

## PacStar MRC (Modular Radio Center)

**PacStar Modular Radio Center (MRC) is a COTS-based, modular, tactical and expeditionary, rugged radio, voice and IP integrated solution**

PacStar MRC bridges communications gaps between disparate systems – a problem common in military and homeland defense operations. It provides comprehensive interoperability gateways and communications management technologies in a tactical, small form factor, mobile platform.

The core technology in PacStar MRC is provided by PacStar 463, an SCI TOCNET-G4 based RoIP / voice module. PacStar 463 ensures compatibility and support for all major tactical radio types and VoIP protocols. PacStar MRC core components have been certified and deployed with a vast array of tactical/expeditionary and vehicle-mounted programs and are ideally suited to provide a family of solutions for any tactical communication program. PacStar 463 interoperates with the entire line of TOCNET products including vehicle intercom systems, PTT handsets and more, using an IP backbone.

PacStar MRC integrates PacStar 463 Radio-over-IP (RoIP) with PacStar's tactical networking, routing, and server solutions to provide a low-powered mobile radio network solution for a forward operating environment.

PacStar MRC can be deployed dismounted, in FOBs, command posts, ground vehicles and aircraft, as well as in upper echelons – for military, intelligence, law enforcement, and Homeland Security use.

PacStar MRC provides converged voice communications, supporting a wide range of communications equipment and technologies, ensuring high-quality voice communications between otherwise incompatible or non-interoperable systems.



### Key Features

- **Based on proven RoIP and voice management technology** deployed in over 50 programs and 100,000 end units
- **Modular system can be optimized for program needs**, scaling from small, soldier carry solutions to deployments requiring six radio networks
- **Supports major radio types and 3rd party voice systems** including a large list of tactical/DoD radios and voice solutions. Meets a broad range of C2 use cases
- **Based on Intel processors and Cisco networking.** Compatible with PacStar's 400-Series platform which has been selected by multiple tactical networking programs
- **Based on rugged PacStar 400-Series modules and packages** ideal for fly-away, command post, ground vehicle and aircraft deployment
- **Managed by PacStar IQ-Core® Network Communications Manager.** Provides network and server management capabilities for the tactical communicator

