Interoperability & Emergency Communications News Clips
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Proposed alerting system sounds promising

August 6, 2009
Urgent Communications
By Donny Jackson
URL: http://urgentcomm.com/networks_and_systems/commentary/cmas-emergency-alert-20090806/

While considerable focus has been put on the need for better communications within the first-responder community, communications with the public being served and protected also needs considerable attention. In an increasingly mobile society, traditional alerting tools like the emergency broadcast system may not get the message to the growing number of people who rely almost solely on a handheld device to stay in touch with the world.

With that in mind, last week's initial meeting of the Commercial Mobile Alert Service (CMAS) Forum is welcome news. Hosted by the Department of Homeland Security (DHS), 79 stakeholders — representatives of first responders, broadcasters, industry and academia, to name some sectors in attendance — laid the groundwork for an alerting system that would be used nationwide.

"We had great response and terrific levels of interest," said David Boyd, director of the DHS command, control and interoperability division. "Once the program is complete, we'll have a much more comprehensive alert and warning system than we do now."

Alerting technology has advanced considerably in recent years, but the effectiveness of alerting system has been limited by a couple of factors. For one thing, many alerting services rely on SMS technology, which has issues regarding security and timely delivery when capacity constraints are a problem — a common occurrence in an emergency situation. In addition, most alerting systems require users to subscribe to the service to receive alerts on their mobile devices, but it's rare for more than 10% of the population to take such action.

Although CMAS initially will be a text-based system (multimedia is a longer-term goal), it would not use SMS. Instead, 90-character messages will be distributed to users immediately using cell-broadcast technology, Boyd said.

"The carriers say they can handle this without any difficulty," he said.

Moreover, almost all mobile users would receive the alerts, because they would automatically be registered for the service unless they took the time to opt out, Boyd said. No user would be allowed to opt out of a presidential-directed alert — something that has never been issued to date — but they could opt out of lesser alert levels, he said.

"If we're able to design this the way we want, I can't imagine why anyone would want to opt out, because these are going to be life-or-death kinds of messages," Boyd said.

Indeed, a key to the success of CMAS is establishing a system in which alerts are only distributed when there is an imminent danger or threat — something that inherently requires the ability to target messages geographically, Boyd said. If the CMAS system is used for lower-level alerts, it risks being less effective, he said.

"We wanted to avoid the car-alarm problem — that is, the car alarm goes off so often that no one pays attention to it anymore," Boyd said, noting that delivery of a CMAS alert may be accompanied by a unique ring tone or vibration pattern.

Of course, using CMAS sparingly means greater levels of education will be needed on various levels. It must be clear who is authorized to initiate such alerts and that they are trained to condense the message within the 90-character limit. Meanwhile, a public-education campaign is needed, so citizens know what CMAS alerts are and that they must be heeded immediately.

It will be interesting to follow the development of the CMAS as more meeting are conducted throughout the fall. If the ultimate system is able to meet the guidelines established in this initial meeting, CMAS looks like a much-needed upgrade in the nation's alerting capabilities.

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GIS goes vertical, with integration across state, local, federal lines
August 6, 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 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 more timely 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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Emergency alert service for mobile devices in the works
August 5, 2009
Government Computer News
By William Jackson
URL: http://gcn.com/articles/2009/08/05/dhs-commercial-mobile-alert-service-080509.aspx

The Homeland Security Department is working with government and industry to develop a Commercial Mobile Alert Service that would extend the Emergency Alert System to mobile cellular devices.

The DHS Science and Technology Directorate and Federal Emergency Management Agency hosted a meeting last week with stakeholders from the alerts and warnings community to begin laying the technical groundwork for CMAS.

"We are in the early planning stages," said Denis Gusty, program manager for the Science and Technology Directorate. "We're working with cellular providers on the interface specs" for government and service-provider equipment that will have to interoperate.

CMAS would provide text alerts from authorized federal, state and local agencies to cellular devices as well as to radio and television.

