

Satellite Networks, Disaster Recovery and COOP

By Don Philpott

Satellite Communications in Disaster Recovery

In the aftermath of September 11, the Maryland Urban Search and Rescue Team learned a number of crucial lessons—land-based communications cannot be relied upon in the event of a disaster, real-time information is key to effectively accomplishing tasks, and an

Internet connection is vital to staying in touch, not only with the command center, but with information such as news and weather. The communication challenges these first responders encountered aptly displayed to the team that the portable television they used to obtain up-to-date in a catastrophe. To stay current and be effective, they needed Internet access.

They installed a Hughes transportable satellite broadband system which mounted on top of vehicles. The decision proved invaluable as the team put their new system to the test for the first time as they responded to Hurricane Katrina rescue and recovery efforts.

The Maryland Urban Search and Rescue team was deployed to New Orleans shortly after the storm hit with a simple mission—to come to the aid of citizens by providing immediate medical and search and recovery assistance for displaced citizens.

The team used their satellite service primarily to obtain Internet access in order to monitor news and gather information on the affected areas. “The satellite service allowed us to get a broader view of the devastation we were about to encounter in real time,” said Captain Michael Dean of the Montgomery County Fire Department.

RECEIVING
SIGNAL STRENGTH 100 %



Access to real-time information was key, as it allowed the Maryland Search and Rescue team to decide its course of action prior to arriving in New Orleans. “We were able to use the service en route to the area, so when we touched ground, we knew what our plan of action was. We didn’t waste time searching for televisions or hotspots. We got the information we needed in real time,” said Dean.

The transportable system is unique in that it offered the team complete freedom of mobility. Every time they needed to relocate, the system could easily compensate for any change in location, orientation, and even a variation in slope—giving them the ability to go online from virtually anywhere in North America, even the water- and storm-ravaged areas of New Orleans.

“Having the transportable satellite system during Katrina gave us the ability to communicate with our administration and chiefs in Maryland,” said Dean. “The areas affected by Katrina had no telephone or cable service to allow us access to the Internet. We used the system to keep our chiefs updated on our activities and the health of our staff, and to contact loved ones at home to let them know everything was okay,” said Dean.

In life or death situations, such as Katrina, first responders need real-time information. According to Dean, “if we can’t get information, we can’t do our jobs effectively.”

On the Ground

While in New Orleans, rescue teams from Virginia Beach and other areas got a first-hand look at the technology the Maryland team was using. They opened their connection to allow other teams to enjoy “creature comfort activities” such as accessing email to contact loved ones at home and their command centers and to keep abreast of current events.

Security was never an issue. The system was equipped with an extra layer of security that prevented any critical information pertaining to the Maryland team’s mission from being broadcast over the Internet. “I like to think we are trendsetters—after our debut in New Orleans, a lot of first responder and rescue teams are starting to come along with satellite,” said Dean.

Looking Ahead

In the hours, days, and weeks after Hurricane Katrina, the lack of communication was one of South Mississippi’s and New Orleans’ biggest problems for residents and officials. This year, while state and local officials hope there is no repeat of Katrina, they have proactive plans in place for several different forms of communication—just in case. Most of those plans call for more satellite broadband since the technology doesn’t rely on vulnerable land-based infrastructure.

Dean agrees that rapidly deployable satellite broadband is a necessary component of emergency communications preparedness.

“Had more facilities been equipped with satellite broadband in secure locations, I believe this would have given more people the opportunity to submit and communicate critical information in a timely manner. Satellite would have made a huge difference,” Dean said.

Satellite NNetworks and COOP

Satellite-based COOP solutions offer federal, state and local government a true alternate path, redundant networking option that ensures that facilities, telecommuters, and mobile employees can continue working even if an agency’s primary terrestrial network fails.

Currently many agencies continue to struggle with older dial-up networks that do not support high-speed data, video, or other modern broadband applications that require greater bandwidth. However, that is about to change, said Tony Bardo, Assistant Vice President of Government Services at Hughes.

Hughes Network Systems, the global leader in broadband satellite network solutions and services, has been awarded a contract under the recently announced General Services Administration’s (GSA) Satellite Services-II (SATCOM-II) program.

SATCOM-II will yield substantial benefits to agencies for requirements, such as network diversity and telework, as well as deliver managed broadband networking to remote locations, said Bardo.

The SATCOM-II vehicle enables all U.S. federal civilian and Department of Defense (DoD) agencies to procure an expanded range of broadband satellite solutions, including the following offerings provided by Hughes and its team members:

- Broadband primary, high-availability and back-up networks (VSATs)
- Satellite capacity
- Point-to-point and mesh connections (SCPC)

- Transportable services
- Mobile satellite voice and data services
- Broadcast satellite services
- Managed network services
- Applications solutions (e.g., distance learning, streaming video, telemedicine and Continuity of Operations (COOP))



"We are now providing state and local government with some really interesting transportables, so that they have some readiness capability in cases of disasters or compromising situations."

"The SATCOM-II contract will fundamentally change the way federal agencies use satellite technologies," Bardo said.

In August, Hughes will launch SPACEWAY, the world's first satellite system with on-board switching which represents a significant step forward in satellite communications technology. Designed and developed during an eight-year, \$2-billion program, and manufactured under contract by Boeing, the SPACEWAY 3 satellite will deliver the next generation of HughesNet services and solutions throughout North America. Services are expected to be available six months after a successful launch.

Operating in the Ka-band spectrum, SPACEWAY employs high-performance, onboard digital processing, packet switching and spot-beam technology. This unique "switch in the sky" enables communications directly between terminals at customer sites in a single hop, without requiring a central hub. Its unique capabilities will enable groundbreaking applications, open up new markets and unlock a wealth of value-added services, Bardo said.

New Approach

"One of the things that was key to our strategy was to take advantage of the idea of emergency preparedness as opposed to emergency response. Emergency response is very important, but one of the things that we are trying to evangelize and educate is the idea that as you design your networks – and federal agencies are in the process of doing that – you have to design networks with resiliency in mind as apart of emergency preparedness. It can't be left to a band-aid, knee-jerk reaction when something happens.

"Agencies at all levels have to be very much more prepared. A lot of agencies thought they were doing that by getting two terrestrial carriers, but Katrina and 9/11 unfortunately showed us that this is not the way to achieve redundancy and high availability. The answer is path diversity. That is very important.

"You can have two land-based networks, but they're going to have the same choke points and vulnerabilities. Networks must be designed with a robust terrestrial backbone carrier but with an alternate path out – not through the ground but through the air and through satellite. That is critical for homeland security and COOP.

"Telework is also important, too. It used to be thought of as a quality of life thing, getting people off the roads and using less gas. Now it is an essential part of COOP. What happens when your key people can't get into the office? Are you going to leave them relying on dial-up at home? You have to enable them on broadband at home, but this has to be managed.

"The way that several agencies are implementing the telecom part of telework is telling their people to go out and sign up for their own broadband. As a result, they finish up with everyone getting different providers, and once a month they each submit a bill for reimbursement of the cost of the service. It is not managed, there is no ability to download and they must start thinking about this as part of their extended network. All the agencies we have spoken to said that this is what they have been doing. This is another educational campaign we are working on – telework is important but there is no point in empowering them with the IP infrastructure, the PC, laptop and so forth, if there is no network when they need it," Bardo said.