



FEMA Type 1 Command Trailer for the Calcasieu Parish Police. Photo courtesy of Verizon

When every second counts

For disaster response teams, time is always of the essence and in order to respond rapidly to unfolding events the connectivity available to them is essential. In this article, ST Engineering iDirect explores the challenges posed in the aftermath of the recent Hurricane Laura and the importance of satellite connectivity in re-establishing communications.

Darren Ludington, Regional Vice President, Americas, ST Engineering iDirect

Early on 27 August 2020, Hurricane Laura made landfall on Cameron, Louisiana after wreaking havoc across the Lesser Antilles, Hispaniola, Haiti and Cuba. At category 4, it was the first major hurricane of the 2020 Atlantic hurricane season. With sustained winds as high as 150mph and a catastrophic storm surge, it was the tenth-strongest US hurricane on record and caused the deaths of at least 36 people and an estimated US\$ 14 billion of damage.

The impact of the hurricane caused the failure of a significant amount of terrestrial networks, making it difficult for people to communicate in the initial wake of the event and impacting the first responders who attended the scene to help the residents and make initial assessments.

The agencies attending events such as Hurricane Laura face their own, unique challenges in terms of communications and often have to deal with whatever connectivity is available to them at the time. The Internet is utilized to collect, send and receive data from collaborative cloud platforms that have been specially developed for use by relief actors. It is also

used to communicate with headquarters and with the team in the field, via voice, email and instant messaging. The Internet allows teams to keep in touch with international news and developments as well as allowing access to telemedicine, exchange of e-health information and patient files.

An integral part of the emergency connectivity portfolio is satcom technologies. Requiring no prior infrastructure in order to operate, satellite technology allows first responders to share information about hard-hit areas and helps residents check in with loved ones. Today, satellite is also empowering new technologies, such as drones and the Internet of Things (IoT) sensors, to further help first responders on the ground to quickly assess the situation when cellular and fibre networks are down. In such scenarios, satellite can also be used to aggregate the information collected (images, GPS coordinates, video clips) to send back to HQ or to quickly analyze and form actionable intelligence.

US telecommunications company, Verizon, immediately deployed its Verizon Response Team to Lake Charles, Louisiana, where its self-sufficient, expert team set up, ready to restore connectivity where it had been knocked out and to coordinate round the clock with first responders in order to help them communicate. Verizon is a long-term partner of

ST Engineering iDirect and utilizes Newtec Dialog® for cellular backhaul, emergency services and disaster recovery as well as iDirect Evolution® for business continuity.

"Readiness for our Verizon Response Team is constantly switched on," explained Stuart Burson, Associate Director, Satellite Solutions Group, Verizon. "In the case of Hurricane Laura, we were already deployed at wildfires in other parts of the country, so as you can see, there's not a moment where there's not something taking place here. We can deploy in as little as 24 hours, anywhere where the disaster strikes."

The team deployed several portable network assets that supported the efforts of Operation BBQ Relief, which offered food to those affected as well as supporting the first responders at the scene. This included Wi-Fi communications that utilized the Verizon Satellite Network. "Our large response team trailers are engineered to provide robust communications using the Newtec Dialog platform," said Stuart. "We deployed in a Walmart parking lot, along with Operation BBQ Relief, who prepared 30,000 meals a day."

Satellite-connected cell sites

Satellite-connected cell sites were deployed to support first responders and public safety and, due to significant impact to the local fibre connections in the area, satellite backhaul trailers were utilized to provide temporary connections until

fiber was restored. In order to survey the damage to inaccessible areas, different means of transportation were utilized, including boats and planes, so that connectivity could be deployed as needed. This was coupled with a mammoth re-fueling operation to ensure that the generators powering different sites were kept well topped-up until commercial power was available again.

ST Engineering iDirect's Regional VP, Americas, Darren Ludington made the snap decision to go and join the Verizon team on-site in Lake Charles.

Due to the COVID-19 pandemic, Darren couldn't fly to Louisiana. So instead, he packed up his motorhome with essentials and embarked on the 15-hour journey from Indiana to Lake Charles. "I figured not only could I help but this would show Verizon our commitment in making sure the network was operating properly, and if I needed to, I could escalate immediately," Darren explained.

The Verizon team had deployed to every major US disaster since 1997 but had never had a vendor offer to join them.

