Interoperability & Emergency Communications News Clips
August 7, 2009 – August 21, 2009

Can you hear me now?
August 21, 2009
Examiner
By Mark Siggelkow
URL: http://www.examiner.com/x-8372-Fire-Safety-Examiner~y2009m8d21-Can-you-hear-me-know

Communications on the scene of an emergency are critical, whether it is a single patient medical run, or a multiple alarm fire. It cannot be overstated how important communications are to a successful outcome during an emergency.

The original two-way communication between emergency responders and a central dispatch point occurred in 1923 in Australia. Motorola launched their first two-way radio in 1936. From there, the march forward to today has been full of starts and stops.

The basics of a two-way radio are a receiver, such as the AM-FM set in most dashboards, and a transmitting unit with a microphone. The head unit has volume control and channel selection. Over the years, tubes were replaced by transistors, and eventually those were replaced by microchips and computer control interfaces.

With each major step forward in the technology, came an improvement in the ability of the people on the street to communicate with the command and control center.

However, when the technology changed, as with anything electronics, the previous version was outdated and often incompatible with the new, creating problems.

One of the major problems that has existed within the emergency response community is differences in the frequency bands. One department may have older technology, or a new proprietary system that will not work with a neighboring department, making communications between the two departments next to impossible without additional radios or other equipment.

Radios typically operate in VHF, UHF and 700 and 800 megahertz for emergency responders. In some areas of the country, all of these bands are used in one small area by the different agencies. Police may be operating on the UHF band, while the fire department is on the VHF band, and the responding EMS units may be in the 700mhz band—all responding to one traffic accident on the interstate highway. Police cannot communicate directly with the fire and EMS units to provide them with approach directions. Fire cannot communicate with EMS—or vice versa—about patient conditions or extrication needs. All of these communications need to be relayed to a dispatch point, which may or may not have the ability to transmit to the other units. If they cannot directly contact the units, you have one dispatcher calling the other dispatcher, who then contacts the units. The simplest way to explain it is as a game of telephone, where the message eventually is corrupted from what was originally said. This also represents a series of delays, which add up to minutes of precious time lost simply trying to get additional help, or proper routing information.

The technology in the past has not allowed for a compact, portable and handheld radio that can work across all of the bands, and work in analog and digital systems. Some fire scenes will feature a chief sitting by a command board with five or six radios just to manage the crews due to incompatible technology.

The Department of Homeland Security's (DHS) Directorate of Science and Technology has announced the initial field testing of a multi-band radio. This is the first time that the potential for an "all purpose" first responder radio has been tested on a wide scale.

What does this mean for the average fire department in the US? At the moment, not much. Because of the testing cycle, and due to pervious attempts at making such a radio, the manufacturer has limited its production to only enough units to complete the testing. So, your local fire chief will not be ordering one of these new radios for Christmas.

But this is also a major step forward compared to previous attempts at this type of radio. DHS has stepped into the process to ensure that the federally stated goals of interoperable communications are fully met, and not through means that are un-reproducible in different areas. The federal government through various studies and other mandates has taken seriously the calls for better communications. This call has been heard from many fire fighters for decades. It was heard very clearly during the September 11, 2001 attacks.

The FDNY had radio problems for many years. Various efforts were made, and after the 1993 attacks, a new radio system was ordered and purchased. Unfortunately, this system was plagued with problems and lack of effective penetration in buildings, and was ultimately shelved, and the older radios were put back into service. During the rescue efforts at the World Trade Center, too few frequencies were available, and too many messages to evacuate fire fighters went unheard.

The typical model for communications has a number of frequencies used during a fire response or other emergency in an effort to streamline operations. One frequency is used for dispatch and responding units to communicate, another is used for overall fire ground communications, and any number of frequencies can be used for various specific groups on the fire ground. In a typical fire, an incident commander can have four, five, six or more radios on the desk to manage the scene.

Now, add to this situation different departments that are using incompatible radio frequencies. Additional radios or other equipment is needed, further complicating the situation.

This all band radio will make communication seamless. The need for patching equipment or different companies to carry multiple radios will be eliminated.

This new radio, in addition to being of the same size as current handheld radios, was designed with current pricing in mind. DHS made price a consideration in the overall evaluation of vendors. This is a piece of good news for all citizens. The government is

watching the bottom line in some areas. It also makes simple sense—what good is the new technology if no one can afford it?

It sometimes appears that the government moves slowly to correct problems. In the eyes of many first responders, a radio that can communicate on any band with nothing more than the turn of a dial is long overdue. But this is something that has been in the development process since the call went out for interoperable communications in the wake of September 11.

When these radios finally reach the local fire departments, the number "343" should be added to each radio. This is the number of FDNY Brothers who perished doing the greatest job on earth. They are also the reason the calls of all fire fighters for better communications were finally heard.

The evaluation process will last at least 30 days after the units are placed in service. Once the data and reports have been reviewed and any deficiencies corrected, these units should be available nationwide.

For some of us in the fire service, it seems like waiting for Christmas morning to open the presents under the tree. We know what this means, and we can't wait to finally have a safety issue that has plagued us for decades finally resolved.

Stay fire safe, and thanks for reading.

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In-building codification trend creates opportunity for vendors
August 20, 2009
Urgent Communications
By Glenn Bischoff
URL: http://urgentcomm.com/networks_and_systems/news/codification-vendor-opportunity-20090820/index.html

Municipalities increasingly are codifying in-building coverage requirements for first-responder communications. That trend likely will accelerate now that international and domestic codes, the latter created by the National Fire Protection Association (NFPA), were finalized earlier this year.

"If you don't have a code today, you will in the future," said in-building communications system expert Jack Daniel, who spoke on the topic this week at the Association of Public Safety Communications Officials (APCO) annual conference.

Daniel said the codes can be adopted outright, or municipalities can use them as a blueprint for developing their own codes. In either event, the task of writing in-building coverage codes just got a lot easier, he said, and that should spark increased activity.

"It saves you from having to write your own code, which everyone has done over the past several years … this takes out a big chunk of that effort," Daniel said. "If you refer to the national codes, you already have an authoritative source for your code."

But he added that the codes "aren't cast in stone" and can be modified to meet local requirements.

According to Daniel, the NFPA code requires, among other things, that:

- Backup batteries provide 12 hours of 100% operation;
- Signal boosters are housed in NEMA Type-4 enclosures, with batteries housed in NEMA 4 waterproof enclosures;
- Systems provide 99% coverage in critical areas as designated by the local fire department, and 90% coverage in general-use areas;
- Buildings use distributed antenna systems with FCC-approved signal boosters;
- Systems are capable of transmitting on all local public-safety frequencies;
- All system components be compatible with local public-safety radio systems;
- The system designer and operator are FCC-licensed; and
- Building owners are contracted with a service provider that can provide two-hour response after being notified of a system failure.

Manchester, N.H.,–based Cellular Specialties has been developing in-building wireless systems for commercial operators for a decade and branched into enterprise-level installations about four years ago, many of which involved public-safety entities. The company introduced at APCO a digital repeater that operates in the 700 and 800 MHz bands and which features a software-defined filtering system to let users change frequencies over the air.

"You don't need to do a forklift upgrade, and it will tie nicely into any DAS that is installed and bringing in coverage for the wireless service providers," said Kelly Carr, CSI's president.

One of the company's installations was at Phoenix University Stadium in Glendale, Ariz., the home of the Arizona Cardinals professional football team. The company worked with a half dozen public-safety agencies on the project, which provided valuable experience.

"All of them had different frequencies they were operating on, so getting the interoperability of the system to work and provide coverage for each one of those entities was a challenge," Carr said. "But we were able to do that. We had to work very closely with the manufacturers we were utilizing for the system architecture to make sure we put together a nice solution that met everybody's needs."

