

British Association of Public Safety Communications Officials



BRITISH
APCO

JOURNAL

Knowledge Exchange for Public Safety Communications



Resilience for life

Adapting our critical communications systems for a digital landscape

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“The emergency services
rely on us to assist them
day or night, whenever
they get the call.”

- Harold Burrows MBE | Chairman of NSARDA

The National Search and Rescue Dog Association (NSARDA) supports the emergency services in finding and rescuing vulnerable missing people.

To see Harold's full story and to find out more about how O₂ support NSARDA, visit

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Editor: Jose Maria Sanchez de Muniain
Tel: 01935 37 4011 **Email:** jm.sanchez@hgluk.com
Advertisement Director: Jasvinder Sidhu
Tel: 020 7973 4700 **Email:** jsidhu@hgluk.com
Production: Tim Malone
Tel: 01935 37 4014 **Email:** tmalone@hgluk.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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Knowledge Exchange for Public Safety Communications

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



Sue Lampard, President.

Fresh back from the Autumn event, I for one am re-invigorated with enthusiasm and a determination to make a difference to everyone who relies on public safety communications.

Since the last Journal edition, we've spent a lot of time preparing for the Newcastle event, and I hope those who attended thought it was worthwhile. I've also been out in Vancouver (what a wonderful place!) sharing time with our APCO Global partners and strengthening relationships with some of the shared work which is happening globally.

Back in the UK, the usual themes continue – MAIT, NG999, spectrum and ESN. It's certainly an exciting time for the public safety community, and the rest of the world is watching us with a mixture of awe and at times, incredulity!

The common theme with MAIT and NG999 is the lack of strategic ownership and direction; I'm probably beginning to sound like a broken record. British APCO aspires to represent the user community by facilitating whatever it can to ensure public safety staff have the best communications to serve the public. I'm not sure I envisaged becoming the driving force behind what should be centrally coordinated programmes of work. MAIT and NG999 – if done right – will save the public purse millions of pounds over coming years. Done right, they will enable collaboration between public safety agencies to be truly effective. MAIT in particular will provide opportunity to retain localism alongside economies of scale. I have yet to speak to anyone who disagrees with the vision, and yet it seems too difficult for anyone to grasp the nettle and take it seriously.

As I keep saying – to have such programmes run by a volunteer and a few committed people on top of their day jobs is completely crazy, but we battle on.

On matters ESN, some of you may have read the recent article in Wireless magazine. I thought

the editor, James, did an excellent job in articulating the salient points and really summarising what many people are thinking. This may be a clear case or perception, rather than reality – and all may be fine. Unfortunately the ESMCP team is unable to provide comment – not even to reassure me that there is a 'plan B' if everything falls over.

Understandably they have to be completely professional and adhere to the procurement process, so we're in the inevitable 'lockdown' with no communication.

I'm told that once the bids have been reviewed they will be able to tell us more. I fully respect their position and British APCO has always fully supported the move to a broadband platform for mission critical voice and data. However, the issue is not, 'can it be done?' – it's whether it can be realistically delivered within the timescales proposed and without risk to life.

With sufficient time given to embed the new technology and a resilient plan for when/if it fails, I have no doubt that we will have something to showcase to the world (as was the case with the TETRA network).

If pressure is placed to deliver within unrealistic timescales then we could be sleepwalking into a disaster. For those who are close to the programme, I would urge you to ask the difficult questions and challenge robustly when the answers aren't forthcoming.

So, on to other matters... I recently met with Phil Jefferson (Motorola Solutions) and Nick Oliver (Capita). They've agreed to be the focal point for our Commercial Members and will be part of the British APCO Executive (which currently meets quarterly).

We're beginning to get a lot more people wanting to engage and we are receiving many offers to be involved. We need to harness this as best we can. At the AGM in Newcastle there was a good discussion about how British APCO can improve its engagement with members, Government, public safety organisations and other associations. I hope that with the support and different perspective from our commercial side, we can really start to make a difference and make British APCO the Association that everyone recognises as the place to go for engagement with anything that is public safety communications. Hopefully they'll provide a Commercial Group update in the next edition!

Finally, as this will be the last edition before Christmas, I wish you a very happy Christmas and all the very best for 2015! Hope to see you in Manchester (30th March-1st April) if not before.



Knowledge Exchange for Public Safety Communications



The success of the Autumn Event has helped showcase the Association's value as the only neutral organisation in this sector, writes Chief Operating Officer Geoff Naldrett.

