



999 service celebrates 70th anniversary



A watching brief - CCTV special feature

Information management for civil contingency responders

BAPCO

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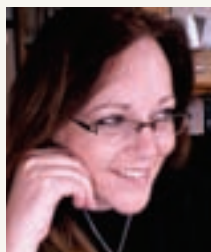


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Dawn Davison-Read

EDITOR'S LETTER

The recent announcement by the Home Office to provide an additional £3m to fund a national roll-out of head cameras is certainly a welcome step, in providing evolving technology, to support the emergency services. This issue therefore bears testament to the benefits of mobile CCTV devices (see pages 6-7 and pages 22-25). What also came to light during our interviews, conducted for the CCTV feature was the growing view on the benefits that arise from being able to stream live video footage to civil contingency responders whilst attending incidents or simply out in the field. Yet one of the questions that will undoubtedly arise is the most efficient and

reliable means of transmitting this data. Plus using intelligent retrieval mechanisms to ensure that data overload in an already data centric market doesn't hamper the primary role of our emergency service responders. With this very thought in mind we address these issues over the next few editions of the Journal. Additional articles will also be published on our web site. (www.bapcojournal.com) Since the site continues to grow in popularity and we are doubling our hit rates each month, we have increased the frequency of our news bulletins. To receive free, daily, updates simply register at: www.bapcojournal.com.

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in brief

airwave rebrands

Following the recent acquisition of O2 Airwave by two Macquarie-managed investment funds from Telefonica earlier this year the company now has a brand new identity. Airwave also now plans to broaden its effectiveness in terms of the number of organisations using the network, the range of services it can provide, and to expand internationally.

national standard for radio

A new national standard for radio communications, known as AirwaveSpeak has begun roll-out to the police service in the England, Wales and Scotland. AirwaveSpeak is part of a broader strategy by the National Policing Improvement Agency (NPIA) to assist police forces to increase efficiency, enhance interoperability and support frontline policing. Consistent and concise communications ensures that there is no confusion in radio voice transmissions, which ultimately leads to faster and more efficient day-to-day policing.

making an impact in Scotland

The IMPACT Nominal Index (INI) has now been rolled out to include Scottish Forces, the Police Service of Northern Ireland and British Transport Police. Some 53 million records are now searchable from across the UK.

Charles Farr OBE appointed

The Home Office has announced the appointment of Charles Farr OBE as Director General of the newly constituted Office for Security and Counter-Terrorism.

new contract for Tribal

Tribal will provide the London Fire and Emergency Planning Authority (LFEPA), with software to manage the maintenance of its land, buildings and equipment, including recording the condition of property, planning refurbishments and project management.

→ additional £3m funding provided for national roll-out of head cameras

The Home Office is providing police an additional £3m to fund a national roll-out of advanced head-cameras.

When worn by police, these cameras will film everything the police officer sees, making it much harder for offenders to convincingly mislead juries about what had actually occurred.

Undeniable evidence - An independent evaluation published this week of a pilot project of head-cameras used by police in Plymouth showed a clear connection between their use and an increase in successful prosecutions.

Based on that experience, it's clear that the incontrovertible evidence provided by cameras will result in: Less paperwork for police; More guilty pleas in court; Less time spent by officers testifying in court; Cameras help bring criminals to justice

In a press statement, Home Office Minister Tony McNulty said the cameras significantly improve the quality of evidence provided by police officers, which in turn helps to reduce crime, and bring more offenders to justice.

"The government is

committed to tackling violent crime and anti-social behaviour, and the assessment so far is that the deployment of this new technology could be very effective in reducing crime, acting as a preventative tool, and a means to enhance detections," he added.

→ success for police event

The 2007 International Policing Exhibition attracted almost 2,000 professionals from the policing and security sector to Manchester Central (G-Mex) from 20-21 June. Attendees included Chief and Assistant Chief Police Officers, Police Authority members, representatives from the Home Office, the Border and Immigration Agency, British Transport Police, Crown Prosecution Service, prison authorities, HM Revenue and Customs, the National Policing Improvement Agency (NPIA), all ranks of the police and those specialising in forensics, crime reduction, training, procurement, community safety, IT and communications. ACPO President Ken Jones said 'The recent ACPO-APA 2007 conference in Manchester was a great success and we look forward to continuing that tradition in Liverpool. As President, I am delighted that our most important annual gathering of members will take place in the European Capital of Culture for 2008'.

→ pm discusses data sharing on terror suspects

Following Gordon Brown's first visit to Northern Ireland as Prime Minister, one of the key issues discussed by Gordon Brown and Bertie Ahern was how the Britain and Ireland could work together to enhance data sharing on terror suspects within the EU.

Gordon Brown said, "I am delighted that the UK and Irish Governments will now approach the European Union for better systems of data sharing so that we can deal with potential threats, whether it is criminal conspiracies or



terrorist conspiracies, that we can work together by sharing data with our other European colleagues in a way that we have not done before. And I think that the public will want all the different authorities in Europe to work together so that information about immigration, information about biometrics related to known or potential terrorist suspects, that that information is now shared between all 27 authorities in Europe, as a result of a better system of policing."

→ new report covering emergency preparedness

The Buncefield Major Incident Investigation Board has published its 6th report, covering emergency preparedness for, response to and recovery from a major industrial incident.

Lord Newton, Chairman of the Board said, "Our report calls on

all those involved in dealing with major incidents to work together so that the emergency preparedness, response and recovery arrangements are made more effective. However much improvement is made in preventive measures, there can be no guarantee that a major

incident will not occur."

"These wide ranging recommendations are directed throughout the UK. They apply to operators, local authorities, primary responders, central and regional government, devolved administrations, and regulators."

➔ flying incident command and control for the Met

In the presence of the Commissioner of the London Metropolitan Police Service, Sir Ian Blair, three new Eurocopter EC145 helicopters were officially introduced into service with the Metropolitan Police Air Support Unit on July 4 at its base in Lippitts Hill, Loughton, Essex. Fitted with the most advanced mission equipment, the EC145 will mark a new era in Police Air Support in the United Kingdom.

Whilst the primary role of the new Metropolitan Police EC145 aircraft is surveillance, its inherent flexibility and role adaptable mission systems, determines that the aircraft will be capable of many roles.

The advanced police communication suite, the integration of the Wescam MX-



15 Electro Optic sensor, the SkyQuest touch screen video management system and the Gigawave digital video link will ensure that the aircraft can operate as a very effective incident command and control platform.

Even when equipped in its specialised observation role, the aircraft still has the capacity to carry a further three officers, or two police dog cages. The rear observer's workstation can be

removed in fifteen minutes thus providing space for up to six additional officers in the main cabin. Even in this utility configuration, the forward police observer (seated in the co-pilot's position) still maintains control of the entire mission sensor suite and the rear cabin team have full access to all tactical radios and the fold down screen to view any of the available infra-red or TV imagery.

➔ sharing radio frequencies

Ofcom has published proposals to enable public sector organisations to share, trade and release radio frequencies for new uses.

Frequencies allocated to the public sector, including the Ministry of Defence, the Civil Aviation Authority, the Maritime and Coastguard Agency and the emergency services, amount to around half of all radio spectrum below 15GHz – the most sought-after and congested frequencies.

Radio spectrum is a finite resource that underpins many essential services and modern communications.

According to the statement released by Ofcom, it highlighted that an independent study recently estimated that public sector spectrum holdings alone could have a market value of between £3bn and over £20bn.

Essentially, these proposals issued by Ofcom will provide public sector organisations, with new opportunities to make the most efficient use of their frequencies, by allowing them to trade spectrum with commercial companies, while ensuring that national security and public safety remain paramount.

➔ £1m contact centre for Argyll and Bute Council

Steria has confirmed a five-year deal with Argyll and Bute Council to add a £1 million customer contact centre to its services portfolio. The centre, aimed at improving caller's experiences with the council, marks a first of its kind for Steria in Scotland.

The reduction in the number of telephone lines and calls to the

council will mean a simpler and easier log and tracking system for customer calls. It will assist the council to identify recurring community issues fast and effectively.

Commenting on the contract, Paul Sellick, Director of Public Authorities, Steria Limited, said, "We already have several other

contact centres in operation throughout England, delivering great results.

"Our knowledge of not only technology, but more specifically of local government allows us to offer Argyll and Bute credible insight and value which they in turn can then provide to their local government customers."

➔ demand analysis for North West Ambulance Service

A fast track project involving area classification and demand analysis for the North West Ambulance Service has been delivered by Active.

In developing a specific methodology for Service Delivery and workforce planning for the region, the North West Ambulance Service needed support in the classification of urban, rural and remote zones across the region and demand analysis to underpin resource planning within those zones.

Using a mixture of Office for National Statistics data, demand

profiling and travel time analysis around acute hospitals, Active created a method of area classification that divided the region into 38 zones of either urban, rural or remote nature. Within the zones, over one million records of demand were for the last twelve months queried providing a detailed temporal model of demand variation as a basis for resource planning.

Carol Offer, Assistant Director Workforce Development at North West Ambulance Service commented, "Active's logical and transparent method of area

classification has given us a robust way of defining urban, rural and remote zones within the North West enabling us to design our service delivery models specific to the needs of these areas. Additionally, as service re-design initiatives across the region's health economy propose changes to the current infrastructure, we now have the tools to fully model the impact in respect of changing boundaries between the zones and the subsequent changes to service delivery required to continue to deliver effective and timely patient care."

On the back of this work, North West Ambulance has rolled out Active's Total Solution Mapping across the region. Chris Gresty, IMT Head of Health Informatics at the North West Ambulance Service said, "The Cheshire and Merseyside area have utilised Active's system for a number of years to good effect. We are delighted to have been able to use the system as the basis of a region-wide piece of work, providing a consistent method of spatial and demographic study facilities to support delivery of our workforce plans."

International news

contract award for Sepura

Seoul Metropolitan Police Agency has selected Sepura to supply its' officers with more than 5,000 TETRA radio terminals. Promocom Corporation, Sepura's partner in South Korea, secured the order.

multi million dollar contract

Kenwood U.S.A. has been awarded the next generation radio contract by the U.S. Department of State. The multi-million dollar contract stipulates Kenwood as the designated source of UHF, VHF and P25 digital and analog radios for nearly 1,400 American embassy and consulate facilities worldwide and in the U.S.

fingerprint contract

Hong Kong Police Force (HKPF) has awarded Cogent a contract for its next generation Computer Assisted Palmprint and Fingerprint Identification System (CAPFIS). Cogent's new system will replace the current fingerprint identification system from the incumbent provider and will deliver higher accuracy and shorter response time along with improved features based on the latest international NIST standards.

SRI acquires PacketHop

PacketHop Inc. has confirmed that SRI International, a nonprofit research and development organisation and founder of PacketHop, will acquire the company, pending completion of the transaction.

\$5m police contract

Nice Systems in Israel has won a \$5m contract to supply its advanced IP-based digital video content analytics solutions at a major international city's police force. Nice was selected to help the city's police forces deter city-centre terror and criminal activities, enable surveillance of illegal activities, and provide event and incident investigation and management.

→ implementing covert surveillance at East Sussex Police Force

Sussex Police is the latest force to implement the ABM Covert Operations Surveillance System (COPS), covering the geographic area of East and West Sussex including the Police Authority of the City of Brighton & Hove.