Targeting public-safety directly seemed like a natural leap, particularly given the codification trend, so the company recently hired a public-safety business development director, David Tuttle, who formerly was with Sprint Nextel and who worked directly with Sprint co-founder Morgan O'Brien. The company's strategy will be to rely on

manufacturers reps that have relationships with local radio dealers that in turn have existing relationships with the public-safety agencies in their areas, Carr said.

Educating everyone in the food chain — and the size of the food chain — has been another challenge.

"We're not only dealing with the municipalities themselves, we're also dealing with the real estate community, architects and general contractors. We're educating them about the new mandates that have been written into the codes," Carr said. "They might not be in force today, but they're going to be more widely accepted and utilized … so getting people to understand that is a big part of the process."

The building owner bears the burden — and expense — of complying with such codes and cost is the biggest stumbling block to such installations, Carr said.

"Some people think that this is like a cell phone or two-way radio, that they can spend 500 or 600 hundred bucks and cover the whole building," he said. "They don't understand that to make your building truly a wireless building, you have to first wire it from top to bottom."

But Daniel doesn't believe there will be any resistance from developers of new constructions. "When you look at the cost of these systems, compared with the cost of a new structure … it is absolutely minimal when you're talking about a $20 million, $50 million, or $100 million building. It's all relative."

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Full-Service Delivery of Geospatial Data Gains Steam
August 19, 2009
Government Technology
By Mary Jo Wagner
URL: http://www.govtech.com/gt/articles/712837

Since 2000, traditional business has become all about the "e" - e-commerce, e-procurement, e-government -- and the tangible benefits that technology has delivered to public agencies, private businesses and residents.

For spatial data managers and providers, the "e" has typically equated to geoportals -- online anchor sites offering a wealth of spatial data and map layers for users to access, view and order. Though the data transparency and collaborative environments created by online spatial distribution systems can improve productivity and efficiency, organizations have often implemented their self-service concept with a notable "e" missing, and that is "e-delivery". Instead, online spatial distribution has typically meant online ordering and offline fulfillment.

"Allowing users to view spatial data online and request needed data sets is a fairly easy proposition," said Sean Simpson, GIS manager for the city of Surrey's engineering department in British Columbia. "However, manually fulfilling those common, repetitive requests can tax resources and inhibit your ability to serve customers efficiently."

Outdated 'Henry Ford' Model

The offline fulfillment model has dominated, in part, because there haven't been Web and GIS tools that are sufficiently robust to remove the human component of extracting, transforming, integrating and distributing data. Particularly problematic has been finding a way to resolve interoperability issues around diverse data formats, which has left many organizations with a "Henry Ford" type of online offer, says Don Murray co-founder of Vancouver-based Safe Software, a spatial "extract-transform-load" (ETL) company.

"A key challenge to full-service spatial data distribution is finding an efficient way to distribute data in the format or data model that is immediately usable to varied user communities," Murray said. "Different user communities have different needs, and they need to see the data in different ways. That has often led to data offers similar to Henry Ford's approach when he first introduced his automobile line, which was, 'You can have your car in any color as long as it's black.' So users can order data online, but then they are left to their own devices to restructure the data themselves."

Users Expect Immediacy

With the heightened visibility of spatial information shown by high-profile aggregators and distributors like Google Earth, customers from varied user communities look to and often expect that same immediacy from local government and other providers of spatial data. They want to be able to view data online, choose only the data sets and formats they need, order them and then download the files.

Indeed, the unrelenting demand for online information "drive-throughs" has challenged organizations to transition their partly self-service online distribution systems to full-service ones -- from viewing to e-delivery. Thanks to substantial improvements in Web technology and GIS tools -- particularly spatial ETL tools -- organizations in Canada, Europe, the United States and New Zealand are triumphing over significant challenges to automate data processing and create dynamic, user-friendly information drive-throughs that quickly and intelligently serve both internal colleagues and external customers.

Surrey's COSMOS Web GIS system allows users to search for data, order only the specific data set they need, pay for it and download it. Europe's transnational LoG-IN system enables a host of users in Belgium, Germany and the UK to instantly and securely share data in whatever format they need. The Coast Survey Office (OSC) of the U.S. National Oceanic and Atmospheric Administration offers GIS-ready nautical charts for immediate download and integration into GIS workflows through its ENC Direct service. And in New Zealand, Landcare Research's geoportal provides environmental data for automatic download in different formats and coordinate systems.

One Unified Driver

Although managers of these systems did not experience the same development challenges, they all were motivated by one primary driver: relieving their limited personnel resources from the time-consuming administrative tasks of processing data requests.

"In conducting research at the beginning of the LoG-IN project, we discovered that the typical local GIS professional spends 80 percent of their time in processing information requests and only 20 percent in actually updating and improving data layers," said Filip Meuris, head of the e-government department of Flanders, Belgium-based Intercommunale Leiedal, a regional development agency and primary partner for the partly European Union-funded LoG-IN project.

The same administrative burden was wearing on the GIS data providers at Landcare Research, OSC and the city of Surrey. Spurred by the desire to develop a technical solution to a resource challenge, they chose to capitalize on the connectivity of the Web and the data transformation strengths of Safe Software's FME software to offer a better way to create, manage and distribute spatial data. The end result has been freedom -- for users to be truly self sufficient in choosing and receiving customized data sets, and for GIS professionals to be more proactive, augmenting their data wares to only offer the best and most up-to-date data layers.

"Providing an online distribution system based on FME helps people do their own GIS work and incorporate GIS data into their own workflows," Simpson said. "We can now supply requested raster and vector data on the fly. The system restructures it and presents it to users in the way that they can immediately use it. That helps minimize the burden on our department to service the requests. It's a far more responsive and effective way to service customers."

Reaching this e-freedom comes with its share of technical and infrastructure challenges, but managers say that with the right vision, internal commitment, focused partners, political buy-in and distribution model, an automated Web-based spatial distribution is a rewarding reality.

Dealing With Data
One of the first hurdles to address is data "readiness" -- having a clear understanding of what data is available, where and how it is stored and how much of that data will be made available to particular user groups. Understanding end-users' data needs will also help create a more targeted offering.

"Knowing and understanding your data and what users want to use the data for are challenging requirements to resolve," said Matt Austin, a physical scientist. "Often systems are developed without talking to or involving the end users, so the service is not what they want or is far more complex then what it needs to be."

Closely linked to the data-understanding exercise is the data conversion challenge -- how to serve a multitude of unique data format preferences and software systems.

The 35 local authorities involved in the LoG-IN project, for example, work with more than 80 different formats and seven software systems. And that doesn't include external customers' partiality to certain formats. Trying to find a GIS tool that could handle all that variety automatically and cater to users' format and projection needs can be a daunting proposition.

However, according to Meuris, with FME the data format is a nonissue. Since FME handles all data conversions automatically, local authorities can maintain their spatial data in their own native formats and coordinate systems. And with the openness of the LoG-IN's Generic Information Infrastructure -- based on open standards, XML/GML and Web services -- users can immediately integrate custom-made data to build powerful Web applications using only a browser.

Surrey, CSO and Landcare Research also faced conversion challenges posed by the significant volumes of data they managed and ultimately wanted to offer. For Landcare, meeting this challenge was an exercise in keystrokes, said Niels Hoffmann, a GIS specialist with the agency's Hamilton branch. Staff designed the FME coordinate reprojection and data set clipping workflow by selecting four data "transformers" and connecting these to create a data flow diagram that automatically controls the data transformation.

"FME easily manages translations from very large data sets such as our Fundamental Soils Layer that includes over 100,000 features," Hoffmann said. "With its extensive list of supported formats, we'll be able to easily extend our support for formats and coordinate systems in the future."

Mapping a Model
The distribution model may look good on paper, but physically building it may be another story. Indeed, getting diverse data object models, software solutions and hardware systems to communicate, integrate and interoperate -- particularly across countries -- can require some technical ingenuity.

