

South Yorkshire LRF pioneers interoperable emergency management

By Stephen Prendergast

The South Yorkshire Local Resilience Forum is creating a new multi-agency command centre, to be known as South Yorkshire Multi-Agency Gold. The centre will be equipped with VectorCommand's Command Support System, an advanced incident management system which will allow all the constituent organisations within the LRF to create and share a Common Operational Picture. The system will be used to facilitate enhanced levels of interoperability between LRF agencies, thereby improving the effectiveness of emergency response, regardless of incident type.

South Yorkshire Fire and Rescue Service is the latest UK fire service to choose the Command Support System. The system will be used to run its newly upgraded Command Operations Room and to equip its new mobile Command Support Unit (CSU). What is particularly noteworthy, however, is the fact that the service also has ambitious plans to make the system the centrepiece of technological support for improving and integrating the major incident activities of all of the county's Local Resilience Forum member agencies through the multi-agency emergency command centre.

Like many other fire and rescue services in the UK, (and in addition to standard fire-driven objectives), the large-scale flooding in summer 2007 and the requirement to ensure command and control systems are ready to deal with terrorist attacks, are driving South Yorkshire FRS's current modernisation programme - upgrading of command and control systems, acquisition of new mobile command vehicles, and enhancement of interoperable multi-agency command, control and communications facilities.

After careful analysis, the Command Support System was selected as the core technology for the service's command, control and communications role, with multi-agency integration as a key requirement.



The Asset Management module within the Command Support System delivers intuitive, touch screen control of a wide variety of different emergency assets, instantly communicating a real-time Common Operational Picture of their deployment to all relevant emergency services and agencies.

South Yorkshire Fire and Rescue Service's Chief Fire Officer Mark Smitherman is clear about the benefits he expects to flow from his service's adoption of the system: 'Adopting the Command Support System will substantially enhance the command and control arrangements that support our crews at operational incidents. It also supports our ongoing plans to continually develop our working arrangements with partner agencies, including the police and ambulance services and local authorities, when responding to emergencies.'

The acquisition forms part of a broader programme of work designed to substantially enhance the service's command support capability. The programme centres around projects to upgrade the technology enabling command support and incident management, set in the context of a new headquarters building (the Command Operations Room) providing improved command operations facilities. For support of the multi-agency Local Resilience Forum the Service is upgrading the Training and Development Centre as the South Yorkshire Strategic Coordination Centre (South Yorkshire Multi-Agency Gold - SYMAG).

According to Area Manager Neil Hessel, Head of Technical Services and Special Projects for the service, the South Yorkshire Multi-Agency Gold facility will be progressively developed to provide very closely integrated links with the control rooms of all emergency responder members of the Local Resilience Forum (police, ambulance etc), including the four local authorities in the county (Rotherham, Doncaster, Sheffield and Barnsley). Command Support System terminals will be located at police and ambulance command centres so that all blue light agencies can share a Common Operational Picture.

'The Command Support Unit will have a satellite link that will significantly improve communications from the incident ground to the Command Operations Room at FRS Headquarters and to the SYMAG facility at the Training and Development Centre. The

introduction of the Command Support System will provide the Service with enhanced command and control facilities for use at Silver and Gold level incidents whilst also enhancing our arrangements for working with our partner agencies through which we will be able to share a Common Operational Picture.'

Comprehensive Training

Neil Hessel says the introduction of the new system and command centres will involve both a specialist training programme, for staff dedicated to the Command Support Unit, as well as more general training for South Yorkshire FRS operational personnel. "We also have a wide remit to train key individuals from partner agencies, so that they can use the system whilst also understanding what it can provide. The training will be delivered by specific training programmes and also by exercises - both multi-agency and FRS only.

Commenting on the project, Rod Stafford, Director of Command Development for VectorCommand said: 'Modern response agencies are faced with an increasingly difficult choice: maintain tried and trusted systems for situational reporting over radio, through exchange of liaison officers, or through centralised briefings - and risk not knowing enough quickly enough - or adopt incident management technology which risks facing their decision makers with information overload. But there is a different approach - a

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way to allow commanders and managers at all levels to contribute to and interrogate a Common Operational Picture which allows everyone to focus on the job in hand, supported by live information presented in their own perspective.

