

White Paper - Global Mesh Technologies Demonstrates CAMMS™ Interoperable Communications Solution to BORSTAR

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Global Mesh Technologies supported one of their local dealers, Thunderworks Mobile Engineering Technologies, in demonstrating GMT's CAMMS™ (Command Anywhere Mobile Mesh Software) to US Customs and Border Protection and San Diego, El Centro and Yuma BORSTAR (Border, Search, Trauma and Rescue) units. BORSTAR officials from Washington, D.C. were also on hand for the demonstration.

BORSTAR had recently taken delivery of two new hi tech command vehicles outfitted by Santee, CA based Thunderworks. These new vehicles provide the BORSTAR teams with communication interoperability and command technologies regardless of terrain or availability of infrastructure. GMT was to show how the CAMMS™ solution would enable even greater interoperability, enhance inter agency communication and provide greater situational awareness to create a strong operational picture.

The demonstration was held at Brown Field Municipal Airport. The airport is one mile north of the Mexico/USA border in San Diego. The airport is headquarters for the San Diego BORSTAR team.

Objective:

The objective was to show that a wireless mobile communications mesh network could be set up in minutes to enable sharing of information via computers locally and also allow remote, Internet-connected computers to join the local mesh from anywhere in the country.

Installation / Setup:

Vehicle 1 –EL CENTRO BORSTAR COMMAND VEHICLE

Since this was a temporary installation, GMT installed their CAMMS™ 48 software– a field deployable version of CAMMS™ with 48 hour license. CAMMS™ 48 installs quickly via thumb drive and resides on the computer for 48 hrs then un-installs automatically. The purpose of CAMMS™ 48 is to enable contingent users (first responders, agents or authorized personnel) to join the CAMMS™ mesh for the duration of an incident or event and then allow the user to depart with their computer, while not taking sensitive information.



Again, since this was a temporary install, GMT connected a CAMMS™ DFK (Deployable Field Kit) to the vehicle's computer. The DFK was placed on the front seat and operated using the built in 20 hr battery system. Two mag mount antennas (1- 4.9 GHz and 1- 2.4 GHz), and a CAMMS™ GPS locator were also installed and simply mounted on the vehicle's roof.

Vehicle 2 – SAN DIEGO BORSTAR COMMAND VEHICLE

For this vehicle, GMT supplied a mobile communications kit consisting of 1-laptop computer with CAMMS™ installed, 1-USB camera for video conference, 1-CAMMS™ DFK, 1-4.9 GHz antenna, 1-2.4 GHz antenna, and 1-CAMMS™ GPS locator. A Panasonic IP PTZ camera was also mounted on the roof of the vehicle to demonstrate CAMMS™ IP camera discovery feature.



Vehicle 3 – 4 x 4 ATV

GMT simply strapped a CAMMS™ DFK and a Panasonic IP PTZ camera to the front rack of the ATV and taped a 4.9 GHz antenna to the front rack. This temporary installation showed quick and easy field set up as well as the flexibility and adaptability of the CAMMS™ system.



The 4x4 ATV was dispatched to demonstrate how live streaming video from a moving vehicle in extreme terrain could be shared over the CAMMS™ mesh.

Operation:

After all components had been installed in the various vehicles, GMT personnel simply turned on the DFK's and computers and a secure wireless mesh network was formed instantly. All vehicles were setup and operating in approximately 35 minutes.

Once the mesh was formed, each vehicle/user was able to communicate with and share information over the mesh in the following ways: interactive white boarding, file transfer, location of all mesh users and list of their on board resources via CAMMS™ TerraViewer with GPS support, video conference between vehicles, instant messaging and live video from deployed IP cameras.

Remote Mesh Connection:

Two days prior to this event, GMT sent their CAMMS™ Web software to San Diego State University's Homeland Security Visualization Laboratory so they could participate in the event and demonstrate CAMMS™ ability to 'broadcast' the local mesh to the Internet. CAMMS™Web was installed on one of their Internet-connected computers and then during the event, the lab simply opened the program (with authentication) and joined the mesh as a participant. The connection allowed the lab to communicate with and share information with all mesh users.

Last Minute Requests:

Following set up, Thunderworks informed participants that they had arranged for two other video sources to be viewed in the demonstration and wanted to verify that these sources would interact with the CAMMS™ solution.

Video Source 1 - UAV (Unmanned Aerial Vehicle)

RP Flight Systems, specialists in providing turnkey UAV aircraft solutions for search and rescue/recovery missions provided a UAV equipped with a video camera. The UAV was hand launched and the video transmitted to the UAV base station via a 2.4 GHz signal.



A CAMMS™View module was simply installed and the camera feed from the UAV was located using CAMMS™ IP camera discovery feature allowing the streaming video to be shared to the mesh for all users to view, record, snapshot or whiteboard on.

Video Source 2 – SAN DIEGO FIRE DEPARTMENT UH-1 HELICOPTER



The San Diego Fire Department provided a UH-1 helicopter for the event. As BORSTAR and the SDFD work closely together, they wanted to see a live video feed from the helicopter's camera shared to the mesh for all to view. GMT personnel simply connected a CAMMS™View module from the SDFD mobile command vehicle to the mesh and instantly the live video images from the helicopter were shared to the mesh. **Video from the helicopter was brought to the mesh from over two miles away.**



Conclusion:

From this demonstration, Global Mesh Technologies was able to show that a truly interoperable communications system can be established in minutes and that the CAMMS™ system can enable inter agency communication, aid in managing resources, allow first responders and others to share incident-specific information and implement response coordination from the ground, in the air or from a moving vehicle.