"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."

During that period, the federal government will establish an alert aggregation center and gateway to receive and authenticate messages and disseminate them to carriers using a Common Alert Protocol. Although the first phase of CMAS involves only text messaging, the system could evolve to include voice, video or other types of data, Gusty said.

CMAS was mandated in the Warning, Alert and Response Network Act, part of the SAFE Port Act of 2006. The Federal Communications Commission was given the lead in establishing requirements for the system and it established the Commercial Mobile Service Alert Advisory Committee, which completed its work in 2007.

Recent manmade and natural disasters underscored the need for a comprehensive system for geographically targeted alerts, FCC said in a notice of proposed rulemaking for the system published in December 2007. "As we have learned from recent disasters such as

the Southern California fires, the Virginia Tech shootings and the 2005 hurricanes, such a capability is essential to enable Americans to take appropriate action to protect their families and themselves from loss of life or serious injury."

That capability has been provided by the Emergency Alert System (EAS), which replaced the old Emergency Broadcast System designed for commercial radio and television broadcasters. As the new name implies, EAS has expanded the media over which it operates as new technology has developed.

"Most recently, we expanded the EAS from its legacy in analog television and radio to include participation by digital television broadcasters, digital cable television providers, digital broadcast radio, Digital Audio Radio Service and Direct Broadcast Satellite systems," FCC said.

CMAS is intended to take EAS to the next step through mobile cellular devices.

"In times of emergency, Americans rely on their mobile telephony service to receive and retrieve critical, time-sensitive information," FCC said. "A comprehensive mobile alerting system would have the ability to reach people on the go in a short timeframe, even where they do not have access to broadcast radio or television or other sources of EAS."

There already are a number of mobile alert services, such as those used by local governments for Amber child-endangerment alerts and other local notifications, but they are not adequate for CMAS, Gusty said.

"That technology is based on SMS," the Short Message Service standard for GMS mobile phone systems. "There are some problems with that."

SMS messages can be spoofed and they are not geographically targeted; they are sent to all subscribers to the service, although subscribers typically live or work in the area covered by a service. SMS also does not have a common look and feel that would work with the rest of the Emergency Alert System.

"CMAS is based on cellular broadcast technology," Gusty said, in which a service provider sends the alert to all users in an affected area. And while SMS is an opt-in technology that users subscribe to, CMAS would be opt-out. "Everyone will have it" by default, "and if you want out of it you have to opt out."

CMAS would deliver three types of message: Presidential messages in which the president addresses the public through the Emergency Alert System, Amber alerts, and threats to property and life. No president has used EAS to address the public, Gusty said.

The CMAS forum held last week included carriers, service providers and equipment providers; state, local and federal government emergency response managers; professional organizations for government officials; and academicians.

9

Although, "as with any development project the devil is in the details, overall everyone is pretty much on the same page," Gusty said.

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First text-to-911 gateway goes live in Iowa
August 5, 2009
Government Computer News
By William Jackson
URL: http://gcn.com/articles/2009/08/05/text-to-911.aspx

A national text-to-911 gateway goes live today in Iowa, making the county of Black Hawk the first in the nation to accept text messages into its emergency call center.

The system will be available only to subscribers of specific carrier services in Black Hawk County, Iowa (the carriers supporting the service have not yet been identified). Although the gateway, built by Intrado Inc., is built as a national system to route calls to any Public Service Answering Point (PSAP), there is no schedule yet for rolling the service out nationally.

"We are enabling the technology," said Intrado's senior technical officer John Snapp.

Most voice calls to 911 provide PSAP operators with information about the location of the caller, but the text system being unveiled today can provide only limited information about the location the text message is coming from. Operators will have to query the texter for specific information needed to respond to an emergency. Technology is being developed to make more information available to operators automatically.

