



Interoperability

TECHNOLOGY Today

A Resource For the Emergency Response Community



Winter/Spring 2010

SPADAC Estimates Crime Probability with Geospatial Predictive Analytics

Criminal activity—including gang violence, robberies, terrorism, and other crimes—remains a prevalent challenge for law enforcement agencies in cities throughout the Nation. In order to combat this ever-present challenge, law enforcement officials are turning to new methods in order to better protect and serve the Nation.

One such method is geospatial predictive analytics, which represents an innovative approach to crime prevention. Headquartered in McLean, VA, SPADAC has developed a tool—comprised of a series of statistical algorithms—that produces objective assessments of an environment in which a crime occurs. After inputting and statistically processing a series of crime events against hundreds of geospatial factors, the tool generates a spatial assessment to identify areas that possess a statistical similarity. Geospatial predictive analytics uses that statistical similarity to determine what other locations are prone to experience the same type of crime. This capability better positions law enforcement officials to identify where future crimes may occur, reveal potential areas of elevated threat, and prepare preventative measures.

By analyzing trends in crime activity, SPADAC has used its predictive analytic tools and methodologies to uncover specific patterns and factors affecting the probability that a crime will occur. These findings have led to the prediction and prevention of future crime events. Ultimately, this tool not only helps the law enforcement community expose potential high-risk areas in cities across the country, but also brings attention to how resources should be best deployed. “Part of our job is to help leverage limited resources while improving officer safety through heightened situational awareness, as well as helping to make the community more secure for everyone involved,” says James Anderson, Geospatial Program Manager at SPADAC.

SPADAC’s geospatial predictive analytic tool and methods use unique, patented scientific methodologies that allow analysts to understand crime events by looking at their relationship to the social, cultural, and physical environment. Unlike traditional techniques which rely heavily on assumptions, this purely empirical approach helps eliminate potential human error and bias. “Traditionally, investigators would use deductive logic which is often based on subjective assumptions,” adds Anderson. “However, SPADAC’s tool uses an inductive logic approach, allowing the analyst to resist imparting bias into the assessment. Additionally, it is able to take into account subtle factors that may attract or repel crime. It also allows the system to rapidly adapt to and detect changing behavior.”

Currently SPADAC is working with fusion centers in New Jersey and Los Angeles to monitor and predict criminal activity in their respective cities. The New Jersey Regional Operations Intelligence Center first used this geospatial predictive analytic technology in a pilot study examining shooting events (i.e., gang violence, murder, etc.) in Jersey City from December 2008 to May 2009.

SPADAC analysts and subject matter experts will compare the shooting events with thousands of geographic, socioeconomic, and other background factors. It is important to note that the geospatial analyst works in corroboration with subject matter experts in the field. “We interact with subject matter experts because their insights are instrumental in helping us create our predictive models. We value their input, which builds and later evaluates the validity of the assessment,” says Anderson.

The predictive analytics interface calculates over 550 factors including proximity to locations like bars, schools, gas stations, and the number of cars in a Census tract’s average household. These calculations result in a colorful map representing the targeted area with corresponding shades of red—indicating high likelihood for a future event—to blue, indicating a low likelihood for a future occurrence. In turn,

law enforcement officials are able to use the map to see not only the places in which events have already happened but also different locations where crime events are likely to occur in the future.

It is a combination of the predictive analytic software, skilled analysts, and subject matter experts that has made SPADAC’s tool so effective for the law enforcement community.

Analyst Anthony Bursae notes that it is essential to regularly update the data used by the geospatial predictive analytic software to ensure the accuracy of the output. “The rate of data decay is high, so we are always on the hunt for good, solid, temporal data that is accurate and up-to-date. Regular data source updates are essential to improve our assessments,” says Bursae. Additionally, the team at SPADAC regularly conducts tests to ensure their predictions are valid. The team imposes a 90% accuracy rating on their data. “We consider that a very good assessment,” says analyst Benjamin Holland.

SPADAC’s geospatial predictive analytics is a force multiplier for domestic intelligence and law enforcement in combating terrorism, gangs, and conventional criminal activity before an event occurs. This tool can help reveal pockets within a region potentially needing additional resources, as well as identify factors that “attract” crime—or increase the likelihood of future crimes and isolate factors that “detract” crime. SPADAC and its predictive analytics possess a strong commitment to helping the law enforcement community most effectively combat terrorism, gang violence, and conventional criminal activity—before an event occurs.



