Overcoming obstacles

The Ambulance Radio Programme's roll-out of its new mobile data and vehicle solution has not always been straightforward. **Philip Mason** talks to some of the project's major players about how difficulties were dealt with

There can be many potential reasons for an organisation to make the often disruptive decision to upgrade its communications technology.

Those who have been following the Emergency Services Network saga, for instance, will know that cost is inevitably a major factor, with long-term savings continuing to be cited as a core reason for the switch from narrowband to broadband. Then of course there is the ESN technology itself, which by any measure will likely be an upgrade on what the emergency services already have with Airwave.

Another organisation which is in the process of considerable change when it comes to its technology is the UK ambulance service. A big part of this is obviously the switch to ESN at some point in the future, a change which, as with the other UK emergency services, has the potential to revolutionise business-as-usual operations.

At the same time, however, the Ambulance Radio Programme is also currently in the process of rolling out a replacement for the in-vehicle mobile data terminals used by paramedics in the field.

This has, in very large part, obviously been prompted by the promise of a single, ubiquitous, public safety broadband network as discussed above. It has also, however, become an operational necessity, right here, right now, thanks to recent changes to UK road safety laws.

Communications core

The operational pilot for what the Ambulance Radio Programme is calling its new mobile data and vehicle solution (MDVS) was conducted by North East Ambulance Service (NEAS).

Speaking in a press release issued following completion of the pilot, head of programmes for the ARP, Duncan Bray, said: "Over the last six months we have undertaken a live operational pilot across NEAS and Yorkshire Ambulance Services. Upon successful completion in NEAS, we are now commencing the roll-out into the rapid-response vehicles, followed by the rest of the ambulance fleet.

"Completing the pilot of a national mobile data capability into the first ambulance Trust is a major milestone. It's been a real collaborative effort across the team in ARP, North East Ambulance Service, as well as all the suppliers involved: Terrafix, Telent, Panasonic, Centerprise and Exponential-E."

ARP programme manager Sharon Marchant said: "Working collaboratively with both Terrafix and Telent, the Ambulance Radio Programme continues to engage with the remaining ambulance Trusts

"The national mobilisation application will be used by all Trusts, allowing for interoperability across them"

of England and Wales on the transition of their communication solutions to MDVS.

"The deployment of the national mobilisation application provides ambulance Trusts with the opportunities to review and standardise working processes in their adoption of a national solution. We have seen a number of benefits to the Trusts in their adoption of NMA over the last three years, including mobilising community first responders supporting ambulance Trusts during COVID-19."

Going into greater detail about MDVS from the user perspective, North East Ambulance Service's mobile communications manager, David Walton, says: "From an ambulance perspective, it's really the core of our communication system. When someone rings the ambulance call centre [via 999], the information is entered into our Pathways triage solution before being passed on to computer aided dispatch system.

"Dispatch receive the patient's information, as well as being able to access a mapping screen enabling them to see all of the available resources in the area. From there, they assign the job to the nearest ambulance and all the information is passed onto the MDVS. It's all automated, and done without speaking to the crew at all."

According to Dave Walton, the previous mobile data system – at least in the north east – used Vodafone's commercial 4G network as the primary bearer, while also leveraging the Airwave network as a fallback in case of signal or device failure. The new technology is designed primarily for use on ESN.

Moving onto the pilot process itself, Walton says: "NEAS rolled out the Android version of NMA, NMA Lite, across our team of community first-responders around 18 months ago. We also offered NMA Lite to some of the third-party ambulance services we use. We've had some really positive feedback from internal and external staff using NMA Lite due to the intuitive graphical user interface Terrafix has developed.

"We went from that 'light' version to the full mobile data solution around October of last year, with North East Ambulance Service being first off the mark with it. That involved pulling together a lot of documentation work, such as testing matrixes and an overall testing strategy. There were always going to be teething problems and anomalies which needed to be ironed out."

The next stage involved putting together what Walton refers to as a test team in the North East, with himself as technical lead. This included operational staff from NEAS, as well as IT support and EOC staff pushing out messages and test jobs to the new application to see how it fared across a variety of different scenarios.

As mentioned, there were numerous different suppliers involved in the roll-out of the new solution. The hardware and the software in particular was provided by emergency services comms specialist Terrafix.

Discussing the company's role, its managing director, Chris Green, says: "MDVS is the national provision of a complete in-vehicle mobile data system across every ambulance Trust. It will replace the legacy mobile data system which was [also] primarily provided by Terrafix.

"The programme was split into three lots. These were MP1 – that is, the national mobilisation application; MP5, which was vehicle hardware; and field services [known as MP8]. We've worked with ARP or directly to the ambulance Trusts for over 30 years, and believe our depth of knowledge will help deliver the programme successfully."

Discussing the user requirements, he continues: "The national mobilisation application [will be] used by all Trusts, allowing for interoperability across them. The user interface is a tablet PC primarily running the software from MP1, alongside a bespoke smart router [designed] to provide multiple communications paths, and work with ESN.

