Texas Agencies Maximized Web Power Before and After Hurricane Ike

Adam Stone | February 4, 2009

On Aug. 19, 2008, a wave left the coast of Sudan headed east. By the time it swirled up the Gulf of Mexico three weeks later, it had built up hurricane force winds 240 miles wide. That mass plowed into Texas on Sept. 12 carrying destructive and deadly power.

The day before, the National Weather Service warned residents along the Galveston Bay shoreline that they faced "certain death" if they didn't evacuate as ordered.

Hurricane Ike has been blamed for at least 164 deaths, including 82 in the United States. As the tempest blew, more than 182,000 Texans headed for temporary shelter. The Red Cross established some 280 facilities to keep them safe and dry.

Top brass flew into survey the catastrophe. Former presidents Bill Clinton and George H. W. Bush toured the area and visited an ad hoc Federal Emergency Management Agency (FEMA) headquarters.

Weeks after the hurricane, The Associated Press reported a grim spectacle. The storm's 13-foot surge had pushed up approximately 200 coffins from their graves. Volunteers and state prisoners searched hundreds of miles of marshland in hopes of returning at least some of the dislocated remains to their proper places.

There were close calls. On Sept. 11, the cargo ship MV Antalina left Port Arthur, Texas, to avoid the storm, but the ship's engine failed the next day. Unable to fix the engine, the crew asked the U.S. Coast Guard to evacuate them, but the Guard determined it would've been unsafe to try. The crew of 22 rode out the storm and returned home uninjured.

Nature's helpless creatures were also impacted as the storm wiped out nesting areas for rare Kemp's Ridley turtles, washing away dunes and beaches on Bolivar Peninsula and Galveston Island.

And renters felt the brunt of the storm as much as anyone. The Houston Chronicle estimated that more than half of the city's 2,000 apartment buildings got hit hard, with

damaged roofs and toppled walls. The damage was so extensive that the Chronicle gave a bold headline to the resumption of curbside recycling - a big step forward - more than five weeks after the storm.

There was a lot of bad news, to be sure. But it might have been worse, were it not for the timely use of communication technologies and the intervention of at least one government agency. EMSystems, PIER Systems and the National Oceanic and Atmospheric Administration (NOAA), each had a role in keeping Hurricane Ike's human toll to a minimum.

NOAA: Information Central

Tim Osborn vividly recalled the days and hours preceding Hurricane Ike's arrival in the Gulf of Mexico. "Even before Ike became a tropical depression, we had identified the potential for this to start creating an actual storm system - to start rotating," said Osborn, the regional manager of NOAA's Office of Coast Survey.

In the coming days, NOAA played a critical role in managing the response to Ike. When the storm ended, the federal agency had its hands full finding and repairing navigational aids to help get maritime commerce afloat.

From the very start, the NOAA's work focused on communication - keeping emergency services up-to-date on changing conditions as the storm approached. At 10 a.m. each day, regional NOAA offices and weather service officials gathered on the phone with the NOAA Hurricane Center in Miami. Together they'd review likely five-day scenarios, while NOAA aircraft skimmed the storm to conduct weather sampling.

These conference calls, along with Web-based presentations, helped NOAA forge a consistent message that could be communicated to the entire navigation and port community. These

conclaves likewise helped the Coast Guard organize and coordinate the restrictions and eventual closings of waterways.

Such closings require delicate synchronizations. With 15,000 ship movements in and out of the Mississippi River each year - which is one waterway among many - authorities must work in close cooperation when a major event strikes, Osborn said.

"One of the biggest issues in shutting down navigation is whether you can get pilots out to the ships to bring them in, and what the threshold is when it becomes too dangerous to have that tug traffic still going out there," Osborn said.

Bridges and locks can't be shut down willy-nilly; things must happen in a specific order. In providing timely weather information, NOAA helped determine that order. "We helped provide a single, very focused, very local, very expert authoritative voice of information that everyone could hear at the same moment, on the same phone call," Osborn said.

Those daily calls helped shape emergency response within changing circumstances. "You can't expect to shut things down and have people safely leave the coast in a time frame of 24 hours," he said. "Ships go only so fast, barges and tugs go only so quickly. It requires several days of advance operations to make that happen."

NOAA put its newest technology to use in the shadow of Ike. "This storm season was the first operational year when we used full computer-based Web briefings to outside entities, and they were tremendously well received," Osborn said.

Not only could Web graphics convey information, they also made it possible to convey data accurately to others in the chain. "Now the information from those briefings could be e-mailed so that those participants could then share that throughout their own organizations," he said. "It made the community incredibly effective."

If Osborn can vividly recall the storm's beginning, he's perhaps even more alert to the end, the moment when NOAA's work was effectively finished.

"About eight hours before Hurricane Ike made landfall, we had just finished the last conference call for the night," Osborn said. "As we hung up the phone, we realized right at that moment that literally everybody had shut down. There was no port from Mobile, Ala., all the way to Corpus Christi, Texas, that was open. Every tug, every barge, every deep draft ship had come to a stop. It was amazing to me. The information and the updates we had given to all these people had essentially led to the complete stop of everything within the Gulf of Mexico."

There's no doubt this saved billions of dollars and an untold number of lives along the way.

