



Interoperability TECHNOLOGY Today

A Resource For the Emergency Response Community

Fall 2007



Interoperability: A Canine Unit's Best Friend

Although they may not be able to flash badges, police canines are indispensable partners in a response operation's race against the clock.

Equipped with superior olfactory systems, police canines are able to make discoveries that may otherwise go undetected by an emergency responder's limited olfactory ability. The application of canine capabilities is versatile. Police canines apprehend suspects, track lost persons, detect explosives, protect officers, and uncover cases of arson and hidden narcotics.

A skilled, well-trained police canine is one piece of the equation for a successful canine operation. Timely responses also hinge upon the ability of a canine unit to effectively communicate with other responding agencies. For such a unit, typical emergency response operations involve multiple agencies, e.g., law enforcement units, fire response, emergency medical services, environmental police, and the Coast Guard. The complexity and magnitude of these operations require significant coordination and frequent cross-discipline communications. "A breakdown in communications between these agencies compromises the operation itself and the safety of units in the field," says Edward Mello, Chief of Police, Westerly (Rhode Island) Police Department.

Canine units regularly operate beyond their jurisdiction's borders—a factor complicating interoperable communications. These units have a formidable price tag—costing \$8,000 for a police canine and

approximately \$15,000-\$30,000 for start-up training, according to figures given by the United States Police Canine Association. For the Westerly Police Department, annual maintenance, care, and training costs alone average \$10,000. For many agencies, this price tag exceeds the limits of budgets already stretched thin. As a result, canine units are often shared across a region's jurisdictions. The limited supply of canine units also means that mutual aid operations in need of a police canine may find that the only available unit is more than 100 miles away.

For the Westerly Police Department's canine unit, says Mello, communicating with neighboring jurisdictions during mutual aid operations is not a problem since the region shares a communications system. Canine units responding farther afield, however, may face communications challenges. "In cases where our canine handlers' radio equipment is

not compatible [with the other responding agencies], the agency that called for support will assign one of its officers, who has a compatible radio, to accompany our unit."

As states develop interoperable communications plans and deploy new technologies, it is key to consider the needs of police canine units. "It's important for leaders to realize that canine units are used extensively across the state," says Mello. "Including canine unit representatives in the communications planning process ensures that canine handlers in the field have the procedures and equipment they need to coordinate with everyone."

For more information about police canine units, visit the North American Police Work Dog Association Web site at <http://www.napwda.com/>, and the United States Police Canine Association Web site at <http://www.uspcak9.com/>.



Interoperability Progress in Ohio Anything But Flat

The State of Ohio achieved a milestone in statewide interoperability when it implemented the Multi-Agency Radio Communications System (MARCS)—connecting more than 24,000 radios and 600 local, state, and Federal emergency response agencies.

The 800 Megahertz radio and data network uses digital trunked technology to provide the state's emergency responders with mobile voice, mobile data, and computer-aided dispatch capabilities. MARCS has successfully strengthened interoperable communications among agencies statewide, as well as emergency response partners in Michigan, Pennsylvania, Indiana, West Virginia, and Kentucky.

"No matter where you are—whether you're in one of the Nation's largest cities or in the most rural of areas—you need effective communications," says Darryl Anderson, Ohio MARCS Program Director and Co-Chair of the State of Ohio Interoperability Executive

Committee (SIEC). "Today, our National Guard can travel from the southern border of Ohio to the northern border of Michigan and never leave home."

The versatility and reliability of MARCS have yielded telling success stories. From a 100-plus agency manhunt for an escaped police killer to a police chief's bust of a stolen goods ring 100 miles away from his headquarters, MARCS has proven invaluable in ensuring effective communications. Last year, the system was put to a rigorous test during a major flood. The magnitude of the flood demanded a multidiscipline, multi-jurisdictional response, with water rescue units participating from across the state. The local fire chief who used MARCS to communicate with responding agencies informed Anderson that it was the first time in his 30-year career that communications had worked so well.

Impetus for Change

Interoperability success stories were not always commonplace in Ohio. In 1990, interoperability made headlines in the state when communication breakdowns compromised local response operations during a large flood near Shadyside. When emergency responders arrived on-scene, they discovered that their radios were incompatible—jeopardizing rescue and evacuation operations. Interoperability issues again topped the agenda of Ohio leaders after local emergency responders and the National Guard could not communicate during a multidiscipline response to the 1993 prison riot in Lucasville.

To address these communication breakdowns, in 1994 the Ohio state legislature approved funding for

a study on a communications system to connect state emergency response agencies. By 1999, construction on the state agency system was underway. The system was not short of cynics. Until September 11, 2001, many questioned the need for the system.

"September 11 had a tremendous impact because it changed the minds of skeptics and broadened the radio system's user base," says Anderson. "With September 11, people realized that, regardless of what government level you are, you need to have a radio that works. People realized that if we built a radio system limited to state agencies, we were missing the mark."

Strategic Leadership

Stakeholder leadership has played a pivotal role in driving Ohio beyond the patchwork of technologies and networks that once supported its region's emergency response operations. Established in October 2002, the Ohio SIEC ensures that statewide interoperability planning incorporates the input of all stakeholders by including emergency response leaders from all levels of government. Serving as the state's expert body on interoperability matters, the SIEC's strategic vision and strong leadership have proven critical to the success of Ohio's interoperability initiatives.

"We no longer have technical people making strategic decisions. We have strategic emergency response leaders making strategic decisions. This is an important distinction," says Anderson. The SIEC's expert leadership coupled with the partnerships it has generated, says Anderson, will help Ohio prepare for tomorrow's challenges.