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About Interoperability TECHNOLOGY Today

Interoperability Technology Today is published quarterly by the Science and Technology Directorate's Command, Control and Interoperability (CCI) Division 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.

CCI interoperability programs address both data and voice interoperability. CCI 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. CCI is also improving incident response and recovery by developing messaging standards that help emergency responders manage incidents and exchange information in real time.

Through a practitioner-driven approach, CCI creates and deploys information resources—standards, frameworks, tools, and technologies—to enable seamless and secure interactions among homeland security stakeholders. With its Federal partners, CCI is working to strengthen capabilities to communicate, share, visualize, analyze, and protect information.

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

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UPCOMING EVENTS

Events & Conferences

Fire Department Instructors Conference

April 19 - 24, 2010
Indianapolis, Indiana
<http://www.fdic.com/index/conference.html>

IACP Law Enforcement Information Management Conference

May 24 - 27, 2010
Atlanta, Georgia
<http://www.theiacp.org/Technology/LEIM2010Conference>

National Sheriffs' Association 2010 Conference

June 26 - 30, 2010
Anaheim, California
<http://www.sheriffs.org/>

DIRECTOR'S MESSAGE

By Dr. David Boyd

The interoperability progress made nationwide by the emergency response community since the U.S. Department of Homeland Security (DHS) first opened its doors in early 2003 has been impressive. Our two-way technological capabilities have significantly improved, our communication methodologies have further developed, and the path towards future progress has become more defined. This immense progress has more clearly specified the information sharing needs of emergency responders. As a result, today's definition of interoperability has expanded to describe the connectivity of voice and data information.

Interoperability has become a term that resonates at the core of the latest technologies, systems, philosophies, and structures needed to ensure that emergency responders are equipped with all of the information they need to effectively respond to incidents of any size.

For this reason, the content of *Interoperability Technology Today*—a quarterly newsletter published by the Command, Control and Interoperability (CCI) Division within DHS' Science and Technology Directorate—will broaden to include the evolving meaning and relevance of interoperability among emergency responders.

Interoperability Redefined

Interoperability has become a term that resonates at the core of the latest technologies, systems, philosophies, and structures needed to ensure that emergency responders are equipped with all of the information they need to effectively respond to incidents of any size. The five Program Areas within CCI—Basic/Futures Research; Cyber Security; Knowledge Management Tools; Office for Interoperability and Compatibility; and Reconnaissance, Surveillance, and Investigative Technologies—are unveiling more critical information tools and methodologies than ever that speak to the instantaneous need for critical communication tools. These capabilities help ensure that our Nation is better prepared to identify, assess, prevent, and minimize the impact of a terrorist attack and natural or manmade disaster achieved through seamless, secure connectivity and information sharing.

Building upon interoperability's updated scope, upcoming editions of *Interoperability Technology Today* will now cover initiatives and accomplishments nationwide related to all of our Program Areas—from the latest advances in cyber security, GIS, and visualization research tools, to new standards in data messaging and video quality. Our goal is to provide you with the most up to date and pertinent articles relating to the entire spectrum of the interoperability field.

Interoperability Technology Today will continue to provide the latest information on all of the valuable work taking place in partnership with the emergency response community—including the new Virtual USA initiative. CCI is partnering with local, tribal, state, and Federal agencies to create a cost-effective nationwide capability that significantly improves information sharing and decision making during emergencies and day-to-day operations. As with all initiatives, the participation and partnership of the emergency response community remains CCI's highest priority.

I hope you enjoy *Interoperability Technology Today's* updated range of content and find it valuable to the important work you do. We are excited about our partnerships with you—the first responder community—in our continuing work to strengthen interoperability. I look forward to continuing this work with you to make the Nation both safer and more secure.

