CLOUD RELAY™

Cloud Relay™ is a market leading network capability that enables dynamic service delivery across your MANET infrastructure.

Every MPU5 that you own comes with an enhanced function known as Cloud Relay™. When the MPU5 is paired with an appropriately configured Cisco router, it transforms your LOS/NLOS solution into a globally connected, dynamic, transparent network that can extend your MANET coverage over more traditional bearers such as Cellular, DSL, and SATCOM.

The unique capabilities of Cloud Relay™ enable teams to dynamically merge and reconfigure their connectivity status, whilst seamlessly transporting critical voice, video, and situational awareness data over alternate bearers, with zero user interaction required. No more reconfiguring of networks. No more coverage gaps.

CLOUD   RELAY

USA

AUSTRALIA

Extend tactical network to strategic locations

Utilise Layer 3 technologies to reach back

Secure VPN based, network architecture

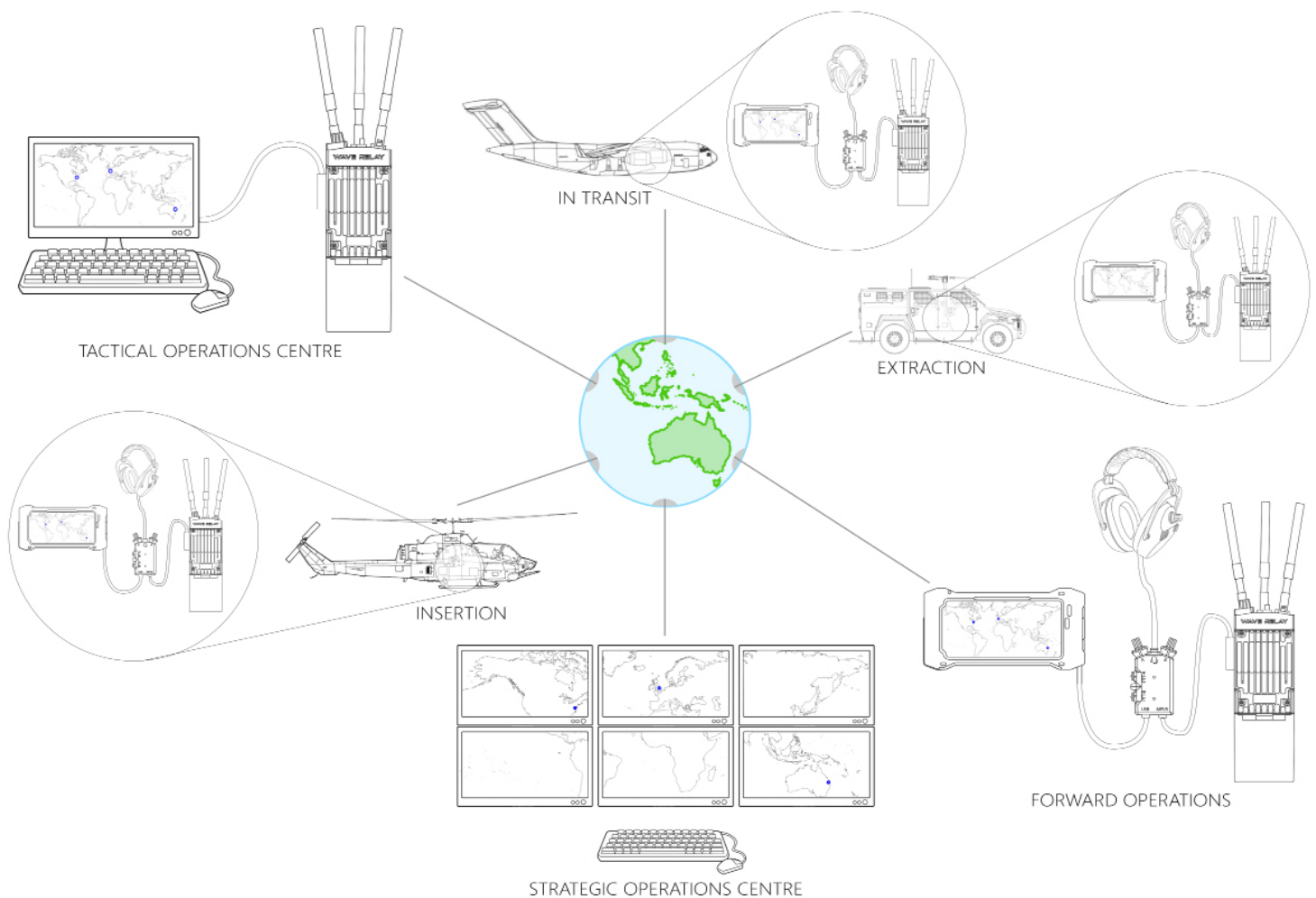Maintained Layer 2 MANET allows for ease of use