CONTENTS

Interoperability: A Canine Unit's Best Friend	1
Interoperability Progress in Ohio Anything But Flat	1
Director's Message	2
Pursuit of Progress in Morris County	3
Silicon Flatirons Releases Report on Next-Generation Network for Communications	3
Data Messaging Standards Near OASIS Finish Line	4
In Your Own Words	6
Spotlight on Chief Charles Werner	7



Interoperability TECHNOLOGY Today

About TECHNOLOGY Today

The Department of Homeland Security (DHS) established the Office for Interoperability and Compatibility (OIC) in 2004 to strengthen and integrate interoperability and compatibility efforts in order to improve local, tribal, state, and Federal emergency preparedness and response. Managed by the Science and Technology Directorate, OIC is assisting in the coordination of interoperability efforts across DHS. OIC programs and initiatives address critical interoperability and compatibility issues. Priority areas include communications, equipment, and training.

OIC programs address both voice and data interoperability. OIC is creating the capacity for increased levels of interoperability by developing tools, best practices, technologies, and methodologies that emergency response agencies can immediately put into effect. OIC is also improving incident response and recovery by developing tools, technologies, and messaging standards that help emergency responders manage incidents and exchange information in real time.

Interoperability Technology Today is published quarterly by OIC at no cost to subscribers. Its mission is to provide the emergency response community, policy makers, and local officials with information about interoperability initiatives nationwide, best practices, and lessons learned.

Subscriptions: *Interoperability Technology Today* is available at no cost. If you are not currently on our mailing list, visit www.safecomprogram.gov to subscribe by clicking on the Contact Us link.

Address Correction: So that you do not miss an issue of *Interoperability Technology Today*, please notify us of any changes in address or point of contact. Visit www.safecomprogram.gov to update your contact information by clicking on the Contact Us link.

Article Reproduction: Unless otherwise indicated, all articles appearing in *Interoperability Technology Today* may be reproduced. However, a statement of attribution, such as, "This article was reproduced from the fall 2007 edition of *Interoperability Technology Today*, published by the Department of Homeland Security, Office for Interoperability and Compatibility," should be included.

Photo Credits: Photos and graphics used in this edition of *Interoperability Technology Today* include images from Freerangestock.com, StockXChange.com, and Wikimedia.com.

OIC would like to acknowledge its practitioner-comprised Editorial Review Board for the valuable input it provided in reviewing article content for this edition.



UPCOMING EVENTS

Events & Conferences

9th Annual Technologies for Critical Incident Preparedness Conference and Exposition

November 6-8, 2007
San Francisco, California
www.ctc.org

International Association of Emergency Managers Annual Conference & EMEX 2007

November 11-15, 2007
Reno, Nevada
www.iaem.com

DIRECTOR'S MESSAGE

By Dr. David Boyd

The Office for Interoperability and Compatibility (OIC) is working with industry, emergency responders, and Federal partners to achieve a national, interoperable system of systems—an attainable, albeit ambitious, goal. While interoperability is not solely a technology problem that can be solved with the “right” equipment or the “right” communications system, technology is essential to the Nation’s drive toward progress on this issue.

OIC has long understood how indispensable industry is to making the Nation’s vision for interoperability a reality. Today—as ever—OIC is committed to its partnership with industry. The most visible elements of this partnership are OIC’s Industry Roundtable dialogues, and its collaboration with industry on standards acceleration and compliance.

For the past two years, OIC has brought together industry professionals, emergency responders, and policy makers to initiate critical conversations on interoperability. OIC’s Industry Roundtables have provided industry professionals with an opportunity to discuss technological possibilities, and to engage with emergency responders and Federal leadership on priority issues.

OIC, in partnership with industry, practitioners, and Federal partners, has accelerated the development of interoperability standards—creating opportunities for new communications technologies. The partnership between OIC’s Disaster Management program, industry, and the emergency management community has been instrumental in successfully accelerating the development of data messaging standards. Additionally, in conjunction with the National Institute of Standards and Technology (NIST), OIC

has ensured that key components of the Project 25 (P25) technology standards are near completion.

OIC and NIST also have worked closely with industry and practitioners to develop a P25 Compliance Assessment Program. This program ensures that equipment from different manufacturers is not only interoperable, but also meets requirements for performance and compliance. The program also is intended to ensure that manufacturers who claim their voice communications products comply with published standards actually do comply.

As we look to the future, we need to remind ourselves that it is only through these sorts of partnerships that we can truly achieve interoperability. We each have a part in driving technology progress. The Federal Government needs to develop grant programs to help localities purchase new technology; accelerate standards development; and develop tools to help localities use new technologies. Emergency response agencies need to educate industry on practitioner needs, and need to strengthen existing communications systems. As new technologies are developed—and as policy and protocols that address interoperability are revised—local and state governments need to develop statewide plans with elasticity to adapt to emerging technologies and protocols. Finally, industry needs to comply with standards, support the system of systems approach, and align technology solutions with the requirements of responders in the field.

OIC looks forward to continuing to work with industry in equipping emergency responders with the technologies they need to advance interoperability progress.



Pursuit of Progress in Morris County

Emergency responders in Morris County, New Jersey are well-versed in the necessities and challenges of interoperability. The fleet of 1,100 emergency response vehicles throughout the county operates on 150 disparate radio frequencies, across 4 frequency bands.

At one time, during coordinated emergency response operations, agencies from Morris County's 39 municipalities—even those with sophisticated radio systems—relied on runners, radio swaps, and multiple dispatchers to relay messages among responding agencies.

"In many cases, in order to communicate, incident commanders would have multiple radios hanging from their belts," recalls Keith Heimburg, Morris County Emergency Management Project Coordinator. "It wasn't uncommon to see fire chiefs and police chiefs with a variety of radios in the trunks of their vehicles. At the scene, the chiefs would position their vehicles together in a pseudo radio tailgate."

While Morris County leaders have long understood the importance of interoperability—key county officials have extensive emergency response experience—the issue topped agendas after September 11, 2001. "September 11 highlighted the tragic impact of the types of communications breakdowns we had seen in the county on local response operations," says Heimburg.

