

British Association of Public Safety Communications Officials

BRITISH APCO JOURNAL

Knowledge Exchange for Public Safety Communications



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INTEROPERABILITY INNOVATION INTEGRATION IN CONTROL

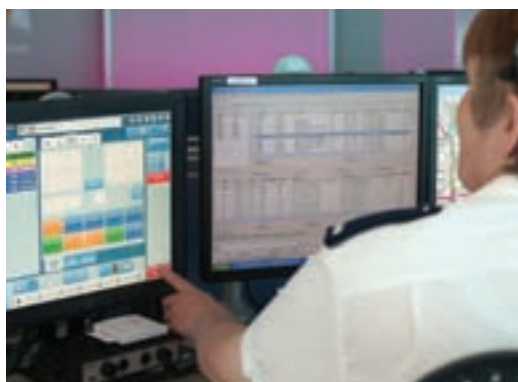


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INCIDENT MANAGEMENT
THE WAY FORWARD



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NEWS

- 5 **NPIA responsibilities in transition: update**
- 6 **EU Cybercrime Centre proposal**
- 6 **RNLI's innovative VHF-TETRA system**

FEATURES

10 **Annual Exhibition and Development Sessions – preview**

Collaborative solutions and future emergency planning in a challenging financial environment; BlueLightCamp – time to get 'unconferencing'; prepare to meet some of the exhibitors.

18 **Spectrum and major events**

The damaging effects of using TETRA capacity as it were an unlimited resource – but there is a way forward, writes Paul Kinsella.

20 **Mobile data for the streets**

Surrey Police embraces a new breed of mobile data that is transforming how its officers operate.

22 **Command and control futures**

Despite the doom and gloom of budget cuts there are opportunities to transform the control room of the future; once the objectives for a control centre have been set out the technology can produce an operationally cost-effective solution; Cassidian press day reveals its preparations for a multimedia future; Nottinghamshire develops a highly flexible and resilient control system for its dual control rooms.

30 **999 call rerouting**

How the combined fire control in Huntingdon uses a voice-continuity service in the cloud.

31 **Voice recording futures**

Technologies such as speech analytics will be the next 'must have'.

33 **Letter to the Editor**

Keith Phillips reacts to last month's column: *Where did all the engineers go?*

REGULARS

4 **President's address, CAG column**

8 **British APCO: news and comment**

34 **Making Waves, the trials and tribulations of a frustrated comms engineer. Part 2: Where do we go from here?**



British Association of Public Safety Communications Officials

British APCO is where active and advising members of our public safety community exchange and advise on all critical communications subjects. British APCO participates strongly in the Global Alliance of APCO International.

British APCO's aims include solving realtime critical communications problems, participating in research programmes (eg EU projects), showcasing technologies, and lobbying on issues such as spectrum and harmonisation.

British APCO holds an annual exhibition and development event, many regional events as well as training sessions, and is respected as the UK's (and Europe's) leading – and only – forum of knowledge exchange and transfer specific to communications in public safety.

To find out more details on how to contribute and draw from of this vibrant community, by becoming a member, contact Tracey Langmaid, Tel: 01522 548325, admin.manager@bapco.org.uk
For more information visit www.bapco.org.uk



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British APCO: President's address



Alan House, President

Here we are fast approaching our Exhibition and development sessions in Manchester. We took the bold decision

to move out of London this year and to try and restyle the event, building on feedback from many people. It's been a challenge in a time of many challenges for the public safety communications community and time will tell how things will go.

Whatever the post-event analysis may prove to reveal, the planning for the event has not been without considerable thought and effort by both the British APCO team lead by our Past President, Ian Readhead, who has worked tirelessly to engineer the occasion, and our event team from Brintex. I thank everyone for their efforts and I am sure that in moving us forward, nothing more could have been done within the economic and political constraints we all find ourselves in.

The most important thing for us will be honest and constructive feedback from those attending and exhibiting, so that we may further improve and build on

our efforts for 2013. We are on a journey to reshape British APCO; who we are, what we do, and where we want to be. Our annual event is but one working part of the vehicle taking us on that journey.

Do please take the time to talk to us and tell us how we are doing.

We are now planning how we will tackle the year ahead, with considerable work having been done already in developing a new Membership Strategy for the organisation. This will inevitably lead to an associated marketing strategy. Forming affiliations, partnerships and alliances with other organisations is also high on the agenda for change, and I am pleased to advise that we will be signing a memorandum of understanding with RAYNET at Manchester.

I wish everyone a successful and enjoyable visit to Manchester and look forward to meeting you.

The Commercial Advisory Group (CAG)



Dave King, CAG Chair

The new financial year is just about upon us, and will it be a lot different to the last one I

wonder? Well, maybe it will and there is some light at the end of the tunnel for us in the ICT space, as there is a lot of discussion about the intelligent use of ICT to help drive efficiencies.

I recently attended the LGA Fire Conference and the recent Bidders' Conference for the West Midlands and Surrey Police.

Smart-use technology was a major talking point in both, as well as outsourcing (obviously). I know a lot of us have heard before how technology can save time and money, but I still have the scares from implementing early voicemail and video

conferencing systems! In those days it was all about artificial savings and hitting figures, but I really see a difference this time with a more intelligent customer approach. That is not meant to sound patronising, but too often in the past a technology project has been the be-all and end-all. Today, technology is an enabler in the overall project; be that call answering/dispatcher or record management (for example). It is now up to us as the commercial experts to ensure we play our part and be 'intelligent suppliers', realising that we are here to enable a process or a

procedure to be completed. If the trend of outsourcing continues, most of us will have different customers (albeit the same end users), but those different customers will specialise in processes, procedures, and making the best use of the available resources. And they will see technology as just a tool to help do that.

If I am wrong then the light at the end of the tunnel could be somebody else walking with a torch looking for the light at the end of the tunnel! Join them if they have a nice torch, as collaboration is something not to be ignored. More on that soon.

FIRST UK LTE SYSTEM IS LIVE



UK Broadband (UKB) has switched on the first commercial 4G TD LTE system in the UK. The first base stations using Huawei's TD-LTE solution have gone live in the London Borough of Southwark. This is the first TD-LTE 3.5GHz deployment in the world and the first commercial 4G deployment in the UK. UKB is building its network using Huawei's Time Division Long Term Evolution (TD-LTE) solution. UKB will operate a wholesale model, working with partners to offer commercial services from May 2012 to businesses, consumers, and the public sector. The network will initially cover the Southbank and Borough areas of Southwark. The network will use UKB's 124MHz of spectrum in LTE bands 42 and 43 (3.5GHz and 3.6GHz).

→ Underground Wi-fi

The London Underground wi-fi contract has been won by Virgin Media. From July 2012 tube passengers will be able to connect to the internet for free – after the Olympic Games it will be a pay-as-you-go. The contract is only for ticket offices, escalators and platforms because it would have required major construction work to have added connectivity to the network's tunnels. It is expected there may be enough range for tube passengers to pick up a connection on a train in an area within the 80 stations covered. 120 stations will be fitted out by the end of the year. After the period of free access, Virgin Media's broadband and mobile customers will receive continued access as part of their subscriptions. Other non-paying users will be limited to a site showing online travel information. London Mayor Boris Johnson commented: 'Millions of passengers will now be able to connect to their work, friends or access the latest news and travel information whilst on the move.'



'This is a fabulous new and free resource which will be in place from this summer when London is being showcased on a global stage and playing host to millions.' Neil Berkett, chief executive of Virgin Media, added, 'With the eyes of the world on London this summer, we'll be showing off our capital as a leading connected city on the global stage.' London Underground staff will be responsible for fitting the equipment, but Transport for London stressed that the cost would be covered by the commercial contract. Virgin Media is building the wi-fi network from a total capital expenditure budget of about £640m for 2012.

→ NPIA responsibilities: update on transition



In a Ministerial statement on March 26 Theresa May updated the House

of Commons on the transition of the National Policing Improvement Agency's (NPIA) critical functions to successor bodies. On 1 April, the Central Witness Bureau, Crime Operational Support Unit, the National Missing Persons' Bureau, Serious Crime Analysis Section and Specialist Operations Centre transfer from the NPIA to the Serious Organised Crime Agency. She said that work was continuing on the development of the police professional body and the new police ICT company. A number of responsibilities would

be transferred to the Home Office including the NPIA's Police Science and Forensics services; policy for Police Special Constables; the NPIA's Automotive Equipment Section; and management of the contract for the Airwave radio system and its replacement (including associated staff). As an interim measure the Hendon Data Centre Services would also be transferred to the Home Office, a temporary move that would provide continuity for many of the police service's critical national identity systems.

→ G-Cloud framework will create a 'competitive marketplace'

The online appstore for the G-Cloud framework has been opened for business.

According to the Government Procurement Service (GPS), the new online CloudStore provides a cheaper, quicker and more transparent way to procure cloud-based ICT services.

In this first tranche of the G-Cloud service catalogue users can now purchase around 1,700 'off-the-shelf' IT services from CloudStore on a

'pay-as-you-go' basis rather than having to develop their own systems. 'This model means you can use what you want, when you want it, saving money by avoiding duplication of services that cannot be shared. Suppliers on the framework will be able to source cheaper cloud components for their own applications, enabling them to pass on the additional cost savings to customers,' said the GPS.

Francis Maude, Minister for Cabinet office, said, 'By creating a competitive marketplace, the G-Cloud framework will constantly encourage service providers to improve the quality and value of the solutions they offer, reducing the cost to taxpayers and suppliers. And it gives SME suppliers of niche products the same opportunities as bigger organisations supplying services.'

➔ RNLI lifeboat station installs innovative VHF-TETRA solution

Airwave and the Royal National Lifeboat Institution (RNLI) have gone live with an innovative solution for a communications challenge that had plagued the Kyle of Lochalsh lifeboat station for some years.

'The area is surrounded by sea lochs and steep mountains, making two-way communication a challenge for the activities of the RNLI,' explained

Alex Marshall, RNLI Operations Communications & Information Manager.

The RNLI uses a non-secure VHF analogue radio system to communicate between the lifeboat station and the lifeboat, which is perfectly suitable for line-of-sight and point-to-point communications. To overcome gaps in communications the RNLI worked with the NPJA to enable a back-to-back

system in the Airwave network. An Airwave terminal has been installed in the Kyle of Lochalsh station which converts Airwave calls into VHF transmissions and vice versa.

The new interface unit was designed by Alex Marshall and manufactured by PMR Products, and following trials the kit has now been installed in the station and the Atlantic 85 lifeboat.

➔ NNAS Messenger



North West Ambulance Service (NNAS) is the first to adopt the new Airwave Tetra Messenger service.

Following a successful trial in the latter part of 2011, NNAS has procured the service for a three-year term and placed an initial order for 330 devices.

TETRA Messenger is a secure, resilient, two-way messaging and alerting solution, which provides messaging on Airwave's secure TETRA Network. According to David Sangster, Airwave's UK Services Director: 'It is a robust messaging device with the added benefit of receipt acknowledgement. It is a world first and offers significant advantages over analogue paging systems.'

The addition of the GPS functionality means that control rooms can pinpoint the whereabouts of on-duty responders and manage their resources more effectively during an incident.