Multiple enclaves are accessible concurrently

ENABLING ENHANCED MOBILITY

Wave Relay® is a Mobile Ad-Hoc Networking system (MANET), designed to maintain connectivity on the move. It is a scalable, peer-to-peer network solution that provides data, video, and voice in the most challenging environments. All users within the MANET have easy access to communications services and sensor data.

Traditional MANET solutions allow you to connect with other networks, but no solution to date has allowed extension of the MANET over those networks. The enhanced collaboration and network redundancy provided by Cloud Relay™ enables your team to continue to communicate in constrained environments anywhere in the world, automatically.

Extend your Layer-2 networks like never before with this adaptive and innovative technology by Persistent Systems. Provide real time situational awareness irrespective of geographic boundaries, whilst facilitating the creation of local, dynamic, interconnected teams that can operate without infrastructure for critical response environments.

TACTICAL OPERATIONS CENTRE

IN TRANSIT

EXTRACTION

INSERTION

FORWARD OPERATIONS

STRATEGIC OPERATIONS CENTRE

Cloud Relay™ creates a homogenous environment enabling participants to move and communicate without restraint. Users can now move between teams without requiring any device or network configuration changes, allowing uninterrupted communications at any point in the area of operation, enhancing the rapid deployment of capability and responsiveness to change.

SERVICE CONTINUITY

Communication across every level of an organisation becomes extremely complex when a continuously increasing number of devices is required to achieve a solution. This complexity lies in integrating each of these devices into a working solution.

The network created by the MPU5 MANET radio is a self-configuring, self-healing, interconnected, dynamic environment. The radios actively seek out and establish new paths for optimal connectivity and redundancy, ensuring maximum availability of your data.

All networks require gateways in order to communicate with external agencies. What if a network could have multiple gateways that are free to move anywhere within a network, providing capability and redundancy wherever they go? What if these gateways could also function as transparent extensions between teams to provide increased flexibility and capability? This is the power of Cloud Relay™.

Cloud Relay™ provides this function by establishing a team of network aware gateways that continually communicate their status, and elect who has the best connectivity to all other points in the network with respect to your location.

TRANSITIONING BETWEEN TEAMS

Walk through the following scenarios and see how the MPU5 has the freedom to move anywhere within an area of operation, without the need for network reconfiguration.

