

Embedded GIS bring real benefits to ambulance C3 systems

MIS Emergency Systems Ltd has developed its ALERT C³ system to take full advantage of the digital mapping and geographic information processing and analysis capabilities of Cadcorp SIS software suite.

PEOPLE ALWAYS HOPE that they will never need their services but on those occasions when they do, it's of some comfort to them to know that ambulance services in Great Britain and Ireland are recognised throughout the world for their professionalism, dedication and unsurpassed patient care. The desire to always deliver the very highest quality in every aspect of this highly efficient and cost-effective emergency service means that there is never any room for second best.

One area of activity where this can readily be seen is in the command, control and communication (C3) operations of the individual ambulance services. These operations are fundamental to the delivery of services to the public, rapidly and efficiently. And for this, the majority of ambulance services rely on computer-aided command and control systems to one extent or another.

The leading UK supplier of computer-based systems to support these command, control and communication operations is MIS Emergency Services Ltd. With over 23 years experience in this constantly evolving market, their software solutions for the paramedic and patient transport services provide a combination of reliability and stability with a degree of customisation capability not usually seen outside bespoke systems. As a result, its systems have been implemented by ambulance services throughout the UK and Ireland and today, control some 1,500 emergency ambulances.

But like the market it serves, MIS never stands still. ALERT C³ is the company's new-generation system for computer-based ambulance service command, control and communication operations. This system has been designed from the ground up to fully meet the needs of paramedic services of the

21st century. And to meet these needs it makes extensive use of the latest digital mapping/geographic information systems (GIS) software from Cadcorp.

Digital mapping has long been a key component of these systems. However, ALERT C³ uses the technology to a greater extent than any other system of its kind, providing a

host of functionality to improve response times and to provide direct support to both the control room and the operational teams in the field.

Embedded GIS.

At the centre of the new software is the interface between the command and control system and the digital mapping/GIS module, known as eGIS, which is based on Cadcorp SIS Map Modeller. Part of the Cadcorp SIS desktop, Web, mobile and developer digital mapping/GIS software suite, Map Modeller provides a comprehensive set of digital map creation, editing and modelling capabilities and also exploits 3D modelling and GIS data analysis capabilities to meet the needs of the most demanding applications.

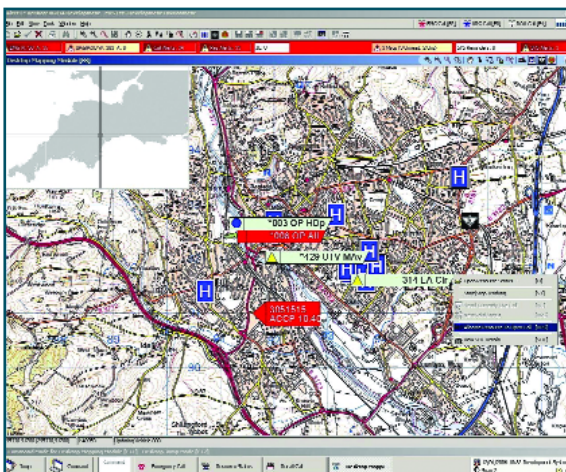
In ALERT C³ the embedded digital mapping/GIS facilities are used for a wide variety of command and control activities, including location searching, vehicle tracking, incident replay and investigation, as well as for back-office tasks such as predictive analysis and deployment profiling.

Having interactive digital mapping facilities embedded within the command and control system, rather than simply having the maps as a 'dumb' backdrop to show the location of calls and resources, as in the past, has brought many advantages to the services that use ALERT C³. One example can be found within the system's 'critical location search' facility. As soon as a search has been performed, a small eGIS window is shown as part of the address match. This shows the call-taker the street, together with the surrounding area, at a level where the call-taker can confirm that it is the correct location. If multiple locations are given as a result of the search, a simple process of 'stepping down' through the options instantly relocates the mapping window to the next location, in turn. Through an in-built gazetteer facility, this 'spatial confirmation' even works for house names and property numbers. The result is that the location of an incident is confirmed more quickly and with more certainty and resources are despatched sooner, helping the service to better meet its performance targets.

Staying on line

But assigning and dispatching a paramedic is by no means the end of the story. One particular facility where the embedded GIS facilities of ALERT C³ leads the way is in providing the call-taker with a birds-eye view of the area as the ambulance approaches an incident in response to

"... a small eGIS window is shown as part of the address match. This shows the call-taker the street, together with the surrounding area, at a level where the call-taker can confirm that it is the correct location."



“Embedded, interactive mapping that is tightly interfaced with the command and control system. . . brings other benefits.”

a ‘stay-on-the-line’ call. The system can be configured so that once the call-taker has established the location of a call, eGIS immediately focuses on and shows the incident location icon. The call-taker can then offer pre-arrival advice. At the same time as a dispatcher allocates a resource to the incident, the eGIS display zooms out to show both the incident location and the location of the approaching paramedic. As the distance between the paramedic and the incident decreases, eGIS automatically zooms into the map, until the call-taker can confidently say that the ambulance is, literally, just around the corner.

Embedded, interactive mapping that is tightly interfaced with the command and control system also brings other benefits. For example, a user can ‘click’ on a Resource icon and drill down into its Sequence of Events Log, or manually update the resource’s next radio status, or review the skills level, next rest period or shift end for the crew on the vehicle. The possibilities are almost endless.

Benefits for all.

Since its launch in 2003, ALERT C³ has been selected by and implemented at several ambulance services in the UK and Ireland, including West Country Ambulance Service, East Midlands Ambulance Service, Oxford Ambulance Service, Cumbria Ambulance Service and the South Regional

Ambulance (Ireland), while implementations are under way at the Scottish Ambulance Service, States of Jersey Ambulance Service and Kent Ambulance Service. Many others are in the pipeline.

All of these services have recognised the benefits that fully integrated GIS capabilities can bring to their command, control and communications operations in enabling the control centre to be fully aware of where individual resources are located at any one time and which will therefore be the quickest to respond to a call to a life-threatening incident. These same facilities are also helping them to ensure that the location of the incident is clearly and accurately identified in the shortest possible time.

Using Cadcorp SIS Map Modeller software as the basis of the eGIS component of ALERT C³ has also brought benefits to its developers. “Cadcorp SIS has certainly met our objectives as a company by allowing us to develop our latest command and control system to take full advantage of the availability of digital mapping/GIS and automatic vehicle location systems,” says John Melia, MD of MIS Emergency Systems. “The decision to bring GIS into our own development environment through the use of Cadcorp’s application development tools has removed the limitations and restrictions that we had previously experienced when trying to interface our command and control systems with third-party GIS products from other vendors”, he adds.