



➤ The Criminal Records Office makes the front pages – *BAPCO Journal* sets the record straight.



➤ Market calls for standardisation as IP wireless CCTV proliferates.

Information management for civil contingency responders

BAPCO

Journal

Volume 15 Issue No 2 • March 2009 • £3.50

Critical infrastructure protection

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Capturing multimedia comms

US takes the lead with NG 9-1-1



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THE QUEEN'S AWARDS
FOR ENTERPRISE:
INNOVATION
2008





Cover image: the LINX from Microbus – the world's first demountable PC that integrates multi-bearer connectivity and the option of a TETRA modem for secure communications.



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➔ Beating the crunch with Northumbria Police and Scottish Ambulance

AssetCo has announced it has been awarded the contract for vehicle conversions by the Northumbria Police Force. The company already provide a range of support services for the Fire and Ambulance Services and will now provide complex integration services on a mixture of operational, traffic and covert vehicles. The integration plan includes state of the art DVR-camera systems assisting

Northumbria Police with evidence gathering.

The company has worked closely with partner BMW Authorities to develop a no-holes installation system for vehicles used in delivering emergency services. This approach reduces trauma to vehicles as a result of the installation process, promotes greater residual values and improves conversion timescales.

A number of the vehicles being provided are ballistically protected too.

AssetCo has also announced that UV Modular, a subsidiary, has been awarded a further contract to supply ambulances to the Scottish Ambulance Service NHS Trust. The company will provide frontline ambulances over a two-year period in a contract worth approximately £8m, with the potential to

extend the contract by a further two years. Peter Mounsey, Managing Director of UV Modular said: "This contract win demonstrates that within today's tough economic conditions, there is a market need for specialist technology and integrated vehicle design and build solutions. Today's public authority clients place great faith in their asset providers to deliver safe and workable solutions."

➔ Cadcorp latest version is mash-up friendly

Digital mapping and geographic information systems software developer Cadcorp has announced the availability of the latest version of the Cadcorp SIS (spatial information system) family of desktop, web, mobile and developer software products, Cadcorp SIS 7.0.

Among the new or enhanced features to be introduced in Cadcorp SIS 7.0 are the integration

of Microsoft Virtual Earth connectivity, the facility to create "mash-ups" with both Google Maps and Virtual Earth, new data management facilities, including support for Microsoft SQL Server 2008 Spatial, new data loading and exporting plug-ins and several enhancements to the software's rendering, raster projection, text display, and PDF export facilities.

➔ President's address

If being a member of BAPCO means anything either in the delivery of blue light emergency services or as a supplier of technical solutions, it is about knowing that you are saving lives, protecting communities and making our world a safer place. I am writing this column at the APCO Australasia Annual Conference in Sydney.

As always, the arrangements are excellent, the exhibition hall well booked and the speakers of the highest quality. It is clear that the Australasia Chief Executive Des Bahr has put a huge amount of effort into the event, supported by a highly talented team. But there are not so many rank and file emergency service attendees. Duty calls and many resources have been deployed from across Australia to assist colleagues in Victoria as they fight to prevent bush fires and the potential loss of life. It is not until you have been here, that you begin to realise the impact that these recent bush fires have had throughout the country and the huge esteem in which fire, ambulance and police officers are

held as they have courageously worked in an effort to hold back the flames and protect lives. These are fires that are difficult to comprehend, the heat is so intense that aluminium wheels melt, gum trees explode, hose pipes melt and voices call out for help on mobile phones to emergency command centre controllers who know that it is already too late to provide it.

Despite all the risks and the knowledge that many have relations who are trapped in communities surrounded in flames, brave fire fighters and other emergency service colleagues have continued to battle a inferno that moves at 30mph, and causes spontaneous combustion of anything in its path. On TV I watched tired faces, blackened foreheads, singed eyebrows and tear stained cheeks, and I could not help but to feel extremely moved by the professionalism and focus on all those involved. Each member of the emergency services were prepared to continue the battle and to commit whatever it took, irrespective of their personal loss,

duty always came first. This is the last time that I will have the privilege of writing the President's Address and it seems fitting that as I conclude, I just spend a moment saluting all of those colleagues who continue on a daily basis to evidence why they have joined the emergency services. There is no doubt that they are unique. They are supported by commercial colleagues who attempt to give them the best equipment so that they can fulfil their obligations.

It is with great pride that I salute them all.



*Ian Readhead,
President.*

➔ News in brief

Bucking the trend in the current market downturn, Excelebrate Technology, the leading supplier of satellite and wireless-based data, voice and video solutions, has announced significant business growth for 2008. During this period, the company has achieved an increase in turnover in excess of 70 per cent and more than doubled staff levels.

Tayside Police has become the first force in Scotland to use an 0300 telephone number for its non-emergency line: 0300 111 2222. The new number replaces its previous 0845 number and is for people wishing to contact the force to seek advice or to pass on non-urgent information. 0300 111 2222 is more memorable than its predecessor and is expected to reduce the amount of inappropriate 999 calls that the force receives.

SunGard Public Sector has successfully achieved ISO 14001:2004 certification. ISO 14001 is an environmental management standard created to help organisations protect the environment, prevent pollution and improve their environmental performance. The robust environmental management system has provided the company with a disciplined approach to achieve important environmental goals and targets, said SunGard.

➔ New SOS service to rely on Autopage messages

A new Community First Responders Service, set up in Norwich to provide medical assistance for those who need it on a night out, is using a text messaging system from Autopage to help ensure its call-out teams can respond quickly to calls for help.

The new Community First Responders Service has been set up in conjunction with an "SOS Bus" that acts as an emergency first aid point and safe meeting place for anyone in trouble, particularly those enjoying the city's nightlife. They work in pairs and if a 999 call comes in for emergencies close to their base



between 8pm and 3am, the volunteers on shift will receive a text message from the ambulance service.

Autopage has worked with the East of England Ambulance Service for ten years and its text

messaging software provides an integrated fast and effective critical messaging system, relaying messages to individuals or groups of staff and saving time and money over more traditional methods of communication.



➔ Breath-taking

A new system from Traka, a supplier of intelligent key management systems, has been developed to test the alcohol levels of a user's breath before allowing them access to keys. The Home Office-approved GB Alcolock 500 ensures drivers or operatives of any piece of potentially hazardous equipment must pass a breath test before keys can be withdrawn.

The system is designed to be a very simple, cost-effective way of ensuring staff are safe to drive or use equipment and enables an organisation to fulfill its duty of care both to employees and the public.

➔ Strike action

Airwave CEO Richard Bobett's response to the notification from the Communication Workers Union (CWU) of their intention to undertake strike action reads, "I want to reassure all our customers, and the general public, that the Airwave service will be unaffected by this strike action... We have robust business continuity arrangements in place for all eventualities from flu pandemics to national emergencies. I am deeply disappointed that the CWU feel such action is necessary and I look forward to continued talks with the CWU in the not too distant future. Of the originally proposed 95 redundancies, to date we have accepted 59 voluntary applicants. Together with our commitment to redeployment through the flexible resource pool, this means that we can significantly reduce the need for compulsory redundancy."

➔ Nuclear police upgrade

The specialised armed police service responsible for protecting civil nuclear sites has chosen Pennine Telecom to upgrade communications in its command and control rooms at the Sellafield site in Cumbria.

The Civil Nuclear Constabulary's governing body, the Civil Nuclear Police Authority, has awarded Pennine the contract to supply, install and maintain an integrated communication system which will meet the demanding technological and safety critical needs of the service. The new system incorporates two control rooms, 11 operator positions with Touchscreens, which integrate Airwave, telephony,

ambient room microphones and evidential voice recording. A radio or telephone call can be made or received by simply touching the screen and calls can be transferred from telephone to radio users.

Pennine was awarded the contract due to its technical specification and best value and the project will start in December and the system is expected to be up and running by next May. Within the scope of the contract the CNC have the option to rollout the new system to all seven of the UK sites where they have a major presence. "It is very rewarding to win this CNC tender against competition from other larger companies," said Andrew Roberts, Managing Director at Pennine Telecom.

➔ UNIFI England

Gloucestershire Constabulary is first English to go live with SunGard's UNIFI enhanced records management system.

The system has now gone live, with the cutover from the force's existing SunGard system reported to have happened without incident.

Gloucestershire is using the UNIFI system not only for Crime Recording and Intelligence, but also Custody, Case Preparation (including Road Traffic Collisions), Tape Management, Wanted/Warrants Process, Enquiry and HORT/VDRS, to form a fully integrated back-office system. Gloucestershire will soon go-live with the Magistrates Court's Libra interface and has started testing the CPS CMS interface.

➔ Surrey prepares for FiReControl

Surrey Fire & Rescue Service (SFRS) has introduced a new state-of-the-art command and control system for mobilising its crews and appliances, using the NLPG (National Land and Property Gazetteer) as the primary source of property and building information. Installed during December 2008, the system ensures the despatch of the nearest, quickest and most appropriate vehicle. It is expected to dramatically speed up response times, potentially saving lives and ensuring the safety of its personnel.

The software, designed specifically for the mobilisation task, includes a 'live map' interface, enabling command and



control centre staff to see vehicle locations in real time. Once an incident has been reported, the system automatically chooses the nearest, best-equipped and appropriate appliance based on the fire type.

This project is in preparation for the switchover to the FiReControl project, which will also use the NLPG as its primary source of property and building information.

➔ Registration opens for BAPCO 2009

Registration for the BAPCO 2009 Conference and Exhibition 21-23 April, Business Design Centre, Islington, London) is now officially open for delegates and visitors – visit www.bapco.co.uk for more information.



A dual stream conference format – new for 2009 – offers delegates a wider choice of sessions to attend under four key themes: Resilient Communications, Communications & Command Centres, Next Generation Networks and Operational Data. Delegates will receive a certificate after the event confirming their attendance at this key educational event.

The exhibition will include over 100 exhibitors showcasing the latest in information management technologies and communication systems. Sponsors for the event include Fortek, Excelebrate, Qliktech, Frequentis, BlackBerry, O2 and Sophtlogic.

Exclusive for BAPCO exhibition visitors: a glimpse of two-way pagers

PageOne has revealed that it will be giving attendees to BAPCO's annual conference and exhibition a sneak preview into an exciting new development in paging currently taking place within the company – the news that two-way paging will be available to customers in the UK for the first time.

This unique new service to the UK mobile messaging market will offer paging customers an enhanced user experience. As

well as providing the two-way response element that paging has never had, administrators will also be able to detect a pager's location within different zones, an extremely useful security feature for lone workers out in the field.

In addition to being able to discuss this new development with PageOne messaging consultants on the stand and register interest, attendees will also be able to see the flare suite of Business Continuity products including a new additional service to the suite which involves location based mapping, and "pulse". "pulse" is a priority paging channel specifically dedicated to blue-light organisations. This new paging channel launched to the sector only last year, offers automatic and sophisticated priority routing and dynamic bandwidth controls to ensure emergency messaging traffic is maintained without disruption, during periods of exceptional load and crisis. It is freely available to PageOne's paging customers who operate blue-light emergency applications.

Clair Cawley, Marketing Director at PageOne, said, "Our commitment to innovation means that our customers are always at the heart of everything that we do.

We are constantly striving to enhance our services, and BAPCO presents us with a great platform to showcase our public sector products and to present any new developments."

During BAPCO Conference & Exhibition, Samdale will be officially launching a national service for users of Airwave, the UK's Public Safety Radio System.

The service is based on the Pegasus system, which allows enterprise scalability to a national level with a network of fixed, portable and roaming Pegasus probes. They will be operated by multiple user organisations, all reporting coverage and performance information to a national database for analysis. Andy Fleet, Samdale's CEO commented, "With all the UK's first responders and many other public safety organisations sharing a common resource it makes sense to also share information on its performance."

The Pegasus probes automatically gather coverage and performance data, encrypting and transmitting it live to the Pegasus Server SQL Database where it is processed and analysed in "real-time".

When fitted to operational vehicles that are roaming an area on a daily basis, geographical coverage and performance data is automatically captured at no cost.

And because the probes are fitted to operational vehicles the performance measurements become virtually "carbon-neutral" thus reducing the impact on the environment.

With a large number of user organisations each running a small number of Pegasus Probes, a comprehensive national picture of the Airwave Service is available in "real-time" on a 24/7 "round-the-clock" basis.

128-bit Encryption and secure access to the Pegasus SQL Database provides multi-level, multi-user access to captured data.

The service includes Pegasus Management Console applications for viewing and controlling active probes and browser based secure access to pre-configured SQL reports.

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Going underground

In early January it was reported in the media that the London Underground now had the capability for radio communications on the entire network, at any location, through the Airwave network. Three prime movers speak to BAPCO Journal about the project.

The system works by using a “leaky feeder” cable that emits a radio signal along the tunnels, allowing communication across the Airwave network.



After the terrorist attacks of 7/7 the need for a complete and comprehensive radio system was made all the more necessary, although the system had been considered and worked towards since 2000. The new system allows all users of Airwave to communicate no matter where they are on the underground network, making their jobs safer, more efficient, and improving the security of the public for both large scale and minor incidents.

The implementation of this system was so successful that Airwave was awarded a Chief Constable’s Commendation in recognition of their work.

The BAPCO Journal spoke to all the leading parties involved in this project, including Airwave, the NPIA and the British Transport Police, the primary new users of this system, to gain a full understanding of the work involved that led to this commendation and what the implementation of the system means for the future of policing on the London Underground.

Josh Berle, Client Advisor, Airwave

“The work to install a system on the London

Underground that would enable officers to communicate has been in development since almost 2000. However, the logistical challenges meant it took a lot of time and planning to ensure everything could be put in place for the current setup. We worked alongside the Police IT Organisation (PITO – now disbanded), and subsequently the NPIA, British Transport Police and London Underground Ltd to ensure the project ran smoothly, didn’t interfere with the running of the underground and would be fit for purpose once completed.

There are many contractors who work on the underground during the few hours of the day, around 1am to 5am, where work can be undertaken on the lines. Therefore there was a lot of work that had to be done to even arrange for work to be carried out. Additionally the LU had its own radio communication system called Connect that it had to install and manage and we couldn’t interfere with that work.

“Our system works by using a leaky feeder cable that emits a radio signal along the tunnels allowing

communication across the Airwave network from any position on the underground network. In order to ensure the system won't go down should an area of the tunnel be affected during a major incident – such as the explosions on 7/7 – we have eight vehicles that can attend a scene and lower in a new feeder so that a signal can still be found.

“Installing Airwave on the underground, ahead of schedule, will bring huge benefits for police officers and the public they serve in London, for both large-scale events like concerts and football matches, and in the future at the 2012 Olympics.”

Blair Southerden – National Police Improvement Agency

“The National Policing Improvement Agency (NPIA) had been discussing the end user requirements with the London emergency services and in late 2005 London Underground reached a point in their project (CONNECT – installing a Tetra train radio system) that they could sensibly consider working with NPIA to get a service installed for the emergency services. Radio engineers from all parties had agreed that it was technically feasible for Airwave to ‘piggy-back’ on the CONNECT infrastructure, in particular the radiating ‘leaky feeder’ that had been installed in all stations and throughout the 180km of tunnels. This offered a major saving in both

time and money to the Airwave project, in cash terms it saved an estimated £400 million.

