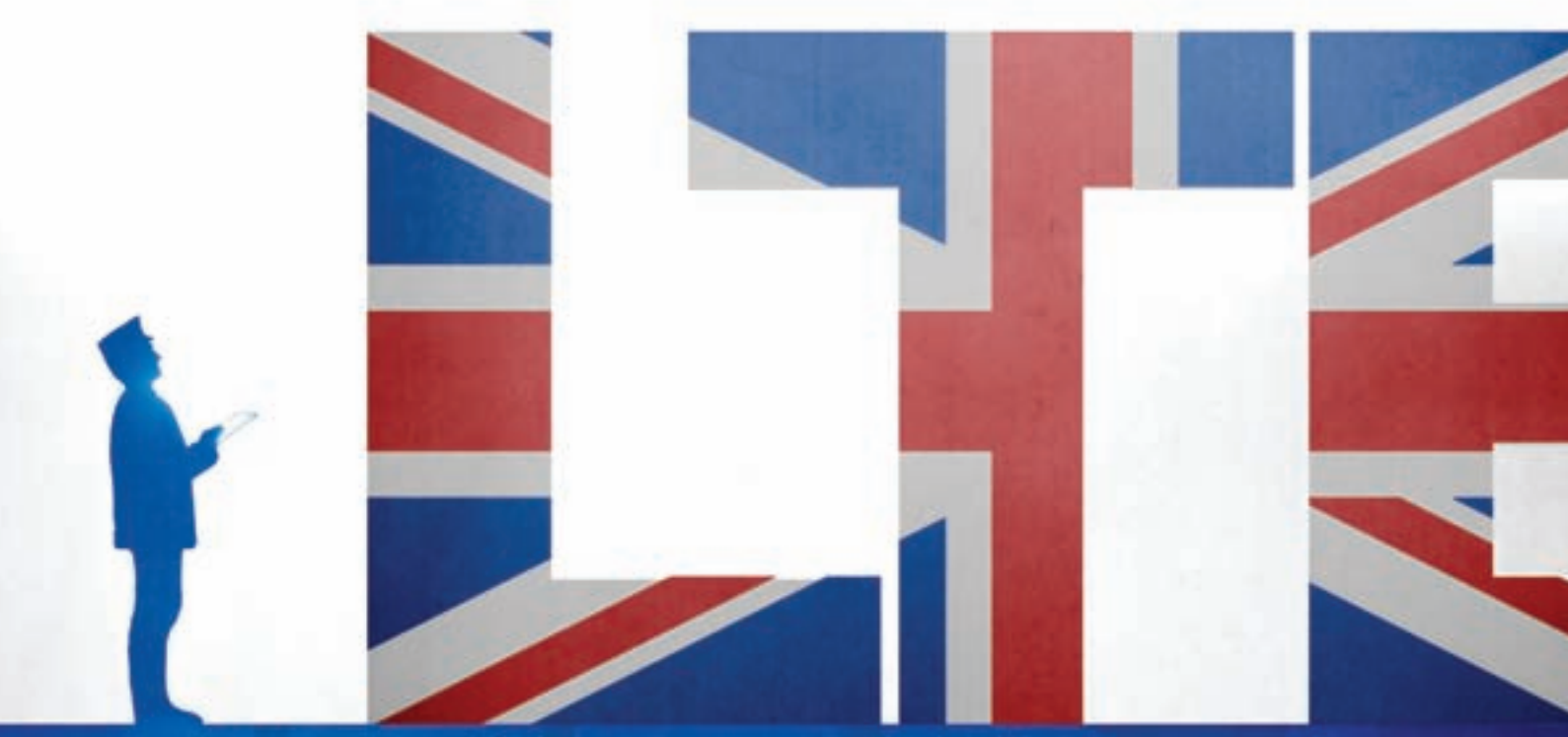
British Association of Public Safety Communications Officials

BRITISH APCO JOURNAL

Knowledge Exchange for Public Safety Communications

The next step in mobile communication technology



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BRITISH APCO

Knowledge Exchange for Public Safety Communications

The Annual Exhibition & Development Sessions

Manchester Central,
16-17 April 2012

The leading European multi-agency forum for all professionals in:

- Mission Critical Communications
- User requirement specification
- Civil Contingency response
- Outsourcing management
- Business Continuity
- Emergency information and data management

British APCO 2012 has a fresh new agenda, and visitors and exhibitors will find fresh inspiration at the annual event.

Development Sessions - New Content
2012 Development Sessions focus on key themes including use of apps, LTE / 4G, and 999/112 Futures – for suppliers and users to shape published requirements.

New At The Exhibition
All platforms and applications from existing Tetra technologies and kit, to LTE / 4G broadband apps / services, dedicated social media focus, and smart asset and people management with RFID.

New Venue
Manchester Central – a city centre venue with great facilities

For more information and to book your stand contact Lucy McPhail on:
+ 44 (0) 207 973 6635
or email :
l.mcphail@hgluk.com

Organised on behalf of the ***British Association of Public Safety Communications Officials***

BRITISH APCO
Knowledge Exchange for Public Safety Communications

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FEATURES

REGULARS

BRITISH APCO
Knowledge Exchange for Public Safety Communications

Editor Jose Maria Sanchez de Muniain
Tel: 01935 37 4011 **Email:** jm.sanchez@hgluk.com
Advertisement Manager: Lucy McPhail
Tel: 020 7973 6635 **Email:** l.mcphail@hgluk.com
Advertisement Director Emma Sabin
Tel: 020 7973 4641 **Email:** e.sabin@hgluk.com
Production Tim Malone
Tel: 01935 37 4014 **Email:** t.malone@hisdorset.com

Managing Director Graham Bond
Tel: 020 7973 6645

For subscriptions queries please contact
Tel: +44 20 7973 6694
Fax: +44 20 7233 5052
Email: customer@hgluk.com

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President's address

Alan House, President

I am pleased to be able to report that the changes to 'British APCO' are progressing well, assisted greatly by the adoption of our new 'fit for purpose' Constitution in July. We now have a new logo and strap-line being introduced as part of our rebranding, whilst keeping us very much associated with our parent organisation APCO International. You will see this being progressively introduced over the coming weeks. Our 2012 Exhibition and Development Programme will take place in Manchester on 16 and 17 April.

Make a note in your diary. As well as being in a new location, it will be of a new style, reflecting feedback from members and past exhibitors, and resulting from a great deal of discussion and thought by the Executive Committee. Manchester offers a wider range of hotels, which will assist us to organise a prestigious and new-feel event, with greater flexibility of overall attendance costs. It's new, it's different and hopefully you will want to be there to support us along the path of change and development.

Work will now also begin to modernise our website and in this edition of our now quarterly magazine you will notice the start of a new look. As I write, following on from the recent very successful South east event, British APCO regional events are being planned to take place as a North East/North West joint event followed by a South West event. We will also be taking a leading role at events being organised for the Local Resilience sector at the Emergency Planning College in September and November and at the Police Training Centre (Ryton) on 26-27 October. We will also have a stand at the Emergency Services Show at Stoneleigh Park on 23 and 24 November. As always we will welcome your suggestions and feedback as we continue our journey. It is – as I am sure you will appreciate – very much a 'journey' and the actual implementation of the changes we have identified as being necessary fall on the shoulders of a very small number of people, with even fewer doing this as part of their 'day job'. It is also a question of prioritising needs against timetables and getting certain parts of the jigsaw in place before tackling the next piece, so your ongoing patience is appreciated. Work has begun on developing a membership strategy and with a greater number of pieces now in place on the board this will be an area of the picture that we will now begin to concentrate on.

The CAG column

Well six months into this financial year and how is everyone doing I wonder? I suppose it depends on the particular marketplace you are trying to address.

The fire market is still all abuzz with what is going to happen with the demise of the FiReControl programme, and the next six months will be very interesting as they reveal how it all pans out. A few interesting questions come to mind

1. How will collaboration actually work?
2. Will there be real resilience across the board?
3. How many different systems from different manufacturers will finally be procured, and does it really matter as long as it works?
4. How many fire services will follow the London model and look at outsourcing as an option?

I am sure we will all find out over the coming months.

In the police market the big boys are still all waiting for the Met Police CAD (computer aided despatch) replacement program to get to PQQ (pre-qualification questionnaire).

This has been talked about for quite a long time so I am sure it will be a relief for all when the formal process actually starts.

