



Solution: HyphaMESH REX Kit ♦ **Industry:** SAR ♦ **Use Case:** Network Extension with Mesh

Search and Rescue Teams Put HyphaMESH to the Test

HyphaMESH extends critical connectivity in wide area searches and deep into rubble piles where cellular and radio signals are not reliable.



Real-time information sharing between the Base of Operations and forward search teams became possible in areas that have not historically had connectivity.”

Testing and Evaluation Highlights

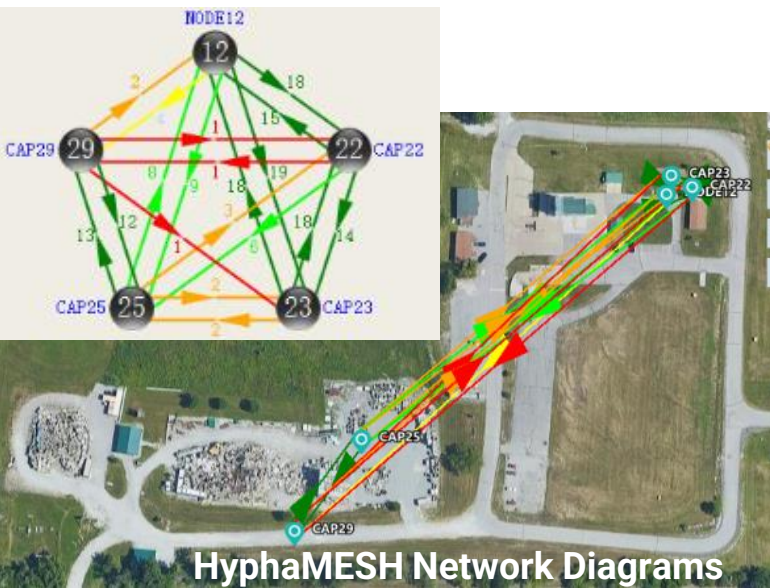
Challenge – Search and rescue missions are carried out throughout the US by many different types of public safety agencies. Without reliable communications between the Base of Operations (BoO) and forward search teams, search and rescue operations can be challenging, and critical delays can occur.

Solution – HyphaMESH creates a secure and dedicated public safety wireless network to extend coverage or establish an independent local network. The versatile HyphaMESH product line is well equipped to support search and rescue operations where LTE and LMR don't reach.

CASE STUDY ♦ SEARCH AND RESCUE

Challenge

During search and rescue missions involving collapsed structures, maintaining reliable communications can be difficult. Often the structural collapse is part of a larger disaster that has knocked out cellular and radio towers or the forward search team must traverse deep into the rubble pile where cellular and radio signals don't reach. Without reliable voice and data communications between the Base of Operations (BoO) and forward search teams, search and rescue operations can be challenging, and critical delays can occur.



HyphaMESH Network Diagrams

Benefits

Utilize existing devices and applications

While at the rubble pile with HyphaCAPs providing Wi-Fi access with LTE backhaul located more than 0.25 miles away, USAR Task Force team members were able to use their Sonim XP8s and Esri's ArcGIS QuickCapture application. As they recorded their search activity in QuickCapture, leadership at the Base of Operations was able to monitor progress at the rubble pile in real-time.



Rubble Pile Search Operations USAR Task Force Exercise



Solution

The HyphaMESH REX Kit was staged at the Base of Operations with the included Cradlepoint IBR900 providing LTE backhaul. HyphaCAPs #29 and #25 went with the USAR Task Force team into the rubble pile. The team connected their Sonim XP8 rugged smartphones to the HyphaCAPs' Wi-Fi and recorded search activities on Esri's ArcGIS QuickCapture application. While in the rubble pile, HyphaCAP #25 established a strong connection to the HyphaNODE 0.25 miles away back at the BoO, and HyphaCAP #29 extended further to examine the perimeter of the rubble pile (see Network Diagrams).



Want to learn more?

Request a Demo

Challenge

Wide area search and rescue operations often happen in remote locations with limited cellular and LMR coverage. Without reliable connectivity, forward search teams cannot share back to the Base of Operations (BoO) their progress on clearing search grids. This can cause uncertainty in search teams' progress, create duplicative work as teams search areas already cleared, and results in inefficient search and rescue operations.

Solution

The HyphaMESH REX Kit, including HyphaNODE #10 and a Cradlepoint IBR900 for LTE backhaul, was staged at the BoO. HyphaNODE #12 was temporarily fixed to a truck and driven across the highway. HyphaNODE #12 had a strong mesh link to HyphaNODE #10 and was able to leverage the LTE backhaul at the BoO one mile away (see Network Diagrams).

Additionally, HyphaCAP #23 established a strong mesh link to HyphaNODE #12 about 0.5 mile south and HyphaNODE #10 about 0.75 miles west (see Network Diagrams). The team used their field data collection app, Esri's ArcGIS QuickCapture, to record field observations and send data back to command in real time while searching and assessing damage.

Want to learn more?

