

Wireless Broadband – The Solution of Choice for Disaster Recovery Communications

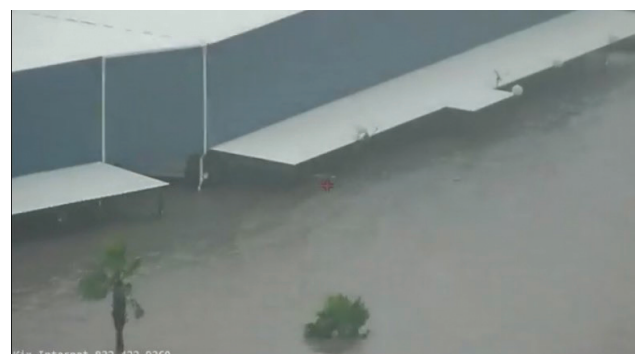
When it comes to disaster preparation and response, Wireless Internet Service Providers (WISPs) are frequently called upon to serve their fellow citizens by establishing emergency communications systems, typically using wireless broadband. We recently caught up with Paul Deitz of KIX Internet, a WISP based in Southeast Houston, and Cody Landrum of 3rd Coast Internet, a WISP in Southeast Texas, to discuss how wireless broadband works in disaster response situations, and lessons learned from their experiences with Hurricane Harvey in 2017.

1. WHAT MAKES WIRELESS BROADBAND THE TECHNOLOGY OF CHOICE FOR DISASTER RECOVERY?

Paul: Rapid deployment is key when establishing data communications in a disaster. Having the right equipment on hand is imperative to meet the goal of restoring communications. For example, when Harvey devastated the Gulf Coast, I personally experienced the challenges of shifting gears from operating a fixed wireless network with my own towers to finding high locations with power so that I could put up emergency connectivity. We knew the equipment and were able to establish links in a matter of hours.

The typical network users are first responders, like emergency medical services (EMS), fire, police and rescue. FEMA (the Federal Emergency Management Agency) also depends on wireless broadband and supports thousands of support personnel brought to an area.

Last year, we were contacted by FEMA when Harvey came through –, and they were in the process of setting up camps in Houston prior to the arrival of Harvey itself. They needed to support up to 1,000 users in both work and living areas even before the arrival of the storm. Wireless was the only way to get services into these locations, especially on such short notice.



In addition to connecting field locations, we also provide connectivity to the relief workers' "bedding camps" where emergency personnel stay – sometimes for months. Enabling Wi-Fi is important, because people workers still have to communicate with their friends and family while they're assigned away from home. In addition, they still like to watch Netflix and do the same social media things that everybody else does, so that is an important service.

2. WHAT ARE SOME OTHER DISASTER APPLICATIONS FOR WIRELESS BROADBAND?

Cody: First responders rely heavily depend on information from E911 services that directs fire and ambulance drivers to the scene. Dispatch services rely completely on the wireless internet service to be up and running at a given facility, so that when first responders get into an ambulance or a fire truck, their GPS is already updated with the site specific information, and they can get to the emergency as quickly as possible. So, whether an emergency call comes over the UHF band or the E911 band, drivers will have visibility about the location of other response teams. With better information as they pull out and leave at departure, they don't have – without having to get on the phone, because the data is right at hand.

3. WHAT EQUIPMENT DO YOU USE TO CREATE A GENERAL NETWORK – , WHETHER IT'S THE BACKHAUL, THE ACCESS NETWORK, OR THE WI-FI NETWORK IN A DISASTER SITUATION?

Paul: For Hurricane Harvey, we used Cambium Networks PTP 650s and three-foot dishes to broadcast from our main location in Seabrook, Texas, which is about a 14-mile shot down to Hitchcock, Texas. We provided the data there and then used their ePMP™ products to rebroadcast to other areas.

For indoor Wi-Fi, we used cnPilot™ R201s inside the emergency shelters to provide connectivity to allow FEMA to connect to the backhaul and enable more Wi-Fi users.

Wireless in general is generally very reliable. I know personally that one of our backhauls has been up for more than 1,300 days. Almost four years of continuous activity without going down for power reboots or anything. That's pretty reliable!

4. WHEN A STORM IS COMING, HOW QUICKLY CAN YOU HAVE A NETWORK SET UP?

Cody: We can be up and running at our emergency facilities within just a few hours. Between the two of us, we have the ability to bring source bandwidth in from three different areas and we have multiple redundant routes in our fiber and wireless network. We even have redundant routes in the data center to bring data in from other areas if Houston is devastated. So, as long as the fiber or feed is there, we can cover most contingencies.

Typically, we deliver what we call "raw data," enabling users to log in and connect to VPN servers and back office systems, as well as Voice over Internet Protocol – VoIP. When FEMA comes in, they want every fire station to have VoIP and data available for any agent who needs to work.

5. HAS SECURITY EVER BEEN AN ISSUE WITH WIRELESS?

Paul: Wireless is even more secure than fiber in the sense that to intercept wireless, you have to break the connectivity and then lose communication. So, there's not really an easy way to steal data. We've dealt with banks and municipal entities like fire and EMS, and security has never been an issue.

6. HOW DID YOU END UP CHOOSING CAMBIUM NETWORKS' EQUIPMENT FOR YOUR DISASTER-RECOVERY CONNECTIVITY?

Paul: In our market, Cambium Networks stands out. Their equipment holds up better in heavy weather and noisy environments. We have seen it for ourselves. When storms come, other network operators are repairing their network. Ours is up and running and we are extending connectivity to help the relief effort.

7. WHAT IS A BEST PRACTICE FOR OTHER NETWORK OPERATORS PLANNING TO BUILD CONNECTIVITY?

Paul: Redundancy is key – and it is particularly valuable when planning for disaster recovery. We are ready to build a network extension almost anywhere with multiple channels, multiple avenues, and worst-case scenarios. Redundancy gives you options. A best practice is to take the time to plan the networks and think through all of your options.

Cody: Yes, exactly. Multiple routes help, because you never know which way a hurricane will turn.



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