Then we have Scotland finally concluding the debate on how they are going to structure themselves in both fire and police in the future. 'There can be only one', to quote Sean Connery in Highlander. I am sure this will be of particular interest to British APCO commercial members but I suspect it will take a couple of years to sort out all the political and managerial changes before there is a major change to ICT.

Last but definitely not least, the event we held regarding Operational Communications in Warrington on 22nd Sept attracted over 100 delegates, which is fantastic.

FiReControl slammed – £84.8m more needed

The Rt Hon Margaret Hodge MP, Chair of the Committee of Public Accounts, has slammed FireControl on the eve of the publication by the House of Commons Committee of Public Accounts of its 50th Report, *The Failure of the FiReControl Project*.

The Session examined the basis of evidence from Department for Communities and Local Government and representatives from the fire and rescue service, on the delivery and cancellation of the FiReControl project. 'The taxpayer has lost nearly half a billion pounds and eight of the completed regional control centres remain as empty and costly white elephants. The success of the so-called FiReControl project crucially turned on the cooperation of locally accountable and independent fire and rescue services. The Department's failure both to recognise this and try to ensure local buy-in fatally undermined the project from the start.

'The project was rushed, without proper understanding of costs or risks. The leadership relied far too much on external consultants and the frequent departures of senior staff also contributed to weak management and oversight of the project.

'The contract to implement a national IT system linking the control centres was not even awarded until a full three years after the project started. The contract itself was poorly designed and awarded to a company without relevant experience. The computer system was simply never delivered. No one has been held to account for this project failure, one of the worst we have seen for many years, and the careers of most of the senior staff responsible have carried on as if nothing had gone wrong at all and the consultants and contractor continue to work on many other government projects.

'The Department now plans to spend a further £84.8 million to secure the original objectives of FiReControl, so that there is a co-ordinated response to national incidents. However it is not clear to us how this extra spending will deliver value for money or achieve the objectives intended.'

FiReControl was launched in 2004, but following a series of difficulties, was terminated in December 2010 with none of the original objectives achieved and a minimum of £469 million being wasted.

RESIDENTS KEEP UP TO DATE WITH LOCAL CRIME

Surrey residents are the first to benefit from a new interactive smart phone app which uses crime mapping data from the government's Police.uk website.

Surrey Police Beat allows users to view what crimes are happening on their streets in a convenient format, and for the first time gives live updates on where and how neighbourhood police teams are taking action.

The region is one of six 'trailblazer' forces which are working on innovative ways to display street-level data about crime and anti social behaviour.

If you live in Surrey you can download the free app from iTunes.

New Joint Emergency Management Service in Lincoln is a first of its kind

Emergency planners from Lincolnshire County Council, Lincolnshire Police, NHS Lincolnshire, Lincolnshire Fire and Rescue and the Environment Agency will now be working more closely as a result of the new Joint Emergency Management Service (JEMS).

Representatives from partner organisations are creating the joint service, which will be the first multi-agency team of its kind in England and will be based at the County Council's Emergency Centre at Lincolnshire Fire and Rescue Headquarters in Lincoln. David Powell, Head of Emergency Planning at Lincolnshire County Council, said: 'As well as avoiding duplication of work, co-locating staff from a range of public sector organisations will help us to understand each other's needs and plans more effectively.

'Although we've been working well as partner organisations together for some time, this will help us in our shared aims and re-enforce our joint approach in planning for emergencies. It is also a more efficient way of working for all involved.'

Over the past 18 months, Lincolnshire's Resilience Forum has been recognised for its strong partnership working, and recently won two awards at the Emergency Planning Society Awards (2011).

2011 was a record year for nominations for the Emergency Planning Society Resilience Awards with 32 entries being shortlisted for consideration by the judging panel.

One Box of tricks

The Home Office has released the 'One Box' criteria for ACPO fleet vehicles.

Led by ACPO Intelligent Transport Systems and funded by the Home Office Centre for Applied Science and Technology, One Box was created with the aim of deploying a single standard for the future fitment of technology in police vehicles. The Home Office's 'One Box: Single Vehicle Architecture' (SVA) document outlines the standards relating to SVA required by ACPO and the National Association of Police Fleet Managers.

Currently there is no one standard for fitting police and other emergency vehicles with equipment; they are simply adapted for purpose and use varying forms of the same technology.

In future, all ACPO fleet vehicles will be required to comply with standard protocols laid out in the document.

HFRS now SAFE

Astrium GEO-Information Services is working with Hampshire Fire and Rescue Service (HFRS)

to ensure emergency response crews have access to critical information on the front line.

Hampshire FRS is now using Astrium GEO-Information Services' SAFEcommand Vehicle-Mounted Data System in all of its 130 appliances across the county.

With SAFEcommand, fire crews have access to the latest operational data including potential risks at an incident location – such as gas cylinder storage or how to gain access to particular stretch of river – from their in-cab terminal on the way to an emergency call. The SAFEcommand terminal enables crews to search rapidly for incident-specific information, ensuring that they arrive at the incident better informed, and that they can optimise their performance when on site in an emergency.

At HFRS, SAFEcommand replaces the service's previous paper-based file system that was difficult to maintain and keep up-to-date. Now the data held on each appliance terminal is scheduled to update automatically twice a day – reflecting any recent inspection results carried out by the extended team and equipping firefighters with the very latest information collated by HFRS.

SAFEcommand solutions take advantage of the latest GIS-based systems and real-time mobile data communication to aid crews and control room staff. SAFEcommand also offers full support for multi-agency data sharing.

Hampshire FRS has 51 stations covering the areas of Basingstoke & Deane, Fareham and Gosport, Havant & East Hampshire, New Forest, Portsmouth, Rushmoor and Hart, Southampton, Test Valley and Eastleigh, and Winchester.

PEACE solves emergency comms breakdowns

Experts from Kingston University have developed a solution to ensure breakdowns in communication are a thing of the past for emergency workers responding to disasters.

A team led by Dr Christos Politis has designed a sophisticated, internet-based technique to keep rescuers and their central control room in touch independently, rather than using central wireless access points or the TETRA police radio system. The app, which can be used on an iPad or other personal digital assistant (PDAs), will also allow emergency service workers in the United Kingdom to talk to counterparts across Europe on a secure system.

'This research looked at how we communicate in a major disaster or emergency,' Dr Politis said. 'When there's a major terrorist event, earthquake or forest fire, traditional phone lines and radios often can't cope and tend to jam because of the volume of calls and other multimedia traffic, like video. Using our new application, emergency service staff will be able to communicate on their own autonomous network using any available smart device without having to rely on a central communication system.'

The research, funded by the European Union's PEACE project, built on existing work into mobile networks, known as MANETs. These are networks of mobile devices which work independently and are connected by individual wireless links. Rather than connecting through an external internet network, the new technique allows rescue workers to set up an independent communication system designed for their specific purposes at the scene whatever the situation or location – be it an underground tube station or next to a collapsed office block.

Tayside to track all critical equipment 24/7

Tayside Fire and Rescue in Scotland have announced the selection of IBM to improve the management of critical fire fighting and emergency response assets.

The project includes the use of sophisticated software to help automate maintenance and provide real-time information on the equipment critical to the safety of firefighters and the citizens they protect. Tayside Fire and Rescue will have the ability to manage, measure and track the entire life cycle of vital equipment. This not only includes all the operational equipment carried on the fleet of fire engines, high reach platforms and specialist appliances but also the gloves, specialist protective clothing, safety footwear, self-contained breathing apparatus and safety helmets designed to withstand water and high temperatures. Maximo Asset Management software will also enable responders to view the history of how it has been used.

HOME OFFICE DEPLOYS EMULATOR

iTrinegy has announced that its INE LCD network emulator is being used by the special projects team within the Home Office for guaranteeing application resilience. iTrinegy's LCD is a standalone, all-in-one portable network emulator and takes a short time to set up the network conditions such as restricted bandwidth, packet loss and delay, to test application performance over different types of network. The LCD network emulator has been used to test the 'Data transport mechanism', replicating the network so that tests would give a true experience of how the application and data would perform under different demanding network conditions.

The Emergency Services Show 2011, Stoneleigh Park, Coventry

Communications and information technology officers and decision makers within the public safety civil contingency response sector are just some of the roles that will benefit from attending this year's Emergency Services Show.