For the LoG-IN system, all of the local authorities' varied formats and systems needed to work as one. That meant the data-sharing pipeline's structure needed to be like a chameleon, enabling users to freely request data in whatever format, projection or coordinate system they need and then respond accordingly to that specific request. After testing FME technology for one year, Meuris said it proved to be a configurable data transformation chameleon.

"We are very different as organizations," Meuris said. "We have high demands for data manipulation and we need to serve many different user groups -- GIS and [computer-aided design] alike," Meuris said. "With FME, authorities can upload specialized data sets into their database and the software takes them, brings them to the right nodes of the shared server database and puts them in the right coordinate system. It easily extracts, converts and delivers any data requested. It also allows users to automate some data processing tasks."

Though Landcare's existing geospatial portal allowed users to view available data layers and query map features, it didn't offer a provision for automatic download. Hoffmann also chose FME to complete the distribution process.

"FME proves an extremely flexible platform for automated data delivery," he says. "The software's .NET API allowed for seamless integration into our existing architecture, and its internal job request database has also provided a better audit trail for auditing data usage."

For Surrey's COSMOS system, Simpson had the additional issue of integrating e-commerce functionality -- a payment process that was previously done manually by acquiring the customer's credit card number by telephone.

"For us, there was no precedent to follow for an e-commerce mechanism -- no one else was doing this," says Simpson. "We had to develop the right costing model and find shopping cart technology that would hook in to our existing system, FME and our Web interface.

"Of all the integration components, FME was the only given," he added. "We knew it would handle the data extraction, translation and delivery functions without problem."

The "E" in Distribution
An open window to spatial data demands that managers provide sufficient security to quell data policy concerns. ENC Direct, COSMOS, LoG-IN and Landcare Research all adopted security measures to maintain the integrity of the available data. Users of COSMOS, LoG-IN and Landcare Research need to apply for and receive a valid logon, and security features are all built-in to enable managers to readily add new users and to select data availability based on user clearances.

Once on the site, however, there's a new challenge -- providing a complete end-to-end system that allows users to readily find the data they want, extract and order only the specific data layers they need and to deliver that data electronically. What that meant for developers was to find an effective way to displace what had been an intensive, behind-the-scenes human task with a completely seamless, automated electronic back-office function.

The common solution for all of these systems was to employ FME technology to provide the electronic clip, zip and ship functionality for the masses.

"Often users are forced to download far more data than they actually need and then they have to filter through to get exactly what they wanted," says OSC's Austin. "And then sometimes they need to restructure the data themselves into a usable format. Using FME software for ENC Direct, users can zoom in to the area of interest, turn on the data layers they want, choose their preferred data format and coordinate system and download it as a zip file in seconds."

"Although allowing users to only request a specific subset of our entire data is complex by nature, we needed to make the user experience as easy as possible and support that with an intelligent back-end to foster loyalty to the site," Simpson said. "Based on FME, COSMOS allows us to let the customer rule by giving them the power to choose what they want and how they want it and then delivering it to them in a timely fashion, 24-hours a day."

That freedom to choose and e-delivery are also beneficial products of the Landcare and LoG-IN systems.

"The 80 percent manual work done by local authorities previously is now done automatically or in seconds with a few keystrokes," Meuris said. "Removing the time-consuming data-processing tasks from authorities allows them to be far more efficient and productive, and affords them the time to develop applications or services with far more confidence."

These managers have pioneered their way into end-to-end Web-based spatial distribution systems. Breaking through the online ordering and offline fulfillment pattern, they have driven themselves to self-service online spatial distribution systems that truly emphasize the "e". They may choose to add to the data menus at their information drive-throughs, but it's clear that the back-end will continue to fuel the front-end full service offering.

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Experts address hot communications topics at APCO
August 19, 2009
PoliceOne.com
By Doug Wyllie
URL: http://www.policeone.com/police-products/communications/articles/1875556-Experts-address-hot-communications-topics-at-APCO/

It's a fairly good bet that the estimated 5,000 people arriving at the annual meeting of the Association of Public-Safety Communications Officials Conference in Las Vegas this week had a long list of to-do's and must-attend meetings (only a handful of which involved the terms D-Block, 700 MHz, LTE, and mobile broadband). In fact, with such a compelling program of keynote addresses, business meetings, education sessions, member voting, and various vendors to visit in the exhibit hall, it was a little surprising that these topics were the buzz of the event.

During one of the sessions on the topic, Chuck Dowd, Deputy Chief of Police for New York City, called the 700 MHz Nationwide Public Safety Shared Wireless Broadband Network "the hottest topic in public safety today."

To be sure, there have been dozens of sessions in which participants discussed other topics as varied as the "top 10 mistakes made in the procurement process" and "the

impact of next generation 911 on CAD and records management systems." They were told about the correlation between global warming and an increasing number of 911 calls, and taught valuable leadership skills to be applied as they rise through the ranks. APCO has members ranging from the most junior call takers to Presidential and Gubernatorial appointees.

Even with all that activity taking place, issues related to the public safety spectrum dominated much of the conversation.

Many people said that there is a "perfect storm" of simultaneous activity which spurred a somewhat sudden increase in interest in the spectrum debate. Included here are FCC waiver applications filed by a dozen agencies to build their own regional 700 Mhz broadband networks, an accelerated process to set minimum standards and determine technical specifications for the nationwide network, efforts to have Congress pass a law to reallocate the D-Block to public safety, and a cascade of endorsements of LTE by a host of public safety groups (including APCO, Public Safety Spectrum Trust, and the National Emergency Number Association).

Think National, Build Regional
In the past several months, a dozen public safety agencies have sought permission to build wireless broadband networks in 700 MHz. In the aftermath of the D-Block's failure to sell at Auction last year, followed closely by delays related to changes in leadership at the FCC, many state and local organizations began to grow impatient. Since no public safety broadband network exists, agencies must rely entirely on commercial carrier solutions. At $50 per month per user, these can be an overwhelming budget burden. Consequently, various entities are "seeking authority to deploy public safety broadband systems on a local or regional basis in the 10 megahertz of 700 MHz public safety broadband spectrum currently licensed to the PSST," according to documentation from the FCC.

Those entities seeking an FCC waiver are the City of Boston, the Bay Area (the City and County of San Francisco, the City of Oakland, and the City of San Jose), the State of New Jersey, the City of New York, the District of Columbia, the State of New York, the City of Chesapeake (Virginia), the City of San Antonio in conjunction with area counties Bexar and Comal, the State of New Mexico, the State of North Dakota, the City of Charlotte (North Carolina), and several counties and the City of Cedar Rapids (known as the Iowa Coalition). In addition, one commercial entity, Flow Mobile, has filed a petition.

The number of interested people who showed up at a town hall meeting about these waiver applications illustrates the topic's popularity. The conversation was led by APCO's Bob Gurss, and included comments from PSST Chairman Harlin McEwen as well as representatives of several of the waiver applicants, including Laura Phillips from the San Francisco Bay Area, Chuck Dowd from New York City, Don Denning from Boston, and Victoria Garcia from New Mexico.

Deputy Chief Dowd said that there is a rapidly growing consensus among many chiefs across the United States — not just those who are waiver applicants — that the FCC should move quickly to grant at least some of the waivers for local build-outs.

The town hall was called because of a press release issued late last week by the FCC indicating that the Public Safety and Homeland Security Bureau seeks public comment on the aforementioned thirteen petitions for waiver. The FCC wants to "develop a record that will enable the Commission to explore the full range of alternatives for addressing the waiver requests, while also avoiding prejudgment of pending issues in the Commission's rulemaking proceeding addressing the 700 MHz D Block and public safety broadband allocations."