Phew! What a great two and a half days the B-APCO Autumn Event at Newcastle turned out to be. As an Association we started to put together these Autumn gatherings in 2012 and each one has got progressively better as we learn from our own experiences and those of our delegates. This time round we implemented lessons from 2013 in Windsor, in that we had fewer closed sessions; more topics; shorter presentation slots; and more opportunity for networking.

We also convened a certified training package on Public Safety Emergency Communications, and we will continue to offer training courses which are relevant, at our events going forward.

We have already identified improvements for next autumn:

- The registration process – both pre-event and on the day
- Avoiding competing topics running at the same time
- Only hold closed sessions where absolutely necessary
- Making better use of our website for the event
- Better contact with target audiences.

Organising this kind of event as a not-for-profit Association such as ours is always going to be a challenge with a small team trying to cover all of the bases, but we manage to do it more professionally every year and this year the post event comments have been positive and encouraging. A big thank you goes out to all of the people who were responsible for contributing to the organisational success and also to those who attended as delegates, exhibitors, sponsors etc. The final

words of praise should go to the venue. The facilities were excellent and the Geordie 'can do' attitude was demonstrated by every member of staff that I encountered. The catering was first class, both during the days of event and for the evening networking dinner where the atmosphere was crackling with enjoyment and humour. In the memory it may well go down as the 'minced beef pie' show – they were pretty spectacular!

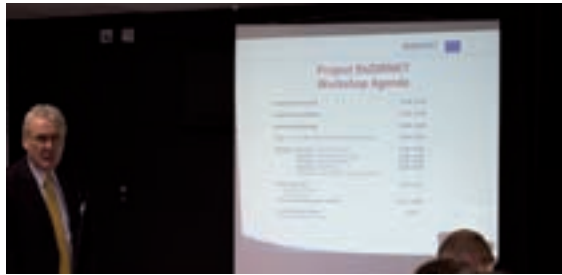
There is always a bow wave of work to catch up with after these events and Tracey, the B-APCO Admin Manager, is busy finalising invoices, catching up on membership payments and renewals and – most importantly – ensuring that all attendees are entered into our contacts database so that we can keep in touch with our supportive colleagues in the public safety communications world. For my part I intend that the presentations from the two days will be available on the B-APCO website (www.bapco.org.uk) as soon as possible. Then I have to get back to the other issues that have been on the back burner for the past few weeks. B-APCO is being asked more and more to take an active role in conferences and seminars up and down the country and in mainland Europe. This is a very tangible demonstration of comments made by various delegates in Newcastle that we are the only neutral body doing what we do, with no product to sell and no angle to work, and it is crucial that we continue doing so for the benefit of public safety communications and communicators. Over the next few weeks we will have contributed to multiple events in France, Spain and the UK. This

involves spreading ourselves quite thin and relying on the continuing dedication of those that volunteer for the key roles in the Association. Whilst on this theme, B-APCO is always in need of dedicated people to accept the volunteer roles of major responsibility in the organisation and also to offer assistance in areas where experience is lacking in the current team. On the immediate horizon is the position of Vice President and also someone to offer marketing experience and guidance.

The VP role offers travel and participation at a variety of associated (APCO) and other events, whilst giving the opportunity to broaden knowledge of key topics and issues surrounding public safety communications. At this particular time in the Association's development there will also be the responsibility to help shape the future of B-APCO and be a critical factor in how it evolves – for change is coming and we must get it right. Needless to say all expenses are generously covered, what we need is your experience and time. Please contact me if you think you would like to be more closely involved and I can go into greater detail.

So, as Sue has already done, let me also wish you a very happy end to the year. I hope that you enjoy the holiday period and that as an Association B-APCO can count on your continued support in 2015. With sizeable Government projects due to take huge steps forward, 2015 is going to be an interesting year with plenty to stimulate debate and comment.

Best regards,
Geoff Naldrett,
COO, B-APCO.



The reality factor

On 11 November at St James' Park Football Stadium (Newcastle) B-APCO's Shaun O'Neill assisted by Paul Kinsella hosted a workshop on Project Re-DIRNET, which aims to tackle interoperability during cross-border multi-agency responses to major crisis incidents.

Re-DIRNET is an EU funded research and development project from the 7th Framework Programme; it commenced in March this year and will run for 30 months. Its objective is to improve multi-agency interoperability both from a technical and non-technical perspective. The project builds on the developments and findings from earlier EU projects namely SECRIKOM (www.secrikom.eu) and FREESIC (www.freesic.eu). It is focused on developing capabilities to exchange information in data, image and sensor formats; and introduces a generic web 2.0 ('do it yourself') interagency set-up of interoperability.

