide basis

rather than just from their local or regional perspective,” said Tom Sorley, Supervisor of Orange County's Public Safety Communications Division.

In addition, this model succeeded in building awareness of resources and trust among agencies. “Prior to working together on the Task Forces, most agencies had very little awareness of available resources outside of their own,” said Sorley. “Now, they are talking, sharing – they know who has what and they know where to go to get what they need.”

The Project

The ultimate purpose of the Interoperability Project, as it became known, was not to identify one “across the board” solution, but to identify and implement interoperability solutions that are always available and can be accessed statewide.

The project team developed a two-pronged strategy for improving statewide interoperability. The first task is to provide network connections between all Florida dispatch centers with an interoperability tool which 1) connects disparate radio systems; 2) provides intercom/conference capability between dispatch centers; and 3) allows remote access to radios. The second task is to build out an additional ten mutual aid channels throughout the state. A critical objective for both of these tasks is to serve all first responder entities statewide while maintaining the autonomy of local systems.

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STATE REPORT

South Dakota: Radio System Brings Interoperability to Mount Rushmore State

South Dakota is a state with fewer than 800,000 residents. Sioux Falls is its only city with a population of more than 100,000. The average community in the state is home to about 500 people. In spite of this low population density – or perhaps even because of it – South Dakota is a leader in establishing truly interoperable public safety radio systems.

It was the forces of nature rather than terrorism that gave South Dakota leaders their first-wakeup call about the need to improve interoperability. In May 1998, a fierce tornado touched down in city of Spencer. According to a National Weather Service report, the storm center “damaged or destroyed beyond repair” nearly all structures in the area. First responders from neighboring communities flocked to Spencer. When they arrived on the scene, no one could communicate via radio, according to Otto Doll, Commissioner of the South Dakota Bureau of Information and Telecommunications.

South Dakota firefighters faced similar challenges during a series of widespread fires in the Black Hills. In the process of battling those fires, many of them on federal land, firefighters realized that in some instances they could not communicate among one another, much less with medical personnel or federal officials responding to the emergency.

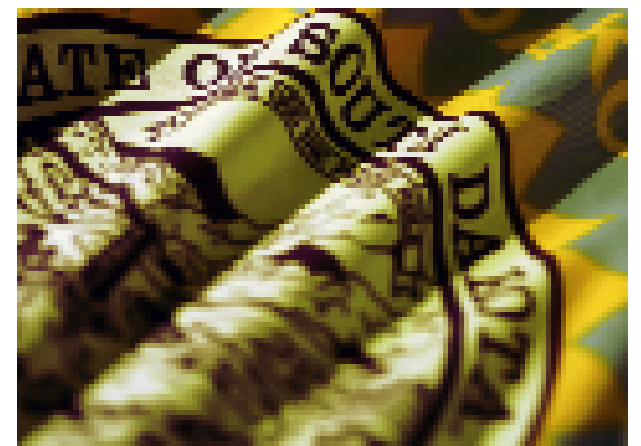
Faced with challenges like these as well as more routine incidents such as snow storms, South Dakota officials devised a plan that would lead them toward complete interoperability. The overall goal was to get more than 10,000 public safety

officials from the local, state, and federal levels onto a system that would allow them to communicate seamlessly in a crisis.

In 1999, the state legislature approved a bill requiring eight state agencies to integrate their telecommunications functions into a single network. The state allocated \$4 million for the work, and secured funding from a variety of additional sources. These included a \$7 million grant from the Office of Community Oriented Policing Services (COPS) within the U.S. Department of Justice (DOJ) plus a \$1 million grant from the National Highway Traffic Safety Administration (NHTSA).

The new system, called State Radio, would incorporate a minimum of four trunked channels – one to run the system, and three to handle radio calls. Each of the trunked channels can support between 75 to 100 radio users. The system also incorporates “talk groups or agency groupings established with the cooperation of local users. These talk groups allow for private conversations within a group and operate like a dedicated channel. Up to 256 talk groups can be programmed into the system; not all are in use, but the additional capability allows for future growth.