“The introduction of the Airwave network to the Underground has brought about a major change to policing enabling Metropolitan and City officers easier access and a safer environment as they remain in contact with their control rooms. Airwave has been live in 75 stations since March 2008 and the last (of 125 stations) went live on 1 October 2008, five months ahead of schedule. The advantages are clear to see; the Metropolitan and City of London forces whose officers generally had no radio system that worked on the underground are now the biggest user and have benefitted at events such as Notting Hill carnival, New Year's Eve and at operations policing football events as well as day-to-day roles when they respond to calls to support BTP. This also means BTP officers no longer have to carry a second radio system for use on the Underground.

“Ambulance staff also have access to Airwave and, for the first time, have a radio system that works below ground and keeps them in contact with colleagues and control rooms on the surface. Time savings have been recorded and ambulance crews have reported that effective communication has saved time in getting specialist equipment to accident scenes, with consequent savings in time in getting patients removed to hospital.”



Airwave has been live in 75 stations since March 2008, and the last 125 went live on October the 1st, five months ahead of schedule.

Why networks enhance options for field teams, by Iain Clarke, Sales Director, Government & Public Safety, Motorola.

As networks mature, organisations are increasingly taking advantage of the data capabilities of the technology with TETRA rapidly evolving to an integrated voice and data communications network.

This transition can be traced to three factors: greater interest in data services generated by the success of existing technology, the potential of new devices and the availability of faster data services.

An increasing number of terminals are being shipped with GPS and WAP capabilities. Technologies like GPS have been widely deployed to track field personnel and enhance the operation of dispatch teams while ensuring that officers can be quickly located and supported if they encounter an incident. The benefits of GPS in particular, have ensured that, very quickly, it has become a mission critical service.

Developments at the device level will extend the range of mobile services available to field users. The products will still be exceptionally robust to provide resilient operation, but they will also include faster processors, larger coloured screens and new ways to interact with services.

The availability of faster data rates across networks will provide the foundation for more advanced applications to be accessed by field teams. Two technical advances are important here: Firstly, TETRA Enhanced Data Services (TEDS), an infrastructure enhancement to TETRA networks, will increase data speeds. The first TEDS networks will become operational in 2010 and we are developing new video compression technology that will enable video to be sent across TEDS networks to compatible devices. Applications include providing dispatch teams with access to CCTV images that can be grabbed and sent to incident commanders on the ground. Secondly, complementary wireless networks based on technologies including mesh and WiMAX can be used to provide faster data rates.

Mesh networks in particular can be built quickly to flood an area with broadband coverage. This can be used to throw video surveillance over vulnerable areas and locations and provide monitoring to aid dispatch officers in controlling specific events including sports fixtures, concerts and major conferences. The systems are

backed by powerful software to deliver real-time situational analysis for faster problem recognition and enhanced resolution of safety and security issues.

Delivering video to Abu Dhabi Police

Motorola is delivering real-time video capabilities to Abu Dhabi's police using its wireless broadband technologies. The system will enable control room operators to interact with the video collated via real-time streaming from police vehicles and personnel and will provide local recording of high-resolution video.

The videos can also be presented as evidence in a court of law. Videos sent from vehicles and personnel will be made available to the five command and control centres throughout the Abu Dhabi area. To aid the police further, mobile command and control will also be provided. The service, which also shows all the force vehicles on a map, will enable control room operators and management to have real-time knowledge of what is happening in the field and allow them to respond quickly.

Police focus – London Underground

"Negating the need to carry two radios makes communication more efficient and means officers can carry fewer items. The system also brings far greater communication quality and is securely encrypted too, providing officers with a vastly improved system."

Superintendent Phil Short, British Transport Police.



Superintendent Phil Short from the British Transport Police (BTP)

"The implementation of Airwave is already having major benefits. Negating the need to carry two radios makes communication more efficient and means officers can carry fewer items. The system also brings far greater communication quality and is securely encrypted too, providing officers with a vastly improved system.

"We worked alongside Airwave and NPIA, and with other London forces including the Met and City of London Police to ensure the system would have the necessary functionality and had the resources to work as necessary. This involved a process of joint testing on stations across the underground where Airwave was being to ensure there were no "black spots" that could hamper communications.

"The real policing benefits this new system provides are fantastic – for example, policing the movements of football fans across the network is now far safer and effective for our officers as they are able to communicate instantly with their colleagues about any incidents that occur, where previously they had to wait to pass into an area where the radios would work. Not only this the system is open to all emergency services too so communication between all the emergency services is now far simpler and seamless, both above and below ground, on a single operating platform."

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Guardian in Derbyshire

In order to enhance its police processes Derbyshire Constabulary has extended its work with Northgate Public Services to incorporate its Guardian system.

The new system from Northgate complies with all Management of Police Information (MOPI) guidelines and provides a system for handling the recording and management of reports and referrals on such matters as hate crimes, child and domestic abuse and issues relating to vulnerable adults.

Commenting on the move Derbyshire Constabulary Assistant Chief Constable Peter Goodman said, "We are wholly committed to providing a high-quality policing service to everyone in Derbyshire. Our investment in public protection systems and people is critical to this. Our incremental partnership with Northgate is helping us in our battle to fight crime and is built upon a joint commitment to promote transformation in our operations and business processes, and to build police services which put the needs of communities at their heart."

The new system provides benefits such as enhanced communications with Neighbourhood Policing Teams to



Ian Blackhurst, Managing Director of Public Safety, Northgate Public Services, said that information was at the heart of effective, proactive and preventative policing, and that people were key to delivering it.

enable them to be more aware of what is happening in their areas and help them evaluate current situations and required actions. It also offers greater security for front-line officers with the ability to warn them about dangerous people in their area and situations where sensitivity is paramount. To back this up the force has recruited an additional 50 officers and staff to manage its public protection campaign and to address the needs of high-risk public protection areas.



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The Crime Wizard of Oz, Notts, and many others

A central challenge for the modern police force is correct management of policing data both in new and traditional formats. Dan Worth finds out about the benefits of the Crime Wizard, initially taken up by Western Australia Police.



Crime Wizard ensures correct data recording protocols.



"We actually sold it to Western Australia Police first and then started selling in the UK – an unusual approach but one that's been taken up positively."

Alastair Luff, Managing Director, ABM.

The rise of technology in the policing sector has had untold benefits but as with everything these benefits bring their own challenges. One of the central challenges is the management of policing data, in both traditional formats and, importantly, in the many new forms that now exist. Ensuring that data is safe, secure and permissible for use in court is key to this management and as such the police need software platforms to store data, making it easy to identify, reference and update. Criminal intelligence IT specialist ABM provides software that does just this with its Information Management System (IMS), currently being used by a number of police forces across the UK.

The integrated solution comprises Incident, Crime, Intelligence and Property Management, including the collection, collation, management and analysis of information relating to these core operational aspects of policing.

Alastair Luff, Managing Director of ABM explains more: "We first developed the IMS system in 2000 and brought it to the market in 2002. We actually sold it to Western Australia Police first and then started selling in the UK – an unusual approach but one that's been taken up positively. Police services including Nottinghamshire, Warwickshire, Hertfordshire, Sussex, Durham, and the Scottish Police Service use IMS for their core data management."

The sheer volume of information now gathered by

police services means a central database where data can be stored, accessed and updated, is vital. IMS stores all the relevant information relating to people, objects, locations and events only once, allowing general incidents, intelligence, crime and property information to be linked together, enabling clearer and more efficient investigations to take place. The IMS platform enables officers to store and cross-reference all the information, making it a lot easier for the data to be accessed.

Having used IMS for six years, Nottinghamshire Police is awaiting the implementation of two new IMS functionalities – Crime Wizard and Mobile Data – to further increase efficiency and reduce bureaucracy. Simplifying and integrating crime recording activities will enable officers to spend far more time investigating and solving crimes, rather than re-keying or writing basic information.

Pauline Smith MBE, Head of Contact Centre Operations at Nottinghamshire Police, explains: "The integration of the command and control system and IMS Crime Wizard means that we can provide officers with far more crime information which has been taken at first point of contact by the call taker straight from the caller. This reduces the amount of re-keying of information – which actually saves time and reduces the risk of an error being entered – but also enables an officer sent to investigate a case, to access information on a crime, rather than having to ask the same questions again on arrival. Thanks to IMS, officers will soon be able to use mobile data to view the crime and incident information on the move and arrive at the scene with a better understanding of the incident and spend more time trying to solve it."

Reducing the re-keying of information is a major benefit of systems like IMS. The more forms that have to be filled in, the more chances there are of mistakes to creep in, which can lead to confusion and possibly even hamper the investigation. Simplifying data entry and ensuring correct recording procedures helps to reduce risk. Crime Wizard does this by creating a series of "work flows" that guide users logically, depending on the data entered, to ensure the right information is entered in the correct field.

Alastair Luff adds that IMS Crime Wizard can deliver time savings of between 30 and 60 per cent compared to previous systems – which is clearly a massive benefit for both the police and the public, as more time can be spent dealing with the public.



ntl:Telewest Business' vision for relieving the 999 system

Emergency calls to the police have been an essential part of the public's interface with law enforcement since the arrival of the domestic telephone. Today, public helplines and non-emergency numbers are increasingly important to ensure that irrelevant calls do not place unnecessary pressure on the 999 emergency system and prevent genuine calls from being answered.

However, in 2007 only 20 per cent of the 2.5 million calls to the Metropolitan Police through 999 required an emergency response and in October 2008 alone, the East of England Ambulance Service attended almost 6.5 million calls where the patient did not have to be taken to hospital.

Recently, the importance of establishing a non-emergency number for healthcare and educating the public about its availability was also a key item on the emergency services news agenda. A report by the Healthcare Commission, an independent NHS watchdog, revealed that many patients were confused about what type of incidents merited a call to 999, their GP, an out-of-hours service or NHS Direct.

In a bid to combat this confusion, the Healthcare Commission has advised the Government to roll out a single medical care number that can direct people to the most appropriate service. Research recently commissioned by ntl:Telewest Business and undertaken by YouGov further backed this up by showing that more than two thirds (67 per cent) of Britons felt a single medical care number would be useful.

Meanwhile Avon and Somerset Police has listed some of the trivial calls it has received on its website to try to encourage people to think before they dial 999, including a woman who wished to know what year the internet started and a man complaining about a bus shortage in his area.

One reason for irrelevant calls being made to 999, according to the research from ntl:Telewest Business, is that more than half of adults (57 per cent) had no idea how to contact the police in a non-emergency situation. When questioned, they either didn't know their local police force helpline number, or that such a number existed.

Mixed views on what constitutes an emergency are potentially dangerous and undoubtedly waste valuable



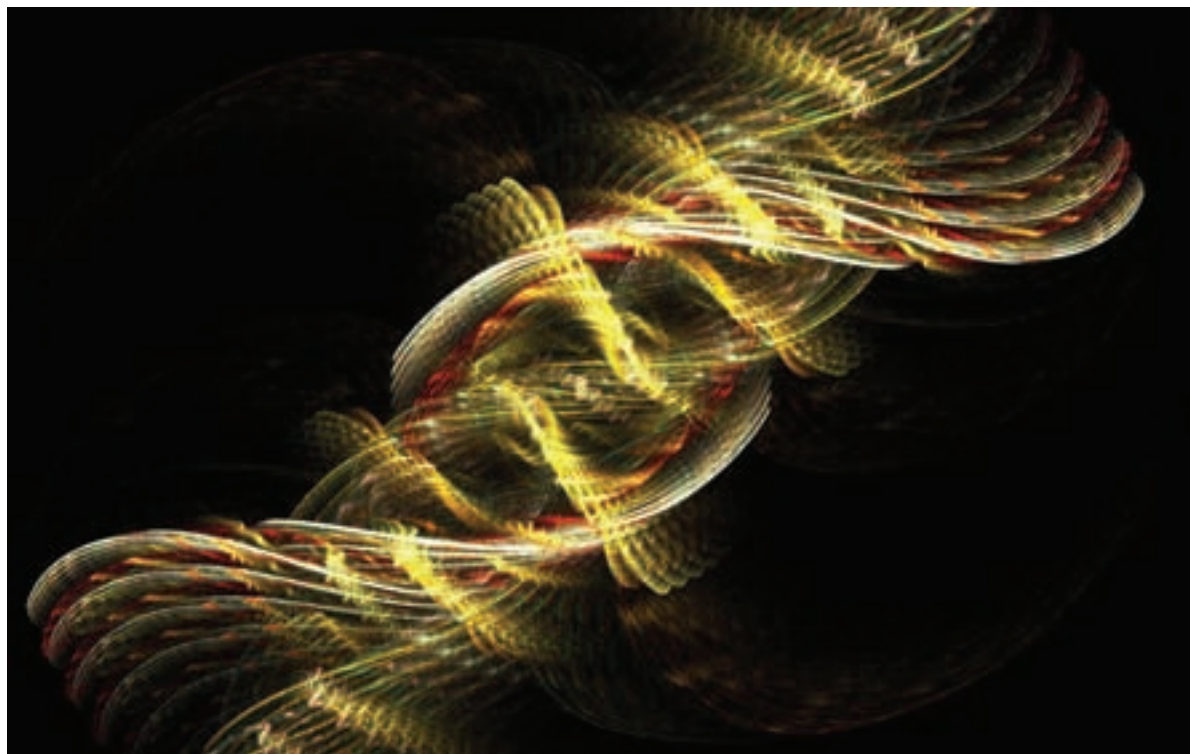
emergency services resources. Approximately 30 million calls are received by the UK emergency services each year and confused callers are lengthening the time it takes to respond to serious incidents.

Many police forces are now rolling out dedicated non-geographic numbers that are simpler for citizens to remember and more cost effective to run. However, educating the public on what number to call is only part of the cure. The public sector needs more powerful, flexible telecoms systems in place so that calls to these centralised numbers can be handled more effectively.

ntl:Telewest Business has enormous expertise in delivering telecoms services matched to the specific needs of the public sector across the UK. The company understands what the public is expecting from emergency and non-emergency numbers, how best to offer them and how to support the services over a next generation network. ntl:Telewest Business provides non-emergency helpline numbers for customers such as West Yorkshire Police, Islington Borough Council and Birmingham City Council.

It is imperative that the public sector teams up with a customer centric provider, like ntl:Telewest Business, to offer the most effective solution to this pressing issue. Only by using a combination of a strong education programme for the public and a flexible service provider with a can-do attitude will the public sector see much needed relief on the 999 emergency system.

The devil in the detail



Two days after the dubious pleasure of making the Mail on Sunday's front page, no less, ACPO's Criminal Records Office (ACRO) near Southampton received a visit from BAPCO Journal. Ian Readhead, ACRO's Director of Information and current BAPCO President, was happy to set the record straight while providing a snapshot of ACRO's complex work.