➔ EU Cybercrime Centre is proposed

The European Commission is proposing to establish an European Cybercrime Centre to help protect citizens and businesses against mounting cyber-crime that costs the UK £27 billion a year.

Cyber-threats include online fraud involving credit cards and bank credentials, hacking of smartphones and large-scale coordinated attacks on public services and infrastructure. The centre will focus on illegal online activities carried out by organised crime groups.

It is estimated that, worldwide, more than one million people become victims of cybercrime every day. The global turnover of cybercrime could reach an overall total of £243 billion, making it more profitable than the global trade in marijuana, cocaine and heroin combined. According to government figures, in the UK the cost of cybercrime is £27 billion a year with £3.1 billion born by citizens, £2.2 billion by the government and businesses suffering the bulk of the burden by losing £21 billion.

'Millions of Europeans use the Internet for home banking, online shopping and planning holidays, or to stay in touch with family and friends via online social networks. But as the



online part of our everyday lives grows, organised crime is following suit – and these crimes affect each and every one of us,' said Cecilia Malmström, European Commissioner for Home Affairs. 'We can't let cybercriminals disrupt our digital lives. A European Cybercrime Centre within Europol will become a hub for cooperation in defending an internet that is free, open and safe.' The EU experts will also work on preventing cybercrimes affecting e-banking and online booking activities. Another priority will be to protect social network profiles from e-crime infiltration and to help the fight against online identity theft.

➔ Overcoming 'black holes' in comms

Cassidian has developed a secure mobile system which overcomes problems for emergency services operating in areas with comms 'black holes.' Encapsulated in a case the size of a cereal box, the mobile device optimises and maintains a comms network in problem geographical areas or severe weather conditions. The Mobile Internet Protocol Node has been designed to make it easier to communicate using voice, data and video. It can

be carried in ground vehicles or, for example, in helicopters. Dr Mark Bentall, Chief Architect of Cassidian, said: 'This system takes a holistic view of all routes from sender to destination, taking into account external conditions, message file size, priority, security level and physical location. It then decides on an optimum route for the information. Users can be confident that a message will reach its intended audience regardless of conditions.'



Swinley Forest,
Berkshire, May 2011.
Photo: Royal
Berkshire Fire and
Rescue Service/
Forestry Commission.

Think 6 hours or 6 days, not 6 minutes...

Of the services already awarded their allocation of the post-FiReControl £81m grant money, all are innovating in their end-to-end approach linking mobilising with back office and fireground systems with many collaborating across traditional boundaries to deliver tangible improvements in resilience, efficiency, technology and interoperability.

To succeed in this aim though, joint mobilising software needs to be fully integrated with joint command support technology. Imagine a serious incident on the borders of three neighbouring services. Joint control (physical or virtual) results in assets being mobilised from across all collaborating services. The nearest available Incident Command Unit happens not to be the local ICU, which results in the local Incident Commander having to operate from an unfamiliar facility. The situation is further complicated when the incident escalates and a second ICU is dispatched to support marshalling.

Managing an incident should be thought of as a marathon, not a sprint. Joint mobilising will succeed in getting the most appropriate assets to the fireground in the fastest possible time. It's not just about the first six minutes of an incident though; it is about the next six hours or even six days, during which time the key command decisions are made and a vast amount of dynamic risk information is generated and needs to be shared between other commanders and functional officers. This is achieved through command support technology – not mobilising.

Tried and tested solution

Recording this information with pen, paper and a whiteboard and distributing it via runners is an option, but not a very attractive one when important and potentially life-threatening decisions are being made with an approach that is labour-intensive, time-consuming and often out of date – by essential minutes or even hours in a long-running incident.

Integrating mobilising and dispatch software with innovative command support technology allows the smooth escalation between the everyday and the career-breaking, or career-making, incident.

London Fire Brigade, the third largest fire brigade in the world, has achieved just that and has been using VectorCommand's Command Support System (CSS) software integrated with its mobilising system operationally on its command support units for the past two years in

over 2,000 incidents of all shapes and sizes, including 850 in only five days in spate conditions.

Royal Berkshire Fire and Rescue Service used the Command Support System operationally throughout the nine-day Swinley Forest fire in May 2011. Over 170 firefighters from 12 services were in attendance and the ICUs from Royal Berkshire and London Fire Brigade were deployed. During the incident, CSS handled over 1,000 vehicle movements and logged 77,400 messages (145MB of data) on the system.

Dynamic information

The challenge of commanding a major incident is not the making of decisions, but the drawing together and analysis of the information upon which those decisions are made. The Command Support System shares the same information to multiple users, but with the added benefit that each user is also able to look at a different part of the picture at the same time – and in real time. So, whilst a sector commander can focus on the detail of the incident in front of him/her, the strategic commander can take the over-arching view of all the active incidents in the region, but is also able to drill down into each element to see more detail.

Technology is not there to make the decision for you, but to allow you to devote the time to deciding, rather than to collating or making sense of the vast amount of dynamic information being fired at you during an incident. The Command Support System was designed and developed to achieve just this.

"It's all about knowledge management really. Integrating the mobilising and command support systems makes absolute sense."

Olaf Baars,
DCFO Royal
Berkshire
Fire and
Rescue Service.



For further information, please contact
rod.stafford@vectorcommand.com

Public Safety Communications – enhancing today, transforming tomorrow

British APCO Annual Exhibition and Development Sessions: Manchester Central, Manchester, 16-17 April 2012

The British APCO exhibition and development sessions take place in only a few days' time – and all the evidence is pointing towards it being a truly remarkable event.



At the time of dictating this entry for the *British APCO Journal*, we are less than four weeks away from our Exhibition and Development Sessions being held in Manchester.

What we know at this time is that our commercial members' support has been absolutely superb. We have nearly let the same amount of space that used to be required in Islington, so a big personal thanks to all of our companies who have sustained their support for British APCO and are enthusiastic about trying to now develop a new exhibition within Manchester Central.

I hope that all those in attendance will find the range and content of display material at the very leading edge of blue light requirements. Despite the realities of financial restrictions in the public sector, post the Olympic Games, a number of organisations will be making key decisions with regard to renewing their core technology needs. This is especially true of command and control solutions where the Metropolitan Police will be seeking tenders to replace the largest such capability in the country. I have also been very impressed by the contribution from a number of sources who are seeking to add value to our free development sessions, in particular the 'Decision Making Under Stress' workshop which will focus on those issues which impact upon the individual during tense periods of critical activity and how these can be ameliorated.

I am also delighted that the National Policing Improvement Agency will be running briefings on the new National Contact Management Learning Programme. British APCO and the Association of Chief Police Officers committed funding to this programme in its earlier life with the intention of enabling us to create an accreditation that could be used by those across the blue light service who have a direct interface with the public. In particular, I wanted to ensure that we were able to evidence an aspiration to train such staff in order to enhance our professional capability, maintain and improve standards and to provide the individual with a transferable

qualification.

No British APCO event would be complete unless we provide ample opportunities to listen to some of the most through-provoking presentations. I hope this year we are not found lacking. We have flown from America Robert Le Grand, President and CEO of the Digital Decision.

America is some years ahead of us with regard to developing broadband wireless communications and also maximising the benefit of having private PS LTE and public carrier LTE networks working together.

I sense that many of us recognise that our future may be one which maximises the capability of voice centric solution through TETRA whilst seeking to create opportunities to mobilise service provision through private networks.

The last super session which will be headed by the Chief Constable of Greater Manchester Police, Peter Fahy, assisted by colleagues from London Fire Brigade and North West Ambulance Service, should be a great opportunity to hear how the emergency services coped with the riots of 2011 and especially the impact this had on control room resources, working practices and the new potential threat of social media.

Finally of course, we really want to create an opportunity for providers, service personnel and visitors to network. Not only have we facilitated some great hotels at very good prices but we will also continue with the Gala Dinner at which over 250 colleagues will have an opportunity to meet and debate both the challenges and solutions which are facing the blue light sector.

We hope that in this convivial atmosphere we can once again evidence that British APCO is focused upon knowledge exchange for public sector communications and that we are the trusted environment of first resort for our members.

Ian Readhead,
Past President.



The last year has seen the Association renew its identity, and the 2012 Exhibition and Development Sessions will affirm its relevance today, writes Executive Director Tony Antoniou.

Here we are on the brink of our 2012 annual event. As a team we have worked tirelessly to drive up the value, content and relevance of this year's event. Last year we all left the event in Islington saying how much change was needed – well, we got it, and in just about every sense.

The event still offers a comprehensive exhibition, but the huge difference is in the number of diverse, compelling, and very relevant items happening within the 2012 Annual Exhibition and Development Sessions. The vision was one of a 'village' containing chambers of growth, development, debate, learning, experiment and even an air of unpredictability! I believe we've achieved this change and we've probably implemented just about as much as can be done in one year. Be ready for a very different experience.

The attendees – who've shown the willingness to invest in the knowledge-exchange events within the show – and the hard-working supporters and exhibitors, represent those who 'got' the messages. There will be some who chose to stand back and see what we do, and our task is to convey to them just what they have missed!

You will already realise that in 2013 we plan to go further along the path of changing our annual event, driving the show so that it is even more relevant to our community.

Our increasing relevance has prompted me to work on our standard message. Alan has already worked on the 'how we do it', and I have added the 'who we are'. The 'what we do' bring us up to date for 2012. For what it's worth, our community should be able to predict what will come out of our mouths when we're asked, 'So, what is British APCO?'

British APCO is a growing community with extensive communications knowledge for delivering public safety and civil contingency

British APCO fosters knowledge exchange in communications to support and improve the delivery of public safety.

British APCO maintains powerful relationships with agencies, commercial suppliers, technologists and governments, and provides an agnostic centre of excellence nationally and across Europe, dedicated to

improvement in public safety communications.

Which brings us to that 'r' word (relevance). So how much more relevant is our 2012 event to the previous year's event? And how much more relevant is British APCO after a year's hard work?

Our relevance – to the many agencies, commercial suppliers, technologists and Governments (nationally and across Europe) – is the one measure that, to me, describes how we are performing as an association. What are the indicators?

Public safety officers, responders, government representatives, standards bodies, think-tanks, research bodies, associations, alliances, commercial suppliers, voluntary sector, developers, communications professionals and providers – who do they call? An opinion, assistance, definition, review, critical assessment, help with requirements, implementation, impact on operations and procedures, projects etc.

We can measure our progress by the relevance that we have among our partners, our community of members, and across our widening number of special relationships. If we want to measure a year's hard work, I look at how much our relevance has risen, as we respond to the challenges represented by an unprecedented arrival of new parallel technologies and the promises they bring.

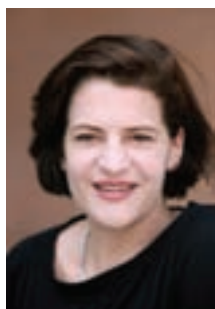
Balancing the benefits of exciting, viral incidence of new capabilities, asking how we make them resilient, how we make them complementary to trusted TETRA and other technologies, how we converge and interoperate. Reacting to how technology makes the public's behaviour change and how we can move to become more relevant to that as we protect them.

I'm being told – and I believe that this year's work and this year's annual event demonstrate it – that British APCO has vastly increased its relevance across the community of constituent parts that I mentioned earlier. This is probably our most exciting and busiest time, across a widening geography, against the most austere backdrop we've seen in our lifetimes. Bravo, colleagues and friends, what a year!