B-APCO's role in Re-DIRNET has been centred on the identification of issues that can inhibit interoperability, which the Association has been carrying out through extensive consultation with end users, as well as review and analysis of major events and interoperability-focussed reports.

During the workshop interoperability issues were reviewed and possible solutions were analysed by six end-users from all the emergency services plus the Civil Contingencies Secretariat. Tim Gilberts, a Fire Service ICT Manager, was very positive about the UK's involvement in Re-DIRNET; 'There is perception in the UK that we don't have the border situations that the rest of Europe have. But we do have connections with Europe; we have the Channel Tunnel for example, and should a large incident occur on mainland Europe that could affect us, or an event such as the Icelandic cloud, we should not be disconnected and be unable to engage with our European partners. In the UK we don't look at what's happening in Europe and the wider world enough. But if you take ideas from different areas and thinking cross border, and mash it in the middle, what you get is applied research, not theoretical research.'

Bringing end users into the Project has brought much-needed context, explained Mr Gilberts: 'Yesterday saw a group of people come together from different backgrounds; people with operator experience, managerial experience and IT management, but all our points of view were grounded in reality. We often hear, "Oh we can connect everything, do this, do that" – yes that's great, but what is really important is to draw down from the user what their actual needs are. By using the approach that project manager Shaun is taking, you can focus on all the important issues. This provides a clear set of instructions to the researchers, so that they don't go down the 'who shouted the loudest' route. Otherwise the scope is guided by what a few individuals from the technological world think is what is wanted.'

The workshop in Newcastle saw a wide range of points

and proposals being discussed, explained Mr Gilberts: 'One of the things the project will have to look at is the issue of privacy and the balance of public safety. The mashing up of lots of geo data gives away the location of the subject by taking data from phones. The temptation might be technologically to have a constant data feed, and this is a strategic problem for the European Union to address when considering Data Protection legislation balanced against public safety.'

Other issues discussed included the value that a future Re-DIRNET capability could offer to the Maritime and Coast-Guard Agency in its operations with various organisations from several different EU states; also the 'noxious cloud' scenario. And particularly how validated air quality and wind direction sensor information for such large events potentially being readily available to affected responding agencies could better inform public health guidance and evacuation options over large sections of a country, importantly without the need to overload demand for such information on single agencies already fully occupied at the core of such an incident.

Workshop host Shaun O'Neill added: 'Interestingly, in the Czech Republic voice interoperability is set and required by law for new procurements of ICT; and in the Nordic countries there is informal use of English as a common language between agencies responding to a cross border crisis incident between Sweden and Denmark and Sweden and Finland. MAIT in the UK is another angle on interoperability information exchange.'

'It appears at EU and state level that an incremental "local/ bottom-up" or bi-lateral approach is the way forward currently with current data exchange ICT capabilities. Re-DIRNET perhaps offers a glimpse of the future and its potential to connect emergency response agencies more broadly and more strategically.'

As for next steps, Mr O'Neill said the UK workshop outputs would be further refined and then combined with the proposed solutions from similar workshops planned over the next two months in Belgium, Czech Republic, Luxembourg, Slovakia, Slovenia and Spain.

In early 2015 the findings from all the national workshops will be collated into one format that can be presented to an assembled international validation team of users during the B-APCO 2015 event in Manchester next March/April. Following the outcomes of this validation exercise system and technical development work will progress towards a full proof of concept of trial.

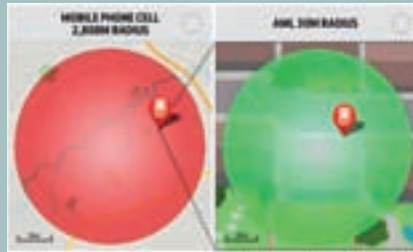
➔ Pinpointing 999 mobile calls

A new service developed by BT, EE and HTC can pinpoint the source of 999 calls from mobile phones 4,000 times more accurately than the current system – to a radius of 30 metres or less – crucially cutting the handling time for the emergency services. About 60 per cent of 999 and 112 calls in the UK are now made from a mobile – 22 million calls a year or 60,000 a day – all of which are handled by BT call centres.

Currently, emergency services are only able to identify approximate locations of callers to within a few square kilometres. As a result: 999 calls from a mobile take 30 seconds longer to handle on average than calls from landlines; it can take three minutes of extra questioning of often stressed or injured victims to determine the location. In an estimated 36,000 critical incidents reported by mobile every year, the emergency services spend 30 minutes or more searching for the location.

