

**Interoperability & Emergency Communications News Clips**  
**July 10, 2009 – July 24, 2009**

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## **MSU included in DHS radio testing project, Gant reports**

July 21, 2009

*Murray Ledger & Times*

By Hawkins Teague

URL: [http://www.murrayledger.com/articles/2009/07/18/top\\_story/news02.txt](http://www.murrayledger.com/articles/2009/07/18/top_story/news02.txt)

Murray State University will be among 14 lead organizations across the nation to test the latest radio communications equipment.

According to a press release from the United States Department of Homeland Security, DHS's Science and Technology Directorate selected the organizations for the upcoming pilot phase of testing and evaluation for the Multi-Band Radio project. These pilot projects are the final phase of a three-part process, the first two comprising of laboratory testing and short-term demonstrations.

“In 2008, the DHS Science and Technology Directorate awarded a contract to demonstrate a multi-band radio that enables emergency responders - police, firefighters, emergency medical personnel and others - to communicate with partner agencies, regardless of the radio band on which they operate,” the release said. “Currently, radios only operate within a specific frequency band; subsequently, responders are often unable to communicate with other agencies and support units that operate in different radio frequencies. Comparable in size and weight to existing portable radios with similar features, multi-band radio would provide users with much-improved incident communications capabilities.”

Jim Gant, director of MSU's Center for Telecommunications Systems Management, said he and others in the program found out about the project when they were demonstrating previous work they had done for DHS at a DHS conference. He said a DHS official asked if they would apply for the pilot project and explained the benefits to MSU and the community it would entail.

In essence, MSU's reputation as a leader in telecommunications studies led to it being the only university asked to participate in the project, Gant said. Although MSU won't necessarily keep the radios, it will get to use them for at least three or four months. They will have the chance to test them and see how easily county and city emergency responders can use them. They will also test them to see if they have the range DHS claims and can be used in the outer parts of the county in places like Dexter and Almo, Gant said.

“The idea is to put them in the hands of everyday emergency personnel,” he said.

Gant said that while most radio equipment used now only operates on a single frequency, it is not practical for everyone to have the same radios. The radios that will be tested should be able to communicate with any other radio, he said.

“It goes back to what was seen on 9/11 when fire and police (in New York City) worked on different frequencies,” Gant said. “They couldn't communicate, even with different police divisions.”

Gant said the devices MSU will be testing cost between \$4,000 and \$6,000. Besides letting emergency and law enforcement officials test and provide feedback on the latest technology, MSU students will also have access to it before it is commercially available. It will also, of course, come in handy in case of a tornado, severe storm, hazardous materials spill or any other possible disaster, he said.

Gant said that since the DHS press release came out earlier this month, MSU has already been approached by other companies to field-test radio equipment.

The 13 other lead organizations in the pilot program are: 2010 Olympic Security Committee (Blaine, Wash., and Vancouver, British Columbia, Canada); Amtrak (Northeast Corridor); Boise Fire Department (Boise, Idaho); Canadian Interoperability Technology Interest Group (Ottawa, Ontario, 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); 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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## **Application deadline for stimulus money approaching**

July 21, 2009

*Urgent Communications*

By Donny Jackson

URL: [http://urgentcomm.com/policy\\_and\\_law/news/broadband-stimulus-application-deadline-20090721/](http://urgentcomm.com/policy_and_law/news/broadband-stimulus-application-deadline-20090721/)

Commercial and governmental entities interested in \$4 billion of federal stimulus money still have time to apply for the funding, but the window is closing quickly, according to a telecommunications law firm official.

Applications for the first of three rounds of funding through the Broadband Initiatives Program (BIP), administered by the Rural Utilities Service (RUS), and the Broadband Technology Opportunities Program (BTOP), administered by the National Telecommunications and Information Administration (NTIA), are due at 5 p.m. on Aug. 14.

"It would be really a high hurdle [to meet the Aug. 14 deadline], unless you've got something that's been in the works," said Michael Lewis, engineering consultant for the law firm of Wiley Rein. "I think you're kind of right up against it now, because these applications are very, very detailed. If you have your ducks in a row and know what you want accomplished, maybe it can be done."

According to a presentation given last week by Wiley Rein and the Enterprise Wireless Alliance, \$2.4 billion in broadband grants and loans will be distributed by RUS, while NTIA will fund

\$1.6 billion in projects under BTOP. After the initial applications are evaluated by the RUS and NTIA, projects qualifying for the second phase of consideration will require further information that must be submitted by Oct. 15. Awards are expected to be granted beginning on Nov. 7, with the grants and loans being available for use 30 days later.

The focus of the programs is to provide broadband access in areas of the country that are considered to be unserved or underserved. Stimulus money is being pursued to help fund some public-safety broadband projects, including a 700 MHz proposal recently submitted to the FCC by a wireless startup with blessing of the North Dakota governor.

Under the stimulus guidelines, entities applying for BIP and BTOP money must be able to demonstrate that the project will be substantially completed within two years and fully completed within three years of the funding being awarded.