The new system was phased in, beginning with the Black Hills/Western South Dakota region, followed by the eastern and central parts of the state. State Radio is now fully operable, and South Dakota has been recognized as one of the leading states in creating an interoperable public safety radio system.



The system today links more than 10,000 firefighters, law enforcement officials, emergency medical personnel, transportation providers and federal public safety officials. It also serves all hospitals, emergency rooms and clinics in the state as well as ambulances that service those facilities.

The system is valuable not only in situations that would be found in every state, but also in situations that are unique to South Dakota. For instance, each year thousands of motorcycle enthusiasts converge on Sturgis, South Dakota for an annual rally in the Black Hills. The event, the largest of its kind in the world, presents its own public safety challenges—doubling the population within that part of the state for about two weeks each summer and causing serious traffic congestion. This obviously requires an increase in the number of law enforcement and

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In Your Own Words • continued from page 3

In order to accomplish the first task – establishing the Interoperability Network – the state contracted with Motorola to implement a solution known as MotoBridge.

MotoBridge is a newly developed, IP-based, soft switch technology that allows first responders across disciplines and levels of government, to communicate with one another regardless of the type of system or frequencies they normally use.

MotoBridge will service over 200 local public safety dispatch centers in all of Florida's 67 counties. By leveraging current state resources, this system will network existing radio systems and dispatch centers utilizing the state's Intranet, existing telecommunications providers, and existing facilities.

"It is the backbone of our network," according to Captain Randy Kerr, of the Alachua County Sheriff's Office. "By allowing for standard resources to be used across the state, MotoBridge provides a great deal more flexibility. This is particularly true for units responding to incidents outside of their jurisdiction – they know they can bring their own radios and be operational when they arrive on the scene."

State Report • continued from page 3

medical personnel serving the area. Now, State Radio is available to link all public safety personnel that support this event, ensuring the safety of the participants, organizers and the local community.

Otto Doll oversaw the process of implementing South Dakota's interoperability plan. His first step was to survey everyone in the state who used radio communications for public safety purposes. The survey yielded information about what equipment was currently in use, what localities had recently upgraded their technology, and who was using outdated equipment.

Doll says the greatest challenge in getting the system up and running was securing adequate spectrum to support the increased communications activity. According to Doll, South Dakota is the only state to have secured frequency by participating in a Federal Communications Commission (FCC) auction.

"You can never underestimate the challenge you are going to have with spectrum. You really have to take it on because if you are waiting for the Federal government to fix it and for things to just somehow magically align, I don't think it's necessarily going to happen. You're going to have to take that bull by the horns and wrestle it to the ground and get what you need," Doll said.

The second task, the mutual aid channel build-out, will provide a sort of "on ramp" to the new network by providing additional access. The state has contracted with M/A-COM to complete the build-out, including installing and testing equipment, by June 2006.

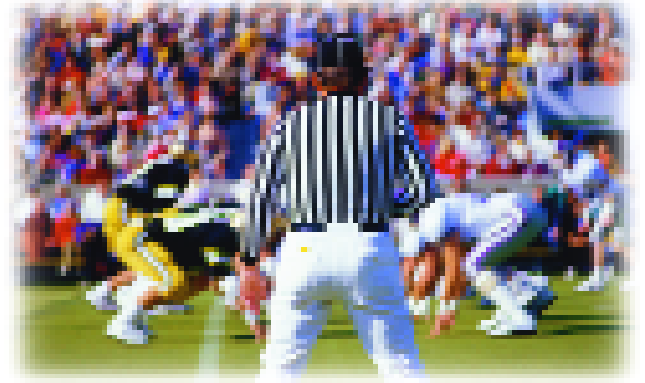
The beauty of the Florida plan for statewide interoperability is that it does not rely on any one technology – during the Super Bowl, there were at least 6 solutions available for implementation, including the Statewide Law Enforcement Radio System (SLERS) and the EDICS (Emergency Deployable Interoperability Communications System) package.