Regional Information-Sharing and Collaboration Program Impacts Information Sharing Nationwide

Protecting the American public against terrorism and other criminal acts remains a high priority for the emergency response community at the local, state, and Federal levels. To effectively address potential threats, law enforcement groups have become focused on developing enhanced information-sharing technologies. The Command, Control and Interoperability (CCI) Division within the U.S. Department of Homeland Security's Science and Technology Directorate addresses this need through the Regional Information Sharing and Collaboration (RISC) program. RISC develops and evaluates cross-jurisdictional technologies, policies, and processes to discover new and secure methods for disseminating threat information among local, tribal, state, and Federal entities.

These stakeholders, particularly in the local and state law enforcement sectors, have critical short-term requirements for inter-agency and inter-regional information-sharing technology implementations. Speaking to these requirements, CCI specifically designed the RISC program initiatives to provide user-driven research and test capabilities that can disseminate and share information through rapid prototyping, experimentation, and operational demonstrations of new processes and applications.

Law Enforcement Groups Participate

Local and state law enforcement agencies are participating in RISC initiatives that focus on the development, deployment, and evaluation of secure data exchange technologies intended for law enforcement units. These technologies work to enhance both officer and public safety by providing up to date information (e.g., geospatial data) as quickly as possible. Through RISC initiatives, officers and investigators use technology—such as personal digital assistants (PDAs)—to access criminal histories, police reports, and emergency data in real time. RISC wireless data exchange technologies enable law enforcement officials to save approximately 30 to 90 minutes during information sharing procedures.

RISC initiatives are currently taking place across the Nation. Seattle, San Diego, Tucson, Phoenix, and the New York Port Authority have participated in RISC along with many other regions. These information-sharing technologies are also impacting Arizona's Southwest Border, where law enforcement units are running secure data exchange technologies on more than 350 hand-held, wireless PDAs. These technologies provide law enforcement officials with real-time access to critical law enforcement information—such as criminal histories, mug shots, driver license photos, and incident reports—when traditional vehicle-based systems are inaccessible. The International Justice and Public Safety Information Sharing Network (NLETS) is also deploying digital image exchange specifications to enable state and local enforcement personnel to query and retrieve driver license, corrections, and missing-person photos across state lines.

California Develops Web-Based Tools

In San Diego and Imperial, CA, law enforcement agencies have developed and deployed a mobile, Web-based incident analysis and collaboration toolkit for 75 local, state, and Federal law enforcement agencies. This toolkit includes easy-to-use temporal, geospatial, and topical analysis products for threat detection and incident tracking. CCI is also developing RISC initiatives at the Federal level. The first initiative works to enhance and deploy a national standardized model and toolkit that emergency response agencies can leverage when building or linking interstate information sharing systems.

Next Steps

CCI is now planning to conduct a series of three information-sharing workshops to develop a prioritized list of challenges facing law enforcement groups and identify existing technology gaps. Critical information gathered during these workshops will be compiled into appropriate research portfolios that ultimately work together to improve the Nation's safety against acts of terrorism and crime.

These initiatives are leading the way in providing law enforcement officials with information exchange capabilities that operate efficiently in a short timeframe. New RISC initiatives are in development everyday throughout the Nation. To learn how your agency can become a part of a RISC initiative, or how to develop your own, please contact Bruce Baicar at Bruce.Baicar@dhs.gov.

CMAS Stakeholders Demonstrate Successful Progress

On August 29, 2005, a vibrant city located in southeast Louisiana experienced one of the deadliest hurricanes in history. On that horrific day in New Orleans, thousands of people lost their belongings, were displaced from their loved ones, or even lost their lives. While television and radio stations provided early warning for the public, more members of the community could have been reached had an alerting capability been present for cellular telephones and other wireless handsets. Incidents like Hurricane Katrina and more focused threats of terrorism such as the attempted bombing that took place on December 25, 2009 have solidified a crucial need to construct a national capability that provides real-time, targeted mobile alerts and warnings to the American public.