'When responding to an emergency, much of the communication between tiers of command consists of descriptions of the situation. Such situation reports are both subjective and time-consuming, and yet it is accepted by all that what these reports are attempting to achieve - a shared understanding of the operational situation - is vital for the effective and efficient conduct of the response.

'When the emergency requires the capabilities of more than one type of responder agency, then once again the majority of the communication between agencies also consists of descriptions of the situation. These reports are even more subjective than those delivered internally as they presume that those compiling the reports understand the information needs of those for whom they are intended: where they don't, then vital information is omitted, and where they do understand that information irrelevant to them might have relevance to others, the report is overloaded with detail.

'In the example of an incident where there are three responding agencies, each with three tiers of command, the middle tier has to communicate to four other command nodes (up, down and to two other agencies) in order to maintain a shared understanding of the situation - a level of reporting/communicating which rapidly escalates where greater numbers of agencies are involved. Imagine the situation in a complex urban environment where there might be tens of agencies involved in the response: building an understanding of the operational situation simply through situation reporting becomes challenging - maintaining it by this means is nigh on impossible.

Command Confusion

'Even when the physical distance between command nodes is limited, the problem remains; there are countless examples of disaster response where each agency establishes command posts near the scene, in close proximity to each other, and yet they fail to share an understanding of the operational situation. Or where purpose-built multi-agency command centres house not only a meeting place for a strategic coordinating group, but also cells for individual agencies to base liaison staff and maintain links back to their own command facilities. And yet a casual observer walking around the cells would see each with their own whiteboards, their own maps, their own situation boards, and all the time the staff are fighting a losing battle to



The Command Support System (CSS) will run South Yorkshire FRS's Command Operations Room and its mobile Command Support Unit (CSU) above. It will also help to coordinate all emergency response activities through a new multi-agency LRF command centre, and linked terminals will also be based at police and ambulance command centres.

keep their walls current with the information being passed around from their fellow responders.

'These examples articulate the core problem: that we don't want to know what someone thinks is going on, we want to know what is actually going on - and then we will interpret its meaning in the context of our own organisation and role.

'This is where procedure and technology come in: technology which enables the building and sharing of a Common Operational Picture, and procedures that ensure that the right people contribute the right information at the right time, and in turn are able to access the right information in the right context.

'The next obvious question centres around what exactly a Common Operational Picture should consist of. The military will tend to focus on spatial information - i.e. anything that can be depicted on a map. In the civil protection context, however, there is much information which adds substantially to the understanding of a situation: information about your own resources (not just where they are, but what they're doing, for whom, and when they're likely to be free for the next task); about the physical environment (building plans, contents of storage facilities etc); and about known risks (type of hazard, response plans). Add to that live imagery from existing sources (CCTV, command vehicle cameras, Heli-tele etc) and we have a complex framework for understanding what we mean by 'what's going on'.

'The overall effect of this technology (supporting an appropriate doctrine and implemented using

the right procedures) in the context of Emergency Management would be the ability to coordinate multiple teams from multiple agencies into a single capability. Put simply, every commander at every level, and their direct support staff, should be able to contribute to the Common Operational Picture while simultaneously being able to interrogate the system for information available only because of the cumulative contributions of others.

'Yet we need to avoid a technically trivial 'website' solution to this problem; if all data is stored in one bucket, losing your communications would leave you with nothing - and is there ever a post-incident report which does not cite poor communications as an issue? What is needed is a system which allows all users to have the incident data local to them, with changes that are made being trickled across the network of users in the background, as and when they occur. In this way you would still be able to interrogate everything that you had access to, up to the moment you lose contact - and as soon as the system finds a communication path again you'll get an instant refresh of anything you've missed in the meantime.

'So what is required is a new approach; an approach that avoids commanders having to spend all of their time reading and compiling reports, and yet which doesn't overload them with irrelevant information: letting them get on with the job in hand and basing their decisions and actions on a Common Operational Picture - live. The Command Support System enables them to do this.'

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