Tony Antoniou,
Executive Director.

Rise to the challenge

British APCO 2012 will deliver collaborative solutions and future emergency planning for a uniquely challenging financial environment, writes Event Director Lucy McPhail.



The British APCO 2012 exhibition is free to attend and is open to all emergency services and local and national governmental agency professionals engaged in incident management, civil contingency response, disaster relief, business continuity and information management. For further information visit www.bapco.co.uk

With the recent invitation by the DCLG for bids for future control room funding for fire and rescue services; the continuing debate over Long Term Evolution/4G broadband vs TETRA in service delivery for all emergency responders; and the ongoing questions of whether and how social media can be used to improve public safety, the British APCO Exhibition and Development Sessions comes at a key time for all services.

The event takes place 16-17 April 2012 at its new home of Manchester Central. The two-day event offers a completely fresh new approach with a comprehensive Development Session Programme and a dynamic exhibition (including many new names for 2012), a wealth of networking and learning opportunities and the latest technologies, services and thinking that will shape strategy, procurement, planning implementation and interoperability for a secure future.

Inspirational US expert Robert Le Grande, CEO of Digital Decision, will present must-see sessions on both days of the programme. Day one sees an in-depth presentation on managing the transition from LMR to Broadband Wireless Connection in Washington DC – one of the most targeted cities in the world. On day two he will deliver detail on the work between carrier and network provider in the US to deliver seamless reliable services.

Duncan Swan and colleagues of Mason take a future view of ICT in public safety and how to cope with increasing pressures, while the case study from Aberdeen City Council will offer learning on the experience of making £1.5m savings by engaging the software community.

Peter Goulding of Motorola Solutions will offer an insight into Next Generation Command and Control, while Euros Evans, CTO, Airwave, offers a view on the roadmap to transition to LTE and the dependencies on it becoming a suitable technology for public safety requirements.

The Development Sessions close with a Social Media Super Session with Peter Fahy, Chief Constable of Greater Manchester Police, and Supt Mark Payne of Wolverhampton Police who will talk about his experience of social media in public order situations including EDL protests. Also speaking is Jamie Bartlett, senior researcher at Demos think-tank,

who has recently completed a survey of 1,300 Facebook fans of the English Defence League. Richard Stokoe of the London Fire Brigade will examine the need for understanding social media engagement from the very top of organizations, and Bob Williams of the NW Ambulance Service NHS Trust will reference interagency working in the context of the Derrick Bird shootings with DCS Scott Wilson looking at first line response in major incidents. This closing session will offer a wide range of on the ground experience and opinion – this is a must-attend for all services.

Among a number of free sessions open to all visitors, the 'Decision-making under stress

workshop' will explore the ways in which what you do influences the way you get information, and why this changes during intense periods of critical activity. This workshop tells you all you need to know about working to your best ability under intense circumstances.

The NPIA will be running briefings on both days on the new National Contact Management Learning Programme aimed at police contact managers and their supervisors, training managers and trainers, primarily for the police service it is likely also to be of interest to other services.

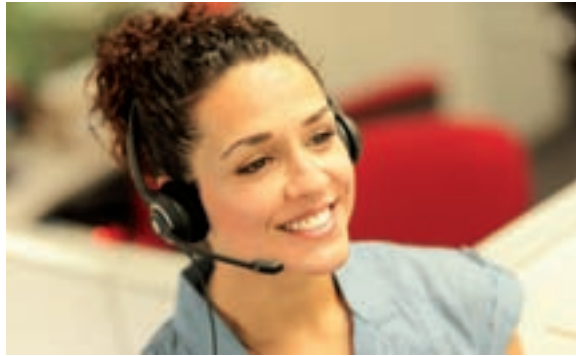
Fresh from the first ever BlueLightCamp, the National Police Web Managers Group will share their experiences on the inter-agency session on April 15 – what they learned and how to replicate a brand new method of learning fast.

Graham Allen will present a critical view of the recent Audit Commission report, *Mobile technology in policing 2002-2012: how did we get here, and what next?* The session is open to all and takes place Tuesday 17 April at 2pm.

As well as the free workshops, British APCO 2012 also offers you a first opportunity to view the in-vehicle technologies by ACPO ITS. The team is on hand to explain the concepts of the all-new Driver and Data Management System, the One Box Concept for 2015, and facial recognition systems (amongst others). The show will display two never-before-seen vehicles with single vehicle architecture.

On the exhibition floor this year, visitors and delegates will see all the major suppliers of technologies, consultancy and solutions for their businesses, and also a number of new names and innovative services for 2012.

"The NPIA will be running briefings on both days on the new National Contact Management Learning Programme"



The very best headsets in an emergency

There can be few situations where there is a greater need for clarity of communications than in an emergency services control room.

When responding to callers who are often in an emotionally charged and sometimes distraught state, being able to hear what is said and being understood without repetition can save the vital minutes that result in a positive outcome for an unfolding crisis.

Sennheiser has a legacy of 65 years as experts in acoustics and audio technology. The German company has a global reputation for high quality headsets and microphones used in professional broadcasting, music industry and aviation, all of which demand high quality speech and audio. Using Sennheiser professional grade headsets avoids compatibility issues with existing equipment, reduces operator fatigue and diminishes the potential for confusion between the caller and operator. The Sennheiser professional headset range is approved for use with Sungard and APD control room systems and Sennheiser headsets have some unique advantages that provide significant advantages for control room operators.

For use in emergency control rooms one of the most important advantages of Sennheiser headsets is the company's patented ActiveGard technology. It's an unfortunate fact that emergency service control rooms suffer from malicious calls and usually these are simple false alarm. But there are also aggressive calls made with the intention of hurting and possibly permanently harming the control operator's hearing. Blowing whistles or using more sophisticated electronic devices to deliver an acoustic shock are rare occurrences, but can be devastating for the recipient.

ActiveGard technology embedded in all Sennheiser headsets detects unsafe audio levels and compresses the signal within milliseconds. ActiveGard doesn't just reduce, but rather removes dangerous energy from an acoustic burst, eliminating the distortion from an excessive incoming signal and keeping the volume of a sound peak at a safe and comfortable level to protect the users hearing.

For busy and noisy environments the high performance ultra-noise cancelling microphones used in Sennheiser headsets filter out unwanted background noise. The benefits to emergency control room staff of high quality sound and the elimination of external noise which are offered by sophisticated headsets cannot be overstated. The resulting improvement in intelligibility can greatly improve call efficiency, saving valuable time by reducing the risk of misunderstanding and average call duration.

Of course another key consideration for emergency control room headsets is user comfort. Sennheiser headsets excel in sound quality, durability and comfort which are essential in any environment where the user will have medium to heavy call usage. Sennheiser have looked into the ergonomics very carefully to ensure that its professional headsets are suitable for all day wearing comfort where operatives may be working from 8 hours a day or more in a demanding contact centre environment.

Sennheiser's range of SH, CC and the new SC family of wired headsets are ideal for use in emergency service control rooms. For those in a supervisory role requiring mobility in the control room, Sennheiser's DW Series of wireless headsets are the perfect solution, offering up to a 180 metre range (line of sight), 12 hours of talk time and fast charging, with 4 hrs talk time in just 10 minutes and full charge in 1 hour. Sennheiser headsets are available in a choice of monaural (single sided), binaural (double sided) headband and single sided ear-loop wearing styles to suit the needs of all users. Sennheiser has also invested heavily in research and development to ensure that headsets are optimised for simple installation and are simple and intuitive to use.

Free trials of Sennheiser headsets can be arranged for emergency service BAPCO members. To know more call 0800 1303955, or email info@sennheiser.co.uk or visit www.sennheiser.co.uk



BlueLightCamp: time to get 'unconferencing'

The digital and social media side of British APCO 2012 – BlueLightCamp – takes place on Sunday 15 April. Co-founders Ben Proctor and Sasha Taylor explain what visitors can expect from both this unique event and the social media surgeries that will be available during the show.

Ben Proctor is a co-founder of BlueLightCamp, which was born as an idea by Sasha Taylor (opposite) from the ashes of an online discussion in relation to how social media was being used during the 2011 disorders in some UK cities. Other social media experts were pulled together quickly to create the founding group – Paul Coxon, and David White. Initial supporters of the new idea include Dominic Campbell, Lucy McPhail, and Steph Gray.

My company provides specialist training and consultancy to help category one and two responders understand and plan for the impact of mobile and web technology on their work. We only have to look at how mobile messaging and social media affected behaviour in the August riots and in the subsequent community cleanup campaigns to see that the technology helps people behave differently in emergencies.

We are only at the beginning of how the technology will change the management of major incidents.

Actually my background is in local authorities. I worked in emergency planning and in crime and disorder reduction as well as in corporate communications. At a local level, effective councils work very closely with all the blue light services. When I set up my own company in 2008 I had intended to provide a general crisis communications consultancy but I quickly saw that digital technology was going to have far-reaching consequences for public services, especially in major incidents. Much of my work these days is supporting multi-agency partnerships, blue lights and other responders working closely together.

How can social media aid the emergency services?

I think those of us who work in the field find this a curious question. It's a bit like asking how telephones or

printers can aid the emergency services.

Social media have a democratising effect. Essentially we have all been handed a printing press and a publishing and distribution company which we can use essentially for free. This can make it easier for citizens to provide data and intelligence to the emergency services.

It also places the emergency services under much greater and more direct scrutiny. It helps citizens self-organise and be more resilient and can provide new ways to strengthen and build communities.

A useful way to think about

this, it seems to me, is: how can social media help citizens and what is the role of the emergency services in supporting them? I think the way some police forces have embraced social media and the way they trust their frontline staff to use it to engage directly with citizens provides an inspiring way forward for all services.

Tell us about BlueLightCamp

BlueLightCamp is the best conference you will ever have been to. This is pretty-much guaranteed because the agenda won't be planned until the conference starts. You will help to plan it. Sessions won't run unless people want to attend. Sessions will be much more participative and engaging than the average conference.

Also because it's on a Sunday it will have a very different feel to the average conference. Many people will attend in their own time because of their personal enthusiasm and won't need to convince their manager it will meet their annual objectives. Ranks will be left at the door. BlueLightCamp is one of a growing movement of govamps. The origin of the term 'camp' in this context is pretty obscure but wikipedia will explain it for you. Ordinary conferences will seem rather old-fashioned after BlueLightCamp.

"Ordinary conferences will seem rather old-fashioned after BlueLightCamp"

Ben Proctor



And the social media surgeries?

Social media surgeries were invented by a chap called Nick Booth as a way to train people in community organisations but they lend themselves to a wide range of other areas. Including exhibitions.

Essentially you drop in and ask some questions. These questions are answered one-to-one by an expert in front of a computer. So you get a completely tailored, impartial, answer to your question. And you could ask anything related to online technology, from; 'Why does nobody like my organisation's facebook page?', to; 'Could I be getting more web traffic using adwords?'; or; 'Why does everyone go on about Twitter?'.
We'll be at the exhibition offering free help in 20-minute slots.

What aspect of social media do you think has the most potential for the emergency services?

