

# SOLVING EVER-CHANGING COMMUNICATION NEEDS

# RADIOHUB<sup>®</sup>



## USE CASE OVERVIEW

Special or unanticipated events require rapid deployment of resources and materials in order to provide proper command and control of personnel as events unfold. These tactical events could be in response to emergency incidents or disasters that require immediate deployment and coordination. It could also be a planned event, such as a large gathering of people, which will require additional resources that could tax existing infrastructure.

RadioHub's unique network architecture and its streamlined configuration management interface allow for rapid deployment in both static and rapidly changing environments. The RadioHub system can meet a wide range of mission needs. Its network flexibility and multiple server options allow users to configure and operate the system in any manner that meets their operational needs.

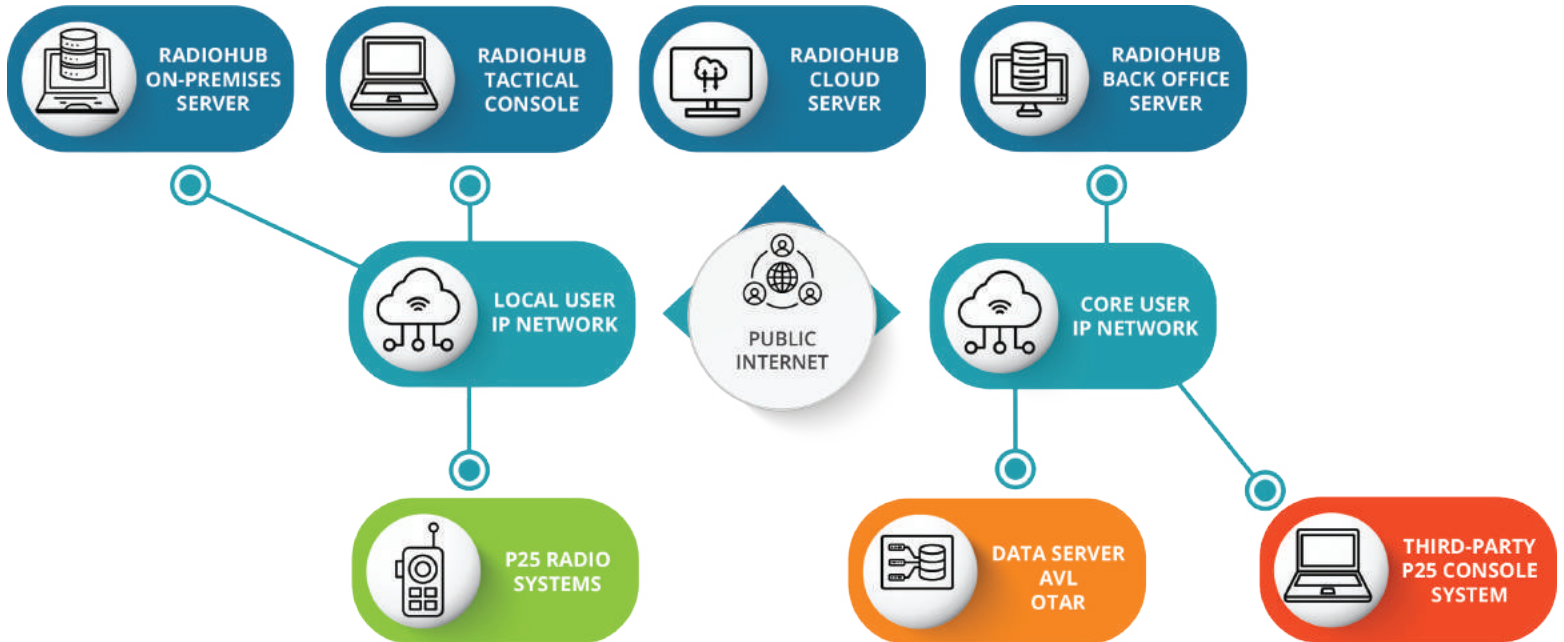
## P25 COMMUNICATION

RadioHub allows P25 secure radio endpoint to be connected, providing P25 communication and arbitration for users over wide geographic area and across multiple radio bands. This allows users to maintain communication on specific Talk Groups and radio bands using the RadioHub's voting and routing capabilities.

RadioHub has been designed and architected to enable radio communication as well as command and control coordination of personnel and equipment as needed.

# ARCHITECTURAL OVERVIEW

Designed to operate over a variety of IP networks, RadioHub uses its unique network control architecture to automatically determine and optimize performance over low bandwidth high latency networks. This allows operation over the most stringent network transport scenarios, be it satellite, cellular, mesh or other transport methods.



## COMMUNICATION SECURITY

Using P25 DFSI protocols, Radio Hub votes received P25 signals and routes selected audio to use defined transmit endpoints. Secure communication is provided using P25 AES encryption as well as IP VLAN security. Providing a double layer of security when operating over uncontrolled networks.