For Morris County's emergency responders, local operations have national implications. Morris County is one of seven counties near New York City that comprise the New Jersey Urban Area Security Initiative (UASI). The UASI region oversees critical infrastructures such as Newark Liberty International Airport, Jersey City, and one of the region's busiest municipal airports. Morris County also is home to many large corporate headquarters.

Opportunity for Progress

Interoperability progress in Morris County gained momentum in 2004, when the county completed an ultra high frequency (UHF) trunked radio system to improve communications between county government agencies. Like many emergency response agencies nationwide, Morris County government agencies purchased communications equipment independently of each other. The resulting, disparate systems were incompatible—jeopardizing effective response.

When the county government radio system became operational, Morris County officials realized the system had enough capacity to accommodate mobile radios in each of the 1,100 emergency response vehicles throughout the county. To ensure that the system effectively met the needs of Morris County's 37 law enforcement, 42 emergency medical service (EMS), and 72 fire agencies, the county established a Radio Advisory Group. Comprised of stakeholder representatives, this group provided county leaders with local emergency responders' operational requirements. "It was important not to operate in a vacuum," says Heimburg. "The Radio Advisory Group helped to ensure that the radio system would successfully meet the needs of those in the field."

The county's stakeholder-driven approach, Heimburg says, coupled with the region's history of shared services, experienced county officials, and cross-municipality cooperation, were critical to the unanimous support the initiative won across county and emergency response leadership. Using Federal grant monies and county financing, Morris County purchased mobile radios for each of the municipal emergency response vehicles.

Today, Morris County agencies operate using two radio systems: their legacy systems and the county's UHF trunked system. The county system includes a

continued on page 6

Lessons Learned from Interoperability Progress in Morris County

- Ensure that both local government and stakeholder leaders are invested in and committed to the initiative.
- Establish a stakeholder governing body and a project coordinator.
- Implement a system that is flexible enough to adapt to emerging technologies.
- Provide agencies with extensive training on new technologies.
- Maintain communications with participating agencies to ensure that agencies are using new technologies, not storing them in the basement.

Silicon Flatirons Releases Report on Next-Generation Network for Communications

In May 2007, the University of Colorado Law School's Silicon Flatirons Telecommunications Program released its report on a next-generation network for emergency response communications. Sponsored by CTIA-The Wireless Association, the report, *Toward a Next Generation Network for Public Safety Communications*, reflects discussions conducted during the Silicon Flatiron's two-day roundtable, held April 11-12, 2007. Emergency response and industry leaders set aside competing agendas and historic disagreements to collaboratively address increasingly high-profile communications issues.

Taking an important step toward finding common ground, roundtable participants identified shared priorities, addressed next-generation technological solutions, and provided analysis on finding solutions for near- and long-term challenges in emergency response communications. Key points of consensus from the report include:

- The migration to next-generation networks represents a crucial opportunity to introduce a new paradigm whereby public safety is conceived of as an enterprise.
- The development of a next-generation network ("NGN") for public safety presents an inflection point for today's first responders: such networks should be broadband, Internet Protocol-based, and capable of handling voice, data, image, video, and multi-media content.
- General principles to guide the development of an NGN for public safety include: reliability, security, openness, modularity, extensibility, and reliance on commercial, broadly supported standards.
- As public safety moves toward an NGN featuring higher-level network operation, NGN coordination models should be carefully considered and fleshed out.
- In many respects, the near term presents the most challenging public safety funding demands of all—policymakers must make do with legacy systems and assist the development of an NGN system.
- During the transition to a public safety NGN, perfection should not be the enemy of the good.
- Finally, a critical element of developing a workable NGN for public safety is the development of reasonably effective governance strategies.

To read *Toward a Next Generation Network for Public Safety Communications*, visit <http://www.silicon-flatirons.org/>.

OASIS

Founded in 1993 under the name SGML Open, the Organization for the Advancement of Structured Information Standards (OASIS) began as a consortium of vendors and users committed to developing guidelines for interoperability between products that support the Standard Generalized Markup Language. In 1998, the consortium changed its name from SGML Open to OASIS in order to reflect the organization's expanded scope of technical work, including the Extensible Markup Language and other related standards.

Today, the non-profit, global consortium includes more than 5,000 participants representing more than 600 organizations and individual members in 100 countries. Together, OASIS participants have developed and adopted more interoperable Web services standards than any other organization along with standards for security, e-business, and standardization efforts in the public sector and for application-specific markets.

The OASIS Emergency Interoperability (EI) Member Section accelerates the development, adoption, application, and implementation of emergency interoperability and communications standards and related work. The group addresses global interoperability issues and areas where new standards are needed in order to enable complete solutions. It also works to increase demand for standards-compliant products and services through education targeting markets that use data generated by emergency standards. OASIS EI encourages local and national government agencies to support and advocate the use of emergency standards as a means to enable innovation, freedom of choice, and open access to information.

For more information about OASISEI, visit the organization's Web site at <http://www.oasis-emergency.org>. For more information about OASIS, visit the organization's Web site at <http://www.oasis-open.org>.

Emergency Interoperability Consortium

Founded in 2002 as a collaborative effort between private companies, public agencies, and non-profit organizations, the Emergency Interoperability Consortium (EIC) is committed to addressing the need for valid interoperability standards for emergency management. Since its creation, the EIC has become a significant advocate for the development and adoption of standards that use Web services and Extensible Markup Language (XML) to facilitate the exchange of data between agencies, non-government/non-profit organizations, private companies, legacy systems, and new technology. To effectively formulate requirements for commercially sustainable standards, the EIC works closely with the Office for Interoperability and Compatibility's Disaster Management program and the Emergency Management Technical Committee of the Organization for the Advancement of Structured Information Standards.