Super Applications, Super Results

Thanks to Florida's Interoperability Network, the agencies providing security at the Super Bowl, including city, county, state, and federal, most of which operate on different radio systems, were able to communicate effectively throughout the event. It was a public safety success story for both the city of Jacksonville and the state of Florida. Lessons learned will be used to finalize policies and procedures moving forward as the system is installed and tested throughout the state.

To learn more about Florida's Interoperability Network and mutual aid build-out projects, visit <http://sto.myflorida.com/slrs/>.

Marilyn Ward is the Manager of the Public Safety Communications Division for Orange County, Florida. A Past President of the Association of Public-Safety Communications Officials (APCO), and a past member of the National Task Force for Interoperability (NTFI), she currently serves as Chair of the National Public Safety Telecommunications Council (NPSTC), and is a member of the SAFECOM Executive Committee. Ward has also been recognized as the "Most Influential Leader in Public Safety Communications Nationwide" by Radio Resource magazine.



UPCOMING

Events & Conferences

This listing includes information about upcoming events and conferences pertaining to interoperability.

International Symposium on Advanced Radio Technologies (ISART)

March 1-3, 2005
Boulder, CO

National Sheriffs' Association Mid-Winter Meeting

March 2-5, 2005
Washington, DC

National Association of Counties (NACo) Legislative Conference

March 4-8, 2005
Washington, DC

National League of Cities Congressional City Conference

March 11-15, 2005
Washington, DC

International Wireless Communications Expo (IWCE)

April 4-8, 2005
Las Vegas, NV



PUSHING PROGRESS

The Interoperability Continuum

Pushing Progress: The Interoperability Continuum will be featured in every issue of Interoperability Today. It will showcase real-life achievements and solutions demonstrating progress along the lanes of the Interoperability Continuum — a framework for evaluating interoperability improvement efforts. This issue features an introductory overview of the Continuum, which was developed by SAFECOM in collaboration with the public safety community.

With input from the public safety community, SAFECOM created the Interoperability Continuum as a tool for local, tribal, state, and federal policy makers addressing interoperability challenges. Essentially, the Continuum identifies five critical success factors -- governance, standard operating procedures, technology, training and exercises, and usage – that must be addressed to develop comprehensive interoperability solutions. In doing so, the Continuum allows public safety agencies to evaluate their progression along each element.

Making progress in all aspects of interoperability is essential, since the elements are interdependent. Therefore, to gain a true picture of a region's interoperability, progress along all five elements of the Continuum must be considered together. For example, when a region procures new equipment, that region should also plan training and conduct exercises to make the best use of that equipment.

The five critical elements of success as defined by the Interoperability Continuum are:

1. **Governance**
A common governing structure will improve the policies, processes, and procedures of any major project by enhancing communication, coordination, and cooperation, establishing guidelines and principles, and reducing any internal jurisdictional conflicts. A formal governance structure is critical to the success of interoperability planning.
2. **Standard Operating Procedures**

Standard operating procedures (SOPs) are formal written guidelines or instructions for incident response. SOPs typically have both operational and technical components.

