



Galveston's 9-1-1 Wireless Backup Network Proves Itself During Outages



"A glitch in our cable network caused a one-week switchover to our backup wireless network without anyone being aware of it. There were no issues."

– Bobby Wright, Director, Galveston 9-1-1 Communications Center

Situation: Galveston County needed a backup network for 9-1-1 service continuity

The Galveston County Emergency Communications District (GCECD) provides 9-1-1 services for 300-square-mile Galveston County, Texas, including the City of Galveston, which is located on an island reached by a causeway. The District also provides the county's public safety radio service. The GCECD occasionally experienced leased line service interruptions due to a variety of reasons including difficult weather conditions, such as high humidity, fog, salt air and tropical storms.

Because even short interruptions are unacceptable in emergency situations, the District decided to create a redundant network to ensure 9-1-1 and public safety communications continuity. "We didn't want to go the traditional microwave route," says Jack Wilkins, GCECD operations manager. "It was more expensive, labor and maintenance intensive." Their search eventually led the District to explore the option of deploying a wireless broadband network.

Solution: High-speed Motorola Point-to-Point wireless network

Due to its need for exceptional reliability, the District chose to deploy a Motorola wireless broadband redundant network based on licensed 4.9 GHz Point-to-Point (PTP) technology. By using Motorola's PTP LINKPlanner tool, the network provider was able to optimize the network links and help GCECD install a redundant communications system linking the seven regional Public Safety Answering Points (PSAPs) and the District's headquarters.

The most difficult link was the first, a long-distance 19-mile hop over water from the District's main offices on the mainland to the Galveston Island Justice Center. The Motorola PTP network proved its power and productivity from the start by delivering throughput of 26 to 32 Mbps aggregate on this initial link. The system is configured with a router that automatically fails-over to the redundant network in case of difficulties or outages with the wired network.



CUSTOMER PROFILE

Agency

Galveston County Emergency Communications District

Industry

9-1-1 and Public Safety Communications

Motorola solution

- Motorola Licensed 4.9 Point-to-Point Links

Solution features

- Reliable 9-1-1 network continuity
- Automatic fail-over to backup network
- Up to 32 Mbps aggregate throughput
- Low latency (2 milliseconds)

Benefits

- High reliability in crucial emergency situations
- Excellent performance in difficult climate
- Simple deployment
- Significant savings over monthly T1 costs

“We are very pleased with our Motorola wireless backup network. We brag about it all the time.”

Jack Wilkins, Operations Manager, Galveston County Emergency Communications District

Result: Seamless fail-over to backup wireless network with no loss of voice or data quality

When the wireless network was deployed, the District was determined to make the ultimate test. “We were confident enough in the network’s reliability, so we switched over and ran all the PSAPs strictly on the wireless network for three days,” notes Wilkins. “It performed just wonderfully; there were no problems at all.”

It turned out, however, that the ultimate test was still to come. In mid-2008, a glitch in the wired network caused an automatic fail-over to the wireless backup system without anyone — not the wired provider, not the District, not the 9-1-1 professionals — knowing that the switchover had even occurred. Before it was discovered, the entire system had run on the backup wireless network for an entire week...without a single issue.

IP-based voice service

Voice quality has been exceptional. The District’s 9-1-1 network is the first all IP-based system in Texas, converting analog calls into IP data and sending them across the network via VoIP. The backup wireless network has had no problems with latency and the voice quality has been excellent. “We run uncompressed voice,” explains Wilkins, “so we use as much bandwidth as we possibly can and it hasn’t been an issue.”

Computer Aided Dispatch

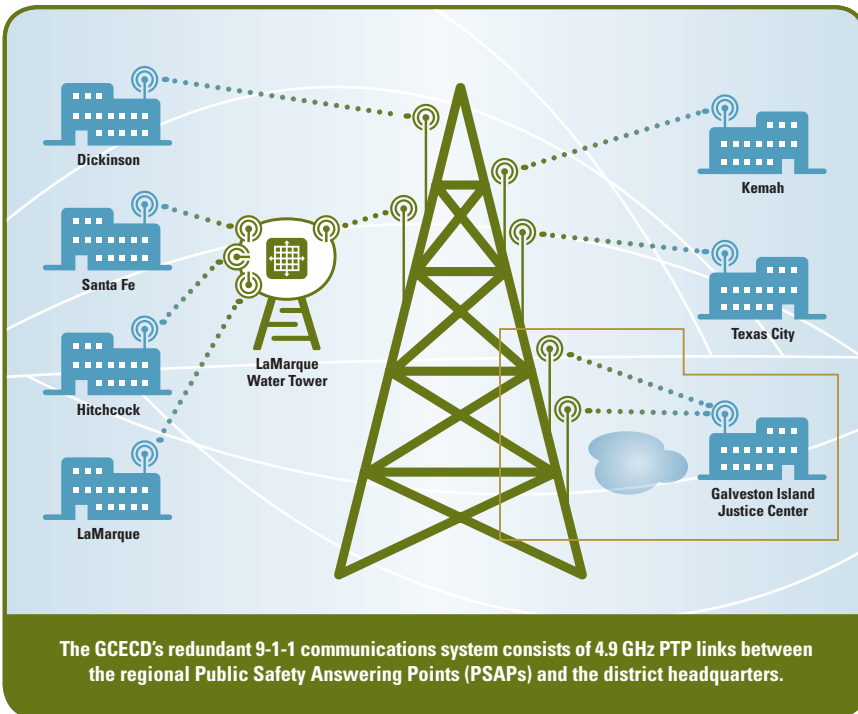
While the network was being deployed, a neighboring city’s police department was exploring using GCECD’s wired network for its Computer Aided Dispatch (CAD) and records management system. The cost was high. The department would have to pay approximately \$1,000 a month recurring expenses just for the T1 lines. The department eventually funded a software upgrade to the Galveston wireless 9-1-1 system, allowing them to run their CAD application on the wireless network at a minimal cost.

Looking ahead

The GCECD is planning to increase its usage of its backup wireless network. One application will be providing electronic map updates to the PSAPs. In addition, based on observation of the wireless network’s performance a neighboring entity has begun to build a similar wireless solution to be used as its primary 9-1-1 network.

Value Added Services

With any point-to-point design, many steps are needed to complete a successful project. Motorola’s local partner for this design was Commercial Wireless Solutions (CWS). CWS provided needed certifications, licensing acquisition, engineering and qualified technicians to complete the design, implementation, and continue with support through maintenance and 24 hour response while exceeding the customer’s expectations.



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