

Disaster Recovery

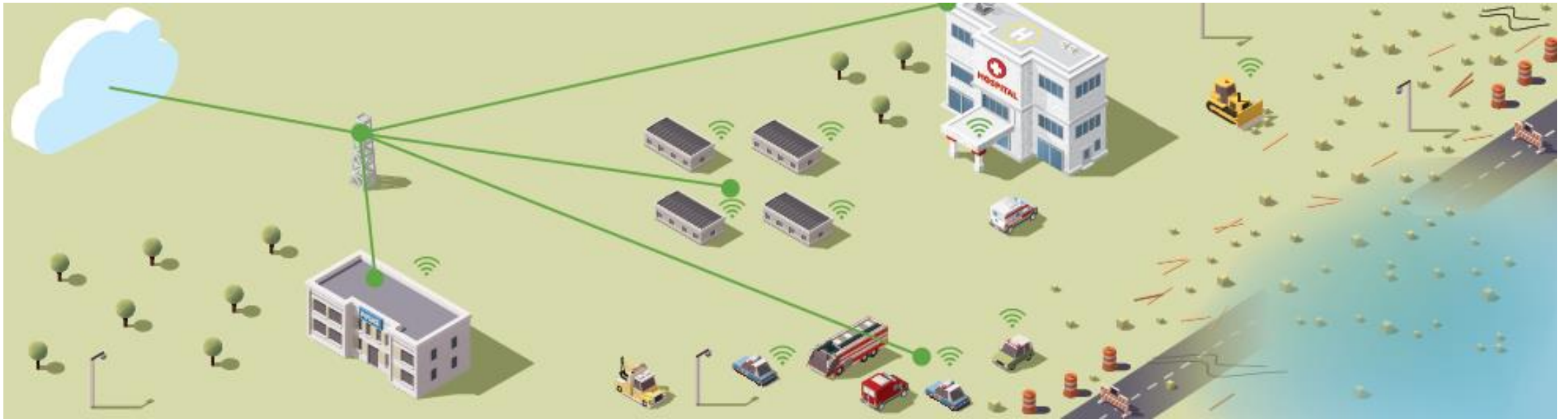


Wireless Connectivity

- When disaster strikes, connectivity is vitally important
 - First responders
 - Aid agencies
 - Medical services
 - Connecting families