In around 330,000 emergency calls a year, the caller is unable to speak to the operator – having only imprecise cell information for the location when the call is from a mobile can prevent the emergency services from responding.

The new geographical location system, called AML (Advanced Mobile Location) provides 999 operators with pinpoint location data to save time and lives. It can identify the source of a mobile phone



emergency call to within 0.003 square kilometres, less than half the size of a football pitch, instead of several square kilometres.

When an emergency call is made with an AML enabled smartphone, the phone automatically activates its location service and sends its position by text message to the 999 service – on average within 18 seconds. This text message is not visible on the handset and is not charged for. The text is automatically matched to the voice call and compared to the network's cell-based information to ensure it is valid. The location is then sent to the appropriate emergency service, supplementing the cell-based information.

Developed by BT, EE and HTC working closely over the last 12 months, AML is currently available for emergency calls made on the EE network on all new HTC phones, including HTC One mini 2, HTC One (M8), HTC Desire 610, HTC One and HTC One mini.

➔ Essex body worn video trial: the results

The College of Policing has published the results of a four-month body worn video trial undertaken by Essex Police.

The trial was completed by a total of 308 officers; 70 of which were randomly allocated cameras for use, the rest remained without to act as a control group.

The trial showed that issuing officers with body worn video could be effective at increasing the proportion of detections that resulted in a criminal charge.

There were no differences in incidents being recorded as crimes, or rates of arrest, and too few cases to identify impact on guilty pleas and sentencing at this time.

Officers with BWV frequently mentioned the evidence gathering benefits of the cameras.

They also reported feeling confident that incidents they attended would result in convictions.

Most officers surveyed stated that they did not switch the camera on for every domestic abuse incident and there were practical issues that limited the possible benefits of the camera.

There was no significant difference between whether a camera was present or not in the rate at which incidents resulted in a sanction detection (SD). However, there was evidence to suggest that use of the camera affected the type of SD. A significantly higher proportion of incidents attended by at least one officer wearing a camera resulted in one or more criminal charges rather than another SD outcome.

➔ NEWS IN BRIEF

DCLG has set out the types of issues local authorities should consider in order to be fully prepared to respond to a civil emergency. *Local authorities' preparedness for civil emergencies - a good practice guide*, has a foreword by Penny Mordaunt MP, Parliamentary Under Secretary of State, Department for Communities and Local Government, and John Barradell OBE, Town Clerk and Chief Executive, City of London, Solace spokesperson for resilience and community safety.

Airwave has opened an office in Dubai that will serve as hub for providing mission critical communications services to the Middle East. Airwave recently played host to guests from the British Embassy, Dubai Silicon Oasis (a 100 per cent government-owned free zone established to facilitate and promote modern technology-based industries) and a number of supporting agencies at the official opening of the Airwave Middle East operation in Dubai. 'The opening of the Dubai office is in response to increasing demand for our expertise and knowledge in building, maintaining and operating Airwave's Emergency Services Network (ESN) in Great Britain. The office will serve as a hub to advise Middle Eastern customers on mission critical communications,' said Mike McKone, Director Middle East, Airwave.

Arqiva will install and de-install communications equipment for vehicles belonging to the Mid and West Wales Fire and Rescue Service. Under the terms of the contract, Arqiva will install and de-install radios, MDT and Pump Bay Voice Terminals from different types of vehicles such as officers' cars, 4x4s, vans and fire appliances. The contract will be carried out by Arqiva's Secure Solutions business, which provides secure networks and infrastructure to various customers such as the Government and emergency services, as well as sectors such as transport and utilities.

Police Scotland and Scottish Fire and Rescue Service have chosen an identical fleet management system. Civica Tranman is expected to improve efficiencies and reduce administration costs. Following the combination in 2013 of the eight Scottish police forces and eight fire services to form Police Scotland and Scottish Fire and Rescue Service respectively, both independently chose Civica's Tranman software to manage their large national fleets. A key factor in the procurement, said Civica, was its experience of merging systems together and integrating multiple and large datasets. Civica has carried out similar projects for Norfolk and Suffolk Police, Kent and Essex Police, and most recently a system shared by three Yorkshire police forces.