The application went live within just two months of the agreement. Mike Tagg, COPS Project Manager at Sussex Police, explained that the adoption of COPS is part of the internal information systems strategic plan at Sussex Police, important elements of which are to reduce the mass of paperwork that has to be dealt with on a daily basis.

Commenting on the impact that the covert surveillance system has made, Tagg pointed out, "Since the introduction of the system we have seen an improvement in the quality of surveillance applications submitted as well

as much faster authorisation."

Continuing he said, "For example, COPS allows us to distribute documents online rather than through internal mail and it also accepts electronic signatures, which not only cuts out the manual paper chain, but speeds up the whole process."

Tagg was also quick to explain, "A surveillance application can now take as little as an hour (typically) if everyone has access to the system and completes their part from application to authorisation rather than several hours to a couple of days for authorisation."

The system is fully compliant with all of the relevant legislation governing surveillance requests and subsequent management. Computer screens adopt the format of RIPA forms --

including oral and written requests - for recording OSC authorisations and the system also has a range of tools to help officers assess review and renewal dates, track live authorities and produce relevant reports.

In a press statement, Alastair Luff, Managing Director, ABM, commented, "We recognise that it is essential for police forces to comply with the latest legislations, and understand the increased strain this can put on police officers' time," .

Concluding he added, "The key benefits of the COPS solution are that it increases flexibility and helps officers to free up time that can be spent on other policing activities -- an important aspect in view of the pressures on resources with which UK police forces have to contend."

→ where did it all go wrong?

Where did it all go wrong?, the title of a joint DAMA UK and British Computer Society (BCS) seminar held in London, resulted in many useful anecdotes and valuable insights on data management.

The purpose of the event was to show members of both institutions - mostly data managers and related specialists - how to improve the quality and management of data to help them better support users,

processes and the goals of their organisations. Topics ranged from recognising, avoiding or minimising risk and how to apply best practice. Discussion panels, enabling delegates to interact, learn and gain the most value from the day, complemented the presentations.

Hosted by management consultancy Deloitte at their London office in the Strand, the seminar was one in a series of

instructive forums devised and organised by the British chapter of DAMA International. Commenting, Graham Jones, the director of DAMA UK responsible for vendor relations said, "It is not often IT professionals are willing to be open about problems, but this event provided an important opportunity for delegates to note and apply lessons learned by others to their own organisations."

→ paying tribute to the role of Inmarsat

Search and rescue experts have paid tribute to the role Inmarsat, satellite communications, plays in saving and safeguarding the lives of sailors around the world.

The UK's international maritime co-ordination centre

(MRCC) in Falmouth, has built an international reputation for its expertise in search and rescue, and offers training as well as guidance to other countries interested in setting up their own MRCCs.

Commenting, Simon Rabett,

rescue co-ordination manager for MRCC Falmouth, explained in a press statement, "We've grown up together with Inmarsat - from the earliest days of search and rescue to the sophisticated satellite-guided operations we run today."

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a watching brief with body-worn video devices

Following the completion of the recent pilot by Devon and Cornwall Constabulary, who conducted extended use trials of body-worn video as part of the Plymouth BCU Head Camera Project the Home Office is providing an additional £3m to fund a national roll-out of advanced head cameras to the police service. Dawn Davison-Read takes a closer look at the pilot and similar trials that have been conducted across the UK...

The use of body-worn video devices is no longer restricted to the realms of sci-fi movies or futuristic views on technology. Following the recent pilot by Devon and Cornwall Constabulary, watched closely by police forces across the country, the technology has shown how it has the potential to significantly improve the quality of evidence provided by police officers and police community support officers in the drive to reduce crime. Additionally, body-worn video devices have an even wider potential across the entire breadth of the public safety sector.

In fact, as outlined by a Home Office statement during July, when worn by the police, body-worn devices such as head cameras, film everything the police officer sees, making it much harder for offenders to convincingly mislead juries about what had actually occurred. Undeniable evidence. And following the publication of an independent evaluation of the pilot project in Plymouth, the use of head-cameras has shown a clear connection between their use and an increase in successful prosecutions. Home Office Minister, Tony McNulty stated that the cameras significantly improve the quality of evidence provided by police officers, which in turn helps reduce crime and brings more offenders to justice. The Home Office, thus made the

decision to provide an additional £3m to fund a national roll-out of advanced head-cameras.

➔ Home Office guidance

Subsequent to the publication of the report, the Home Office Police and Crime Standards Directorate has also released a guidance publication: 'Guidance for the Police Use of Body-Worn Video Devices.' Within the guidance it clearly identifies that the use of video in this context provides a compelling evidential record as to the conduct of suspects and police evidence gathering has become a specialist role within many policing operations, particularly in public order situations. Yet, as identified in the report, while evidence gathered by handheld video and CCTV systems is highly beneficial to prosecutions, the manner in which such equipment is employed can be restrictive. The guidance, also clearly outlines that it is crucial that the wider use of such video evidence should not take primacy over other types of evidence, such as statements from police officers or other eye witnesses. Police officers and other criminal justice agencies, particularly CPS prosecutors must resist any suggestion that an absence of video images in anyway weakens the strength of conventional evidence used in a case. Above all the guidance seeks to standardise practices in the use of the technology, provide guidance on the legal and procedural framework and identify the appropriate technical specifications to make the technology fit for policing purposes in England and Wales.

Commenting on ACPO's position on personal digital recording equipment, Ken Jones President of ACPO said in a press statement, "The introduction of personal digital recording equipment for police officers and staff brings benefits and risks which ACPO will now more fully consider. The interim Home Office Guidance and Research document will now be subjected to critical review."

The statement continued to outline that arguably the guidance and research (which focused on a small number of geographical areas) underplays some of the risks, especially those which might accompany a more general deployment as opposed to the narrower established roles for this sort of technology. "We need to guard against creating an expectation that all police activity ought to be supported by the use of digital recording technology. If we are not careful our

"One of the biggest impacts in the use of body-worn video has been the an unexpected spin-off via the public's general perception. We have seen a welcome shift in attitude with a less aggressive approach toward us from some sectors of the public and alleged offenders being far more compliant. In addition, from our survey of the public conducted during the trial, 80% felt the introduction of the technology was a good idea."

➔ Sgt Oliver Tayler,
Devon and Cornwall
Constabulary



relationship with communities may be changed forever."

Continuing he said, "Many forces are already experimenting with this technology, independent of the research, and the time is right for us to address this strategically. The availability of new funding allows us to develop a sensible approach to the use of this technology, which delivers benefits to the public, the service and its partners."

➔ the Plymouth pilot

As previously documented (BAPCO Journal April 2007) the pilot originally began in 2005 with small-scale tests of a head-mounted video system in Plymouth BCU. In October 2006, Plymouth commenced an extended use trial funded by local partners with 50 head-mounted cameras to be used in as many operational situations as possible by the 300 trained staff in three sectors of the BCU. The Police Standards Unit utilised this local trial as an opportunity to assess the effectiveness of the technology for the police service nationally. Sgt Oliver Tayler led the pilot Head Camera Project at Plymouth BCU. Discussing the project, he said, "The concept and use of body-worn videos have proved to be beneficial as a tool to gather good evidence in an easy to manage digital format which helps improve business efficiency. What is more we have seen how the use of the technology not only assists in evidential gathering but also helps reduce time in identification. For instance, if an incident occurs the perpetrator if videoed covertly is more likely to plea guilty generating time and cost savings."

Tayler also explained that following the success of the pilot in Plymouth it was now moving toward the next phased where other forces and partner agencies could see the real benefits of the system. "Two years ago it wasn't heard of, yet within a relatively short time frame we have achieved national proof of concept and additional Government funding for the future which leads to a very exciting proposition for the future of policing and emergency response."

➔ additional trials

The Cylon body-worn system from Audax was trialled at the G8 conference in Gleneagles. The portable camera, worn on the head, is linked to a digital video recorder complete with a 4" LCD screen and a 100GB hard drive allowing instant replay and the storage of approximately 400 hours of sound and video footage. The product was developed with Archos, who provided a security focused customised unit to support the system which includes permanent date and time stamping for evidential purposes.

Another solution, developed by RoboCam, is a lightweight headset which contains a compact digital camera, transmits images via a cable to a small VCR held in the officer's tactical vest. North Hertfordshire District Council provided two of these cameras to Hitchin Police. Acting Insp. Sieve Mann, Hitchin Community Team said, "These cameras are superb, they enable us to gather intelligence on video, live, while an incident is occurring." He also stated that to have more



cameras would be a superb opportunity as it would allow all officers, such as traffic officers to gather incontrovertible evidence and information."

During the Glastonbury Festival in June of this year, Avon and Somerset Police used the body-worn video wireless solution developed by Reveal Media in partnership with Domo. Commenting, Superintendent Adrian Coombs said, "We can see and hear everything happening at the scene which will help the police officer in command to direct resources and make decisions about policing options. It's like having an extra pair of eyes on the street. We also envisage it being very useful for evidence gathering during public order situations, football matches and firearms incidents. The system will also be a deterrent to offenders and a reassurance to the general public."

The Body Worn Video Wireless Solution comprises of a number of software and hardware technologies that Reveal Media has architected as a complete system. Specially modified Police Jackets house all the necessary equipment and cabling. The system transmits four digitally encrypted live video feeds and GPS data of the officer's position back to the Police command centre. The live video feeds were logged by Reveal Media's M3 software and all evidence from the solid state video recorders is managed by CARMA and Mapper, displays the GPS information and incident media onto a dynamic map creating an unprecedented situation overview for the team leaders.

And to the future - identifying lightweight, robust and easy to use body worn video devices that both record and enable live streaming of video footage to a nearby vehicle or command centre or even in combination with automatic number plate recognition technology will undoubtedly assist in incident management and reducing crime. Put simply, a picture paints a thousand words, and visualisation of incidents can aid communication and information gathering across all partner agencies as well as having a direct impact on criminal activity. The possibilities are endless...

Avon and Somerset Police used the Body-worn video wireless solution developed by Reveal Media in partnership with Domo at the Glastonbury Festival. Both mounted officers were equipped with the system as well as foot patrols. Digitally encrypted live video feeds and GPS data were transmitted to the police command centre, providing total vision and sound of everything happening at the festival, assisting officers in command to direct resources and make decisions about policing options.

A body worn camera (in this case shoulder mounted) is connected to a lightweight solid state recorder for evidence gathering by the officer wearing the equipment. The recorder is in turn connected to a video and data transmitter which encrypts the signal. A GPS receiver sewn into the jacket receives positioning information which is sent back via the transmitter providing updates every two seconds.



"This is one of the first fully integrated uses of NPLG by the emergency services in the UK. It will be a prime example of the benefits of open solutions bringing the best of breed working together to provide the best solution for the customer".

■ Ian Rudd, Senior Sales Consultant, Aligned Assets



BTP leads the way with plans for new GIS

In recognising that the sharing of and accessibility to data is vital to ensure all officers of the British Transport Police can respond to any and all emergency situations, the force is implementing an integrated spatial management solution based upon open solutions, linking all their key systems including Command and Control into an open spatial environment with single address database based upon the NPLG...

