

Case Study

Lancashire Ambulance Service



BENEFITS

Mobile data, AVLS and radio coverage are now available across the county, and Lancashire Ambulance Service has climbed up to second place in the UK's performance standards league. A dedicated field team provides front line maintenance and installation services for vehicles and the control room. Availability for mobile data and radio systems is at least 99.5%, and through its resilient system design, Arqiva has also achieved 100% availability of a radio channel in the five years of operation to date.

“ The PFI agreement has been extremely successful in that it's a true partnership approach in which we combine our expertise in delivering services with Arqiva's expertise in communications. This has grown far beyond the simple radio and data relationship we expected at the start. Together we've been able to pool our know-how to great effect and take full advantage of the robust communications infrastructure – adding on new systems for navigation, electronic patient records, and automatic vehicle location that piggyback on the underlying resilience of the communications system. ”

*Alan Jude, Director of Finance and Information,
Lancashire Ambulance Service*

Business issue

Seeking to enhance its radio coverage, Lancashire Ambulance Service wanted to work with a technology partner in the private sector to help advance its communications, get the benefits of new technology, and drive its performance further up the UK's performance standards league.

Solution

A state-of-the-art mobile data system (Mobilise) including AVLS, with Arqiva taking ownership of the system and managing the solution. Arqiva managed the whole project – taking design and supply risk, and delivering and installing a complete turnkey system. Arqiva improved the radio scheme coverage; installed and commissioned radios, the mobile data system, an integrated command and control system, and e-PRF units.

Partnership for performance

The performance of emergency services depends heavily on good communications. In its determination to be able to respond faster to emergency calls, Lancashire Ambulance Service selected Arqiva as its technology partner in 1997. As a result Arqiva has total responsibility for managing the Service's communications system for 10 years from 1998.

Within this partnership, Arqiva provides Lancashire Ambulance with a communications service involving design, supply and ongoing support of an innovative communications system that included the supply of a new Private Mobile Radio scheme for voice and data, together with control room facilities and in-vehicle and hand-held terminals. It broke new ground from the start: Arqiva was awarded a Private Finance Initiative (PFI) contract, at the time the first in the UK for a data and mobile radio service. Also – although the radio side would be an update to highly resilient, proven technology – the mobile data communications side was a step into the unknown for Lancashire Ambulance.

The new communication system was phased in from mid-1998 – first with radio for Patient Transport and Accident and Emergency, then with mobile data rolling out a year later. The full voice and data system is installed in 44 front-line and 10 reserve ambulances, plus 12 rapid response and 3 pool vehicles – with radio equipment alone fitted in some 106 other vehicles.

Under the PFI agreement, Arqiva takes responsibility for delivering guaranteed service levels, lines, maintenance and replacement of equipment – and also helps with training. Costs are agreed for the 10-year contract period, which makes budgeting easy.

Boosting radio coverage

Arqiva improved the radio scheme coverage by installing further radio base stations, and also installed and commissioned the Service's upgraded radios, mobile data system, and e-PRF units. Telephone and radio networks are controlled easily by touch screen via a Simoco DX3000 Integrated Command and Communications System. System alarm monitoring and visual/audible warnings of failures in applications or the network are linked directly to the control room.

Mobilising faster

The mobile data system installed by Arqiva in 1998 was Mobilise – an Arqiva-developed system designed to mobilise ambulance crews to the scene of an incident and provide them with related information. Using the existing radio infrastructure for messaging between vehicle and control room, it helps ambulance trusts to meet government priorities for faster information and response times. Mobilise has enabled Lancashire Ambulance to improve its performance figures significantly – slicing some 15% off the time previously required to mobilise crews with a voice dispatch message, and pushing the Service up to second position in the UK ambulance performance league.

In addition to providing better information for control staff and ambulance crews, Mobilise also contributes to quieter, calmer operations in the control room.

PRODUCTS AND SERVICES

- Integration of Automatic Vehicle Location System (AVLS)
- Formalise: design and supply of software and hardware solution
- Mobilise: design and supply of software and hardware solution
- Managed service of communications systems through 10-year PFI
- Project management through to installation and commissioning
- Design, supply and installation of Private Mobile Radio (PMR) scheme
- Design, supply and installation of control room.
- Provision of connectivity.



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Keeping track of vehicles

An Automatic Vehicle Location System (AVLS) has subsequently been added to Mobilise. It allows control room staff to track vehicles graphically on a screen so that they can mobilise the best-located resource to an incident. Arqiva worked with Lancashire Ambulance to agree and carry out a seamless migration plan that minimised disruption to the Service's vehicle fleet.