The Federal Communications Commission requires voice carriers, including traditional wireline, cell phones and voice over IP services (VOIP), to provide Enhanced 911 services. E911 not only routes the call to the proper PSAP depending on the location of the caller, but automatically provides information on the caller's location to operators so that help can be dispatched even if a caller is unable to say where he or she is. This is a relatively straightforward process for wireline phones that operate from a fixed location. But the growth of mobile wireless phones and new transport schemes such as VOIP have created a challenge in providing the needed information.

E911 capability for cell phones, which could make up half of all emergency phones calls, is being phased in. Phase 0 was the ability to route a call to any PSAP, whether it was the proper one or not. Phase 1, where most carriers and PSAPs are today, is the ability route the call to the proper PSAP and provide information about the cell site and sector the call originates from. Phase 2, which is where the service now is transitioning, provides the specific location in latitude and longitude that can be displayed on a map for emergency dispatchers. Most carriers now provide this capability in their systems, but many PSAPs have yet to acquire the equipment required to use it.

Intrado provides services and systems to route 911 calls for wireless and wireline providers and deliver appropriate location data to PSAPs. It also has a network for transporting VOIP calls to PSAPs.

"There is no requirement for carriers to provide 911 for text," Snapp said. But the industry has been talking about it for some time as the service becomes more popular. The challenge has been determining where the text message is coming from. "The carriers said you couldn't do it," Snapp said.

Text has been created as a mobile-to-mobile service. Mobile voice calls are made through a geographically locatable switch, which has a trunk to a PSAP. But text messages are routed through national message centers.

"The system doesn't know where the text message is from," Snapp said. "It could be sent from anywhere in the country. We're really almost starting from scratch again" in providing 911 services.

Intrado built a pair of national 911 text gateways, in Colorado and in Florida for geographical redundancy, to receive the messages. The system queries the network to get the location of the switch where the message originated and an automated query asks the texter for the city he is located in. It uses that information to pass the message to the proper PSAP. The PSAP operator receiving the text can then ask the texter for a more specific location.

Compared with the requirements for cell phones, Snapp describes the current text scheme as at phase 0.5. He said technology now is being tested that would move the service to phase 1 by providing the location of the originating cell. Achieving phase 2 capability by providing specific user location would require carriers and equipment providers to incorporate new technology in their systems.

Black Hawk County was chosen as the first live site for 911 texting because it had the right combination of installed call-handling equipment to integrate with it and coverage by participating carriers.

"Iowa in general is a very forward-looking state for 911," Snapp said.

"The state of Iowa has a long history of pioneering advancements in 911 technology as a way to enhance the safety of all of our citizens," David Mill, administrator of the Iowa Homeland Security and Emergency Management Division, said in announcing the service.

Both Snapp and Iowa officials said the system is not intended for a replacement for 911 voice calls but as an alternative when voice calls are not possible or appropriate, such as for the speech or hearing impaired or in situations in which the caller is afraid to speak.

"We feel that voice is still the best way to contact 911," Snapp said. "It is today, and it will be for the foreseeable future."

A generation also is growing up for which mobile texting is more common than voice calls. Officials do not recommend that they use texting for 911, but would like to have the service available if is used.

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Schools Find Role in National Emergency Communications Plan
August 4, 2009
International Business Times
URL: http://www.ibtimes.com/prnews/20090804/schools-find-role-in-national-emergency-communications-plan.htm

A school district in Colorado launched a new two-way radio training program for all school staff on Monday, and became the first in the nation to formally align its school safety plans with the Department of Homeland Security's vision for interoperable radio communications to improve coordination among agencies responding to emergencies. At the all-day inaugural training workshop, Pueblo County School District 70 school principals learned how to effectively use two-way radio communications within the National Emergency Communications Plan and the Incident Command System.

A school district in Colorado launched a new two-way radio training program for all school staff on Monday, and became the first in the nation to formally align its school safety plans with the Department of Homeland Security's vision for interoperable radio communications to improve coordination among agencies responding to emergencies.

At the all-day inaugural training workshop, Pueblo County School District 70 (D70) school principals learned how to effectively use two-way radio communications according to the National Emergency Communications Plan (NECP) and the Incident Command System (ICS).