In the following image, Radio A is connected to Team 1's Cloud Relay™ gateway, and is using that to communicate with Team 2. Radio A will be reassigned to Team 2 and requires continued communications between teams. Team 1 and Team 2 have been configured with the same RF network settings and security key.
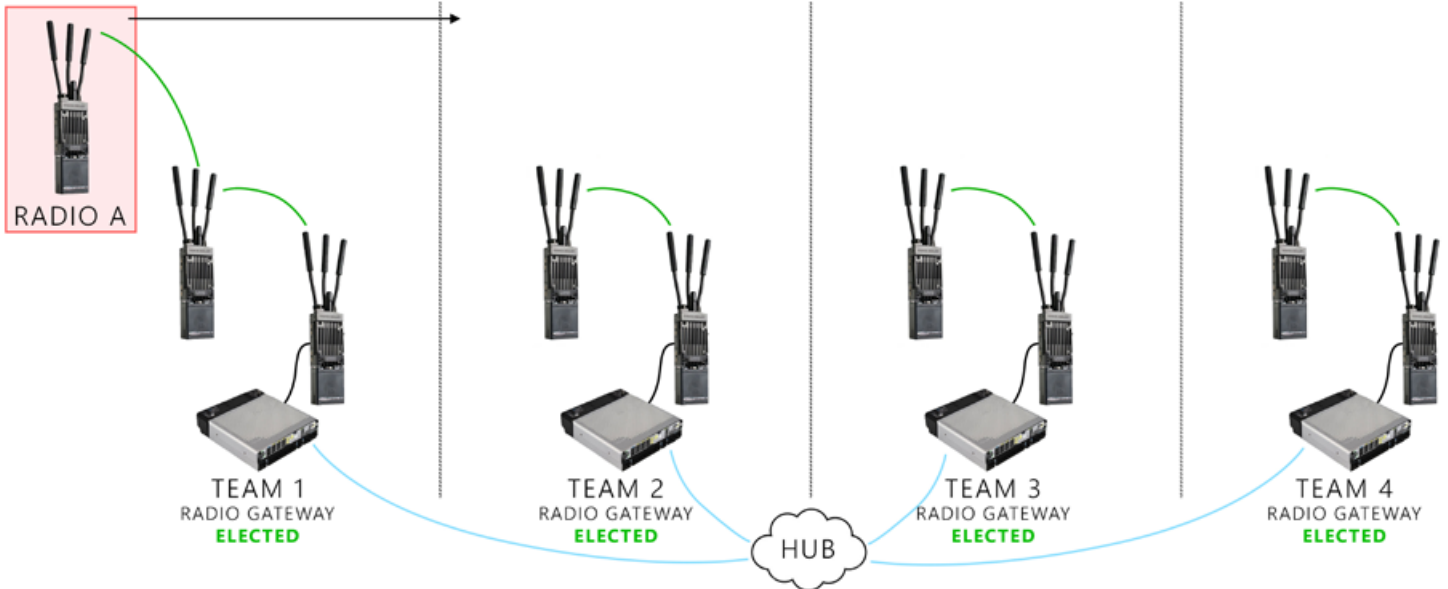

— BLOS Cloud Relay
— Line of Sight
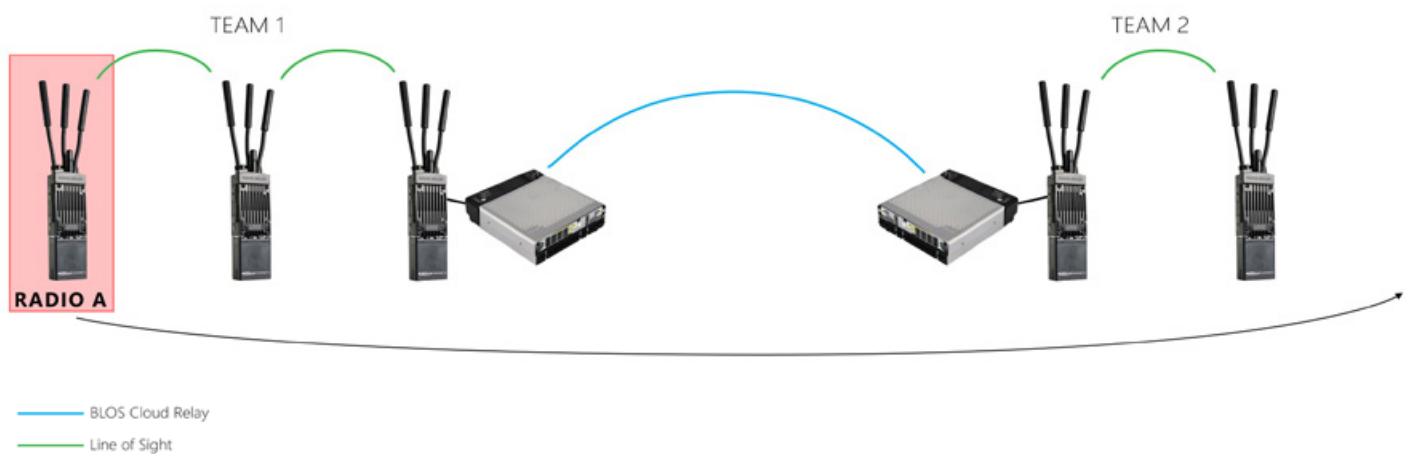
Radio A will automatically join Team 2's MANET once it is within RF distance and will then be able to maintain communications with Team 1 using Cloud Relay™. Radio A does not require any re-configuration.
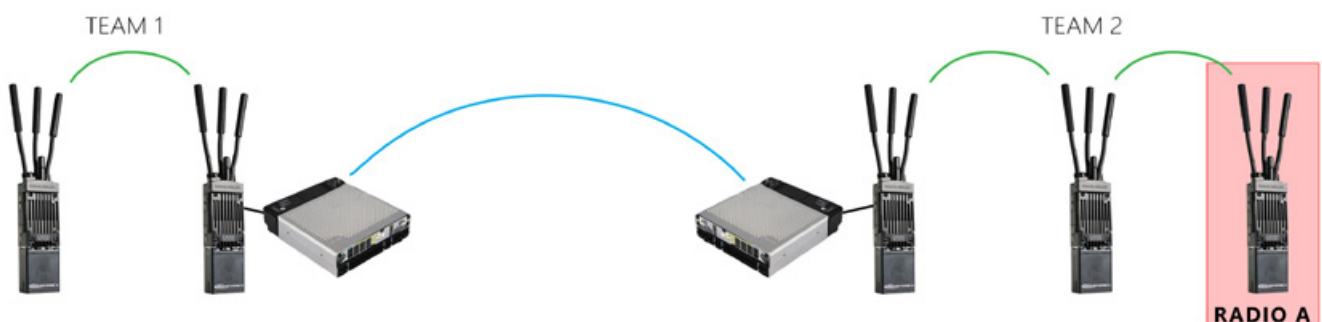
CAPABILITY WALKTHROUGH