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## **The feds asked, and we answered: Here's what EMS needs now**

July 20, 2009

*EMS Magazine*

By Norm Rooker

URL: <http://www.emsresponder.com/publication/article.jsp?pubId=1&id=9934>

How many of you have smiled at that old cliché "I'm from the government, and I'm here to help"?

Well, that's actually what happened for 3½ days in February in Bellevue, WA, as representatives from EMS, fire, law enforcement, emergency management and industry, along with venture capitalists and representatives of the Department of Homeland Security's Directorate of Science and Technology, convened to further assist emergency responders in meeting their missions.

The 2009 Homeland Security S&T Stakeholders Conference-West was a forum to bring all these groups together (plus vendors showcasing their latest wares) to help not just the U.S., but the international rescue and response communities serve more effectively. The conference occurred both on-scene and online, with many online attendees submitting questions for presenters and panelists and voting on top research and development needs.

The S&T Directorate has six technical divisions: Explosives; Chemical and Biological; Command, Control and Interoperability; Borders and Maritime Security; Human Factors Behavioral Sciences; and Infrastructure and Geophysical. It also operates a program called TechSolutions. TechSolutions was established to develop information, resources and technology solutions to address mission capability gaps identified by the emergency response community. The program's goal is to, within 12-15 months, field technologies that meet 80% of project operational requirements for less than \$1 million. This will be achieved through rapid prototyping or identifying existing technologies.

In an effort to better serve its various constituents, including emergency responders, DHS operates a dozen Integrated Product Teams, or IPTs. These function in mission-critical areas to identify needs and promote projects and capabilities to meet them. The IPTs engage DHS "customers," acquisition partners, S&T technical division heads and end users in developing, transitioning and acquiring solutions.

Toward the end of better serving emergency providers, the DHS created a 13th IPT for first responders. In conjunction with the National Defense Industrial Association, the department began its effort by assembling a group of 20 emergency responders representing law enforcement, fire suppression, EMS, emergency management, bomb/ordnance disposal and the Citizen Corps. The International Association of EMS Chiefs (IAEMSC) sent Jim Cole of San Juan Island (WA) EMS and me to represent EMS interests.

### **Building & Driving**

When we gathered for orientation that Monday, none of us knew what was expected of us or how things would proceed. What transpired over the next several hours, as Story County, IA, Sheriff Paul Fitzgerald put it, was basically building a road and driving on it at the same time.

The DHS S&T folks explained this was a new direction for them, and they wanted us to tell them what we needed, rather than them dictating what they'd give us. How, they asked, can we help you help the public you serve?

The conference was kicked off by keynote speaker Lt. Gen. Russel Honoré, U.S. Army, retired. Honoré led the joint task force response to Hurricane Katrina in 2005. He was dynamic and quotable, accusing one reporter at a press conference of being "stuck on stupid." He gave an inspiring talk on disaster preparedness, not only for emergency services and their support organizations, but for individual citizens as well.

From there panelists were introduced, the concept of the new first responder IPT was explained, and we were asked what we thought the research and development community could do to make our jobs easier.

What came forth was an interesting cross-section of ideas. Some were strategic, like having a simple interoperable communications system that really was simple, interoperable and affordable. Some were tactical, such as creating a real, working Star Trek-style tricorder for patient assessment and monitoring.

Law enforcement representatives wanted technology for field interrogation and identification of suspects. Fire requested various rescue adjuncts, communications and personnel tracking systems. Participants from emergency management and the Citizen Corps discussed gaming technologies for simulation training. The bomb squad/EOD folks supported this concept by pointing out that the controllers for some explosives robots are now similar to Xbox controllers. Military EOD schools discovered that young soldiers, sailors and Marines were coming in already skilled at Xbox use, and by adapting their controllers to the Xbox model, the schools reduced the time needed for proficiency training from three days to one.

EMS went last. Aside from the tricorder request, we suggested an MCI program/system that could track patients through triage, treatment and transport, and provide the medical group supervisor, EOC and receiving hospitals with real-time tracking of these patients on to hospital reception, then assemble the information in a usable format for after-action evaluation and reporting.

The EMS laundry list of R&D requests also included rescue-specific portable technologies like units for field-testing for cyanide exposure and measuring structural collapse/crush syndrome victims' blood for myoglobin. We also discussed the broad concept of protection or recovery technology for electromagnetic pulses (EMPs). Since everything from our vehicles to our communications and electronic systems are susceptible to EMPs, this is something the federal government is in a unique position to help create fixes for.

Another request we made was for better air monitoring and portable filtration systems. This resulted in pushback from the fire suppression section of the panel. They did not want a device that would extend working periods between rest breaks. The EMS response was simple: We didn't really care about the length of the work period; we were concerned about the safety of the rescuer's respiratory system and the effect these devices would have on the overall rescue operation.

To support that, we put forward three examples. The first was that as current technologies work, they become clogged with what they're filtering, and the work of breathing becomes increasingly fatiguing. This was never more evident than during the SARS outbreak and its effects on the Toronto EMS system. Toronto EMS workers were required to wear their air-purifying respirators for their entire shifts. After three days of this, more and more of the EMS workforce were calling in sick not because they were contracting SARS, but from fatigue.