School staff interacted with professional responders to complete a series of brief drills and tabletop exercises at Pueblo West High School, and the proceedings were observed by guests from the Douglas County Sheriff's Office, Boulder Valley School District, Safe Havens International, and School Safety Partners.

Greg Keasling, D70 Director of Student Services announced that all schools in the district are now linked by two-way radio to all local first responders, including police, fire, emergency medical, emergency management, and other special rescue teams. In the event of a school incident, a communications network can be instantly activated that connects the high-end radios used by professional responders with the lower-end radios used day-to-day by staff in any school in the county.

Jeff Howes, principal of North Mesa Elementary, sees many benefits to this interoperability. "Communications is easier among stakeholders," he explained. "Response time is quicker, mistakes can be quickly corrected or response plans quickly changed, and we can run everyday operations more smoothly."

The principals agreed that the enhanced radio communications allows school staff and local responders to more effectively take action to protect students, teachers, and staff, as well as protect school property. The bridging technology takes less than a day to install and is provided by Denver company SchoolSAFE Communications, which also maintains a 24/7 district monitoring center to track all radio network activity and assure availability. The system is already installed in 48 locations across Colorado.

Keasling tested the technology in various simulations including a full-scale active shooter exercise last year which involved over 1,200 persons and 18 response agencies. He also established a feedback loop with the system's developers to create custom features and improvements for his district.

However, D70 is also taking steps to avoid clogging safety communications by inexperienced school radio users. Captain Lee Roybal with the Pueblo County Sheriff's Office advised, "always call 911 first, even if only to give a location," but in order to incorporate radios he placed a high priority on protocols and evaluations to improve procedures.

Others in the Sheriff's Office concurred. School Resource Officer Bryan DeHerrera said school staff need to learn proper radio etiquette. Comm Officer Katie Decrescontis urged schools to learn from dispatch how to give exactly the information needed within a matter of seconds.

Workshop facilitators Todd Skoglund and Ken Rost showed how "human interoperability" depended on concise dialog to make the radio system work, and they drew on ICS features such as the use of common terminology and unity of command to improve crisis communications between schools and public safety.

They also relied on the objectives of the NECP, which recognizes that the "ability to communicate in real time is critical to establishing command and control at the scene of an emergency, to maintaining event situational awareness, and to operating overall within a broad range of incidents."

Throughout the day, workshop groups focused on major school incidents that would be most effectively addressed using radio: weather-related emergencies, gas leaks, intruder alerts, lost children, nearby wildfires, disgruntled violent parents, bomb threats, child abductions, and active shooters. Keasling added another: "What about first day of school? That's an incident, too!"

Once the school year begins, Keasling will roll out the training program to include more and more school staff.

School principals and district administrators have long questioned the ability to communicate in crisis using traditional emergency resources. For example, they identified in the district's central phone system a design flaw commonly found in schools across the nation: routing a 911 call through a remote call center cloaks the address of the school in distress placing the call, and this can prevent the 911 dispatcher from confirming the location of the emergency.

Also, in the crucial minutes waiting for responders to arrive there has previously been no way to directly provide updates on a developing school crisis, and once responders were on the scene there was no way for them to get real-time information from radio-equipped school staff located throughout the school.

Keasling feels that these problems will been solved through Pueblo County's interoperability program.

Colorado was the first state to make interoperable communications part of a statewide School Response Framework in Senate Bill SB08-181 introduced by Senator Tom Wiens, and signed into law May 14, 2008. All public and charter schools are now mandated to inventory and test interoperable communications equipment at least once every academic term, as well as achieve compliance with the National Incident Management System (NIMS).

The law was based on two national Homeland Security plans, the National Response Framework (NRF) and the National Infrastucture Protection Plan (NIPP). Although the U.S. Department of Education's Office of Safe and Drug-Free Schools (OSDFS) has been recognized as the lead for schools in promoting these plans, it is unclear what leadership role, if any, the same office has in promoting interoperable communications to protect schools.