With over 380 exhibitors and approximately 4,000 visitors attending the successful show last year, the Emergency Services Show and Conference 2011 is the key event for anyone involved in emergency planning, response or recovery, both in the UK and abroad. This year's show and conference will be taking place on Wednesday 23rd and Thursday 24th November at Stoneleigh Park, Coventry.

Visitors to the exhibition can discover and examine the latest communication and information technology systems – to help enhance the safety and security of the public – from a range of leading companies including: South Midland Communications, Radio Telecom Services, Mix Telematics, Allbatteries, Excelerate, and Terrafix, to name but a few.

At a time when budgets are being squeezed, this free-to-attend exhibition provides the perfect opportunity for visitors to research methods of 'doing more with less' funds. Visitors will be able to speak to exhibitors about how they may operate more effectively and efficiently, thereby resulting in the highly desirable outcome of 'more for less'.

Additionally, there will be approximately 100 end users exhibiting within the Emergency Response Zone. This zone is made up of Category 1 and 2 responders, professional, government and voluntary organisations, and hence offers perfect networking opportunities to affiliated organisations. British APCO

(stand E63) is just one of the organisations that will be exhibiting in this specialist area. There is also a dedicated UK Search and Rescue (SAR) Zone.

ELECTRONIC PATIENT REPORT AND EMAS

Panasonic Toughbooks are helping to revolutionise how East Midlands Ambulance Service crews record patient information whilst on the road, improving patient care and driving efficiencies. In October 2011, EMAS will be the first ambulance service nationally to have fully completed its Electronic Patient Report Form system roll-out. Using the system, the service believes it can cut the number of unnecessary patient transfers, saving millions year on year. Forecasts suggest that when the system has been implemented across the 11 ambulance services, savings of up to £150m could be made annually.

Sepura's £1m contract with Staffordshire

Sepura is celebrating the award by Staffordshire Police of a £1m contract for both hand portable and mobile terminals. This win cements an eight-year relationship with the force.

Staffordshire completes the quartet of Midlands' regional constabularies, with West Midlands, West Mercia and Warwickshire also benefiting from Sepura TETRA radios.

Sepura's SRH3900 and SRG3900 radios have proved to be a winning combination for the Staffordshire force. Sepura added the SRH3900 to the established SRH3000 range in 2008 and has since delivered 50,000 of these hand-held radios to public safety users in the UK.

Staffordshire Police £1m contract includes 2,500 SRH3900 hand-held and more than 200 SRG3900 mobile radios with Sepura Colour Consoles (SCCs).

The force's selection of the SCC ensures optimum mobile performance, thanks to a high resolution colour display and new 'night mode' to reduce glare in low light conditions.

Staffordshire Police required Sepura to deliver the radios with baseline software within 21 days of the order placement. Sepura duly rose to the challenge, fulfilling the order within the time frame.

Airwave unveils ControLink

In response to the cancellation of the FiReControl service in December 2010, Airwave has launched ControLink – a suite of voice and data propositions.

According to David Sangster, UK services director for Airwave: 'It offers a vital solution – from data mobilisation to a full end-to-end IP-based control room solution – that not only fills the gaps left by the loss of FireControl, but delivers much-needed savings and efficiencies for the FRS.'

Leveraging the investments made by the FRS, ControLink provides core data and voice solutions through the Airwave Network enabling FRSs to maximise Airwave's data service by providing end-to-end communications. By using software solutions provided by 3tc Software, FRSs can expect to achieve greater firefighter safety, realize operational efficiencies and savings through the use of 3tc MODAS and 3tc Guardian technologies.

New MOTOTRBO interface

Zetron's DCS-5020 digital console now includes an interface to Motorola MOTOTRBO digital mobile radio systems, giving operators control over a rich set of features.

The new capability provides a quick, cost-effective way to add radio dispatch consoles to existing MOTOTRBO networks, either at fixed locations or in mobile command facilities, without requiring costly infrastructure connectivity. It also delivers the possibility to interconnect MOTOTRBO radios with TETRA, MPT and conventional radios as well as telephony networks.

Features enabled by the interface include call ID decode and alias display, call alert, channel select, private and group calls, channel scanning, emergency calls, text messaging and radio stun/revive.

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

Public Safety Communications – enhancing today, transforming tomorrow

Next year's British APCO Annual Exhibition and Development Sessions will move from the Business Design Centre, Islington, to the Manchester Central (formerly known as the Gmex), explains Past President Ian Readhead.

I suspect your next question is why, and the answer is relatively simple. We are listening to our members and our exhibitors who feel that we need a change and a focus upon improving costs. Clearly it is a big step to move away from what has been – until very recently – an excellent facility meeting the aspirations of all attendees. Nonetheless, all exhibitions can become stale and we are aware that without providing a facility which enables us to display vehicles alongside technical hardware, a number of our members were not getting full value.

We have also closely examined the costs, focussing on hotel facilities in particular. It is clear to us that at Manchester we can take advantage of significantly cheaper and equally qualitative hotel accommodation within easy reach of the exhibition area, whilst sustaining some of the traditional ceremonies of a BAPCO event. This will include the formal dinner which is used by our commercial members to host both national and international guests, and is also an ideal networking opportunity for our full members.

However, radical change is needed if we are to re-establish the British APCO exhibition as the primary must-attend event. So this year we are going to focus upon mission critical communications, civil contingency response, business continuity and emergency information and data management. The exhibition caters for all platforms and applications, from existing TETRA technologies, to newer providers of LTE and 4G broadband applications and services, maximising mobile functionality for frontline service providers. A new dedicated social media zone features the latest use of text, GIS technologies and broadband apps to support public safety communications in every context.

In a shift from the former conference programme format, the 2012 event will feature Development Sessions focusing on a number of key themes, including apps, LTE/4G, Future Radio, and Spectrum Allocation, and will include a dedicated session on shaping user requirements for the future. We are seeking to demonstrate how social media can be exploited especially through the use of Twitter, Facebook, Google and SMS alerts. The recent riots have evidenced how public blue light services need to understand these technologies in order to sustain community safety, deter offenders and deploy resources effectively.

New capabilities will be demonstrated by American companies keen to enter the UK market to exploit broadband capability in a fixed and mobile environment. We fully anticipate a much wider commercial base demonstrating key equipment that will compliment current hardware.

The British APCO Executive Board will create personal links with a number of our major commercial members to keep them personally briefed on event developments in an effort to secure their attendance. You will also notice that we are no longer holding a conference. The reason for this is that members felt the speaker-led event was inconsistent with their requirements and that they would prefer to have fewer key speakers who can provide an authoritative view on a number of critical areas. We aim to secure speakers who are international leaders in some of our business areas in order to meet this challenge.

To further improve costs, new pricing will be put in place including significant discounts whilst allowing the opportunity for individuals to attend a presentation or development session.

The British APCO Journal is a key facility through which we can communicate with you to provide early notice of our event. So now is a good time to go and see your Line Manager, tell them about British APCO's move to Manchester and seek their consent to attend. Remember, we are a not for profit organisation, there are no shareholders and no bonuses. The receipts are simply used to cover our costs and to assist with our running fees.

If you require any more detail on the event, you can do this by contacting either Lucy McPhail at l.mcphail@hgluk.com, Ian Readhead at ipp@bapco.org.uk or Tony Antoniou at execd@bapco.org.uk.

Ian Readhead
Immediate Past President

BRITISH APCO

Knowledge Exchange for Public Safety Communications

In this new series Chief Executive Tony Antoniou explains the many developments taking place. A year in the hot seat – British APCO's strategy and its execution.

Here we are, cranking up the preparations for both our annual event next year and a host of Local Events across the regions in the next few months. Among so many desperately-needed changes, we've rebranded, moving back towards our roots with our excellent new logo being a derivative of the world-recognised US APCO logo and brand. We've refreshed the magazine, and we're about to start the build of a brand-new, compelling, involving and (again) APCO-related website.

You can't have missed our new name! British APCO. The good news here is that we still see 'BAPCO' in this name, and we've retained the url of www.bapco.org.uk and will continue to run on this; this means we won't lose any of the hard-earned traction and recognition in the old brand.

We're looking likely to achieve a number of our aspirations with respect to a very different, and better, annual event. Yes – we still have an exhibition, but all the stress now is about having 'tents' or 'bubbles' of themed activity, or 'development' as it should be called. Watch this space!

I'm going to seize this opportunity to say just a couple things about our strategy. Where we were one year ago was about as low as we could get. We needed to start the transformation and many of the challenges have been achieved, and many more are still in progress.