Second, we cited that bladder cancer is the second most common form of cancer in the fire service, and that firefighters have 2-5 times the rate as the general public. Bladder cancer is primarily a smoker's disease, but fire suppression personnel suffer disproportionately from it, primarily due to going off bottled air during the salvage and overhaul phases of fire operations.

Last, we cited pulmonary deterioration, an average aging of rescuers' pulmonary systems by 12 years, the World Trade Center cough and the crippling disability and death of many rescue workers who responded to the World Trade Center collapse of 2001. Our argument was persuasive and carried the entire panel in support.

Finally, we asked for interoperable portable charging systems. We conveyed our impression that a lot of equipment manufacturers seem to be not just in the equipment business, but in the battery business as well. Each new piece of equipment seems to have its own unique battery system that works only for it. We, as field operators, want to cut down on the equipment and expense needed to power our field operations. The bomb squad/EOD folks chimed in that a number of their specialty equipment manufacturers had switched to the DeWalt rechargeable battery system, available at any hardware store. The fire suppression contingent noted that several companies had developed portable vehicle-extrication equipment that uses Makita or DeWalt batteries.

## **What Else?**

The rest of the conference consisted of the heads of the six S&T divisions talking about what they'd developed and were working on now. Some of the devices showcased included a lightweight equivalent to an hour SCBA bottle that weighed under 30 pounds, was only a few inches thick and folded in the middle for greater flexibility and mobility. The device works with existing SCBA masks. On the interoperable communications side, there was a programmable portable radio with a unique antenna that could broadcast and receive on UHF, VHF and the 700 and 800 MHz frequencies. Currently marketed for around \$5,000, these would be command radios only, but would certainly make life easier when responding to multiagency incidents.

There were a number of goodies for law enforcement involving biometric identification and portable scanning devices. On the medical side, Cole and I were told S&T was already well into developing a tricorder-type device for the military. It hoped to roll out a working prototype for field testing in the next year or two.

Additionally, they've developed and put into production a portable telemetry bed/gurney that is already in service with the military. This device monitors the patient's various vital signs and functions, displaying a readout on the gurney and sending it to a central receiving/monitoring unit. Currently our injured service members are placed on these devices at receiving surgical units in Iraq and Afghanistan and remain on them through transport to definitive care at Ramstein Air Base in Germany.

The conference concluded with a joint assembly of the panelists and DHS S&T division heads, and we all voted for the top five projects for S&T to focus on. Better respiratory protection and monitoring was one of the top five selected.

In post-conference follow-up e-mails and telephone conversations with S&T Directorate officials, it looks like they will be setting up the first responder IPT. If they do, EMS will have good representation on that team.

Norm Rooker is chief of Ouray County EMS in Colorado. He is a founding member of the International Association of EMS Chiefs and leads its Rural EMS Chiefs section. He has been involved in EMS and rescue since 1973.

## **TechSolutions: Closing Responder Gaps**

Have you spotted a chink in your community's first-responder armor? Is there a tool you need but don't have, or equipment requirements you have trouble fulfilling? If so, the Department of Homeland Security wants to know about it.

The TechSolutions program, run by DHS' Directorate of Science and Technology, lets emergency responders bring identified capability gaps to the attention of those who can do something about them. A new website, [www.TechSolutions.DHS.gov](http://www.TechSolutions.DHS.gov), has been established for this purpose. It's part of the DHS First Responder Technologies (R-Tech) program.

If program leaders find a gap worthy of addressing, they can guide creation of a prototype solution, usually within a time frame of 12-15 months. The R-Tech program is geared toward

closing such gaps through rapid prototyping, technical assistance and information sharing. Only first responders can submit ideas.

"We would like ideas from firefighters, law enforcement, EMS, hazmat and other responder communities for solutions that will help them do their jobs faster, more efficiently and more effectively," TechSolutions program director Greg Price said of the effort. "These ideas can be as simple as the fireground compass or as complex as 3-D location devices that provide X, Y and Z coordinates for responders within a building."

In this case, as R-Tech director Jose Vazquez notes, perfect can be the enemy of good. TechSolutions' goal isn't to fully erase the problems brought to its attention, but to resolve roughly 80% of each capability gap at a cost of \$1 million or less. S&T researchers will tackle more complex issues. For instance, while TechSolutions works on a detection tool for 13 common toxic industrial chemicals, the S&T Chem/Bio Division is pursuing technology to identify a greater range, as well as biological agents.

"TechSolutions may not give you everything," Vasquez said, "but down the road our research and development team and the national labs with which we work closely can fill in the gaps we are unable to address."

###

## **Report Promotes Rural Ad-Hoc Networks**

July 15, 2009

*Radio Resource Magazine*

By Sandra Wendelken

URL <http://www.rrmediagroup.com/onlyonline.cfm?OnlyOnlineID=103>

Mobile ad-hoc networking (MANET) technology should be considered for rural agencies facing a lack of public-safety communications infrastructure, according to a study by professors at Montana State University.