Whilst many will cite the arrest of Dr. Crippen, apprehended after a wireless message was sent to the ship upon which he was escaping in 1910, as the first use of technology to make an arrest, the British Transport Police can point to an incident over half a century earlier. In 1845, Sergeant Williams of the Great Western Railway was alerted to the imminent arrival into Paddington of suspected murderer John Tawell by a message sent from Slough.

This tradition of staying at the forefront of technology continues to this day within the Transport Police and 'location' remains as crucial now as it was in the 19th Century.

Today, when the British Transport Police respond to an incident, those needing their help are extremely unlikely

to consider how the officers arrived at the scene. However, the accuracy and communication of the location could mean the difference between life and death. Because of this level of seriousness it is vital that the data and applications used by the Transport Police are accurate, available and accessible to all their staff. The latest developments that are now planned for their Geographic Information System (GIS) are designed to ensure that the officers of the British Transport Police can respond to any and all emergency situations.

Controlled from their headquarters in Camden (a suburb of northern London) the British Transport Police is divided into seven geographical regions made up of 88 police stations and over 3000 staff. In an organisation so geographically diverse, the Force estimates that over

90% of their data has a spatial component (address and/or postcode, or x, y coordinates of crime and incident information) and therefore the potential to fully exploit a single GIS is tremendous.

➔ meeting different requirements

The way the Force use GIS has come a long way. Having started as a 'mapping tool' that was part of the NSPIS Command & Control System, used merely to present maps in digital format, its use was extended to accommodate the needs of Intelligence Analysts. However other departments and areas of the Force had different requirements and over the years have procured their separate, specific systems.

This use of individual applications and data sources could give rise to problems in the future and the Force recognises that sharing and accessibility of data across the whole organisation is vital to meet the current threats.

In 2005 and 2006, a strategic study was undertaken to identify shortfalls, the overall requirements and the best strategy to move forwards with the GIS vision for the Force.

The conclusions of this work include the need to provide maps and map based searches to the high number of users that daily require them (estimated in excess of 1,000) whether they are in the office or on the street.

The study also highlighted the need to provide access to GB wide OS MasterMap as well aerial photography to all staff as and when required, this involves the rapid access to terabytes of information held in a secure and robust environment with a 24/7 availability.

It was also determined that the force would need to centrally manage and maintain a single spatial database which will be accessible for all stakeholders in the organisation, giving live updates and immediate

availability. In addition, a further requirement was highlighted via the need to eliminate duplicated effort, enabling the more efficient use of resources to develop and enhance the products.

To achieve these ambitious aims the Force has partnered with Aligned Assets Limited whose experienced and knowledgeable staff will work to create a pioneering solution. The Aligned Asset solution will ensure that all the British Transport Force systems integrate with common, centrally maintained and controlled spatial data. With the implementation of this work the Force will have full access to the Ordnance Survey MasterMap dataset as well as other map layers.

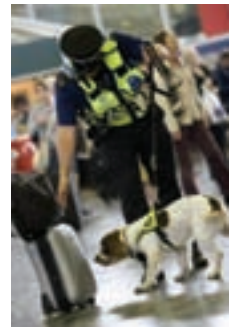
➔ a prime example of an open solution

The project will also see the first major implementation that utilises the full value of the National Land and Property Gazetteer data, by an emergency service. Aligned Assets vast experience of working with this data will be of huge benefit to the British Transport Police.

Commenting on the contract award, Ian Rudd, Senior Sales Consultant, Aligned Assets, said, "Aligned Assets is very pleased to be starting an exciting new venture with British Transport Police. We will be providing an integrated spatial management solution based upon open solutions, linking all their key systems including Command and Control into an open spatial environment with single address database based upon the NLPG."

Continuing he stated, "This is one of the first fully integrated uses of NLPG by the emergency services in the UK. It will be a prime example of the benefits of open solutions bringing the best of breed working together to provide the best solution for the customer."

With the implementation of this project the British Transport Police will continue their proud tradition of using the latest and best technology to improve their service to the public.



The use of individual applications and data sources could give rise to problems in the future and the Force recognises that sharing and accessibility of data across the whole organisation is vital to meet the current threats.



rapid data management at Dorset County Council

Garry Phipps, ICT Analyst, Dorset County Council, explains how the council has improved its data management capabilities and processes with EVault...



"We wanted to move to a centrally managed disk-to-disk backup solution, both to improve our data management capabilities and processes, and also for long term cost reasons."

➔ Garry Phipps, ICT Analyst, Dorset County Council

Local government in Dorset is divided into six district or borough councils, two unitary authorities (responsible for local government in the towns of Poole and Bournemouth) and the Dorset County Council (CC).

The Dorset CC provides education, social care and health services, highways management, trading standards, and local services such as libraries for all of Dorset. These require a significant level of administration, and Dorset CC also provides IT support to many of the satellite sites that are at the frontline of service delivery.

➔ ready for faster recovery

"Data volumes were increasing of course, but our two main problems were the time it was taking to back up to tape and the fact that many of our remote sites had their own tape backup systems but were often recording over the same tape every day—making recovery of information older than 24 hours impossible," commented Gary Phipps, ICT Analyst at Dorset County Council.

At the time, Dorset was relying on tape storage, and backup windows were becoming so large that they impinged on normal business activity. Remote sites relied on IT support and admin from Dorset County Council's IT team based in Dorchester to some extent, but many had their own tape systems. Unfortunately, without onsite IT support these tapes were not managed and changed regularly.

"We wanted to move to a centrally managed disk-to-disk backup solution, both to improve our data management capabilities and processes, and also for long term cost reasons. Disk backup is faster and more cost-effective than tape storage for what we required," explained Phipps.

➔ discovering the value of EVault

Dorset's team considered several options and as part of the process invited EVault partner TriSys a leading value-added reseller specialising in storage management, in to meet them.

"The EVault technology was the deciding factor, and the online capability offered a very cost-effective way of tackling the issuing of backing up data from our remote sites," said Phipps. "Added to this, TriSys has local offices and a strong track record in data management solutions, and after considering many



options we felt the EVault system was the best solution for us."

Dorset, supported by TriSys and EVault, installed a vault (server) for storage of the data and the EVault InfoStage® online backup software at the Dorchester central offices.

Phipps continued, "Originally we planned on putting 30 to 35 of our servers onto the system to backup to the vault, it proved really successful, and now we have 67 servers on the system. Everything including mail servers, Oracle servers, Notes and Excel files are being backed up using the solution."

➔ rapid recovery

With this increase in servers being backed up to disk using Evault InfoStage, a second vault has been installed at one of the County Council's sites in the North of the county. Already between seven and seven-and-a-half terabytes are stored on the larger vault.

Phipps concluded, "We are really pleased with the EVault solution, it has worked extremely well for us. Dorset County Council remote sites can be backed up quickly and its data is protected as we can now recover older data and we can do so very quickly. The overall cost-effectiveness of moving to a disk-based system and the increased level of automation offered by Evault InfoStage means that backup and recovery have been transformed into pretty straightforward activities, leaving us free to focus on delivering better services in other areas."

Evault is exhibiting at Storage Expo 2007 at the National Hall, Olympia, London

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virtual tape libraries come of age

With ever increasing levels of data being stored, Steve Mackey, UK area sales director, Quantum, provides his opinion on whether disk to disk backup will supersede tape back up...



Steve Mackey
UK Area Sales Director,
Quantum

"The need to retain data for longer periods of time, in multiple locations and the obligation to comply with government legislation and industry regulations means that a disk-based storage solution is impractical, being both expensive and non portable."

Will disk-to-disk backup supersede tape backup? That's the age-old question that has been hotly debated by the storage industry for many years. During the course of the debate we've seen both sides of the argument come out fighting. In one corner there was the tape media makers stating the case for tape's long-term survival, in the other corner there was the disk vendors heralding the death of tape.

Looking at the data storage market today we see the two technologies co-existing, both finding their place in a tired storage environment.

Users agree tape remains a necessity in the data centre. For the majority of businesses, achieving a state of tapelessness is far from reality. Even organisations that embrace emerging technologies admit they still have tape libraries for archiving and disaster recovery.

The need to retain data for longer periods of time, in multiple locations and the obligation to comply with government legislation and industry regulations means that a disk-based storage solution is impractical, being both expensive and non portable. Additionally, although the cost of disk has fallen dramatically with advances in technology and the introduction of low-cost ATA drives, comparing cost per gigabyte for large-scale solutions, disk is still more expensive than tape.

The adoption of pure disk-based backup solutions will not replace tape until the problems of long-term retention, cost and portability can be solved.

➔ the corporate backup problem

Whilst the market for tape-based data storage solutions is continuing to grow at a steady pace, with storage analysts Freeman Reports stating global revenue for tape libraries rose 10% during 2005, virtual tape libraries (VTLs) are gaining growing acceptance in a market demanding greater speed and reliability from storage solutions.

Data proliferation and the need for shorter backup windows are leading to demands on storage administrators to balance reliable data management against the pressures of cost and compliance for their organisations. The ability to recover large volumes of data within an acceptable timeframe is also proving to be a major backup and recovery challenge for businesses.

VTLs offer a number of advantages over traditional tape backup and disk-to-disk-to-tape. The most appealing of these benefits to storage administrators is that VTLs offer faster backups and restores as the demand grows for shorter backup and recovery times and greater reliability.

Customers want to consolidate backup into a single device. The advantage of VTLs is that it is a non-disruptive, easy to manage technology. As VTLs are designed to look and feel like tape, end-users can add disk to their backup process without having to radically overhaul their backup software,

where data is located and how it is replicated between sites. All procedures of which were originally designed to write to tape.

The corporate backup problem that storage administrators now face is that data is growing rapidly and is widely distributed in branch offices, remote sites and regional data centres. Today the common solution is a series of disconnected tape devices, although isolated ATA disk devices are also starting to appear. These remote locations tend to have silos of data because there may not be enough network bandwidth to let users move backup data easily and cost effectively between locations.

In addition management is a challenge because the multiple sites often have very different levels of IT expertise, many remote sites or smaller branches don't have dedicated IT resources at all.

Storage vendors need to address the issues of eliminating redundant data and improving the utilisation of disk resources and data transport networks. Data de-duplication, wide area file services (WAFS), WAN optimisation and remote data management and protection have been some of the hottest areas in the storage industry with key acquisitions and OEM relationships being announced in the past year such as ADIC's acquisition of Rocksoft and the EMC acquisition of Avamar.

➔ new technologies are coming

Storage analysts see the future looking bright for VTL adoption. In its Worldwide Virtual Tape Library 2006-2011 Forecast and Analysis report, IDC forecast that the worldwide VTL market will double in value over the next five years, reaching \$1.4 billion by 2011. The total VTL system terabytes shipped will increase rapidly from 99,325 TB in 2006 to 690,082 TB in 2011, a compound annual growth rate of 47.4% and open system VTL products will drive market growth and eclipse enterprise mainframe VTL market value in the year ahead.

In the same report, IDC state that in order for the market to grow, "Suppliers must educate customers about the potential benefits and value proposition of VTL systems and not merely tout them solely as an alternative to tape-based data protection".

This points to new technologies are on their way and VTLs on the market today are in for many changes. Symantec's recent release of NetBackup OpenStorage API, a native application programming interface (API) for the next version of NetBackup, presents the first steps to bridging the divide between the integration of VTLs and backup software.