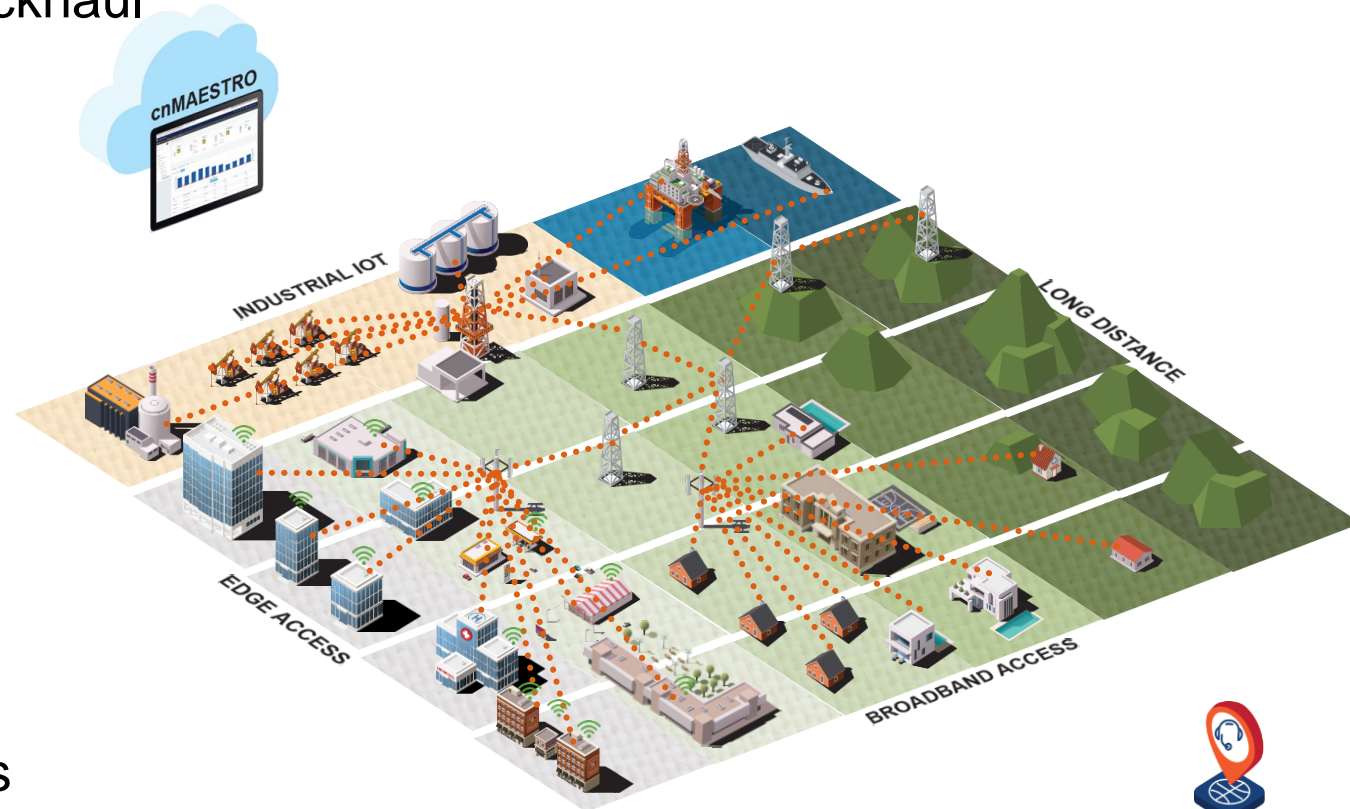
Disaster Recovery Wireless Connectivity



- Wireless connectivity is a proven solution for disaster recovery
 - Rapidly deployed
 - High throughput
 - Requires low power (solar panels)
 - Immediately interoperable with citizen-owned devices

A “Wireless Fabric” of Connectivity

- Long Range Point-to-Point Broadband Backhaul
 - Licensed Microwave
 - Unlicensed Backhaul
- Point-to-Multipoint Broadband Distribution
 - Licensed 3 GHz
 - Defined Use 4.9 GHz
 - Unlicensed 2.4 & 5 GHz
- Enterprise Wi-Fi 802.11ac Edge Access
 - Indoor
 - Outdoor
- Industrial IoT narrowband SCADA wireless backhaul
 - Licensed frequency
 - Unlicensed frequency
- Cloud-based end-to-end management



GLOBAL SUPPORT

Disaster Recovery Applications

- Enterprise indoor and outdoor Wi-Fi
- Emergency Wi-Fi
- Fire station and first responder connectivity
- Infrastructure monitoring and control
- Public Wi-Fi connectivity
- Traffic control and digital signage
- Video surveillance



Benefits

- **Reliable** – With millions of wireless broadband modules deployed around the world, Cambium Networks solutions are proven to work in any climate or application.
- **Rapidly Deployable** - Wireless solutions provide can be installed in a matter of hours and provide an attractive return on investment when compared with leased lines, fiber, copper, or other solutions.
- **High Capacity** – Wireless networks can be designed to support simultaneous downloading of streaming video, uploading of video surveillance information, conducting voice calls, and sharing data.
- **Secure** – The network can use specified frequencies for public safety and access networks with password authentication and encrypted data.



Proven Solutions

- Ruggedized Wi-Fi access for field connectivity
 - Outdoor hotspot and Wi-Fi networks
- Wide-Area Point-to-Multipoint for video surveillance and backhaul
 - Video surveillance for physical security
 - SCADA master aggregation and backhaul
- High capacity long range Point-to-Point backhaul
 - Licensed microwave and unlicensed backhaul
- Single pane of glass network management
 - Bird's eye view of field network
 - Rapid on-boarding and provisioning of new nodes
 - End-to-end performance and fault management
 - Centralized password management and firmware updates



Key Technologies:

- **Adaptive Modulation** – automatically senses available spectrum and adjusts to achieve high throughput
- **Beam forming and beam steering** – isolates the signal from ambient noise to maximize throughput
- **Intelligent Filtering** – automatically blocks out noise to improve signal quality
- **Rugged Hardware** – IP 67 housings protect against solar radiation, hurricane speed winds, dust and water ingress, and harsh temperatures
- **Zero Touch Wi-Fi Provisioning** – improves the speed and accuracy of provisioning access points

Proven Solution: Polk County, Florida

- The radio services Joint Communications Support Unit (JCSU) uses PTP, PMP, and Wi-Fi technology for video surveillance and emergency communications.
- “The results were amazing! Even though we were situated in heavy tree cover, we were able to provide connectivity and throughput beyond expectations to the entire Emergency Services compound.”
 - Ben Holycross, Radio Systems Manager, Polk County Florida



Proven Solution: Hurricane Harvey, Texas

Kix Internet designed a support van to be a network operating center on wheels to be deployed to rapidly provide broadband connectivity in the wake of a disaster.