The EIC's primary objectives are to:

- Create a national approach for data interoperability through an industry-government consortium.
- Promote the development of Web services/XML data interoperability standards necessary to support the timely and accurate exchange of incident information throughout the emergency management community.
- Ensure that all Americans have appropriate access to whatever information they require—when and how they need it.

For more information about the EIC and how to participate in its activities, visit the consortium's Web page at <http://www.eic.org/>.

Data Messaging Standards Nearing OASIS Finish Line

At the time this publication went to print, the Organization for the Advancement of Structured Information Standards' Emergency Management Technical Committee was expected to vote in Fall 2007 on the release of the Emergency Data Exchange Language (EDXL)-Hospital AVailability Exchange and the EDXL-Resource Messaging Committee Drafts for a second 60-day Public Comment Review.

Emergency managers and responders are steps closer to having the capacity to seamlessly exchange critical data—the availability of hospital beds and requests for personnel and equipment—across disparate software systems and applications.

This year, members of the Organization for the Advancement of Structured Information Standards (OASIS) are expected to vote on the release of the Emergency Data Exchange Language (EDXL)-Hospital AVailability Exchange (HAVE) and the EDXL-Resource Messaging (RM) Committee Drafts for a second 60-day Public Comment Review. EDXL-HAVE will enable responders to exchange information about a hospital's capacity and bed availability with medical and health organizations, and others. EDXL-RM will enable responders to exchange resource data—including personnel and equipment needed to effectively support emergency preparedness, response, and recovery. Incorporating these new data messaging standards into information-sharing products is expected to strengthen recovery and response during day-to-day operations and large-scale emergencies.

Practitioner Driven and Industry Supported

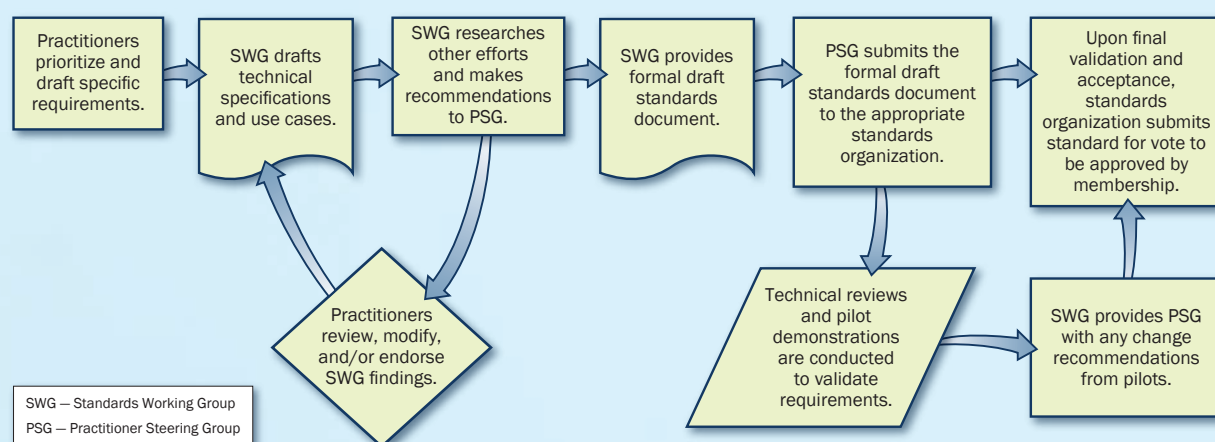
The process for developing each of these data interoperability requirements into an OASIS Standard includes five principal stages:

- i. The Office for Interoperability and Compatibility's Disaster Management (DM) program partners with stakeholders and end users to identify data exchange requirements and to draft supporting documentation.
- ii. The Emergency Interoperability Consortium (EIC) provides the OASIS Emergency Management Technical Committee (EM TC) with draft documentation, requirements guidance, and vendor input.
- iii. OASIS EM TC reviews the data requirements and drafts to determine if it fits within the charter of the TC and decides whether to accept it as a work product. If accepted, the TC then reviews the requirements and supporting documentation and develops a "Committee Draft." While requirements come from the Department of Homeland Security (DHS), the TC develops the Committee Draft to meet not only the needs of this Nation, but also those of the international emergency response community. Once the draft is approved by the TC, it enters the OASIS review process.



- iv. OASIS holds a 60-day, open public comment period on the Committee Draft. This is an “open” process; anyone in the world can submit comments whether or not they are OASIS members. The process requires each comment to be addressed by the Committee in an acceptable manner. If public comments necessitate substantive modifications to the Committee Draft, the draft is edited by the Committee, and then re-submitted for an additional public review. Minor changes may require a 15-day review. Once the Committee Draft has successfully completed these review cycles with all comments dispensed, the TC approves the Draft as a “Committee Specification”. The TC also solicits Statements of Use from three organizations attesting that they have successfully implemented the specification.
- v. OASIS holds an organization-wide vote (one vote per member organization), and—providing there are sufficient votes with due respect to any dissenting votes—the Committee Specification is approved as an “OASIS Standard.”

Standards Development Process



In 2005, the DM program took the first step in this process when it brought together stakeholders—emergency responders and managers, industry leaders, representatives from Federal information-sharing efforts—to identify data interoperability requirements for EDXL-HAVE and EDXL-RM. DM worked closely with these stakeholders to draft and submit requirement documents to the Emergency Interoperability Consortium (EIC), which is comprised of private companies, public agencies, and non-profit organizations. “A practitioner-driven and industry-inclusive approach was essential to ensuring that EDXL-HAVE and EDXL-RM effectively meet the needs of responders in the field,” says DM Program Manager, Denis Gusty.