"The benefits are that they will know who is coming in and what type of convictions they have had. This would be good in particular for countries like Thailand, which have a huge sex industry."

➔ Anne Fursey, Deputy Manager, Police Certificates division.

At the heart of ACRO's existence is the importance of data sharing, and ex Deputy Chief Constable Ian Readhead at the very beginning of the visit set the theme by citing the Soham murders as a prime example of a situation where things could have turned out very differently had the correct checks and balances been in place. "People's memories get blurred with time but the fact is Ian Huntley did not work for the Cambridge school that Holly Wells and Jessica Chapman attended, but he worked at a local technical college. Nevertheless, Huntley would not have been employed there had the technical college been made aware of his past.

"We are trying to establish an environment where we have more comprehensive recording of criminal data, and to ensure it is available to other police forces and embassies, to make communities safer."

Nobody can deny that data retention and data protection is a current issue. Not a week goes by when the subject isn't making headlines. In the last two weeks it was the Guardian reporting on how the police targets thousands of political campaigners in surveillance operations, storing their details on a database for at least seven years.

The Mail on Sunday's headlines however mainly revolved around the fact that ACRO is selling information from the Police National Computer for up to £70 – even though

ACRO pays only 60 pence to access each record.

The Mail was referring to the police certificates that ACRO started issuing in July last year to people applying for visas to live in the US, Australia, New Zealand, and Canada.

In the case of those with criminal convictions wishing to visit the US, certificates are also required.

Previously, people could obtain their full criminal history for visa applications by making a "subject access" (SA) request, which had a charge of £10.

However, such a request contains a full criminal history – including reprimands, cautions etc. "For the purposes of employment and holiday visas to the US, all that detail is not necessary and it probably contravenes the Rehabilitation of Offenders Act 1974, which enables some criminal convictions to become 'spent' after a certain period of time," clarified Readhead. "Our approach has been to apply the Police Retention Guidelines Model, which 'step down' old, minor criminal convictions."

After the 'spent' period – with certain exceptions – an ex-offender is not normally obliged to mention their convictions when applying for a job or obtaining insurance, or when involved in criminal or civil proceedings. "So the Information Commissioner was very supportive of not using an SA for visas."

It was this argument that resulted in ACPO convincing the



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Ian Readhead, Director of Information at ACRO, and Gary Linton (right), Head of ACRO and UKCA-ECR.

Home Office to support a six-month trial last year with ACRO issuing police certificates. This trial is now permanent.

So what does the process of putting together a police certificate entail? Once an application has been received, ACRO interrogates the Police National Computer – a process which does indeed cost 60 pence per record – as well as other database sources (eg microfiche). Once the information is gathered together, it is then edited (step-down convictions are taken off), written out clearly and in full (minus incomprehensible acronyms), and printed off with an individual's photograph.

Where the SA used to cost the public £10 for a 40-day service, the certificate costs £35 for ten days – or £70 for a premium three-day service. Copies are also available so a frequent visitor to the US can request copies at £5 per copy.

The system is proving to be a success. Last year around 63,000 certificates were issued in 12 months of operations. This year it may even double that number, as applications in January 2009 were 8,500.

Anne Fursey, Deputy Manager of the 35-strong certificates team, was kind enough to show the *Journal* round the work area. Fursey suggested that one of the reasons for the increase could be the opening up of certain countries to immigration, such as Canada. "And we do receive a lot of applications from India and China, from people who lived here for a few months – perhaps as students – and now wish to emigrate to another country."

The pilot system is proving so popular with embassies from the US, New Zealand, Canada, and Australia, that ACPO would like to expand the process to South Africa, China, India, and Pakistan, to the point where eventually there could be only one process for all immigration visas. Indeed, other countries have expressed an interest in joining the scheme. "The benefits are that they will know who is coming in and what type of convictions they have had. This would be good in particular for countries like Thailand, which have a huge sex industry," said Fursey.

The ACPO Criminal Records Office also operates the UK Central Authority for the exchange of criminal records (UKCA-ECR) with other EU Member States. The excess from the Police Certificates division helps support the work of the UKCA-ECR, explains Readhead. "If interest grows as is expected, staffing levels will have to expand. Currently staff are employed via the UK Central Authority for the

Exchange of Criminal Records (UKCA-ECR), with profits from the police certification project being then fed back into that organisation. Members of the public who use the service may be paying more than they did previously, but that revenue generation is ultimately saving on the public purse," explained Readhead.

Exchanging criminal records

The UKCA-ECR is an organisation that primarily focuses on the notification to EU Member States of convictions imposed in the UK on a national from that EU Member State, and vice versa on the receipt of notifications of convictions of UK nationals in other States.

In the future the EU-wide collaboration could expand into some kind of super network of different countries' access to national criminal registers, all accessible by mobile data. "In the fullness of time what we want is – if I'm checking a PDA in Southampton – the PNC will check the network right across Europe and it will pull a record out. That sounds far fetched but give it ten years and that's what will be happening," said Readhead.

No small challenge is the fact in different countries there are different organisations responsible for the relevant data. In some countries it is the courts rather than the police that hold foreign national conviction information. There is also great disparity in how that data is organised.

Detective Superintendent Gary Linton, Head of ACRO and UKCA-ECR, believes that there is a Europe-wide acknowledgment that properly managed, the ability to move information across borders is key for the safety of European communities and their ability to tackle crime.

One of the factors necessary to achieve that, points out Linton, is good governance and transparency of what information is kept, and for how long.

Today, ACRO is engaged in the sharing of criminal convictions information on behalf of England, Scotland, Wales and Northern Ireland, and in Linton's words it is fully engaged with over half of the EU Member States and beyond. "That has led to the managing of exchange of criminal records outside Europe via agencies like Interpol. This has led us to identification issues and the way to do that is via fingerprinting. Next year we will have our own in-house fingerprinting facilities, primarily to support the international exchange of criminal records. A lot of Europeans have identity cards, but we don't, which means that fingerprints are key." Linton added that without the income from the police certification project it would have been impossible to even contemplate such a purchase.

"We also take into account that we need some money up front too to get more people and desks – we are not a profits-seeking company that can put down investors' money, we have to work within our margins."

Not bad for a process that was initially a six months project.

As well as looking to expand its services to other countries, the police certificates division is going to streamline its business processes by joining together the IT. "We are looking for one application that will do everything from beginning to end, and perhaps we'll be able to decrease the service time from ten days to five."

The division is also widening its payment processes to

"We also take into account that we need some money up front too to get more people and desks – we are not a profits-seeking company that can put down investors' money, we have to work within margins."

➤ Gary Linton, Detective Superintendent, Head of ACRO & UKCA-ECR.



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"In the fullness of time what we want is – if I'm checking a PDA in Southampton – the PNC will check the network right across Europe and it will pull a record out."

➤ Ian Readhead, ACRO Director of Information and BAPCO President.

accept debit and card payments to help certificate applications from overseas.

S and Marper v the United Kingdom

This high-profile case related to two individuals whose fingerprints and DNA profiles were held by the police, although no convictions had occurred. Both applicants had unsuccessfully requested that their fingerprints and DNA samples be destroyed, and the information had been stored lawfully without time limits.

In December 2008 the European Court of Human Rights held that in the case of S and Marper there had been a violation of Article 8 of the European Convention of Human Rights. "I think that the ruling was correct," said Readhead. "Take the example of a 16-year-old who goes to John Lewis with 10 friends and one of them shoplifts. If all are arrested and have their DNA taken, it is not right to keep their DNA for life if only one has been convicted. It is not appropriate as the S and Maper case concluded."

Both Linton and Readhead explained that a well-thought out framework is required, one that will provide guidance on situations ranging from where someone has been arrested on suspicion of murder to where someone has been arrested for shoplifting and not convicted. "I think it will be necessary for us to articulate the framework with some clarity, including time of retention in relation to seriousness of offence, age of offender etc. In some situations, like a Black Panther enquiry, you may want to keep it indefinitely."

The DNA Special Operations Group of ACRO works with foreign countries to try and solve unsolved crimes, by running DNA details through a database of UK offenders. "That's proved very successful. Last time we did it we discovered an armed robber who was a UK national but had committed offences in Holland. He was successfully arrested in London recently and now faces charges in their country. I think sharing information in this way will become a bigger feature of future major crime investigations."

The Special Operations Group also investigates breaches of security, such as that of PA Consulting and the loss of a data stick that included details of around 10,000 prolific offenders as well as information on all 84,000 prisoners in England and Wales.

John Harvey is National Operations Manager for ACRO, and he is often brought in to work with the Home Office in relation to DNA issues. "We were involved with the Home Office when the memory stick went missing, and we were asked to evaluate the significance of the stick's contents, and the risk to individuals. That was quite an intensive enquiry over a short space of time."

One of the areas Harvey is looking at is the ramification of the S and Marper v the UK case, in terms of the role of the police in the deletion of DNA and fingerprints. "We have been asked for a policing perspective on how to promote the best way forward for a new DNA or fingerprint policy for England, Wales and Northern Ireland."

Harvey explained some of the issues involved in creating such a policy. For one, it involves 4.5 million records – not all of which are related to the ruling. Next are the criteria on which to base the destruction policy, and the retention policy for the future. "Legislation will have to be changed to accommodate that. It is not just about pressing a button, as there are considerable internal costs and resources."

Not getting it right could mean another adverse Ruling in the future. Or even worse, it could mean erroneously deleting records that shouldn't be deleted. "It is a huge joint effort involving legal departments, NPIA, and Foreign and Commonwealth Office. Whatever policy we come up with, other countries will be looking at very carefully. Part of the S and M ruling suggested that the Court felt the UK's policies were inappropriate for a lead country."

The Court had noted that although the retention of DNA/fingerprint data had a clear basis in domestic law under Section 64 of the 1984 Police & Criminal Evidence Act, it was far less precise as to the conditions attached to and arrangements for the storing and use of this personal information.

Subject Access data and ACRO

On a more tangible and straightforward level, ACRO's next big project involves bringing in-house the SA information which up to now has been held at New Scotland Yard's National Identification Service.

NIS has for years been looking after SA requests for personal data held in the PNC, but in the next few months ACRO will manage this process from their premises.

SA requests are for individual use and not for use with visas or employment vetting application. "Section 56 makes it unlawful for employers to require confirmation of lack of convictions, but that part has not been enacted by government. We try to discourage people from applying for these purposes," explains Readhead.

ACRO's work in signposting enquiries to Police Certificates, the CRB and Disclosure Scotland has reduced SA applications from over 200,000 in 2006 to less than 90,000 last year. The service is paid directly by applicants to their local police forces, and ACRO receive funding for providing the service from the NPIA. "We will be going live around the middle of May, and we are going through the IT change now," explained Linton.



ACRO – background

Led by Detective Superintendent Gary Linton, the aim of ACRO is to provide operational support to several Chief Officer Portfolios dealing with matters relating to criminal records and associated biometric data, including DNA and fingerprint information.

ACRO was set up in response to a perceived gap in the Police Service's

ability to manage criminal records and in particular improve links to biometric data.

ACRO provides guidance and management on access to these criminal records and seeks to improve their effective operational use. It provides a focal point for policing matters in connection with criminal records.

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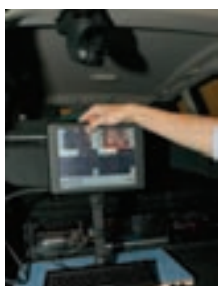
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ACPO in your radar

The ACPO-APA International Policing Exhibition is the UK's largest and most influential event for policing and takes place in Manchester on July 8-9 at Manchester Central (with the conference taking place alongside from July 7-9). BAPCO Journal spoke to a few of the companies taking part to find out what's in store.

Brother UK – fact finding for the future

Michelle Molloy, Business Development Manager for Mobile Solutions from Brother UK, will be attending the show again this year and explains that Brother is looking forward to the show as it offers a great chance to find out what is going on in the market and what police forces are looking for. "It always provides us with the opportunity to engage with users who are specialists in their field and gain an understanding of their requirements, which allows us to develop solutions to meet those requirements." She continues, "Feedback from visitors to previous ACPO events has allowed us to deliver the right secure mobile printing solutions to the right people; we've seen an increased demand for these solutions as a result of current mobile data deployment projects. Attending the show gives us a good chance to educate people on the range of products we supply and the benefit that they can offer to the police service."

Research in Motion (RIM) will be Crime Tasking

RIM, the manufacturer of BlackBerry smartphones, will be exhibiting alongside a number of their application partners to underline the versatile nature of the products they offer. Jo Tearle, UK Public Sector Marketing Manager says, "Having our application partners on our stand gives us a good chance of showing just how much the BlackBerry solution can meet the operational requirements of police officers. Airpoint, for example, provide an application called Crime Tasking that allows officers to access to the details of crime records and will be on our stand to demonstrate to people what their application can do."

There will also be a help desk so anyone who has a query regarding their BlackBerry and its usage can speak to a technical expert on the stand. "We found last year that we had quite a lot of people come to our stand with questions about the device and so this year we will have an area dedicated to this, as well as offering them a chance to recharge the batteries on the devices."



Panasonic – gadgets galore

Panasonic will be exhibiting some of its latest mobile data devices that can be used in vehicle. Tempus, a partner of Panasonic's, will have a stand featuring a police car and live demonstrations of how the devices are fitted.

Willie McGregor from Panasonic explains that on the stand there will also be a system from IBM that offers translation services for the police: "Last year the police spent almost a billion on translations so using this technology is not only efficient but a cost saving benefit too. As such we will have it on the stand for people to try out and demonstrations to show people how it works."

McGregor concludes, "The ACPO show is a really key one for us and is a great way for us to underline our commitment to the policing sector. A lot of key customers attend and it's always a good way to find out what the market is looking for as well so we can make sure we are working on the right projects for the future."

Scyron – come and see the DEMON

Having shared a stand last year, Scyron will be exhibiting on its own this year, explains Mike Wilks: "We decided that this year we needed our own space to really show off our products and what we do. On our stand this year we will be encouraging people, both with invitations and just those passing by, to come on and see our DEMON software in action as we have a series of interactive demonstrations planned during the show."

Wilks also notes the show is a great chance to network and meet customers both in a formal and informal way. "It's always nice to come together in a social setting and meet people, have a chat, and catch up with some old friends. Not only that but it is also a very good way to see what some of the key opinion formers in the market think are going to be drivers for the future so we can adapt to them and make sure we are developing technology that has a place in the market and will be of benefit to our customers. It's the best of both worlds and makes it a really good show for us because of this."

The rise in mobile data terminals being deployed across UK

Police forces has seen an increased demand for a mobile printer to form part of this solution, says Michelle Molloy of Brother UK.



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A date for your diary: notice of Annual General Meeting
The Sixteenth Annual General Meeting of BAPCO Ltd will be held at 1615 hours on Wednesday 22nd April 2009 at the Business Design Centre, Islington, London.

BAPCO Roadshows 2009

- 7th October at Newcastle Racecourse Conference Centre
- 21st October at Hendon Hall Hotel, Hendon, London, and
- 4th November at The Royal Court Hotel, Coventry.