Since an estimated 89% of the Nation's population subscribes to commercial mobile services, the Science and Technology (S&T) Directorate within the U.S. Department of Homeland Security and the Federal Communications Commission initiated activities toward developing a Commercial Mobile Alert Service (CMAS). The Command, Control and Interoperability (CCI) Division within S&T is working with the Federal Emergency Management Agency to enable a national mobile alert and warning system that delivers geographically targeted, timely, and effective alert messages to cellular telephones and pagers for mobile subscribers. For the purposes of CMAS, emergency alerts will be classified in one of three categories:

- Presidential Alerts - alerts for all citizens related to national emergencies, such as terrorist attacks, that will pre-empt any other pending alerts
- Imminent Threat Alerts - alerts containing information on emergencies, including hurricanes or tornadoes, specifying where the event is likely to occur, if life or property is at risk, and if responsive action is necessary
- Child Abduction Emergency/AMBER Alerts - alerts related to missing or endangered children resulting from abduction or runaway situations

To work toward the successful delivery of emergency mobile alerts and warnings, CCI has identified key stakeholders to participate in the effort and glean expert information, share best practices, and identify priorities for successful research, development, testing and evaluation (RDT&E). These efforts will eventually culminate into the implementation phase through the Critical Infrastructure Partnership Advisory Committee. This end user-driven approach informs Federal Government strategies by identifying needs at the local and state levels to inform and drive its programs.

CMAS Forum

The identified stakeholder community successfully convened in the summer of 2009 when CCI hosted a first-of-its-kind CMAS Forum in Crystal City, Virginia. The CMAS Forum gathered key stakeholders within the alerts and warning community to address critical issues and determine next steps for the CMAS RDT&E program. The Forum featured a panel discussion that provided a shared understanding of the overall CMAS initiative and breakout sessions that identified stakeholder needs, priorities, and key initiatives to help in determining the direction of the CMAS RDT&E program. The community worked together to: generate a shared understanding of the CMAS RDT&E efforts; identify needs for the CMAS RDT&E program to address; define clear next steps for stakeholder involvement; and create a coalition of local, state, and Federal representatives working toward an effective CMAS solution. Further, in an effort to bring the shared information and lessons learned to fruition, the pool of attendees—including alert originators and disseminators, emergency responders, academia, and industry organizations on

the local, state, national and Federal levels—enlisted themselves in Action Teams based on areas of interest and expertise. These Action Teams will collaborate to identify and communicate the requirements, needs, and critical issues of the alerts and warnings community for consideration in future CMAS RDT&E planning.

Critical next steps following the CMAS Forum will involve continued participation from attendees. Action Team members will use the CMAS Forum Web site (www.cmasforum.com) to help coordinate their efforts. Launched at the end of September, the site provides a platform for participants to receive important Forum resources, updates, documents, and contact information. The Web site also serves as a repository for information on CMAS related events.

Stakeholders have already taken strides to implement mobile alerts and warning systems on the local and state level. For example, James Johnston, Operations Coordinator for Pasco County Emergency Management in Pasco County, FL, and CMAS Forum panelist, helped implement a four-county test study that used cell broadcast for county-level alerting. The study shows just one way that cell broadcast can be used to enhance emergency alerting. When asked about CMAS, Johnston stated: "We have a system capability out there that has the potential in the immediate future of saving lives but we have to get it moving quicker. At the end of day, we'll have a much better communications capability."

Denis Gusty, Deputy Director for the Office for Interoperability and Compatibility and CMAS Program Manager, emphasizes the importance of a practitioner-driven approach when working to enable seamless and secure interactions among homeland security stakeholders. "The CMAS Forum as well as other initiatives have demonstrated the instrumental role that stakeholders play in the development of the CMAS RDT&E Program," Gusty said. "It is crucial to first build the foundation by leveraging current capabilities that influence the capacity to successfully transmit a timely, trusted, and secure emergency alert to all mobile subscribers in times of emergency."

2010 Conferences Showcase Latest and Greatest for Emergency Responders

Amidst Philadelphia's bustling traffic, brilliant city lights, and delicious cheese steaks, the 11th Annual Technologies for Critical Incident Preparedness (TCIP) Conference and Exposition took place from February 2-4, 2010. Each year, this conference gathers together homeland security stakeholders from across the Nation to share best practices, collaborate, and clear a path for new initiatives. Participants included local, tribal, state, and Federal practitioners, academia, business, and industry representatives.

