

# LTE Mission Critical coverage for international interforce Shooting Range

Athonet, a Hewlett Packard Enterprise acquisition deployed a pLTE network for the Italian Ministry of Defence working in a dedicated band, to cover a wide and complex area in an Army shooting range



Italian Ministry of Defence



GOVERNMENT

## the challenge

Athonet deployed a pLTE network for the Italian Ministry of Defence working in a dedicated band, to cover a wide and complex area in an Army shooting range, to enable voice, data and video services. The solution comprised a dedicated mission-critical core, a fixed LTE macro-cell covering the main part of the polygon and relay 4G nodes via autonomous man-pack to expand the LTE coverage in specific location if needed. A dedicated control room has been created for operational and monitoring purposes of the field activities with mega screen and interconnection via secure firewall to the Ministry of Defence intranet and PABX.

## the solution



4G DEDICATED NETWORK



IMS FOR VOICE OVER LTE (VOLTE) SUPPORT



RELIABILITY



MC-PTT: MISSION CRITICAL-PUSH TO TALK

## the result

- Fixed LTE macro-cell covering main part of the polygon and relay on 4G autonomous man-pack to expand the coverage
- Reliable coverage in a remote area not served by mobile network operators
- A dedicated control room
- Coverage in any location and situation
- New generation MCPTT solution enabled groups of voice and video services, geo-localization and safety services

## INTRODUCTION

The flexible 4G dedicated network created a secure and reliable broadband wireless network. This network supported traffic from fixed or mobile CPE's deployed on the ground and on board of vehicles, HD video from cameras spread in the polygon, and voice and multimedia services from ruggedized smartphone supporting VoLTE/ViLTE and MCPTT services.

The goal achieved by the project was to create a reliable coverage in a remote area not served by mobile network operators ("MNOs") or a tactical environment where MNO coverage has been incapacitated. The tactical coverage is extendable through portable relay 4G nodes, with a secure and high performing infrastructure able to perform full surveillance and monitoring of the activities in the area from a control room and provide real time multimedia communication between users in the field.

The pLTE fixed network and relay solution allowed the coverage to be expanded which enabled services also to the Italian Coast. Guard vessels checking the seaside area in front of the polygon to stop public boat approaching this part of the coastline.

## DESCRIPTION

The project was deployed in 2021 using a mission critical infrastructure with a dedicated on premise 4G core and local IMS for Voice Over LTE (VoLTE) support, and Mission Critical Push To Talk (MCPTT) local services.

Radio coverage was based on dedicated multi sectorial macrocells working in band 3 providing the coverage for the main area of the polygon. A portable manpack solution able to work fully autonomous (local core, small cell 5+5 Watt, batteries) working in band 7 was also supplied to expand, upon request, the coverage in specific hostile areas, operating as a relay for the main fixed cell coverage, using as backhaul the primary LTE coverage.

The solution also supported IMS for VxLTE enabled native voice and video communication between smartphones and was fully integrated with a private PABX to support incoming and outgoing calls to the military voice national infrastructure. A new generation MCPTT solution was also deployed which enabled groups of voice and video services, geo localization and map representations of the position of the devices, as well as safety services like emergency calls and man-down alerts.



### BENEFITS OF DEPLOYMENT

- **Real time images from the field** – broadcasted by fixed or mobile/body cameras or smartphones.
- **MCPTT dispatcher** – showing the map location of people and vehicles which provided a superb understanding about the activities in the field, granting a huge improvement in term of effectiveness and safety.
- **Fully integration with secure Ministry of Defence intranet and PABX** – permitted the forwarding in real time of all the necessary information and contents for remote personnel allowing them to communicate with multiple stakeholders in case of interforce and/or international exercitation.
- **Safety Operations** – the solution increased the monitoring of the local activities and implemented man-down/alarm solution increasing the safety of the operators.

### CONCLUSION

Thanks to our solution we have been able to guarantee reliable and stable connectivity throughout the polygon area, facilitating the operations and exercises that are performed there.

In addition, the solution is fully self-sustainable due to the deployment of solar panel able to support the network infrastructure needs in term of power supply. Moreover, the possibility to get real time images, information, localization from the field allows many stakeholders to remotely join avoiding to travel and reducing impact on the eco-system.

Thanks to the flexibility and scalability of the solution the network can be further extended by adding other nodes.

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