Other meetings

- 06th April 2009: SW Regional Committee Meeting, The George Inn, Mere.
- 17th April 2009: NE Region Committee Meeting, Harperley Hall, County Durham.

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Down memory lane

We've all been there – you open something and before you realise it you are knee-deep in nostalgia, writes Peter Prater of the South West and South Wales BAPCO Region.



Subsequent meetings

Date	Title	Venue	Members Attending	Remarks
May 95	TETRA update	Motorola, Basingstoke	10	If I remember rightly, this included early and simple demonstrations of the technology
Oct 95	GSM - A Different Approach to Mobilising Emergency Services	RAC Supercentre, Bristol	38	Papers by Vodafone and Cellnet. Visit to the RAC Control Room
Jan 96	Mobilising Comms, Now and In the Future	Wiltshire Fire Brigade HQ, Potterne	35 (See photo)	Concentrating on Mobile Data over AM radio (Solo), Real Time Map Displays & GIS Applications (AIMS), BT's response to an Emergency (BT) and Synergies video (Hewlett Packard). Tour of Wilts Fire Control facilities
May 96	Project FOCUS	Avon & Somerset Constabulary, Portishead	27	Papers included Siemens Plessey, Avon & Somerset Constabulary, Home Office (Phil Kidner)
Jul 96	And now for Something Completely Different	Cable & Wireless Emergency Response Unit, Bristol	13 (See photo)	Overview of Satellite Comms, and Intro to C&W ERU. Satellite Speakers included 7E Communications and University of Surrey
Nov 96	How Secure	CESG, GCHQ, Cheltenham	170 A national BAPCO event	Speakers included, GCHQ, history of Crypto and current products. John Burnside, CEO of Kent Ambulance, TETRA Security, EPIC Centre (Heathrow disaster comms)
Jan 97	Focus On..... Command and Control	Hampshire Fire & Rescue Service	38	Papers by Securicor Dopra and RAM Mobile Data (a paper on the IMDN (Interim Mobile Data Network))
Apr 97	Focus On..... Tracking	Intergraph UK, Swindon	30	Papers by Securicor Datatrak on Land based systems, Staffs Amb on using such, Hants Police on trial of Datatrak, Trimble on GPS tracking and Avon Fire on Home Office trial of tracking in the Fire Service
Jul 97	Focus On..... Mobile Data	Gwent Constabulary HQ, Cwmbran	57	Papers by Securicor Dopra (Guy Kenyon) - How to make use of TETRA data services, Mobile Radio (Richard Percy) - History and Current Situation of Mobile Data. RAM Mobile Data (David Lawford) - PMDN's and the IMDN. Motorola (Heinrich Schmidt) - TETRA Data Services. And Orange (Richard Barley) - The Orange Network
Nov 97	Focus On..... Mapping	CMCG Lee on Solent (HM Coastguard).	34	Papers by Intergraph Public Safety - Building a Map Database, AA - Mapping in the AA, Ordnance Survey - History of Mapping, Pafec - The future and tour of facilities.
Jan 98	Call Handling Centres - An Introduction	Transco, Gloucester	40 (See photo)	Papers by BT - History and current approach to Call handling; Brann Ltd - Call handling as a core business; RAC - Call Handling to support the core business and Transco - A Utilities approach to Call Handling

Perhaps you can pick out friends and colleagues from amongst the faces in the photos, or perhaps you have particular memories of the projects identified or issues covered? For me personally, these were exciting times as I got to know more about UK public safety and we, the committee, saw the fruits of our labour as members began to turn out in increasing numbers to enjoy the events.

So, a momentary diversion from today's issues and trials comes to an end, its back to work now. Rest assured that in the South West and South Wales Region today we continue to look forward and are busy planning our next event, information about which will be published in due course.

Top to bottom: Jan 96, "Mobilising Comms, Now and In the Future", Wiltshire FB HQ; Jan 98, "Call Handling Centres – An Introduction", Transco, Gloucester.

I thought it might be of passing interest to publish some of the photos and, to give them some context, felt it may be worthwhile to reflect on the formative years of BAPCO in the South West and South Wales Region. The story of those early days presents an interesting backdrop to where public safety communications are today.

The Region was formed following an introductory meeting held at the Automobile Association's, Fanum House, Basingstoke 30th March 1994. The original committee was:

- Chairman Mike Jolliff (IoW Emergency Planning)
- Secretary Peter Prater (Armed Forces)
- Member John Mason (AA)
- Commercial Member Guy Kenyon (Dopra)

During the first five years the Regional Committee organised and ran a regular stream of members' meetings and it is interesting to look back at the issues that were uppermost in our minds at that time, as well as the organisations participating.

Our first meeting was a half-day visit to Avon Ambulance's Control Room at Bristol in September 1994 and attracted 12 members. Learning as we went, we decided to introduce several papers and extend events to a full day. The first of these was held at Securicor Datatrak in January 1995 where 13 members listened to presentations from exponents of TETRA and Linear Modulation.



improved communications enhance operational effectiveness

In the world of mobile broadband, Excelerate Technology pioneered the initial concept of providing access to high-speed broadband using automatically deployable satellite platforms fitted to command and control units used by the UK's emergency services. It provides a wide range of specialised satellite and wireless-based broadband solutions that improve incident management and enable emergency services to achieve interoperability and share information to meet their responsibilities under the Civil Contingencies Act. The company is now the acknowledged expert in this field with more installations than all its competitors put together.

excelerate Technology has been responsible for equipping some of the largest and most advanced mobile command and control vehicles for organisations such as Strathclyde Fire and Rescue and South Central Ambulance

Service NHS Trust (SCAS). The latest to be unveiled include Royal Berkshire Fire and Rescue Service's (RBFRR) new Incident Command Unit (ICU) and a smaller multi-role vehicle. These state of the art units are packed full of the latest satellite and communications technology enabling them to function as standalone command and control facilities – in fact, senior officers can run RBFRR operations from the ICU if necessary.

At their launch, Deputy Chief Fire Officer, Olaf Baars, said: "These vehicles will play a key part in ensuring that we are able to meet our statutory duty under the Civil Contingencies Act to maintain operational functionality regardless of circumstances. The ICU provides a 21st-century platform for incident command, not only in terms of its technological capabilities in terms of operations but because of its capacity to act as a multi-agency command centre, linking directly to police and other emergency response organisations."

Excelerate has played an active role in helping RBFRR become a leading pioneer in the development and application of innovative communications solutions for emergency planning and management applications. The Royal County of Berkshire will be one of the first regions to achieve true interoperability with sharing of information well on the way to fruition.

To achieve the same communications capabilities, emergency services are also specifying smaller, more flexible rapid response vehicles that can reach the incidents in the shortest possible time to appraise the situation and determine requirements for additional support. This type of vehicle can be equipped with the same technologies as larger command and control vehicles giving them the capability to manage smaller incidents. When attending larger incidents, the information collected can be seamlessly transferred to the main ICU as soon as it arrives.

The demand for these smaller, rapid response vehicles is increasing and some of the latest to be completed by Excelerate Technology include a new fleet of incident command and control vehicles for the Garda in Dublin and a mobile incident unit for Kent Fire and Rescue Services. Other contracts recently awarded include Fife Fire and Rescue Service, South Yorkshire Fire and



accelerate

DATA VIDEO VOICE INTERNET VIA SATELLITE & WIRELESS

Rescue, Wiltshire Fire and Rescue, West Midlands Ambulance Service NHS Trust and South West Ambulance Service NHS Trust. A new Land Rover Discovery recently completed by Excelerate Technology is a typical example of what can be achieved. It is equipped with a transportable satellite, private GSM, VoIP, wireless network, CCTV and video streaming. The vehicle has also been fitted with four drop-down touch screens, body worn camera kits and a mobile BGAN solution that delivers high speed broadband access whilst on the move.

History of Innovation

Excelerate Technology has developed many innovative solutions and was the first UK-based company to design and install fully converged private GSM solutions. These enable incident response vehicles to carry their own GSM network delivering full telecoms capabilities in situations where either none exist or are unavailable.

To meet the increasing demand for interoperability, Excelerate Technology has developed ECMS (Excelerate Communications Management System), an integrated solution that provides satellite and GSM-based VoIP (Voice over IP) PBX switching functionality. This enables VoIP handsets to function as fully featured extensions of any HQ-based PBX using the satellite links to route calls under normal conditions when the vehicle is stationary. ECMS also enables different voice devices including UHF and VHF radios, mobile and VoIP phones to be patched into each other as well as providing real-time voice recording of all voice communication channels.

Satellite systems enable command and control vehicles to receive and transmit data from all responders and emergency teams to achieve a Common Operating Picture. Combined with wireless networks, personnel using PDAs, laptops mobile phone and data terminals can access tactical plans, live video streaming or information from strategic emergency planning software anywhere within a 100 metre range. This range can be extended almost indefinitely using self-powered, rapidly deployable mesh wireless nodes – another of Excelerate's operational innovations. For maximum resilience, vehicles can communicate directly with each other as well as their appropriate HQs and other locations.

To provide important video data, vehicles can also be equipped with dual function cameras giving normal, high quality colour CCTV with full PTZ (pan, tilt and zoom) as well as thermal imaging. Live video can be viewed on monitors installed inside

vehicles and streamed via satellite links to a secure video server for online access by authorised personnel. In addition, body worn cameras can be used by field personnel to transmit high quality pictures from inside buildings, tunnels or other areas where there is no line of sight. This is achieved through using the latest COFDM transmission technology in addition to wireless, 3G and GSM.

Satellite Communications

Satellite communications deliver interoperability by enabling mobile command and control vehicles to receive and transmit data from all responders and emergency teams and achieve a Common Operating Picture. When used in conjunction with wireless networks, personnel operating on the incident ground can access tactical plans, live video streaming or information from strategic emergency planning software using PDAs, laptops mobile phone and data terminals anywhere within a 100 metre range. This range can be extended almost indefinitely using self-powered, rapidly deployable mesh wireless nodes – another of Excelerate's operational innovations.

Excelerate operates and manages its own satellite and private GSM network, holds all VSAT Network Licenses required by Ofcom and ensures that every customer is equipped with the appropriate equipment operating over approved frequencies. This enables users to simply turn up, switch on and get down to business without the intervention of Ofcom. It is important to note that Excelerate Technology delivers high quality bandwidth, which can be tailored in real time to suit specific client needs, budgets and service level requirements – something that other suppliers often promise but are ultimately unable to deliver.

Excelerate Technology is committed to working closely with users to turn ideas into reality in the most cost effective way and understand that in the real world, it is operational personnel not engineers that have to manage these increasingly complex communications networks. The company's R&D and project engineering centre is a centre of excellence where new products and solutions, particularly those delivering interoperability between the blue light services, will continue to be developed at an even faster rate. This facility also provides the capacity to efficiently handle an increasing number of projects, whether supplying standalone solutions, retrofitting existing vehicles or building bespoke mobile command and control units.

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FiReControl and critical infrastructure

On January 29th an unprecedented number of BAPCO members congregated at the newly built Regional Fire Control Centre, Taunton. The theme of the day was – rather fittingly for the location – Protecting our Critical National Infrastructure, and the FiReControl Programme.



Each of the nine RCCs will be a carbon copy of each other, with the Taunton RCC covering the South West from Gloucestershire to Cornwall and Wiltshire, including the Isles of Scilly.

In the control centre's main room with its 20 foot-ceiling and commanding gigantic central screen delegates were able to get a flavour of both what it will be like to work in a Regional Control Centre, as well as experience the truly ambitious nature of the FiReControl program. Although many of the desks were still empty and the hardware still in its packaging, it wouldn't be long before this relative calm would be but a distant memory, as emergency calls from the South West begin to flood in come 2011.

Regional Chair Peter Prater began proceedings and reminded the audience that the day was all about critical national infrastructure and FiReControl – and that this was not just about terrorism.

The Centre for the Protection of National Infrastructure (CPNI): Critical national infrastructure – what is it, what are the threats, and what is being done to protect it?

(Note from the Editor: at the request of the CPNI, BAPCO Journal has altered the original presentation.)

The speaker introduced the Centre for the Protection of National Infrastructure (CPNI), which was established in 2007 and whose activities constitute part of the UK's strategy to counter threats from terrorism. There are a range of covert threats to national security. The threat to the UK and to UK interests overseas from international terrorism is serious and sustained, and has been judged by the Security Service to be "severe" and likely to persist for some considerable time

The UK's counter-terrorism strategy, known as CONTEST, has four main areas of activity. First is terrorism prevention, which includes tackling radicalisation in the UK and abroad, for example by challenging ideologies that extremists believe justify violence. This also entails taking appropriate action such as strengthening the legal framework and supporting structural reform.

Second is pursuit of terrorism by means of disruption, using intelligence gathering on terrorist activities and their means of operations.

The third area is that of reducing vulnerability to terrorist attack. This covers strengthening border security



to prevent terrorists from entering the country, as well as protecting national infrastructure and people in crowded places.

The fourth area is about ensuring the UK is properly prepared for any consequences of terrorist attack. This entails identifying key risks, assessing the impact of such an attack and having the necessary responses, as well as testing and planning through exercises and live events.

The CPNI speaker then used a simple but effective analogy to explain what is meant by national infrastructure. "For me, it is the things you take for granted living in the UK. I travelled here yesterday. I stayed in a hotel, which had energy available for light and heat. I could listen to the TV and I had a laptop. The food was plentiful, and next day I paid the bill with a secure credit card service. I did not experience any problems travelling here, but if an accident had occurred, the emergency services would have come on the scene. This is just a brief example of the services that underpin normal daily life."

There are nine categories that comprise the national infrastructure; communications, energy, finance, government, water, health, emergency services, transport, and food. The government sector includes all central government departments. Not everything is critical and it is impossible to protect everything.

CPNI work with owners, operators and sponsor government departments to identify which elements of the national infrastructure are critical. The assessment is driven by likely impact (regional, national, length of disruption, availability of back up, impact on life), vulnerability-focussed, and is informed by threat. The scale of protective security measures has to be proportional.

CPNI also provides integrated protective security advice, covering physical, information and personnel security. An example of physical security is taking a layered approach to prevent access to critical assets. This could entail intruder detection, closed circuit TV, and access control systems such as swipe cards.

Next is personnel security. Good pre-employment screen is vital, as is an ongoing security regime for employees. It is important to look at protective security measures in place, identify any gaps, and then address how these can best be mitigated.

Finally, there is the third aspect of information security. Maintaining the confidentiality, integrity and availability

of data is crucial to business effectiveness. Threats are constantly evolving and organisations need to stay ahead, whether the source is from terrorists, espionage or criminals.

Q&A

One delegate asked how easy it was to get the private sector to follow CPNI advice on security measures. The advisor replied by reiterating that CPNI didn't have any powers to impose measures on organisations, but that it worked closely with government departments who could liaise with the owners of sites. "They usually action the advice, and realistically they see the value in protecting their assets. And also it is an opportunity to work with the regulators. I've never heard of any organisation that has turned round and said it couldn't afford the measures. For some it may just be about gaining a better understanding of a CBRN threat, and that can often just dovetail into existing plans."

