



Post-Storm Static

INADEQUATE AND INCOMPATIBLE MILITARY COMMUNICATIONS SYSTEMS IMPEDED HURRICANE KATRINA RECOVERY EFFORTS.

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Military communicators and first responders are looking for solutions to remedy and prevent a recurrence of the communications shortfalls that occurred during the relief and recovery operations for Hurricane Katrina. While select communications equipment operated as designed, some on-scene military units had incompatible systems or inadequate numbers of up-to-date equipment.

Gaps in policy also contributed to the services' inability to talk with their own units, as well as intergovernmental, interagency and private volunteer organizations (PVOs) in the storm-ravaged areas.

The office of the Louisiana National Guard and two flag-level officers, whose organizations supported the operations, recently shared their first impressions about post-Hurricane Katrina communications issues.

After Hurricane Katrina struck the Gulf Coast, about 50,000 Army and Air National Guard members were sent to the states battered by the storm. This was the largest domestic response in the

Guard's history. The Guard was joined by more than 10,000 sailors and 19 ships, 2,400 Marines, and units of the other military services and the Coast Guard. An array of other intergovernmental, interagency groups and PVOs were also on scene in the area of operations, making this a "purple," or joint, mission.

The joint forces conducted search-and-rescue operations, delivered supplies, provided security and medical services, dewatered wide swaths of land, and performed countless other missions.

Reliable, uninterrupted communications were needed to support the command and control structure established by Joint Task Force Katrina and the on-scene PVOs to complete these missions. But the forces of weather, the law of physics, and incompatible and inadequate numbers of equipment sets combined to make the environment a communicator's worst scenario.

WIPED OUT

Collapsed communications towers, severed above-ground telephone lines and damaged underground communications lines were but some of the obstacles that the first responders encountered in New Orleans.

The area's communications infrastructure was "just wiped out by the flooding and the storm itself," recalled Major General Alan Cowles, director, Command, Control, Communications and Computer Systems Division (J-6), National Guard Bureau.

The communications infrastructure in adjoining

Gulf Coast states also suffered varied amounts of damage.

"When your telephones, cell phones and computers don't work, it puts a real challenge on how you are going to communicate, pass your information, establish situational awareness, and make your requirements known," said Cowles.

The end result was that communications were often ineffective among the joint agencies.

The Louisiana Guard "was unable to effectively communicate with local parish officials," said Lieutenant Colonel Pete Schneider, state Guard spokesman. He noted while an 800 megahertz radio system was operative, "the system is used by several statewide agencies and the capacity was maxed out due to this being the only system partially working."

Tall buildings and other attributes of the New Orleans' urban environment also limited the use of the first responders' communications equipment of choice—Land Mobile Radios (LMRs)—a line-of-sight device.

Cowles explained the limitations of LMRs in this setting. "When you are in a metropolitan environment, they don't work around corners and they don't work over buildings," he said. "If you are on Bourbon Street and need to talk with somebody on the other side of the city, you can't do that with an LMR, because it gets blocked by the buildings," Cowles added.

In such an environment, Cowles said, "You need to have a system of repeaters and additional mobile radio sets that can be able to [provide continuous, reliable connectivity]. We don't have enough of those. But, we're not the only ones who don't have enough—the police departments don't have enough, the fire departments don't have enough—any civilian first responder organization probably doesn't have enough."

Lieutenant General H. Steven Blum, chief of the National Guard Bureau (NGB), told a House Defense Appropriations Subcommittee hearing in September that after Hurricane Katrina, guardsmen using legacy radios were unable to talk to their active-duty counterparts who were equipped with more modern communications equipment.

The mismatch centered in part on the inadequate number of on-scene Single Channel Ground and Airborne Radio System (SINCGARS) sets. The system provides commanders with a highly reliable, secure, easily maintained combat net radio with voice and data handling capability for command and control operations. SINCGARS is replacing the venerable VRC-12 series radios, whose shortfalls include the inability to transfer data via the tactical Intranet or operate in the frequency-hopping mode.

SINCGARS was one of the National Guard Bureau's significant unfunded requirements for

fiscal year 2006, with 37,633 SINCGARS radios requested at a cost of approximately \$522 million.

SITE COMMUNICATIONS

The Air and Army National Guard did deploy other state-of-the-art communications equipment, including the Interim SATCOM Incident Site Communications Set (ISISCS). This system was designed and integrated by the Missouri National Guard with assistance from Cisco, Raytheon JPS Communications and Motorola. The equipment was developed to respond to the near-term threat environment and homeland security.

The ISISCS is a mobile set of communications hardware and associated peripheral equipment designed to provide on-site communications capabilities for enhanced command and control, and shared situational awareness among first responders and state and federal command authorities.

When deployed, the ISISCS has three primary functions:

- Interoperability. Interconnects diverse voice communications networks/devices, used by multiple response agencies at the incident site.
- Reachback. Provides support to relevant state and federal National Guard networks and to organizations with incident management responsibilities.
- Command Post Integration. Provides on-scene command post integration.