APCO Executive Director George Rice Jr. told PoliceOne in an exclusive interview that "the examination over the last several months has definitely led to the conclusion that there is no one-size-fits-all in terms of deployment [of wireless broadband]. Agencies that have needs in the immediate are looking for ways in which to fulfill those needs. Thus obviously the waivers have been filed around the country. That's something has been an individual action by each of those agencies and jurisdictions. What has come to fore subsequent to that is that those individual actions have built more of a collective approach. What we'll have then is everybody moving in concert to hopefully deploy and our position is still our position from the beginning — we've espoused the public private partnership and we're still of a mind to support that. If there's a way in which the collective can still be served, these agencies fulfill their immediate and long term needs, and we still reach the goals of the entire national network, I think that's the approach that everyone will want to take and APCO will take that approach."

The comment period is between October 16, 2009 and November 16, 2009, and any entity with a concern or observation on the matter is encouraged to send their remarks to the FCC.

McEwen, who has been one of the leading voices on development of the nascent national broadband network, suggested that the effort by these locales to build a handful of local networks is not incompatible with the goal of eventually having a nationwide interoperable network.

NYPD's Dowd said that the early build project will be something that can be shown and shared with municipalities and regions that follow. Echoing those sentiments , Laura Phillips called these waiver applicants "pilot projects" that will do a lot of learning along the way.

To emphasize this point, McEwen also said that some form of a "users group" consisting of representatives from these local build-outs be formed so that information can be shared.

The comment period announced last week by the FCC can be a vehicle that will illuminate a variety of issues — not all of which are directly related to the waiver requests.

"This is the first opportunity in more than a year for public safety to speak up and make their opinions known about all issues related to 700 MHz," McEwen said.

D-Block Reallocation
Another hot topic at APCO was the effort to get the entire D-Block allocated to public safety, increasing two-fold the spectrum available to public safety from 10 MHz to 20 MHz. Earlier this year, eight major public safety organizations met to discuss the future of the nationwide interoperable broadband network in 700 MHz, and agreed to petition Congress to reallocate the D Block, rather than auctioning it, creating a single 20 MHz block of broadband spectrum for public safety.

The Major Cities Chiefs (led by Chuck Dowd of NYPD) is among the groups taking the lead in lobbying Congress to have a bill passed that would shake loose that 10 MHz of spectrum in the D-Block and give it to public safety. Some attendees expect this to dominate the agenda when Congress returns from its recess in mid-September, as long as the current debate over health care reform has concluded by then.

If these lobbying efforts are successful, three things would happen in relatively rapid succession: Congress would pass a law to remove the D-Block from auction; the FCC would create a set of rules adding the D-Block spectrum to the nationwide PSBL (still allowing for the possibility of Public Private Partnerships originally intended in the Auction); and the FCC would grant some number of waiver requests allowing local and regional build out according to the nationwide minimum requirements created by the NPSTC 700 MHz Broadband Task Force, NPSTC, and submitted by PSST to the FCC. Yes, that's an alphabet soup of acronyms, but there are a considerable number of moving parts.

Standards Coming Into Focus
Speaking of acronyms and moving parts, some of the leading experts on the technical aspects of the national broadband network (as well as those local waiver applicants) gathered for a two-hour working session led by the NPSTC 700 MHz Broadband Task Force Chairman Dave Buchanan. During this meeting, a roomful of attendees began to hash out some very important details to be included in the recommended system requirements to be presented by NPSTC to the FCC in September. These suggested technical specifications will then be presented to PSST, which will in turn adopt them during their upcoming Board meeting this fall, and formally present them to the FCC.

NPTSC saw an immediate need to develop interim standards that would allow the waiver applicants — should they be successful in obtaining FCC approval to build out their local regional networks — to develop networks that are compatible with the nationwide network, when that is eventually built. "The 15 organizations of the NPSTC federation appointed this task force to define requirements for state and local networks that will

ensure interoperability in a system of systems approach to a national broadband network. Under a regional model, it is the expectation that any region deploying its own system will define the requirements to provide operability for that respective area," according to NPSTC documents.

During a June 2009 meeting, the Governing Board of NPSTC set the goal of having these standards by the end of August. At the time, many participants viewed that goal with skepticism but with a massive amount of work undertaken in the past 60 days, the objective appears now to be all but achieved.

Among the many items discussed during this session — which are entirely too numerous and too technical to be covered in panoply — were some of the "minimum requirements necessary to enable roaming between LTE (Long Term Evolution) networks built by multiple, independent public safety organizations and commercial service providers."

LTE the 4G Technology of Choice for Public Safety
A variety of public safety communications organizations have endorsed LTE as the Common Air Interface for public safety broadband. The importance of this cannot be overstated. By eliminating competing technologies (most notably WiMAX), some of the very fundamental technical work can begin. Separately, Verizon Wireless recently announced that the company has successfully completed LTE calls (based on the 3GPP Release 8 standard) over Verizon's 700 MHz spectrum in Boston and Seattle. The experimentation reportedly involved file downloads/uploads, streaming video, Web browsing, and voice transmissions using VoIP, and is a fairly clear indication that LTE may not be as far away as some have speculated.

As its name suggests, this technology is truly thought to be a long-term evolution. One participant joked with PoliceOne, "It's a very good thing that public safety has chosen to take an evolutionary, rather than revolutionary, approach. Revolutions tend to have lots of unintended consequences."

PoliceOne will continue to follow-up on our coverage of APCO 2009 in coming weeks and months, and we'll keep a close eye on the specific subjects touched on in this initial feature article. Add your comments below or send us an e-mail with your thoughts.

Public safety needs to help itself when it comes to 911 funding
August 19, 2009
Urgent Communications
By Glenn Bischoff
URL: http://urgentcomm.com/policy_and_law/commentary/911-funding-independence-20090819/?smte=wl

LAS VEGAS — When you speak to Greg Rohde, the executive director of the E-911 Institute, you can hear the frustration in his voice. When you look into his eyes, you can

see the fire that burns within. The frustration stems from his belief that the 911 sector should be much further along the path to its future. The passion is borne from a firm belief that the future is exceedingly bright and eventually will be realized.

I spoke to Rohde yesterday during the Association of Public-Safety Communications Officials' annual conference. We spent a lot of time talking about what's gone wrong, starting with Congress' failure to appropriate the money it authorized in the Enhance 911 Act of 2004. The 911 sector was supposed to get up to $1.25 billion over a five-year period, but so far has received just $43.5 million. Some of that money was used to establish a national coordination office. The rest is being doled out to the states in increments based on population. Less-populated states will receive just $500,000.

"That's not a whole lot of money," Rohde said. "It's going to help, probably, to get a few things started. But it is by no means anything close to a solution to address the major challenges [public-safety answering points] face.
The problem with getting things started is that there is no guarantee that additional grant money will be made available to finish the project, a notion to which Rohde readily agreed. "What does a state like North Dakota do with $500,000? I'm sure that they could find a good use for that, but if that's all they have on the horizon, its usefulness is much less than if they could use the money for the first phase of technology [deployment] and then go for the second phase next year."

Rohde also expressed his dismay with how long it has taken for the federal government to disburse the money. "It is disappointing that it has taken 18 months to get the money out the door … after Congress freed it up. It shouldn't take that long. There are a lot of roadblocks that pop up … and I don't know what the difficulties were. But 18 months is an awful long time to wait for $43.5 million."

I asked Rohde whether Congress dropped the ball regarding 911 funding, and he didn't hesitate in answering, "Yes." But he also pointed a finger at public safety, saying that the sector needs to help itself by presenting a united front to lawmakers and policy-makers.

"The public-safety organizations have to learn to work closer together," Rohde said. "From my vantage point, being with an organization that is trying to work with all of them, it is a major detriment to public-safety communications that the organizations are not working as closely together as they should be.

"They have to figure out a way to be more cooperative and collaborative with each other. I know there are significant differences between the organizations on certain issues, but their leaderships must find a way to resolve those differences."

The reason this is so important is that there is a lot of competition for the attention of lawmakers and policy-makers and, in the case of the former, the dollars they control.

"Public safety is competing for federal dollars against entities that are much better organized," Rohde said. "What happens is that other interests get Congress' attention."