BAPCO President Ian Readhead raised the issue of intra-Europe co-operation, in the light that for example the UK relied on France for much of its electricity. The speaker said that CPNI had a work stream that included European partners, both in sharing intelligence and delivering advice.

Chris Hartrick and Colin Rockey, Devon & Somerset FRS Special Operations: *An overview of New Dimension (Special Operations)*

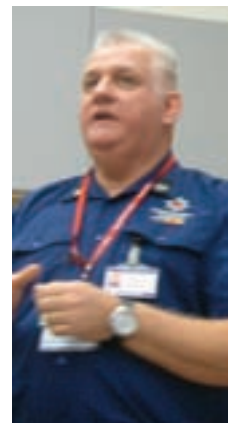
Chris Hartrick began his presentation by talking about the background to the local resilience forums, and how due to the two police authorities Devon & Somerset FRS served, they sat on two local resilience forums.

Hartrick outlined the varied responsibilities and activities of the Special Operations team, including preparations for mass fatalities, warning and informing, cliff rescue, and training and exercising with other blue light organisations.

"New roles are emerging. We can see a whole new world of more complex incidents emerging that are happening more often. Climate change is having its effect so we have to be prepared for more dislocated incidents."

Colin Rockey, also of Special Operations, took the mantle from Hartrick to speak about Special Operations and the New Dimension project.

"We still refer to it as the New Dimension but over the next 12 months it will take on its new title, National Resilience. National Resilience is about maintaining this capability for another 16 years."



Colin Rockey, Devon & Somerset FRS Special Operations. Top of the page: the impressive main room of the South West RCC in Taunton – delegates were given a flavour of what it would be like to work in such a high-tech environment.

Regional Chair Peter Prater began proceedings by reminding delegates that critical national infrastructure was not just about terrorism.

"In our world it is less about enemies of the state and more about natural disasters and human frailty – a majority of the time."

➤ Graeme Pauley, National Business Relationship Manager, FiReControl project team.



USAR is part of the New Dimension, and Rockey explained how it came about. "Why do we deliver USAR? Well, in 911 there were two types of responders, firefighters and to put it crudely, guys who looked like Bob the Builder. They too are firefighters, from FEMA – the Federal Emergency Management Agency. The US has FEMA and we did not, so after 911 we delivered that type of asset. USAR became recognised as a sharp end capability."

Today there are 19 national teams of USAR specialists to deal with collapsed structures, heavy rescue transport, and anything else which firefighting colleagues cannot deal with or don't have the equipment for. Rockey also outlined some of the national assets available under National Resilience, including the mass decontamination vehicles and high volume pumps. "This year will see the delivery of canine to DS FRS, one of 23 in the country."

Graeme Pauley, National Business Relationship Manager, FiReControl project team: *The FiReControl project and how it supports resilience as part of the critical national infrastructure (CNI)*

Pauley's presentation revolved around three questions: what is FiReControl; how it supports resilience as part of the CNI; where we are on the FiReControl journey.

He began his presentation by highlighting the increasing challenges being faced by the Fire Service, including climate change and terrorism. He explained how Communities and Local Government had responded by investing £1bn in enhanced capability through Fire and Rescue Resilience programme :

- Providing specialist equipment and training to deal with major emergencies (New Dimension)
- Secure, resilient, national radio system – enabling emergency services to communicate with each other (Firelink)
- Working in partnership with Local Authorities, FRSs, and suppliers to deliver national network of nine, resilient, Regional Control Centres. These will receive calls, mobilise and co-ordinate resources across the country (FiReControl).

Currently the FRAs in England operate 46 separate control rooms to answer calls and mobilise resources, explained Pauley. Each control room has a back-up facility – typically a room equipped for fallback, eg County Council basement, and a wide variety of technologies and operational procedures reflecting different levels of investment by local authorities. "Staff do an excellent job in delivery core services within limitation of current arrangements," but, added Pauley, there were significant opportunities to improve service delivery and outcome, eg:

- Most control rooms were small, and could be easily overwhelmed with calls. When a member of the public called 999, an operator tried to connect to the primary line in an FRA control room. If a line was busy calls queued and an operator switched to alternative lines, then to an alternative control room. Accepting that the control room had to pass details back to the original control room for mobilisation to take place, if no calls could get through then an alternative method of communication had to be found, for example fax.
- Large incidents close to FRA boundaries could be difficult to coordinate because more than one control room will be taking calls, eg motorway incidents.
- And risk of multi-agency confusion when information was passed from a number of FRS control rooms to police and ambulance services.
- Currently coordination of CBRN incidents was located in a single FRA.

The new network will address the above weaknesses:

- Local Authority control services will be brought together at regional level. Large networked controls will enable flexing of call handling and mobilisation capacity to cope with local peaks in demand, largely eliminating call queuing.
- Common call handling and mobilisation processes, common technology and common training will enable callers to be transferred between centres. This will enable resources with shortest journey time to be

mobilised, regardless of boundaries.

- Better more timely information will enhance firefighter safety, and communications will be based on data rather than voice.
- New risk management tools integrated into control infrastructure, directly supporting formulation of integrated risk management plans by local authorities.
- Network will house national coordination functions including management and deployment of New Dimension assets.

Pauley went on to dispel common myths and misunderstandings about FiReControl, such as the nature of the threat being responded to. "We can see flu pandemic, major industrial accidents, coastal and inland flooding all have higher impact than attacks."

"In our world it is less about enemies of the state and more about natural disasters and human frailty – a majority of the time."

Pauley highlighted the fact that the network would enable local call handling and mobilisation to overflow to locations which are least busy. "In addition the service will be less likely to fail because of the ability to fall back and restore service with no loss of data or service, if the unthinkable happened and an RCC failed."

In addition, enhanced technology infrastructure will

improve delivery of risk and safety information for firefighters. Project Firelink is installing mobile data terminals and FireControl is developing the software to provide timely digital information on the way to a scene eg, information on how to extricate individuals from specific makes of cars.

"Response times will be minimised through real time appliance location monitoring and route planning."

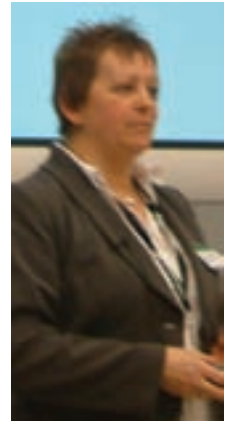
Every FRA will benefit from at least one of these improvements, and the working environment for many control staff will also be enhanced.

Pauley concluded by saying how following a review last summer with supplier (EADS), CLG concluded it was necessary to reschedule elements of the project to reflect a number of technical challenges which had arisen.

"Updated plans are being delivered in close partnership with local authorities, the Fire and Rescue Service, and Suppliers – and they will be subject to regular review to ensure they are on track and deliverable."

The Project now aiming to cut over first three RCCs in North East, East Midlands and South West by the summer of 2010, with final FRSs cutting over early 2012.

"A final thought before questions – are networked controls the future for all emergency services, or just the Fire and Rescue Service?"



Chief Executive, South West Fire Control, Julie Burnett, is confident that the project will succeed if everything that has been promised is delivered.

Letter to the Editor – FiReControl interoperability concerns

Dear Sir,

The Regional Members Meeting of BAPCO held at the new regional Fire Control Centre at Taunton was impressive, both in the content of the day with quality speakers and of course the venue itself, a state of the art facility of which the Fire Service have every right to be very proud.

Graham Pauley from Communities and Local Government (CLG) carried out a detailed description of the background, purpose and progress of the FiReControl. This was very reassuring in that the capacity of the facility was very real whilst sat in the high tech environment with the sparkling new facilities. However there was one small area that caused me just a little concern.

I think it would have to be accepted by everybody at the event that there are very few incidents – either day-to-day bread-and-butter incidents or the larger scale critical or emergency incidents – that involve just the Fire Service. Police and Ambulance colleagues in the room will, I am sure, all have been thinking along the lines of: "Exactly

how will we fit into the processes that support the control of incidents from this exciting new facility?"

For me that naturally raised the question, "What work is being done to make sure that the interoperability exists between at least the three primary emergency services; Fire, Ambulance and Police, to ensure the transition from the current set up to the new facility will be seamless and, importantly, effective?" No one at Taunton that day seemed to be able to answer that.

A whole host of different processes and communication lines currently exist in the South West between the three services and indeed other partner agencies and these will quite naturally change as the new facility comes on line. Experience has shown that one agency making significant moves either through a change in process or a change in location, or even both, can have a huge knock-on effect with the other two agencies if this transition is not managed in a fully informed manner.

The concern that I would have to raise therefore would be over the

apparent lack of communication between the three agencies with regards to the implications of this significant move for Fire. It would not be a case of simply diverting the phones and giving the partner agencies a new number to remember but there would be a whole raft of implications including new relationships to build up, working processes, expectations of the agencies moving outside of their "comfortable" local arrangements and just general day-to-day working practices that have enabled the three agencies to work together in such an extremely effective manner thus far.

So, overall a very impressive morning at the conference with, as I said, great reassurance regarding the ability of Fire to carry out their functions with their excellent new facility, but just that one area of concern around impact and interoperability.

Mark Organ,
Chief Inspector,
Contact Management
Department,
Gloucestershire Police.

Sean Tregonning, Communications Manager, EADS, explains to delegates some of the technical benefits that the FiReControl Project will deliver.



“At the beginning we will be staffing to a higher-than-needed level of staffing and, by the time the final wave of control rooms cut over, we’ll be at our steady state level.”

➤ Julie Burnett, Chief Executive, South West FiReControl.

Julie Burnett, Chief Executive, South West FiReControl: Delivering FiReControl in the South West

Julie Burnett has been based in the South West Regional Control Centre, Taunton, for 12 months, and has a small team comprising a senior operations manager, a building support manager and an office manager.

“The project is challenging to say the least,” admitted Burnett, outlining how each of the nine RCCs will be a carbon copy of each other, with the Taunton RCC itself covering the South West from Gloucestershire to Cornwall and Wiltshire, including the Isles of Scilly. “However, I am confident that if everything that has been promised is delivered, this project will succeed.”

The seven control rooms currently serving the South West will close and the services will move to Taunton. “That may mean there will be some job losses but we are working closely with the fire and rescue services on this area and trying to provide as much information as possible to staff to assist them in making a decision.”

The SW RCC will be amongst the first three to go live in July 2010, along with the North East and West Midlands. The three were chosen for the fact that they received the least number of emergency calls. Burnett explained how the RCC will be staffed prior to steady state: “At the beginning we will be staffing to a higher-than-needed level of staffing and, by the time the final wave of control rooms cut over, we’ll be at our steady state level. During the transition period, we will also have an additional nine control room operators to provide extra support where required.”

The company that operates the SW RCC is South West Fire Control Service Ltd, a local authority-controlled company wholly owned by the fire authorities in the South West. “We were incorporated in September ‘07 and we started from a blank sheet of paper. We have a board of directors representing each of the region’s fire authorities and they meet on a monthly basis. Since our inception, we have made progress in many areas and continue to do so.”

Some of the key issues facing the SW RCC are people-related, triggered by the region’s geography. The fact that the South West RCC covers a geographic area of nearly 24,000 km², with a distance from end to end of over 350 km, means that a daily commute will be impractical for some people.

“Unfortunately, control room operators in the South West, who do an excellent job, do face having to make a decision as to whether they wish to transfer to the RCC. Geographically, the South West covers a large area, and it may not be possible for some people to move to the Taunton area or to commute to the RCC. I am keen to ensure we have as many experienced control room operators as possible joining the team, but also appreciate it may not be possible for everyone.”

Another issue facing those who do decide to move is the fact that working for the SW RCC will mean taking a step back from the fire and rescue service. “Once here, they won’t be employed by the FRS, although they will be continuing to provide a service to them and we understand people are keen not to lose those links.” Burnett clarified, however, that the SW RCC was not a case of “privatising fire”, because the organisation was still wholly owned by the local fire authorities.

There are a high number of stakeholders in the enterprise, and during her presentation, Burnett outlined a few of them, including: FRS, control room staff, CLG, other RCCs, politicians, suppliers, agencies, representative bodies, members of the public.

“We welcome the opportunity to take part in events like this, not least because it can help to dismiss rumours. No, we don’t have a tunnel to the motorway. There won’t be any fire appliances based at the RCC.”

Burnett summarised by saying that everyone was working to have all the answers in place by 2010. “We would have been ready delay or no delay in October this year, but the delay means we can ensure we get it absolutely right, with additional time for testing and training.”

To the next million TETRA radios



By Manuel Torres,
Vice President and
General Manager,
Government & Public
Safety, Motorola, EMEA

We recently announced that we'd supplied our one millionth TETRA device – 80 percent of which have been shipped in the last six years across the UK, Middle East, Asia and North Africa. We highlight this success to emphasize the impact of TETRA and the part that customers have played in making the technology the primary public safety communications system across global markets.

It was customers after all that collaborated alongside Motorola and other technology providers to develop the dedicated, secure and robust voice and data communications services offered by TETRA; services that field teams rely on to successfully complete their missions while better safeguarding themselves and the people they're protecting. Users have also been closely involved in supporting the design of TETRA radios. Our employees are regularly working alongside officers to understand how devices can deliver the intuitive "second nature" access to key applications that is required when workers face highly pressurised environments. Field teams remain heavily involved in product design as we look forward to the evolution of TETRA and create technology that will inspire demand for the next million radios.



ONE MILLION AND COUNTING...

The evolution of TETRA

While initial networks were built for police agencies, we're now seeing the user community grow as other services including Fire and Emergency Health Services (EHS) exploit TETRA coverage. A key factor behind this second wave of users, which will continue to increase the adoption of terminals, is the demand for data.

TETRA is evolving from primarily a high-quality voice platform to a fully-fledged integrated voice and data communications network. The integration of data applications into every day workflows is widely acknowledged to offer efficiency and productivity benefits.

Two factors that fuel our confidence that TETRA will continue to go from strength to strength: the first is the fact that data rates will accelerate in the future, which allied to more powerful devices promise to support a new range of applications. These include mobile video and improved information capture devices, for example, that will provide biometric scanning capabilities. Secondly, manufacturers such as Motorola, driven by the requirement to meet the needs of all users, will continue to provide specialist technology to meet the demands of specialist teams.

We already supply designed for purpose covert radios to safeguard officers working in difficult surveillance operations, and our ATEX radio, the MTP850 Ex, provides guaranteed failsafe communications for teams working in potentially explosive environments.

By delivering new devices and infrastructure that supports more advanced data services, and addressing the needs of niche users, Motorola, in partnership with its customers, will continue to invest in TETRA to provide the high-performance communications systems that public safety teams deserve.



Delegates were shown some of the urban search and rescue resources deployed by Special Operations under the New Dimension project – soon to be renamed National Resilience.



Q&A

A delegate asked how the control room operators would mobilise according to the business plans of each fire and rescue service. Burnett said that the operators would have the pre-determined attendance for incidents in each FRS, equating to 45 sets of business "rules". The onus is on fire chiefs to ensure their plans are with the RCCs, as ultimately responsibility for responding to incidents remains with the fire chiefs.