Our strategy moves forward and we begin to see the transformation as we move on, from things that must get done to genuine aspirations. Aspirations! Did I think we'd get beyond changing and fixing 'what was broke' in one year – well, we were going to try. Now comes the best bit – implementing the vision that we all got so excited about in my first ever Executive meeting at Kegworth one year ago.

Over the following issues, I'm going to expand on the strategy in this column (a serial!) focusing initially on the job of work as it appeared back then, how we've implemented the initial phase, and the exciting part I mentioned above. I hope this will provide more insight into this exciting time, a time when our membership will evolve into something that is more involving, demands commitment and contribution, and delivers real value across all members and into the blue-lights services in a real way.

OK, so I've had one year of seriously long days, and I believe I'm beginning to enjoy seeing fruits from the labours, but this is overshadowed by an entirely eclipsing anniversary, namely the 10th anniversary of 9/11. A time for reflection, but also a time to look at how we do what we do, and where are the advances? We were asked to offer British APCO's thoughts on this important date by the press, and offered what I could, attempting to speak for our members, our community. We had our own 7/7 in my city of birth, as did Madrid and other good people had their own horrors.

So this is also, therefore, a catalytic moment 10 years on. Many public-safety communications initiatives have found themselves timed to demonstrate or implement on this 10 year anniversary. British APCO continues to change, and it will contribute increasingly into advances in public safety communications. Our best achievements are not behind us – they lay ahead, and we have much to do. We rely on your input, effort, commitment and loyalty, more than ever.

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 ww.bapco.org.uk

LTE – like 'giving blind men sight'

Talking at Tetra World Congress industry expert Andrew Seybold updated the world on what is happening in the USA with LTE – a great opportunity to learn from a difficult but potentially highly rewarding process, writes Carrie Service.

Andrew Seybold has been a commercial member of APCO for over 30 years, is the Vice Chairman of the APCO Broadband Committee and represents the National Sheriffs Association on the public safety advisory council of ERIC (the Emergency Response Interoperability Centre, founded by the Federal Communications Commission).

The last two and a half years have been spent doing pro bono work as a consultant for the Public Safety Spectrum Trust, which he accredited to his gratitude to Public Safety for having been 'very good' to him throughout his career.

Andrew's presentation concentrated on the five-year battle to gain enough spectrum for US Public Safety to have its own Long Term Evolution (LTE) broadband network, and explained why this could be a significant development in safety communications.

At present, the US emergency services work on seven different frequency bands: 150 megahertz, 450 MHz, 470 MHz, 700 MHz and 800 MHz, (as well as 30-50 MHz and 4.9 GHz for wi-fi like systems) which creates problems when trying to communicate across the county or country. Andrew gave the example of the county he lives in: 'in the last fire we had in Santa Barbara where we lost 200 plus homes, we used 18 command and control channels and 78 tactical channels to fight the fire. So it's imperative we have interoperability…mobile agency response is hindered by lack of [this] for sure.'

Although interoperability has been achieved to some extent, it is limited due to the use of an IP bridge, which takes two narrowband channels to make a single conversion; not a very efficient use of spectrum. The first step towards improving this Andrew explained, is to add broadband spectrum to the existing narrowband allocations; 'The goal here is to get a nationwide piece of spectrum on 700 MHz, that is common [and] uses LTE as standard.'

The spectrum used by public safety in the US is 10 MHz; 5MHz used for upstream and 5MHz for downstream. Originally, the idea was for a public-private partnership to take place between public safety and a commercial network operator. The adjacent spectrum (known as the D block) was bought to auction off for this purpose. However, commercial operators were put off when they realised that sharing the spectrum would mean giving priority to mission critical networks, and did not bid on it.

The FCC (Federal Communications Commission) believes that 10MHz is sufficient for public safety as it can be expanded by priority access to private networks in an emergency situation. Andrew insisted, 'it is not enough, and priority access does not work.' The reason being that in reality it is not as efficient as it should be: 'First of all the network operators won't give us pre-emptive priority access. They say you will go to the top of the queue. Well the one problem with that is if [there is an] emergency the cellular networks like the emergency ones get jammed, and if you can't get to the signalling channel you can't even request priority. So…we need to be able to control that network.'

The FCC has now been given the go ahead to release the D block for auction again. This means that the only way for public safety to gain control of the spectrum is for the law to be changed and for funding to be provided by the government.

President Obama has expressed his support for the project and has pledged 10 billion dollars to build the network, and 5 billion to keep it running for five years.

This may sound positive, however it will not be sufficient to build the 44,000 cell sites needed. And this is not the only hurdle. As Andrew says, this is a 'big undertaking' so there are inevitably people who oppose the changes. Some in congress want to auction the spectrum off and reclaim the 3 billion dollars they believe it's worth. US network operator Sprint and T-mobile cellular want to buy the spectrum, despite being absent when the 700MHz was originally put to auction.

When talking about the future of LTE and whether or not it might replace mission critical voice, Andrew stressed: 'I want to make [this] very clear…there are some people in the USA including the FCC who believe that over time LTE can replace mission critical narrowband voice. That's not true…LTE does not support talk around simplex or tactical, and the chances are it never will.' As voice would always have priority over data and video transmission via LTE, the most efficient method would be to keep LTE for data and video, and use narrowband for voice.

> "LTE does not support talk around simplex or tactical, and the chances are it never will."
> *Andrew Seybold*

The recent 5.8 magnitude earthquake on the east coast of America has underlined the need for dedicated public safety spectrum, as according to the FCC there was 'significant disruption' to networks in the midst of the quake. The 10-year anniversary of 9/11 provided a fitting reminder of how important sufficient spectrum is to emergency communications. Extensive testing by Andrew's company has proven that even for an incident on a much smaller scale than the September 11th attacks the proposed 10MHz would not be adequate. Andrew demonstrated this through simulation testing which involved streaming multiple video links at once: 'When we got four video streams working, just four, we could barely keep them running. When we went to run a fifth, not only could we not run [it] but turning the fifth one on ruined the other four. We believe…you need 20 MHz for a metropolitan area, and that's still not going to be enough in some cases'.

Having established that the mission-critical traffic system does not work, Andrew has proposed a new system that still involves working with commercial networks but in a more cooperative way. Instead of being put to the top of the queue in an emergency, he proposes that administrative traffic is moved over the commercial networks when an incident occurs. Despite the hurdles involved including the 'huge bill' the government will need to cover, Andrew stressed that the overall benefits of LTE will outweigh this; 'our system is nationwide, it will be interoperable, it has data streaming and audio and video, it enables operation centre incident commanders to see in real time. I tell people in congress that this is like giving blind men sight'.

The challenge now is to get the D block reallocated before it is taken by the 21 operators who have filed for waivers with the FCC; something that can only be achieved by demonstrating a united front: 'This one issue [has] brought together fire, police...and other first responders like they have never been brought together before. They are in the same room, they are in the same committees, and they are not throwing barbs, they are working together towards a common goal'.

PHIL KIDNER, CHIEF EXECUTIVE OFFICER, TETRA ASSOCIATION, TWC HUNGARY

2011 has been a good year for the TETRA Association with membership on the rise (166 members) and a fleet of 700 volunteers helping in the deployment and research of TETRA.

The exhibition held in Hungary had similar numbers of exhibitors as the previous year's one, with higher number of visitors in 2011 making it the biggest show to date.

Phil quoted some data from IMS that calculated 2010 had had the highest number of TETRA shipments, with a 5% increase from the previous year. 'Members also report statistics to us and when I look at the number of new networks implemented we are looking at a 60% increase.'

As for where TETRA was moving, Phil noted that the current economic climate discouraged large investment, and how the focus was now on getting the most out of the current networks in terms of manufacturers, users and operators.

Phil noted the increase use of smartphones to link to the internet, but he also urged caution: 'Using commercial networks for mission critical communications would be disastrous. Each time a police officer presses button they want immediate response because it could be life-threatening.'

The TETRA community recognises officers will want to access data, but he pointed out that assuming 'nice-to-have' data could go on public networks would not work: 'The more you use data the more critical it becomes and the more you have to have it.'

TETRA already offers a data network that is encrypted, secure and reliable – but in small chunks. 'If you go to some small UK police forces, they are sending pictures of wanted and missing people via TETRA.'

Nevertheless mobile broadband would make the fast exchange of images quicker and easier. 'It bugs me that in the US they have found the money and spectrum to have broadband and we are trailing years behind.