The city of brotherly love welcomed the U.S. Departments of Homeland Security (DHS), Justice (DOJ), and Defense (DoD), to jointly host the event at the Philadelphia Marriot Downtown. Themed "Critical Connections: Linking Responders with Technology," this three-day Conference highlighted training tools, technologies, techniques, and research, development, testing, and evaluation investments that will improve preparedness at the onset of a crisis. TCIP featured best practices and lessons learned, focusing on ways emergency responders can effectively manage life-threatening events including natural disasters and terrorist attacks.

With key leaders, researchers, and practitioners participating in approximately 100 sessions, TCIP showcased in-depth demonstrations, inspired innovative public safety initiatives, demonstrated the latest cutting edge technologies, and offered comprehensive educational training tools that will assist the emergency response community in their mission to maintain a safe and secure Nation. Additionally, conference speakers including local and state public safety professionals, and Federal experts shared expert knowledge and experience.

The event also provided a forum for attendees to discuss best practices and engage in open dialogue regarding innovative prevention, preparedness, response, and recovery related to a variety of emergency response fields. Participants were encouraged to develop protocols and solutions to inspire cohesive operations and interoperable communication. Emergency responders were also encouraged to leverage their own experiences in order to develop innovative tools and techniques that will help to secure the homeland.

In order to more effectively execute programs, TCIP provided DHS, DOJ, and DoD with a forum to better understand practitioner needs. With approximately 1,000 attendees and an exhibition showroom housing roughly 120 exhibits, TCIP fostered an opportunity for constructive discussion surrounding the future of emergency preparedness and response.

In a continuing effort to inspire innovation and collaboration, DHS' Command, Control and Interoperability Division and its Office for Interoperability and Compatibility (OIC) will participate in a series of targeted events to showcase leading scientific technologies as well as solicit feedback from conference attendees. These events will be showcased at cities across the Nation throughout the year.

IWCE, APCO, and IAFC

TCIP is not the only conference taking place in 2010 that will gather together emergency response practitioners representing multiple disciplines and jurisdictions. Beginning in early spring, Las Vegas will serve as the host city for the 2010 International Wireless Communications Exposition (IWCE). IWCE highlights the latest progress in wireless communications technologies and draws emergency response professionals, technology end users, wireless service providers, and information technology professionals worldwide. OIC will present the latest and greatest technological advances created to positively impact the emergency response community. IWCE convenes several thousand attendees each year—including industries and communications IT professionals—to share thoughts and ideas on wireless communications technologies.

To kick-off the summer conference series, OIC will showcase projects and initiatives that impact the public-safety community in the Lone Star state for the 76th anniversary of the Association of Public-Safety Communications Officials (APCO) International Conference. From August 1-5, 2010, APCO will convene emergency response decision makers worldwide—including practitioners, industry representatives, and policy makers.

Finally, from August 25-28, 2010, Chicago will welcome CCI to participate in the International Association of Fire Chiefs annual Fire-Rescue International Conference. In the Windy City, CCI will highlight its five program areas—Cyber Security, Office for Interoperability and Compatibility, Knowledge Management Tools, Basic/Futures Research, and Reconnaissance, Surveillance, and Investigative Technologies—and their initiatives within the field of fire protection. With an expected 15,000 fire and emergency response leaders from around the world in attendance, this opportunity will allow CCI to convey crucial information that will enable seamless and secure interactions among the fire-rescue community.



IN YOUR OWN WORDS

By Chris McIntosh, former Chief of Operations Section at the Virginia Emergency Operations Center

VIPER Improves Decision Making for Emergency Responders

At first glance, it may seem as though the Virginia Interoperability Picture for Emergency Response (VIPER) is simply a map fueled by Geographic Information System (GIS)-based technology. However, it is important to recognize that VIPER transcends traditional GIS capabilities. VIPER is a situational-awareness tool that enables interoperable communications and information sharing through a standards-based, two-way sharing environment that allows people—such as myself, a practitioner of 11 years—to access needed information from the right place, in the right format, and at the right time. This means that VIPER provides more than just dots on a map; the tool equips decision makers with a user-friendly capability that will allow them to make better and more efficient decisions to assist civilians in distress.