Another question addressed if there were any plans to harmonise the 45 plans. Burnett said that one work stream

was looking at this, examining what was common within the plans. "But that's not something we will be doing at the RCC. Instead we will be taking delivery of this work. This will mean changes for the FRS."

One question addressed the issue of costs, and Burnett said that the running costs of the SW RCC will mean savings in terms of staffing for some fire and rescue services, but there were also significant costs in maintaining the technology and the building. "So, for some FRSs there will be savings and for others there won't be and we understand the concern this brings to the FRSs." CLG will be looking at compensation packages for some FRSs.

Dennis Davis, FiReControl Spokesperson, EADS Defence and Security Systems: Delivering the technical infrastructure services

Dennis Davis emphasised the massive business change that the FiReControl project would entail, highlighting that the RCCs are control centres and not command centres. "Existing control rooms are command centres and some of the work that they do will not be covered by centres like this. You have to put that into the jigsaw."

Davis proceeded to outline some of the technology connecting the three data rich centres by WAN, any one of which could handle the whole network. "Every call and appliance movement and activity is being managed as live data, and networked with the other six RCCs. So they can all see the asset deployment. They will be linked to all the vehicles and they will be tracked by GIS and internet."

EADS's commitment is that the system will be able to mobilise according to the business rules of each fire brigade. "To do that an operator has to see, in a format that they can understand and use, the various business rules. And there are 46 authorities with different assets and different ways of working."

Some of these fire authorities, however, don't have this information electronically stored, as said info only lives in a control room operator's head. "If the business rule is not in the system then it will not get deployed. For some authorities that's a massive and frightening task."

After describing some of the clever applications of the new mobile data terminals being fitted by Telent in all fire trucks, Davies went on to talk about the extensive testing that is currently taking place in the company's offices in Newport.

"We are building a system reference model with all components built in as part of an assurance process. It's not just plug and play and the assurance process will sort out all problems before coming here. It's a mini version of an RCC."

Davies also highlighted that although the final sign off will be from the FRS, the rules for sign off had been agreed by CLG.

Q&A

One delegate asked how important it was to bring video from the scene to the RCC. "Video is not part of the specification, but it can be done. There is a distinction between command and control and who is in charge of it. CFOA is currently thinking about the process of command."

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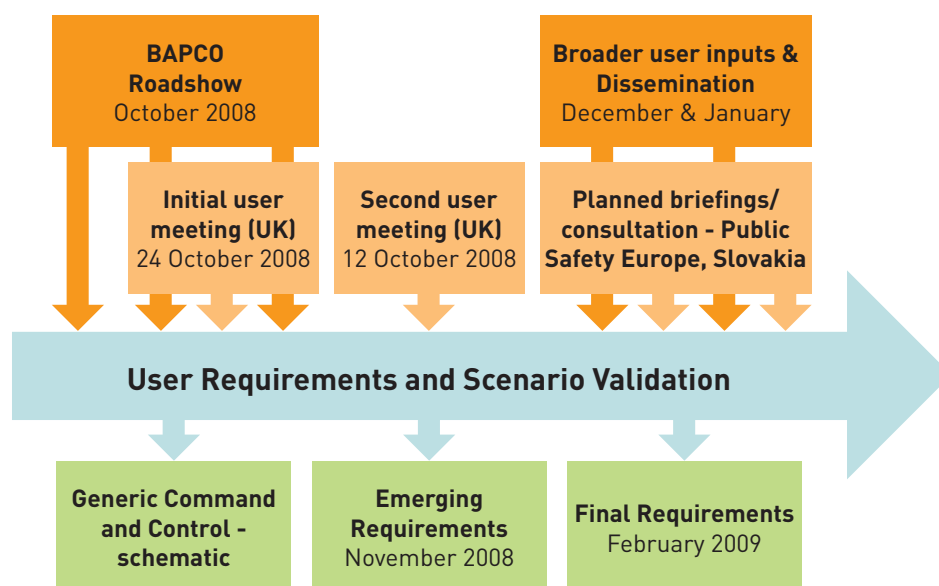
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Catastrophic incidents

Much work has been carried out in the UK over the last few years to increase national communications resilience – but what would happen during truly catastrophic incidents that involved more than one country? It is this scenario that Shaun O’Neill, BAPCO European Officer, is helping to address through the EC-funded Project Secricom.

Diagrammatic representation of consultation and dissemination process to date (by Dr Ahmed Aldabbagh CEng, Senior Engineer, Communication and Network Group, Inform Command and Security Division QinetiQ).



“We realised early on that there was a risk that in defining user requirements with UK users and focussing on UK command doctrine for crisis management that the project would be perceived as having a UK bias.”

Secricom started in September 2008 and it has been scheduled to run for 44 months until January 2012. Its two core objectives are to solve/mitigate crisis in communication infrastructures and to add smart functions that will make communications more effective.

The project’s focus is on the provision of secure and seamless communications between emergency responders across agencies and across international borders. What’s more, this is to be regardless of the different types of technologies in use by the different countries and agencies – quite a challenge.

The BAPCO Association is leading on the user aspect of the project with assistance from fire, ambulance, police and local authority personnel.

Shaun O’Neill explains that at the first Secricom meeting, the 13 partners within the project consortia agreed that to best highlight the outcomes of such a project, a demonstration exercise should ultimately be evaluated. In order for such a demonstration exercise to be created, an initial scenario had to be put together which would capture – and test – all the project’s technical barriers. It is here that BAPCO Association came into its own, with O’Neill coordinating input from a variety of sources to create a worst-case scenario that would provide a significant challenge to the technical partners in the consortia,

while also proving relevant on a wider European stage.

“We realised early on that there was a risk that in defining user requirements with UK users and focussing on UK command doctrine for crisis management that the project would be perceived as having a UK bias,” comments O’Neill. “As a result we consulted with a variety of emergency personnel from across Europe to validate the scenario. Furthermore, during our consultations we took the opportunity to disseminate the project on the Continent, and in the course of this jointly I and Mr John Stoodley from QinetiQ – the project’s coordinator lead – presented on Secricom at a Public Safety Communications Europe event in Aix-en-Provence, France, in December 2008 and I have liaised with public safety experts in Slovakia.”

The scenario – plausible if unlikely

O’Neill recently finished putting together what he terms a “high level scenario” that contains a further 13 subset events, or “serials” as they are being called within the project.

The devil is in the detail, and it is these 13 serials that will drive the technical requirements for Project Secricom. In other words, if a technical solution can be found that can operate within the outlined scenario, then that solution can theoretically resist pretty much

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“We chose the flood scenario because research from the Universite Catholique De Louvain Brussels in 2006 showed that 50 per cent of world disasters involved flood events”

any catastrophic disaster.

The different sub scenarios or vignettes aim to draw out specific communication issues; and these sub scenarios will in the near future be further developed as required to provide sufficient detail for the technical requirements for the project’s demonstrator test.

Disaster movie script

The scenario, to a degree, reads like the script of a disaster movie. This is the scene: in country X, a very large reservoir feeds off a major river has over recent weeks undergone substantial and much needed restoration work on its retaining walls.

Coincidentally, shortly after the restoration work commenced there has followed a sustained period of heavy rain in the nearby mountains that sources the aforementioned river. This has in turn led to increasing water levels that are now approaching the capacity of the reservoir and placing increasing pressure on retaining walls that are still not fully repaired.

Experts estimate that within the next 72 hours the southerly walls of the reservoir will breach and flood down an adjacent valley which contains a large urbanised area with residential housing, a chemical plant, a power plant; also major transport infrastructure (road and rail).

This urbanised area is a border town and a major access route into a neighbouring country Z further down the valley (1 km away); there is also on the western side of the valley a 0.75 km road tunnel that links the two countries.

At the foot of the valley in the adjacent country by the border crossing is a spit of flat land 250 metres wide that is a popular nature reserve; this then leads into a deep natural sea harbour that is home to several species of wildlife and is a protected environmental location.

The serials as defined by BAPCO are:

- Strategic command
- Incident command
- Ground command evacuation
- Ground command vulnerable premises
- Ground command damage limitation
- Media
- Reservoir walls breached
- Flooded tunnel
- Amateur radio
- Disaster victim identification
- Chemical plant noxious smoke cloud
- Investigation
- Business continuity.

“There are a number of other tasks over the coming months that we’ll be undertaking, such as assisting the consortium partners to understand what happens in control rooms, procedures in emergency response, and we’ll also be involved with planning the evaluation exercise.”

“We chose the flood scenario because research from the Universite Catholique De Louvain in Brussels in 2006 showed that 50 per cent of world disasters involved flood events,” explains O’Neill, adding that BAPCO Association’s role in the Project doesn’t end with the drawing up of the scenario for the technical project partners. “There are a number of other tasks over the coming months that we’ll be undertaking, such as assisting the consortium partners to

understand what happens in control rooms, procedures in emergency response, and we’ll also be involved with planning the evaluation exercise.”

Progress report and next steps

At the end of February 2009, BAPCO submitted on schedule a major package focussed on user requirements; a high level conceptual overview of the environment such a system as Secricom could operate within; and an environmental scan (UK and Europe wide) of current developments, initiatives and projects that are related to Secricom’s aims and objectives.

Other project deliverables that BAPCO has contributed to include dissemination activities (the three BAPCO roadshows in October 2009) and preparations for a presentation by the Secricom project at the BAPCO national Conference on 21 April 2009.

Regular progress project reports are submitted to the BAPCO national executive for dissemination to the regional committees; and O’Neill concludes by saying that now the project has some impetus he is very happy to attend regional committee meetings and provide members with more detailed information on progress

Emergency – walls breached!

Under this scenario, it turns out that contrary to expert advice the walls are breached within 48 hours. The strategy for the crisis is now focused very much on the preservation of life with urgent messages about the impending flood water being communicated to all deployable resources for each agency; and to Country Z via strategic and incident command levels.

It is during this phase of the crisis that flooding water from the reservoir sweeps through the valley causing large numbers of deaths of the public and ER agency personnel with the torrent of water taking several bodies through the valley and across the international border into the adjacent country and onto the environmentally protected deep harbour. Scores of bodies and survivors are situated across both countries with many survivors finding themselves in the sea. Mobile phone and other telecommunications infrastructure is eventually lost or severely damaged. Agency contingency and operational plans are enacted for the rescue of survivors.

Outline scenario

- Need for scenario to be plausible
- Reservoir that breaches & floods into neighbouring country
- Multi-agency response with several crisis sub-scenarios
- Strategic, Tactical and Operational levels of command
- Focus on communications needs - avoidance where possible of state, regional and agency protocols

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POSITION HELD	
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Private	<input type="checkbox"/>	Central Government	<input type="checkbox"/>	Network Provider	<input type="checkbox"/>
Other	<input type="checkbox"/>	Public Utility	<input type="checkbox"/>	Training	<input type="checkbox"/>
		Other	<input type="checkbox"/>	Personnel	<input type="checkbox"/>
				Other	<input type="checkbox"/>

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Setting high standards

Next time you're walking down the street, look up at a CCTV cameras and see if you can spot any wires coming from the camera. The chances are you won't. Over the past year the CCTV sector has been steadily transferring to IP wireless CCTV systems from traditional analogue systems. This has led to an increase in analytics software being used with CCTV systems and also prompted calls for the standardisation of IP CCTV technology.



Camera over Swindon rooftops, by 802 Global. To tap into a wireless IP CCTV signal would require an antenna in the line of sight.

Wireless IP CCTV works by assigning a camera an IP address and sending the live images back to the control room via a wireless signal. This signal can be received anywhere at any time by numerous devices, including enabled mobile phones, and by any one with access to that IP address. The mobility of the system is a far cry from the static and inflexible analogue systems. However, without the visual security of thick black cables synonymous with the latter, and with internet hackers and computer viruses a common feature in the news, the security of the system is one of the first concerns many people have about the technology, along with the fear of the signal failing.

These are unnecessary worries, according to Tim Close, sales and marketing director at IP CCTV solutions firm 802 Global. "I have never seen a signal fail, and we have more than 10,000 cameras operating faultlessly in the UK, so this is not an issue. In terms of security, we are operating at frequencies that aren't your standard wifi frequencies, and our devices are invisible to much of the hacking software. We are also using directional antennas that are far above head height level. Also, to tap into the wireless systems we are deploying, you would need the same proprietary radio that we use, you would need all the passwords or a scrambler to decode the passwords (which would require a lot of computing power) and you would have to have an antenna in line of sight, so you would need to be on something like a cherry picker. So to tap into the wireless you would be making yourself very conspicuous."

There is also a false impression that the technology is a new one. In fact, it has been around for a few years now. Bippon Kalia, Chief Technical Officer at BiKal IP CCTV, said it has only really been picked up in the past year because it has suddenly become comparable in price to analogue. "The cost of IP has come down considerably to the point where it is comparable with analogue systems and the technology has also come of age. We have been distributing a plug-and-play solution that requires no technical knowledge to set up. So this makes IP solutions more accessible. Customers are also seeing that analogue systems and IP systems are comparable in price, but that they can achieve more with the IP systems.

IP surveillance systems are generally easier to install and can also be cheaper for larger installations. Network based CCTV systems also offer more efficient communications allowing better remote access and compatibility. So not only can you transmit to a PC (which you can also do with analogue), but you can also transmit video to mobile phones and other multi-platform devices. IP CCTV has also allowed video cameras to exceed the specifications of analogue cameras with HD or MegaPixel cameras now on the market providing crystal clear image quality never seen before from CCTV systems."

All this has facilitated a growth in video analytics software. Where it was possible for software analytics to work with analogue systems, IP's improved communication channels and capability for higher definition pictures has allowed software developers to create an increasing array

"I have never seen a signal fail, and we have more than 10,000 cameras operating faultlessly in the UK, so this is not an issue."

➤ Tim Close,
Sales and Marketing
Director,
802 Global.





of systems to manage images coming from CCTV cameras into control rooms.

ntl:Telewest Business' Andrew Gibson explains: "Analytical software has and will have a significant impact on the way CCTV is used. Firstly, the software can act as a filter and carry out a defined response for the operator, making them more effective in their role by alerting them to specific activities, behaviours, rule breaches etc that need human intervention. Secondly, there are in excess of 4m cameras in the UK, so not all footage is monitored. So, not only is the filtering as previously mentioned of growing importance, but the use of the software to rapidly search footage stored in a digital format for specific incident types will be used more frequently. The result is that CCTV will move from the traditional role of deterrent/prevention/threat to an effective prosecution tool."

However, Kalia from BiKal believes analytics can go beyond a simple filtration tool and become an active part of emergency services' responses: "Video analytics software can notify police if there is a congregating crowd, loud noises, loitering and other abuses of public order on the streets. ANPR (Auto Number Plate Recognition) systems communicate with databases and can allow police to identify stolen vehicles and detect traffic violations in an instant. The same systems can help health emergency services track a patient's health from a remote location and even provide remote bio-stats measuring heart rate, blood pressure and other vital stats with the aid of a camera and two-way communications. Like a virtual doctor, this can allow a surgeon or senior doctor to attend an incident in the field or en-route without being there."