Partnering with industry, says Gusty, expedites EDXL-RM and EDXL-HAVE implementation into software, systems, and devices once the specifications are approved.” In January 2005, the EIC entered into a Memorandum of Agreement (MOA) with DHS’s Office of the Chief Information Officer to provide a basis for formal collaboration. Under this MOA, the EIC and the DM program work together to provide requirements guidance to the OASIS EM TC and to promote the adoption and use of standards once OASIS ratifies them. An important DM partner, the EIC has been committed to the development of interoperability standards for emergency and incident management since its creation in October 2002.

Open and Transparent Process

Earlier this year, the EDXL-HAVE and EDXL-RM Committee Drafts underwent 60-day OASIS public comment periods. These comment periods afforded stakeholders worldwide with an important opportunity to provide feedback on the drafts. “Comments from stakeholders—including potential users and developers—ensure that new standards successfully meet the needs of industry and emergency responders,” says Elysa Jones, Chair of the OASIS EM TC and an EIC member.

This year’s public comment period will be round two of feedback for EDXL-HAVE and EDXL-RM respectfully. Once the OASIS EM TC reviewed the hundreds of comments submitted on EDXL-HAVE and EDXL-RM, it was determined that, based on high-quality comments received during the first round, substantive changes needed to be incorporated into the draft. The EDXL-HAVE entered into Public Review in October with completion expected before the end of the year. Ratification could occur as early as the first quarter of 2008.

The EDXL-RM comments are still being addressed. The Committee hopes to have this Draft ready for its second Public Review by the first quarter of 2008 with ratification in the second quarter.

“The OASIS standards process is so valuable in that the standards developed are free, and the process is open. Free because there is no charge for use of the standard and open because the comment period is open to anyone in the world to respond,” says Jones. “The international nature of OASIS broadens the impact of not only the organization itself, but also the standards approved by its members.”

The collaboration between practitioners, the EIC, OASIS and DM, Gusty adds, is integral to the successful acceleration of data messaging standards. “We have multiple entities working together to conceive, develop, adopt, and execute standards that responders can use everyday,” says Gusty, “That’s something I’m proud of.”

NPSTC Releases Channel Naming Report

The National Public Safety Telecommunications Council (NPSTC) has released its NPSTC Channel Naming Report. This Report proposes standard channel names for public safety interoperability radio frequencies to improve emergency response. Many times, jurisdictions assign the same frequency for different uses and call them different names, e.g., a frequency is designated as a calling channel and named “Channel 5” in one jurisdiction, but named “Channel 9” in another jurisdiction. In such cases, when mutual aid responders arrive on scene, their radio channel displays do not match. As a result, they do not know that they have interoperability due to the different channel names. NPSTC and the Public Safety National Coordination Committee found that these variances cause confusion during multi-jurisdictional responses. NPSTC proposes to avoid this confusion and improve interoperable communications through a standard channel nomenclature.

NPSTC worked closely with the emergency response community in drafting the NPSTC Channel Naming Report. The report is available on the NPSTC Web site at <http://www.npstc.org/documents/IO-0060B-20070612%20Standard%20Channel%20Nomenclature%20Final.pdf>.

OIC Releases Self Assessment Tool for Emergency Response Agencies

The Office for Interoperability and Compatibility (OIC) has released a Self Assessment (SA) analysis tool intended to assist emergency response agencies measure their interoperability progress and evaluate their capacity for interoperability. This tool is designed for agencies that did not participate in OIC’s 2006 National Interoperability Baseline Survey (Baseline Survey), which surveyed interoperability capabilities for approximately 22,400 randomly selected emergency response agencies nationwide. Building upon the success of this survey, the SA tool’s 13 assessment questions are featured in the Baseline Survey, founded on the Interoperability Continuum’s comprehensive definition of interoperability. An add-on feature to the existing SAFECOM Web site, the SA tool is available at www.safecomprogram.gov.

Morris County • continued from page 3

statewide channel and interconnecting capabilities. A county mobile command unit equipped with 17 radios spanning 150 frequencies serves as a backup system. This system, notes Heimborg, is “leaps and bounds” beyond the patchwork of equipment and frequencies that once supported the region’s emergency response operations.

As agencies’ legacy systems age, Morris County envisions agencies migrating to the county’s radio system. This migration requires additional capacity and UHF spectrum, which could become available if local municipalities vacate existing UHF channels, and if neighboring counties migrate to 700 MHz systems.

Beyond the “Right” Technology

For Morris County leaders, the county’s new technology does not represent a “finish line” in the region’s drive toward interoperability. A commitment to policies and procedures, exercises, and training, Heimborg says, are essential to the county radio system’s success.

Emergency response and county leaders established multidiscipline, multi-municipality standard operating procedures (SOPs) for the county’s mobile radio system. Each of Morris County’s four regions is assigned three coordinators—a fire response, law enforcement, and EMS coordinator. An overall mutual aid coordinator oversees these regional coordinators. To ensure the effectiveness of coordinated responses using the system, municipalities regularly participate in regional exercises.

Morris County’s approach to system training was multidimensional. The county hosted six plenary training sessions in addition to individual training sessions provided to each municipality. The county also provided field training as requested.

Mile Marker

The county’s radio system and SOPs were put to the test in spring 2007 when large-scale floods caused by a Nor’easter swept through parts of Morris County. Overextended with evacuations and flood-related incidents, one locality’s fire department used the

county UHF system to partner with the region’s fire coordinator. The fire coordinator brought in backup personnel to help local agencies respond to the locality’s day-to-day fire calls. During each response, the backup fire crew and local fire crew used the county system to successfully communicate.

“The flooding incident proved the value of the new radio system,” says Morris County Fire Coordinator and Fire Training Coordinator Jack Alderton. “The countywide deployment of resources was done very well, with the radio system playing a very big part. Having this system was like having the biggest bat in the game.”

An important mile marker for local emergency responders, the successful use of the system represented an important step toward achieving optimal emergency communications. Says Alderton, “This system provided the responders with another tool—a big one—in our tool box to operate *safely, efficiently, and effectively* during the incident.”