One of VIPER's notable advantages is that it is not just a storage unit for logistical information; rather, this application enables users to share live, critical information—including the location of the nearest available resources and critical infrastructures (e.g., hospitals, schools, and Public Safety Answering Points [PSAPs], etc.)—in an actionable context. For example, if an incident takes place requiring HAZMAT services, VIPER would allow me to see exactly where the incident occurred, swiftly contact HAZMAT responders and immediately connect them with the critical information they need, such as the nearest evacuation site. In addition, if the HAZMAT team were to be directed to a PSAP and have access to PSAP radios, then the control posts would be able to listen to the team's responses through the VIPER tool. VIPER provides teams with the ability to closely monitor interactions and determine what resources are needed, even if the incident is taking place 500 miles away. Using a common interface, VIPER provides the team and other practitioners with complete situational awareness about an emergency they are not near.

Currently, VIPER has been used by a broad base of localities and state agencies for 20 months. These groups have experienced improved decision-making capabilities, a great improvement over the previous "I don't know what I don't know" obstacle that hindered practitioners in the field. Before VIPER, practitioners had no way of

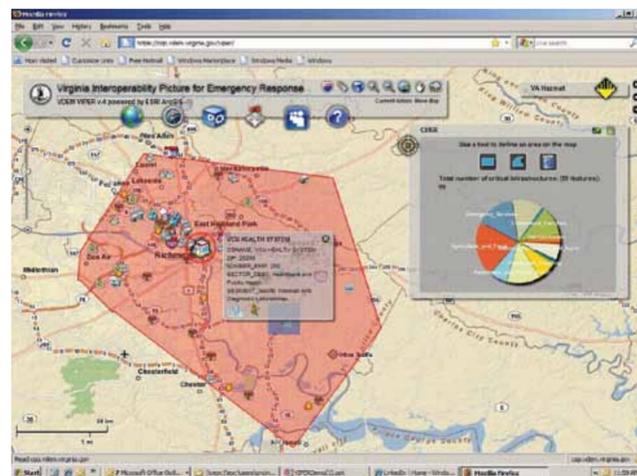
knowing that they were lacking critical information. We relied solely on voice communications and other types of information that came in from many different sources, and we used this information to the best of our ability to define the context of the emergency. There was no way to visualize the full extent of the emergency, which resulted in different individuals addressing the same incident with different information and perspectives. I have seen emergency situations where control post practitioners were not aware that a resource such as a school was located in the vicinity of an incident, and were therefore unable to include it in the list of resources for police officers and EMTs responding to the site, possibly affecting the end result of the emergency. Applications like VIPER extend past the knowledge banks of responders at the control

boards or in the field, thus enabling us to perceive the situation holistically.

The Sum is Greater than the Parts

It is important that each organization and agency have their own common operating system that is equipped to share information with the community as a whole. For this reason, more than 20 states have requested and received the code for VIPER since its inception. These states have been able to tailor the code to meet their various needs, benefitting from the application in the same way we have. We are also helping various localities develop their own systems that will be able to share information with state systems.

There is limitless potential for situational awareness applications such as VIPER to positively impact the decision-making processes for the emergency response community. One obstacle, however, that could hinder VIPER's growth is the tool's susceptibility to a lack of regular updates from users. Systems like VIPER are only going to be as good as the information that is made available to it. No matter how cutting-edge an interface may be, it will remain just an interface unless the emergency response community considers the opportunities to gather information and apply it to the system. Regularly inputting current information into these two-way sharing applications will allow emergency responders to connect to the resources they need and conduct response and recovery efforts more efficiently.



There is limitless potential for situational awareness applications such as VIPER to positively impact the decision-making processes for the emergency response community.

SPOTLIGHT

Ashley Strickland: Firefighter, Captain, and Interoperable Communications Activist



As a 20-year veteran of the emergency response community, Firefighter Ashley Strickland is no stranger to the processes required to improve communication in times of crisis. In an effort to address the communication challenges facing emergency responders today, Mr. Strickland has devoted tireless hours to the establishment of interoperable solutions.

Mr. Strickland has held several roles in emergency services. For over a dozen years, he served as a paramedic and volunteer firefighter. From there, he took on the role as Emergency Medical Services (EMS) Manager for Johnson Memorial Hospital in Franklin, Indiana. At the Johnson Memorial Hospital, Mr. Strickland initiated the EMS Education Department where he managed the affiliation and education of 15 Fire Departments and their EMS units. He also helped private organizations and industry members arrange emergency response plans for everything from everyday emergencies to large-scale events. Finally, Mr. Strickland helped to establish and affiliate Indiana's inaugural all-volunteer Paramedic Certified Rescue Program. Currently, he is in his 11th year at the Plainfield Fire Department.