AIRBUS PULLS OUT PMR

Airbus' professional mobile radio business no longer fits the company's strategic goals – portfolio divestments also include commercial satellite communications services. Airbus Defence and Space has announced that it will concentrate on core activities in space (launchers and satellites); military aircraft and missiles. Its commercial and para-public communication business, said the company, will 'have better chances for growth and market success in different ownership structures.' It further intends to sell some of its subsidiaries and participations, including Fairchild Controls, Rostock System-Technik, AvDef, ESG and Atlas Elektronik. The announcement of its exit from the PMR market is unexpected, however, as earlier in the year the company launched the TH1n handset, the thinnest and most lightweight handset in the market. At the time, Airbus said that the handset was a significant investment in the UK public safety communications market both in terms of current technology and the provision and development of mission critical communications for the future.

➔ Winners of the Fire Transformation Fund announced

Fire Minister Penny Mordaunt has announced the winners of a £75 million fund which will improve frontline services and save taxpayers over £300 million.

The Fire Transformation Fund, announced last March, is giving £75 million to fire and rescue authorities to help ensure better and more efficient front-line services for the public. In total, 37 projects from across the country will get funding.

Announcing the winning bids, Fire Minister Penny Mordaunt said: 'One of the things that I found encouraging was the high number of bids looking to promote greater collaboration with other emergency services through sharing stations and services, sharing of back office functions, and joining up on service delivery. This is exactly the sort of innovation that is needed across the public sector and I look forward to seeing how these projects progress.'

Highlights

- Buckinghamshire Fire is to merge two fire stations and a police site into a modern joint facility: £2.84m.
- Derbyshire Fire will build a new joint police and fire headquarters enabling shared support services and improved partnership working: £1.50m.
- Greater Manchester: a police, fire and ambulance prevention and protection collaboration to create multi-functional teams via an on-call payment model: £3.73m.
- Hampshire Fire will action a new joint police and fire service headquarters; plus police co-location at fire stations and progression of fleet maintenance partnerships: £2.60m.
- Kent Fire will lead a syndicate with West Sussex and West Yorkshire to upgrade the existing National Fire Service Emergency Cover Toolkit to a modern, fit for purpose risk modelling toolkit: £0.35m.
- London Fire leads a collaborative project to implement data transfer between fire, ambulance and police control rooms to support joint incidents: £0.76m.
- In Northamptonshire a collaboration will replace the fire service incident command unit vehicle with a purpose built vehicle jointly crewed by police and fire staff: £0.88m.
- Again in Northamptonshire a project will result in the purchase of joint rural response units (Police/Fire), improving visibility and accessibility within local communities: £2.28m.

➔ Courts now installing WiFi

Magistrates and Crown Court buildings are now being kitted out with 'professional court user wi-fi'.

Wi-fi for providers and advocates in magistrates' and Crown Court buildings is now being installed following a contract signing between MoJ and BT. 'Professional court user wi-fi' is the system being installed in five magistrates' courts and two Crown Court buildings in early adopter areas during November 2014.

This follows pilots in Birmingham and Chelmsford magistrates' court and Croydon Crown Court, which have been active since last year. Full national roll-out across the court estate is due to be completed in England and Wales over the next 18 months.

The work is key to the government's ambition to have criminal courts working digitally by July 2016. It is being delivered through the Criminal Justice System Efficiency Programme. Using CJSM users will be able to access professional court wi-fi and their own IT systems. It is envisaged that this will improve collaboration across the justice system.

➔ £50m investment

Police in England and Wales will spend an unprecedented £52m on mobile data in the current financial year. It will be targeted at forces where a majority of officers cannot carry out key tasks on the move, notably remote updating of crime systems.

The money, part of a drive to meet the digital policing by 2016 target, is bolstered by more than £11m of government innovation funding, according to figures from Police Market Report, the specialist online newsletter. Metropolitan Police, who are piloting around 500 mobile devices, have budgeted more than £24m as part of their Total Technology modernisation project. Applications piloted include remote witness statements and crime recording. The trials will be endorsed by inspectors from HMIC. Their Core Business report, found mobile witness statements and crime recording are available to the majority of front line officers in fewer than half of forces. Other remote applications, notably stop and search, mobile fingerprints and intelligence submissions have also not yet reached the bulk of officers in most forces. Mobile working is a major part of programmes being put together to grapple with shrinking budgets. The point was underlined by MPS Assistant Commissioner Cressida Dick, who has reviewed the new mobile search function which, if all goes to plan, will be rolled out across the force.

For more info email: reports@policemarketreport.co.uk or visit www.policemarketreport.co.uk

➔ COFDM for BWV and mobile surveillance

The Ranger Mini, a new and compact COFDM H.264 digital video transmitter, supports applications for body worn, mobile and temporary CCTV applications and delivers images at distances of up to 1 km in non-line-of-sight urban environments. In line-of-sight environments, a range of 15km has also been achieved.