IN YOUR OWN WORDS

By Carlton W. Wells, Chief, Wireless Communications Bureau, State of Florida

Governor’s Inauguration a New Era for Planned Event Coordinations

Last January, emergency response agencies representing multiple jurisdictions and disciplines partnered to support the inauguration of Florida Governor Charlie Crist. A milestone in the state’s interoperability planning, the inauguration highlighted the critical value of agency coordination and cooperation during planned, large-scale events.

The complexity of the inaugural proceedings—which included a motorcade, parade, festival, swearing-in ceremony, and prayer breakfast—required support from multiple emergency response agencies. The Florida Department of Law Enforcement, Capitol Police, and Florida Highway Patrol partnered with county and local emergency response agencies.

During inauguration activities, personnel operated on their own existing communications equipment. Like many emergency response agencies nationwide, agencies in Florida typically purchase communications equipment independently. To bridge communications gaps between disparate radio systems, agencies used 800 MHz mutual aid channels and multiple gateways. The gateways provided connections between two or more disparate radio systems, allowing users on one system to communicate with users on other systems.

Planning, policies, procedures, and training were essential to the success of the communications technologies. Three months before the inauguration, coordinating agencies began developing a communications plan, organizing participating disciplines into units, and designating unit leaders. Major Steve Williams of the Florida Highway Patrol led a Communications Unit comprised of city, county, and state communications personnel. Each member of the Communications Unit was assigned an interoperability communications technology to monitor during the event. To ensure that the event’s communications plan met the needs of responders on the ground, operations unit leaders regularly collaborated with the Communications Unit in drafting the plan. Teams began testing the plan approximately one month before the event.

This planning and preparation effort built upon best practices from the field, and generated lessons learned for future planned events. The best practices that follow helped us coordinate a successful event using gateway technology.

Develop an event communications plan.

A successful operation hinges on more than the “right” equipment or technology. Leverage communications technology to meet operations needs rather than compromising operations to adapt to technology. A shared mission and plan provide participating agencies with “the big picture”—giving context for decisions, and ensuring that all operations are in support of a common goal.

Test communications plan and radios before the event.

To confirm that radios are programmed correctly, it is important to test the communications plan and radios on actual talk groups or channels planned for the event. Pre-inauguration testing identified needs for last-minute, additional programming.

Determine the reasonable number of agencies that will use a gateway system, and how the system will be used.

Training with all agencies that will use a gateway system during a planned event ensures that all network components function properly. It is also important to determine how the gateway will be used, e.g., tactically or as a fixed system. For mobile gateway solutions, if the same configuration will be used again, document settings. Agencies may designate a number of responders to receive formal manufacturer training before an event.

Prepare back-up gateways and patches.

During the inauguration, implementing multiple gateway solutions met communications needs that one gateway solution could not alone meet. The preparation of multiple gateways also provided back-up capability between all gateways. Agencies also prepared an estimated 10 patches and 4 mutual aid channels—repeater and talk-around. Several patches were available for back-up.

Determine what type of technical support a gateway will require.

Vendor support played an important role in ensuring the effectiveness of multiple gateway systems used during the inauguration. If agencies are using multiple types of gateways, it is important to have vendor representatives for each gateway type on hand.

Maintain communications with the Communications Unit Leader.

For the inauguration, each member of the Communications Unit was assigned—either on site or via remote monitor—to an interoperability resource utilized during the inauguration, e.g., a mobile command unit vehicle. Communications Unit members reported to the Communications Unit Leader on the status of their assigned resources. It is important for personnel stationed at interoperability technology resources to remain at their posts until released by the Communications Unit Leader—even during trials. This practice proved valuable in ensuring that all solutions were ready and operational.

Hang individual agendas and badges at the door.

For coordinated responses, it is especially important to encourage collaboration and partnerships. The impressive cooperation between agencies throughout the inauguration was integral to the event’s success. The partnerships formed for today’s planned event could prove pivotal in responding to tomorrow’s large-scale emergency.

Additional information about statewide planning is available at: <http://www.safecomprogram.gov/SAFE/COM/statewideplanning/>

SETTING HIGH BENCHMARKS

An impressive trail of awards and headlines chronicle Charlottesville (Virginia) Fire Chief Charles Werner's 32 years in the fire service. Most recently, Chief Werner received the Virginia Governor's Award for Excellence in Fire Service Management—becoming the only recipient to win the Governor's Award for Excellence three times. Even the most decorated of walls may find it challenging to capture Chief Werner's contributions to interoperability across Virginia and the Nation.