"By the time I got to Lake Charles the cell network was overall stable," Darren explained. "The population had good connectivity and Verizon set up free Wi-Fi hotspots. I spent time social distancing with close friends from the industry while working to help load almost 30,000 meals a day for the

Verizon Response Team, Hurricane Laura. Photo courtesy Verizon



Operation Convergent Response

In order to demonstrate how technologies operate and the need for connectivity in an emergency, exercises are scheduled on a regular basis to simulate the aftermath of a disaster and how communications will be re-established. One such event is Operation Convergent Response (OCR), the latest of which was held from 19-21 November 2019 at the Guardian Center in Perry, Georgia. Hosted by ST Engineering iDirect's long-term partner, Verizon and mobile technology leader, Nokia the public safety technology expo and live demonstration brought together the world's most innovative companies to showcase and test their technologies with first response teams during live emergency response operations.

OCR attendees had the opportunity to observe six different scenarios, all driven by real-life global events to live trial first responder solutions and innovations in a way that cannot be done in lab tests.

ST Engineering iDirect demonstrated its satcom solutions during the Cyberattack on Critical Infrastructure scenario. With satellite-enabled mobile command vehicles, emergency response teams can send data — from video to voice — en route to and at the frontlines of a disaster site. These mobile command vehicles can also help residents connect with loved ones, coordinate essential services and restore communities.

During the scenario, ST Engineering iDirect's satcom solutions powered a Kymeta u7 terminal mounted on a Can-Am vehicle so first responders could establish a common operating picture and build situational awareness directly from the scene. The u7 terminal's flat panel antenna, paired with an iDirect Very Small Aperture Terminal (VSAT) modem, is small enough to fit on a variety of emergency vehicles, from patrol cars to SWAT.

ST Engineering iDirect also worked with Verizon to provide general communications support for attendees of OCR2019 with its cells-on-wheels (COWs) and Cells-on-Light-Trucks (COLTs) powered by Dialog VSAT solutions.

Satellite technology facilitates critical on-the-move and on-the-pause communications and continuity of operations regardless of what terrestrial infrastructure is available. In disaster response scenarios, COWs and COLTs are used to re-establish critical voice and data connectivity in times when traditional wireless connectivity is not available.

ST Engineering iDirect's satellite solutions enable instant restoration of networks so that first responders can continue to do their work without interruption. These fast deploy solutions are invaluable to those that are striving to make sense out of chaos and ultimately save lives.

people affected by this powerful storm, via an amazing group called Operation BBQ Relief."

Impact on local residents

Whilst at Lake Charles, Darren had the opportunity to experience the impact of the hurricane first-hand and the effect that it had on the local residents. "I was able to take one afternoon to drive a little bit and see some damage, and it was shocking. Miles of electricity poles snapped like twigs, nothing but some twisted metal and in some cases stilts where houses once stood, saltwater standing in fields miles inland from the ocean, electrical wires laying all over, and signs of lives changed everywhere you looked. We even saw alligator roadkill."

It's important to remember that, once the initial few days after the hurricane might be over, the Verizon Response Team's work is far from over. They continue to provide service to customers in the region using a variety of connections whether they are fiber, satellite links or microwave. The situation is fluid as debris removal, road clearing and clearing of property can also impact the communications infrastructure. Stuart explains: "For the first 2-3 weeks, our job is to provide a bridge while infrastructure is repaired and residents who have been evacuated start to return and rebuild their lives. We are there to help them until networks and utilities are restored and up and running. In terms of the length of time we're deployed depends on the type of disaster. During Hurricane Sandy, I was there two months. There are also events like we had in 2017, where hurricanes ran concurrently from Hurricane Harvey to Irma to Maria in Puerto Rico. We responded to all three of those back to back."

What did it mean to Verizon to have Darren on the scene? "I would say that it gave an opportunity for ST Engineering iDirect to fully understand and appreciate the different aspects

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that were involved with a hurricane response and the critical need that satellite plays in response to this," said Stuart. "This is the first time that we had leveraged our partnership to have a resource on-site to not only participate but to gather data and better understand the critical importance that ST Engineering iDirect technology has on our response in the field. Thank you, Darren."

For Darren, it's something he'll never forget. "It was a real-life experience to see the extremely important role that satellite plays in helping to immediately start to restore critical services to a community after a natural disaster," he said. "Verizon's mobile operations center was used by a local sheriff's department - their office had no phones or power, so the trailer served as the 911 dispatch center; it was also used as a base for some National Guard members, and as an air-conditioned space to get a few hours of sleep between shifts."

And whilst the focus of this article has very much been communications, it's critical that we don't forget those who live with this threat and its after-effects year in and year out.

"Please keep the people of Lake Charles in your mind; some people won't have electricity back for months, and that's if they are lucky enough that their home is able to be lived in by then," concluded Darren. ■