Ranger Mini is designed to meet the needs of users in a wide range of law enforcement, security and military applications.

It uses ultra-narrowband to provide exceptional

range and video quality in high multipath environments regardless of line-of-sight as well as enabling users to co-locate more channels in the increasingly crowded RF spectrum.

Supplied by MEL Secure Systems, the new Ranger Mini is available in a wide range of frequencies including 1.3, 2.4 and 5.8 GHz while bandwidth is available in 1, 2, 4 and 8 MHz. Built-in AES 128/256-bit encryption ensures that the highest security standards are maintained.



Launched in April 2014 as a secure platform for multiple agencies to share information for emergency response and planning, Resilience Direct now includes comprehensive mapping at its core. Graham Dunlop, Resilience Direct Product Owner, Ordnance Survey, talks to Jose Sanchez de Muniain about the powerful benefits Resilience Direct's mapping capabilities could bring to all levels of response.

Agility and resilience

What does 'agile' mean in the context of Resilience Direct?

Agile is an approach to building software that is very much driven by user need. The traditional approach was that someone would write a very long list of requirements, and a team of designers would design it, and two years later it would appear, by which time it would no longer be relevant. Agile is about delivering rapid increments of software. So you speak to users about the problems they are trying to solve, come up with some ideas, build something small quickly, and get it in the hands of the users so they can provide feedback.

After starting work with the CCS in November 2013, I spent three to four weeks talking to emergency planners and practitioners, as well as other people who manage local geographic data within a local authority or FRS. Basically, I was engaging with the users that this service would be aimed at, to understand the tasks they have to perform.

Were there any surprises?

The only thing was that at the beginning we used one of OS's latest mapping, however, when we put it in front of Ambulance Trusts and other users on the front line, they said, 'hang on, this is not OS mapping', because they were much more familiar with the look and style of our traditional mapping. As a result we had to say, if that will stop you, we'll include the traditional mapping layout as an option.

Traditional maps, such as OS Landranger and OS Explorer Maps, have rich colours and have very detailed information which doesn't always translate well for use on a web-based mapping tool, where people are zooming in and out. Very often you want to display layers on top of the mapping, and if the mapping has lots of colour and detail then other data that you layer on top can sometimes get lost.

What about the symbology?

We use the common set of symbols, called Civil Protection Common Map Symbology, which was jointly developed by the CCS and OS. It came up from experience following incidents where responders

had been routed to the wrong place because people had seen a symbol on a map and they had thought it meant something but actually it referred to something else. We decided to include just those symbols in Resilience Direct, for two reasons. Firstly, to encourage their use by the civil contingency community and, secondly, to get feedback from the community – for example, whether some symbols were too complicated, or whether additional symbols were required for some type of infrastructure.

How is layering used on RD?

An example may be the emergency planner in a local authority that is obliged to create an emergency plan for some nearby major infrastructure. They will want to know the location of nearby schools, rest centres, and vulnerable people. Ideally you don't want to be looking for that kind of information in the heat of the moment. The intention is Resilience Direct will be a catalogue of commonly used data sets that organisations can load and manage within the platform, and they can add them as a layer on a map during an incident or to create emergency plans.

How is this functionality being promoted?

We are trying to get a mapping champion in every local resilience forum, and one of their tasks is to let us know of any exercises that are taking place in their areas. Exercises are a great opportunity to observe responders working together, and see how mapping could be used more effectively as part of the strategic command and control. We generally attend two or three exercises every month. A recent one was Exercise Polar in Derbyshire, which involved the Environment Agency, Met Office, Fire and Rescue Service, Ambulance, Police, and local authority, all dealing with a major mobilisation in relation to a reservoir breach affecting multiple critical infrastructure.

What have you learned from these exercises?

Strategic command centres have access to paper mapping, and a lot of agencies in the room have



pockets of local information, so the de facto way of working is with paper maps supported by a local GIS expert. We've seen situations where people disappear to get information, and we point out that within 10 seconds we've pulled it up and put it on the map and its visible to everyone. When the strategic commander sees that mapping can be used to quickly show the actual common operating picture as it is at that point in time, they quickly buy into it and start using it.

What's next for mapping and RD?

Most of the exercises we have attended have been in dedicated strategic command centres. We are starting to look at how mapping can be utilised at the tactical level, and ultimately by responders in the field that can start providing real time updates all the way up the command chain. We are a long way away from that, given that we are up and running in the strategic context.