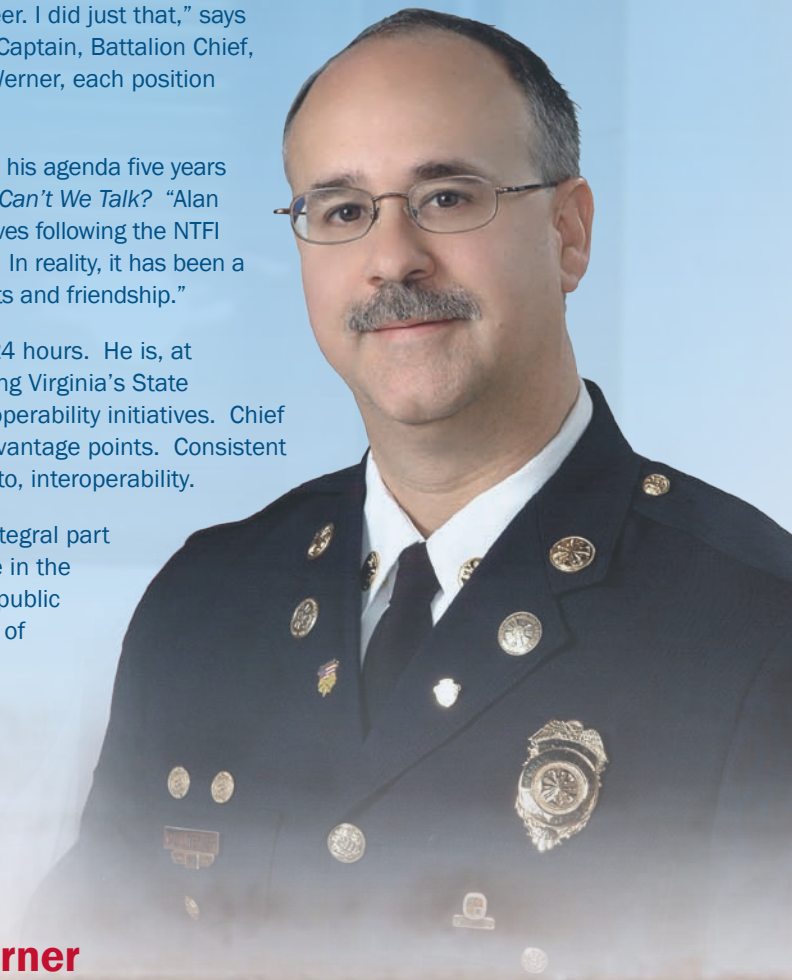
After exploring careers in the law enforcement and rescue fields, Chief Werner became a volunteer firefighter in Harrisonburg, Virginia with Harrisonburg Fire Company #1 in 1974. The volunteer work was a turning point for the third-generation firefighter, and the beginning of a successful career.

"I have often heard that to be successful, find something that you would do for free and pursue that career. I did just that," says Werner. A 29-year veteran of the Charlottesville Fire Department, Chief Werner served as a Lieutenant, Captain, Battalion Chief, Communications Chief, and Deputy Fire Chief before becoming the Department's Fire Chief. For Chief Werner, each position provided insights into the multiple facets and dimensions of interoperability.

While Chief Werner has long been well-versed in the importance of interoperability, the issue first topped his agenda five years ago when the National Task Force on Interoperability (NTFI) published its interoperability report, *Why Can't We Talk?* "Alan Caldwell [of the International Association of Fire Chiefs (IAFC)] asked me to assist with IAFC initiatives following the NTFI report. Five years later, I just figured out that Alan is the reason that I have so much extra work! In reality, it has been a true blessing to work on such an important project. My sincere gratitude to Alan for his insights and friendship."

To track the footsteps of Chief Werner, some may wonder if his days include more than 24 hours. He is, at once, responding on the frontlines, testifying before Congress, authoring articles, chairing Virginia's State Interoperability Executive Committee, and leading multiple regional and national interoperability initiatives. Chief Werner leverages these diverse roles to drive interoperability progress from different vantage points. Consistent across the wide spectrum of positions is Chief Werner's vision for, and commitment to, interoperability.

"Ultimately, I hope that one day, in the not so distant future, interoperability is an integral part of every public safety radio system, and that operability and interoperability are one in the same," says Chief Werner. "Interoperability must be a philosophy that is taught to public safety chiefs, elected officials, appointed officials, and to every entry-level member of public safety as they begin their public safety service."



Q&A with Chief Charles Werner

Q. In your view, what are today's major interoperability challenges?

A. The major interoperability challenges are people, then technology. As I have stated many times, 90 percent of interoperability lies directly on the human element. Implementing interoperable communications is up against decades of tradition, i.e., "the way we've always done it." There are many people who do not see the need to change, and major change is difficult.

Second is technology. I truly believe that our future success is through a new paradigm that fuses public safety with the commercial wireless community in order to build an infrastructure that is cost-effective, reliable, resilient, and "ever-evolving." This infrastructure would ensure that public safety has operable systems that are not only affordable, but that also provide the economies of scale that reduce the price of public safety radios and communications devices.

Q. What tops your agenda today?

A. What tops my agenda is to realistically and affordably achieve interoperability with today's existing systems and simultaneously on a parallel path, develop new technologies for the future. First and foremost, we need to change the way public safety—fire, emergency medical service, law enforcement, and emergency managers—implements interoperability. In many cases, where we are capable of interoperability today, we have not changed our business models for communications or explored and maximized interoperable communications.

Q. What lessons have you learned since becoming involved in the field?

A. First, the true success of interoperability, among other things, involves effective personal relationships, i.e., *Governance*. Interoperable communications is very different with a friend than it is with a stranger. Second, technology by itself does not achieve interoperability, and there is much more that comes along with it. The personal relationships, i.e., *Governance*, make it possible for interoperable communications to occur. *Technology* is the medium by which interoperability is achieved. In order for technology to succeed, it requires policies and procedures, i.e., *Standard Operating Procedures*, to outline when and how it is used. Training, i.e., *Training & Exercises*, is required to ensure proficiency, and to test the equipment before an actual emergency/event occurs. Regular use, i.e., *Usage*, of the technology ensures that everyone can use it proficiently. The best way for any one to really understand interoperability is to review and understand the Interoperability Continuum developed by the SAFECOM program.

Q. You have received a number of awards and distinctions for your service and leadership. What is your proudest career moment?

A. Well, my proudest moment is torn between four equal events. One event was when I was able to rescue a person from a burning building—that made it all worth doing. A second event, along the interoperability front, was when I proposed to then SAFECOM Director Dr. Boyd and his consultant team to work with Virginia in order to develop a pilot statewide interoperability strategic plan. They agreed, and Virginia's planning process became a national model and foundation for what is known today as SAFECOM's Statewide Communications Interoperability Planning Methodology. The third event was when I authored and submitted an application for the Federal Emergency Management Agency Interoperable Communications Equipment grant for our region, and was awarded \$6 million. This grant ultimately saved the region \$10 million toward a new public safety radio system. The fourth event was being appointed Fire Chief for the City of Charlottesville (Best City in America 2004) by the best City Manager in the country, Gary O'Connell.