That really is too broad a question. It's a bit like asking what aspect of telephony has the most potential for the emergency services. But I think there are three key areas

- As a tool of community engagement, social media has much to commend it. Local policing teams, fire stations and other neighbourhood services are already using social media as one aspect of the way they learn from and inform their local citizens

- As a tool for timely warning and informing in an emergency. I think the police service is really showing a lead in using some of these platforms to get timely and clear information out to citizens. Local authorities and fire services are also doing some good work in this area. There is much more to do though.

- As a tool for intelligence gathering. My specialism is in gathering information in major incidents but it is important at all times. There are issues of accountability and transparency in how we approach this role that, I feel, still need to be negotiated. Crucially though citizens use social network to gather intelligence and create their own information pictures. Public services must understand these processes.

Are there any common misconceptions regarding social media and the emergency services?

Too many senior managers still don't recognise the importance of this technology. Stories of uniformed staff who are barred from identifying themselves in social media are still too frequent. And, in those organisations, insufficient support and guidance is given to staff about managing the risks on the platforms. Half the population has a Facebook account. This technology is not going to go away but a surprising number of senior managers seem to be hoping that it will.

Shifting culture and mindsets

BlueLightCamp founder Sasha Taylor increasingly specialises in social media crisis communications – he is looking forward to answering practical questions from the emergency services regarding social media during BlueLightCamp and the social media surgeries.



I sometimes describe myself as a 'recovering civil servant', and that's not far from the truth. I've spent about five years in central government in various roles within communications teams, most recently as Head of Digital at the Department for Business, Innovation and Skills. It was great to have the opportunity over the last few years to help big, corporate Whitehall departments take their first steps in social media, though it's a tough and slow job to shift the culture and mindset even amongst officials who know that ultimately, this is the way things are going.

These days I run a digital engagement agency called

Helpful Technology, though about two thirds of my work is still with the public sector. We deliver training and consulting in social and digital media skills; and develop websites including for the Foreign Office and Department of Health. Increasingly, I'm specialising in social media crisis communications running simulations for corporates using The Social Simulator, a platform we have developed which enables people to feel the full force of a social media storm in a safe, private environment where they can test their strategies for using Twitter, Facebook and more conventional digital publishing as part of a fast-moving scenario.

How did you first get involved with the emergency services?

I'm a relative newcomer: I've been following the work of people like Nick Keane from the NPIA for some time. But increasingly the social media crisis simulations I've been working on have started to involve multiple agencies – for instance around civil emergencies – including police, fire and health. Since the public disorder last summer, I've noticed a significant rise in enquiries and interest from the emergency services in developing their teams' familiarity and confidence in monitoring and responding to social media, as it moves from something bleeding edge to a normal everyday channel for many of those organisations and the people they serve.

There are dozens of potential social media applications that could help the emergency services, but here are three of the most significant:

- As a way of helping local residents and stakeholders relate to the organisation: a new book by Euan Semple has just come out, titled *Organisations don't tweet: people do*, and that's a useful way of thinking about the power of these tools. There will always be a role for business plans and press releases, but the hundreds of successful examples of individuals in police forces, health trusts and fire and rescue services using these tools as

"I'm one of the organisers of UKGovcamp, a large annual gathering of people interested in how the public sector uses technology"

part of their work point to a new way of hearing from local emergency services.

- As a rapid two-way news channel in a crisis situation: news breaks, develops, gets reported, researched and shared online now – and it's also a place where rumours and misinformation swirl and gain traction too. There's an important role for emergency services in providing trustworthy information into this environment, but it needs to be timely and clear. If a situation is still developing and you're still investigating it, don't be afraid to say so.

- As a way of connecting up the organisation itself: by taking public communication out of traditional

Communication teams, social media opens up reputational and HR challenges, but perhaps more importantly makes it much easier for people around

large organisations to follow each others' work and provide help as and when it's needed – in ways that old-fashioned knowledge management systems never achieved.

Tell us a bit about your experience with social media

I've found social media invaluable as a way of connecting with like-minded peers facing similar challenges in other organisations. Inside the public sector, my team helped to introduce social media into the policy-making process in

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various ways, from developing the process and support for senior managers and ministers to engage online, through to providing online mechanisms for stakeholders and citizens to comment on draft policy.

I'm one of the organisers of UKGovcamp, a large annual gathering of people interested in how the public sector uses technology, and it's fair to say that community lives and breathes these tools and the culture behind them. Time and again, tools like Twitter and Facebook provide answers to questions, great examples and contacts, a sanity check and good old-fashioned moral support.

I've been a blogger too since 2008, which while it has got me into hot water once or twice, has ultimately connected me to hundreds of great people and enabled me to do the work I do now.

What do you hope visitors to the social media surgery will take back with them?

Between us, Ben Proctor and I have some pretty varied experience of applying social media tools in different contexts, so I'm hoping we can help answer both some of practical questions people have; 'How should we use our corporate Twitter account?'; 'What's the best way to get people to engage with us on Facebook?'; but also some of the underlying concerns that remain; 'How do I persuade a sceptical senior manager?' 'What about the



line between personal and professional capacity?' 'How can I demonstrate the value in spending time on this?'

What are the common misconceptions regarding social media and the emergency services?

I think it's an easy line of attack for lazy journalists to say that emergency services should be focussing their resources on the front line, rather than messing about with Twitter. Happily, a lot of organisations are ignoring these calls and demonstrating the practical role it can play. There's a lot of change in local government at the moment, and it's really important that emergency service organisations can point to a wider plan into which their social media work fits – the goals they're working towards, the audiences they're serving, why they use the channels they do, and what benefit they get from it. We're moving on a bit from these things having value in themselves as 'innovations'; just because a channel is free to set up, doesn't mean there aren't costs to managing it well.

For further information visit www.bapco.co.uk

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Stand B34



➔ ACPO ITS: the future in vehicles

ACPO ITS will present three exciting new vehicles demonstrating the future technology for UK police and emergency service vehicles.

This is your opportunity to view two never-before-seen vehicles with Single Vehicle Architecture and the top performing Driver and Vehicle Data Management System, an advanced system that both increases vehicle safety and saves money.

Also on show is the One Box Concept Car for 2015, which showcases future technologies including 360 video, facial recognition systems, forward and rear ANPR, mobile GIS, tablet PCs and more. These vehicle solutions were a key talking point at the recent Policing and Security show, with



visitors queuing round the block to view. British APCO 2012 will present newer, never-before seen solutions which are being fast-tracked to offer a first-out opportunity to see the technologies that could be coming to the emergency services over the next three to five years.

➔ Airwave presents...

Airwave, the leading provider of critical voice and data communications to public service organisations in Great Britain, will share more insight with delegates attending British APCO 2012 about the possibility of long-term evolution (LTE) being the future technology for public safety organisations.



Airwave's chief technology officer, Euros Evans will present 'A view on Public Safety Future Technology evolution', and LTE as the 'preferred technology route for the public safety sector': 'I discuss the potentials of the technology, the benefits it could bring, but also the dependencies on LTE becoming a technology suitable for the various needs of the public safety sector.'

The presentation pioneers the roadmap for LTE transition, considering both voice and data needs. Euros will also discuss the evolution of control room services and information management both in a fixed and mobile environment.

➔ Arqiva: ICCS and mobile data

Arqiva's Government team provides mission-critical communications solutions to public sector organisations throughout the UK and Ireland, including frontline emergency services. The company works with the RNLI, Maritime and Coastguard Agency and UK Borders Agency and more than 50% of the UK's Police Authorities, including the Metropolitan Police and Strathclyde Police.

Customers demand exacting levels of performance, resilience and availability from their communications systems.

Arqiva partners with these organisations to achieve these goals, in order to better equip them to deliver more effective, more efficient and safer public services. At the heart of their service delivery is a 300-strong team of field engineers, based at over 30 sites across England, Scotland, Wales and Ireland who help customers to achieve seamless communications 24 hours a day, seven days a week and 52 weeks of the year.

At this year's event, Arqiva will launch a new addition to its portfolio of managed services, an integrated communications control system (ICCS) for the fire service. ICCS for Fire Services seamlessly merges radio dispatchers' telephone call handling access with control and video monitoring into a single user friendly touchscreen interface, which can be effortlessly integrated with command and control systems.

The company will also be exhibiting its Police Mobile Data solution, which provides officers with remote access to vital information – when and where they need it. Developed in partnership with leading mobile data specialists BAE Systems Detica, this is a scalable end-to-end solution that provides a seamless data flow between the control room and the police officer.

Contact: Stephen Arnold, stand B22.

➔ UK Broadband: on hand to talk all things wireless

UK Broadband is the UK's largest commercial holder of national radio spectrum suitable for 4G mobile services and fixed wireless solutions. The company provides wireless data capacity and services, including specialist solutions for the emergency services for secure real-time communications, linking the incident ground, HQ and other locations.

Kevin Gladwin, Director Special Projects Group, will on hand at stand D24 to explain how high-capacity wireless services such as point-to-point, point-to-multipoint and 4G-LTE can deliver cost savings for public sector and emergency services organisations today while enabling the services of tomorrow. 'UK Broadband switched on the first 4G LTE deployment in the UK for commercial services,' explains Kevin. 'But high-capacity wireless technologies deliver more than just mobile services. They can deliver immediate savings on communications budgets while improving flexibility and resilience.' By offering 4G LTE and fixed wireless solutions using its extensive holding of national radio spectrum, UK Broadband can offer high-capacity mobile data services meeting needs such as incident ground communications, re-deployable surveillance, point-to-point and point-to-multipoint connectivity and wireless broadband access. 'We also offer a range of specialist products including COFDM body-worn cameras, auto-deploy satellite dishes and aerial platform video,' adds Kevin.

Contact: Kevin Gladwin, stand D24.

Opening times

Development sessions

16th April 09:30 – 16:30

17th April 09:30 – 16:00

Exhibition

16th April 09:30 – 17:00

17th April 09:30 – 16:00

➔ Capita: integrated communications with full support

Capita's Secure Information Solutions business, part of Capita plc, is a leading supplier of integrated control room solutions and services to the UK's public safety agencies.

At this year's British APCO 2012 event in Manchester, Capita will be exhibiting its latest integrated communications solutions and also showcasing its comprehensive ability to support blue light organisations in their quest to manage costs, improve efficiency and increase resilience across the organisation.

Capita's fully integrated suite of applications featuring command and control, geographic information systems and integrated communications are supported by a nationwide radio managed service capability. The business counts 70% of police forces, 40% of fire and rescue services and 100% of ambulance trusts,

as customers.

Other major public safety contracts include the Highways Agency, Maritime and Coastguard Agency, MoD Guarding Agency and the Garda and Health Service in the Republic of Ireland.

To ensure frontline operations run as efficiently as possible, Capita's nationwide network of field service engineers deliver full radio managed services support to over 150,000 devices across the UK.

Customers include major metropolitan police forces, ambulance trusts, the Highways Agency and, most recently, the prison service.

Capita is also able to offer additional capabilities in front, middle and back office integration, such as rostering and resourcing, mobile solutions and the outsourcing of the control room operation.

During the conference, Capita will present its vision of control room futures to an invited audience. Matthew Palmer, head of control room futures, Capita Secure Information Solutions, said, 'Capita has a rich history of developing innovative products that satisfy our clients' demands, because we work in partnership when designing their solutions. Working with our clients, we are building the next generation solution and factoring in the entire workflow throughout an incident's lifecycle. We are able to help our clients improve the richness of the integration and interworking between the different processes involved, which will ultimately benefit the resource on the front line and the general public.'