'We have to do something about it and find the spectrum, or you'll be using a system that could be down for 16 hours and your guys won't be protected.'

LTE and public safety

Long-term evolution is the next step in mobile comms technologies from the 3GPP standards body and – in its LTE-Advanced release – has been accepted as a 4G technology within the IMT-Advanced family of standards, writes David Taylor, Lead Consultant with Analysys Mason.

LTE provides a high-capacity IP mobile data network with low latency, suitable for many forms of multimedia delivery. It has a flatter architecture, giving a lower cost per byte for network operators. The use of orthogonal frequency division multiple access gives good spectrum efficiency and is a very good technology to address multipath issues, which are a problem with mobile networks. Within the LTE standard, IP multimedia services provide an architecture and framework for multimedia applications, which include IP telephony as well as multimedia services. LTE, therefore, is gaining momentum as a worldwide mobile broadband technology, and is starting to be deployed by network operators. It provides a flexible platform for modern communications.

At the same time, public-safety organisations see the need for new future networks, with increasing requirements for data communications. This could include data transmitted back in real time from an incident to inform the control room of what is happening, data sent to officers in real time to give them a situational awareness of what is happening, or non real-time data collection for evidential purposes. An Analysys Mason report for the TETRA Association reviewed and identified the requirements, and suggested four evolutionary paths, with three of the paths all needing significantly more mobile data capacity than that available within public-safety networks at present. Much of this data is mission-critical data, although there is some public-safety administrative data which is not mission critical. A key question is whether LTE technology can be deployed to meet this recognised data requirement, either using a public commercial network or a private LTE network designed specifically for public-safety use, and could such a network also provide suitable voice services for public-safety users (including particular requirements such as group calling), or whether a separate voice network is required.

It is worth considering the cardinal needs of the public-safety community for its mobile communications:

- Network must have high availability, with no single point of failure, a highly resilient architecture and guaranteed availability even in times of a major incident, when the network will be stressed. It must continue to operate through power outages.
- Coverage must be suitable for the users of the network. A police force network will need to cover all roads, and will need coverage into tunnels, shopping centres, etc. A utility will need to cover everywhere their service goes.
- The public-safety organisation must have control of the network. It is not acceptable for a network to lose capacity when a major event is taking place or for maintenance or industrial disputes to result in a loss of service.
- The network must be secure, able to carry data without risk of interception and decryption, and protected against unauthorised access attempts.
- If the network is to be used for voice services, there are further requirements. These include a fast call set-up time of less than 300mS, the ability to replicate the group calling operational feature available in current networks, and a voice codec which works in high noise environments.

It is unlikely that a commercial network would be able to meet all these requirements. If it was designed to the high

A copy of the LTE report carried out by Analysys Mason on behalf of the TETRA Association can be found at: www.analysysmason.com/About-Us/News/Press-releases/Analysys-Mason-study-into-Public-Safety-Mobile-Broadband-and-Spectrum-Needs/

availability targets, the cost of implementation would be very high, and the network operator would be in an uncompetitive position. Certainly, some of the admin traffic can be carried on a commercial network, but it would be unsafe to rely on such a network for mission-critical data.

However, it would be feasible for public safety to deploy its own national LTE network, and for this network to be shared by all public safety responders. This is happening in the USA, where a block of paired spectrum from the 700MHz TV Digital Dividend was awarded to public safety for broadband use. The FCC has mandated LTE as the common air interface for interoperable mobile broadband networks deployed in 700MHz, and a pilot has started in San Francisco. Similar proposals are being made in Australia.

So what is different about a public-safety LTE network, and what has to change? Commercial networks are usually designed to cover a percentage of the population. A coverage target figure of 90% of the UK population allows large areas of Scotland and Wales, and even parts of England, to remain unserved. For public safety, there is no control as to where unplanned major incidents such as a train crash or shooting rampage will occur, so coverage has to be total, for instance covering all A and B roads. Capacity has to be either present, or able to be ramped up very quickly, to cover the incident. Coverage has to include tunnels, underpasses and metro systems, as well as sporting stadia and shopping centres. LTE lends itself to this sort of coverage, but spectrum below 1GHz is preferred, otherwise an excessive number of cells would be required for rural coverage.

The network has to be resilient and available. Much of this is how the implementation is done, with resilient links from the eNodeB to the enhanced packet core (EPC) and suitable power back-up. The eNodeB will need to have no single point of failure, which will need careful design of the LTE transmitter, and controller functionality will be duplicated. In the EPC, functions will be duplicated. There are already companies looking at providing public-safety standard LTE controllers. Network management must give the public-safety organisation visibility of the network and control of what is happening.

The security mechanisms within the LTE standard must be used to protect both against interception and intrusion, using authorisation processes. If the LTE network is to carry voice traffic, changes may be required to the standard, or a way developed of making use of some of the work already done within the standard.

LTE already has support for calls from the public to the emergency services (112/911 calls). These include pre-emption, location services and eCall. There is also access class barring, which gives priority to certain responders such as public safety. These give priority access to the network resources; they are not intended for everyday use, but for access control during a major incident.

LTE has provided enablers for the Open Mobile Alliance PTT over Cellular (OMA PoC) standard, which provides VoIP services and does have low latency, but more may be required to satisfy the public-safety group call function. Currently, the LTE VoIP services are unicast, where a separate path is established for each party in the group. This will be acceptable for occasional use, but once you have a major event such as New Year's Eve in London, many hundreds of public-safety officers will be deployed, and a unicast mechanism will risk cell overload. What is required is a multicast solution, where the same transmission is heard by all the people in the group call (as is done in PMR systems). Multicast exists in LTE to provide broadcast mobile TV services, but as yet not for VoIP.

Finally, there is great benefit in choosing a suitable public-safety codec. In a high-noise environment, such as a riot or a fire, the public safety professionals cannot find somewhere quiet to use their radios, and both the TETRA and Project 25 codecs were selected and optimised to work well in such high-noise environments, unlike cellular codecs which have different design targets. There is benefit to the public-safety community in continuing to use such codecs in the LTE network.

Whilst the choice of an LTE network specifically designed for public safety seems appropriate, it will have to meet exacting user requirements to be capable of carrying mission-critical communications, and will need preferably harmonised spectrum, ideally in sub-1GHz spectrum bands.

For more information, contact David Taylor: david.taylor@analysysmason.com.

The LTE buzz – a bit of a perfect storm?

Airwave's Chief Technology Officer Euros Evans believes that LTE is without any doubt the way forward.

Euros Evans believes the 64-million dollar question remains: when will LTE technology be ready for voice communications?

A backdrop of over 100 cutting-edge communications companies couldn't have been more fitting setting for a conversation about the future of comms with Airwave's Chief Technology Officer, Euros Evans.

Ironically it wasn't TETRA that was the centre of attention at this year's Tetra World Congress (TWC) but LTE (long term evolution), a new standard for mobile broadband technology. Euros Evans agreed that LTE was the flavour of the month, having achieved the best possible kick start into life with the US intention to embrace it at national level.

The big debate in the industry, said Euros, revolved around whether LTE would be a separate data network or whether it would be seen as a full target solution. The majority of companies at TWC – and the conference speakers – were talking about mission critical communications (ie voice) not migrating to LTE, and the conservative economic climate was supporting this view.

Euros sounded a warning note for anybody considering jumping onto the LTE wave straightaway, emphasising it was important to take a step back and consider what the overall aim was; 'Why would you want to stick another voice solution on top of a TETRA solution, which in my mind is world-class already?' The end game has to be mission critical voice now and in the future, believes Euros, and this goal hasn't changed.

What cannot be ignored however is that some TETRA networks are 10 years old and a number of countries will have to consider what to do in the next 10 years with their aging infrastructure. 'You will get to a certain point when it is no longer possible to provide tactical upgrades to small components. You will have to take a holistic approach and that decision will settle the technology that will be used in that country for the next 10 years.'

Extending the life of the current Airwave network would be a manageable cost, but at some point the UK emergency services will reach a tipping point where a major upgrade will be necessary, and at that point an alternative – and proven – technology with greater functionality could be on offer. Euros used the analogy of an aging car, and the point where the costs of keeping it on the road begin to compare unfavourably with a newer car with greater functionality and performance and with lower running costs.