A November 2008 report on mobile ad-hoc networks for the Department of Homeland Security (DHS) Safecom program found that in a situation where backbone access is limited, MANET could be used to share and extend connectivity throughout the scene of an incident. In a situation without any backbone access, MANET can help provide data communications within an incident in the absence of infrastructure.

Researchers from Montana State University's Computer Science and Electrical and Computer Engineering departments and the Western Transportation Institute (WTI) teamed with the Hot Springs County (Wyo.) Sheriff's Department to investigate how MANET could be applied to rural public safety.

Five scenarios were derived, based on actual events and stakeholder input, to represent a test suite under which MANET could be applied and tested. Several ad-hoc routing protocols, AODV and DSR, were tested within scenarios and against each other. DSR was extended to support quality of service (QoS) requirements, resulting in a new protocol named QASR. In



nearly all cases, QASR outperformed AODV and DSR, and demonstrated that QoS requirements could be satisfied in certain rural public-safety applications. Results are dependent on network density, technology and frequency, and general bandwidth requirements, the report said.

Dr. David Boyd, director of the DHS Science and Technology Directorate's command, control and interoperability (CCI) division, said some of the experiments from the study will be turned into pilots. "The rural areas are difficult to serve," he said. "Because they are thinly populated, it's hard to come up with investments that are affordable. But there is the same kind of need for data."

Researchers said the study demonstrated the potential for application of MANET to rural public safety. While the technology isn't applicable in all situations, sufficient promise was shown to merit further related research and development. The researchers have promoted QASR at Institute of Electrical and Electronics Engineers (IEEE) conferences and publications to give the new protocol visibility and initiate a dialog for MANET designed to meet rural public-safety needs.

"There are public-safety agencies implementing ad-hoc and mesh networking, but the protocol within this project is not currently implemented in equipment for production use by public-safety entities," said Douglas Galarus, WTI senior research associate and one of the report authors. "Wyoming is continuing with their development of more traditional radio networks to help meet the needs of groups like the Hot Springs County Sheriff's Department."

Richard Wolff, a researcher at Montana State University and another report author, gave a presentation on the research at the IEEE International Communications Conference in June. "We are currently examining the feasibility of using this type of QoS routing in ad-hoc networks in combination with other research we are conducting on the use of adaptive array antennas," Wolff said.

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## **California Planning Statewide Public Safety Interoperable Communications Network**

July 15, 2009

*Government Technology*

By Corey McKenna

URL: <http://www.govtech.com/gt/articles/702096>

On Monday, California's Public Safety Radio Strategic Planning Committee (PSRSPC), that's composed of state emergency responders, held a public meeting to kick off the strategic planning process for a statewide interoperable communications network to connect emergency responders. California's goal is to build a statewide interoperable communications network over the next 10 years that allows PSRSPC members to communicate between themselves as well as with local, tribal and federal partners.

To assist them in achieving this goal, the state tapped Gartner to develop the strategic plan, which should be completed by May 2010, according to Steven Buckley, a Gartner consultant who is the initiative's engagement manager.

Officials at the meeting stressed the importance of partnerships with local first responders and the need to build the network from the bottom up. "We have to understand while we at times are first responders, mostly we are also there to coordinate, cooperate and work with our local partners," said Matthew Bettenhausen, acting secretary of the California Emergency Management Agency.

The state is engaged in a major IT consolidation and officials want to ensure that the network is built with a view toward sharing resources and assets. "It's ... important from a technology perspective that my organization is working to really look at those technologies that go across the state, that go across all of your state agencies and the way that those are delivered," said Teri Takai, the state's CIO. "Then looking at the way that we do it at a state level to set an example for the way that we want the rest of the state to operate and the way that we want to interact with the locals."

The state also plans to leverage the planning that has gone into achieving the level of interoperability it enjoys already, Buckley said. In fact, the project team is building an electronic library of all relevant planning documentation that already exists. Buckley asked the PSRSPC members to provide existing documentation that might exist within their organizations such as inventories, architectural renderings of their solutions, needs and requirements, existing plans, financial status reports that may have been written over the last five years and past consulting studies. Buckley expects to have that documentation collected by July 24.

As far as getting the planning process rolling, he hoped to name the executive sponsors from each of the PSRSPC components, the agency project leads and subject matter experts from the agencies by July 17.

Buckley would like to hold the initial meetings with the agency project leads and subject matter experts by August 10.

### **Bridging the CASM**

One major hurdle first responders face in trying to achieve interoperability is knowing where all their communications infrastructure are -- including radios, towers and dispatch centers. To help with that, the U.S. Department of Homeland Security developed the Communication Assets Survey and Mapping (CASM) tool that represents the locations of these assets on a map.

California plans to use the strategic plan to inventory assets, such as radios and radio towers, and local first responders may get some help with this task from the state. "We suspect that part of this process is getting CASM fully populated," Bettenhausen said. "You can't make some of these decisions until you understand, not only the assets that we own as a state and state agencies, but more importantly what our local partners own and how we tap in and leverage those resources and to some extent the private sector as well."