The MPU5's ability to overcome the disrupted communications issue means that no matter where you are, you will always have the ability to communicate. The fallover provided through an automatic PACE plan means the user can focus on the task at hand.

FOUR TEAM NETWORKS CONNECTED VIA CLOUD RELAY

If an MPU5 moves within the network and creates an RF link between two Cloud Relay™ nodes, an election will occur. The network will choose the best path available for assured communications. When there is both a LOS and BLOS Cloud Relay™ networked path feasible, the network will intelligently route the data to the destination without any user input required.

In the following image, Radio A has linked both Team 1 and Team 2's MANETs, and Team 2's Radio Gatway has been elected. All traffic from Team 1 and Team 2 will pass through Team 2's Radio Gateway.

TWO CLOUD RELAY NETWORKS BRIDGED VIA RF
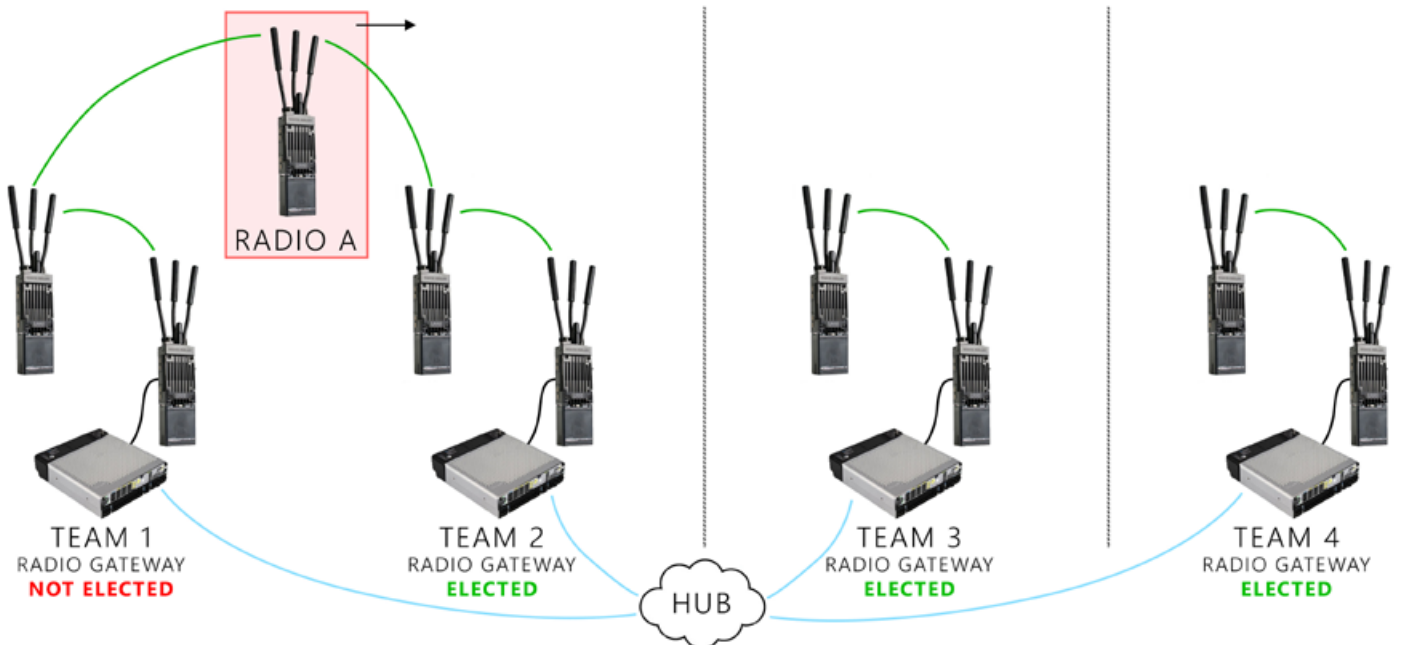
Once the RF link between the two teams has been removed, Team 1's gateway will be reconnected, providing connectivity for its local participants. Although Team 1's Cloud Relay™ gateway was not elected, it's connection remained active for immediate changeover to maintain total system capability.