Spectrum lies at the heart of the question of whether to have two separate networks – TETRA and data – or a single super network. Euros pointed out that although it would be possible to re-use much of the existing spectrum today, some extra spectrum would still be necessary to create a single voice-data network; 'But this one single network would require less spectrum than if you had to use two national networks throughout the country.'

The 64-million-dollar question remains when will LTE technology be ready for voice, and even if some solutions were being showcased at TETRA World Congress, Euros said the devil was in the detail. 'Is it possible to do voice over LTE? Absolutely, you can do it now over 3G and it can only get better. But when you start talking mission critical you need to look at how it has been deployed and what are the limitations.' The emergency services need a call set-up of 300 milliseconds or less, they need to have an open channel with the assurance that any other devices tuned to a particular talk group receive the signal at the same time: 'Those functions do not exist in LTE today, and as an industry we need to question and challenge on the basis of what there really is out there.'

Multicast is one issue that is yet to be resolved on LTE. The throughput offered via LTE to a device is dependent on the quality of a signal – typically driven by the proximity to a base station – and if one of the devices is on the edge, then it will operate at the lowest common denominator: 'Is that the right thing to do? I'm not saying I know the answer, but these are the questions the industry has yet to answer. There are a number of manufacturers in the US putting time and effort developing a voice service running over LTE.'

The future

The buzz being created by LTE is described by Euros as 'a bit of a perfect storm'. The USA is developing its own 700 Megahertz solution; manufacturers and consortiums are already mobilising on LTE technology; European operators and governments are realising that they need to start making a decision on technology in the next five or ten years; and spectrum lobbyists are making some progress in the EU in terms of defining the benefits of broadband.

At the end of the day the end user has to understand the benefits of LTE and Euros is keen to point out he's not advocating technology should be used just because it is available or exciting. But sooner or later the UK will have to do something about the technology it has – if nothing else because of its age. 'I think over the next three or four years you will see technology coming forward that might improve the safety of the individual using it, and which might help save lives. It might actually drive efficiency by engaging directly with data applications and evolve from being "nice-to-have" to crucial to everyday life. The BlackBerry when it was launched was a phone that could do email – it isn't today. Just because we can't write a business case today doesn't mean that it won't exist in five or six years' time. We have to plan and prepare for tomorrow's technology.'

MICRO SYSTEMATION

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Some of the highlights at TWC

Sepura took the opportunity at Tetra World Congress 2011 in Budapest to announce the addition of intrinsically-safe products to its range of TETRA radios. The launch has extended its reach into hazardous 'gas and dust' sectors, such as fire, oil and gas exploration and opencast mining where Intrinsically-Safe ATEX/IECEx certified products are required.

Mark Barnby, Senior Product Manager explained: 'We paid attention to how real users around the world used their intrinsically-safe radios and their accessories in a wide variety of market segments. Loud, clear audio, the ability to use the radio whilst wearing bulky gloves and a new level of ruggedness were all key attributes that were not being met in the market.'

The new STP8X is the first IP67 submersible TETRA intrinsically-safe radio and is designed to meet the newly-clarified and extremely demanding ATEX and IECEx robustness tests.

In addition to offering a robust, rugged, feature-rich radio the new product, under the STP8X name, inherits a host of features normally only available with Sepura's STP8000 hand-portable range. These include missed event notifications, a Micro-SD image viewer – ideal for looking up hazardous material data – and a display which offers crystal-clear viewing under all viewing conditions, including harsh sunlight.

Extended battery life is a feature not normally associated with ATEX/IECEX radios, but is another key benefit that the STP8X inherits. Sepura's man-down application, capable of identifying when a user has become incapacitated, notifying rescue crews via TETRA and sounding a local alarm to assist rescuers in locating their colleague, will certainly be of interest to a wide variety of users.

SAVOX COMMUNICATIONS

Savox launched a whole host of new products at TWC.

The new generation Universal Radio Intercom Controller – the URIC CC633-4VPX – has previously been deployed with the military and is designed to meet the needs of combat troops, police firearms teams and CBRN units.

The new version brings additional innovation including voice-guided menu controls to allow the user to operate in a variety of modes including the new respirator voice projection mode.

The Savox Intelligent Connector Recognition System (SICRS) feature automatically configures the parameters to work with each connected device and includes automatic configuration for binaural or mono aural headsets and electret or dynamic microphone operation.

The voice projection capability (speaker microphone version only) is for use with respirators, providing clear communications to surrounding people whilst operating in tactical/CBRN environments.

Also new from Savox was a remote PTT module which offers simultaneous pairing with multiple wireless PTTs; a new car key fob-style discreet PTT unit; and new 2 and 3-wire semi covert kits.

The new wireless PTT solutions are unique as they offer simultaneous pairing of multiple PTTs, and the highly discreet new car key fob PTT is aimed for deep covert work.

The new 2 and 3-wire kits are functionally similar to the previous models, but are now are designed, engineered and manufactured in-house. The wire kits include an acoustic tube with replaceable ear inserts and a small microphone PTT unit which can be clipped to clothing. The 3-wire kit also includes an additional cable with a separate miniature PTT.

TETRA communications over LTE – the solution?

At TWC Alcatel Lucent highlighted that replacing TETRA with LTE was not a short-term option for many reasons. First of all, LTE does not yet support the voice communication features of TETRA, second, the frequency spectrum between TETRA (400 MHz) and LTE (700-3500 MHz) are not the same, third – more importantly – ripping out and replacing extensive TETRA installations was not an option.

Alcatel-Lucent's view provided an interesting compromise: TETRA communications over an LTE network.

A PMR user with a TETRA client application running on an LTE rugged terminal could communicate with other TETRA users over an LTE network, while using all of the TETRA services. 'This option opens the way to TETRA/LTE hybrid solutions combining the best of the two technologies to provide broadband overlay services to existing TETRA networks,' said a spokesperson. With a hybrid TETRA/LTE solution, this would open the way to a promising future of new applications and services that could change the way emergency responses are delivered. And maybe the ultimate solution would be having LTE and TETRA sharing the same frequency spectrum?

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High profile speakers will cover a number of challenging topics aimed at senior management from the emergency services.

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With a choice of sessions covering topics including social media and the Big Society, day two will be aimed at all professional and non-professional operational emergency responders involved in facilitating the planning, response and recovery process in multi agency incidents. Delegates will be able to select sessions they wish to attend from a carefully selected programme.

To register and for programme updates visit:

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Emergency Services Times | Fire Times

Breeding frenzy

The monumental increase in data applications in smart phones is just one of the many things that is placing greater pressure than ever on both mobile forensics hardware/software suppliers and end users. So how are the technology experts reacting? The British APCO Journal finds out.

Mike Dickinson of Micro Systemation has seen his workforce double in the last 12 months as a result of the explosion in new devices coming into the market – and more specifically the additional layer of complexity added by smart phones.

It quite literally is a mobile phone breeding ground out there, with a new mobile phone somewhere in the world being born every few minutes. Leeor Ben-Peretz of mobile forensics specialist Cellebrite adds that – device numbers aside – the additional layers of complexity created by different common operating systems and platforms are further muddying an already-complicated environment.

To put some kind of perspective on this, Leeor points out that Cellebrite alone receives around 100 mobile phones per month to start working on, and each mobile phone is a new project in its own right requiring talented staff. It is small wonder that the company's workforce has doubled in size in little over a year.

Even with such an investment Cellebrite still has a 200-mobile phone backlog which is why it pays close attention to indications from the market as to what are the most important platforms, such as iPhone, Android, BlackBerry, etc, and which 'exotic' phones require less attention. 'We try to keep a balance to support the forensic community, and - basically - the daily challenge is to decide what platform we next need to be concentrating on.'

The time it takes to crack a phone is dependent on several factors, but in broad terms a data extraction is divided into two categories, logical and physical.

The so-called 'logical' extraction method is the traditional way of extracting data, and Leeor explains how usually some sort of application interface is provided by the vendor so they can learn to communicate with the phone's operating system, but even with the interface it can take a few days or weeks for a phone to be 'cracked'.

The XRY Field Version is designed for crime scene investigators and mobile units of military intelligence, law enforcement and international organizations such as UN peacekeepers.

With the physical method – which attempts to create coherence from deleted data flotsam – there is no knowing when a phone will be 'cracked'. As Leeor says: 'You are trying to find a way to put a small piece of software on the phone memory, on the RAM, that will be capable to do something that the phone is not actually designed to do, and find a way to talk to the flash chip.