But taking the power out of the hands of human operatives and into the hands of computers is not only unsettling for many, but it is also a potential security issue. 802's Close is wary of an over reliance on the use of analytics. "You have to pick your applications where you use analytics software. It should be there to enhance the abilities of your monitoring staff, not replace them. It should filter out the unnecessary events that monitors have to deal with. So in controlled environments, it is a great tool, but it has to be done in the right context and the configurations have to be very accurate, as putting cameras in the wrong position or with the wrong rules could have an adverse affect on the surveillance operation."

"They can be very good for setting up, say, intrusion lines around a power station. An organisation might not want anyone to come within 20 yards of their fences, so analytics is quite good at monitoring that. But many people claim that analytics can take on a much more complex role, such as finding left luggage in airports. We are reluctant to recommend this type of software as we are dubious about the success and accuracy of the results that can be obtained. You would inevitably get a lot of false alarms flagged. This leads to operators ignoring alarms and then you have compromised the usefulness of that system."

But one aspect where the growth in software analytics is unarguably a beneficial factor is in the increasing movement to standardise IP technology. At present, customers are limited in the cameras, systems and analytics software they can use by the fact that many of these products cannot work together as there is no standard to which all IP wireless products conform. This causes problems for groups such as the emergency services, as Kalia explained: "If a crime takes place now, the police have to send someone to collect the video, they have to make a recording, but the technology might be different so they may not be able to get the recording straight away – this slows them down. Standardisation would allow a centralised system where it would be possible to patch into any CCTV camera in the country from one central place, enabling the police to work much much faster. Companies like Sony, Axis and others are trying to develop a standardised IP protocol, and if that was to occur then it would be very easy to create a centralised system. It is easy to develop the protocol, but it is hard to get everyone to agree with it."

It may be difficult, but the increased demand for IP products and software that can be used across all platforms is starting to force manufacturers into action. Some, though, are pursuing an IP standard voluntarily. March Networks is one such company and it is a key member of the Open Network Video Interface Forum (ONVIF) which was set up for the development of a global standard for the interface of network video products.

Ely Maspero, March Networks' Director for Marketing & Communication EMEA, explains: "Standards have played virtually no role in IP video security until very recently, but that is quickly changing. The bigger manufacturers are

Bippon Kalia from BiKal IP CCTV believes video analytics could notify police of congregating crowds, loud noises and other abuses of public order – thus taking an active part in the emergency services' response.





Andrew Gibson of ntl:Telewest explains that with over four million cameras in the UK, the filtering of footage is growing in importance.

reluctant to standards, for the risk of losing competitive power (they prefer to sell their own end-to-end solution). On the other side, they need to begin the standardisation process as standards promote interoperability and reduce integration cost. With the introduction of advanced IP cameras and encoders, which offer higher resolutions and embedded analytic capabilities, customers have benefitted from an increased choice of devices and capabilities. A lack of standards, however, has kept some of these devices out of reach. In addition to limiting customer choice, this

standards deficiency increases integration costs for solution providers and manufacturers."

This is not to say that analogue systems are redundant. Analogue cameras can be fitted with products that convert the analogue signal to IP and software analytics can work with analogue systems. However, IP offers the mobility and flexibility, as well as the potential for higher specification cameras that allows software analytics to work more effectively and standardised centralised solutions to become a reality.

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Royal Berkshire FRS live with Command Support System

Royal Berkshire Fire and Rescue Service, the brigade which had to deal with the massive Windsor Castle fire in 1992, is the first UK fire service to go live with VectorCommand's Command Support System. Stephen Prendergast of VectorCommand looks at how the Command Support System is being introduced into the service, the brigade's thinking on incident command, and its search for the optimum combination of communications bearer and other technologies for improved fireground management.

Left to right: Alan Newcombe (left) and Olaf Baars in front of one of the touch screen displays showing the Command Support System; Iain Cox (CFO, left) and Olaf Baars (Deputy CFO) at the launch of Royal Berkshire FRS's two new mobile incident command vehicles at Windsor Castle in January 2009.



When Windsor Castle, the world's largest inhabited castle, caught fire in November 1992, Royal Berkshire's Fire and Rescue Service found itself battling one of the largest and most devastating fires in recent UK history.

Following the fire, important lessons were learnt about the need to improve the management of large numbers of firefighting resources across a wide area in a high risk and high pressure environment. When Royal Berkshire FRS launched its two new mobile incident command vehicles in January this year, it chose VectorCommand's Command Support System as the command, control and communications system to provide robust, large incident end-to-end incident management. Very appropriately, Windsor Castle was the launch venue.

At the launch, Chief Fire Officer Iain Cox, and Deputy Chief Fire Officer Olaf Baars made it very clear that the experience and lessons of the Windsor fire had been major influences when the service was defining the specifications and capabilities of their next generation vehicles and systems. In Olaf Baars' words: "It was during the tragic fire at Windsor Castle in 1992 that the need for a specialist Incident Command Unit to enhance the authority's command support capabilities was first identified. These new vehicles represent a very significant step change in the Command Support capability available to our officers. We

wanted to equip this environment with the very best information systems and communications technology available. This enables us to support operational commanders making what are sometimes very difficult decisions in challenging and dynamic circumstances.

"These vehicles will provide a 21st-century platform for incident command, not only in terms of their technological capabilities for supporting operations but because of their capacity to act as multi-agency command centres, linking directly to police and other emergency response organisations. People have been talking about interoperability for many years but I believe that we are the first to be able to demonstrate true multi-agency interoperability at this level."

Royal Berkshire FRS consulted with other local emergency services during the specification and design process for the vehicles and systems.

"VectorCommand has been supplying command training simulation applications to this authority and many other fire and rescue services around the world for many years. They have a unique understanding of the fire and rescue service; they understand incident command and have produced a command support application that is unrivalled. Together with the London Fire Brigade we are proud to be the first fire and rescue service to deploy this powerful application.

"These vehicles provide the most advanced Command



The new mobile incident command vehicles feature technologies provided by Excelebrate Technology, and vehicle construction by W H Bence.

Support Capability deployed anywhere in the fire service, I am pleased to say that we do not have to deal with so many large incidents that the Incident Command Unit is in constant use. However, quite simply, this is a resource that is second to none and it should be used as often as possible," added Baars.

Even before their formal launch the two vehicles had been used to support response to a number of different incidents – including three significant fires, a factory explosion and a major flooding.

With the Command Support System Royal Berkshire FRS can link geospatial information with other different types of dynamic incident information, such as still and live streamed imagery within a single interface, creating a much more timely, accurate and comprehensive common operational picture in support of improved decision making.

The Command Support System helps the service's senior commanders and support staff as they attempt to gather information quickly, understand better what is happening throughout an incident – ie achieve situational awareness, especially if it is happening over a large area or in multiple locations – and make well informed and effective command decisions.

Critically, the system has been designed to have an intuitive, icon-based touch screen interface, making it easy to understand, learn and use by non-technical users. It can be used easily by commanders at all levels, not just

technical personnel.

Other technologies specifically developed for emergency services and integrated within the Command Support System include:

- messaging and conferencing;
- access to organisational databases (for hydrants, water sources, risks, personnel, etc);
- clear graphical representation of organisational assets and structures;
- integrated web access;
- automatic incident logging;
- electronic whiteboard planning screens.

Currently, if any of these different types of data and functionality are available, they tend to be scattered throughout disparate, non-integrated systems that may be difficult or impossible to share, access or deploy.

Using the Command Support System, fire and other emergency commanders and support staff at any location can now see across multiple incidents, assess risks, drill down into individual incidents to see what is happening in the field (through live streaming incident cameras), and assess and discuss individual commanders' electronically shared plans for coping with specific emergency events. Commanders will also be able to allocate personnel and other resources dynamically within an integrated asset management system (which accesses despatch systems and resource databases), and share incident communications and instructions wirelessly.



The Command Support System will be demonstrated on the VectorCommand stand at the Bapco exhibition, London, 21/23 April 2009, and a technical paper will be presented at the conference.

An intro to the technology, by Alan Newcombe, Royal Berkshire FRS

Our two new Incident Command Vehicles have been designed and equipped to reduce the setup time for incident command units arriving at an incident. We plan to put the Command Support System on all front line pumping appliances. This will mean all crews and officers will be familiar with and using the system on a daily basis. It will be a business-as-usual process, not something only used at large incidents. On our new incident command units, the bearer concept for equipment on the unit (LAN) is as follows:

- On station the communications from the units (data) uses a wireless bridge to our existing LAN/WAN;
- When mobile to an incident or just mobile they will use 3G/GPRS;
- When parked at an incident they will use 3G/GPRS or Satellite;
- If Satellite and 3G/GPRS are not available they will use wireless links to the second vehicle that can access satellite/3G/GPRS;
- If possible, for technical or

physical reasons, we will use (with permission) a wireless bridge to existing broadband (this may be domestic or commercial).

If wireless is compromised for technical reasons we will use limited cable link to existing broadband.

For video:

- Video streaming from a mast on each command unit with both thermal and optical imaging controlled by fixed wire;
- Video streaming from aerial device's video/COFDM with remote control from Peli-case control (wireless) using data bearer to link vehicles;
- We are also looking for a low-cost IP camera for adhoc deployments.

We are currently doing a lot of work in fireground data bearers.

Currently we have wireless 802.11a, b, g, and a node to extend the distance. This is still not as good as we would like so we are about to test 802.11n multi-path. We hope this will give us better distance, at best x 2.5,

and multi-path around buildings. The concept we are looking at is a MESH using 802.11n on each pumping appliance, and in-fill if required with 802.11n portable nodes or mounted on other vehicles.

The limitation of output means the better solution may come from WiMax or WiMax/802.11n in combination. 3G/GPRS is the other method we will use when coverage permits, to give more distance from command unit to laptop.

We plan to use ruggedised wireless laptops on the fire ground, with battery belts for extended running or an inverter from appliance power systems to charge in place.

The master for command and control will be the unit at the incident. The reality is that radio/wireless communications can be compromised so we should plan for that event where possible. The extended view of the Command Support System over a data network means it will be possible to give access to anyone, anywhere if they have network communications.

Accepting multimedia

In the US they are gearing up to capturing multimedia emergency calls – but how close is the UK police to capturing valuable crime-scene information from the public? And what other trends are making their way to these shores? The BAPCO Journal interviews Paul Collins, Business Director (Public Safety) of CyberTech International.



"I'm sure the police in the UK are thinking about it because there is information out there that would be useful for investigations. But the technology is not there yet."

▶ Paul Collins, Business Director, CyberTech International.

The potential benefits of receiving emergency multimedia communications has not been lost on the US, where the Next Generation 9-1-1 (NG9-1-1) initiative is in full swing.

The goal of NG9-1-1 is to enable the transmission of voice, data, or video from different types of communication devices to the Public Safety Answering Points (PSAPs) and onto emergency responder networks across the US.

It began as a US Department of Transportation (USDOT) Research and Development project funded by the Intelligent Transportation System (ITS), Joint Program Office (JPO).

The US Department of Transportation led the project team through a contract with Booz Allen Hamilton, the primary contractor.

As a result of the initiative, explained Collins, US police will be obliged to be able to accept multimedia from the public. In practice, this could be – for example – receiving camera phone pictures taken by a member of the public of a vehicle leaving the scene of an accident.

According to Collins, several US states are now implementing the initiative and CyberTech is working with partners to capture that multimedia and – very importantly – make it possible to play back with audio received from the public or the police. "The requirement from users in the US is applications that will handle that technology, whether it be JPEGs from mobile phones, video, text messages or even emails from a BlackBerry. In some cases we are also looking at instant messaging."

Where the data is already being recorded by existing 911 systems, CyberTech's objective is to gather all the information in one application for easy analysis. "I'm sure the police in the UK are thinking about it because there is information out there that would be useful for investigations. But the technology is not there yet. I cannot take a picture and send it to 999."

Substantial investment would be needed in the UK to upgrade current technology to receive multimedia. The same would apply to ICCS systems, explains Collins, as these are not designed for handling anything other than audio. "I envisage that the UK police will get that one day, but it is still a few years off."

The second trend that CyberTech International is experiencing is a demand for both ambient recording and face to face recording in police Gold and Silver Command rooms. As such, the company is installing solutions that record all Gold and Silver voice communications, both via phones, ambient and face to face – a UK police force is an early adopter of this technology.

"Ambient recording" consists of recording all conversations in a command room via microphones either in desks or ceilings, and "face to face" recording consists of wearable wireless microphones issued to those taking lead roles. In a nutshell, it records who said what to whom, at what time. "As soon as the voice is captured by the microphones it is encrypted and the recording file on the recorder is 'fingerprinted' so there is no possibility of tampering with the resulting files."

Police Services need to embrace mobile device recording and multimedia evidence, says Jamie Wilson, NICE Systems

Latest figures suggest that there are over 40 million mobile phones in the UK, enough for two-thirds of the population. The vast majority of these devices have the facility to record photographs, video footage and sound – yet most police services in the UK have no established and communicated process for acquiring data held on a citizens mobile phone, according to an independent poll commissioned by the public safety division of NICE Systems.

During January 2009, MCC International spoke to the command

and control centres of 52 police services and constabularies in the UK, on behalf of NICE Systems, asking each of them the question: "If a member of the public had potential evidence relating to a crime on their mobile phone, what would be the procedure for submitting the information?"

Of all the calls completed only three services were able to offer the citizen a specific procedure regarding how they are able to accept files from mobile phones, or other mobile devices such as a PDA. Typically, the

overall response given was that the evidence must be physically presented by the owner of the device at a local station and depending on its content the device would then need to be confiscated from the owner.

However, when in the midst of a new investigation, or major incident, time is critical to a successful resolution. Getting access to valid evidence from all media sources quickly and being able to store and manage this massive influx of information, can make the difference between success and failure.

It is a phenomenon of recent years that breaking stories, such as the fires that ravaged Australia, are first broadcast on television using footage shot by passers-by on their mobile phones. It would appear to be the first instinct of the 21st Century citizen to get out their mobile device and capture events as a crisis unfolds. If harnessed this visual and audio record could prove to be of real significance for incident investigations.

Yet there is a real need for police services to recognise and acknowledge the inherent value of access to timely footage captured on mobile phones in the incident investigation process, and to then take positive steps to make it viable for citizens to submit this information as quickly and easily as possible.

There is clearly a willingness to share

such information and you need only to look at video and photo hosting websites, such as YouTube and Flickr to recognise the ease with which such recorded files can be uploaded and stored in a matter of minutes. So if it can be done for entertainment purposes, why not incident investigation?

In the recent past mobile phone recordings have, in part, brought about a successful prosecution. One such example in 2006 led to a teenage gang being sentenced at the Old Bailey for a series of "happy slapping" attacks that resulted in the death of one of their victims. Ironically it was their filming of the attacks, using their mobile phones, along with CCTV footage, that supplied evidence against them in court.