There's a lot of work going on in protocol and guidance for the responder community on how they can make best use of this tool. There is no mandate from the Civil Contingencies Secretariat that it must be used, and there may already be local solutions in place. But we are building up local awareness and explaining the benefits for national collaboration if people start using mapping on a single platform.

One area being looked at is tasking and logging. During an incident a tactical commander may task a specific agency and log completion of that activity eg evacuating a group of vulnerable people. You have a list of addresses, and you task someone to knock on doors and confirm whether or not a person has evacuated. So that is more towards Resilience Direct being used in the field.



Now open for students: The School of Resilience

September saw the launch of The School of Resilience and Emergency Response, a joint initiative between the Fire Service College and Training 4 Resilience. Jose Sanchez caught up with Director of Training Jon Hall (ex-CFO of Gloucester FRS and national lead for resilience for the Chief Fire Officers Association) and Beverley Osborne to find out more.

To describe the concept behind the School of Resilience and Emergency Response Jon Hall outlines how he sees the two components of resilience: blue light response and community engagement. Unfortunately, these two strands sit separately and the School of Resilience and Emergency Response aims to pull them together and create a cohesively resilient whole: 'The reality is when the world goes wrong these two groups are on the ground together. I've chaired a local resilience forum for five years and the one thing I've learned is that the blue lights do not 'own' emergencies. The local authorities deal with the emergency, the blue lights get all the media attention. All the displaced people and the infrastructure that goes towards supplying water during floods, all those things are the responsibility of the local authorities.' And what is often forgotten, adds Beverley Osborne, senior partner at resilience company Training 4 Resilience, is that the impact of an emergency can be ongoing for days, weeks or months. And the handling of that recovery phase isn't necessarily very well exercised. or pre-planned.

The core partners for the new School will unite these disparate communities. Training 4 Resilience has the experience of preparing local authorities all multi-agency partners and private sector companies in preparedness for organisational response; whilst the Fire Service College has a long pedigree of working with emergency services either individually or collectively. A third partner will be bringing in academic support, explains Jon: 'RUSI [the Royal United Services Institute] is on board, and it is probably the most highly thought of resilience think-tank in the country. So what we have now could be described as core partners.'

The resilience solutions on offer will be very much aimed at local level, and will include testing and exercising as well as evaluation services. Beverley explains: 'There are a lot of unwritten benefits to exercising in your own patch, testing your own facilities - particularly if you do a no-notice call out. What we can do is stimulate those environments incidents,



hopefully invisibly, and then people can use their own systems and processes to manage them.' The School of Resilience and Emergency Response's latest civil customer is the London Borough of Sutton, which is using the School's services as part of its annual Borough Emergency Control Centre validation arrangements. 'It's about being able to go to organisations and introduce a new resilience standard, tested through realistic training scenarios on their own patch, which just doesn't happen everywhere at the moment,' adds Jon.

The School of Resilience and Emergency Response will also pull in other partners to enable fully bespoke tuition and training that cannot be found elsewhere – in essence acting as a hub for resilience excellence. These partners include the College of Policing, the National Ambulance Resilience Unit, and the Police Chemical, Biological, Radiological and Nuclear Centre.

On the thorny subject of being able to afford such resilience training during these economically challenging times, Jon says that experience has shown that organisations cannot afford to put their communities in a vulnerable position. 'Most chief executives and executive boards understand the risk they carry if they under-invest in their organisation and in business continuity. It's not so much a case of can people afford to do it anymore.'



Beverley Osborne and Jon Hall (top right) of The School of Resilience.

Engineering serendipity

Discovering and then applying the full potential of data to public safety and resilience is not straightforward – it requires dynamic interaction and participation from many parties, writes Mark Braggins, co-founder of BlueLightCamp and member of the B-APCO Executive Committee.



Back, from left: Chris Thomas (IBM), David Patterson (Know Now), Mark Braggins (BlueLightCamp/ Hampshire Hub/B-APCO). Front, from left: Chris Cooper (Know Now/Digital South), Lee Hanniss (STFC).

BlueLightCamp – the informal networking event for emergency services – has a long association with B-APCO, and for two years was held immediately prior to B-APCO's Annual Exhibition and Conference in Manchester.

This year, Sasha Taylor (founder of BlueLightCamp) and I decided to try something different, and we held BlueLightCamp at Ordnance Survey's headquarters in Hampshire. The choice of location was not by chance, as it's also where my 'day job' is, leading an open data initiative known as 'Hampshire Hub' on behalf of 20+ partner organisations.