Tapping the Broadband Stimulus

In the current communications environment where incident commanders and first responders need situational awareness, the ability to exchange images, video and geospatial information is much needed. Transmitting that information requires a fair amount of bandwidth, and broadband pipes have become a potential conduit for voice traffic.

That's why California is trying to determine whether it can apply for funds under the broadband stimulus provisions of the American Recovery and Reinvestment Act (ARRA). The current window for applications, which opened Tuesday, provides \$4.7 billion for broadband projects in unserved and underserved communities. "There is a public sector -- a public safety -- part of looking at how can we maximize and utilize those dollars. And how can we help that be a way of expanding broadband in the state," Takai said.

Bettenhausen noted that while much of the broadband stimulus money will be focused on bringing broadband to communities to spur educational opportunities, the state needs to see how it can tap into those projects even if it doesn't get its public safety grant applications approved.

Funding for broadband expansion projects from ARRA is being awarded in three phases. The first was from April to June. The current window is open from July 14 to August 14, with awards expected in November. The last of the funding is expected to be awarded by June 2010. Takai said California plans to apply in the current application period as well as the final one, which will begin at the end of the year.

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## **Satellite Technology Provides Disaster Communications When Cell Towers Fail**

July 15, 2009

*Government Technology*

By Andy Opsahl

URL: <http://www.govtech.com/gt/articles/702058>

Emergency managers know that having a foolproof disaster communications plan is nothing more than a fantasy. That's because even the most redundant backup strategies can leave responders unable to communicate. Consequently agencies remain focused on providing diversified options for communications.

Why? If a disaster has cut the phone lines, it might not have disabled the radio towers, which would enable responders to rely on land mobile radios (LMR). But what if a disaster paralyzed both telephones and LMRs? Responders who come prepared with other means of communication stand a better chance at continuing their operations.

This is where satellite enters the equation. It's becoming "technological catnip" for some agencies that are seeking that diversity during emergencies. If a hurricane or terrorist attack disabled phone lines and destroyed local radio towers, perhaps responders could still point a dish toward a satellite that's safely orbiting in space.

Recent disasters, especially Hurricane Katrina, have magnified the need for diversified communications. The private sector has stepped up and made products that meet this need, including affordable tools for satellite communication. Federal, state and local responder agencies have deployed several of these devices and applications, and are using them as a partial solution for interoperable communications.

### **The SMART Route**

Since 9/11, government officials, experts and vendors have led a steady drumbeat of advocacy for interoperable responder communications equipment. An inability of different disciplines and jurisdictions to communicate during emergencies typically gets the blame for inefficient operations. These days, most responder agencies seem to agree on the importance of interoperable equipment, but conflicting opinions between agencies on proper equipment specifications and differing funding cycles tend to slow the process.

In 2007, the U.S. Department of Justice (DOJ) devised a relatively simple solution for giving agencies at least limited interoperable communications. Rather than laboring over equipment specifications that all agencies must agree to, the DOJ told SkyTerra Communications, the satellite vendor many agencies already used, to figure out the details.

SkyTerra and the DOJ created the Satellite Mutual Aid Radio Talkgroup (SMART) program, which consists of multistate regions that each have an interoperable "talkgroup" accessible to various responders, like fire services, police, hospitals and others. Each SMART region has one talkgroup that all the different disciplines can use simultaneously. Discipline-specific talkgroups are also provided for incidents that only require certain agencies. The regions comprise neighboring states: For example, Kentucky shares a region with Tennessee, the Carolinas, Georgia, Mississippi, Alabama and Florida. However, some states are in two regional talkgroups -- a southeastern state in a talkgroup might have a Midwest state as a neighbor.

The DOJ knew the primary obstacle to organizing government agencies into talkgroups would be funding-related, so the DOJ negotiated an agreement with SkyTerra to offer free SMART usage to its subscribers. The financial benefit to SkyTerra was obvious: a likely increase in subscribers. But it also gave emergency responders access to interoperable communications for little or no investment.

"That's the nice thing about SMART. If you're an existing customer, you're eligible to participate. You fill out an application that says which pieces of equipment you want it downloaded into and that's it," explained Drew Chandler, communications manager of the Kentucky Department for Public Health.

That downloading process happens quickly too. During a recent Kentucky ice storm, an environmental team from Mississippi downloaded SMART access within two hours, Chandler said.

Though it's easy to participate in the SMART program, it's not a comprehensive answer to interoperable communications because agencies only have purchased a limited number of

handheld devices for satellite communications. Giving all responders satellite devices would be too expensive, said Chandler. In Kentucky, 350 SkyTerra devices are used by various state and local responders. The monthly subscription cost is roughly \$70 per unit. Their functionality is worth the expense, he said.

"That's like paying another cell phone bill for a lifeline," said Chandler.

### **The Gadgets**

The market activity that's making satellite an affordable failover strategy also has produced many satellite-related applications. Among the most critical is technology that lets responders transmit satellite images of an incident to a command center for processing on high-performance computers, said Eric Frost, co-director of the San Diego State University Immersive Visualization Center.