According to School Safety Partners, such leadership would go hand-in-hand with the efforts of OFDFS to promote NIMS compliance. In a bulletin released earlier this year, "NIMS Implementation Activities for Schools and Higher Education Institutions," OSDFS advises schools to develop a proactive process "to identify preparedness funding opportunities for developing interoperability training with their local and regional multi-disciplinary partners."

Meanwhile, Pueblo County has already adopted the objectives of the NECP, including: "integrating emerging technologies with current emergency communications," and "developing shared approaches to training and exercises, improved technical expertise, and enhanced response capabilities." For Keasling, the effort was the result of a successful public-private partnership with SchoolSAFE Communications.

Workshop attendees acknowledged that Keasling has created a top-down culture of interoperability, and school administrators and local responders alike expressed their buy-in. Bob Guagliardo, Pueblo Rural Fire Chief, welcomed exercising with school faculty

and offered additional radio training for all teachers. He also saw a need to inject the new two-way radio system into county-wide exercises.

Rye Elementary Principal Sue Moore came up with her own list of corrective actions for her school's safety plan: "development of correct protocols for radio use for incidents, collaboration with local emergency responders, practice with scenarios."

When asked who should be assigned responsibility for these corrective actions, she answered with a smile, "I guess that would be me."

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DHS Convenes Forum on Alerting Service
August 3, 2009
MissionCritical Communications
URL: http://www.radioresourcemag.com/archivednews.cfm?news_id=4570

To enhance the nation's emergency broadcast system, the U.S. Department of Homeland Security (DHS) Command, Control and Interoperability Division (CID) of the Science and Technology (S&T) Directorate convened stakeholders from all dimensions of the alerts and warnings community July 30 to determine the next steps to implementing the commercial mobile alert service (CMAS).

With more than 80 percent of the U.S. population subscribing to commercial mobile services, CID is working under a memorandum of agreement with the Federal Emergency Management Agency (FEMA) to enable and enhance a national capability to deliver geographically targeted, timely and effective alert messages to mobile devices.

"Early warning is integral to the health and well being of both people and property across our nation," said Dr. David Boyd, director of CID. "Through this inaugural CMAS forum, CID has effectively begun laying the groundwork for a more effective solution and for making the system a reality for the American public."

The forum brought together key stakeholders to build a coalition of local, state, federal, industry and nongovernmental organizations; develop a shared understanding of the CMAS research, development, test and evaluation efforts; and identify important next steps. DHS officials said it was the first meeting to address CMAS since the FCC Commercial Mobile Service Alert Advisory Committee (CMSAAC) held its final meeting Oct. 3, 2007.

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Firefighters Make Switch To New York County's New 911 Network
July 30, 2009
FireFightingNews
URL: http://www.firefightingnews.com/article-US.cfm?articleID=68691

Pennsylvania - Firefighters, fire police and ambulance personnel seamlessly transitioned to the new 911 radio network Wednesday night. The switch, which occurred at 10 p.m., means all of York County's emergency response personnel are using the new, $36 million network. It is part of an estimated $67.8 million 911 project that also includes a new 911 center in Springettsbury Township.

"It was really what I would call a non-event, but for us it was huge," said Eric Bistline, executive director of York County Emergency Services.

"We have all been anticipating these moments of bringing these people over. The entire goal of this project was to make communication better for our public safety community." Bistline said he's confident the new system will perform well for the groups that transitioned to the system Wednesday night.

Communication glitches that police experienced after they switched to the new system last year have been resolved, he said. Fire and ambulance personnel were only switched over to the new network after it passed a test in mid-June showing it would function without significant problems or repairs for 30 days.

The system had failed the test on the first go-around after an equipment failure made communication temporarily unreliable for several local police departments.

Hopeful: Spring Garden Township firefighters haven't really had a chance since the change to put the new system to the test but are hopeful it will work well, said township fire Lt. Lee Sowers.