"Terrafix has completed the initial brief and is now into the transition phase, having gone live with installations across the country. The technology ➡

The new solution includes mapping functionality
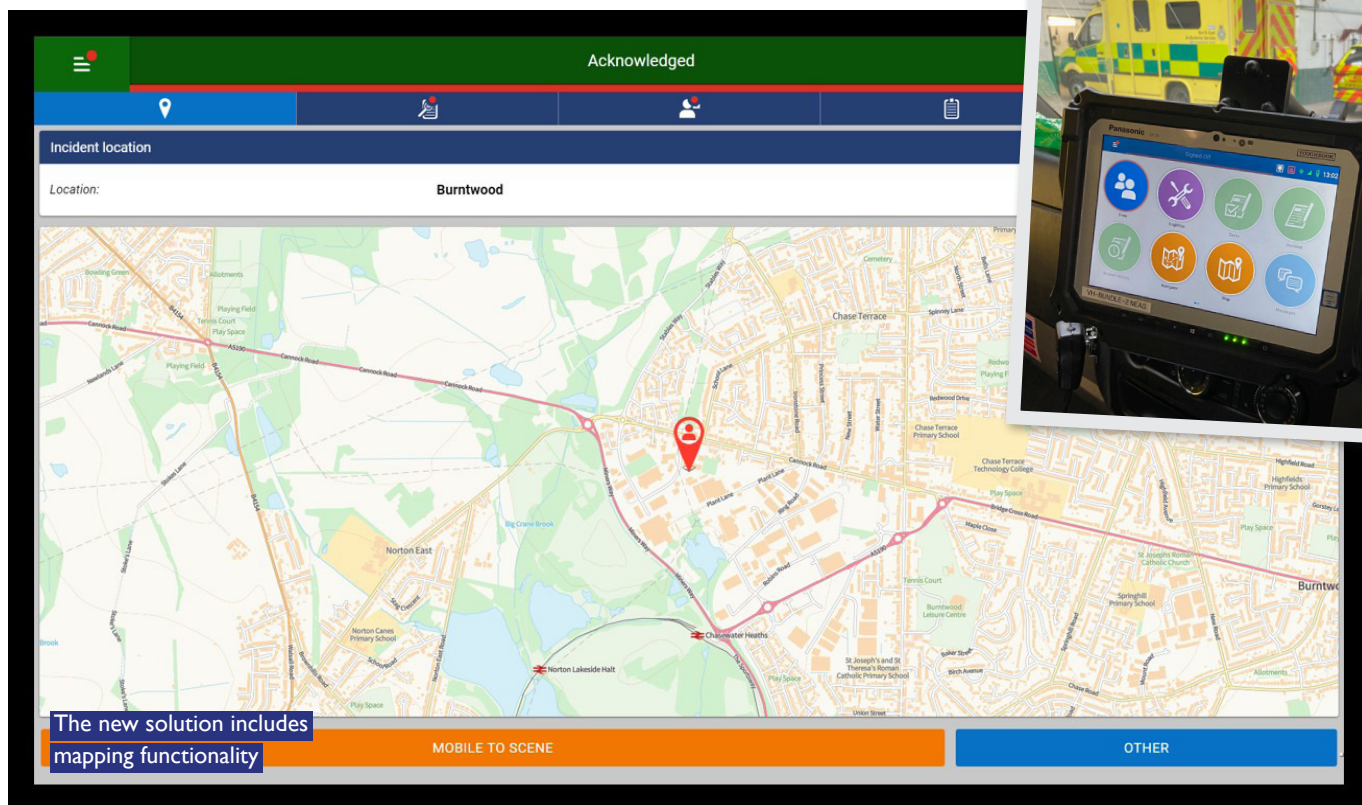
is cutting edge and ever-evolving, and the scope for further development is extremely possible."

Change to the law

The central driver for the ARP's move from the MDVS legacy technology is clearly the Emergency Services Network, which will provide prioritised coverage, facilitate interoperability between ambulance Trusts and so on.

At the same time, there are also other, more immediately practical, concerns following the update and enforcement of legislation prohibiting holding or touching of on-board (non-fixed) electronic communication devices. This too has influenced the roll-out.

The rationale for this change in the law is explained by the House of Commons Library in this way: "The perceived need for a law change has been highlighted by recent court cases, particularly that of DPP vs Barreto in 2019.

"In that case, a driver who was filming a nearby road accident while at the wheel was found not guilty because they were not using a handheld mobile phone for 'interactive communication'. The judge said they were therefore out of the scope of this offence."

Discussing the challenges which this has posed from an ambulance perspective, NEAS's Walton says: "A core issue in terms of the feedback we've received from users is the change in the law, which happened in March of this year. Everyone has really struggled with that, and we've made changes to the NMA application to ensure staff receive the information they need while driving, without having to physically interact with the device.

"Everybody seems to be under the impression that the police, fire and ambulance have some exemption to use their devices in the cabs of vehicles, but that's really not the case. We have to comply with road traffic regulations in the same way as anyone driving a vehicle, and a lot of thought has had to go into the application in order to make it road legal."

According to Walton, because the device is not physically 'attached' to the vehicle (unlike, say, an onboard satnav in a new car), it falls squarely into the category of a handheld device. The upshot of this is that it can't be touched while the vehicle is in motion, thereby making it – prior to modification – essentially unusable by the emergency services while on the road.

As might be expected, it has subsequently been made compliant, via the introduction of a voice element into the user interface. Going into greater detail about this, Walton says: "It's text to speech. When an incident comes through to ambulance crew from our CAD system, it presents on the application and the incident details are 'spoken' to the crew.

"If the vehicle is stationary, the information will appear on the screen in the normal way. Again, that will include the patient's name, their address, primary medical complaint and so on."

He continues: "If the vehicle is moving, however, any acknowledgment has to take place by voice and the workflow begins from there. The devices are in docking stations which are mounted to the vehicle dashboard, rather than built into the vehicle itself.

"The system has been signed off by the Department for Transport. Likewise, any changes that we make in the future will also have to be checked and signed off."

The UK ambulance service's new mobile data devices are just one example of how the public safety communications landscape is changing ahead of ESN. It's also a good illustration of how adaptable and inventive the sector can be when presented with potential difficulties.