

Freedom 4 Wireless and Tachyon Support Hurricane Charley Disaster Recovery Using Meshed Wireless Networks with Reach-Back Broadband Satellite Connectivity

With landline networks eradicated, law enforcement benefits from reliable wireless broadband communications

In August 2004, on a Friday the 13th like no other, Hurricane Charley ravaged the state of Florida. With wind speeds of 145 miles per hour and a maximum tidal surge of more than 10 feet above sea level, the devastation to property and the landscape was massive. As the storm passed and residents returned to the area, they realized the recovery efforts that lie ahead would be equally massive.

Fire and rescue, aid organizations and law enforcement around the state began their work as soon as the hurricane retreated a safe distance. Hillsborough County Sheriff's Office ("HCSO") in the Tampa area contracted Freedom 4 Wireless ("F4W"), a provider of fourth generation



Hardee County house after hurricane.

Photo courtesy of Freedom4Wireless.

mobile broadband wireless services, to assist in establishing mobile and portable communications networks. Tachyon Networks, Inc. ("Tachyon") delivered the reliable satellite broadband solution that provided for Internet connectivity during the recovery efforts when all landline communications were nonexistent.

The Challenge

After Charley passed, citizens of Hardee County in west central Florida had no means of getting food, water or power.

Within 48 hours after the storm ripped through the highly agricultural Hardee County, Sheriff's Offices in neighboring Hillsborough, West Palm and Marion Counties, as well as the Florida Department of Law Enforcement ("FDLE"), the International Red Cross and the National Guard, dug in to assess the damage and help the region begin to repair.

Aid organizations began shipping in food and water. Marshall law and a mandatory curfew were

instituted due to blackouts in the region. And F4W began establishing a meshed wireless communications network to allow law enforcement to keep the peace.

Historically, first responders with the Hillsborough County Sheriff's Office would use radio dispatches to communicate during disasters. Rendered unreliable due to interference and the sheer volume of requests for help, HCSO needed a reliable, transportable communications solution that would allow its officers to communicate in the absence of power and electricity, and be moved as recovery efforts progressed to new parts of the region.

The Solution

Immediately after the hurricane passed, Hillsborough County dispatched 20 police vehicles and a mobile command center to the city of Wauchula in Hardee County. The command center consisted of an 18-wheel truck with a fully functioning network operations center that managed a communications network with aggregate capacity of 1.544 Mbps at a 6 Mbps burst rate.

F4W sent a four-person team to the heart of Hardee County's devastation to begin building a wireless network that would allow all participating recovery teams to collaborate. Upon arrival, three engineers immediately began mounting routers on masts imported for the job, since most telephone poles were no longer standing. These routers established the periphery of the self-contained meshed wireless network, which ran on 12-volt marine batteries. Within eight hours, the F4W team had achieved a total coverage area of approximately 60 square miles.



Hillsborough County Sheriff's mobile command center. Photo courtesy of Freedom4Wireless

The fourth F4W engineer worked within the mobile command center. Inside the F4W section of the command center sat all systems critical to running the wireless data network, including the Tachyon network router. Outside the command center, the Tachyon satellite antenna was set up within 15 minutes of arrival. Once the F4W engineer connected the Tachyon equipment to the law enforcement network and wireless LAN, the complete system had access to the outside world via the Internet.

With the link to the Internet established, local users had access to their proprietary applications and the remainder of the command center network functions. Concurrently, FDLE and emergency response teams in Tallahassee and around the state gained access to surveillance cameras in the disaster area. The recovery teams could now communicate around the region, the state and the nation.

Law enforcement's first initiative was to ensure the safety and security of citizens and emergency responders. Because most street signs had been upended, mapping platforms were needed to guide non-local rescuers to those in need of help. As a result, police cars were mounted with cameras, not only for directional feedback, but so that officers in the local and statewide command centers based in Tallahassee could have instant visibility into the devastation of the area. Tachyon's broadband solution enabled this data exchange and live feedback.

"In a disaster scenario, it is imperative that law enforcement have every tool available to help maintain the peace," said Deputy Don Sarginson of Hillsborough County Sheriff's Office. "The availability of data through the wireless broadband networks used to recover from Hurricane

Charley was a critical element to helping the region recover quickly and to helping keep my officers safe in the field.”

The Results

Just after the hurricane hit, those in need of medical attention had no way of communicating with emergency officials. After installing the broadband communications systems provided by Freedom 4 Wireless and Tachyon, rescue and response times improved. With cameras in place in police cars and mapping systems available to command centers across the region, responders were able to quickly bring help to those in need. In addition, police cars were able to assess what areas needed the most attention and more easily lead citizens to distribution centers where food, water and medical assistance were available.

Throughout the recovery effort, command centers provided access to license and vehicle registration databases and other applications to help undertake warrant searches and background checks, which were fundamental to preventing crime. Live video monitoring of the disaster sites was fed to multiple command center hubs throughout the state to relay critical information to the recovery headquarters in Tallahassee for continued recovery planning and progress tracking. This was all made possible with the broadband Internet connectivity provided by Tachyon.

“With Tachyon’s satellite broadband communications in place, this was the first time we could immediately access Internet-based applications and use live video feed to circulate critical information to executives and law enforcement agencies across the state,” said David Hickman CTO of Freedom4Wireless. “This enhanced ability to communicate allowed the state to develop a more strategic recovery plan and decreased the number of necessary rescuers deployed in the field at any given time.”

A Clear Sign of Success

The critical needs met by utilizing satellite broadband were highlighted when F4W’s Hickman arrived onsite at the Hardee County command center. Residual lightening, thunder and wind speeds had forced the F4W team to shut down their systems for personnel safety. After no more than five minutes of broadband downtime, the Marion County command trailer came knocking. Not only did they want Internet access back up, they wanted to increase the throughput from T1 download/256K upload speeds to T1 speeds both up and down.

Within minutes of a phone call to Tachyon’s customer support center, the request had been met.

The timing and power of hurricanes, tornadoes and other natural disasters are by their nature unpredictable. Yet the portability and flexibility of Tachyon’s solution allow those in control when the disaster hits to predictably plan for state-of-the-art communications networks that provide an advantage when the need for communications is truly a matter of life and death.