RF BRIDGE REMOVED FROM CLOUD RELAY NETWORKS
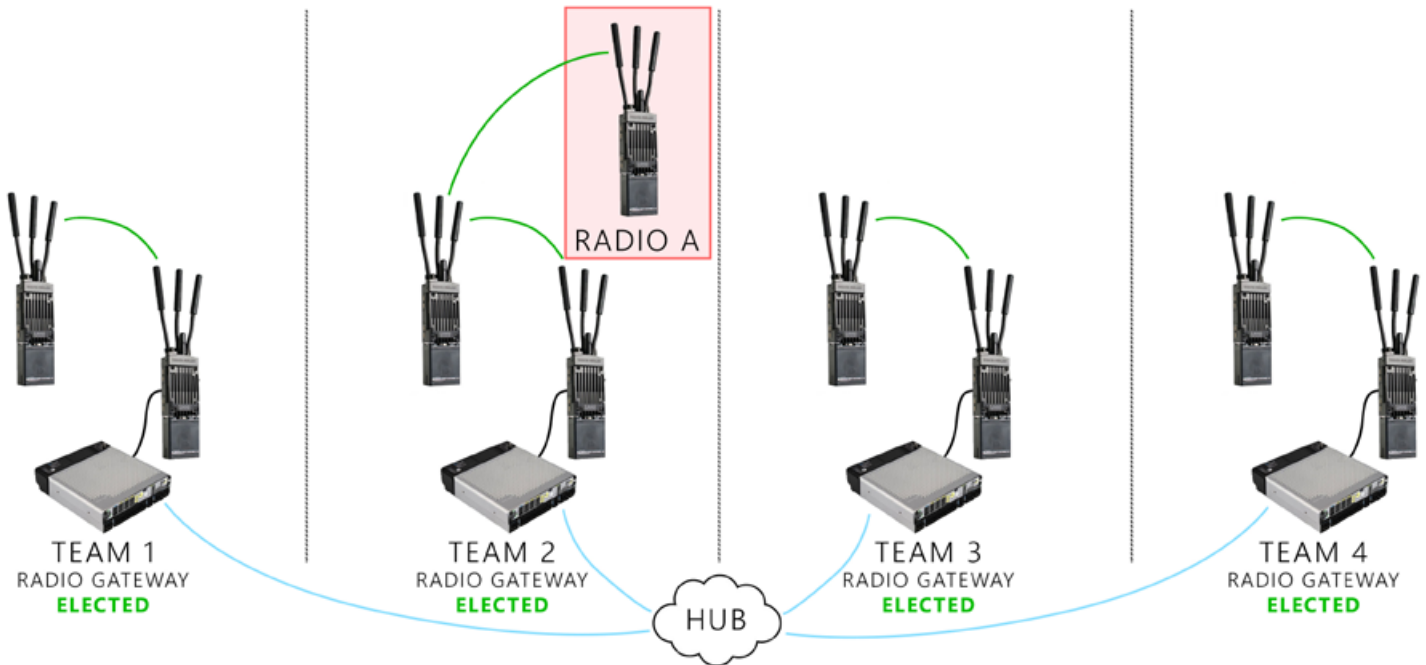
The intelligent gateway services Cloud Relay™ provides allows for multiple MANETs to converge in to one, greatly increasing coverage and flexibility.