Integration between intelligent disk devices, such as VTLs and backup software has been a challenge for the industry. Since major backup applications haven't provided a purpose-built API for integration to date, it has been difficult for

intelligent disk backup devices to offer advanced functionality beyond basic interoperability.

Symantec believes the NetBackup OpenStorage API solves vendor integration problems by allowing vendors to natively integrate with NetBackup. OpenStorage API will allow NetBackup to manage VTLs and other secondary storage devices, giving users a single view of their tiered backup environment. The investment by Symantec in the VTL market demonstrates that the technology has a future and is more than just a short-term solution to end-users' problems with backing up to tape.

➤ data de-duplication is key

Data de-duplication is considered by many industry analysts to be one of the most important storage technologies to emerge in more than a decade. Enterprise Strategy Group is convinced that eliminating data redundancy will be one of the most important technologies for all tiers of storage. Likewise The Taneja Group says this is core technology that can help fuel a range of new offerings in the backup and archival spaces. Furthermore, de-duplication is powerful technology that can change the economics of the way that backup and archive data is stored on disk and moved over networks. Backup, replication, and archive operations, which include very high levels of redundancy, such as VTLs, are the first targets for the new technology.

De-duplication technology will provide important capabilities in distributed environments. As discussed, today most backups in these environments are carried out by isolated tape or disk devices. In the de-duplication replication model, sites will have option of deploying disk-backup appliances holding up to 40 times more data than conventional disk. Data de-duplication can also replicate backup data to a central disk backup appliance for disaster recovery protection.

In the data center, the de-duplication technology will provide equally powerful advantages. Adding the technology to an enterprise disk backup solution that already provides a fully integrated tape component, de-duplication will increase the effective amount of data that can be stored on disk by up to 40 times and still provide tape support in a single, integrated system.

Data de-duplication seems to be a technology that's here to stay because the benefits are so powerful. Storage space is at an all-time premium and shrinking the size of the stored data volumes seems to be one of the few options left.

Storage vendors need to allow end users get value out of their existing systems, whilst taking advantage of new technologies such as data de-duplication. Users need to be vigilant about selecting the right data management solution for their needs, whether it's disk, tape, replication, or a combination of any of them.

*Quantum Corporation
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electronic data helps keep criminals at bay

Dorset Police's Hi-tech Crime Unit is using Sun StorageTek to help meet its growing data storage requirements and provide a more efficient retrieval process...

The chosen solution has provided Dorset Police Hi-Tech Crime Unit investigators with the ability to scan vast amounts of data in shorter amounts of time, and deliver evidence to the other areas of the criminal justice department more efficiently.

The Dorset Police Hi-tech Crime Unit is one of the Europe's leading electronic investigation teams. Its primary role is to gather, store and analyze electronic evidence from a myriad of devices, from PCs to PDAs and mobile phones. Once the data is stored investigators undertake lengthy and detailed examinations of the content within. The unit has been in operation for six years and through this period its workload, staffing and storage requirements have increased significantly.

Through the installation of a Sun StorageTek storage array, the unit has been able to meet its mushrooming data storage requirements and cut the length of time required to examine evidence and complete intensive investigative tasks.

➔ the business need

The initial system installed in 2001 consisted of a desktop computer and external hard disks. As each disk reached capacity members of the unit would have to purchase additional disks to cope with the ever-increasing demand for more storage. This created delays and frustration for investigators, and initially meant only one person could examine data at any one time. As the Internet developed and downloads of both music and films become commonplace -- first to PCs and now to a variety of other devices -- the hi-tech crime unit's storage requirements began to grow exponentially.

To cope, it implemented a network with 100 gigabytes of storage capacity, considered a significant amount of storage at that time. However the network soon hit capacity and unit investigators were forced to physically move 500-600GB of data each time a disk filled up. This had a massive effect on the speed in which investigations could be completed.

Crucial investigative tasks could take up to 5 weeks to complete. The unit tried upgrading network processing capacity and bandwidth, but that alone was not enough to keep up.

Detective Constable Tristan Oliver of the Hi-Tech Crime Unit commented, "We needed to install a scalable SAN that would allow us to add-on storage incrementally. With the previous system it was difficult, expensive and a distraction from our core responsibilities. We also needed a system where we could store all of our data in one place and out of the way.

"Our plight wasn't helped by the fact that the files themselves were getting fatter, and the number of formats was, and still is, increasing in both type and complexity. We weren't just dealing with emails, we were also having to store and examine vast amounts of MMS and SMS messages, call records, images, videos and sound files from

each new generation of mobiles, PDAs and smart phones.

"The amount of storage required was doubling year on year. With this in mind we required a system that would allow us to examine vast amounts of data in a short timeframe effectively."

➔ the solution

After looking at a number of options Dorset Police settled on a Sun StorageTek system storage array based on LSI Logic technology. Implementation and support were managed by Sun's reseller partner Compusys.

The unit deployed 9 RAID 5 arrays, at 2 terabytes of capacity each. It looked at a number of competitive solutions, but found that the SUN system offered the flexibility, performance, robustness and scalability their budgets and growing workloads demanded. Tristan added, "Budget considerations also meant that we could not afford to invest in a back up and recovery infrastructure. So the storage network had to be 100% reliable not fail under any circumstances.

"We actually spent a couple of days with LSI engineers testing the new system to ensure it was fit for purpose and as robust as promised. In one of the tests we actually pulled the disk out of the rack whilst attempting to store data on it, in every instance the data remained safe."

Oliver added, "We wanted someone who would be available just in case any part of the system went down. With a lot of work being time sensitive we couldn't risk delays and Sun StorageTek were very good. If we had a drive fail at midday, by 1:00pm a new one would have arrived and we would be up and running again."

➔ results

The chosen solution has provided Dorset Police Hi-Tech Crime Unit investigators with the ability to scan vast amounts of data in shorter amounts of time, and deliver evidence to the other areas of the criminal justice department more efficiently.

The unit can now store all of its data in one place, and scale its storage needs incrementally to predict very precisely its future budget requirements.

Oliver concluded, "The strength of this system can be seen by the fact that since its implementation we have not only had a number of other police forces interested in the set up, but also a large number of commercial organisations have come to look at it and the benefits it offers. I can't imagine anything working better.

"I am totally happy with solution and it has never been offline."

President Address

Floods test civil contingency communications



What a lovely summer!

Wet, wet, wet and I don't mean the group that Marti Pellow was the lead singer in. Unfortunately, it is only our lovely summer weather that I am referring to.

This lovely weather not only brought chaos to our roads, but also tested the civil contingency communications systems. However; on reflection of the events of the last few weeks, including the disruption to the 999 service on Friday, it must be said that overall the systems held up well.

The question is; can we take forward any lessons learned at various local levels and implement them nationally?

This sounds pretty straightforward as I sit here writing this; achieving it may be more difficult. However, I think that we should make every effort to succeed.

Obviously the first step is to record

accurately all actions taken during events such as happened last week, then identify a national forum to take forward lessons learned nationally and where possible provide a document that can be used at local level when such disruption to our services happens.

Considering a lot of our communications infrastructure is underground it was surprising how well it coped, but it would be useful if the companies that provide it would share with organisations and businesses the weaknesses that were identified last week so that resilience measures could be put in place for such events in the future.

Quite coincidentally the Steering Committee for this years' BAPCO Road Show Programme are putting together an event that will use a flooding scenario to address the theme of inter service information and data sharing so may be that will

be the vehicle to identify the methodology and means to achieve national debate and input.

The dates and venues for the Road Shows (for your diary!) are:

3rd October 2007- Edinburgh University

17th October 2007 -Yew Lodge Hotel, Kegworth (near East Midlands Airport)

31st October 2007 - Royal Berkshire Conference Centre, Reading

I do hope that the events and weather that we have experienced over the last few weeks do not continue for the rest of the summer especially now that the school holidays have started. I would be interested in information or thoughts that anyone has that could help prepare for any such weather in the future.

Ray Trotter
BAPCO President

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BAPCO appoints new Administration Manager

Last month, BAPCO appointed a full time administration manager, Tracey Mott, to meet the growing needs of the association in membership development and marketing activities.

Commenting on the appointment, Ray Trotter, President of BAPCO, said, "Following a recruitment campaign earlier this year and subsequent interviews, the Association is pleased to announce the appointment of Tracey Mott as Administration Manager."

Continuing he said, "Tracey brings with her extensive administration, sales and marketing experience and we are looking forward to working with her. I believe she will be a great asset to the Association."

The appointment highlights the increased demands being made on the Association for membership services and benefits, inputs to outside bodies relative to the technology requirements for improved public safety and the necessity to meet the growing needs of a wider membership base to aid information exchange to promote integrated ICT solutions for all civil contingency responders.

In discussing her appointment with the



BAPCO Journal, Tracey (Mott) said, "I am excited by the challenge and one of my initial aims is to raise the awareness of the Association and thereby increase its membership and enhance its credibility as the organisation that all civil contingency response professionals concerned with the provision and use of technology should be a member of."

Tracey (Mott) is no stranger to the Association as she has been working with BAPCO since January 2002, on a part time basis, as membership and financial secretary. In all, she has spent 20 years in sales and marketing, and, as the President says, she brings to her new role a wealth of experience.

BAPCO

Promoting Integrated ICT for Civil Contingency Responders

BAPCO is an independent, user led, professional members Association to promote, influence and advance the development and use of communications and information management systems for the safety and security of the public.

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BUSINESS TELEPHONE	
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HOME ADDRESS (If different from above)	
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Please tick one item that best describes *your* organisation

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County	<input type="checkbox"/>	Ambulance / Medical	<input type="checkbox"/>	Dealer	<input type="checkbox"/>
Regional	<input type="checkbox"/>	Emergency Management	<input type="checkbox"/>	Maintenance	<input type="checkbox"/>
National	<input type="checkbox"/>	Local Authority	<input type="checkbox"/>	Consultant	<input type="checkbox"/>
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"/>

4. POSITION RESPONSIBILITIESPlease tick the item that best describes *your* responsibilities in each area:**POLICY & PROCEDURE**

- I approve/develop policies and procedures
 I oversee implementation
 I have a limited role in implementation
 I do not have a role in implementation

PURCHASING

- I approve purchases of products and services
 I select specify products and services
 I recommend products and services
 I do not have a role in purchasing

PERSONAL TRAINING

- I approve training programs
 I develop/purchase training programs
 I implement/teach training programs
 I do not have a role in training

5. MEMBERSHIP CATEGORY & FEES (Select One) **ACTIVE MEMBER**

Persons employed or contracted by a public safety agency or a department of central or local government responsible for the provision of public safety services, or are retired from such a position, who are directly responsible for, or retired from, the management, specification, design, installation, maintenance, operation and use of public safety communications and information systems, are eligible for this category of Membership
£40.00 per annum

 COMMERCIAL MEMBER

Those persons, in business or industry, who receive compensation in any form for services rendered or products sold, are eligible for this category of membership.
£40.00 per annum

 ASSOCIATE MEMBER

Those persons, who otherwise meet the requirements of Active Membership, may, at the applicant's discretion, select this category of membership, and, those persons not meeting the requirements of any other category of membership that share the Purpose and aims of the Association, are eligible for this category.