To illustrate his point, Rohde pointed to Congress' reallocation of 24 MHz of spectrum to public safety for the purpose of building a nationwide, interoperable communications network.

"That was 12 years ago. In contrast, it took the European Union three years to get from the point when they decided to do their very first pan-European spectrum allocation to this year, when they issued the licenses for that spectrum," he said. "Twenty-seven countries were able to get together, resolve their differences and hand over their licensing rights to an international body — the European Union.

"We're 12 years along, trying to do a nationwide network, and we're still bickering about basic, fundamental issues. This is a failure. It is a failure not only of government, but also of the public-safety community, by not coming together."

All of that said, Rohde remains very excited about the future of 911 communications in the United States because the technology — which is developing at "breathtaking speeds," he said — is so incredibly cool. He told me of a deployment in Spain, where PSAPs are able to remotely activate the video function on a caller's wireless phone if it is 3G-enabled. They then can transmit the video captured by the caller simultaneously, in real-time, to police, fire and EMS responders while they are en route.

"That's not pie-in-the-sky technology. It works. And it works over a commercial network," Rohde said. "This is a public-safety entity that has completely embraced the potential of bringing in video to enhance emergency response."

If that's not enough to end the bickering, I don't know what would be.

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Thales prepares for DHS pilot
August 18, 2009
Urgent Communications
By Donny Jackson
URL: http://urgentcomm.com/mobile_voice/news/thales-dhs-multiband-pilot-20090818/

LAS VEGAS - Thales Communications is displaying the latest version of its Liberty multiband radio [http://www.thalesliberty.com] - which will be used in an upcoming U.S. Department of Homeland Security (DHS) pilot project - that includes new features and power-charging options at this week's Association of Public-Safety Communications Officials (APCO) conference.

Having received FCC type acceptance and having been included in GSA price lists, the Liberty is commercially available, but full production runs of the multiband handsets will not occur until next year, said Steve Nichols, Thales' director of homeland security and public safety.

Prior to that, the Liberty radio will be used in a DHS pilot being conducted in 14 regions. Nichols said he hopes as many agencies as possible will participate, so they can try the Liberty radio, which communicates on all public-safety bands in the United States.

"[Multiband radio] is a new product concept, and many people - as they are in the land-mobile business - really aren't going to be satisfied until they get one, program it for their system, turn it on and see how it does," Nichols said.

At the APCO show, Thales will demonstrate the Liberty's scan function, as well as offerings associated with powering the radio, Nichols said. Thales has developed a battery charger with an LED bar-graph display that lets users know "how much juice is in the tank" when charging, he said. In addition, the charger can be connected to an IP network to enable remote monitoring of battery management.

In response to a DHS request, Thales also is developing a clamshell pack that uses AA batteries - something that is important in situations where commercial power may not be available for recharging radio batteries, Nichols said.

"Many people said that, when Katrina occurred, there were many radios they couldn't use because they couldn't recharge them with [commercial] power out," Nichols said. "We think it's an important part of a multiband interoperability solution, because the chances are that this radio is going to find application at the kinds of disasters-such as hurricanes, flood or tornadoes, those kind of things - [where the commercial power grid may be out]."

Keeping Kids Safe At School
August 17, 2009
KKTV.com
By Jason Aubry
URL: http://www.kktv.com/home/headlines/53509907.html

Technology is a wonderful thing, especially when it comes to communication. Two people who've never met can talk to one another from half a world away, with just a few keystrokes and mouse clicks on a computer. But, technology can have its drawbacks. Recently, many law enforcement and emergency responders have switched to a new radio technology. The radios use the 800 MHz frequency. Because the new radios cost thousands of dollars, many school districts are unable to purchase the large number of radios they would need to supply each of their schools. Instead, school districts like Pueblo District 70 use two way radios to communicate within the school itself. These two way radios, often called walkie-talkies, have a short range and normally cannot receive or transmit information on the 800 frequency. That is until now.

SchoolSAFE makes it possible to convert the UHF broadcasts into a digital message that can be heard on 800 MHz radios. A SchoolSAFE system is being installed in every single District 70 school. They are the first district in the world to do so. Now, when an emergency occurs, an on-duty administrator can call 911 and tell them they have a problem. The 911 operator will activate the SchoolSAFE system. Administrators will then be able to speak directly to first responders as they head to the school. They will be able to provide necessary detail to the people who need the information most, and will be able to do it quickly. "As a building principal this just gives me a bit of a comfort zone, knowing that I'm going to have that immediate response," says Pueblo West High School Principal, Martha Nogare.

The best part is everyone is connected, so the administrator will no longer have to call a laundry list of school officials after finishing with the initial 911 call. Every party that needs to be "in-the-loop" will receive the information at the same time. Once the crisis has been resolved, the 911 operator or the school district can turn off the SchoolSAFE program.

Under the previous system, Pueblo West High School waited, at times, up to 15 minutes for first responders to arrive. "15 minutes is a long time, alot can happen in 15 minutes," says Steve Sneed, father of a freshman at Pueblo West High School. With SchoolSAFE, administrators are hoping to see that response drop to 3-4 minutes. "Makes me feel a lot better, like I said, 3-4 minutes to 15 minutes that's a lot of time, a lot of things can hopefully be averted with that better response time," says Sneed.

It cost $630 thousand to outfit all 20 schools in Pueblo School District 70 with SchoolSAFE. The district paid $50 thousand while the rest was funded by the Chemical Stockpile Emergency Preparedness Program, DHS's Public Safety Interoperability Communications Grant Program, and the Pueblo County 9-1-1 Authority Board.

Government technology 101: Commercial Mobile Alert System

August 15, 2009
Examiner
By Althea Blackwell
URL: http://www.examiner.com/x-6461-DC-Government-Technology-Examiner~y2009m8d15-Government-technology-101--Commercial-Mobile-Alert-System

Commercial Mobile Alert System CMAS established by the Federal Communications Commission (FCC) will allow cellular providers who choose to participate, to send emergency alerts as text messages to their subscribers. CMAS would provide text alerts from authorized federal, state and local agencies to cellular devices as well as to radio and television.

This month, the Department of Homeland Security and industry met to start work on CMAS. "We are in the early planning stages," said Denis Gusty, Program Manager for the Science and Technology Directorate which is the primary research and development arm of the Department of Homeland Security. "We're working with cellular providers on the interface specs" for government and service-provider equipment that will have to interoperate.

The FCC is requiring cellular providers to individually notify existing customers and post signs for prospective customers if the providers will not be participating in CMAS, in whole or in part. FCC explains that don't look for these notices soon, however, because providers aren't required to provide them until 60 days after the FCC announces that the capability to transmit mobile alerts is available.

"We're shooting for October to have the interface specs in place," Gusty said. "That starts a 28-month period in which the cellular providers have to have the equipment in place to receive CMAS messages." Gusty states the first phase of CMAS involves only text messaging, than evolve to include voice, video or other types of data.

The CMAS network will accept and collect alerts from the President of the United States, the National Weather Service (NWS), and state and local emergency operations centers, and then send the alerts over a secure interface to participating cellular providers.

If the cellular provider opts in than the mobile subscribers will receive three types of alerts:

   1. Presidential Alerts – national emergencies (terrorist attacks)
   2. Imminent Threat Alerts – hurricanes or tornadoes, where life or property is at risk
   3. Child Abduction Emergency/AMBER Alerts – missing or endangered children due
to an abduction or runaway

 If a mobile subscriber opts out of receiving certain alerts and your cellular provider participates you will still receive presidential alerts containing information about the most serious threats.

For more updated information on the CMAS visit the FCC's Consumer & Governmental Affairs Bureau web site at www.fcc.gov/cgb, or email the FCC's Consumer Center fccinfo@fcc.gov with questions and comments.