Contact: David White, stand E20.

MASON: INDEPENDENT ADVICE

Reliable and robust communication is critical for the emergency services. The public who they serve expect nothing less.

Investing in ICT infrastructure, hardware and services means making tough decisions. And for nearly 20 years, Mason has helped police, ambulance, fire and coastguard organisations – in the UK and overseas – to get those decisions right, and to ensure that those decisions stand the test of time.

Budgetary pressures mean that today it's more important than ever to get value for money from ICT investments. We provide independent advice that covers:

- Strategy and business planning – understanding the operational requirements and developing compelling business cases
- Procurement – ensuring requirements are translated into the right ICT solutions, and managing the process to select a supplier who fits both the operational and commercial objectives
- Implementation – managing the delivery of integrated ICT systems, on time and to budget
- Security – protecting private information and mission-critical systems, and ensuring business continuity.

Underpinning our pragmatic experience is our technology expertise. It covers mobile communications – looking to the future and mobile broadband solutions as well as a world-leading TETRA capability – control room technologies (such as command-and-control and dispatch solutions), corporate networks (WANs and LANs) and wireless applications.

Contact: Bridie Douglas, Duncan Swan, Rob Watkins, stand D25.



➔ Procom: in touch

Procom is well known within the comms industry as a manufacturer and supplier of high quality antennas, filters and combining equipment, with many years of experience in their design and manufacture. It provides a range of products to clients in the following sectors: airports, blue light, defence, marine, PMR, security and transport.

Its technical expertise and continuously developing range of bespoke products has enabled the company to successfully supply solutions in some of the most demanding areas within radio communications.

Its products and solutions cover applications that include: base and marine antennas; GPS antennas such as the GPS combi-mount (which is setting industry standards with high-gain noise amplifier and a unique mounting concept); mobile antennas covering a broad range of applications with both permanent and temporary installations; microwave antennas designed from 5 to 110GHz for fixed connections and point-to-omni-point applications; filters covering duplex, band-pass, band-reject, low-pass and high-pass filters; multicouplers; combiners available as either cavities or hybrid for transmitting equipment.

Procom products have many handmade components which are thoroughly tested.

Contact: Michael Hudson, G20



Spectrum and major events

Superintendent Paul Kinsella outlines the damaging effects of using TETRA capacity as if it were an unlimited resource: he suggests a tripartite approach to ensure readiness for the next major event.

Airwave has been in use by the police service for more than 10 years. The Airwave Network provides coverage – over 99% of Great Britain's land mass – and its capacity can cope with the pressure of multiple organisations working in the same vicinity. It has spare 'surge' capacity to allow additional users to operate during a major incident. It operates a queuing system so that even if there is congestion all messages will get through.

The network does not have unlimited capacity however. It is designed based upon user requirements, business as usual, with the capability to handle additional traffic loads generated by situations that users might reasonably expect to face. This capacity is predicated on the reasonable expectation that organisations use the system in a coherent, disciplined way and Airwave is contracted to provide coverage and capacity accordingly.

Of course the police services are not the only users. The fire and rescue and ambulance services also rely on Airwave, and the network is utilised by many other responder agencies and partners – the Coastguard, RNLI, local authorities and the RSPCA to name just a few. All need access to critical communications capability, a requirement that becomes essential during large scale events and multi-agency working when several agencies may be responding together.

As more users exploit the system, efficient use of Airwave has become a high priority topic. Experts had already started to recognise the potential for capacity issues to impact on some or all services' capability to access the system when the issue was put firmly in the spotlight due to events in The Netherlands. In February 2009, a Turkish Airlines 737-8001 crashed in the safety region of Kennermerland. This is the second most critical region in the Netherlands, and includes Amsterdam Schiphol airport, the Corus Steelworks and the sea port serving Amsterdam.

Over 600 public safety personnel attended the scene, and at one point just a single base site on the C2000 network2 was supporting 116 active talk groups with a further 300 registering on it. For the first time ever, radio users and control room dispatchers encountered congestion

on the radio network. This led the users to believe that there was a problem with the network. Some users began using the commercial network, leading to a disconnect in comms as not all the services were using the same system.

The communications challenges faced by emergency responders to the Turkish Airlines crash demonstrate the typical problems faced by critical communications networks and their users during a major incident. The Dutch Tetra system works in a very similar way to Airwave and we can expect similar issues.

Resources are drawn from over a wide area and arrive at the scene monitoring their 'home' talk group. This causes a number of problems. Many talk groups have to register on the base station(s) nearest to the incident site. Comms become fragmented because information is being delivered to several different dispatchers, sometimes in different control rooms, and traffic is further increased (unnecessarily) as the same information is being delivered several times by different people on separate talk groups.

The rapid and steep increase in the number of talk groups clogs up the system, so users repeatedly try to connect, causing further congestion with multiple calls back out from the control rooms. Use of commercial networks adds to the problems, with control rooms having to divert resources to answer calls from mobile phones and co-ordinate information outside the controlled incident logging process.

In the case of The Netherlands incident, there was an emergency plan in place, but it was based on the crash occurring at the airport rather than nearby – and although the plan had been tested, the testing appears to have been restricted to senior officers.

The unprecedented number of talkgroups overloading the network led users, and the press – and therefore the wider public – to conclude there was a problem with the network, which undermined confidence. Consider a different incident. In 2010, two trains were involved in a head-on collision at Halle in Belgium, and 18 people were killed. Belgium also uses a TETRA system similar to Airwave but has a history of a very disciplined approach to its use.

The fleetmap and radio configuration are designed in such

Superintendent Paul Kinsella is Interoperability Implementation Coordinator, Communications Strand, in the ACPO UK Operational Interoperability Programme. Photo credit: David G. Williams, Emergency Planning Advisor, London Ambulance Service.

a way that users are regularly required to change talk groups when an incident occurs. They train and exercise this standard, default approach.

There are talk groups for each region replicated across all radios, so that users know which talk group is to be used depending on where an incident occurs – no matter where they work. The disaster plan was implemented quickly and with the appropriate personnel.

Capacity and communication was not an issue as the responders adopted the standard working practices for dealing with a major incident. This enhanced communication and reduced implications on capacity with multi-agency talk groups being used as a matter of course.

The principle in Belgium is that a default way of responding to a major event, understood by all, presents the end users with a familiar solution for the initial, golden hour, response. This provides radio experts with the breathing space to scale up and bolt additional, specialist talkgroups into the plan. There is no evidence that radio congestion during the Turkish Airlines crash caused any loss of life. However, it highlights a very real issue where an inability to rapidly exchange information might lead to the death of members of the public or first responder staff.

Having seen what has happened during exercises such as Mercury on the London Underground (April 2009), Yeoman at Heathrow and Glamis in Scotland; having looked at issues at Operation Oasis in Kent (2008) and the EDL Demo in Newcastle, reinforced by the outcomes from, Operation Kirkin (National Disorder) in 2011 and the peer review into the search for Derrick Bird (Operation Bridge) in 2010, it is clear that a more disciplined approach to communications is necessary. Operation Bridge is particularly relevant as it highlights the balance between the need for an 'all-informed' approach, to ensure that all involved are aware of a rapidly developing situation, and the need to ensure that there are sufficient talk groups to support diverse specialisms and geographic localities.

While we continue to respond to incidents without a co-ordinated communications plan, we will be likely to create similar problems for ourselves when faced with an event demanding significant responder agency resources. The problems in The Netherlands created a media storm over a new radio system that had – allegedly – failed to deliver for its end users. The truth is that the problems were created by a lack of planning and coordinated approach to preparing for such an event.

The control room is key to the correct use of a critical comms network and service. This is where rapidly changing circumstances need to be recognised, and pre-defined and pre-agreed communications plans implemented. Here lies the responsibility to rapidly pass mission-critical information between talk groups when appropriate.

There must be flexibility to adapt to fluid situations, and the resources and capabilities to build on existing plans to ensure all responders are equipped with both the knowledge and the authority to act decisively.

The critical balance here is capacity: the number of

simultaneous talk groups available – against congestion: how busy each talkgroup is. The responsibility is on the organisation and the communications provider to present a communications structure that is flexible enough to meet the most rigorous challenges, and that remains fit for purpose at all times – enabling the end user to communicate appropriately. The number of talk groups in use needs to be kept to a minimum in order to preserve capacity. A balance must be struck between too many talk groups and overcrowded talk groups.

Looking at the outcomes from the events already referenced, it is apparent that end users may not fully understand the complexities and the finite capacity of a critical communications system, and tend to use it like they would the commercial mobile phone network. But, just like the mobile phone system on New Year's Eve, Airwave capacity can be challenged by numerous users using its various functions. While the use of talk groups assigned to an event, status codes, data and short text messages are appropriate to a communications plan, the use of telephony, point-to-point and, most crucially, irrelevant talk groups, can have a significant impact on capacity. This results in network busy signals, and prevented call completion, which build into the vicious circle of congested communications witnessed during the Amsterdam incident.

Operationally, the impact of point-to-point, telephony and irrelevant talkgroups is that the individuals involved are out of the command and control structure that has been designed for the operation. They won't hear the critical transmission from their commanders and colleagues. They won't hear urgent assistance calls. If they have to call for assistance themselves, they will be on the wrong talk group. Worse, their misuse of available capacity may prevent their colleagues, other forces or other agencies from communicating critical information or calling for back-up.

So what do we need to do?

The tripartite responsibilities:

- 1 Airwave ensures that the system is designed to deliver all that has been asked of it.
- 2 Organisations have a default, consistent plan in place for all first responders that meets the communications requirements of the event. (This is currently being developed for the police through ACPO IM Comms.) If this is not in place, appropriate and properly exploited, individuals may 'arc' the command and control structure, leading to potential risk. To exploit this default response, comms teams need to rapidly recognise changing circumstances, and the need to work differently.
- 3 End users need to accept that, in certain circumstances, they need to adopt a more constrained, specific way of working without hesitation or question.

These situations will only be achieved if we all work together. The implementation of common procedures must be supported by network planners, Airwave teams and tactical advisors. Control room personnel must be the advocates; end users the evangelists.



Using mobile data on the streets

Ever the technology-savvy force, Surrey Police is now embracing a new breed of mobile data that will transform the way its officers work.

To date, some 1,000 Surrey Police officers have been trained in the use of handheld mobile data devices that run on the Vodafone network. Users include blue light response, neighbourhood policing and ANPR intercept teams. These officers now have access to a new range of mobile data in an information-rich policing environment that uses IT partner Intergraph's Computer Aided Dispatch (I/CAD) command-and-control system as its hub.

Surrey is also considering deploying the same mobile data environment for its roads policing, armed response, CID and Scenes of Crime Officers. In some cases, it may deploy in-vehicle tablets rather than handheld devices. 'The goal of the enterprise mobile data project is to make our business processes as efficient as possible,' explains Surrey Police Chief Superintendent David Leeney, who heads up the initiative for the Force. 'The objective is to electronically capture information on the street and then push it through to our back office systems. This omits the need to double key data, and allows us to capture better quality information immediately, at first point of police contact.' Chief Superintendent Leeney adds, 'The same paper-based process that historically could take up to seven days to complete, is now reduced to 24 hours.'