£28.00 per annum **INTERNATIONAL ASSOCIATE MEMBER**

Persons who are not citizens of the United Kingdom that share the purpose and aims of the Association are eligible for this category of membership.

£50.00 per annum

Details of Corporate Membership can be obtained from: ExecD@bapco.org.uk

6. PAYMENT INFORMATION

Total amount due £ _____

- Individual or
 Organisation is paying for Membership.
 Personal cheque enclosed.
 Official purchase order No. _____ enclosed.

7. OPTIONAL INFORMATION

How did you hear about BAPCO?

- Co-worker BAPCO Journal Sponsor
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 Gender: Male Female
 Date of Birth: Day _____ Month _____ Year _____

8. APPLICANT'S STATEMENT

I hereby apply for membership in the appropriate class of **BAPCO**, and agree to abide by the Constitution and Bylaws of the Association. I understand that by joining I also become a member of the BAPCO region serving my area and that my subscriptions are payable annually, based on my first day of membership.

SIGNATURE _____ DATE _____

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 RENEWAL DATE

IP infrastructure improves policing efficiency and collaboration

North Wales Police is boosting workforce efficiency across all 75 stations by transforming and upgrading its network to an IP communications infrastructure through a cost neutral managed service deal. The BAPCO Journal reports...

North Wales Police (NWP) is working with Affiniti, the communications integrator, to transform and upgrade its network to an IP communications infrastructure through a cost neutral managed service deal. Affiniti are implementing and managing the converged communications solution that will be used by 2,500 employees of the Police Force throughout 75 stations to improve services to North Wales residents.

By replacing the legacy voice network and enhancing the single IP infrastructure, the management costs are severely reduced. This has enabled a cost neutral funding of the new network implementation. The network enhancement enables the use of collaborative tools, XML applications and desktop video conferencing that will provide significant time and cost savings.

→ piloting desktop video conferencing

The challenging geography of North Wales means that travelling to meetings with colleagues, justice agencies and other emergency services is time consuming for officers. NWP is already piloting desktop video-conferencing at its Western Division in Meirionnydd which is saving officers at least 30 hours a week in travel time. This will reduce costs by over £34,000 a year in one division alone, as well as decreasing NWP's carbon footprint and allowing officers to invest more time in supporting citizens. Following this success, NWP intends on rolling out the video conferencing technology to all its stations within the next year.

Another saving is by using XML applications on IP phones – the Force will be able to significantly reduce the cost of desktop population. This means that in the future some officers and staff will also be able to log on to IP phones to get information from the Force systems like the Records Management System (RMS) to complete basic tasks. These will include email capability and



telephone directories as well as allowing staff to log into Duty Management to clock in, book time off, etc. In addition, officers can access the briefing package 'ICAD' to find out what has happened over the last duty shift and what to look out for during the next beat.

→ collaboration and data sharing

Greater collaboration and document sharing between stations and divisions, as well as with other emergency services and Local Authorities, is also crucial. Unified communications will allow for more collaborative working and speed up delivery of these vital documents.

Ian Davies, Projects and Customer Services Manager, North Wales Police, said, "The unified communications solutions that Affiniti is implementing and managing will ultimately allow us to focus more of our energy and time into delivering a seamless service to our citizens and therefore enabling 'more bobbies on the beat'. It boosts NWP's flexibility and speed of response, as well as providing a more collaborative way of working."

"With Affiniti managing the service on an ongoing basis, we have peace of mind that vital information services will be kept running properly without monopolising staff time. And at the same time, by streamlining our costs the total solution was a highly compelling offer," Davies continued.

Paul Renucci, Managing Director, Affiniti added, "We work with 49 per cent of police forces in the UK, and have a deep understanding of the issues they face and their technology needs. We have worked very closely with North Wales Police to ensure the technology we provide will fit their specific needs and at the same time reduce costs."

→ financial savings

During the upgrade, a majority of the existing WAN infrastructure will be replaced using point to point Ethernet Extension Services to increase available bandwidth. This improvement will actually save the force about £100,000 a year. Cisco Call Manager technology will deliver voice, video and applications to the desktop, and provide a facility for all sites to operate totally independent of the main infrastructure in the event of a major communications failure. To support the new XML applications on IP phones, the LAN network at the level two sites will be upgraded to provide Power over Ethernet Functionality (PoE), allowing the phones to be powered directly from the LAN equipment.



Greater collaboration and document sharing between stations and divisions, as well as with other emergency services and Local Authorities, is also crucial. Unified communications will allow for more collaborative working and speed up delivery of these vital documents.

the changing face of the ambulance service

David Sherwood, Head of Clinical Effectiveness, South Central Ambulance Service, reports on the effective Clinical Audit Reporting System (CARS) that will significantly improve the operational and clinical efficiency of the Trust...



"CARS will also be used to assist in the process of identifying 'hot spots' where regular accidents or injuries occur. While emergency operations centre's computer aided dispatch systems can often identify the location of these incidents, what they cannot report on or predict accurately is the precise nature of the outcome of the emergency."

➤ Dave Sherwood, Head of Clinical Effectiveness, South Central Ambulance Service

With the increasing volumes of paperwork being handled by Ambulance Trusts throughout the UK, something had to be done sooner rather than later, to help ambulance healthcare professionals in managing the problem; especially with the delay in the introduction of the "mobile deployment" of the electronic patient record system that is at the heart of the £12bn national programme for NHS IT.

South Central generates more than 360,000 patient clinical records per annum. The Trust decided that a more proactive approach was needed to prevent the service grinding to a halt under the sheer pressure of paperwork. As a result, the decision was taken to move ahead and develop a solution that will deliver immediate benefits to South Central Ambulance Service.

There were several key drivers for developing the system and one of the first was to improve the access to, and the retrieval of, documents across the organisation. This was a time consuming and complicated process that could take up to two weeks depending on where the required documents were located. The Trust also wanted to reduce the high cost of document storage that amounted to more than £10.5k p.a. in Hampshire alone.

Crucially, this situation made it difficult to thoroughly investigate complaints within the twenty-day period required by the Healthcare Commission as part of the core standards for the annual health check, which also fulfil the requirements of the NHS Litigation Authority by being able to prove that a full record exists for each individual patient.

Another driver for the development was to create a cost-effective solution to make improvements to the way that ambulance staff currently maintained their skills portfolios used for annual re-certifications. The Trust wanted to move away from the manual methods used by individuals and provide a more efficient way for them to view their own performance for the different procedures and interventions that they have carried out.

The Trust also wanted to give clinical audit managers the ability to access all patient related paperwork to ensure that all decisions taken and clinical interventions provided fall within acceptable protocols. Audit managers need to be able to quickly identify any incidents where these protocols have not been followed as soon as they occur to ensure that patient care is



delivered to prescribed standards at all times.

The fact that paramedics are now making decisions whether to treat a patient, deliver them to hospital or leave them where they are has only served to reinforce the critical importance of having a complete audit trail.

➤ the challenges

After proving the concept of an effective Clinical Audit Reporting System (CARS) in an earlier trial in Hampshire, South Central partnered with e-Docs UK to translate the requirements into a cost effective and reliable solution.

Achieving a common data set across the organisation was a major undertaking. If CARS was to stand any chance of success, it was essential that a standard format be established. As a starting point, a template was developed and tested resulting in a single, unified patient clinical record form across the Trust.

Another challenge was to devise the most effective way of scanning the paperwork and loading it into CARS. Document safe post slots were deployed into every A&E department in Hampshire for daily collection and delivery to Hampshire Division HQ. Scanners were installed throughout the other divisions enabling images to be delivered via batch FTP transfers back to the Hampshire Division HQ.

CARS went 'live' in early May 2007 and the implementation process relied on the production of a 'how to' booklet which was made available for staff to download over the Intranet.

➤ how CARS works

Every form is now scanned and all images are sent to

Hampshire division HQ, where powerful data capture software is used to upload information into CARS. This data repository offers a range of reporting tools that provide important information on clinical performance indicators showing whether all protocols were followed. Any discrepancies are highlighted for further analysis and followed up by clinical supervisors.

CARS also provides the information required for a wide range of national reports and audits carried out by the Department of Health and JRCALC, the committee that produces clinical guidelines for the Ambulance Service. Information on the activities and performance of the ambulance service can also be easily provided to Primary Care Trusts.

CARS is also helping ambulance staff to maintain their skills portfolio. In addition, individual paramedics can add personal notes relating to the reasons why protocols were not followed and the contra indications that led the paramedic or technician to apply a different treatment. This gives a realistic picture of performance based on what staff are actually doing rather than what they perceive themselves to be doing – two very different things.

➔ the next phase

Demand Management is an area that will be addressed during the second development phase of this project. Of particular interest will be the 'frequent caller' that makes regular requests for an ambulance to attend. CARS will be used to provide increased visibility for this category of patient, which typically includes falls, diabetics, asthmatics, and drink and drug users. This has proven to save the NHS money as well as in one case study a persistent faller was provided with walking aids which prevented her from falling and eventually suffering a fractured neck of femur, which would have required surgery and a long hospital stay.

Taking a more proactive approach to interact with other agencies will result in 'alert lists' that can be loaded onto CARS to highlight premises or individuals where special attention is required. This could be to inform the crew that a patient at that address could be on a special care plan, which requires a specific intervention or a direct admission to a specialist unit.

CARS will also be used to assist in the process of identifying 'hot spots' where regular accidents or injuries occur. While emergency operations centre's computer aided dispatch systems can often identify the location of these incidents, what they cannot report on or predict accurately is the precise nature of the outcome of the emergency. The objective here will be to ensure that suitably qualified staff are on the vehicle that is sent to the incident to deliver the fastest possible access to treatment.

The Ambulance Service is now beginning to take a far more proactive approach towards working with other agencies particularly relating to the increasing incidence of drink and drug related injuries that are occurring.

Anything that can be done to reduce unnecessary usage of the Ambulance Service will result in significant cost savings that can then be refocused on improving the level of care to patients that really need it. There



Taking a more proactive approach to interact with other agencies will result in 'alert lists' that can be loaded onto CARS to highlight premises or individuals where special attention is required. This could be to inform the crew that a patient at that address could be on a special care plan, which requires a specific intervention or a direct admission to a specialist unit.

Individual paramedics can add personal notes relating to the reasons why protocols were not followed and the contra indications that led the paramedic or technician to apply a different treatment. This gives a realistic picture of performance based on what staff are actually doing rather than what they perceive themselves to be doing – two very different things.

are standard costs used by Strategic Health Authorities throughout the UK for using the Ambulance Service - £220 to despatch an ambulance including patient treatments, any patient admitted into a hospital ward from the A&E department costs around £1100. Anecdotally, around 60% of South Central's 2500 calls per day are transported to hospital. However, up to 30-40% of these trips are unnecessary because of a lack of an appropriate patient care pathway.

➔ what next?

Future developments might include using the powerful audit functionality that is inherent in the CARS system to assist with the optimisation of the procurement tendering process.

CARS is a ground breaking development that will significantly improve the operational and clinical efficiency of the Trust enabling the provision of a more holistic approach to delivering patient care. It delivers the required level of reporting, gives a greater understanding of the true workload and provides a complete audit trail for every patient treated. What is more, it will provide a robust and reliable backup for the electronic records system when it is finally operational. Improving the way that the ambulance service interacts with other agencies will be a key factor towards ensuring that the most appropriate care is made available to individual patients as well as delivering significant cost savings.