The department early-on tested the new radios and was impressed with the strength and clarity of the transmissions.

The biggest benefit is the "interoperability" of the new system, which allows the firefighters to communicate more easily with other emergency responders and personnel in different fire departments, Sowers said.

With the old system, firefighters needed to switch radio equipment if they needed to communicate with the home fire department in a different jurisdiction, he said. Now they can communicate using their own radios.

The new system also allows firefighters to communicate with ambulance and fire police together on the same channel, he said.

Vehicle-mounted radios still need to be installed in some fire apparatus and one ambulance company, Bistline said. And the old radio system needs to be decommissioned.

He said the entire project should wrap up sometime in November, putting it 14 months behind the original schedule.

The system vendor and county officials will be keeping a close eye on the system's performance to ensure it continues to work properly, he said.

He expects minor individual problems as firefighters, fire police and ambulance personnel begin using the new equipment on a daily basis.

But 911 dispatchers are available to help with problems, he said.

"There is going to be a learning curve," Bistline said. "But we have trained our staff to help them through that."

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Workshop Explores Social Media Technologies and Emergency Management
July 29, 2009
Government Technology
By Heather Issvoran
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Darrell Darnell is director of the District of Columbia Homeland Security and Emergency Management Agency and a component of the effort that kept President Barack Obama's inauguration from devolving into chaos. "My daughter sent me a text regarding a metro closing before the metro rep in my [emergency operations center] told me about it," he said.

That was an example of adapting to technologies as they occur and the topic of discussion at the OGMA Workshop on Web 2.0, hosted by the Naval Postgraduate School's Center for Homeland Defense and Security (CHDS) on June 30-July 1 in Monterey, Calif.

The use of social media is an "exciting prospect" for emergency management, Chris Essid, director of the Office of Emergency Communications within the U.S. Department of Homeland Security (DHS), told FederalNewsRadio in an interview. "It's an exciting new information stream that our responders can utilize and gain better situational awareness."

The workshop examined the application of Web 2.0 technologies to enhance homeland security practices. A joint venture by the CHDS, the DHS' Office for Interoperability and Compatibility, and the DHS' Office of Emergency Communications, the workshop brought together experts from various disciplines including public safety practitioners, technology leaders, behavioral scientists, social networking analysts and government officials.

"Twitter was useful in exchanging information, stamping out rumors, and providing updates on street closures to people attending the [inauguration]," Darnell said. "This is new and different because it is the beginning of a two-way communication system between the public safety officials and the citizens we protect." Darnell also mentioned the effective use of blogging to build trust in a community. He blogs about weekly events on the city's Web site so the public can get accustomed to receiving reliable information online from a trusted source. He added, "The OGMA conference provided a venue for diverse disciplines to share expertise and learn how to ask questions and frame the national conversation."

Mike Byrne, CHDS faculty and lead organizer of the event, said, "The involvement of diverse groups and the pervasiveness of Web 2.0 is dramatically changing the world of public safety, emergency management and homeland security in both productive and uncertain ways. The discussion at this workshop is advancing our understanding and clearly showing the direction of future efforts as we struggle with the dramatic transformation of the way we communicate, collaborate and build communities of interest."

Web 2.0 technologies are designed to provide citizens and homeland security practitioners a simple, rapid way to share information to improve situational awareness in the event of an incident. The public safety/homeland security community has a spectrum of responses to these rapidly developing technologies:

- suppress use of social networking technologies within agencies;
- ignore them;
- adapt to them as they occur;
- plan to take advantage of them; and
- influence social networking technologies to benefit the agency or user.

David Boyd, director of the DHS' Command, Control and Interoperability Division and featured speaker at the OGMA conference said, "We are building the plane as we fly it." He said the challenges are managing and analyzing an overwhelming amount of information, ensuring privacy and sharing the data effectively with the public.

