



LEONARDO CYBER & SECURITY SOLUTIONS

# RIM

## RETE IBRIDA MULTIVETTORE

Multi Vector Heterogenous  
Network

Technology evolution is influencing the way security operators work: multimedia communications, APPs, social media are a reality in the enterprise and are migrating to public safety as well.

Wireless broadband is recognized as a key element to drive public safety communications in the new era and the change is impacting even less demanding sectors: analogue voice communications are being progressively outplaced by digital technologies.

LTE and 5G will play a strong role in professional communications in the coming years, but it is widely accepted that a long period where several communications technologies will co-exist is going to characterize the PMR sector both in the mission and the business critical sector.

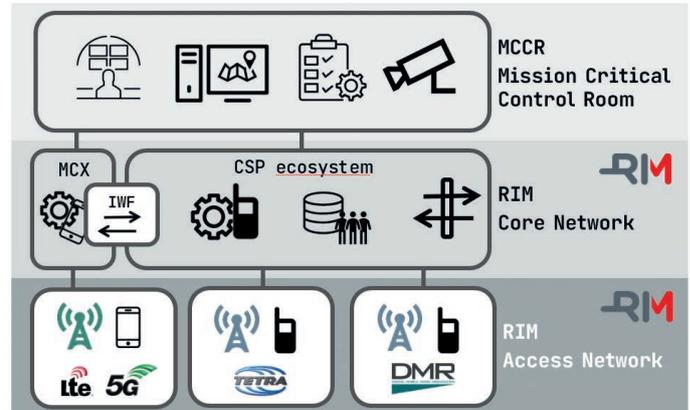
The capability to smoothly introduce new services into a consolidated environment without disrupting existing ways of working is going to be a key success factor for professional organizations.

Leonardo **RIM (Italian acronym for multi technology hybrid network)** is a solution designed for long lasting integrated narrowband-broadband infrastructure supporting professional network evolution.



## A FUTURE PROOF NETWORK

Leonardo RIM is an integrated multi technology network that provides unified services to professional users. RIM network model foresees heterogeneous access networks coordinated by an integrated core network that provides technology independent access to control room and applications



### RIM ACCESS NETWORK

The Narrowband portion of RIM access network is provided by current and future TETRA and DMR Leonardo base stations. Field proven Adaptanet™ TETRA BS-Nodes as well as ECOS-D DMR repeaters can be used together with the new DTA multi technology systems such as **ECOS-E DTA7000** and **Adaptanet™ DTA node** for unprecedented deployment flexibility.

The Broadband part of RIM leverages on third party LTE and 5G systems and/or services to implement local tactical bubbles or as part of a larger region/nation-wide infrastructures. In case of use of third party commercial broadband service the agreement with the LTE 5G network operator defines the degree of control and performance that the RIM can deliver.

### RIM CORE NETWORK

The RIM core network provides coordination and control functions for the integrated network and core network services for TETRA, DMR and MCX components. It is based on Leonardo **CSP ecosystem** infrastructure (Communications Service Platform) that:

- Implements narrowband networks core network (also providing proprietary broadband integration functionalities)
- Provides external network gateway capabilities (analogue or telephonic networks)
- Implements 3GPP standard based Mission Critical Services (MCX)
- Provides a unified view of the subscribers for provisioning functions
- Provides a unified technology agnostic view for control room applications.

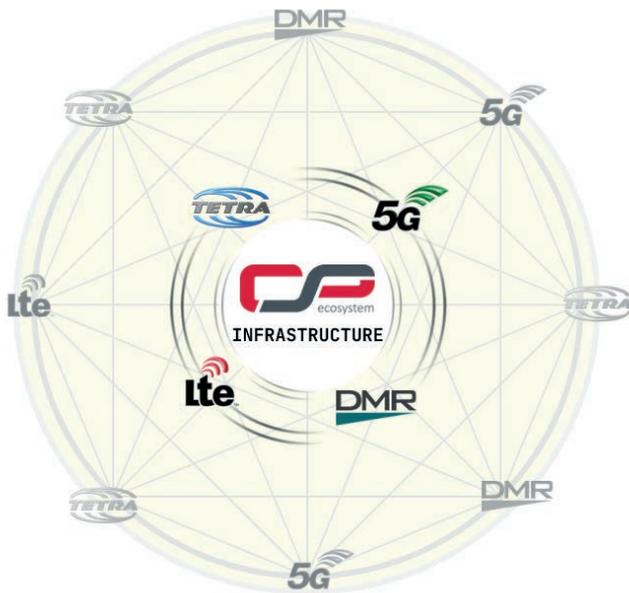
With respect to broadband networks RIM Core network include both the MCX server and the standard LMR-IWF function that allows transparent multi technology voice and messaging professional services



RIM access network  
DTA single carrier for DTA Node TETRA radio base station



RIM access network  
ECOS-E DTA7000 carrier for DMR radio base station



RIM core network. CSP ecosystem concept scheme

### RIM CONTROL ROOM

Dispatching functions, inherited from TETRA, are extended to multi-technology environment and can be enriched with multi-media and video services. Location based services are available together with recording services in a heterogeneous environment. Leveraging uniform network view provided by the core network, the control room layer allows:

- technology independent command and control services
- mixed technology group communications
- multi-technology location based services and resource tracking
- multimedia services for enabled technologies.



### FUTURE PROOF ARCHITECTURE

Technological evolution is a key requirement for critical infrastructures in order to provide a reliable answer to professional community challenges. This also applies to narrowband networks that even if are based upon aged communications protocols need to take advantage of latest software technology for increased effectiveness, security and robustness. RIM is built upon the software technologies that are characterizing the latest network solutions.

RIM narrowband base stations are characterized by a common powerful hardware platform and software defined radio features that allow modularity and deployment flexibility.

RIM core network leverages on virtualization for scalability and deployment flexibility. The core network components are implemented on virtual machines that can be orchestrated and deployed on the same or different hardware platforms according to project specific requirements.

### REDUNDANCY AND RELIABILITY

RIM features high availability and disaster tolerance services leveraging on a highly flexible virtual architecture. Redundant connection together with automatic virtual machine relocation capabilities provided by virtualization infrastructure allow to build a no single point of failure configuration where a fault of a single element (such as a physical server) has no impact on the overall communications services.

Disaster tolerance can be put in place leveraging virtual infrastructure characteristics, high performance networking and calibrated system configuration.

### ENHANCED SECURITY

Main RIM core network and Control room can be protected from cyber threats leveraging on Leonardo End Point protection solution able to provide early detection of anomalies/intrusions and immediate implementation of the most appropriate response and containment action.

In addition, RIM solution can take advantage of Leonardo Managed Security services that provide a holistic approach according to the phases foreseen by NIST international framework.



## KEY FEATURES

- Leonardo framework for broadband transition
- Convergent approach for narrowband / broadband integration
- Unified user management and provisioning
- Unified multi technology enabled control room providing voice, messaging and location based services
- Standard based and legacy solutions coexistence
- Enhanced availability and reliability
- Enhanced security.



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