Here's how it works: Responders send an unmanned aerial vehicle (UAV) to the emergency site they need to survey. The UAV then sends video and hundreds of photos back to the command center. Frost's team does the image processing from the San Diego area. Access to high-performance computers gives responders on the ground a view of terrain that's difficult to see with the naked eye. For example, if someone wearing blue clothes got lost in a vast, wooded area, Frost's team could use software to isolate instances of the color. It would stand out in the altered image. "It's like seeing a red spaghetti dot on a white shirt," Frost said.

Another satellite technology allows those images to travel faster than what's otherwise possible via satellite's limited bandwidth. High-resolution photos and videos are large files that usually clog a satellite's bandwidth. To alleviate the problem, many responders now use software from GeoFusion, which breaks up the files into chunks so that only the content immediately on a responder's screen travels from the command center to that responder. Once the responder needs a different piece of content, the new content then travels from the command center to the responder's computer. This process ensures that responders get content faster because smaller files travel through the satellite.

Increased speed is a benefit many new satellite technologies share, according to Craig "Gator" Gallagher, IT specialist of the Federal Emergency Management Agency.

"Most satellite systems are so automated these days that it only takes pressing a couple buttons to turn them on and, with the aid of built-in GPS, the system finds the satellite, locks on it and is ready to pass information in a matter of only minutes," Gallagher said via e-mail.

One feature becoming popular with San Diego firefighters is satellite's ability to offer cell phone communication in backcountry areas that lack cell tower coverage. The phone connectivity reaches cell phones by using a broadband global area network, which delivers satellite-powered broadband using a portable terminal the size of a laptop. Communicating requires no special training because everyone knows how to operate a cell phone.

An especially affordable satellite technology that's improving emergency management, Frost said, is Spot Satellite Messenger, a small device the San Diego Fire Rescue Department uses to

track firefighters and trucks in the field. The retail price is a little more than \$100 per unit, plus a \$100 annual service fee. Using the device, location updates are provided every 15 minutes, which lets command centers track the locations of trucks and individual firefighters.

Frost said having precise, updatable location data is important.

"If you're at a command center trying to manage what's going on, the reality is you're not really managing it. You're just sort of keeping track of it because you don't actually know where most of your people are," Frost said. "If the fire is coming up over one ridge and you have people on the other ridge, you often don't know that and they don't know that because you don't know where the people actually are."

### **Downside of Satellite**

Satellite, however, has its vulnerabilities. Chandler said the technology becomes useless when responders lose line of sight, which can happen during a hurricane or windstorm.

"Maybe your dish gets blown over. It's a very directional signal, and if you blow the dish and twist it several degrees, it's not looking at the satellite, it's just looking out into space," Chandler said. "We've had that happen frequently here in Kentucky in the western part of the state. There aren't a lot of mountains or anything to cut up some of that wind so we get straight line winds."

###

## **Inter-agency comms: From PTT phones to P25 radios**

July 14, 2009

PoliceOne.com

By Doug Wyllie

URL: <http://www.policeone.com/police-products/communications/articles/1854637-Inter-agency-comms-From-PTT-phones-to-P25-radios/>

Every day, police officers, fire fighters, paramedics, and other public safety professionals have to communicate mission-critical information — in some of the most demanding environments and challenging circumstances — across jurisdictions, disciplines, and agencies. They cannot afford a breakdown in the technology through which they're talking. In other words, encountering the proverbial "dropped call" is simply not an option.

What are some of the steps being taken today to ensure that the message sent is, in fact, the message received, whether that is via voice or data connection? How are agencies and disciplines increasing their ability to remain connected in the micro, incident-response practice of public service, and how are they looking at the macro picture as plans are made and foundations laid for the future?

### **The Macro: Getting on the Same Wavelength**

Naturally, there are a number of technical reasons why systems can't talk to each other and radios can't talk to each other, but underneath it all is the age-old issue of political territoriality that stems from budget rivalry and disparate cultural mindsets among public safety disciplines.

Ben Madgett, a senior analyst covering public sector technology for the industry research group Datamonitor, says that public safety agencies have always struggled to enable first responders from multiple disciplines, jurisdictions, and levels of government to communicate during emergencies due to incompatible equipment, but that technology is just one of the impediments.

“More than simply a radio or network issue, organizations must address the systemic and cultural barriers that inhibit cooperation in addition to the technology strategies that hinder communications interoperability. Agencies struggle to plan for and implement interoperability due to a lack of funding, organizational challenges and technology confusion,” Madgett explains.

Furthermore, politics can deter elected officials from purchasing interoperable communications equipment, according to Madgett. “Because there is no clear leading technology to enhance interoperability, some elected officials may postpone procuring equipment until a preferred method emerges. In this economic climate, local governments have limited budgets and multiple constituencies to serve — any budget allocation has political consequences and officials may be reluctant to disperse funds for possible emergencies when other programs also need funding.”

Jeff Viking, vice president of the homeland security and law enforcement group for analyst firm Gartner Research says that among the most critical things to do from the outset is to set mutually agreed upon governance policies, map out procedures, create training programs to support those procedures, and THEN work together to get funding and deploy a solution.