Social media is important but greater collaboration between scientists, practitioners and technology experts is essential, said Jeannette Sutton, disaster sociologist and research associate at the University of Colorado at Boulder's Natural Hazards Center and a member of the organizing committee for OGMA.

"Human nature doesn't change. Although technology changes at the speed of light, humans are hardwired to believe they are not at risk," Sutton said. "We have to work harder to get their attention and get them to do something." She said the public safety community should take what it knows about human nature and apply technology to advance its ability to prepare and respond.

18

Sutton's research with Leysia Palen at the University of Colorado is studying how Virginia Tech students used Facebook to coordinate and communicate after the shootings that took place in April 2007. A focus of the research addresses the myths of social media, including: cyber-terrorism, information can be controlled and social media warnings are wrong.

The bottom line, Sutton said, is that social media is important. Using scientific research methods to study how Web 2.0 was used during disaster and terrorist events will increase the ability of public safety and homeland security communities to prepare for and respond to incidents.

More Support Required to Fill Emergency Communication Gaps
July 28, 2009
HS Today
By Mickey McCarter
URL: http://www.hstoday.us/content/view/9551/128

Limitations in communications for first responders rushing to a large-scale disaster, such as the 9/11 terrorist attacks or Hurricane Katrina, continue to linger due in part to delays in the establishment of a federal emergency communications center, which would provide assistance in overcoming those obstacles, congressional investigators said Monday.

Federal agencies have worked to help equip local first responders to react to catastrophic events that could overwhelm their communications capacities, but limitations in collaboration and monitoring threaten to minimize federal contributions, the Government Accountability Office (GAO) concluded in a report titled "Emergency Communications: Vulnerabilities Remain and Limited Collaboration and Monitoring Hamper Federal Efforts."

Creating the Emergency Communications Preparedness Center at the Department of Homeland Security (DHS) would provide a means to set common goals and standards for communications strategies, the GAO report said. The lack of such a center to date undermines implementation of the National Emergency Communications Plan, which has set goals for achieving interoperable communications for use in disasters.

The Federal Communications Commission (FCC) and DHS have failed to apply best practices recommended by GAO to boost emergency communications, the report asserted. FCC holds responsibility for the promotion of a public safety network for emergency communications. FCC officials provided conflicting responses to GAO as to the progress of implementing such best practices or even in agreeing if it were FCC's responsibility to do so, GAO found.

In addition, GAO said DHS and FCC could align their efforts to strengthen emergency communications initiatives, GAO noted.

DHS also should provide technical assistance and resources to federal agencies, many of which lack emergency communications plans, the report added. With an ongoing focus on state and local governments, federal agencies generally have been left out when it comes to emergency communications assistance.

To correct these problems, DHS should forge forward to implement the National Emergency Communications Plan; FCC and DHS should collaborate on their emergency communications efforts; and DHS should provide help to federal agencies to develop their emergency communications plans, GAO recommended.

Federal agencies have made some progress to enhance emergency communications, the report acknowledged, such as the publication of the National Emergency Communications Plan by DHS. DHS also has provided grants to state and local governments, aligning those funding opportunities with national and state plans. Federal agencies also have been able to lend technical expertise to mitigate vulnerabilities in communications.

Still, the report envisioned grave problems in the event of a large-scale disaster.

"The destructive nature of catastrophic disasters can disrupt continuity of communications-the ability to maintain communications during and following a disaster," the report stated. "A volcanic mudflow at Mount Rainier, Washington, could destroy infrastructure supporting communications systems.

"Capacity-a communication system's ability to handle demand, provide coverage, and send different types of information-is also vulnerable in a catastrophic disaster. For example, blind spots, areas outside the range of communications systems, could inhibit response. Lastly, vulnerabilities involving interoperability-the ability to communicate across different organizations and jurisdictions as needed and authorized-remain due to technological and human factors," it said.

DHS concurred with the GAO recommendations but noted that its Office of Emergency Communications has limited statutory authority to lend assistance to other federal agencies.

