Small Cells Support Humanitarian Aid Missions

When Typhoon Haiyan hit the Philippines in November 2013, killing more than 6,000 people and wreaking widespread devastation, a small cell system designed and developed by TLC Solutions (TLC) with components from ip.access and Private Mobile Networks (PMN) restored vital communications in some of the worst affected areas of the country in the early aftermath of the disaster, which helped humanitarian aid workers to save lives and support survivors.

The small cell system is part of a Pre-Positioned Expeditionary Assistance Kit (PEAK) that government agencies and non-governmental organizations deploy in humanitarian aid and disaster relief situations.

The PEAK system comprises self-contained units, or kits, that are stored near areas prone to suffer from natural disasters including hurricanes, earthquakes, typhoons or floods. Within the 72 hours after such a catastrophe occurs, the kits are dispatched via helicopter or loaded on to planes and parachuted into the disaster zone in order to restore essential services, providing potable water from local sources; reliable power from renewable sources; local, situational awareness of time-sensitive events to share with decision makers; as well as voice and data communications.

Along with drinking water and power, having reliable and secure communications is vital for humanitarian aid and disaster relief workers to help them find survivors, provide emergency medical help and request supplies such as medicine, food and clothing. In addition, a robust communications link is necessary for conveying real-time information to local, national or international authorities or aid agencies.

The small cell system from TLC can establish communications within 15 to 20 minutes of the PEAK kit arriving at the scene of a natural catastrophe. The rapid set up time is potentially life-saving in disaster relief scenarios.

The ip.access GSM small cells are particularly suited for humanitarian aid deployments because they have low power requirements, which means the communications system will use a minimal amount of the power supplied by the PEAK kit. Also, the small cells are low cost, which is part of what makes PEAK a cost-effective solution for disaster relief efforts. In addition, the small cells use optimized satellite backhaul to establish communications.

The solution created by TLC and its partners PMN and ip.access serves as a portable small cell network in the PEAK kit. Each kit contains two systems which include a laptop computer, a dual 2.4/5.8GHz Wi-Fi base station, two 900MHz GSM base stations with 10-watt amplifiers, a BGAN satellite terminal, 20 smartphone handsets, remote site battery packs, a 20A charger and a 10-meter mast with antennas.

While the services that the PEAK system supplies can be provided for much longer than 72 hours, the primary objective is to restore stability for people and communities in the crucial hours and days following a natural disaster and to prevent panic and chaos from overcoming a crisis situation.

Typhoon Haiyan is the most recent example of where the small cells have been deployed. Other countries where the PEAK kits have used the small cells to provide communications include Honduras, Ethiopia, Kenya and Thailand.

In Honduras, two PEAK kits were deployed to the city of La Ceiba on the northern coast of the country 24 hours ahead of an expected hurricane landfall. The small cell network was launched and established wireless coverage over a 2-mile radius to help provide robust assistance following the storm.

A key attribute of the small cell component within the PEAK kit is its ease of use. In Honduras, it took just two days to train local disaster relief teams, first responders and humanitarian aid workers.

According to PEAK Operations Manager John Ferrell, "*We trained disaster relief personnel in two days and today the team members are training the Honduran folks and they're picking it up quite quickly. That proves this design is simple to set up, simple to operate, simple to maintain.*"