## DIVERSE CONNECTIVITY

Voting and routing takes place on the Radio Hub server, which can be operated in multiple configurations. When an event may limit connectivity an on-premises solution allows control over a local private network keeping all system components close to the event. When backhaul exists RadioHub can be deployed behind a customer firewall providing remote operation. RadioHub will also operate in a Cloud based voting and routing environment allowing operation virtually anywhere in the world.

## CUSTOMIZABLE CONSOLE

Command and control can be obtained using the RadioHub tactical console or via RadioHub provided DFSI connections into a third-party console system.

The RadioHub unique architecture allows for operation with multiple RadioHub servers allowing for simultaneous operating configurations as well as graceful degradation when events such as loss of backhaul occur. For example, RadioHub can be operated with both an on-premises server and a back-office server. The system will failover to the on-premises server if the connection to the back-office server is lost.

The simple to use configuration editor automatically pushes any configuration changes out to all servers located on the network. This ensures that changes made to the RadioHub system are local to all servers that are part of the network.

# SOLUTIONS & CONFIGURATIONS



Managing and tracking assets whether mobile or fixed requires a communication system that provides the flexibility to follow assets as they may move. Using transportable repeaters, RadioHub provides a low-cost communication network that provides the ability to move as assets move. Operating on high bandwidth local networks like mesh or WiFi, RadioHub can increase its surveillance footprint by providing video and sensor data.

Enhanced secure communication is provided with P25 256 AES as well as providing OTAR rekeying of subscribers through a P25 KMF.

Large sporting events or music concerts require temporary coordination and communication. Requirements such as border protection and manpower movements also require a communication system that is light weight and flexible enough to be moved to points where communication is required.

Backhaul such as LTE or Satellite can allow remote Command and Control while the communication moves where it is needed. Using the RadioHub tactical console command and control can also provide both local and remote coordination of events. Clear and secure communication can also be provided using P25 AES. RadioHub's voting capabilities provide enhanced coverage and ensures calls are properly received over a wide geographic area.



Whether natural or manmade emergency events require rapid response and immediate communications. Preconfigured flyaway systems consisting of tactical repeaters and a RadioHub server allow for immediate on-site communications. Using the RadioHub voting capability, multiple repeaters can be deployed powered up and connected to the RadioHub server. If different frequency bands are required, the voter provides seamless cross band communication. Local event coordination can be provided using the tactical console or backhauled to a central control room.

As events move the RadioHub components can be moved allowing communication to flow with the event.



Using RadioHub's unique cloud-based voter, communication can take place anywhere allowing coordination of assets across cities, states, and countries. Local repeaters allow for local communication of assets while connections to the voter also provide remote personnel the ability to monitor and communicate with other locations. Command and control located remotely, can be used to coordinate all personnel so that activities at all locations are synchronized.

The RadioHub voter selects and votes calls while transmitting voted communication to all locations keeping everyone on scene aware of activities. The RadioHub system monitors delay and jitter to dynamically adjust its voting window to account for these variables.



Search and Rescue events present many challenges with the coordination and control of personnel. Many search and rescue events take place in remote rural areas where both backhaul and fixed radio resources are limited. Mobile command posts provide on-scene command and control, but depending on the size and terrain of the search communication can be limited.

RadioHub connected to transportable repeaters can link and establish communication to all search members by distributing repeaters across the search area and providing available backhaul connectivity to the command post. Radio capacity can be increased by providing additional radio repeaters. In events where available subscriber equipment cross frequency bands, cross banding can be accomplished by joining repeaters at different frequencies. RadioHub voter arbitrates and votes calls preventing collision and garbled communication.

The RadioHub server and tactical console can be located at the command center allowing centralized command and control. Subscribers that are AVL enabled can provide GPS location details to a separate AVL server. Data and data routing capabilities are included with the RadioHub system at no additional cost.



## DIVERSE OPERATION

The RadioHub tactical console and its DFSI console interface allow operation locally or at a centralized command center.



## SERVER FALLBACK FEATURE

Its graceful server fallback feature allows the system to continue to operate in the event network connectivity is lost or system failures occur.

# RADIOHUB BENEFITS

These features and capabilities make RadioHub the best choice when users require tactical transportable communication that provides the ability to respond and follow events as they occur and transpire.



## SIMPLE CONFIGURATION

The RadioHub server is easy to configure. Designing complex radio architectures, adding resources, or changing call groups can be accomplished in a matter of minutes.

Configuration changes are automatically distributed to all servers in the system ensuring all servers in the system contain the latest system designs and component configurations.



## IP TRANSPORT TECHNOLOGIES

The ability of RadioHub to operate across different IP transport technologies provides users the ability to design and operate a RadioHub communication system no matter where it is located or how it is used.



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