Q. If you were not doing this type of work, what would you be doing?

A. I have always had a great admiration for police officers. That has been strengthened even more from meeting and working with so many law enforcement officers throughout this interoperability effort. Harlin McEwen and Eddie Reyes are among my closest friends and colleagues from whom I have learned much. I have even more appreciation and better understanding for their position since I was invited to train and become a reserve deputy sheriff by Albemarle County Sheriff Ed Robb, another forward thinker. They only agreed to let me have a gun if I kept my bullet in my shirt pocket.

Interoperability TECHNOLOGY Today



A Resource For the Emergency Response Community

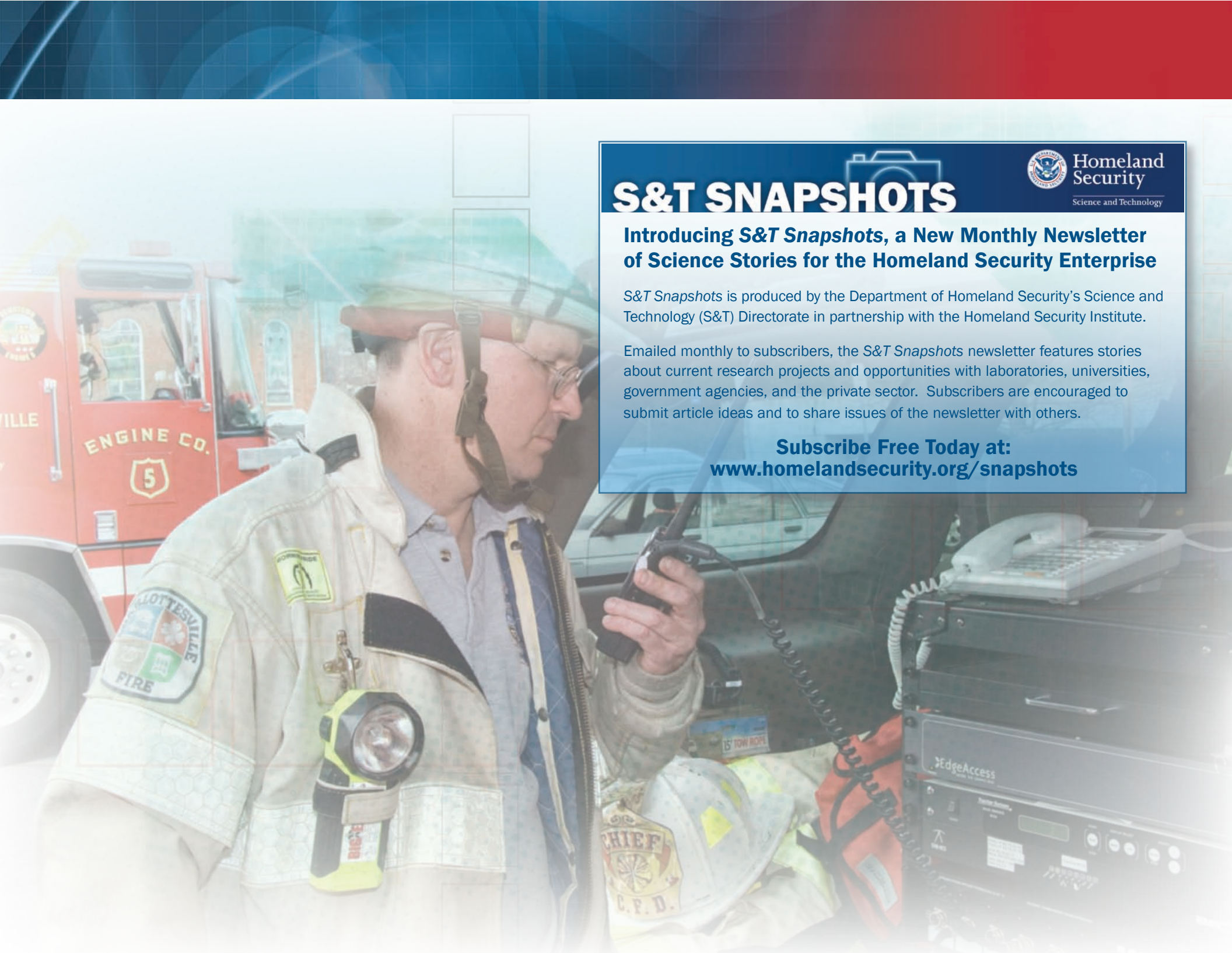
Fall edition 2007

“This edition features ...”

- Police canine units help interoperability progress
- Ohio achieved milestone in statewide interoperability
- Lessons learned from interoperability progress in Morris County, New Jersey
- Developing data interoperability requirements into an OASIS Standard
- Successful planning at the Florida Governor’s inauguration
- A spotlight on Chief Charles Werner, Fire Chief for the Charlottesville (VA) Fire Department

Office for Interoperability and Compatibility
Science and Technology Directorate
U.S. Department of Homeland Security
Washington, DC 20528

PRESORTED STANDARD
U.S. POSTAGE PAID
ANNAPOLIS JUNCTION, MD
PERMIT NO. 2538



S&T SNAPSHOTS



Introducing *S&T Snapshots*, a New Monthly Newsletter of Science Stories for the Homeland Security Enterprise

S&T Snapshots is produced by the Department of Homeland Security’s Science and Technology (S&T) Directorate in partnership with the Homeland Security Institute.

Emailed monthly to subscribers, the *S&T Snapshots* newsletter features stories about current research projects and opportunities with laboratories, universities, government agencies, and the private sector. Subscribers are encouraged to submit article ideas and to share issues of the newsletter with others.

Subscribe Free Today at:
www.homelandsecurity.org/snapshots