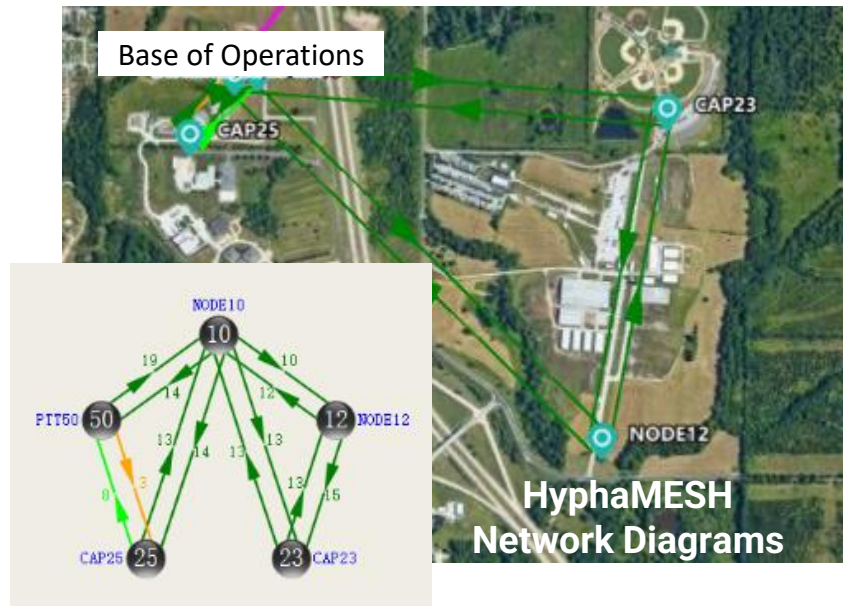
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Everyone understood the technology with little to no training."



Excited to get into the field and deploy the HyphaMESH REX kit."



Benefits

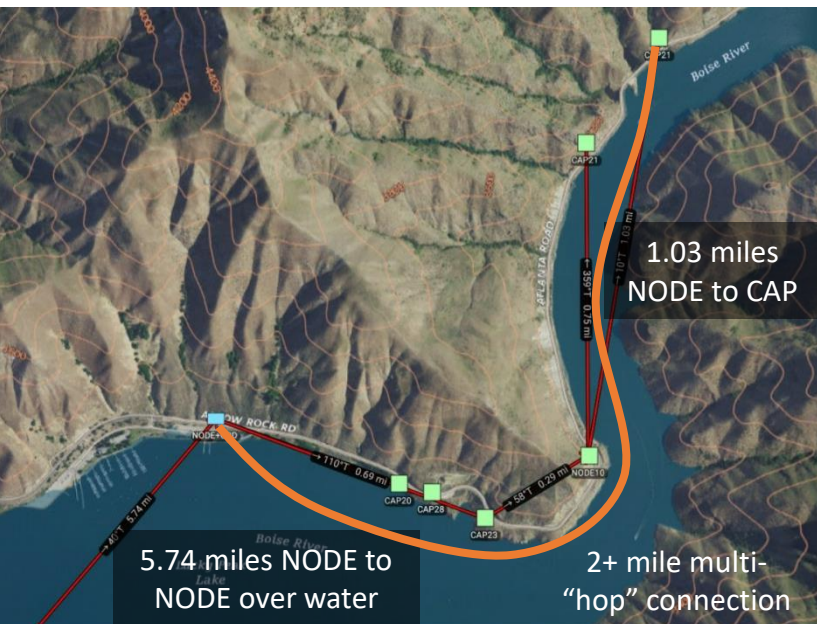
Maintain situational awareness at the Base of Operations

With HyphaMESH, USAR Task Force members at the BoO could track their field teams in real time, even if they traveled outside of LTE coverage. The BoO tracked the search crew with HyphaCAP #23 as they traveled southeast in the vehicle with HyphaNODE #12, and then exited and traveled north on foot to a baseball complex about 0.4 miles away. HyphaMESH extended the range of connectivity to about one mile between two HyphaNODEs and proved the ability to extend further with additional mesh hops.



Challenge

A popular boating and fishing destination produces a variety of rescue calls each year. The area does not have cellular or radio service, and communications to coordinate rescues and stabilize and transport patients are hampered by this lack of connectivity.



Solution

A FirstNet Compact Rapid Deployable (CRD) was set up at the boat ramp to the recreation area and used as an internet gateway for the demonstration. A HyphaNODE was connected to the CRD with an ethernet cable and the team deployed HyphaCAPs to breadcrumb their way around a ridge forming a point out into the lake. Although a couple of HyphaCAPs were left along the road between the boat ramp and the point, the strongest mesh connection was established between the HyphaNODE connected to CRD directly to the furthest HyphaCAP left out on "the point." From the HyphaCAP on "the point" the team was able to wrap the connectivity around the ridge/point/bend to another parking lot. The demonstration was successful as connectivity was achieved more than 2 miles down the river and around the point with multiple HyphaMESH devices.

Benefits

Extend connectivity of existing communications assets

By using a CRD and the HyphaMESH network, Boise Fire was able to operate with reliable communications among first responders during a simulated drowning call in an area with known network coverage gaps. Boise Fire is one of the first departments in the nation to own a CRD, a mini cell tower powered by satellite.

Want to learn more?

Request a Demo