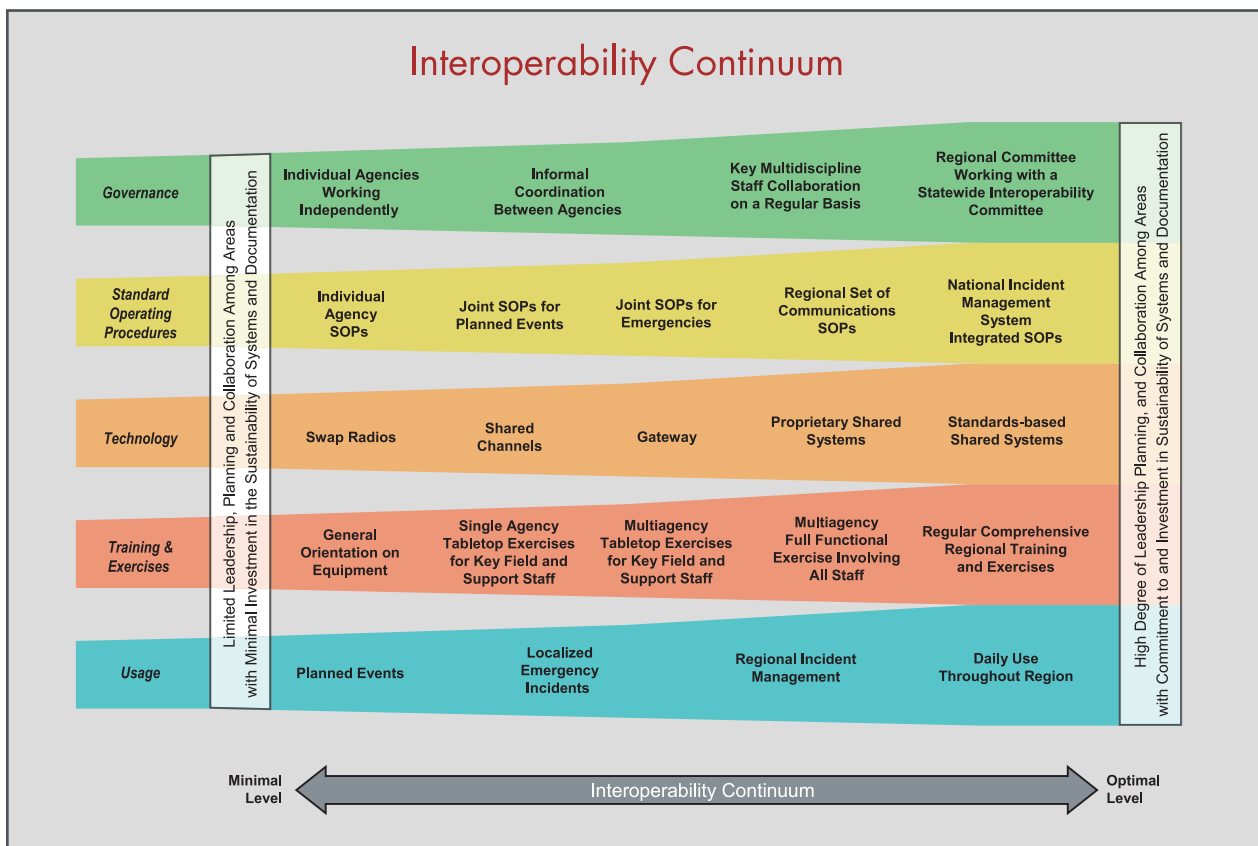
3. **Technology**
Technology is highly dependent upon existing infrastructure within a region. Multiple technology solutions may be required to support large events.

Although technology is a critical tool for improving interoperability, it is not the sole driver of an optimal solution. Success in each of the other elements is essential to its proper use and implementation, and should drive technology procurement.

4. **Training and Exercises**
Proper training and regular exercises are critical to the implementation and maintenance of a successful interoperability solution. Proper training will ensure that first responders are prepared to use technology/equipment correctly and effectively and are familiar with appropriate operational procedures when responding to incidents.

5. **Usage**
Usage refers to the number of times interoperable communications technologies are used. Success in this element is contingent upon progress and interplay among the other four elements on the Interoperability Continuum.

The Continuum is available on the SAFECOM program Web site, <http://www.safecomprogram.gov>.



INDUSTRY REPORT

Tech Leaders Convene at ISART

The seventh annual International Symposium of Advanced Radio Technologies (ISART) will be held March 1-3 in Boulder, Colorado. The event is considered one of the most important opportunities for government, business, and academia to convene in a common forum to discuss issues related to the development of radio technology.