"The future development in CCTV communication technology is evolving rapidly, with exciting potential developments, with some current pilot project taking place already in the transfer of CCTV data. One future objective is for Kent Police to access live real time images from all the cameras from Local Authority Control Rooms across Kent, then the ability to transfer the images possibly via the Airwave network to police units on patrol."

Sharon Wright,
Sevenoaks District
Local Authority CCTV
Control



intelligence in motion

the benefits of cctv

Since its origin some 50+ years ago, CCTV has proven itself to be a valuable commodity within the fight against crime. The technology has been evolving at a significant pace and with the growing proliferation of fixed and mobile CCTV solutions, Dawn Davison-Read discusses, with a wide selection of suppliers, exactly what benefits CCTV can bring to civil contingency responders and if we are in danger of too much CCTV footage, creating a data overload situation...

It is widely understood the benefits that the use of CCTV brings to crime reduction and as a source of evidence. And in fact, recent statistics suggest that there are in the region of 75million CCTV cameras across the UK - one of the highest amounts any where in the world. Using CCTV has evolved from being a traditional security system to assisting in many aspects of emergency management and response. Perhaps even more so, with the recent evidential CCTV footage of the attempted terrorist attacks in helping convict the perpetrators. Yet one of the limitations of traditional fixed CCTV cameras is the amount and necessity of cabling required. Furthermore, traditional CCTV systems were originally designed as point-to-point transmission of video from a camera to a record on the same site. This meant that tapes required frequent changing, storage and the recording monitored, creating a huge task for the CCTV operatives.

Furthermore, the escalation of criminal activity coupled with the ever resurgent threat of terrorism means that modern surveillance techniques are becoming increasingly beneficial.

The Business Crime Index reports that business crime claims increased by 6% in the last quarter of 2006 with arson and violent crime claims having also doubled during that period. Additionally there have been recent acts of terrorism in Glasgow and London in which international business and consumers were threatened. Commenting, Charlie Sherlock, CEO, Cinario, said, "Considering the enormity of threats across all business sectors, it is essential for security systems to manage risks in real time. Often, systems are retrospective at best and do not allow effective co-ordination of security internally, as well as with local authorities. The successful evolution of CCTV requires adopting a more intelligent approach.

"Security solutions like CCTV are a strategic tool in

catching or thwarting would be criminals. But a fast response to risk is impossible without first having a system that can properly assess threat levels and evaluate where defences need to be strengthened. Data that is gathered and evaluated from intelligent systems can determine whether the need protection exists."

➔ the benefits of IP CCTV

Many organisations are now looking toward IP CCTV solutions, as pointed out by Matt McCloskey, Senior Product manager, ntl:Telewest. In a paper presented by McCloskey he pointed out that as well as providing significant cost savings, IP CCTV also aids the convergence of data, communications and security onto a single network as well as resulting from easier maintenance and the ease of centralising control, IP CCTV adds flexibility and increased functionality to CCTV. As a direct consequence, cameras can also be positioned to address specific problem areas and tackle a wide range of crimes.

In full agreement, Simon Nash, European Project Manager, Sony Europe's Network Video Monitoring and CCTV Division, added "The changes we have seen over the last year or so within the CCTV industry have been very dramatic with the rapid growth of IP cameras and the uptake of intelligent messaging. Furthermore wireless solutions are ideally suited to the emergency services."

David Green, Head of Strategy and Marketing, Public Safety, Arqiva, added, "Essentially we have seen two areas that have evolved bringing significant benefits to the public safety sector, which are the capturing and processing of images and the transport over IP. Both areas afford increased quality, lower costs and perhaps even more importantly easier distribution of the footage."

In addition, as pointed out by Green, the analysis of the images has evolved immensely with the ability to distinguish intelligent processing of information, recognition of movement (or lack of it - for instance a bag or parcel left unattended sends an instant alert to a control centre). The ability to detect motion and intelligently analysis is extremely useful in video footage/data analysis. "ANPR is another area that is seeing the widespread benefits of intelligent analysis and recognition from both fixed and mobile applications. For instance traffic patrols can recognise every number plate and automatically run a check, plus even more beneficial is the ability to identify known vehicles and track the movement."

Discussing the ability to integrate CCTV footage with ANPR, Green said, "I've not seen it done, but the technology is possible to link ANPR solutions however, CCTV systems tend to be installed, say in Town Centres, for other purposes."

➔ sharing video footage

The use of IP CCTV and the intelligent analysis systems used enables sharing of video footage. "Already special events such as the Notting Hill Carnival, Tour De France etc, multi agency activity for crowd control etc as well as crime and incident spotting. Satellite links can stream the

footage to forward command vehicles as well as other wireless technologies," added Green.

Nicholas Hyam, Product Manager, Wireless Solutions, Arqiva added, "There are a number of mobile applications that can bring additional benefits to the intelligent use of CCTV footage streamed to patrol officers, command vehicles and so forth. But the bandwidth of the carrier is going to determine how good the quality of the image is. However, since there are systems such as MPEG that only transmit a minimum amount of data in an algorithm it is possible to stream live footage over a variety of platforms."

➔ streaming live video

"MESH networks, for instance when deploying cameras around an incident (for example a major fire) footage can be relayed to control, these are locally deployed but bring vast benefits to the command in dealing with an incident."

Discussing the use of TETRA, Hyam believes as it was not designed for real time video it probably wasn't the best solutions, however it remained an option since you can still transmit high quality stills, albeit not actual moving video.

Raising the issue with Airwave, The BAPCO Journal was advised, "As it currently stands, Airwave would not propose TETRA as able to transmit or stream live CCTV at a suitably high enough quality to be useful to operational officers. Airwave has spent the last 12 months investigating and evaluating the emerging video technology to understand the bearer and bandwidth requirements for their use within policing environments. Mobile video is clearly one of the most challenging applications due to its bandwidth and latency demands."

In raising the issue of how Airwave will cope with the increased need for higher bandwidth, the response identified that Airwave sees the security, resilience and availability benefits of TETRA being complemented with other bearers in future public safety solutions. Some of the emerging wireless technologies offer higher bandwidth that would make them more suitable to carrying video, although they may lack some of the advantages of TETRA. Invariably, where a public safety organisation utilises a mixture of bearers, it will be important that usability, security, integrity and cost-effectiveness is achieved.

The Airwave Service was intended from the outset to



The wireless dome from WCCTV. All WCCTV systems have alarm capabilities and motion detection and each wireless CCTV system is a completely mobile unit that delivers live images direct to a PC, laptop or dedicated monitoring station via 3G/GSM mobile phone, broadband, wireless LAN, or satellite networks.



Search time of video footage is dramatically reduced with Sony CCTV systems due to their intelligent tagging and meta data ID numbering.



Sony Europe's Network and Video Monitoring and CCTV division offers an intelligent and integrated video surveillance platform through its growing range of IPELA cameras, RSM software and open architecture solutions, providing customers with the next generation of IP-based monitoring systems for rapid, proactive and intelligent end-to-end security.

be a Voice AND Data network, and indeed many of Airwave's customers have performed successful mobile data trials using TETRA, and some are currently rolling out TETRA-based mobile data solutions, which include picture downloads over TETRA. For video, it is not just bandwidth, but also the quality of the compression codecs and latency in the systems that determine how effective a mobile video system is, and this is what makes it a challenge. Airwave does see video as having lots of applications and uses within the public safety environment.

Hyam also suggested that municipal wireless networks was another area that could provide not only a more cost effective method but systems supporting applications such as Wi-Fi brought many benefits by using a single host. Hyam said, "A single host means we can ensure the network is sized and scoped to meet the demand for bandwidth, resilience and ensure potential interference is minimised."

Wi-Fi is a major benefit for temporary installations and in deed 3G is another viable platform to enable live video streaming. Discussing the use of both Wi-Fi and 3G networks for streaming video, David Gilbertson, Managing Director, WCCTV said, "Utilising the mobile phone network provides total flexibility although the limiting factor is the bandwidth however using 3G technology we are now seeing video transmitted at up to 14 frames per section."

Commenting further Gilbertson added that his company was working closely with T-Mobile to use HSDPA, a much faster version of 3G bringing immense benefits to the public safety sector. "In essence the use of wireless CCTV solutions mean that it is mobile at both ends, enabling public safety organisations to bring CCTV applications into areas previously believed impossible. This in turn brings huge benefits to the fight against terrorism, and vast flexibility for major events such as Notting Hill Carnival, the recent Tour De France etc." WCCTV's aim is to increase to 25 frames per second from mobile to mobile applications, and is currently developing smaller devices to enable live video to be streamed to PDAs where, for instance six officers in six locations could dial into one camera and view the footage. All of which would be encrypted, password protected and secure, but provide a huge benefit to emergency service and partner agencies in dealing with incidents.

Duncan Ellison, Sales and Marketing Director, Sarian Systems agrees with the use of 3G and suggests that by



Sarian's wireless CCTV solution in Manchester City Centre is being used to combat fly-tipping and other anti-social behaviour.

the end of the year each of the municipal networks (Orange, Vodafone, T-Mobile, and O2) will all have HSDPA offering speeds for real time streaming, high quality video data transmission. "The technology has been designed for Mobile TV," said Ellison, "However what is important to note is that it is suited to CCTV applications."

Commenting further he said, "Traditional mobile networks simply do not have the bandwidth or quality assurance to handle live video feeds, meaning that images are either grainy or a series of static photos. To get live CCTV feeds it has therefore been necessary to link cameras to a fixed network, but this is of little use when surveillance is needed at a remote crime hotspot, at a festival or on a march. However, the recent development in new mobile technology known as High Speed Downlink Packet Access (HSDPA), at last enables high-quality real-time video feeds to be transmitted from any location, at low cost, and without the need for lengthy installation.

"HSDPA is essentially an extension of mobile operators' existing 3G technology, it is highly available and enables data and video to be sent back to base at broadband-like speeds, critical in major incident scenarios. All major UK operators are in the process of rolling out the new technology, which means that all an organisation needs is a portable video camera and an HSDPA router, in order to start sharing live feeds from mobile CCTV systems back to HQ."

An organisation currently benefiting from this technology is Manchester City Council, which is using it to deploy cameras wirelessly in order to control fly-tipping.

In MLL Telecom's experience of providing networks for the emergency services and local government, the company has found that the ingress of CCTV in today's society has come with its challenges. The time to service, cost of implementation and, more importantly, the quality and reliability of traditional cable connectivity has caused some users major troubles.

"It is easy to understand then, why the use of point-to-point wireless is experiencing massive growth. These links offer a very high bandwidth, can be installed rapidly, are secure and are incredibly cost effective. Wireless is immune from 'JCB induced loss of service' and as a final bonus, the discrete antennas, although permanently mounted, can be easily used in a mobile environment for incident management. Next generation wireless networks will even support such applications as in-helmet CCTV, relaying live pictures back to incident rooms.

"Why should our 21st century emergency services be forced to rely on 19th century copper connectivity? Wireless connectivity is rapidly becoming the choice for the future of CCTV."

➔ too much data?