DHS Cites Progress in Developing Technical Specifications for CMAS
August 14, 2009
TR Daily
By Paul Kirby
URL: http://www.tr.com/ (Subscription only, article link unavailable)

The Department of Homeland Security expects to have one specification for the Commercial Mobile Alert System (CMAS) completed in October and a draft of two others done by the end of this year, according to the manager of the program.

Some in the wireless industry had been frustrated by what they said was slow progress by the federal government in developing the technical specifications related to the Federal Emergency Management Agency's role as the federal aggregator and federal gateway for the CMAS and its portion of the specification work for the interface between the federal government and wireless carriers. FEMA's portion of the system is the Alert Aggregator and Federal Alert Gateway, while the interface between FEMA and wireless carriers is known as the "C" interface.

However, some in industry say there has been progress since the Obama administration took office in January. But the work is taking longer than the FCC had expected as well. The Commission, which adopted rules last year permitting wireless carriers to voluntarily carry alerts, had backed a target date of Dec. 31, 2008, for issuance of the federal interface specifications. It suggested that if the work was not done by then, it would reconvene an emergency meeting of its Commercial Mobile Alert Service Advisory Committee, which it hasn't done.

Denis Gusty, CMAS program manager in DHS' Science & Technology Directorate, told TRDaily that the C interface specification should be completed in October, while a draft of the Alert Aggregator and Federal Alert Gateway specifications is expected by the end of the year.

He said he is optimistic about the progress being made. He said DHS fell behind industry in work on the C interface specification because FEMA, which is part of DHS, didn't agree initially to serve as the federal alert aggregator. But, citing the amount of work needed to complete the specification, he said DHS has "done a very good job of catching up to industry. . . . We're not too far off the mark."

More work has to be done on the Alert Aggregator and Federal Alert Gateway specifications. DHS this month issued a request for information (RFI) seeking input from industry, Mr. Gusty noted, adding that the submissions "will help us refine the requirements for establishing the federal equipment." He said he expects a "draft of the functional requirements" for the federal portion of the CMAS to be ready by the end of this year.

"A lot of the focus has been on the C interface spec because . . . it allows industry then to go off and start working on their part of the system," he said. "Once we have that phase, or that spec completed, we can devote much more time to the federal piece of this system."

Once the specifications are completed, there is expected to be a 28-month period for implementation and testing before the first live CMAS alert is expected to be sent.

Mr. Gusty said DHS and FEMA are working to reach out to various groups to ensure that the CMAS is a success. He noted that more than 70 people showed up for a recent CMAS stakeholders forum. Several areas were identified where improvement is needed, he said. For example, there needs to be more outreach to alert originators and more focus on public response to alerts and warnings, he said. He also said it is crucial to work on improving geo-targeting of alerts so the public pays attention to them. "The initial roll out or Phase I of CMAS will get the message to the local level at the beginning," he observed. "What we're really trying to do is focus the message to the area that's really affected by the event or incident."

As a follow-up to the recent forum, DHS plans to hold an event in September or October with the National Academy of Sciences on gaps in public response to alerts and warnings. Officials are also considering "setting up usability labs," he added.

Indeed, Mr. Gusty stressed that technology is only one part of the puzzle, just like a number of other factors - including governance, training, and usage - are key in achieving public safety interoperability. "There's much more to this project and effort than just the technology piece," he said.

CTIA today filed comments with DHS in response to the RFI. It stressed that DHS and FEMA should focus on completing the technical work necessary for the CMAS to become operational before addressing educational and capability gaps. "For the foregoing reasons, DHS S&T should maintain its focus on efforts to complete the Federal Gateway Interface technical specification and finalize procedures for fulfilling FEMA's role as Alert Aggregator and Gateway Administrator," the trade group said. "Only after these steps occur and interested stakeholders have developed, implemented and deployed the CMAS should DHS S&T turn to future enhancements and evolution of the alerting service."

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Virtual Alabama Facilitates Data Sharing Among State and Local Agencies
August 14, 2009
Government Technology
By Corey McKenna
URL: http://www.govtech.com/pcio/704616

On March 1, 2007, a tornado ripped through Enterprise, Ala., killing eight students and severely damaging Enterprise High School. The area received a historically quick federal disaster declaration just two days later because before-and-after imagery was available thanks to Virtual Alabama, an implementation of Google Earth that contains government-owned data.

In March 2009, Virtual Alabama was used to track a shooting spree in Geneva County that killed 10 people and also resulted in the perpetrator's death. Investigators within the governor's crisis command center used Virtual Alabama to follow the shootings as they

occurred, including elements such as the time it took the shooter to travel from one location to another, the distance covered and the fatalities' identities. With that information, the investigators could draw comparisons as they investigated the crime. Simultaneously they shared that information with the mobile command center that deployed to the county.

These are just two examples of Virtual Alabama's utility. The system improves disaster response through better data sharing and allows city, county and state agencies to collaborate in innovative ways. Before Virtual Alabama, it took the state days, if not weeks, to prepare disaster declarations -- and they weren't always the most accurate. With Virtual Alabama, the state can look at irrefutable evidence of damage and quickly determine its extent.

Inspired by Katrina
The impetus for the application came after rains from 2005's Hurricane Katrina drenched Alabama. Having seen more than 450 tornadoes strike the state during his time in office, Gov. Bob Riley turned to state Homeland Security Director Jim Walker with two simple but important questions: How was he going to assess the damage and apply for federal aid if he didn't know what the communities looked like before the storm? And shouldn't all that imagery be stored in one place?

Walker's answer to the governor's challenge was to build Virtual Alabama using locally owned imagery on a secure, permission-based Google Enterprise platform. Getting started was relatively inexpensive: The state spent less than $150,000 for the software licenses and hardware.

The system contains location data for sewer, water and power lines; radio towers; police cruisers; fire hydrants; building schematics; sex offenders' addresses; approved landing zones for medical helicopters; inventories of hospitals and cached medical supplies, such as respirators; evacuation routes; shelters; land-ownership records; and assessed property values.

Some of the data stitched into Virtual Alabama is sensitive, like floor plans for public buildings. For that reason, even though the data is potentially available to anyone at any level of government, access control is retained by the custodial owner of that information and protected by that agency's security protocols. As needed, first responders -- such as SWAT teams, bomb squads and firefighters -- can request access to the information. "If the custodial owner stays in full control of the data, then [he or she has] no fear of it being breached because it's inside their firewall," said Chris Johnson, Virtual Alabama program manager and vice president of geospatial technologies for the U.S. Space and

Rocket Center in Huntsville, Ala.
Virtual Alabama's platform provides access to the same technology that's behind Google Earth, except it's accessible only to government employees with the proper permissions. "We do this on our own servers behind our firewalls, and we serve it to whoever we need to serve it to, and it has no interaction ... with [Google's] globe," Johnson said.

If a situation changes quickly, then access can widen or constrict depending on the circumstances. "If at 3:00 in the morning, the school administrator needs to widen that loop to include the sheriff, police chief, the bomb squad and whomever else, then she has full control through her IT staff to do that," Johnson said. Once permission is granted, the connection is established in real time and data is streamed to partners, but not necessarily stored by them.

Use in a Disaster
Virtual Alabama has given officials unique insights on a variety of fronts, such as who's likely to evacuate during a disaster and how to help them. For example, the state found that low-income residents are less likely to leave their homes as a disaster approaches. By using socioeconomic data plotted on Virtual Alabama, the state's Department of Children's Affairs can predict who's likely to evacuate and develop strategies to remove the holdouts from harm's way.

Another reason people may not evacuate during an emergency is concern for their animals' welfare. Recognizing this, the state's commissioner of agriculture, Ron Sparks, made a map of pet-friendly hotels and their costs. The idea is that citizens who have access to this data will be willing to get out of the way of a natural disaster knowing their animals also will be safe.