Using handheld devices mobile officers can now obtain valuable information in real time, remotely. This includes running on-the-spot Police National Computer driving licence and vehicle insurance, as well as address validation checks. Surrey Police officers can also access the Police National Legal Database, which provides officer guidance and information for a wide range of offences.

The same mobile data environment also gives officers access to their e-mail and calendar.

Importantly, officers can use their handheld device to access command-and-control data generated by Intergraph's I/CAD – viewing the incident they are deployed to and the information collected about it in Surrey's control room. Officers can also view the next-day incidents they have been assigned to and (in the case of slow time incidents) advise the control room which assignment they

will be tackling next. They can search on any incident happening across the force (eg a neighbourhood officer is able to review all incidents in his or her area).

In this new environment, mobile officers can update incidents directly, entering and uploading information, making the information available to the control room and other officers. They can use a free text area to detail what steps they have taken on an incident – without needing to return to the station. 'I/CAD is the key system for most of the incidents we attend, as they are managed using its command-and-control technology. We have now made that technology fully available to our mobile officers, enabling better policing by giving them real-time information at their fingertips, which is typically faster and more accurate than a verbal briefing. This also cuts down our voice traffic, which in turn should cut costs,' says Mike Jenkins, Mobile Data Project Manager for Surrey Police.

New applications

In addition to the command-and-control functionality, Surrey is also implementing an electronic notebook, replacing the traditional paper notebook that all police officers carry. Surrey will be building up the number of business processes in that e-book, including stop-and-search forms and those used to record a new piece of intelligence gathered from, for example, a member of the public – both of which previously had to be completed by officers back at the station. Other electronic, mobile applications include a new series of vehicle tickets that officers can issue on the spot for parking, mobile phone, seatbelt, vehicle defects and other offences. Officers can also generate vehicle seizure paperwork in the same way, as well as fixed penalty notices for a range of public disorder offences.

Further plans include electronic forms for road traffic collisions, crime reporting, and other everyday policing responsibilities. 'It's all about making our officers as efficient as possible, collecting all the information electronically and pushing it into our back-office systems as part of the same workflow,' concludes Mike Jenkins.

'The same paper-based process that historically could take up to seven days to complete, is now reduced to 24 hours.'

**Chief Superintendent David Leeney,
Surrey Police**

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The blue light data crisis



Cutting costs by 20% over the next four years is no easy task for any sector, but the emergency services have a tough challenge bearing in mind that public safety is a number one priority, writes Matthew Palmer, head of control room futures, Capita's Secure Information Solutions business.

There is also additional pressure relating to the spiralling volume of information available to support call handlers in the control room and a more engaged public. How are the emergency services going to achieve their reduction targets without putting the lives of the public and those on the front line at risk?

Equipping a control room call handler with the ability to receive, filter and analyse a high volume of information will ultimately result in a more efficient and effective response to an incident. And thanks to some leaps in technology over the last five years, there are plenty of tools available to provide information and decision support that will result in a right time, right place and right resource response.

It is estimated that smart phone penetration will exceed 75% of the UK population by 2015 (Enders Analysis) and the increasing adoption of tablets and also machine-to-machine communication, such as location services, will mean that there will be many additional touch points for communication. Citizens want and expect fast interaction and this expectation does not exclude the emergency services. The popularity of social networking sites means that people are used to sharing information in an instant – what they see, where they are, and what they are doing with whom. The summer riots of 2011 provide proof of the power of social networking. Images, updates and experiences were shared as they happened, often ahead of the traditional media channels.

If we were able to pull the reliable information together from all of these sources within a control room environment, then we would be in a stronger position to react to incidents in an efficient, effective and safe way. And we would limit the risk to the public and front line resource.

People will always remain at the heart of the control room, but finding ways to make the most of the

information available is vital, and technology has a role to play here. By automating the receipt and flow of information, it is possible to achieve the Holy Grail of a single view of an incident. From that single view it becomes possible for supporting technology to build up situational awareness and help to provide a clear picture. This enables the call operator to make the right decision in a response to an incident. But with all of this data swimming around, it will be impossible to handle and make use of the information using traditional tools. Blue light control rooms will have to consider harnessing new technologies and service models in order to avoid failure under pressure.

The Government announced the details of its G-Cloud initiative in February, which named the pre-approved suppliers and the services, such as email and data storage, that will help to take the heat out of the control room and into the ether. Cloud services also give the emergency services further opportunities to migrate multiple platforms into one. A single platform approach provides scope for richer levels of information exchange between the back and middle office, and the front line – and can also enable the emergency services to benefit from sharing services.

Shared services are not only a cheaper way for forces to invest in the latest technology, but they also encourage a greater collaboration between the parties involved. They also increase the resilience of the organisations involved during peaks of activity by redirecting incidents to an organisation with spare capacity.

There are undoubtedly challenges ahead for the emergency services but, despite the doom and gloom of budget cuts, there are opportunities to transform the control room of the future with the support of partners, technology and peer organisations. Knowledge is power and, for this sector, it is also essential.

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Relieve the pressure on 999 budgets

The pressure may be on but new technologies can control the costs, writes Steve Hoppe of Mason (a division of Analysys Mason).

Steve has a broad range of project and business management experience gained from over 25 years in industry and consultancy, of which 15 years has been working directly with the emergency services. He is a member of the Institute of Engineering and Technology, a recognised PRINCE 2 Project manager, and certified against ITIL V3 Foundation Qualification in IT Service Management.

The emergency services have never before faced the demands for radical savings made by the UK government in the four-year spending review of 2011. In the past, mission-critical emergency control rooms have generally been protected from major budgetary measures, but police, ambulance and fire services must now look for efficiencies within their control rooms as an integral part of their bigger financial review. So what part can technology play in realising savings?

The current picture of emergency control rooms in the UK is varied. The police operate their own control centres with ongoing refresh of the technology providing continuity, additional resilience, and the opportunity to run more efficiently. Since 2006, when the Department of Health merged the then 32 ambulance trusts down to 12, their control centres have also been merging slowly but surely. With the demise a year ago of the national FiReControl project, many UK fire and rescue services (some which have been operating 'old' technology) have an opportunity to update and collaborate with government-funded assistance. Finally, the Maritime and Coastguard Agency has also decided to re-architect its control centres across the UK, replacing 17 centres with a duplicated Maritime Operations Centre supported by nine smaller centres.

In addressing the fundamental requirement to reduce overall emergency control centre costs, the blue-light agencies need to investigate two areas, namely ICT technology and architecture.

Efficiency through technology is fundamentally about exploiting ICT trends such as:

- virtualisation of both server and desktop infrastructures
- service-oriented architectures for system integration
- standards adoption for integration and interoperability
- voice over IP
- use of 'green' ICT to reduce energy costs.

These technologies all demonstrate the trends in ICT for consolidation, efficiency and agility, and among other benefits allow organisations to:

- promote an 'anything, anywhere' ability for ICT services
- reduce ICT management costs and power consumption to allow for large savings to be made

- increase the return on investment and operational efficiency of server hardware by making it highly utilised
- make huge improvements in resilience – increased uptime, snapshots and rollback for patch management purposes, deployment across virtual clusters, and deployment to alternative infrastructures in case of failure.

On the architecture side there is a general ICT trend towards 'cloud' computing (with an emphasis on 'private cloud' for blue-light agencies for data security and system confidence). Using a number of the previously mentioned technologies, cloud computing will allow users to realise collaborative opportunities and savings. Benefits include:

- allow efficiencies in common infrastructure to be shared
- promote shared services among different organisations
- improved disaster recovery scenarios at lower sunk cost
- increased computing capacity on demand.

So, changes in technologies and architectural approaches can bring their own individual benefits, but what is best for your organisation? The simple answer is not to let technology itself drive decisions or self-select new solutions. Instead, use technology as an enabler.

Critical project objectives when changing control centres include staffing, governance, estates strategy and resilience.

- Staffing – can efficiencies of scale be realised in a new organisational model? Will staff be asked to travel to new location(s)? Can staff work in new ways (eg take calls from home)? Will staff need to transfer organisation?
- Governance – will a new architecture or technology implementation enable a change to the governance and management of the control centre?
- Estates and building strategy – what is the optimum number of available control centre sites? How can collaborative solutions influence estates strategies and how can multi-organisational savings be shared?
- Resilience – how will the control centre cope with all potential failures?

Once you have clearly set out objectives for your control centre, the technology and ICT architecture can be redesigned to produce an operationally cost-effective solution. ICT should enable the right operational model – but it shouldn't determine it.

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In readiness for a multimedia future



At the end of February Cassidian held a press day to reveal its latest technology developments and Chief Technical Officer Dr Mark Bentall presented on integrated emergency management trends and solutions.

Mark outlined the key trends in the interaction between the public and the emergency services. 'We see there is a change in the method of contacting the emergency services and there is an increase in the volume of information available – traditionally we used voice, now that is changing.'

The next trend is that cooperation between agencies is becoming more important and interoperability is growing. Lastly, there are budgetary constraints so any systems have to be more affordable whilst being more sophisticated.

Focussing on the call centre, Mark pointed out that if people aren't necessarily using telephony to communicate with each other, why would they use it to contact the emergency services? 'Why can't I text the emergency services and expect a response?'

There is an expectation that this will be possible, partly driven by the effect of social networks – as recent research by the American Red Cross demonstrated, where 80% of the public expects the emergency services to monitor social sites for emergencies, and 24% would use social sites to let people know they were OK following an incident. 'Social networking is becoming an important part of day-to-day activities, and so that should be an important part of what the emergency services should take into consideration when choosing a solution.' Currently the capability for this type of scenario relies on telecoms infrastructure upgrades yet to happen, but in the US the process is beginning through the Next Generation 9-1-1 project.

Mark demonstrated how a command and control system with SMS text-receiving capability might look like, and how automated responses from the emergency services would work in practice. 'Where it starts to get more complicated is when we are receiving videos with texts, and these will need to be handled very carefully because not all call centre staff will be trained in handling video content from

certain incidents, so it has to be routed those who have.'

Handling multimedia information in a mission-critical environment and coordinating the right response at the same time is a complex challenge facing the emergency services, not least because the new technology will require users to become familiar with it. 'The analogue events will gradually disappear and be replaced with IP, as is happening in the USA. The same is happening in the Middle East where they don't have the legacy systems and they can go straight into high-end solutions. In Europe there are a lot of legacy systems that will have to develop standards as to how this will be done.' Many control rooms will be affected and it will result in a new-style experience.

Cassidian's new solution has been called Amber and it was first shown to US police forces at the end of 2011 for feedback. The data fabric driving Amber runs along the same lines as Google and Amazon, which handle high volumes of unstructured data in a distributed manner. 'The challenge is how to take that technology that is very good at handling massive multimedia unstructured data in a distributed manner, and put it through a critical environment with a structured workflow, so that the call taker gets the information at the right time and can make it available to dispatchers further on in the control centre.' Cassidian has that architecture up and running now in a demonstration environment for the responder community.

Mark then looked at the next stage of the multimedia-rich control room – putting that valuable information into the hands of the responder in order to improve their capability and safety: 'A lot of briefings are done in the engines on the way to the incident, and they have precious little time to prepare for what will happen. If they had live video coming from the scene they might – for example – get a glimpse of a heavy goods vehicle signage and prepare better or call for backup.' Being able to relay streaming video to the

command centre from a scene would also be highly useful.