In the below image, four team MANETs have been bridged by a single MPU5. An election will occur and the Radio Gateway with the best link will be selected and all other links will stay active as redundancy but not transmit data.

Under all of these examples, no device reconfiguration was required.

**FOUR CLOUD RELAY NETWORKS BRIDGED VIA RF**
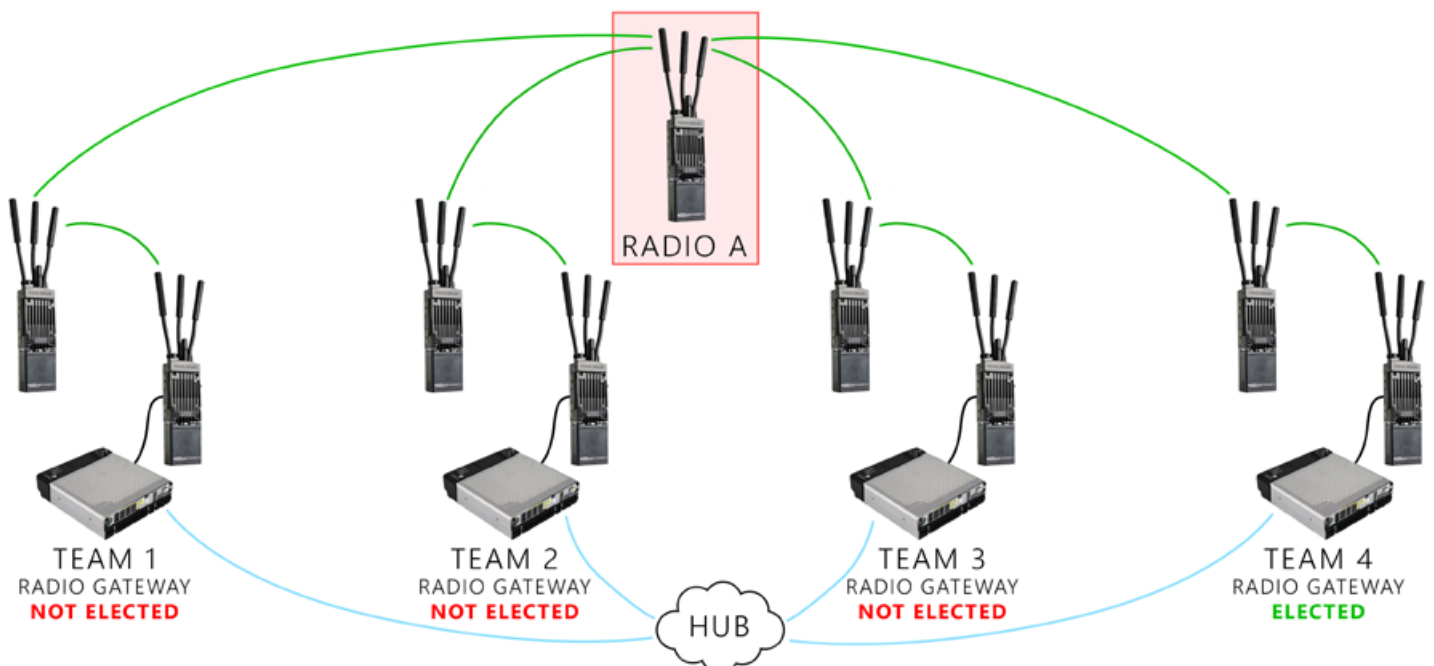
IMPLEMENTATION OPTIONS

EXTERNAL ROUTER

The traditional External Router Cloud Relay™ method requires a router at each deployment location. This method allows for increased control over security and network design. This method also provides the ability to extend capabilities into the Enterprise.