The North Shelby County Fire Department uses the system for basic functions, like hydrant identification and making map books, but it's also useful in assessing tornado damage. "Sometimes you may think you're seeing the picture, but our eyesight is limited. We're blocked by trees, we're blocked by buildings, we can't see what's on the other side of stuff. The system can go and just look," North Shelby County Fire Chief Michael O'Connor said.

"There is just a myriad of uses that is only limited by the individual using it," he said. "It's a wonderful process, and it's going to be part of our new incident command vehicle we're getting shortly."

A major initiative Walker is working on is getting the state's 1,500 schools to import their data into Virtual Alabama. Currently schools can access the system, but they must capture data images they need for inclusion as part of their disaster plans. Feedback about how schools have utilized the program so far has been very positive, according to Sue Adams, director of prevention and support services for the Alabama Department of Education.

A pilot with two schools was to be completed in May. Walker planned to present the pilot's results to school superintendents at their annual meeting in June, and the full implementation of Virtual Alabama in the state's schools will be completed within 18 months.

Photo: Virtual Alabama's platform provides access to the same technology that's behind Google Earth but only government employees have access/Screenshot courtesy of Virtual Alabama

Distributed Security
Maintaining proper control while sharing information across jurisdictions and between levels has been a perennial challenge for governments. "In the past, if I shared my data with you it meant I had to give it to you," Johnson said. "And I had to trust that you weren't going to share it with anybody else or redistribute or use it in a way that I did not intend. Visualization has blown all of that away because now we're no longer data sharing."

With all the data housed within Virtual Alabama -- whether it's land-ownership records owned by a revenue commissioner or sensitive data owned by an environmental agency -- they're all just connections, she explained.

This means it would be difficult for someone to get a complete picture of Virtual Alabama if he or she breached the system. "If we have a breach in our system, it's not a single point of failure," Johnson said. "So you've breached into Virtual Alabama, but you're only seeing the benign layers. We have hundreds of systems that would have to be breached to have an aggregate of the whole."

The security and partitioning of Virtual Alabama is robust enough that even the FBI and Secret Service agents who are operating in Alabama can use the system securely. They use all the system's assets inside their security protocols; but other agencies don't necessarily have access to it, she said.

One key to the system's rapid and wide adoption is that its vector data cannot be stored, exported or removed from the globe. A user can take a screen capture of the data, but the native data cannot be extracted. "However, you can put links in there to the people that hold the native data and their contact information so you can connect to them directly and say, 'Hey, may I have this data for this specific purpose?' For the discovery of data it's been phenomenal," Johnson said.

With Virtual Alabama, the state is trying to increase information sharing. "I'm giving you a feed of information that I think is useful to you. And you think is useful to you, and if I have a change in my situation, as the custodial owner of that data and I need to either send you more data or send you less data or send you no data, then that's in my control," Johnson explained.

The state is working to establish standard operating procedures for the emergency sharing of data housed in Virtual Alabama. The list of people who have access to a particular piece of information changes depending on an alert's level. The IT personnel know who should have access to what data, she said.

For example, after a tornado strikes, the state's Civil Air Patrol photographs the debris trail. The state has a protocol in place so the air patrol knows exactly where to load the data once it lands. "That can change so that if a tornado skips through five counties but it misses two in the middle, you know who needs to have access to that data," Johnson said.

DHS Takes Multi-Band Radio Pilot to the Field
August 13, 2009
Officer.com
By Paul Peluso
URL: http://www.officer.com/web/online/Top-News-Stories/DHS-Takes-Multi-Band-Radio-Pilot-to-the-Field/1$47942

Wouldn't it be great to have a radio that supports all bands used by first responders in a given area?

The DHS is currently working toward that goal -- lending a hand in developing what would become the first multi-band radio designed specifically for first responders. In order to complete its research, responders from various agencies across the U.S. are being involved in the process.

Last month, the department's Science and Technology Directorate announced the selection of 14 agencies for the final phase of its multi-band radio project.

Each agency will take part in the pilot program for a minimum of 30 days beginning this fall.

"We have been going out to people who are on the front line and ask them what they need to make their jobs better and interoperable communications always comes up," DHS S&T spokesman John Verrico said.

"The problem is there are only so many frequency bands available. As the bands get full, we open new ones. We've got a bunch of different frequencies; some analog, some digital. The various agencies responding can't necessarily speak each other."

In February at the International Wireless Communications Expo in Las Vegas, the project was announced, along with the unveiling of the radio that would be tested -- the Liberty radio by the Clarksburg, Md.-based Thales Group.

DHS also awarded the company a grant to further develop the radio, which Thales spokeswoman Sheila Gindes said was previously entirely privately funded.

"We wanted this thing to be the same size and weight as the current radio," Verrico said. "We didn't want it to cost more than what is out there currently on the high end. It also had to be able to communicate in multiple frequencies."

He said other companies that were developing multi band radios were considered, but that the Liberty was the closest to what it needed. The radio covers analog and digital signals and supports all bands used by public safety including 135-174 MHz, 380-520 MHz, 700 MHz and 800 MHz.

According to Gindes, the Liberty is the first multi-band radio covering the entire public safety sector to receive FCC approval.

The company is currently taking orders for the device, but production is being limited to only the pilot program. Commercial production is set to begin early next year.

Since the partnership was announced, the radio has been tested at several events including the Presidential Inauguration, Kentucky Derby and the 2009 Super Bowl in Tampa, Fla.

Verrico said that while at the Super Bowl, he observed the need firsthand for a multi-band radio at large-scale events where various agencies are involved. He said he saw some responders carrying as many as eight radios at one time.

"Now we're getting into focusing on less event-specific usage and more on everyday usage," he said. "There are various organizations at different altitudes and different climates so we will get a really good idea about how these things work when they are really put to use."

Verrico said that while a multi-band radios will improve emergency communications as a whole, the goal isn't to completely overall the current system.

"I don't see any way to replace the infrastructure already out there," he said.

He also noted that the radios wouldn't be given to every first responder, but to only those in command.

"We're very excited to get to this point. This is a game changer and will really make a difference for responders in the field."

The 14 lead organizations in the pilot are:

2010 Olympic Security Committee (Blaine, Wash., and Vancouver, B.C. Canada)
Amtrak (Northeast Corridor)
Boise Fire Department (Boise, Idaho)
Canadian Interoperability Technology Interest Group (Ottawa, ON Canada)
Customs and Border Patrol (Detroit)
Federal Emergency Management Agency (Multiple Locations)
Hawaii State Civil Defense (Honolulu)
Interagency Communication Interoperability System (Los Angeles County, Calif.)

Michigan Emergency Medical Services (Lower Peninsula Areas)
Murray State University (Southwest Kentucky)
Phoenix Police Department and Arizona Department of Emergency Management
(Greater Phoenix and Yuma County)
Texas National Guard (Austin, Texas)
U.S. Marshals Service (Northeast Region)
Washington Metro Area Transit Authority Transit Police (District of Columbia)

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GIS goes vertical, with integration across state, local, federal lines
Aug 10, 2009
Government Computer News
By Patrick Marshall
URL: http://gcn.com/articles/2009/08/10/gis-integration-state-local-federal.aspx

The power of geographic information systems is obvious. Just compare a long table of crime statistics to an interactive map that graphically displays crime patterns, neatly color-coded according to the type or time of the crimes.

The advantages of mapped data haven't been lost on government agencies at the local, state and federal levels, which have developed GIS capabilities for a vast array of uses. For example, San Francisco's Bureau of Urban Forestry has developed a Web application for tracking the planting of new trees. Many states and counties employ GIS applications to monitor traffic flow and dispatch repair and maintenance personnel. And first responders at all levels of government are using GIS applications to help them respond more quickly and effectively.

However, as powerful as they are, most GIS applications developed during the past decade were created in isolation from one another. Because developers created the applications with different programming tools and the applications tap different geospatial engines and databases, it has often been difficult or impossible for one agency to access data collected by another agency. For example, federal emergency responders might not be able to access a city's GIS data on locations of fire hydrants or sites that contain hazardous materials.