The growing number of intelligent analysis applications and, as detailed earlier in this article, the use of intelligent cameras will ensure that data overload shouldn't become an issue. As pointed out by Craig Pumfrey, Nice Systems, "Video content analysis and the

automated detection of threats aid the reduction in the fear of data overload."

"Alerting the operator via an automated threat detection system that something is amiss, helps operator efficiency and with incident verification solutions and incident replay the ability to pull together all relevant footage and re-construct a scenario offers wide and varied benefits to the control," he added.

Nash agreed that there could potentially be an issue with data overload, however he explained, "This is where intelligent motion detection, meta-tagging data and intelligent retrieval comes into the fore."

"We have developed a camera that enables intelligent motion detection - this can dramatically reduce false alarms. For instance the camera is designed to recognise movement and not send an alert for trees moving on a windy day, but should someone climb a tree, a person or vehicle appear in an area that they shouldn't be etc, then an alarm at the control centre would be triggered. In addition the recording would be tagged dramatically reducing search and replay time if required."

Although Nash pointed out that Sony's cameras have had intelligent motion embedded into them for the last 18+ months, he believes this is likely to become a prerequisite since it can dramatically reduce false alarms equating to vast time and cost savings.

Sherlock also believes that not only intelligent analysis at the CCTV 'end' is important to reduce the effects of potential data overload. "I believe the biggest evolution within CCTV of late has been the ability to filter what you know and want from the footage. At the camera end the technology has evolved to enable intelligent capture and analysis, but also at the back end, where intelligence alerts controllers that something has happened enables a more efficient management of incidents. For example an incident in a Tube station, could send an alert to a PDA or guard on the platform, the intelligent routing of that captured information brings the ability to action quickly. Although set protocols would be in process, ie if the incident wasn't actioned locally then it would be escalated to control."

In essence, Sherlock believes that intelligent routing is just as important as intelligent monitoring since it automates workflow helping increase the efficiency and response of the service.

"There is a danger that with the advances in CCTV technology you create more items to view, which is applicable to both mobile, temporary and fixed applications however automated back end intelligence ensures that details are provided on a 'need to know/incident basis."

The intelligent back end system is also a very powerful tool in the fight against terrorism explained Sherlock. "Whilst the ability to link information into IT systems to co-ordinate incident responses the ability to remotely view, mitigate, control and manage a major situation is very powerful. In addition the ability to aid post-incident analysis from CCTV analysis is a huge step in fighting both crime and terrorism."

➔ and to the future

As the need for efficient methods in gathering evidence



"The ability to intelligently analyse CCTV footage is of paramount importance to ensure users don't suffer from data overload. And perhaps more importantly having the ability to understand the information and be proactive with it provides very significant dividends in all areas of the public safety community."

➔ Charlie Sherlock, CEO, Cinario

and assistance for reducing crime continue, it is very likely that we are likely to see even more wireless and remote wireless applications be introduced. Body worn video devices are a key element (see our cover story pages 6-7), in-vehicle cameras etc. And as pointed out by Nash, "Co-ordination of the different video recording sources is relatively easy to achieve, and as more cameras are added (particularly those of the body-worn variety) each person in essence becomes a 'node' on the network, which provides a very exciting proposition for the entire emergency service sector and partner agencies in dealing with, responding to and averting many potential and occurring incidents."

Nash also believes that there will be an increasing acceptance of intelligent CCTV cameras with facial recognition being developed further. In addition to which, as pointed out by Sherlock, there is also a huge interoperability challenge in pulling together all the different CCTV technologies, "As time moves forward the barriers will come down however, in the meantime it is up to us, the industry, to bridge the gap and ensure the ability to share data and interoperate with CCTV applications is a reality."

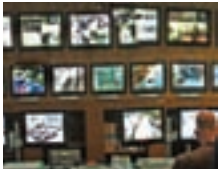
All in all the future developments in CCTV and its communication technology is evolving rapidly. As pointed out by Kent Police, one of its objectives is to access live real time images from all the cameras within the Local Authority Control Rooms across Kent, then the ability to transfer the images to police units on patrol. And with many wide and varied applications across the UK, it is easy to see just how effective the technology is in the public safety arena, plus with the advent of mobile CCTV applications the future is certainly promising.

Below: The compact wireless dome from WCCTV has an integrated camera and transmission unit offered as a 'one box' solution with pan, tilt and zoom capability.



collaborating for a watchful communications brief

Mick Shipway, Systems Assistant Manager for force communications, Kent Police explains about the force's CCTV initiative and the importance of communicating with the local CCTV centres via Airwave...



"The local authority teams can hear of an incident being reported to the local patrols over the Airwave network and, using their local knowledge, focus a camera immediately on the activity. This provides vital evidence for any charges the police may want to bring, as well as serving as protection for the officers involved. It really is like having an additional 2,000 policemen on the streets of Kent, all with 100% memory retention"

➔ Mick Shipway, systems assistant manager for force communications, Kent Police.

Following the launch of the Home Office's Crime Reduction Programme CCTV Initiative in 1992, many local authorities began to launch CCTV initiatives. In Kent, local authorities began investing in CCTV in 1990 in an effort to support a range of local government and policing issues.

As the local authorities of Kent increased their investments in CCTV, so the interaction with local police control rooms increased until there were nine police control rooms working with 13 CCTV centres. With a growing role in day-to-day crime reduction, it became apparent that the CCTV centres needed an effective way to communicate with their local police force. Without official communication systems in place many centres used the forces UHF radios until Kent Police centralised its communication within a single centre in 2001. The Force Communication Control (FCC) in Maidstone houses the contact teams for all incoming calls on local station numbers as well as emergency calls, and in the centre are the nine police communication teams. These officers are the co-ordination point for the management of incidents, patrol and resource allocation and the hot line for the local CCTV centres across Kent.

➔ the challenge

In moving to a centralised location, Kent Police was also scheduled to undertake its radio migration over to Airwave. This raised a potential problem, if CCTV control rooms did not have access to Airwave, the centres, by now a key component in the force's daily activity, would be unable to listen in to the police's primary operations talk group, the Op1 channel. Reduced to a reactive resource, they would have been unable to make full use of their local knowledge and the proactive, dynamic support the police had grown to rely upon. Understanding how crucial it was that efficient communications reopened, Kent Police arranged for the CCTV centres to register for TEA2 licences.

Mick Shipway, Systems Assistant Manager for force communications in Kent explained, "By the time our teams all came together in the new centralised location direct radio contact with Local Authority CCTV had become absolutely central to our operations. Becoming isolated from our radio communications, was unthinkable."

➔ implementing Airwave

In order to meet the requirements of the TEA2 licence the local authorities all had to go through a number of internal process and security checks, a procedure which Phil Snook, Community Safety Officer for Thanet District Council believes had wider benefits for the local CCTV centres; "The process we went through to get Airwave brought a lot more

professionalism to our processes and security systems. The CCTV rooms are now a sterile area and we have certain standards we meet for recruitment."

Once they received their TEA2 licences, each local authority was equipped with a desktop mobile Airwave radio. Tuned into the Op1 channel, the CCTV control rooms were now able to effectively become the local arm of the centralised police control teams. The local authority teams can hear of an incident being reported and then focus a camera immediately on the activity providing vital evidence as well as serving as protection for the officers involved.

The police control teams are divided into groups covering specific towns, and can view up to nine camera feeds. The force has also mapped the location of all cameras onto its GIS enabling the controllers to view all resources on a single map.

Using the Airwave network, the CCTV teams are not restricted to communicating with the police control centre; they can also talk directly with the patrols out on the streets. In Shepway recently, the CCTV team witnessed two youths committing a robbery at knifepoint, and then making their escape. Police at the scene only received limited descriptions from eye witnesses, but the CCTV controller had been able to follow one of the offenders with the cameras, and direct the police units to the suspect. Once the arrest was made, the CCTV team was able to direct the officers back to the point at which the cameras had captured the offender discard the weapon over a fence – retrieving vital evidence. All of this was made possible by the fast communication between teams operating on the same talk group, using the same radio system. Shipway believes that such high levels of collaboration between the organisations is invaluable, "It really is like having an additional 2,000 policemen on the streets of Kent, all with 100% memory retention"

➔ and to the future

With Airwave now firmly established for verbal communication between the organisations, Shipway is investigating other ways in which they can make use of the network. Work is currently underway to increase the accessibility and flexibility of Local Authority cameras as systems update to digital technology.

"With Airwave as secure and resilient for data as it is for voice, there is no reason why we cannot begin to share data more effectively as well. Imagine a scenario where we capture an image on CCTV, and immediately send it to police patrols near the scene over the Airwave network, enabling faster identification of suspects. The possibilities for combining the power of CCTV with the reach of the Airwave network are tremendous."

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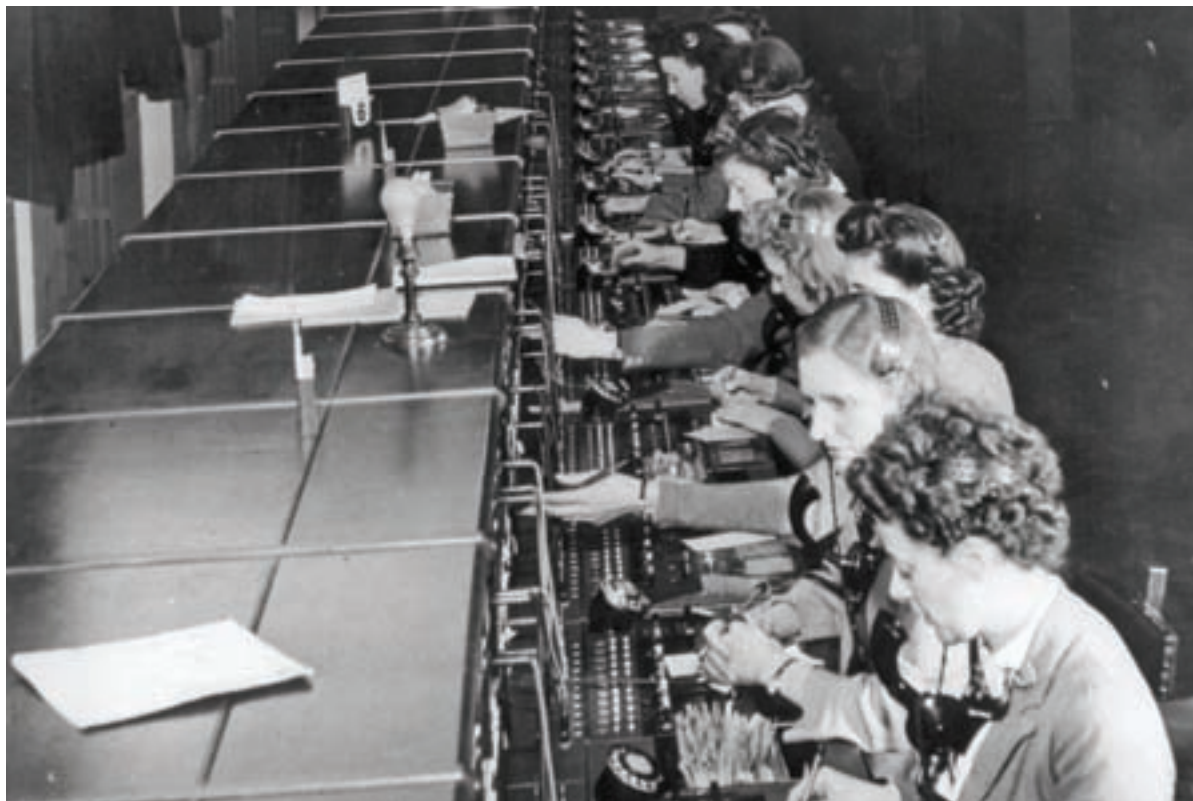
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Operators answering 999 calls in 1947. By 1976 all telephone exchanges in Britain were automated allowing the 999 service to be truly nationwide.