As the results of the poll suggests

there is clearly a need for guidance – from the vendor community as well as inter-service communication as they embark on such project – in order to bring about processes that will assist police services in the UK to deal with the increasing volume of new and emerging sources of evidence.

Technologies are available to police services today, such as NICE's Inform, that offer full-spectrum incident information management. These systems are capable of consolidating multimedia sources such as video footage and still images from surveillance cameras as well as body worn cameras (and of course mobile devices), GIS information, call-taker CAD screens, incident reports, mugshots and emails – all with date and time details, to build up a complete picture of an incident.



"Of all the calls completed, only three services were able to offer the citizen a specific procedure regarding how they are able to accept files from mobile phones, or other mobile devices such as a PDA."

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Stream on the move

Derbyshire Constabulary has just seen the rollout of body worn cameras to around 80 officers across the county, including Police Community Support Officers. BAPCO Journal's Dan Worth investigates the journey taken by Derbyshire Constabulary before it reached this exciting point in time, and then looks at the hurdles that still remain before body worn cameras become the norm rather than the exception in the UK.



"We didn't want the same management system that they were using – three back office staff to manage the video data – as we felt it would be too time consuming and costly."

➤ Chief Inspector Graham McLaughlin, Derbyshire Constabulary.

Mike Wilks from Scyron – a hardware and software supplier of systems for the capture, storage and management of digital data – explains how the partnership first came about: "We already had a relationship with Derbyshire as they were using our DEMON system for information storage and management. However, they didn't feel their previous IT system was quite right to manage the additional video that body worn cameras would supply." As a result Scyron worked alongside Derbyshire to develop a system that was suitable for use. The solution was to install each relevant piece of equipment that would be used – the cameras, batteries and the officer's unique warrant number – with a barcode, so that a clear system of who had what and when could be formulated. This was then able to be uploaded to the system and provide a simple way of tracking and searching the data that was added.

Chief Inspector Graham McLaughlin from Derbyshire Constabulary explains more: "We had seen the use of body worn cameras with Devon and Cornwall Police and the benefits they had brought. We didn't want the same management system that they were using – three back office staff to manage the video data – as we felt it would be too time consuming and costly. Working alongside Scyron we developed a bespoke automated system that officers could operate themselves far more efficiently."

The system allows officers to upload headcam footage to the system. The video cannot be edited or deleted, maintaining the integrity of the evidence. The system also has an inbuilt function to automatically delete any evidence stored that is not subsequently used after 31 days in accordance with Management of Police Information guidelines. The software automatically produces a statement of evidence for officers and then produces a professionally printed DVD. Automating the system makes it far more efficient, with Chief Inspector McLaughlin estimating it saves almost 30 per cent in time for officers.

The barcode system also provides the necessary proof that a piece of footage was recorded at the claimed times date and location for use in court. "It's vital this information can be used in court as its potential is massive," notes Wilks. "It's no good capturing what could be useful

evidence if it isn't permissible in court. We made sure all evidence gathering and storage complied with the necessary guidelines, and Derbyshire have already seen the benefits of this with footage captured already helping secure convictions."

As Chief Inspector McLaughlin explains: "With the footage from the camera you have a very strong piece of evidence. It's both more accurate and more compelling – it's true that a picture is worth a thousand words and it makes it much harder for someone to dispute a claim in court if the actual footage is being played. We have secured a conviction against someone who punched a police officer and it was caught on the headcam of another officer. With the video footage we were able to prove the man knew he was punching a police officer and this helped secure the conviction when previously it would have been a case of one person's word against another." In fact since the rollout of the devices Chief Inspector McLaughlin says that wearers have noticed that once people realise they are being filmed they start behaving more "professionally".

Making the data suitable for the use in court is one of the primary concerns for the use of bodyworn cameras and this is something that Chris Khan of Robocam notes too: "Our products are used in a wide range of environments, including the police, but also by those in healthcare, education and local councils, distributed by our partner



Robocam's products are used in a wide range of environments, including healthcare, education and local councils.



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Derbyshire police officers sporting Sycron body worn cameras; (top) an officer examining footage.

Interconnective, to provide increased security and potential evidence." As a result of this Robocam's equipment is designed so that data cannot be deleted by the person who records it, only by those who have the necessary authority. This means footage cannot be tampered with or altered and a true record always exists of what happened that can be used in court.

Making the devices simple to operate is another key consideration, as Home Office guidelines on bodyworn camera state, "The recorder should have physical protection against knocks, should be shock and vibration-proof and should be able to record while the officer is running." Khan adds, "We have designed the device to these guidelines so they are simple enough to be used with gloves on and strong enough so they won't be damaged or broken if knocked around or dropped."

Robocam also allow recorded data to be easily extracted through a standard SD card or via a USB, and the footage can then be downloaded and stored on a CD or DVD for use in court. The benefits of this are certainly growing and, says Khan, "As people in all areas come to realise the potential for these devices their use will almost certainly increase. This will provide the users with far more evidence and, as a result, increased security."

However, while both Robocam and Sycron offer devices whose data is stored after it is captured there is also a growth of bodyworn cameras that stream live back to command centers. 802 Global is a company that provides a raft of camera technologies, with live stream cameras one of these. As Tim Close of 802 Global notes, "There are benefits to having a live stream rather than a locally recorded system. For example, people who take cash in transit have told us they feel safer wearing a live stream camera because it means if they were to be attacked there is no incentive for the attackers to try and remove the camera from the wearer because the footage is being watched and stored remotely, not on the wearer."

Another area where live stream footage is of more benefit is at large-scale events like football matches. "If the police and security personnel at a football match are able to monitor a large crowd for troublemakers it is far more efficient for them if they are able to watch footage live from an officer on the ground in their control centre. It means they can spot people who perhaps shouldn't be there or may cause trouble at the scene, and act

accordingly there and then," Close explains.

The uptake in this technology is now extending beyond the police sector and into the fire and rescue services, says Close: "Northern Ireland Fire and Rescue use our products and they have said they find it very useful when they are at an event because they are able to send live streaming video back to a commanders in a central command and control unit. If they need a specialist to monitor what they are doing – perhaps at a chemical fire for example – then the specialist is able to see what is happening and direct them accordingly. This provides a safer working environment for firefighters as they can receive support from gold and silver command in real time and increases public protection."

While the use of live streaming cameras is growing, Close concedes that price is hindering its growth somewhat. However, the main problem, he notes, is ensuring that towns and cities provide the necessary means to create a wireless network so the devices will work. "In urban areas we are continually trying to stress to the police and government agencies the importance of communicating with one another so that when wireless networks are deployed for other applications such as town centre CCTV, WANs etc, that provision is made to communicate with vehicle borne and bodyworn solutions. The higher the device can be placed the wider the area in which the cameras can operate and this means users like the police or fire services have a far better network to operate on."


Rinicom launch COFDM channel-hopping Rhino

Rinicom offer a bodyworn camera system that has footage that can be streamed or stored and are about to launch a brand new system called Rhino, as Jon Bateson, Senior Sales Manager, explains. "Wireless body worn camera solutions are not a new thing, traditional systems utilise either a body worn recorder and either a WiFi or analogue radio link. Both of these solutions are fairly limited in both range and robustness and really don't fulfill end users expectations. Using the Coded Orthogonal Frequency Division Multiplexing (COFDM) waveform, and combining this with a unique channel-hopping feature, the Rhino system will offer high speed, long-range IP streaming within mesh architecture. This means one officer can see another officer's footage, or indeed any data, from anywhere inside that network. Commanders too could access the data of an officer or firefighter, and all the data that they have on them."

Indeed Bateson notes that while video is just one of the pieces of information that could be viewed any forms of data could be sent over the system. A firefighter in a fire could send data back including video, images, his GPS position, heart-rate, blood pressure, even the oxygen in his tank, to a central commander who can see all this, either from a command centre, or even from a mobile device that is set up to receive it.

After several years of developing the software and subsequent testing being undertaken on a prototype by the military, the product is now going to be launched at BAPCO in April.

It seems clear that body worn cameras are not only a vital part of the emergency services growing array of technology, but one that could well have implications for all types of data streaming.

 Tim Close,
802 Global.

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Hot, cold, dirty, wet, ruggedised laptops

ndura Rugged in the high seas

Sailing a fishing boat from Newlyn in North Cornwall to Melbourne in Australia is no easy feat. Doing it in a 37ft Cornish Lugger built from scratch that must contend with some of the harshest weather conditions on the planet is harder still. This though is exactly what high-seas adventurer Pete Goss MBE has been doing, and he's been updating his daily blog onboard, all thanks to Blazepoint and its ndura Rugged Laptop.

Dubbed by the avid sailor as the "heart of all communications" with the outside world, the ndura Rugged laptop has been with Pete since he began his journey back in October 2008, alongside his 14 year-old son Eliot, his younger brother Andy Goss and brother-in-law Mark Maidment, until they completed their epic journey on March 9.

Goss has been able to update the world on the boat's progress, without fear of the laptop being damaged by salt water, vibration, humidity, harsh temperature or accidental drops, explains James Munger-Styles, Head of Marketing for Blazepoint, who offer rugged mobile computing: "It was a great honour to be in a position to sponsor Pete in yet another voyage. The ndura Rugged laptop is a highly sophisticated piece of equipment that can turn into a tablet if required and has a touch screen. The laptop is also rugged and water resistant, something that we believe was



put to the test during the earlier days of the voyage when the deck opened up above the chart table and dripped salt water on the rugged laptop all night, to no effect."

Although Blazepoint historically provide hardware solutions into the military sector it has recently moved into commercial markets, including the emergency services market with four main products that offer ultra rugged protection from arduous field use.

Adventurer Goss is, naturally, grateful for the high-tech kit, "We are especially grateful to all at Blazepoint for their sponsorship of the Mystery's hull and for providing a rugged laptop. A standard laptop just wouldn't be able to survive in the harsh environments on board, whereas the ndura Rugged laptop will give us crucial access to communications so that the public will be able to share our journey."

Docking station with JLT's new tablet PC

"The key thing about ruggedised tools is they are designed to be rugged from the ground up, not built first and then adapted afterwards."

▶ Mark Muslek, Managing Director, JLT.

Mobile computing company JLT recently launched a new rugged portable tablet PC with an in-vehicle docking station that allows use both in and out of the vehicle. The JLT8404 comes with integrated wireless communications – Bluetooth, WLAN, 3G/GPRS – and GPS for tracking and mapping applications. The latest upgrade of the tablet device from JLT underlines the continued evolution of products in this sector, as Managing Director Mark Muslek explains, "Our products are used regularly by both the police and fire services, both in and out of the vehicles. Generally the fire service use the device in their vehicles while the police like to use it both in and out. By offering a device

that can be fitted in-vehicle – and be removed – so we can offer the best of both for everyone."

The products from JLT have IP67 protection against dust and water, making them as tough as possible. Muslek notes, "The key thing about ruggedised tools is they are designed to be rugged from the ground up, not built first then adapted afterwards."

A key element of rugged tools is the battery life. The trade-off comes between the weight of the battery against its charge life as the larger the battery the more weight it adds to the device. However, continued developments in battery weight and computer-processing efficiency means Muslek believes there will continue to



be improvements in this area too: "By the end of the year I wouldn't be surprised if we have managed to remove almost 300-400g of weight from products by using small batteries on more efficient machines. This could bring the weight down to as low as 1.5 kilos." The batteries used on JLT products are also "hot-swappable", so if the battery is about to expire it will alert the user and allow them to replace it with a new one.

Getac's extra long battery life

Getac is a company who provide a range of products designed for use in the most extreme environments – from the heat and sunlight of the Middle East to the cold of the South Pole. As Julian Willis, Getac Sales Manager explains, rugged tools are now very much the norm for a variety of end-users. "Users like the military, police, coastguards and so on have fast come to realise that normal, commercial products can't cope with the conditions in which they needed them to work. For example, salt-water corrosion is a major issue for the Coastguard, while the military and police need screens that can be seen in bright sunlight and have long battery life. As a result the demand for ruggedised products like ours has gone up significantly. The challenge now is working on improving the ability of these products to make them even more beneficial."

Because the users of these products are often far from a source of instant power increasing the battery life of products like laptops and tablet notebooks is a key concern. Getac has worked to improve battery power in their products, now providing a life of 15 hours, with a view to 18 hours by the end of 2009, and also provide a laptop that can withstand salt-water corrosion. "The B300 has salt/fog resistance that means it can be used anywhere on a ship, by the Coastguard for example, and there is no risk of it being damaged" explains Willis. Indeed the B300 was subjected to rigorous testing on the BBC's The Weather Show where the device was sprayed with salt water on the deck of a ship in rough seas, and still worked perfectly after the ordeal.



The rise of the use of PDAs by the emergency services means there is a growing need for ruggedised versions of these tools too. Getac has launched a new product, the PS535F which is a GPS PDA for use in tough conditions and with relevant in-the-field functions like GPS, an altimeter and an e-compass, as well as safeguards to protect it against frequent drops and exposure to water, dust and extreme temperatures. This has many potential benefits, as Willis notes: "Forest patrols reporting the location and fire hazard conditions to a fire centre is good example of the application for the PS535F as it can provide accurate time and location information and still work in tough conditions."

Getac have also provided the means of setting up night-vision screen or decreasing sun glare effects with a simple switch function.

The B300 Getac laptop with salt/fog resistance and the new PS535 PDA with built-in GPS functionality.

Motorola's three-piece configuration for maximum flexibility

Motorola offer a wide range of rugged tools that are used by a number of emergency service users – including the Fire & Rescue services – to meet the need for in-vehicle terminals that can withstand the rigours of the conditions they will be used in. One of these is the MW810 Mobile Workstation that offers wireless connectivity and computing

for mission-critical applications.

The device is designed with a three-piece configuration – CPU, keyboard, display – that allows mixing and matching of options to suit the user. The CPU (central processing unit) can be mounted inside a vehicle to reduce wiring – or in the trunk to save space. In order to ensure it can withstand tough

working conditions the display is made from tempered glass for safety and durability. As well as this all components are tested in accordance with US Military Standard 810F and other standards for resisting temperature extremes, vibration, shock, humidity, dust, and other hazards of use in harsh conditions.



Dell's first rugged EMEA offering

Dell is to launch a brand new fully rugged laptop, the Latitude E6400 XFR, which has been engineered to meet the needs of customers in the harshest environments. This includes a higher drop specification and dust and moisture protection than any fully-rugged laptop in its class.

It was designed for the military, first responders, oil and gas environments, manufacturing floors, field technicians and homeland security and was

independently tested to more than 13 military standards for operation in challenging environments. The laptop also shares common images and components with the Dell Latitude E6400 laptop for easy integration into existing environments. Lionel Bohar, Head of Notebooks, Dell EMEA said, "Rugged customers have unique needs beyond mainstream business notebooks. With the Latitude E6400 XFR, which marks our first fully rugged laptop offering for the EMEA market, we incorporated innovations on behalf of our customers to create a one-of-a-kind system that offers advanced security, more durability, and exceptional ease-of-use."

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