ISART is dedicated to bringing together technical researchers, business leaders, government policy makers, and regulators for the purpose of forecasting the development and application of radio frequency technologies into the next decade. ISART organizers agree that for those who want to learn about the future of radio and wireless technologies, this conference is a must.

"This is the beginning of the pipeline. It gives people like planners, decision makers and communications directors a look at the types of technologies and systems that could appear in the field in five or ten

years' time," said Tom Coty, SAFECOM's Director for Technology and Standards, who will be on-hand to help kick-off the event.

For instance, at the 1998 ISART Conference, attendees discussed the expected growth of Digital Signal Processing (DSP) and software defined radio. The impact of this technology can be seen today in compact digital cellular phone service, which uses DSP. Additionally, ISART has also addressed satellite delivery of internet services, which today is commonplace.

Coty will be one of three participants in the opening two-hour tutorial session on key developments in the industry. Coty will provide an overview of the SAFECOM Program and its mission and will detail several major SAFECOM initiatives, including the Public Safety Communications Statement of Requirements (SoR) released by SAFECOM last April and the Public Safety Architecture Framework (PSAF). Coty will focus on the role of research and

development efforts within the PSAF and suggest topics for advanced research related to public safety communication systems.

Also presenting during the tutorial session are Bob Matheson of the National Telecommunications and Information Administration (NTIA) and the Institute for Telecommunication Sciences (ITS), who will focus on flexible spectrum use rights, which would allow a wide variety of spectrum uses in a single general-purpose band; and Frank Sanders, also of NTIA and ITS, who will provide an overview on radar emissions. This session, introduced at the ISART conference last year, is meant to provide a solid foundation of knowledge and information upon which the other speakers can build.

The ISART keynote address will be given by Dr. Veena Rawat, Acting President of the Communications Research Centre Canada (CRC).

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Industry Report • continued from page 5

CRC is responsible for conducting applied research and development in communications and related technologies.

One entire session of the conference will be devoted to issues surrounding public safety radio. (The other six sessions will focus on spectrum occupancy, VoIP, wireless networking, signal location and tracking, emerging technologies, and ultra wideband.) Coty notes that the conference focuses on two areas of interest: technology that is “transitioning from the lab to demonstration towards production,” as well as findings that have implications for operational approaches, such as how to get better radio signals out of a structure.

ISART’s agenda for the three-day convention is determined to a great extent by the response to

its “call-for-papers” process. Rather than relying exclusively on invited papers, the Technical Program Committee takes its lead from potential presenters who show, through their submissions, what they believe to be important topics or issues. This allows for the development of technical sessions that might not otherwise have been considered. ISART organizers believe this process is critically important for a conference that is “intended to help forecast the development of the radio art” and help planners and attendees see beyond conventional ways of thinking.

Public safety community members emphasize that this is a very technical conference, and that the typical attendee is usually looking ahead. Such perspective can help ensure that decisions being made today will be relevant five or even ten years

down the road. Coty said that ISART is not designed to provide definitive answers, but to give people in the field the knowledge they need to ask the right questions.

ISART is sponsored by the Institute for Telecommunication Sciences, the research and engineering branch of the National Telecommunications and Information Administration (NTIA). NTIA is part of the Department of Commerce (DOC). The Boulder Laboratories of the DOC are also sponsors, as is the National Institute of Standards and Technology (NIST), a non-regulatory federal agency also housed in the DOC. For more information on this year’s conference, go to www.its.bldrdoc.gov/meetings/art/programs.php.

The U.S. Department of Homeland Security’s Science and Technology Directorate serves as the primary research and development arm of the Department, utilizing our nation’s scientific and technological resources to provide federal, state and local officials with the technology and capabilities to protect the homeland. Created by the Department of Homeland Security (DHS), the Office for Interoperability and Compatibility (OIC) oversees the vast range of public safety interoperability programs and related efforts throughout DHS. Priority areas include Communications (through the SAFECOM Program), Equipment, and Training.



**Homeland
Security**



Office for Interoperability and Compatibility
Science and Technology Directorate
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