

# LAND MOBILE

## WIRELESS COMMUNICATIONS FOR BUSINESS



12

### 5G at MWC

Use-cases, remotely controlled robots, and the challenges ahead



20

### Making it easy

Thorsten Freitag discusses AI's benefits for Wi-Fi network managers



26

### All change

Alliant Energy explains how it switched over to DMR Tier III



29

### All together now

Northants FRS's new command vehicle is fully kitted out with comms



## Saving Time and Money

Higher efficiency with two-way pagers



Learn how organisations are using two-way pagers to boost coordination and resilience, while cutting response times and costs.

# Why two channels are better than one

A major UK ambulance service is using two-way paging to supplement the national TETRA radio network, adding a valued extra level of resilience to its radiocommunications

**T**hough the UK operates a national TETRA radio network dedicated to its emergency services and other essential bodies, for one of these services an independent radio network is providing extra resilience.

In Scotland, two-way Responder pagers operating on the UK paging network of PageOne, part of Capita plc, provides a direct link with over 120 senior managers in the National Risk & Resilience team of the Scottish Ambulance Service – a mobile strategic operations team who provide 24/7 management oversight for large, protracted or serious incidents. And the service covers a huge area – not just the Scottish mainland, with its remote and mountainous regions, but the western and northern isles too.

## Distribute key information

“The pagers help us to very quickly distribute key information across our management team,” explains Nick Sutton, Strategic Operations Manager for Scottish Ambulance Service. “The Ambulance Control Centres (ACCs) will distribute information via the pagers relating to day-to-day operations as well as specific incident-level information for our more serious and demanding incidents.”

But while most routine communication with ambulance crews is carried via their in-vehicle TETRA radios, Mr Sutton sees it as essential to maintain an independent line of communication with the strategic team, who typically travel to incidents separately in fast-response vehicles and could be away from their vehicle on other duties. “Pagers are sometimes looked upon as an ageing technology that could be

replaced by the smartphone and/or digital radios,” he comments. “We feel it is important to maintain a resilient and independent means of communications with our on-call and responding managers that enables the ACC to quickly distribute key information.”

For the Scottish Ambulance Service, PageOne’s two-way Responder paging has helped attain the goal of multi-network resilience. “Any technology that they were already using had its own potential single point of failure,” says Raymond Fegan, of network operator PageOne Communications. Whether the technology is digital radio, mobile phones or one-way paging, he argues, all of them potentially represent a single point of failure. “It’s great when it’s working,” he says. “But when it goes, everything goes. Whereas our two-way pagers here in the UK, we have them operating across multiple networks. So not only are they sitting on our trusted and reliable national paging network, but they are also listening to any of the mobile networks – they’ve always got dual connectivity.”

## Critical messages stand out

For Nick Sutton, the Swissphone made paging devices, also help critical messages stand out from the day-to-day smartphone notifications and radio tones. “By having a separate device, it’s less likely to be silenced or powered down as it should only be used for critical events,” he says. But there’s more. “The two-way pagers add an important and, for a very long time, overlooked function to our communications – the ability for the recipient to reply to their message.

“In the near future, we are working with our CAD system supplier to develop a new two-way interface between the CAD and PageOne, which

will allow us to leverage the information held in CAD to automatically page incident-level information. Replies from the two-way Responder pagers will also be more easily managed as they will be directed to the dispatcher responsible for the resource.”

## Automating response

In this way, the Scottish Ambulance Service hopes to make fuller use of the technology by automating procedures so as to create a consistent and effective message delivery system, relieving pressure on its ACC managers. “Those carrying pagers will be able to send a specific reply to the message they received and have it handled by CAD, which may result in a message being generated for the dispatcher, or the CAD carrying out some form of action based on the reply. For example, ‘Able to attend’ would generate an allocation request to the dispatcher responsible for the incident.” 📶



## The RES.Q Responder

PageOne uses Swissphone’s advanced two-way pagers. The RES.Q terminals include a GSM wireless module. Options include GPS positioning for locating personnel, an emergency SOS button and Low Energy Bluetooth beacons.