When Mr. Strickland went on to become the Captain of the Plainfield Fire Department, he acted as second in command of a shift of more than 20 firefighters. Not only this, but he also maintained the Department's Radio and Data systems. Through his leadership of central interoperability issues related to radio and data, Mr. Strickland ultimately became the Program Manager of a committee researching a countywide interoperable radio system. Mr. Strickland made outstanding strides as Program Manager, bringing together four Public Safety Answering Points (PSAP) and 26 other local and state agencies into one PSAP and radio system. As Program Manager, he became aware of the "Digital Radio Issue" and was one of the original members of the International Association of Fire Chiefs who actively began researching this issue.

Mr. Strickland has also served as a key member of critical task forces that work to make interoperability progress across many different levels of the emergency response community. Some of these working groups include the SAFECOM Emergency Response Council, APCO P25 User Needs Subcommittee and P25 Compliance Assessment Task Group, and the Video Quality in Public Safety Working Group—a group currently developing standards for public safety video quality in technologies such as surveillance systems and day/night thermal imaging standards.

Mr. Strickland has dedicated the entirety of his career to improving communication during rescue and recovery efforts. His committed service to the enhanced interactions, protocols, and technologies employed by emergency responders has, among other achievements, resulted in a significantly upgraded statewide communication system—another demonstration of Mr. Strickland's innovative and pioneering approach to the realm of emergency communications.

Q&A with Ashley Strickland

Q. How long have you been serving the emergency response community?

A. For about 20 years. I started out as a volunteer firefighter and then became a medic for a private service. From there, I worked at a hospital and eventually became an EMS manager. After working in that capacity for a few years, I became a full-time firefighter. I've been a full-time firefighter for 10 years now.

Q. When did you notice interoperability becoming a topic of focus in your career?

A. As long as effective communication has played a key role in the successful operations of our team, interoperability has been a priority for me and my colleagues. Following the events of Oklahoma City and September 11, 2001, I saw interoperability become a major focus for emergency response groups nationwide. When the world saw that the situation in New York required many outside agencies to come in and participate in the rescue efforts, it seemed that the interoperability challenge escalated to a national priority.

Q. Has your region experienced any interoperability milestones since those pivotal events?

A. Definitely. One of the nodes of Indiana's statewide communication system has received a significant upgrade. As a result, 25 different agencies and four Public Safety Answering Points have been brought together. Some of those groups had been working together for years but still followed their own protocols. These groups were reluctant to modify their routines because they didn't want to stray from methods they had grown accustomed to. Six months following the statewide communication system's refurbishment, a significant emergency took place. This incident required many different groups to come together and integrate their processes—even responders who were off-duty in other jurisdictions were asked to report. The effective interoperable communications that took place made a huge difference in the outcome of the emergency. Those who hadn't originally understood the depth of the interoperability challenge began to understand its importance and complexity. This level of understanding among disparate groups represented a significant step forward for our region.

Q. What interoperability challenges is your team currently facing?

A. My region now faces the hurdle of obtaining interoperable data from different agencies in the field and acquiring the right tools for that. I am particularly seeing more and more how helpful it would be for our units to be able to quickly access local data.

Regarding the issue of data interoperability, it is imperative that we have operating procedures and governance in place to regulate all of the current standards. Further, I think that emergency response groups would immensely benefit from the establishment of one clean open standard. If that were to be solidified, a lot of doors would be opened to see forward progress.

Q. How would you encourage other emergency response groups to get started on the path towards improving interoperability?

A. My first suggestion would be to obtain a state interoperability coordinator and from there, a regional interoperability coordinator. Conduct regular discussions with these leaders by clearly communicating about the obstacles facing your teams. Ask for direction and assistance as needed. It is helpful to collaborate with a third party on major interoperability issues—someone who does not have a conflict of interest and is willing to get involved. Once a third party is invited to evaluate the problem, emergency response groups may be surprised to discover that making certain upgrades are not as difficult as it may seem.