Alabama imaging leads nation
July 27, 2009
Alabama Press-Register
By Robert McClendon
URL: http://www.al.com/news/press-register/metro.ssf?/base/news/1248686132254960.xml&coll=3

Alabama is leading the nation in its use of new imaging technology to prepare for disasters, federal and state homeland security officials said last week.

The state is so far ahead of the pack, they said, that it is even helping other hurricane-prone states get their own programs off the ground.

Jim Walker, director of the Alabama Department of Homeland Security, ran through the state system's capabilities during a presentation Thursday.

He and his staff have given the demonstration to other state governments and even abroad.

Virtual Alabama, as the system is called, is essentially Google Earth taken to the extreme.

In its most basic form, Google Earth — available to anyone with a powerful enough computer — lets users explore the globe from a street-level view, to a bird's-eye view, to a space-station's view and everything in between.

Technologists with the Alabama Department of Homeland Security have taken those same capabilities and added thousands more layers of data and information for counties across the state. The end result is far more than just a fancy map.

During his presentation, Walker's technology specialist zoomed in and out over a map of Alabama. Her mouse cursor danced across the screen: Flood maps were set over aerial shots to show possible hurricane damage. Government buildings and schools were mapped, complete with floor plans, to help potential first respond ers. Highway cameras scattered across the state showed traffic in real time.

Walker said the new technology will allow emergency responders to better react to disasters of all kinds.

As an example, he zoomed in over the city of Enterprise. Satellite imagery showed a section of town near the high school. The houses lined shady streets with neatly manicured lawns.

With a click of the mouse, the map transformed into an aerial view of the same neighborhood after a 2007 tornado devastated the landscape.

On top of the aerial view, Walker added a layer of real-estate information that showed property values — useful for when the state needs to give damage estimates.

Though it was developed primarily as an aid in emergency response, Gov. Bob Riley said, his office has also used it in economic development. Citing an unnamed foreign investor as an example, Riley said the maps have already been used to show prospective sites.

"There's not a state in the union that can't benefit from this technology," Riley said.

Walker and others who have had a hand in developing Virtual Alabama are al ready helping neighboring states get their own programs off the ground, said David Boyd, the director of the command, control and interoperability division of the federal Department of Homeland Security.

"In terms of putting it into practice, (Alabama) is really at the head of the pack," Boyd said.

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GAO Warns of Communications Lapses
July 27, 2009
Boston Globe
By Foon Rhee
URL:
http://www.boston.com/news/politics/politicalintelligence/2009/07/gao_warns_of_co.html

The investigative arm of Congress warned today that several vulnerabilities remain in how first responders across the nation communicate, despite attention focused on it after the Sept. 11, 2001, terrorist attacks.

Senator John F. Kerry of Massachusetts, chairman of the Commerce Subcommittee on Communications, Technology, and the Internet, released the report he requested from the Government Accountability Office

"The 9/11 Commission recommendation was crystal clear: we need a nationwide interoperable public safety network," Kerry said in a statement. "In times of crisis, cops, firefighters, and other heroes on the ground need every tool to keep them and us safe, and we owe it to the American people to get them every bit of available information to help protect them and their families."

According to Kerry's office, the report cites the inability to stay connected during and after disasters, limited capacities of communications systems, and problems communicating across different agencies s serious obstacles to first responders across the country.

The GAO recommends that the Department of Homeland Security complete efforts to help implement the National Emergency Communications Plan; the department and the Federal Communications Commission establish a forum to collaborate on emergency communications efforts; the department help other federal agencies develop emergency communications plans; and the department seek innovative ways to improve emergency communications systems.

Satellite Technology Provides Disaster Communications When Cell Towers Fail

July 27, 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.

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."

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Virtual Alabama Facilitates Data Sharing Among State and Local Agencies
July 24, 2009
Emergency Management
By Corey McKenna
URL: http://www.emergencymgmt.com/disaster/Virtual-Alabama-Facilitates-Data.html

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.

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.

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.

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