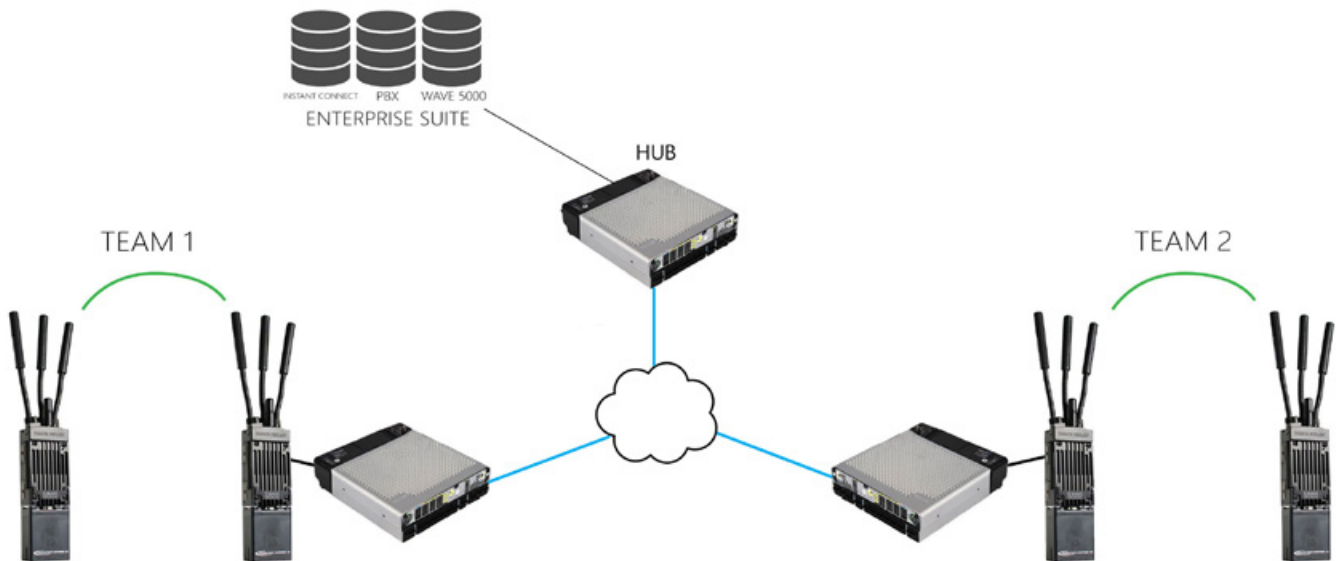
INTEGRATED CLOUD RELAY

Integrated Cloud Relay™ does not require a router at each deployment location, and is therefore a lighter and more streamline capability. Bearers for Integrated Cloud Relay include any Ethernet bearer available, or a USB Phone Tether. Integrated Cloud Relay is designed for dismounted operators to be able to communicate beyond line-of-sight without needing ot carry any additional equipment forward.
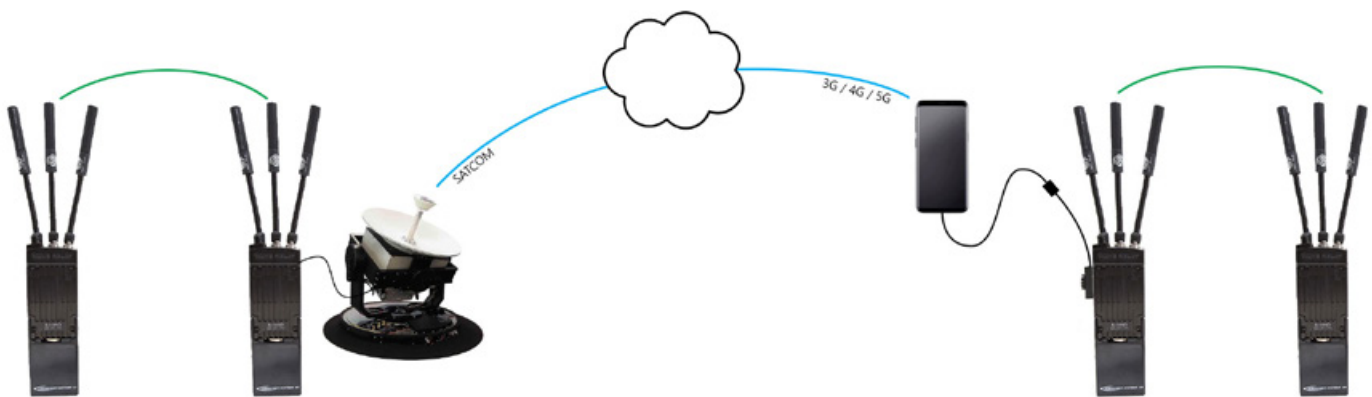
DESIGN AND CAPABILITY