Saving paramedics' time

The Electronic Patient Report Form (e-PRF) solution Formalise was installed and rolled out for the Trust by Arqiva's project management and software support teams. Formalise is a unique e-PRF solution designed to save time for users (paramedics) and collect accurate clinical data for auditing. It was developed by Arqiva from our understanding of current and future operational requirements for the UK's ambulance services. The important benefit is that it enables Lancashire's ambulance crews to capture patient data quickly using a ruggedised hand-held unit with a unique SMART card. The unit docks in the rear of the vehicle, but can be used at a distance.

“It's refreshing that we've been able to work together to develop this e-PRF system – it enables us to gather vast amounts of data faster and more easily,” explains Alan Jude, Director of Finance and Information, Lancashire Ambulance Service. “We had previously been concerned about the resilience of commercially available systems, but Arqiva's product interfaces with the existing radio data infrastructure. As a result, we have the double advantage of knowing that it has a robust base, and gaining extra value by making wider use of our network. e-PRF will become increasingly important – initially it was seen simply as computerising a manual form, but it has tremendous potential as a full electronic patient record system. By collating information quickly in a standardised way it provides the clinical data for audits that can help us improve patient care and services.” Formalise will continue to evolve in line with the changing clinical requirements and operations of the Ambulance Service.

Ensuring continuous service

Under Service Level Agreements with Lancashire Ambulance, Arqiva is contracted to deliver a high-quality technical service – fixing problems within 4 hours, and providing virtually continuous (99.5%) availability if the mobile data system. Arqiva has the systems and skilled people in place to meet these stringent targets. For example, Lancashire Ambulance Service has its own, dedicated number to call for Arqiva's customer support centre at Emley Moor – which will assess and despatch the required support from a local, dedicated field service team. In addition, service centre engineers can often fix problems with the mobile data system in moments through remote diagnostics.

Managing the project

Arqiva's project management process brings a disciplined approach. It includes regular meetings (including review meetings to discuss SLAs); change to control procedures to minimise disruption to Lancashire Ambulance's operations; and an overall reporting system that both partners can use to highlight areas for improvement or further development.

Integrating and commissioning

Arqiva has a large field operations support team that covers the whole of the UK. This means that Arqiva can offer unparalleled levels of support at national, regional and local levels. This is backed up with extensive design expertise, built up over more than 25 years of serving the emergency services. Long before design decisions are made, Arqiva works with customers to establish their operational requirements in detail, and then proposes the best-value solution to match the needs of the individual Trust. Where the Trust has strong ties with existing suppliers, Arqiva will work closely with them in order to deliver a solution that takes account of the operational impact and migration strategy of the Trust. Arqiva aims to integrate and commission systems in line with the best practices of the industry, and where possible to provide a seamless migration path from a customer's legacy systems to new digital networks.

Building resilience for the long term

Arqiva carried out careful planning to evaluate the load on the radio bearer before adding the AVLS application – making sure that the AVL data could be handled with no detrimental effect on the mobile data system. "In addition to this, we worked closely with Arqiva to develop an on-board navigation system to meet the Department of Health's requirements for all ambulances to fit navigation aids," says Alan Jude. "We could have bought an off-the-shelf product, but instead we have a tailor-made system with built-in reliability because it runs on our robust communications infrastructure."

Running at 4800 bits per second, the Lancashire Ambulance data system is one of the fastest available on a PMR network. The bandwidth has a lot of redundancy, and so is capable of serving Lancashire Ambulance's needs as they expand in the future. Radio coverage is 100% in major towns and prime sites, and if a site fails, the system is designed to overlap so that coverage is not lost.



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In addition, all major sites are duplicated to provide a fall-back radio system, and to make a second integrated command and control system available at the main control centre in Preston. The whole complex in Preston has been converted to run on uninterrupted power supplies, and these too are duplicated in case of catastrophic failure.

“We're confident that ours is a robust system,” says Alan Jude. “With the added advantage that ongoing maintenance is part of the PFI agreement, with costs agreed at the outset.”

As the various emergency and public safety services plan their migration from analogue to a digital future, Arqiva can be a valuable technology partner – not least because the company's pioneering work in digital technology means it is fully conversant with all of the latest digital standards. But it is equally important that Arqiva fully understands both the operational issues behind changes in service requirements, and how new technologies open new opportunities for the organisation's future development.

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