The ISISCS performed as designed. "The glaring thing that came out of this was that we need more of them—13 sets are not a sufficient number," Cowles said.

Another unheralded communications success during post-Katrina ground operations was the ACU 1000 Audio Gateway.

The Raytheon JPS-manufactured product provides interoperability between multiple radio systems operating on different frequencies.

ACU systems were deployed with local, state and federal agencies in the affected states.

"Once responders had built temporary infrastructures and established 'operable' communications, the ACU technology was a critical contributor to the coordination and response efforts of the responding agencies," said Sandy Waters, vice president, Raytheon JPS Communications. "The nationwide outpouring of resources and personnel greatly increased the need for interoperable communications during Katrina relief efforts, and the ACU offered a flexible solution that was able to meet the overwhelming demands of the rescue efforts."

The National Guard also needs more ACU systems, said Cowles.

In addition to additional SINCGARS units, the

National Guard Bureau also envisions its future first responders having the Joint Tactical Radio System (JTRS). The multi-billion program will replace select legacy equipment, including LMRs.

JTRS is a programmable, software waveform radio set. Boeing is the lead contractor for the entire program.

With JTRS, "you wouldn't need the ACU 1000 to make a software change into your radio set that would allow you to then communicate with somebody else's radio system," said Cowles.

MARITIME COMPONENT

Rear Admiral Joseph Kilkenny, commander, Carrier Strike Group 10, embarked in *USS Harry S. Truman* (CVN-75), was the designated Joint Forces Maritime Component Commander (JFMCC).

The JFMCC communications plan allowed real-time reporting of the situation on the ground to headquarters throughout JFMCC units in the joint operating area. The units' equipment lineup included satellite communications, Internet access, Navy-Marine Corps Intranet (NMCI) reachback, Iridium satellite phones, Global System for Mobile Communication and other cellular services, and LMR communications.

These and other on-board systems bolstered connectivity throughout the joint area of operations and supported the Deployable Joint Command and Control (DJC2) capability.

The deployment of JFMCC's mobile satellite communications capabilities and other equipment enabled a number of successes, including: support for Federal Emergency Management Agency (FEMA) and local government Emergency Operation Centers (EOCs); re-connection of Naval Station Pascagoula, MS, and Naval Air Station Joint Reserve Base New Orleans back into NMCI; support for the Coast Guard, 8th District commander; support for local FEMA and city government offices in Bay St. Louis and Waveland, MS; and support for the Department of Justice and the Unified EOC in Texas.

Each mobile satellite communications system provided critical telephone and Internet access to re-connect the respective EOC, base or city government to support relief coordination, said Kilkenny.

The DJC2 capability supports Joint Forces Command's evolving Standing Joint Force Headquarters initiative by providing collaborative planning and rapid information sharing.

The DJC2's first operational deployment occurred during Hurricane Katrina relief operations, enabling operations center and communications support for the JFMCC in New Orleans. The capability was moved into theater and set up in two

days, delivering a self-contained operations center to support JFMCC staff and medical liaison officers from the Army and Air Force.

"This was the first 'real world' employment of DJC2, which was designed for operations support in the tactical warfighting environment," said Kilkenny.

While the DJC2 program is currently undergoing test and evaluation, its deployment during Hurricane Katrina proved the flexibility of the DJC2 system and highlighted some areas for improvement that will benefit the usability of the program in the long term, Kilkenny added.

MANAGEMENT PLAN

Other insights gleaned during the immediate aftermath of Hurricane Katrina are the requirements for an information management plan and a common collaborative tool suite.

The JFMCC noted that there needs to be an information management plan so that all agencies can more effectively share information.

Department of Defense operational units are built to primarily use classified networks and communications systems. In a humanitarian assistance and relief operation, such as Hurricane Katrina, the majority of information is shared on the unclassified networks.

"U.S. Northern Command (NORTHCOM) must develop a consolidated, standing information management plan so we in DoD all use a common tool that can interact with FEMA, state and local governments and non-governmental organizations," said Kilkenny.

On the requirement for a common collaborative tool suite, he added: "DoD must also field this on the unclassified networks as standard operating procedure so our units have ready access and know how to use them should another large-scale disaster occur within our borders. We shouldn't have to install the tools in the middle of the operation."

A generic communications plan with the potential to be used in an "off-the-shelf manner," is in staffing at the headquarters level.

The Joint CONUS Communications Support Environment (JCCSE) is a concept of operations being co-developed by NORTHCOM and the National Guard Bureau.

"It allows us to have a rough architecture to allow situational awareness from the incident site, through the state joint operations center (joint force headquarters), to the National Guard's Bureau Joint Operations Center, to NORTHCOM—and back down."

Under this plan, NORTHCOM would also have connectivity with Department of Homeland Security and other joint organizations. ★