“You need to be able to have more interoperable voice, data, imagery, and text. To get there, all these agencies have to get around a table and agree to have mutual governance and policies, and that takes time. Then you have to create your practices and procedures manual and then you have to select your technology. They you have your use cases and training samples—basically answering the question, ‘when will we use this?’ And the overarching piece is what I call the regionalization of the homeland. With all the UASI grants and the federal funding after 9/11, everything really has to be a more regional approach, not a mission-specific agency approach — you just need to be more regional in your approach.

One example of such an approach is the Bay Area Urban Area Security Initiative program, which is comprised of three major cities (Oakland, San Francisco, and San Jose) ten counties (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma), more than 100 incorporated cities, as well as three international airports, six professional sports teams, and the fourth busiest port in the country.

Terry Betts serves as the Interoperability Program Director for San Francisco Bay Area UASI. Betts says that the way to get the most out of any available technology is to begin by getting all agencies on the same page politically. The technology, he says, will follow. “Stovepipe systems are no longer feasible to share information. We decided very early on that, if money is going to be spent on interoperability it’s going to go toward P25 equipment and there would be no — and I think this is a key part — there would be no political arm-twisting taking place... I think that everyone realizes that this type of cooperation is the right thing to do.”

Bay Area UASI is currently facilitating the implementation of BayRICS — the Bay Area Regional Interoperable Communication System. To date, Bay Area UASI has funded more than \$50 million on interoperable communication equipment, mostly in the continuing implementation of BayRICS

Betts explains, “BayRICS is made up of four segments; a P25 voice system, a 4G wireless data system, a dual OC3 digital microwave system connecting all counties together, and an information sharing system for all law enforcement agencies in the Bay Area.”

Eddie Reyes, Deputy Chief for the Alexandria, (Va.) Police Department says, “I truly believe that the three most critical components to cross-jurisdictional cooperation are governance, standards, and training.”

Reyes adds that that while some agencies have made great strides toward working closely with their neighbors in the process of preparation and training (multi-agency drills, emergency preparedness plans, etc), as well as actually responding to live events, others have not taken this very seriously.

“Remember, large mutual aid events can occur anywhere, even in remote locations. One of the places affected by the attacks on September 11th was Shanksville. Don’t kid yourself, it is not a matter of ‘if it happens,’ it’s a matter of ‘when it happens’,” Reyes says. “If your agency hasn’t done it already, begin to focus on governance, standards, and training and you’ll be better prepared when the ‘big one’ hits your region. These three elements almost ensure that agencies will use their equipment and technologies effectively and work together to resolve any crisis.”

### **The Micro: When the Poop Hits the Paddles**

Let’s contemplate what would happen during a nightmare scenario. A major catastrophe occurs in "City X" — think Oklahoma City, Waco, and Loma Prieta all mixed in together. All manner of public safety personnel will respond from every point on the compass rose. What’s the first way that many of these people will tend to try to communicate when they all arrive? Betts says it will be a combination of solutions, begging with the mobile phones in their pockets.

“The first way is probably going to be cell phones, since everybody’s got one these days. As the event timeline goes on, there will be Comm Unit Leaders on scene with mobile repeaters, AC-100 ‘black boxes’ to tie disparate systems together. So at some point a quasi-communications system will tie the existing radios in that area to the radios coming in so that they can communicate. It really depends on how long the event is going to last. If it’s going to be a multiple response from all areas of the United States I suspect it’s going to last a long time. If you’ve got a P25 system and somebody comes in from someplace else in the United States, it’s going to take a little while to do the programming and authorization of that new radio to be able to talk on it within that area’s system. If it’s a not a P25 radio — if it’s a conventional radio — most areas have conventional systems up for this kind of event. Those systems have the capability to tie all these channels together to make a common interoperability channel.”

The fire service typically has a much more advanced interoperable communications capability than other areas of public safety. The reason, Betts says, is that fire events tend to last a long time



“Forest fires, grass fires, building fires, and that sort of thing can last for many hours. With law enforcement,” he says, “even a chase that takes you through three jurisdictions is over in 20 minutes. So the fire service over the years has really developed a mutual aid system to be able to use those channels. Law enforcement really hasn’t had that opportunity. They have some capabilities like that but not to the extent that the fire service has.”

Betts says that VHF is likely to be the fire services’ nationwide interoperability spectrum of choice, and that virtually every fire service in the country already has (or soon will have) some VHF capability. “California Division of Forestry, for example, is all VHF, so every fire vehicle in California carries a VHF radio.”

In addition to the practice of keeping a set of spare radios — whether they are VHF or UHF, there is an ever-increasing move by public safety agencies toward the adoption of the aforementioned P25 standard. The P25 standard is actually a suite of standards and essentially the Common Air Interface, which is what mobiles and portables are built to, has been finalized. The National Institute of Standards and Technology has been certifying labs to look at manufacturers’ radios to ensure that they are being built to those standards.