Ultimately it is bandwidth between the control room and the responder that will drive the new systems – but this is something that professional mobile systems don't have.

After outlining some of the problematic issues revolving around the use of commercial bandwidth by the emergency services, Mark said that Cassidian had settled on using LTE for emergency services – bypassing 3G. 'The challenge is where to put it. It's a regulatory issue.'

Although Cassidian has worked hard with the emergency services to get some form of allocation in Europe this is not forthcoming and anything over 470MHz will be for commercial use. Beneath 400MHz is in the domain of the military and it is unlikely that it will be freed up.

One solution could be the re-farming of the PMR that sits between 380 and 470MHz. 'The band there is typically driven in narrowband channels, and you find services like taxis working around there. We are seeing many of these services that use traditional push-to-talk moving to push-to-talk on commercial GSM networks, so there could be some freeing up there as they move over. So that is where our focus is, to refarm that spectrum. LTE doesn't have a specific size and it could go anywhere between 1.4MHz and 20MHz, but obviously a 10MHz LTE channel would result in more capacity than a 5MHz one.'

What LTE means for Cassidian's portfolio are terminals with improved user experience (similar to iPhones), and higher capacity modems for vehicles.

A major challenge common to emergency services is integrating the variety of technologies from different vendors into a single solution. 'There is no standardised way of connecting all these together, it is all ad hoc per project, which makes for highly complex operations that don't necessarily work how the customer wants it to.'

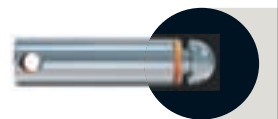
Cassidian has taken a service-architectural approach – nothing new, admitted Mark – but what is innovative is that the solution combines many components in a standardised set of interfaces. 'With a common architecture we can control the business data and add extra logic to enable operation flow and help the interaction between the different components. Making that happen is not easy so we've taken a systems-to-systems approach. It is not traditional enterprise architecture where you engage with the customer and model a solution, because every time you do a new program you start with a blank sheet of paper. We've taken a lot of that front-end engagement and standardised it with a generic model of emergency control rooms. It's a model we can use as a baseline so when a new customer comes on board we already have something we can compare against.'

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INTELLIGENT ASSET MANAGEMENT SOLUTIONS



Flexibility and resilience in one

Nottinghamshire Police has developed a highly flexible and resilient communications, command and control system around its dual control rooms in Nottingham and Mansfield using combined systems from APD Communications and Fortek Computers, writes Jonathan Hamill, Sales & Marketing Director (APD).

The two companies have worked alongside one another with the force since 2003, proving the potential for their two systems to combine effectively in emergency command and control environments.

Since 2008, Nottinghamshire Police has been using the latest VISION PX command and control system from Fortek Computers to manage operations across every workstation in its two control rooms. VISION PX enables forces to map, manage and optimise business processes across their control rooms and public service desks. Fortek Computers has developed data interfaces for the force to support the exchange of data to existing services such as the crime database and the Highways Agency. It has also expanded the VISION PX system to be used outside of the control room, offering a thin client user interface to enable the support of operations from senior management. VISION PX is virtualised across both control rooms to provide a single interface for sharing of contact information, intelligence, and incident and resource management.

In January 2011, the force began the latest upgrade of its APD solutions, starting with the control room hardware and software. Nottinghamshire Police operates two large control rooms in Nottingham (74 seats) and Mansfield (47 seats). All server and client hardware were overhauled along with new touchscreens. Physical peripherals have been replaced with APD's new software alternatives, improving resilience, cutting down clutter and also saving on power costs. APD also updated the CORTEX Software integrated communications control system software to the latest

version, which offers server virtualisation, enhanced performance and security, merging radio dispatch, call handling, video monitoring and web services, allowing control room operators to conduct their duties effortlessly. The system enables staff to handle large volumes of calls as well as the monitoring and control of communications across a range of computer systems, TETRA digital networks and analogue systems.

With all of these upgrades, the introduction of a series of new working practices and the upgrade to VISION PX, the force has recognised a reduction in incident numbers over the last two years. 'Given the importance of the control room function we have to ensure that systems remain current and robust,' said Dean Langton, Technical Project Manager at Nottinghamshire Police. 'We treat the programme of upgrades as a rolling programme that sees almost every component in the control room refreshed every two to three years. The important thing is minimising the impact on users and in this case that has been almost nil. The upgrades have been completed through live operations in both control rooms without disruption, and maintaining the same UI for the software has minimised any training requirements – a big issue when you take into account our 300 control centre staff and 24x7 operations. The upgrade process has been seamless.'

The most significant change in the systems recently has been the upgrade to APD's new software TETRA port pooling solution. This allows any operator, at any terminal, in any control room to access any talkgroup, via any TETRA

port. This allows for a huge amount of operational flexibility while ensuring maximum availability. Operators can be redeployed around the control room or even to other sites; a whole control room could be shut down with functions maintained through the other. The solution is totally software-based with no proprietary hardware or single points of failure. With VISION PX virtualised across both control rooms, this flexibility is further enhanced.

Using the TETRA port pooling solution from APD, it's even possible to remotely connect to TETRA ports over a broadband or 3G connection, which is useful when policing sporting events from numerous sports venues. TETRA selection can be automatic based on the role and the talk-group requirements of the operator, or manual through the touch screen via a very intuitive interface – so there's minimal learning for operators. TETRA pooling also presents opportunities for cost savings. On top of the licence savings for each port, there is no hardware maintenance, power or cooling charges associated with pooling solutions from many other vendors. Fewer ports managed dynamically can ensure availability while offering significantly less cost.

CORTEX and VISION offer operators a high degree of integration to prevent rekeying of information and allow TETRA and telephony features to be managed from the VISION PX user interface. CORTEX connects to the Avaya

telecoms switch, to provide efficient call routing and call prioritisation, reducing response times to emergency calls.

CORTEX also automatically provides operators with the location and personal details of the caller as the call is answered. CORTEX immediately passes this information to VISION PX so the operator knows who's calling and can see where they are on the VISION PX integrated mapping, just as the operator says 'hello'. For vehicles fitted with systems that automatically call the emergency services when involved in an accident, critical information such as vehicle registration, make, direction of travel and whether the vehicle's airbags have been activated is provided. CORTEX interfaces with both BT's EISEC and Cable & Wireless's ALSEC to provide this service for all UK emergency calls. This enhanced level of information enables operators to improve response times and effectively manage incidents.

Future steps will see further integration between the two platforms enabling richer data sharing. 'We're very pleased to have such an efficient and robust system in place, combining some of the best hardware and software available to UK Emergency Services,' said Nottinghamshire's Langton. 'But we recognise that there is an opportunity to drive further value from our investment, increasing support for officers in the field, improving our response to the public and increasing efficiency.'

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Improved business continuity & cost cutting

Upgrading to a digital platform opened up the possibility of using a voice-continuity service that enables virtually instant call re-routing in the cloud for the Combined Fire Control in Huntingdon, Cambridgeshire, writes Andrew Bale, CEO of Resilient Networks.

There is no doubt that business continuity within the emergency services community is paramount – the need to ensure that all 999 calls get answered really is a case of life and death. Major incidents pose a particular communications challenge to emergency services. On the one hand, when disaster strikes, the need to communicate and respond as quickly as possible can be critical to saving lives. And on the other, major incidents can affect the communication infrastructure on which those responders rely. This might, for example, hinder the answering of 999 calls or their ability to co-operate effectively where multiple agencies are involved. And of course, it is not just major incidents that can cause disruption. In October last year, something as predictable as the clocks being changed, was the cause of seventy-seven 999 calls going unanswered in London.

Having the right technologies in place can guard against this, while also saving organisations' money.

Take Cambridgeshire Fire service, who merged its 999 response centre with Suffolk fire service, enabling the new unit to save an estimated £400,000 a year. The merger made sense on economic grounds, but also made it more imperative than ever to ensure there was no interruption to the single emergency calls service covering both counties. The Combined Fire Control is based at Huntingdon in Cambridgeshire. Before the merger took place, the existing control at Cambridgeshire had a divert procedure for unanswered 999 calls: if there were no answer from the primary line they would be automatically rerouted to a secondary number in the same centre. If within two minutes there were still no response, calls would be passed to a buddy brigade. While this was resilient, the technology behind it was very complex. It meant that if they needed to relocate to their secondary control, it was a challenge to carry out the quickly-needed changes. The implementation of a telephony solution, designed to ensure resilience and business continuity in both regions, is able to support the new combined fire control room. An upgrade from the legacy Huntingdon analogue system to a digital platform opened up the possibility of using a voice continuity service that enables virtually instant call re-routing in the cloud. The service also ensures that emergency services can stay operational through almost any level of disruption.

The most striking outcome is the simplicity of redirecting phone lines at the centre, which can now be done in just a couple of seconds. Using the telephony solution, call-forwarding plans can be accessed with a single call. While that's going on, the number the buddy brigade calls to speak to the Huntingdon centre automatically diverts to a mobile phone that control operators carry with them on the 15-minute trip to the secondary control centre.

The switch from analogue to digital at Huntingdon also meant that the Combined Fire Control was able to take advantage of a service which automatically passes on information about the caller's location to the emergency service taking the call. At the same time, additional hardware was also installed to ensure that 999 calls would still get through to the centre even if the Huntingdon telephone exchange were affected by an incident. As such, the merger of the two control centres has created a more resilient and cost effective service. The inbound telephony service, coupled with other resilience mechanisms, now means that Cambridgeshire fire service is as disaster-proof as it's possible to be.

The Cambridgeshire and Suffolk fire service partnership proves that it is possible for IT-based projects to succeed, save money and enhance resilience. And it's not just limited to the fire service. Across the UK, the benefits of implementing similar technology into all emergency services outweigh the challenges. For instance, multiple counties can rationalise their control rooms or share their services with other 'like' departments.

While improved business continuity and cost cutting are not terms often used together, the merger proves that this can change. Within the emergency services, technology, specifically inbound voice solutions, can play an important role. Such solutions don't have to cost the earth – and if departments can find and implement the right voice solution for them, they can save money in the long run. This is because, having the right voice solution in place, combined with an easy-to-execute business continuity plan, allows emergency services to overcome any breaks in business as usual. Businesses also become more engaging, all in the knowledge that they can ensure that customer service is up and running at all times – all while saving significant amounts of money.

Recording the full picture

Voice recording is a technology that has evolved out of all recognition over the last ten years – and there is still plenty of room for further development, writes Lee Sheard of Sinclair Voicenet.



Lee Sheard is a regional manager for Sinclair Voicenet, the UK's longest established specialist provider of multimedia interaction recording and quality/workforce management solutions for the public safety market. Lee has over 12 years experience of working with public safety organisations and was formerly with CyberTech International, which was set to become the market leader in this sector before being acquired by NICE Systems.

What was once a simple record and replay application has developed into something much more valuable. Control centres can now leverage technologies and applications used by commercial contact centres to deliver an even more consistent level of service.