Q. Are there any other interoperability-focused hot topics you would like to address?

A. The emergency response community must have more compliance testing and standards development that manufacturers abide by. If standards exist, but no manufacturers maintain these standards, then the point of having standards becomes obsolete. As accountability for manufacturers increases, response and recovery efforts will become more efficient across the board.

Lastly, I think that one of the most significant interoperability milestones we've seen are those moments when people forget what it is. When we don't even recognize the level of interoperability taking place—when seamlessly communicating across disciplines and jurisdictions has simply become the way teams operate. That's when we've achieved interoperability.

Southeast Regional Operations Platform Pilot Achieves Information Sharing Milestone

Interstate situational awareness such as weather conditions, traffic, location of gas supplies, and location of critical infrastructure and power grids represent an imperative aspect of public safety during emergency situations. Unfortunately, many states do not currently have the ability to share information with their neighbors in order to develop an accurate and real time situational awareness.

The U.S. Department of Homeland Security's (DHS) Command, Control and Interoperability (CCI) Division within the Science and Technology Directorate is working with various states to ensure that this information sharing inability becomes a challenge of the past.

During the fall of 2009, CCI—in partnership with DHS' First Responder Technologies Program—hosted their Southeast Regional Operations Platform Pilot (SE ROPP) Capstone Demonstration, marking the first major milestone in their nationwide information-sharing initiative—Virtual USA. The demonstration brought together six states including Alabama, Florida, Louisiana, Mississippi, Texas, and Virginia, along with the National Guard and FEMA, to demonstrate how new information-sharing technologies and frameworks allow states to share information when faced with an emergency.

The demonstration took place at the Federal Emergency Management Agency (FEMA) National Exercise Simulation Center (NESC). Emergency practitioners together with state homeland security, emergency management, Congressional and White House representatives watched live as the six states navigated simulated emergencies and constantly shared critical information. As participants watched, the demonstration proved that the technology integration solutions and governance framework required for information to be shared among these states is currently in place.

By proving that such information sharing is possible, given the right technology and governance frameworks, the SE ROPP demonstration exhibited a possible nationwide model of real-time, seamless information sharing system for emergencies. The SE ROPP, however, is not the only group within the Virtual USA initiative seeking to seamlessly share information.

CCI's Virtual USA initiative is also working with emergency response communities at all levels to create a cost-effective nationwide capability that significantly improves information sharing and decision making

during emergencies. Using current and emerging technologies, Virtual USA integrates existing information sharing frameworks and technologies to enable collaboration at all levels by providing critical context for information and making that it actionable.

Virtual USA's mission aims to encompass initiatives from every level of government to address improving information sharing and interoperability during emergencies. With improved interoperable technologies and collaborative interactive information sharing frameworks, emergency responders will have access to the information they need, when they need it, to save lives.

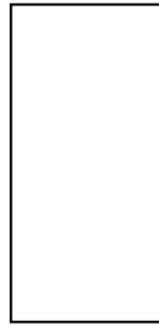
Information Exchange Initiatives Across the Nation

Since Virtual USA's conception in early 2009, information exchange initiatives at all levels have taken place throughout the Nation. At the state level, Alabama and Virginia have created statewide systems known as Virtual Alabama and Virginia Interoperability Picture for Emergency Response. The City of Beverly Hills, California, has also embarked on a multi-jurisdictional initiative to launch a Virtual City platform that can be shared by partners across California. At the regional level, in addition to the SE ROPP, a pilot is underway in the Pacific Northwest to integrate existing platforms and implement enhanced tools to allow states' systems to interoperate and exchange information. At the Federal level, the DHS Office of Infrastructure Protection has established DHS Earth to provide key elements of a common operating picture.

These initiatives use a variety of technologies to assist in the collection, management, analysis, sharing, and protection of information—constituting key components of Virtual USA. Examples of research and development projects currently underway within CCI that support the Virtual USA initiative include: the creation of a multi-band radio; sensor webs capable of communicating wirelessly and acquiring geographically disparate real-time data; an integrated public alert and warning system, and commercial mobile alert service; and network identity management.

More information on the SE ROPP demonstration and Virtual USA can be found at www.firstresponder.gov/virtualusa.

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Winter/Spring edition 2010

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