When Hurricane Harvey hit, Kix used PMP 450m to connect a recovery shelter and first responders in Hitchcock, Texas



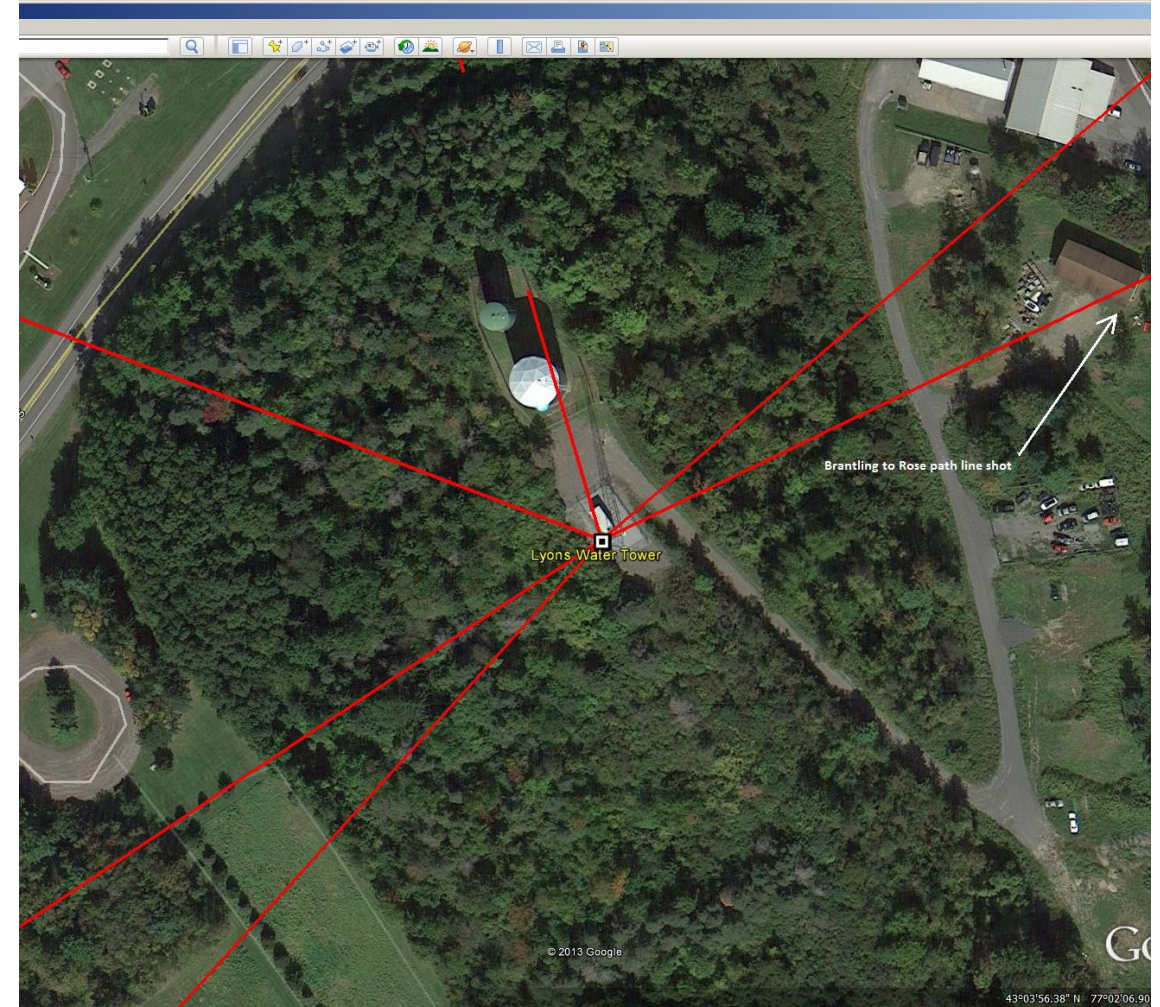
Proven Solution: Lesvos, Greece

- 1,000 – 3,000 refugees were arriving every day. Lesvos had no facilities or services.
- Disaster Tech Lab (DTL) deployed PTP, PMP and WiFi equipment to provide connectivity across the refugee camps
 - A single camp uses ~400 GB of data per week
 - Aid agencies
 - Medical assistance
 - Family connectivity



Proven Solution: Wayne County, NY

- Wayne County in New York State needed to upgrade their Public safety Emergency 9-1-1 services and coordinate response teams with Office of Disaster Preparedness and Emergency Management.
 - Simulcast alerts to multiple locations
 - SCADA monitoring and reporting
 - 9-1-1 Dispatch
 - 9-1-1 Redundant backup connectivity





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