Digital interaction recording has become an integral component of the public safety control centre infrastructure, for a wide range of applications including training, evidential purposes, debriefing, scenario reconstruction and dispute resolution. It integrates with control and dispatch systems, enabling additional meta data such as incident log numbers to be tagged to store recordings for quick and easy access by authorised personnel from any location. Recordings can be archived on existing network attached storage devices and shared with colleagues and other agencies, including the Crown Prosecution Service, by email or disk.

These days a broad range of multimedia technologies are routinely used to communicate including telephone, radio, mobile phones, VoIP, SMS, MMS, CCTV and web chat. All must be recorded to enable accurate scenario reconstruction with complete timelines.

Using last call replay, call handlers and dispatchers can instantly replay and verify information provided during the last call received, or any call currently in progress, at a touch of a button. A software application on individual workstations makes it easy to find and replay recordings to improve response.

Interaction recording solutions must also capture radio voice traffic, including direct handset-to-handset, off-network calls and all signalling information, by recording digital information directly from the core of a trunked network. Every transmission can be tagged with key data extracted from the network, enabling recordings to be rapidly located based on time of day, date, channel, call type, radio ID, group ID and a host of other search criteria.

Conversations and instructions issued by operators and incident commanders in Silver and Gold control centres are also now being recorded. The driver for this was the Stockwell shooting incident, when it became clear that there was no record of the discussions that lead to critical decisions being made. Ambient recording documents all decisions taken during incidents and significantly reduces the time needed to analyse tactical logs prior to conducting structured debriefings, investigations and subsequent enquiries. Microphones installed in the ceiling or on desks provide overall ambient recording whilst key personnel can also wear Wi-Fi encrypted microphones on lanyards.

Control rooms can now leverage the technologies and best practices used in commercial contact centres to

capture, store and analyse recordings and associated screen data. When combined with data from computer-aided dispatch systems and geographic information systems, a complete, chronological audio/visual timeline and 360-degree view enable events to be accurately reconstructed.

Advanced applications developed for contact centres, such as quality management and workforce management, are also playing a key role in raising service quality in control centres. Quality management is now an integral component of recording solutions being deployed by public safety control centres around the world. It replaces what has largely been a paper exercise, requiring supervisors to manually select the calls to evaluate for each of the call handlers/dispatchers, by automating the laborious process of profiling and scheduling calls to be evaluated.

An integrated coaching module enables the creation of training packages directly from interactions, linking related data including individual calls, evaluations, customer feedback, recorded clips or related external files. What is more, integration with workforce management enables coaching sessions to be automatically scheduled. Call handlers and dispatchers have greater confidence as they know that evaluations are consistent and fair. They can also access their own evaluations and interactions to focus on their performance and identify areas for self improvement.

Workforce management tools help to ensure the right resources are available at the right time in control centres. They use trend analysis to identify peak periods and schedule the required number of call handlers and dispatchers to efficiently handle the expected workload. It automates manual planning processes, which enhances productivity by giving managers more time to proactively manage daily events and provides the information required, to make informed decisions needed to quickly respond to changing conditions and maintain service levels.

Looking to the future, technologies such as speech analytics will be the next 'must have'.

Today, of the many thousands of calls received by control centres every month, the only ones replayed for operational purposes are 999 ones. The advent of cost-effective speech analytics solutions enables all stored data to be automatically analysed, to track the occurrence of a wide range of offences including public order and anti-social behaviour in target locations. It can also be used to identify the incidence of hoax or malicious calls.

Analytics identifies words, expressions and even emotions, enabling the proactive analysis of data stored on servers to identify crime trends, fine tune incident response and make optimum use of expensive resources.



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Where *did* all the engineers go?

Last issue's Making Waves column bemoaned the loss of central technical support expertise in the fire service: Keith Phillips, Former Director of the Resilience Programmes and Former HM Inspector of Fire Services at Office of the Deputy Prime Minister, writes his reaction.

As the song goes – things aren't what they used to be! Actually it was, 'Fings aint wot they used to be', but my preference for the Queen's English overrides my desire for accuracy!

To move on, I read with more than a passing interest the piece entitled, 'Where have all the engineers gone?' in the February edition of the British APCO Journal. In the context of the fire and rescue service at least, one might add – where has any semblance of central technical support gone?

Be assured that it's not my intention 'to have a go' at my old friends and colleagues within the Chief Fire Advisers Unit (CFAU) or indeed the Chief Fire Officers Association (CFOA) especially from the comfort of retirement. My focus is the efficiency of the fire and rescue service, specifically in the context of its comms, operational IT and control rooms. Since the effective disestablishment of HMFSI responsible (apparently to save money), there has been no mechanism to provide central support in these critical areas. As I understand it, and I may of course be mistaken, CFAU is not set up to deal with such matters, nor is it within their current resource capability or indeed remit. Without going into detail, this has left the service without central support or cohesion.

The bottom line of course is that these central services were considered an unnecessary provision in the context of minister's and senior civil service thinking at the time. Non essential, because the fire and rescue service is a local authority, not central government, responsibility! I can almost see the smirk as the civil servant involved looked towards his or her annual appraisal.

Whatever the rationale, in my view and I suspect in the view of many others, its disestablishment was a very great mistake. A few pounds were no doubt saved at the time but a great deal more has undoubtedly been lost since. Just by way of a simple guesstimate ask how much government spent on consultants and others working on the disaster known as FiReControl.

What did HMFSI (supported by engineers from the Directorate of Telecommunications and latterly the Home Office, do? Those longer in the tooth might recall that the development of national specifications, and central support for local procurements, such as:

- Firefighters alerters (MG4)
- An interoperable mobilising communications protocol (GD92)
- Fireground telemetry (MG41)
- UHF fireground radio and channel utilisation standards.

These came (with the support of the then CACFOA and the service) out of the work of HMFSI and their colleagues (and consultants employed by HMFSI). To say little about the comprehensive development support given to the challenges related to control room development, including their design and the procurement of mobilisation systems.

At the same time a host of other interrelated issues were also addressed including:

- Issuing technical and operational advice and guidance to fire and rescue authorities, government policy units and ministers

- Technical policy support including spectrum management and use, compliance with wireless telegraphy licences and relevant advice to fire authorities and policy divisions
 - Liaison with fire authorities, brigades, CFOA and industry on matters associated with communications and control rooms.
 - Education and information disseminated via lectures and presentations at the Fire Service College to a range of courses and seminars to Brigade Command Course level.
- Working with a substantial annual R&D budget, managed by HMFSI, studies were undertaken into a wide range of issues including;
- Combined control rooms
 - Radio data and mobilising
 - Control room efficiency, encompassing not only operational but general efficiency, the latter resulting in the implementation of the control room staffing model
 - Caller fire survival guidance.



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And while they were doing all that, there was a need to lead and manage those other two mission-critical programmes, ie the fire and rescue service response to the New Dimension and of course, Firelink.

When someone in the civil service decided this level of central support, by which means technical and operational cohesion was encouraged and economies of scale achieved, was no longer required, they had not properly considered the effect. Nor had they anticipated the debacle of the FireControl project which was itself in the hands of enthusiastic but inexperienced civil servants who didn't appreciate their limitations. Even worse perhaps, in their need to be seen in a good light by others of their ilk, they didn't really care!

Can readers imagine just how much time, effort and money could have been saved, particularly in recent years, by having in place those people referred to in the last contribution to Making Waves?

Like it or not, Her Majesty's Inspectors, backed up by experienced engineers and scientific staff, knew what they were doing. In short they knew the business and more importantly the people. Their experience and detailed day-to-day involvement allowed them to be instinctively aware of the need for realisable technical, operational and political support strategies. What is more, for the most part they expedited these strategies in good time and in good order. Had their advice been taken on board, I say boldly, the FireControl project, as it was

implemented would not have happened. I warned years ago of the danger of throwing away valuable expertise/resources in favour of the chimera of independence. But it did happen and we cannot re-write history. So what can be done now? The Chief Fire Advisers Unit could of course be strengthened but I'm not sure that might be the right home for engineering specialists of the type required who, to work effectively, ideally need to operate with people within the same technical discipline.

Alternatively, whilst I'm not sure about what support is available to the Ambulance Service, the Police Service has the NPIA (at least for the moment). It occurs to me that it is not beyond the wit of man to consider extending their remit to include the fire and rescue service.

Having said all that, I suspect that in recognition of the current political and fiscal reality I doubt very much that government or I should say, the civil service will consider for a moment, reinstating that which went before; even if you could find that rare combination of relevant technical and operational expertise, who would be motivated to work within the current civil service environment?

An independent body which might take it on could be British APCO. Whether British APCO would be seen as sufficiently authoritative is debatable but it knows the right people, has expertise and might just fill the gap – you never know, stranger things have happened.

MAKING WAVES

The trials and tribulations of a frustrated comms engineer, part two: *Where do we go from here?*

I was looking at the 999 service provided by BT and thinking: is this still going to be fit for purpose in 10 years time?

The reason I ask this is two-fold.

Firstly, many new C&C and ICCS systems are being ordered over the next few years and they are typically based on the traditional equipment we know and trust.

However, due to the market being distorted by major government projects many of the traditional players have not been keeping up with new developments.

The question is: how will today's 10-year-old schoolboy/girl communicate with the emergency services in 10 years' time (which is the sort of life expectancy from a major ICCS/C&C system purchased today)?

Secondly, I was listening to the reports of the survivors of the Costa Concordia disaster and the thought struck me as regards the way young people use social media sites. 23-year old British dancer Rose Metcalf on BBC Radio 4 news described how she was lifted off by helicopter while some of her crew had left by other means. So that her friends would know that she was OK she updated her Facebook page. Should emergency services be more proactive in looking at these types of communications?

Facebook was started in 2004 – and that was only eight years

ago. What will we as emergency services be looking at in 2021 as a form of legitimate communications?

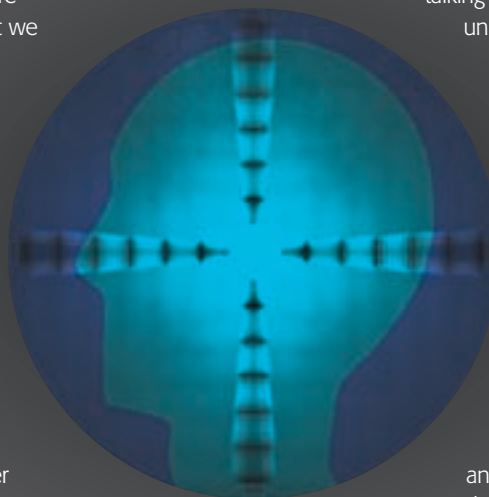
My own daughter often 'chats' to her friends via text/PC but does not like talking verbally to people on the phone. I was talking to her friends and found she was not unusual in this sort of outlook.

Shouldn't we start looking at communications within schools and engaging early with these potential users of our services, to find out how they want – and need to – communicate with us?

The problem will be the old wrinklies like me who in eight years' time will be retired and who will probably still be wanting the traditional 999 service. Will it still be affordable and will BT (or whoever) still want to provide this service?

What are other countries doing and has anyone tackled this issue? How fast do we need to move? Do we even need to move?

Or are we trying to fetch the 'bucket of steam'?



The writer of Making Waves is a member of the fire service – if you would you like to share your thoughts on Making Waves email: j.sanchez@hgluk.com Alternatively post your comments on the Making Waves thread in www.bapcojournal.com

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