# Increasing efficiency

For volunteer firefighters in Germany, a POCSAG paging system provides solid performance at modest cost and is a dependable backup for the national radio network

In Saarland, the smallest of Germany's federal states, ~13,000 volunteers provide standby fire cover and support for the rescue service through 52 fire brigades.

Alerting is coordinated centrally via ZRF Saar, Saarland's Integrated Control Centre. "We are responsible for 210,000 operations a year," said Rainer Buchmann, its director. "Large volunteer fire brigades here in the region have up to 180 operations per year, including up to 50 at night. That makes it all the more important for us to alert volunteers only when they are really required."

## Speed and resiliency

Saarland's system had to cover virtually 100 per cent of its terrain, including in-building coverage. "And we need fast alerting," added Mr Buchmann. "In 95 per cent of all cases, the emergency response forces have to arrive on the site of the emergency within 12 minutes after the emergency call was received."

Saarland chose a resilient POCSAG alerting system from Swissphone with 75 base stations. Its key advantages are coverage, speed and resiliency, including the ability to tolerate a failure of central components. If a master base station can no longer be reached via its normal IP connection, the system 'connects' the lost master base stations over the radio network.


## Two-way communication

For use on the network, several brigades and rescue services have equipped themselves with Swissphone's RES.Q pager, which includes a cellular module to provide a return communications path. By pressing a button on the pager, a volunteer can declare that they are ready for action; and then, if an alert arrives, he can notify the control centre whether they will participate. This allows Saarland to alert its first responders in a much more

targeted manner and increases the efficiency of their operations.

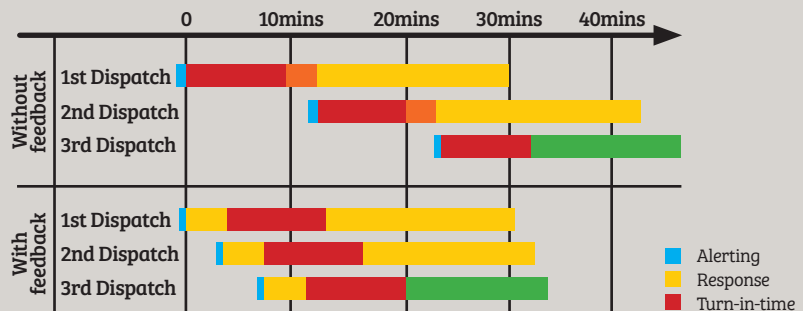
If the pager cannot detect the POCSAG signal from the dedicated radio network, it automatically connects to the control centre via the cellular network. This 'hybrid paging' feature ensures that volunteers can be reliably reached even in Saarland's border areas.

Given Germany's national TETRA network, why did Saarland choose

POCSAG for alerting? "To obtain the required coverage, we would have had to install far more TETRA base stations due to TETRA's higher frequency," says Buchmann. "The POCSAG network provides us with the necessary indoor coverage at only 20 per cent of those costs. Also, TETRA pagers cost up to three times more than POCSAG pagers. we [therefore] use TETRA for voice radio and POCSAG/GSM for alerting." 

## Two-way pagers save time

Because first responders can instantly send feedback over RES.Qs, the dispatcher can immediately follow-up with a second and third dispatch if necessary. Saarland's integrated control centre has reduced the time to alert the required number of volunteers and send them to an incident by up to 15 minutes.



Two-way paging allows to reduce engagement times by up to 15 minutes

## Two-way pagers save money

The Rhineland town of Sankt Augustin's fire brigade has cut its annual wage costs by €53,500. This is due to 125 RES.Qs, which reduce over-alerting by allowing volunteers to quickly notify the control centre of their availability. This reduces the compensation that it has to pay employers when they release employees for fire duty. The cost of two-way pagers and SIM cards is deducted (amortised over four years) from these annual savings. The acquisition costs are €17,500 per year for 125 devices (€70,000 divided by four). The net benefit is therefore €36,000 per year (€53,500 minus €17,500). The RES.Q pays for itself within six months.