However, that situation is changing quickly.
GIS applications and the data they deliver are increasingly being linked thanks to informal information-sharing efforts at local and state agencies and more formal, federally funded programs.

"The whole essence here is to take interoperability to a very different level," said David Boyd, director of the Command, Control and Interoperability Division at the Homeland Security Department's Science and Technology Directorate. The goal is "the interoperability of all of the communications mechanisms, whether it is voice, digital or what, so that you can share the information you have to allow emergency managers to

make the right kinds of decisions quickly in order to try to save lives and protect property."

Regional innovators
One of the most visible and farthest reaching state GIS efforts is Virtual Alabama. Launched in November 2007 by the Alabama Department of Homeland Security — using seed money from the federal DHS — the project uses Google Earth as its visualization engine and delivers data and query tools to more than 1,200 state and local officials, such as county sheriffs, assessors, firefighters and health care providers.

Virtual Alabama delivers an array of data, such as geocoded imagery of properties statewide and the locations of gas stations, power lines, schools and other points of interest. The system even handles video feeds from highways and public facilities. In a major storm, agencies can monitor traffic flow on evacuation routes, search for open shelters, evaluate property and infrastructure damage, and locate stranded survivors.

Virtual Alabama might be unique in its breadth, but it isn't the only state effort.

Some states have been quick to see the advantages of working together. Earlier this year, representatives of seven southern states — Alabama, Florida, Georgia, Louisiana, Mississippi, Tennessee, Texas and Virginia — met in Mobile, Ala., specifically to search for ways to better integrate their GIS efforts.

"We agreed that each state — particularly in this Gulf Coast, hurricane-prone belt — needs to develop a common operating platform that works for each state," said Jim Walker, director of Alabama's DHS "If we have a hurricane, we may request assistance for mutual aid from our surrounding states to come over and help us out. By the same token, we will send mutual aid teams from Alabama to assist our neighbors along the coast."

Walker said the state officials agreed to form two working groups: one focused on technologies and one focused on operations. "The operations folks are geared toward how we get this done, politically, operationally," he said. "If we're going to share information, what information do we share? If I give the state information, what can they do with it?"

The technologies working group focuses on how to integrate data when different states use different geospatial applications.

The Gulf Coast states aren't alone in trying to integrate their GIS applications. Bruce Godfrey, project director of Inside Idaho, a state-sponsored Web site that provides information to government agencies and the public, said Idaho is increasingly working with neighboring Washington and Oregon. He said that because many of the topics being studied — such as climate, aquifers and rivers — cross state boundaries, "the data has to be assembled from the two different states."

In addition to informal integration efforts with neighboring states, Inside Idaho has also received a grant from the interagency Federal Geographic Data Committee (FGDC) to further integrate the state's GIS program with federal programs.

Another FGDC grant recipient is the Missouri Spatial Data Information Service (MSDIS), a state agency located at the Geographic Resources Center at the University of Missouri at Columbia.

Mark Duewell, senior GIS specialist at MSDIS, said the project is collecting data on structures in the state, including a building's owner, the building type, point of contact, phone numbers, the fire department district, and the police department district. For Tier 1 structures, such as schools and other public buildings, the project is also recording the shape of the building.

Duewell also cited the MidAmerica GIS Consortium, an organization of GIS professionals, as a nongovernment partner that has been helpful in encouraging the integration of local, state, and federal GIS efforts. "What it fosters is work between the regional states so that we don't build the same wheel twice," Duewell said. "They're trying to help each other with things like clearinghouses, emergency response and everything across the geospatial spectrum."

Federal integrators
As state and local projects have developed across jurisdictional boundaries, federal agencies have also taken a leading role, particularly since the 2001 terrorist attacks.

The realization that geospatial data could be a powerful piece of the federal infrastructure was formalized April 11, 1994, when President Bill Clinton signed Executive Order 12906, which called for the creation of a National Spatial Data Infrastructure.

FGDC is part of NSDI and coordinates many of the federal geospatial activities, including a portion of the aid to state programs. This year, FGDC awarded $75,000 in grants to the DuPage County, Illinois, Department of Information Technology GIS Division and Indiana Geographic Information Council to support efforts to further integrate state geospatial data with federal programs.

The largest efforts to integrate GIS data are coming from two federal agencies: the U.S. Geological Survey and DHS.

USGS, which has long been the lead agency in mapping the country, moved the effort into the digital world in 2001 with the launch of the National Map program, a project to integrate local and state mapping efforts.

When the program started, "many levels of government, state governments, county governments were actually doing very high quality and very accurate, very high resolution mapping for their own needs," said Mark DeMulder, chief of the National Map program. The problem was that the maps weren't integrated. "What you find is that a

Fairfax County, [Va.], is doing a great job of mapping Fairfax County, and Loudon County, [Va.], may be doing a great job of mapping, too. But at the edges, they may not join. And they may have different standards for how they [classify] fire roads and what constitutes a stream. Some national program that pulls together all of this information in a consistent way that makes it available for national, regional and other applications is necessary."

States are required to contribute some data to the National Map, such as water quality information that the Environmental Protection Agency uses for the National Hydrography Dataset. However, USGS also encourages broader state cooperation through stewardship programs that train personnel at state agencies and give them tools with which to update the databases.

In some cases, USGS also provides financial incentives. "Every year, we solicit proposals from state governments and other levels of governments for cooperative mapping activities, and we allocate the funds that we have to the best of those projects," DeMulder said. "It's generally in the category of seed money."

DHS also has become a major player in national GIS efforts, primarily because of its concern for security efforts and emergency response. Grants from the department have funded many high-profile state GIS efforts, including Virtual Alabama. Alabama DHS Director Walker said the federal DHS — and specifically the Command, Control and Interoperability Division's Boyd — was the driving force behind the meeting of Gulf Coast states in Mobile earlier this year.

Boyd said DHS plans to build on the efforts in the Gulf Coast states toward a Virtual USA.

"Our goal in Virtual USA is to get away from the way we had developed discrete applications, discrete solutions," he said. "These often by themselves became stovepipes. They became part of the problem. Now we want to talk about how do we integrate all of these things and how do we make sure all of these things can communicate with each other."

Hurdles to clear
There are a number of obstacles to building a National Map and Virtual USA, though few of them are technological, experts say.

Indeed, state and federal officials say the single most important step is ensuring the active participation of local and regional agencies.

"It is nearly always the case that the data that is maintained on a daily basis at the local level is more accurate and can be timelier if it is fed into the right system and maintained across the Web," said Duewell, Missouri's senior GIS specialist. He cited the case of a phantom church in Missouri's dataset. "It is in the federal datasets. It is in the state datasets. But it has been gone for 13 years. It is a parking lot now."

Boyd agreed with the need for local engagement. "The real first responders are at the local level, so whatever you do has to support what they do," he said.

Meanwhile, what it takes to ensure participation might vary from one region to another.

For Virtual Alabama, Walker realized it was the county sheriffs who ran the show. So he showed them how the system could help them manage crime data and respond to emergencies. He offered them free access as long as Virtual Alabama got their counties' data.

In Missouri, working with counties wasn't appropriate because the state has too many of them, Duewell said. "Because we have 115 counties, it is a little easier to work with regional planning commissions," he said.

"The initial hurdle was a sense of mistrust," he said. "Mistrust seems to have been created in the past by federal and state governments asking for local data and them not receiving anything in return." Duewell's team found that offering free GIS training was an effective incentive.

At every level of government, Boyd said, "what we find is that the most difficult nut to crack is governance. Governance implicates the two hardest issues — that is, who is in charge and who pays."

"One of the keys to making this work is the communities have to be comfortable that they can protect their own resources, their own assets," he said. "The states separately want to be able to control access to this information. And there are, of course, fundamental privacy issues that have to be addressed to make sure that we always comply with the laws."

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