Betts says, “I don’t know of anybody that builds a P25 radio today that makes what’s called a proprietary P25 unit. I think manufacturers are savvier than that. They know they’re not going to get the sales that they need if they build a P25 radio that only works on one system.”

### **Facebook, Twitter, Walkie-Talkie Phones, and Wikis**

In the table-top drill we discussed, Betts says that law enforcement will almost certainly be forced to rely on cell phones until those black boxes those kinds of things get set up to use standard radios, or until permissions and authorizations are set for inbound P25 radios. “A lot of people will be using their personal PDAs and cell phones,” he says.

Drilling a little deeper into the ways in which the mobile carrier networks play into public safety interoperability Betts says that things like Twitter and Facebook have emerged as impromptu — albeit at times unauthorized — alternate avenues for public safety communications that leverage 3G wireless technologies.

“Twitter, PDAs, iPhones, and all those types of devices that people are using out there are becoming very, very big in distributing information. For example, at the Presidential Inauguration earlier this year they used this kind of stuff extensively to find out where problems were occurring and to position people in response.”

Many wireless carriers, from the strictly-consumer focused Boost Mobile to the established vendors with deep inroads into government agencies — such as AT&T, Sprint|NEXTEL, and Verizon — offer features that are being widely adopted by public service personnel. In addition, numerous online social networking sites have robust mobile capabilities that lend themselves to the instant dissemination of information — Facebook and Twitter are currently the most popular but there are many others — that enable one-to-many like and one-to-one messages. In addition, an increasing number of mobile phones have a push-to-talk (PTT) feature. PTT offerings vary in

both their underlying technology and in cost per user, but the basic concept is the same: phones on the same network can function just like a walkie-talkie.

“With Sprint|NEXTEL, the push-to-talk system is actually an 800 MHz Trunking system — it’s not purely a cellular system — so it works very well. The Sprint side of the system is CMDA, so when you use the device as a cell phone it goes over the cellular network. But when you do the push-to-talk, you’re on the NEXTEL system and it goes over a radio network. That’s why public safety likes NEXTEL so much — it’s instant and it’s nationwide — the only problem of course, is that putting a whole agency on this system gets very, very expensive. Verizon’s push-to-talk is completely cellular, and I haven’t used yet so I’m not quite sure how it works.”

“I have several clients in the emergency management side that are looking at using blogs and Wikis,” Viking adds. “These agencies are willing to say to their police, fire, and emergency management people, ‘Hey, get on this secure hosted Wiki and post your comments.’ This way, everyone can see everything across time, space, geography. You can attach files and videos, and it’s all secure. And they’re experimenting with it because that’s another quick way of communicating that’s available out there.”

Viking says that this can be an efficient alternative to the big-budget, big-city approach of the unified communications center, such as those implemented in recent years in Washington, D.C., Chicago, and other places. Those systems are great, he says, but the infrastructure is immense and it’s expensive to do.

“As you know, the top 57 areas of the country get most of the money. Those cities with 100,000 folks are going to get some money but they’re not going to get the lion’s share.” Viking says that as a result, some of these consumer Internet technologies make a lot of sense.

Madgett concludes, “Since many of the requirements of interoperability — coordination, information sharing, and collective decision-making — are contradictory to the fragmented organizational structure that is inherent to state and local government, the obstacles to developing interoperability may seem insurmountable. However, as the market evolves, agencies will develop procedures to coordinate with peer organizations and achieve stakeholder agreement.”

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## **AC commissioners discuss ways to use federal grant money**

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*The Sealy News*

By Mary Hogan

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Communications was key for the Austin County Commissioners Court, which met Monday, July 6 to discuss how to allocate funds from the Public Safety Interoperable Communications (PSIC) grant.

The total amount of the grant is \$862,500, including matching funds, and is part of a statewide project to improve communications across Texas.

“It just goes to show how important this is to the state that they’re putting all of this money into this program,” Austin County Judge Carolyn Bilski said.

The grant will allow the county to make necessary upgrades to its emergency communication system, so that first responders will be able to more effectively relate and receive information from the state on both a day-to-day and emergency basis.

“The grant funds will allow us to move into the age of technology with minimal county money,” Bilski said.

Because of the funds, the county will be able to purchase 88 Motorola portable radios and 61 Motorola mobile radios - to place in vehicles - for local emergency responders through ERF Wireless Inc. Along with being pieces of new, properly functioning equipment, the radios run a frequency of 700/800 megahertz.

“They will allow us to talk statewide to all of our neighboring law enforcement personnel and first responders,” Bilski said.

The county will hold on to old radios for use as a backup system.

“This just enhances what we have,” Bilski said.

To receive transmission for the radios, the county is in the process of approving the purchase of a tower at FM 2502 in Bleiblerville, which will also be paid for with the grant funds. The radio tower is owned by Sprint, which will sell it to the county for \$10,000.

Commissioners also approved a contract allowing use of Harris County’s public safety radio system for an annual fee of approximately \$28,500, deducted from the county’s grant funds. In return, Harris County will provide Austin County with software support, technical support and infrastructure repair services.

“Harris County has the expertise and the funds and is willing to make this work,” Bilski said.

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