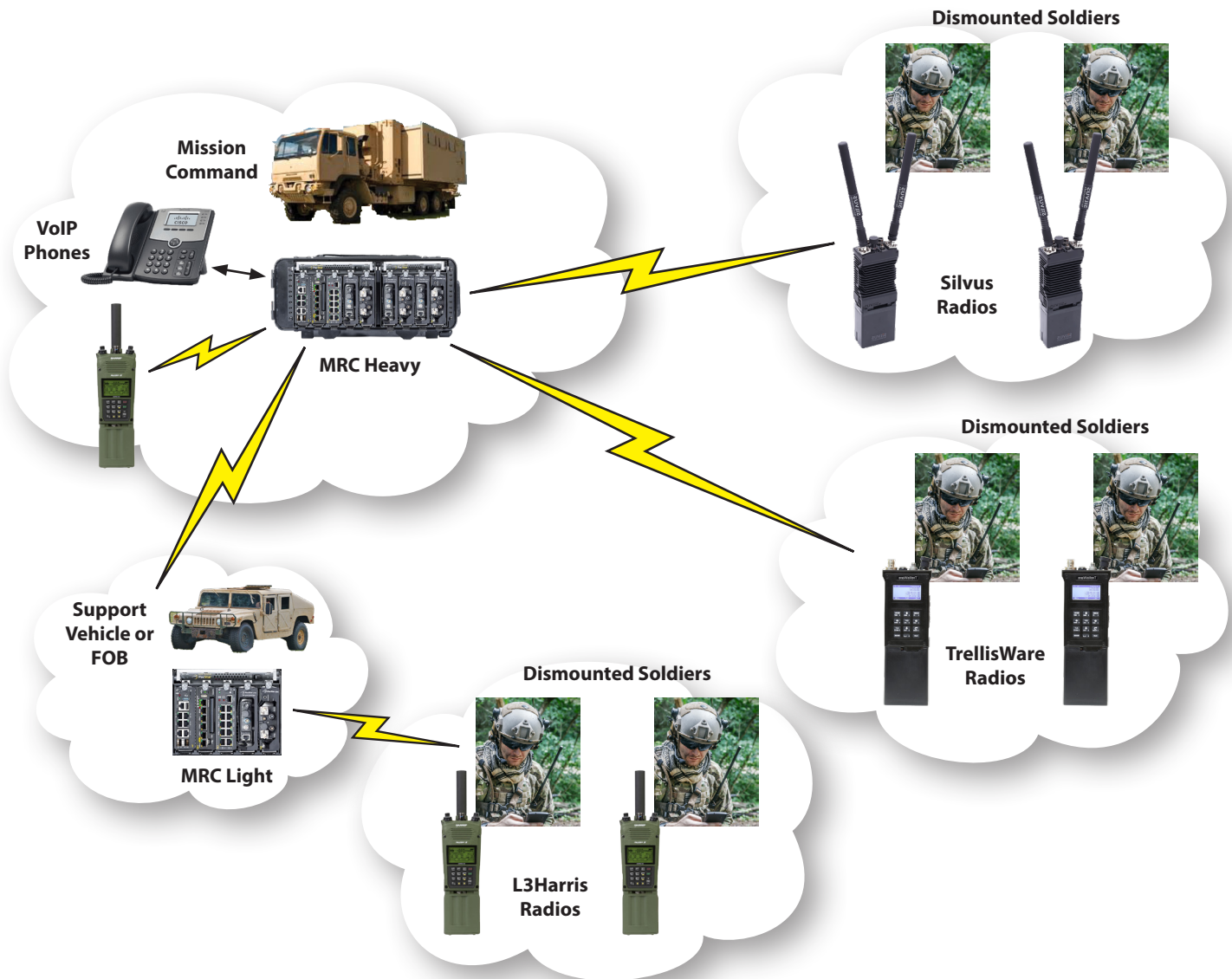
## SOLUTION ARCHITECTURE

A complete modern architecture for expeditionary voice communications includes PacStar MRC Heavy (supporting up to 6 radio networks) mounted on main command post platforms, or PacStar MRC Light (supporting up to 2 radio networks) on remote (smaller) support vehicles, in forward operating bases or carried by small teams.

PacStar MRC Heavy provides interoperability and RoIP services including integration with desktop VoIP/UC solutions, and WAN services for communications with upper echelons.

At remote locations, PacStar MRC Light provides similar services with a smaller footprint, with fewer radio networks. PacStar MRC Light may provide voice communications between remote locations and Mission Command platforms via any type of IP-based communications infrastructure including LOS radio, MANET, SATCOM, etc.

Dismounted soldiers communicate with each other, and with PacStar MRC Heavy and Light, using tactical radios.



## SOLUTION CONTENTS

PacStar MRC core components include: PacStar 463 RoIP / voice module; PacStar 451 server module with up to 8 TB SSD storage; PacStar 447 router, and PacStar 414 radio sleds. These components are typically mounted in a PacStar Smart Chassis with a PacStar Mini Transit Case, a Vehicle Rugged Rack frame, or they can be installed in a standard 19" networking rack.

PacStar 463 is a software-defined solution that provides RoIP, VoIP, and voice management capabilities in a single solution. PacStar 463 interoperates with the entire line of TOCNET products including vehicle intercom systems, PTT handsets and more, using an IP backbone.

PacStar MRC is comprised of the PacStar 400-Series modular platform allowing network flexibility to meet mission requirements. For ease-of-configuration, PacStar has assembled two convenient variants (Light and Heavy) for reference, as shown below.

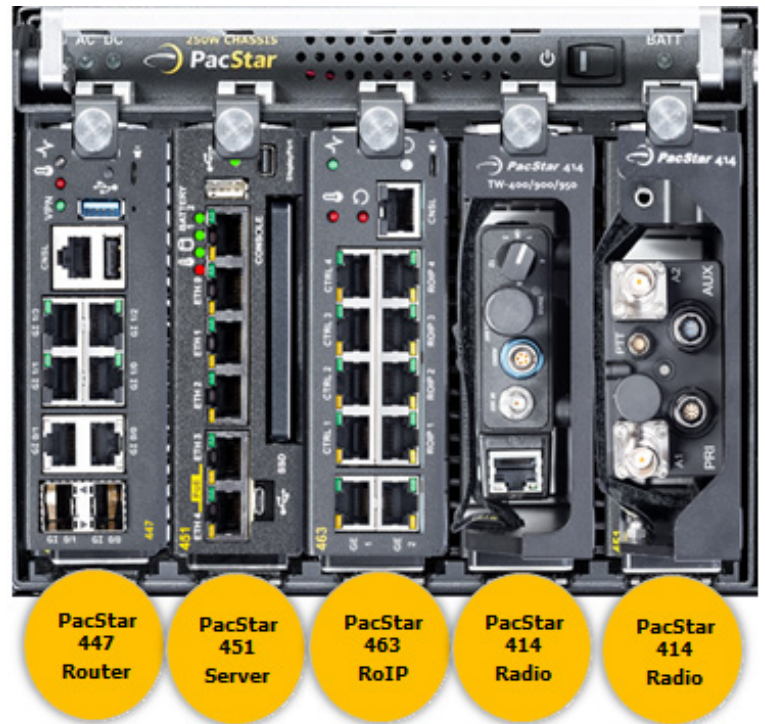
Capabilities include:

- Tactical RoIP gateway services for a wide array of tactical radio types including legacy radios without IP support
- Conferencing between tactical radios, enterprise VoIP equipment, and intercom
- Talk groups, dispatching, and radio cross-banding support
- Communications session management with onboard session controller
- Local and remote radio management with cross-platform GUI management solutions running under Windows, Linux, or Android, and laptops or mobile devices

### PacStar MRC Light

PacStar MRC Light variant is sized for small and remote teams that need all the capabilities described above in the smallest possible package. PacStar MRC Light includes a single PacStar Smart Chassis and can support up to two radios.

- Includes RoIP gateway, application server, router/switch, and 2x radio sleds
- PacStar 447 Cisco ESR 6300 GigE router/switch
- PacStar 451 Xeon E3 1515 Server Intel quad-core processor with 32 GB RAM, up to 8 TB storage
- PacStar 463 RoIP Module with TOCNET
- Up to 2x PacStar 414 Radio Sleds
- PacStar Smart Chassis (5 Slot)
- 9.3" W X 6.8" H X 12" D
- Fully populated 25 lbs.
- Standard DoD 2590 Li-ION or BB-390B/U NiMH battery, user accessible via back door
- Worldwide AC and wide-range DC power
- 110 watts power consumption
- Available in custom "Pelican Case" or rack-mount options



## PacStar MRC Heavy

PacStar MRC Heavy is sized for larger teams and mission command installations that require support for larger operations with more radio types, and supports up to six radios. The PacStar MRC Heavy example variant includes the PacStar MRC Light as shown above, combined with four additional radio sleds in an added 4-slot PacStar Smart Chassis.

- Custom designed carbon fiber transit case with wheels and handle (9" x 21" x 14")
- Meets FAA carry-on size restrictions
- Can support up to nine PacStar modules integrated into (1) 4-slot and (1) 5-slot Smart Chassis
- Removable lids for operation of equipment in the carbon fiber transit case
- Smart Chassis are user removable and capable of operating outside the transit case; enabling physical separation as required for classified enclaves
- Worldwide AC input, 47 - 63 Hz, 85 V - 264 V
- Wide-range DC input, 10 - 35 V DC
- 2x standard DoD 2590 Li-Ion or BB-39B/U NiMH batteries, user accessible via back door
- Supports a total of 500 watts. Actual power consumption depends on radio types and duty cycle
- Overall system weight ~65 lbs.



PacStar MRC is also available in PacStar Rack Mount Frame and other configurations ideal for ground vehicle and airframe mounted use cases including networking-on-the-move

## PACSTAR 400-SERIES MODULES

### Key Features

- Dimensions: 5.3" x 7.1" x 1.6"
- Weight: ~2.5 lbs. (Each, depending on model)
- Snap-together connectors provide DC pass-through for powering additional PacStar 400-Series modules
- Operational temperature -20C to (50C to 70C depending on module type)
- Tested to MIL-STD 810 (contact PacStar for details)
- Battery snap-together connectors for 1 or 2 AN/PRC-148 radio batteries; hot swappable with up to 5+ hours runtime per battery, depending upon module type
- Wide-range DC input, 10-35 V DC
- Worldwide AC power input (with adapter cable)
- PacStar 444 PoE power output: Up to 60 watts available PoE on AC input
- Power draw: Nominal 20 to 100 watts per module, depending on module type

PacStar products are covered by multiple patents. Additional patent(s) pending. See [www.pacstar.com/patents](http://www.pacstar.com/patents) for details.