- Extend tactical network to strategic locations
- Utilize Layer 3 technologies to reach back over SATCOM & 4G Cellular
- Secure VPN based, network architecture
- Maintains Layer 2 Wave Relay® MANET
- No reconfiguration of host devices as they move between gateways
- Can be self-hosted for security

- Leverages existing infrastructure to extend the Wave Relay® MANET worldwide
- 3G/4G Cellular, SATCOM, Wired Internet, or other Layer-3 technologies
- Seamless Layer-2 Connectivity
- Support for Unicast, Multicast, and Broadcast Traffic
- Supports multiple gateway topologies

COMPETITOR ANALYSIS

There are many providers that claim to offer network extension for MANET devices, but Cloud Relay™ is the only solution that does not cause looping, network overload or require reconfiguration. The concept seems simple, but creating a secure, dynamic environment is not an easy solution to provide.

COMPETITOR A - LOOPING
Competitor A's solution, as shown below, functions when two MANETs are distinctly separated by a router.

If the two MANETs converge to create an RF link alongside the BLOS connection, the entire network will cease to function as a loop has been created that the network does not know how to handle.
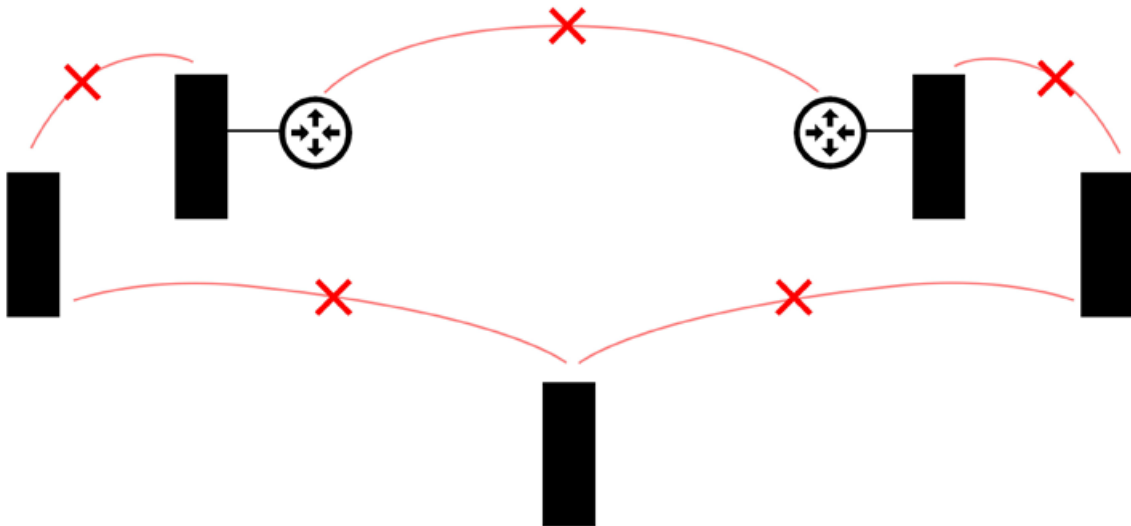

COMPETITOR B - RECONFIGURATION
Competitor B's solution also functions when two MANETs are separated by a router. These radios function because each radio is programmed with a specific address and gateway address, to communicate only with its connected router. Although both teams have the same RF settings configured, the radio will still require network re-configuration.

RADIO A

If a radio moves within the network or changes teams, it requires complete reconfiguration

RADIO A
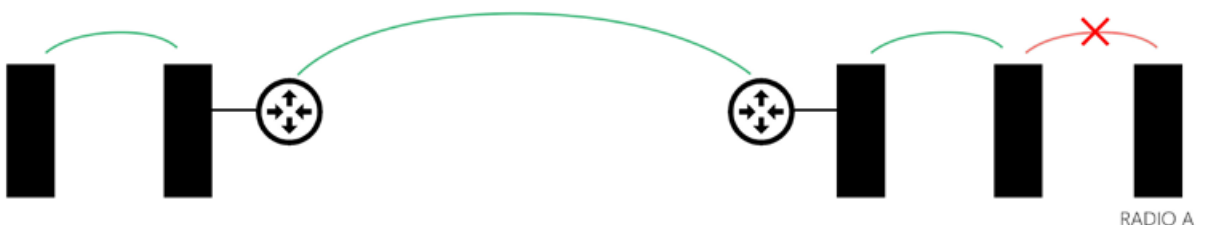
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