999 service celebrates 70th anniversary

The world's oldest emergency service, 999, supplied by BT celebrates its 70th anniversary this year and with some 30million calls handled each year John Medland, BT, explains to the BAPCO Journal how the service continues to evolve...

The UK's 999 service, the first of its kind in the world, was launched on June 30, 1937. Prior to the service emergency calls were made by simply dialling 0 to contact the operator or for people without a dial on their telephone would simply tap the telephone cradle to attract the attention of the operator. During 1882 the Exchange Telegraph Company introduced fire alarm call points in London, where a lever was pulled to alert the local fire service and in the 1930s Police call points were introduced using telephone rather than telegraph technology.

1935 In November a serious fire at the London surgery of aural surgeon Dr Philip Franklin at 27 Wimpole Street W1 caused the death of five women. The inquest heard that the Fire Brigade arrived at the scene before the operator had answered a neighbour's call to alert them to the fire, and the Belgrave Committee was set up to study the problem of operators' identifying emergency telephone calls.

The Committee believed that there should be one number throughout the country to alert the emergency services and that the number must be easy to remember. The number had to be three digits long to work in London. It was important that emergency calls could be made from coin box telephones without inserting any

money (at the time money had to be inserted before making a call). It was relatively simple and inexpensive to modify call boxes to allow the 9 to be dialled without inserting coins, and the choice of 999 was made.

1937 On 30 June 1937 the 999 service was introduced to 91 automatic telephone exchanges in London. A caller dialling 999 would be connected to the operator in the same way as a regular call, but light and sound signals in the telephone exchange would alert the operator that this was a priority call. If no operator was free to make the call, the operator would break off dealing with a regular call.

In the first week there were 1336 emergency 999 calls (1073 genuine calls; 171 who wanted the operator and 91 'alleged practical jokers') and 1896 emergency calls using the old way of dialling 0.

Glasgow became the second city to have the service in 1938 with it being extended to all major towns and cities by 1948.

The service has expanded rapidly since its inception when red lights and klaxons would signify an emergency call was being received. The first week of the service saw more than a thousand calls made. This has increased to around 560,000 calls a week. BT currently handles around 30 million calls a year from fixed and mobile

Below: 999 call taking at London Ambulance Control - 1962



phones, answering more than 95 per cent of calls within five seconds. BT operators receive many late night calls and the early hours of New Years Day is traditionally the busiest day when up to 12,000 calls can be received each hour.

To mark the platinum anniversary, BT is changing the moving colours on the top of the BT Tower to blue and white, to simulate that of a flashing light on an ambulance or fire engine. In a press statement released to celebrate the anniversary BT chairman, Sir Christopher Bland, was quoted as stating, "I am extremely proud of the BT operators in the emergency service sector. They are a highly competent team working at the sharp end of one the most important communications services in the country. They have the satisfaction of knowing that countless lives have been saved over the last 70 years because of their professionalism and commitment."

➔ a continually evolving service

Discussing how the 999 service has evolved over the last 70 years, John Medland, BT felt that of most notable impact within the last ten years was the introduction of location data. "This had a huge impact on call handling, and even on fixed lines providing caller location has saved on average 30 seconds per call providing valuable time savings to the emergency services."

It was during 1998 that BT introduced a new free 999 information service for the emergency services with the automatic forwarding of the number and address of the phone from where the 999 call has been made, which resulted in improving call handling and dispatch times.

Medland also pointed out that during 2003 the BT began routing all calls from fixed line by their postcode, which allowed an even closer match with the emergency service catchment areas and allowed movement away from all numbers with the same area code being routed in the same way.

Approximate mobile location details were also introduced based on radio coverage of the aerial picking up the call. This service is in line with the latest EC Directives on making location information available and on privacy and data protection, again helping increase the speed in which the 999 calls are handled. Medland also explained that during 2006, of the 30 million 999 calls handles by BT, some 50% are from mobile handsets with 60% of calls connected to the emergency services (as many of the mobile calls were dialled accidentally). Explaining further, Medland pointed out that BT operators are able to filter out accidentally dialled calls



In 1937 a notice was issued to the public in how to dial 999 calls in an emergency following the 999 service being introduced on 30 June 1937 to 91 automatic telephone exchanges in London. During the first week there were 1336 emergency calls (1073 genuine calls, 171 wanted the operator and 91 alleged practical jokers). In addition there were 1896 emergency calls using the old method of dialling 0.

Technology has evolved since the early days of BT 999 contact centres - Ellie a former call taker reminisces

through a series of set protocols. "On average we receive 17,000 accidental calls from mobiles every day," he said.

Aside from mis-dialled accidental 999 calls, the service continues to receive non-emergency 999 calls and Medland considered only an ongoing public education campaign could change this. The recent trial of 101 across five areas has yet to show an impact, although it is perhaps too early to say at the moment and BT is looking forward to the autumn review by the Home Office to ascertain if the 101 service will assist in the reduction of non-emergency calls being made to the 999 service.

Discussing the use of 112 as an emergency call number, Medland pointed out that since 1993 it had been working in parallel with the 999 service and he believes that in the UK, as across Europe, there is no thoughts to replace the 999 service but for each national code to run transparently alongside the 112 service.

The recent advent of Voice over IP (VoIP) has also created additional involvement for the 999 BT service. Although currently only 0.05% of calls answered are VoIP calls, Medland is well aware of the potential issues that can arise. Commenting he said, "Currently when a 999 VoIP call is made it is automatically flagged up ensuring our call takers request the location verbally with the caller before routing it. Although the majority of callers are in fixed locations, which isn't an issue, the nomadic callers could potentially cause problems and we are currently investing in research and development to identify how we can dynamically establish the caller location automatically. To do so, co-operation is needed between providers of VoIP, Access Network (WiFi, Broadband etc) and Internet Service." Concluding Medland emphasised he was involved in progressing solutions to the VoIP location challenge, which he believes is not too far into the future.

1946 - the second world war delayed the expansion of the 999 services, by March 1948 all of the larger towns that were served by automatic exchanges had the 999 service.

Opposite: Winchester Fire Department control room in 1951



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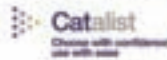


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communication via texting ensures crowd safety at carnival

Enforcement officers from the Royal Borough of Kensington and Chelsea will be using Autopage's text messaging system at this year's Notting Hill Carnival to remain in communication with one another and with the operations office, Adrian Hodgson, the Borough's Special Events Officer explains to the BAPCO Journal why...



"The carnival is a very noisy environment, and we can't use normal radios or telephones because you simply can't hear anything in some areas. The Autopage system is more advanced than others on the market, and they have developed it for us to suit the Carnival's specific requirements."

➔ Adrian Hodgson, the Borough's Special Events Officer

More than a million revellers will flock to Europe's biggest street party when the ever-colourful and vibrant Notting Hill Carnival brings the deafening sound of Caribbean steel bands to the capital from August 26-27.

Amid all the noise, the responsibility for ensuring that such a massive celebration runs smoothly falls to more than 100 enforcement officers from the Royal Borough of Kensington and Chelsea. For a seventh successive year they will be using the Autopage text messaging system to remain in touch with each other, and with their operations office.

Autopage's software provides a reliable communications system which helps ensure staff safety, and is invaluable to the officers and inspectors as they check compliance with regulations relating to hygiene, health and safety, licensing, and other issues.

"The carnival is a very noisy environment, and we can't use normal radios or telephones because you simply can't hear anything in some areas," says Adrian Hodgson, the Borough's special events officer. "The Autopage system is more advanced than others on the market, and they have developed it for us to suit the Carnival's specific requirements."

➔ ensuring instant delivery of messages

Before 2001 the officers used a system that could send messages, but not receive them. This meant the operations office had no way of knowing if communications were being received.

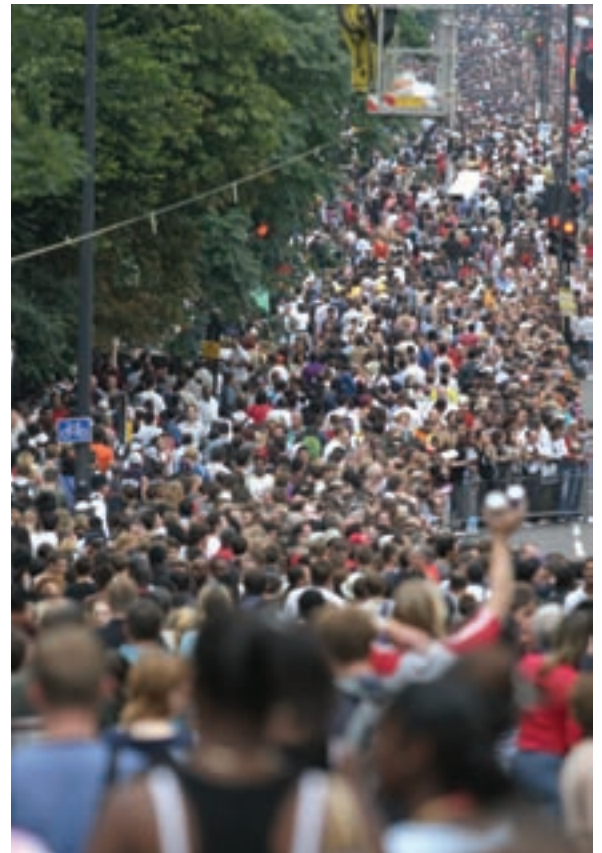
Since Autopage became involved it has tailored its system to meet the Borough's needs, and now uses the internet to ensure the instant delivery of text messages, and the elimination of queuing. The system is run from a laptop in the communications centre at the heart of the Carnival area, giving mobility to the operator if necessary.

"It works extremely well for us. Our primary need was to get messages out to officers quickly. The system does that, and we don't lose communication now," explained Hodgson.

One of the biggest advantages for enforcement officers and inspectors is that they don't have to answer their phone if they are busy. Their mobile will vibrate, alerting them to the incoming text, and they can reply when they have finished the job in hand.

Autopage is a highly cost-effective system – as it needs to be given that the Borough uses it solely for the annual two-day Carnival.

"The support we have had from Autopage over the years has been excellent," added Hodgson. "They are



very good on the research and development side. When we go to Autopage with our requirements they always come up with a solution - they help give us peace of mind."

➔ discreet and familiar communications

Norwich-based Autopage has been integrating the convenience of text messaging into wider business communications for more than 10 years. The company is constantly developing and refining its system as new hardware is introduced, and as business needs evolve.

Text messaging is familiar, discreet, simple to use, cost effective, and can be accessed globally. Autopage communications software benefits organisations with mobile workforces, and the company boasts a successful track record with many organisations.

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