FROM ANALOGUE TO DIGITAL
UPGRADING MOUNTAIN RESCUE COMMUNICATIONS

Background and challenges

Mountain Rescue England and Wales (MREW) is an umbrella organisation comprising 48 member teams of dedicated volunteers across a wide range of geographical locations. No matter what the time of day, the weather or the terrain, these brave rescuers venture into remote areas to assist walkers and climbers who have got into difficulties.

The MREW volunteers depend on robust and resilient communications between individual team members, as well as between the teams undertaking rescue missions and their physical premises. Reliability and clarity of mobile and remote communications are crucial; poor signals or dropped transmissions really can be a matter of life or death.

MREW's various teams were using analogue radio systems consisting of a range of portable and mobile radios, and associated base stations. These radios deliver robust and reliable communications but are limited to coverage and interference issues and the audio quality they offer is no longer the best available.

Furthermore, after ten years or more of being deployed in challenging rescue missions, much of this kit needed upgrading. The obvious choice was for MREW to migrate to a Digital Mobile Radio (DMR) solution, which would offer better audio quality, better use of existing frequencies, and the opportunity to better integrate additional services such as a GPS mapping application developed by one of the organisation's volunteers.

However, different teams within MREW, facing different challenges in terms of the volume and type of missions undertaken, needed to upgrade at different rates. And as a background to all of these challenges, MREW is operating against the development of the Emergency Services Network (ESN), a mission-critical LTE network that will ultimately provide next-generation communications for emergency services and other public safety users. The ESN, however, will initially be focused on urban conurbations, making it unsuitable for the mountain rescue services.

As such, any DMR solution selected by MREW needed to be fully interoperable with its existing analogue systems, enabling the organisation to 'mix and match' between frequencies depending on the environment and equipment available.

Solution

Simoco had already supplied MREW with part of its existing portfolio of analogue radio equipment. Team members were so impressed with Simoco's dedication and service delivery, its exceptional range of DMR devices, and above all its ability to build a fully interoperable communications system – as to appoint the company again, this time to develop a bespoke DMR Tier II solution.

The solution for MREW consists of Simoco's 700 Series of portable and mobile radios, specifically the SDP760 digital portable radio and the SDM730 mobile radio terminal, both of which are capable of operating across multiple analogue and digital modes. The Simoco Xd base station - which supports instant push-to-talk voice communications as well as open-standards applications support – completes the picture.

Crucially, all of the DMR devices being rolled out across the MREW teams are fully interoperable with the existing analogue frequencies and equipment. This means that if teams need to share equipment between sites – a common occurrence in these volunteer-led organisations – or if a team needs to go off-grid from the DMR network – it is quick and simple to plug into the analogue network, with no loss of transmission. In short, the new kit works equally well on the old network.

A phased rollout means that MREW can add new devices and base stations at a sustainable pace, crucial for a charitable organisation staffed by volunteers. After deploying an initial 90 radios across a number of MREW teams, Simoco has now rolled out a further 1000 devices across the other groups within MREW.

"Right from the start, Simoco understood that our top priority was ensuring interoperability between our existing analogue systems and any new digital equipment. We're a complex organisation, staffed entirely by volunteers, so it would be impossible for us to migrate entirely to digital at the push of a button. It would be risky too – there will always be environments where it's important for us to have the insurance of a reliable analogue frequency that we can switch onto, without losing any communication. We're already delighted with the devices that Simoco has provided us with, and look forward to working with them for many years to come."

Mark Lewis
ICT Officer

Result

MREW is now moving towards the digital future of mission-critical communications – but, crucially, at the phased pace and with the full system interoperability this complex organisation needs. With improved audio quality, coverage and reliability, the ability to manage the communications network over the Internet and the ease of adding new devices to the network, the new DMR Tier II solution is already helping MREW to work faster, more efficiently and ultimately to save more lives. However, when required, MREW can seamlessly swap onto its existing analogue network without missing a beat, ensuring that its existing investment is maximised and that different teams within the organisation can collaborate with ease.

Bowland Pennine MRT (BPMRT) had been looking at digital radios as an option to replace their ageing Simoco SRM9000 mobile radios for some time. When the 700 series radio was announced, a decision was made to become one of Simoco's early adopters for the new terminals and base stations, with a view of moving to DMR Tier II in line with UKSAR frequencies. Moving from the existing SRM9000 series radios and TSF base stations to the 700 series portable and mobile radio, with a new Simoco Xd base station delivered the infrastructure update the team was looking for. The new 700 series products provide excellent coverage, with the new digital technology providing more clarity in the fringe areas where analogue was almost unusable. The new design and format of the portable radios was excellent and provided a degree of flexibility for team members to mount on equipment.

"Best in class sensitivity, ensuring crystal-clear communications in fringe areas and harsh environments, while a compact form factor means the radio is suitable for a wide range of users."

Iain Nicholson
Bowland Pennine Rescue Team Member