'And then we have to find a sophisticated way of interacting with the flash, read it, and then communicate what has been read to the outside.' On a single phone this can take as long as a year, and that doesn't include the additional hurdle of actually decoding the data, which is another phone model-specific problem.

Mike Dickinson of Micro Systemation has seen his workforce also double in the last 12 months as a result of the explosion in new devices coming into the market, and more specifically the additional layer of complexity added by smart phones. 'In the old days to find the contacts on a mobile phone you just had to know how the phone worked and then extract them. With the smart phone we know how it works and we can recover the contacts, but then there is another layer and that is the applications running on top, which can have their own contacts on Facebook or Skype etc. These store their own personal data in different locations, so we have to interrogate the phone and the applications – and the iPhone store has half a million apps.'

The challenge then is to learn how to interact with every single app that contains data. 'The great thing about smartphones is that they are migrating to four or five different operating systems, like Android, iPhone, Windows Mobile, Bada etc. The merger to common operating systems, looked – on the face of it – like a fantastic opportunity for us to build in more support for a lot more phones. Then came the apps, written by people in different languages, and so we are back to square one.'

Mike, who's based in Sweden, points to the interesting fact that last year for the first time the country experienced a drop in SMS text messages over Christmas and New Year. 'It's not that the Swedes were becoming less sociable, but

that much of the youth were using messaging apps to benefit from not having to pay network charges. We are seeing mobile data transfer becoming easier, more convenient and cheaper. We of course have to follow the data trail wherever it goes, and if the next generation is leading us down this path then that's where the data is.'

Latest solutions

Dell is the latest heavy-weight to wade into the increasingly complex world of mobile forensics, having recognised the growth in suspect data that needs to be analysed by the police is exponential.

Ben Chapman, Government & Defence Marketing Manager, Dell, explains that the Dell approach is focussed on providing a tool to help grossly under-resourced digital crime labs that typically comprise of three or four people dealing with a back-log that can go back 18-24 months.

One way to cope with this demand is to apply the principle of forensic triage, as seen in accident and emergency departments in hospitals. Dell has teamed up with digital forensics consultancy Evidence Talks (ETL) who has developed Spektor Forensic Intelligence – a forensic triage solution.

The new solution adds a mobile capacity to the digital forensics package launched by Dell in 2009,and it allows the automatic and secure examination (in triage mode) of any kind of digital storage device (ie computers, mobile phones, USB devices, sat nav systems) at the scene of a crime. Ben Chapman explains: 'Typically the police go on a raid and confiscate all devices, but this puts on a huge burden on the high tech unit. The devices have to be stored somewhere and it costs a lot of money to process them all. Our solution allows the police forces to reduce the amount of devices they confiscate at the scene of a crime by about 70%. Obviously in some circumstances for sensitive cases everything has to be confiscated, but in many cases it makes a lot of sense that you don't necessarily need someone from the digital crime unit to analyse those devices. With our solution you can configure the product to pull the data and it allows you to view user files within minutes, so you can ascertain with a high degree of likelihood whether or not it needs further investigation.'

The solution works by retrieving live memory dumps as well files that have been altered or recently used, from the digital device. 'It can spot things like steganographic messages where data is hidden inside images.' It creates a digital snapshot of everything, so it can be processed along traditional routes and used in a court of law. 'The majority of solutions in this space are based around thumb drives, so you plug in your USB stick into the suspect device and you would analyse that data back in the lab. The trouble is it does not give you that real time triage capability, and doesn't protect from potential malicious code that could be in the suspect device – and USB sticks don't do mobile phones either. So this is a complete, first-of-its-kind solution.'

Once a suspect's device's data has been cloned, the data is added to Dell's Digital Forensics Solution, where the cloning, ingesting, indexing and analysis take place on high performance servers, rather than individual workstations.

This, explains Ben, greatly improves productivity and time to analysise, because multiple devices can be ingested simultaneously and – as opposed to traditional methods – individual computers in the digital forensics lab are not tied up to each device. 'Typically a lab makes a forensic copy of the storage drive and works on the duplicate, ingesting it into a single PC. For a 300-500 gigabyte hard drive that whole process takes a day, and indexing a week.'

News from the market

Micro Systemation has recently launched a new feature that aims to increase efficiency of the data collection of mobile phones – the Multiple Extraction Wizard.

The Wizard runs on the latest version of the XRY software application (Micro Systemation's award-winning tool), which is designed to run on the Windows operating system. It allows the user to perform and secure forensic extraction from up to three mobile devices simultaneously, including smartphones, GPS navigation unites, 3G modems, and even tablet processors such as the iPad. 'Basically we are offering more functionality for the same price,' says Mike.

New to the market too is Cellebrite's UFED (Universal Forensics Extraction Device) Physical Pro mobile forensic solution package, which as well as providing support for an impressive 6,800 + device profiles comes with some interesting and innovative features.

One such feature is the UFED Phone Detective, a new application that enables forensic examiners to quickly identify specific mobile phone models. Leeor Ben-Peretz explains more: 'It's an application that runs on a PC and which asks a series of visual identification questions, such as whether it is a slider phone or a clam shell, that allows the app to zero into the phone model. A second route to finding out enables you to enter an 8-digit code, and it cross-references against a large database to ID the device.'

In addition, the latest model of Cellebrite's UFED, has been upgraded to enhance the capability to analyse iPhone and BlackBerry devices. Another feature that has been added to the UFED is Password Extraction, which allows lab technicians to pull the password from a locked device, and thus allowing the digital device to be unlocked.

Ben Chapman, Government & Defence Marketing Manager, Dell, explains that the Dell approach is focussed on providing a tool to help grossly under-resourced digital crime labs. The result is the Spektor Forensic Intelligence (see opposite, top), a forensic triage solution.

Cellebrite's latest version of the Universal Forensics Extraction Device can analyse iPhone and BlackBerry devices.

Keeping weapons in check in Europe

Ian Manocha, Managing Director, SAS UK, explains how the Odyssey Project will help tackle gun crime across country borders. Ian is also the head of SAS' international public security business.

Ian Manocha explains how the ultimate aim for Odyssey is to use the network across Europe to identify matches between crimes and crime scenes.

Cooperation across the EU is vital to try and reduce international criminal activity. While there is both political and operational commitment to share data and no shortage of ballistics and crime information data, there is currently no technical means to do this. As a result, Project Odyssey, an EU R&D project to develop a ballistic crime data sharing system, has recently been completed.

The Odyssey platform links crimes and weapons using advanced analytics technology, promoting mutual cooperation and knowledge sharing between police, security and intelligence professionals across Europe. It will make it easier to identify guns and potentially criminals as they move between jurisdictions. By constantly monitoring new data and current items of concern the system will 'red flag' potential matches so as to alert policing professionals in the relevant EU member states.

The Odyssey prototype was developed by a team of experts and makes use of SAS analytics software to drive key components of the system. The aim is to analyse and process crime information and ballistics data to help understand criminal networks without country boundaries.

The prototype platform was coordinated by Sheffield Hallam University and was supported by a number of other security agencies including EUROPOL. If implemented, the system would need to gather data from a very large number of law enforcement agencies in the EU. This would allow the network to record and share a significant amount of information about gun crime in one single secure system, ensuring benefits across Europe.

Ballistics information relating to the types of weapons, bullets and cartridges recovered from crime scenes is critical to the project's success. Projectiles have unique characteristics which can be used to differentiate between one weapon and another. This means that the characteristics of a crime scene can be profiled and compared to others that are similar with respect to the nature of the crime, suspects, weapons and other evidence.

Traditionally, finding links between crimes has been an incredibly complex, time consuming and difficult process that often involved physical transport of evidence and manual searching of data. A lack of standards for data acquisition, match declarations and different input methods between organisations and geographies makes the matching process tricky and often unreliable. Odyssey Project has addressed this issue by bringing information from police, security and intelligence organisations across Europe together into the same system in the same format.

Project Odyssey brings ballistics data from police, security and intelligence organisations across Europe into the same system and in the same format.

A key feature of the fight against gun crime is to identify large-scale patterns and undertake data mining to identify key issues – for instance the sudden arrival of new arms or ammunition in crime across Europe. Identifying such patterns can lead to identifying the source of the arms and cutting off the supply through police action, border security action or international political and economic action.