Putting Patients in Beds

Hurricane Ike forced the evacuation of nearly 8,000 people in Houston alone. Among them came an inevitable population of the old and ailing, many of whom needed hospital beds. Some hospitals had space; others did not. The last thing anybody wanted was ambulances wandering the roads, trying to match patients with beds.

"It's really about balancing the supply versus the demand and trying to match the two in the most efficient way possible," said Andy Nunemaker, CEO of EMSystems.

The company's patient-tracking systems operate in major cities nationwide. Its flagship product is EMTrack, a Web-enabled, browser-based system that tracks patient movements, reports transport activities and allows cross-jurisdiction management, among other functions.

In the case of Ike, the system was used in conjunction with EMResource - a common operating picture as described by the National Incident Management System - that delivered a comprehensive and flexible exchange of information between emergency medical service providers, hospitals, health-care entities, 911 dispatch centers and emergency operations

centers.

The systems typically are purchased not by individual organizations, but by regions; in this case, entities such as the Texas State Department of Family and Protective Services and the Louisiana Hospital Association. These groups in turn put the system into play in hospitals, dialysis centers, emergency medical services agencies and providers within a five-state area.

As Ike neared, land users began gearing up the EMSystems products to issue evacuation-procedure reminders and disseminate their evacuation status. "So ambulances would know where they could take patients and where they could not," Nunemaker explained.

As time went on, those outgoing communications gave way to incoming queries. "A hospital would poll all the other hospitals in the receiving area to see who could take whom, and then can use the system to preassign people to rooms before they showed up," he said. "The last thing a hospital wants is patients coming in the door that they cannot accept."

The system shared data among a breadth of institutions, including areas outside the potential hurricane zone that were queried about their readiness. Within the potential areas of Ike's landfall, hospitals and also specialty facilities - psychiatric, rehab and dialysis - all weighed in with their needs and availabilities.

The tracking of specialty facilities came as a direct result of a previous catastrophe - Hurricane Katrina. Since dialysis facilities are usually privately managed, it proved difficult to track availability, and capacity was easily overwhelmed.

When Ike struck, "we were already tracking every dialysis center in Texas," Nunemaker said. "There will come a day when we are tracking all the people in nursing homes and other types of facilities who have special needs, and not just hospitals. That is just the natural evolution."

In real terms, the ability to track people and inventory had a transformative effect on those displaced by Hurricane Ike. Nunemaker recalled the case of a woman separated from her oxygen tank. Through the patient-tracking system - which also follows personal belongings - emergency personnel found the tank within minutes and got it to her within hours.

"When you are efficiently tracking and scanning and using technology, you are able to find these things in real time," he said.

Keeping People Connected

Jeff Braun knew the communication system was working when the news reporters started calling.

As emergency management coordinator of Fort Bend County, Texas, Braun found himself trying to deliver timely, storm-related information in the midst of Ike to the county's half a million residents.

To make it happen, he turned to the Public Information and Emergency Response (PIER) System, a Web-based virtual communications center meant to foster emergency communications regardless of circumstance. The Coast Guard, and the Los Angeles and Houston port authorities use the system.

PIER allows communications personnel to work through a common Web site to collaborate, update messages and upload photos and videos.

"There were a couple reporters who didn't have power. They didn't know where to go for information, and they had really tight deadlines," Braun said. "When the power came back on, the first thing they did was to call us. We were sending out information at a level they had not seen before, in a way that was genuinely helpful to them."

Braun's success came within a larger regional effort to make use of PIER. A few local users included:

· The University of Houston;

· Dent County, Mo.;

· Port of Houston;

· Marathon Oil Corp.; and

· Metropolitan Transit Authority of Harris County.

The Coast Guard also numbers itself among the dozen local PIER users, with a steady flow of

information appearing on its Web site, www.uscgstormwatch.com.

Uses of PIER varied considerably. At the University of Houston, for instance, it was all about reaching out to students, said Marc Mullen, senior vice president of PIER Systems. As the storm rolled in, campus security used PIER to communicate news of building closures and let people know when it was safe to return.

PIER allowed a multimedia approach to communications. "When they would post a message to the Web site, they could simultaneously push it out to students' cell phones," Mullen said.

The PIER site also helped communicators track and respond to concerns among students and parents. "They sent out the notice about campus reopenings, and they immediately started getting questions from students: 'How can you expect me to be on campus when I can't get gas for my car?' At the same time, they were getting questions from parents asking, 'Is it safe for my son or daughter to return to campus?'" he said.

Hundreds of queries passed through the site, where a small team of administrators handled them.

With approximately 26,000 employees, Marathon Oil used its employee Web site - **Marathoncares.com** - as the channel for its PIER communication. In addition to releasing current information, the system allowed workers to update their contact information in real time, in case they became displaced by the storm. By Sept. 15, the site had about 370,000 hits, Mullen said.

For the Eighth Coast Guard District, timely updates were at a premium. Public affairs officials relied heavily on PIER's template structure. Rather than create news pages from scratch, users typically posted news of waterway closures and other critical information into preformatted spaces, Mullen said.

If automated tools like PIER can make communications more efficient and coordinated in times of crises, there are not only practical benefits but also intangible advances for the emergency response community regarding long-term public support. "A good response poorly communicated is not seen as a good response," Mullen said. Better communications mean greater understanding for the role of emergency services and the value they provide.

http://www.govtech.com/e-government/Texas-Agencies-Maximized-Web.html