The analysis of the collected ballistic crime data uses a prediction, detection and modelling system from SAS to gain an understanding of criminal networks around Europe. The data is analysed using algorithms and semantics to understand its meaning by reporting back on patterns. This extracts meaningful data that the team can use to determine the distribution of gun crime. Ballistics data that appears to map to similar incidents is then flagged up instantly to show connections between crimes, allowing agencies to share and cross-reference information based on more accurate evidence. Similarly, agents in other geographies are automatically alerted to matches on gun and bullet signatures so they can build a profile of crime networks that may affect their area.

Odyssey Project has just reached the end-point of its first stage of development. Over this period the team has worked to get to grips with the data collection problems faced by agencies tracking and managing criminal investigations involving firearms and has used this insight to develop best practices for data collection to ensure smooth coordination across Europe. Using this information, it has been able to build a prototype computer architecture to help integrate the variety of systems to ensure that information held is secure, securely exchanged but useable for complex cross jurisdiction matching.

The ultimate aim would be for project Odyssey to become more than just a research project and become a reality. The goal is for the Odyssey network to use the system across Europe to identify matches between crimes and crime scenes to support on going investigations and to provide complex data mining and overviews to support the strategic planning of gun crime prevention in Europe.

Gwent leads with shared network

The largest multi-agency, multi-sector group on a next generation public sector network in the UK has been launched in Gwent. We talk to Gwent Police's Chief Constable Carmel Napier, and the Director of Resources Nigel Stephens, about the benefits the new network is bringing both to cost efficiencies and to front-line policing.

Eight public sector bodies across police forces, councils, health services and education in Gwent, Wales, have become part of the Gwent Neighbourhood Network Design (GNND). The network, which will sit on a PSBA (Public Sector Broadband Aggregation), is capable of delivering a full suite of voice, video and data services and will provide the GNND members with high-capacity and scalable network connections across a range of connectivity options.

One of the key benefits of the new network is the opportunity that it provides for public sector bodies to collaborate there are a number of initiatives under way between the police and Council leaders to turn that opportunity into tangible deliverables.

As an example, one of these initiatives is addressing call handling in which seven organisations are engaged. Gwent Police Director of Resources Nigel Stephens says the objective is to integrate a call handling and call management system. Given that everyone in the group is starting from different bases this is potentially quite challenging but he says the PSBA network presents a way of exchanging data and voice communications across organisations in a way that wasn't possible before.

Joining up call centre management will enable one police force to pick up calls on behalf of others and pass them on. And because calls to the police often involve ambulance and fire as well, the PSBA technology can provide immediate access to other services.

In a spin-off to the PSBA network, the Welsh Assembly has just signed up with Siemens to install a VoIP solution. This is rolling out to other Welsh police forces outside the Gwent community and is already installed in Dyfed Powys Police, meaning that the two forces can start to join up with other emergency services.

Chief Constable Carmel Napier says that having access to other services means that the police can respond at speed. Discussions are already taking place between South Wales and Gwent and their Police Authorities on how to use the network to integrate their service delivery model. 'We need to respond in the right way and deploy our resources efficiently. Integration means that we don't have to replicate resources and only need resource in the most appropriate location to respond on behalf of two forces instead of one.'

This integration will be supported by the ability to transfer data about incidents between organisations. 'You don't have to pick up the phone and dial, you can call the organisation immediately and have the call responding from your own force control room. The spin-off which will come out of this is the joint emergency services group in Wales.'

Integration will bring with it significant cost savings. Just through the VOIP network alone, savings in the order of £100,000 are anticipated compared to the existing architecture which is very old and has been added to piecemeal over the years.

The Chief Constable believes that because all public services are moving to a common infrastructure there is a major opportunity to cut bureaucracy by developing a multi-agency response. 'We are starting to move towards a standardisation of business processes which means that organisations will be able to go from start to finish on incidents, whether they be domestic abuse, fire arms incidents or problems in the community linked with neighbourhood policing. Because it is possible to access the data that is available from other organisations involved, management teams will understand the context of the problem when they discuss concerns.'

Integration, she insists, is about doing the right thing for the public. 'Getting a common framework of operating and business processes, which will improve services to the public, and drive out huge efficiency savings, through doing activities once. It means that in future the public will hopefully have one point of entry for all services. Currently, depending on where you are in Wales or what agency you are dealing with you may have to go through several doors of entry to find an answer to what may be a fairly straightforward problem. 'It is in the public interest for us to streamline our back offices, maximise the PSBA network which acts as a key enabler, and actually show people what can be done.'

The Welsh Assembly and UK Government have made reducing bureaucracy and a joined-up approach to public sector organisations part of the political agenda over the last few years. Integral to this is a reduction of bureaucracy relating to policing.

Chief Constable Carmel Napier says that this policy will go hand in hand with a significant reduction in resource over the next few years. 'Every public sector organisation has to be ready to meet this challenge. We are looking for innovative ways of working and technology has a large part to play. Instead of one process managed by one group of people, the PSBA network is helping us move to a situation where two or more processes are managed by many. This enables us to look at reducing our resources and it will lead to saving money somewhere along the line.'

Chief Constable Carmel Napier is proving that sharing networks can lead to reducing resources.

Command and control – getting IT right

Intergraph public safety consultant Nick Chorley's tips on how to choose and manage a command and control system.

When it comes to command and control, flexibility is becoming an important priority as a result of an increasing requirement for collaboration, says Intergraph public safety consultant Nick Chorley. Photo credit: Intergraph.

For a public safety organisation its command and control (C&C), incident management system is arguably its single most important technology investment, and the level of C&C procurement across all emergency services is now at its highest for 10 years.

As a core operations 'hub' the C&C system is integral to a wide range of functions, from field communications, call taking and dispatch to management reporting and HR. Its mission critical, public-facing nature also means that if it does go 'wrong' that event is usually high profile in nature.

When choosing a C&C system, it is vital to see the current model in action in a similar capacity, if not in exactly the same field as your own. You need to know that it has been tested in practice and to talk to those that have relied on it in difficult times: this is the best way to de-risk your choice and minimise the operational impact of the transition.

That takes care of the first major concern. Next, ensure that there is a clear product road-map for the future and a track record of regular, progressive and non-disruptive development, preferably driven by evolution rather than revolution. Evolution with innovation is a helpful mix. Talk to the system supplier's user group: its members are close to the company/product, but face the same challenges as you.

Be very clear on your criteria for success when starting your project. Availability will be high on any public safety user's list, but do not put yourself in a position where you have to rely on your C&C technology 100% of the time. For your C&C service to the public to be truly resilient the availability of people and current operational data is also required, regardless of whether the hardware and software are working. Have a constructive plan B – for example the London Ambulance Service had a very effective, tried and tested manual method of working in place. Nevertheless, it is good practice to have two or more live control sites, each with spare capacity and ready to quickly compensate in the case of any failure in another. A 'dark site', where backup C&C is available but not in regular use, is less preferable.

Other criteria might include high volume capacity (taking a huge volume of calls for service with no system slow-down); and winning buy-in from the user base. The consistency of a product throughout its life cycle is important for those taking a longer view of a technology partnership – a sensible precaution given the pace of technological change. C&C systems that have a consistent processing core or foundation on which a variety of public safety-specific workflows and applications can then be built combine longer-term, stable technology with the degree of flexibility that changing organisations demand. Managed product cycles rather than massive leaps forward will allow the user to best manage risk, performance and planning.

System life cycle management presents a different set of challenges. Organisational change is always accompanied by risk, which can be costly to manage at systems level – so forward planning is crucial. Organisations should also measure the longer term maintenance and other system costs, such as technology refresh, that will kick in during the system's life-cycle. Scalability is often presented by suppliers as a C&C system strength. While it is essential for larger organisations, smaller ones may be better purchasing a packaged solution that will meet their needs, at lower cost.

For organisations of all sizes however, flexibility is a priority as there is an increasing requirement for public safety organisations to collaborate. If you are one of those (or plan to be) choose a C&C system that has been specifically developed to enable you to communicate electronically and efficiently with other agencies. These might be sister services in your own area; or neighbouring same-service agencies in your region, providing mutual backup, with separate C&C systems but sophisticated interfaces; or, ideally, collaborating agencies sharing a single C&C system for maximum interoperability and utilisation of field and control room resources across the agencies. In this final scenario backup, workload and resources are shared and managed using a 'virtual control room' environment, powered by that single system.

The next 12 months will be an historic period for C&C technology: a time of great system renewal and re-organisation. Choosing and deploying systems that provide robust, yet flexible, support will help to ensure the future effectiveness of the UK's public safety agencies.

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