Holding BlueLightCamp on 'home turf' provided a great opportunity to introduce new people to the world of 'unconferences' and 'hackathons', including local business leaders like Chris Cooper, who tells his story below.

Chris Cooper: Know Now Information

My story is really about serendipity, with the first serendipitous moment being when I was invited by Mark to attend an unconference and hackathons called BlueLightCamp. I was unsure as to what I had let myself in for.

As I am a humble IT engineer I do get excited about using data to achieve an agreed end or outcome. However, what I noticed at BlueLightCamp is that an outcome was often the last thing considered when deciding what to do. We all seemed to be thinking about what we could do with the data and tools available –

it is cool being able to do new stuff after all! This is not a bad approach but it has limitations – namely, that if you want to take a hack experience and propel into real life then someone has to pay for it, so a positive business value has to be obtained. Simply having cool data at your fingertips is not a business case, sadly.

So this got me thinking, which lasted two weeks until my next bit of serendipity at a Big Innovation Open Data day at Harwell. There, the STFC (Science and Technology Facilities Council), ODI (Open Data Institute) and the government's open data evangelists offered the opportunity to win a voucher to deliver a new open data proof of concept. Well, how could I refuse!

The serendipity surprise number three was that Know Now Information won the Open Data voucher. The paper I wrote was called 'Whether you do or Weather you don't' –or 'WUDOWUD' for short. The paper proposed that by using the weather as our event trigger, it should be possible (due to improved forecasting) alongside a view of the historical impact of weather on a location, determine a more pro-active, cheaper, more efficient/safer alternative operation. In short, we now have an outcome.

Serendipity four is a personal benefit – I live in Hampshire, and my county would be smarter tomorrow than it was yesterday, so it could mean my tax bill could be reduced.

The Hampshire Hub though is not just the source for most of our data; it is also going to be the home for the results too. This is important because the hub is not just a repository of data: it is a partnership of data owners too. They are key, as data owners can describe why their data is relevant and important. Engagement of data owners is fundamental to a successful project.

After a series of workshops with the Hartree team from the STFC we now have an agreed set of data stores that we are going to try to unlock:

- The first is simply looking at flooding at fords. This costs the county and its citizens thousands, in terms of manpower, lost assets (cars floating) and lives impacted.
- The second was finding datasets that local politicians and leaders can use to advertise that action is happening. Getting the information out to the citizens of Hampshire is key. Enabling a politician to tell a great story is even better.

We are now coming towards the end of our exercise. Waiting for the results of the data correlation and seeing if we have any clusters of events based on the weather. Assuming those are forthcoming, the next step will be to run a 'thought experiment' determining a new alternative approach. Then checking this new process is more resource and cost effective with a better set of outcomes than the existing status quo. Hopefully this will give me serendipity number five.

BlueLightCamp

Chris has described how several serendipitous events sparked an idea which, together with availability of open data, led to a project which has the potential to deliver real change.

Without BlueLightCamp, Chris probably wouldn't have come up with the idea. Without the availability of funding, the project might never have got off the ground. Without B-APCO's support, BlueLightCamp may not have happened at all. BlueLightCamp will be

MARK BRAGGINS

Mark is a member of B-APCO's Executive Committee, and – with Sasha Taylor – is one of the founders of BlueLightCamp, the unconference and open data hack event for people who care about public services, with a particular emphasis on blue light services. <http://BlueLightCamp.org.uk> He is also leading the Hampshire Hub initiative on behalf of 20+ partner organisations. The Hampshire Hub is making larges amounts of linked open data available with an open licence. Current site: <http://protohub.net>. New site coming soon: <http://hampshirehub.net>

Mark is a founder of UK Open Data Camp – a new event, the first of which will be held in February 2015. <http://odcamp.org.uk>

CHRIS COOPER

Chris is a co-founder and director of Know Now Information. Know Now helps organisations create additional value in real time from their assets and everyday activities through Internet connectivity. <http://www.kn-i.com/> Chris also chairs Digital South, an action group of Business South <http://businessouth.org/>

From satellites to semaphore!



Perhaps that's a bit of an exaggeration and no one actually stood on tops of hills waving flags or lighting bonfires – nevertheless Exercise Morse was a serious test of communications between the emergency services and their supporting agencies, writes Jean Parry, Telecommunications Support Group Liaison.

Spread over a period of six weeks from the 20th May to the 24th June, the objective was to test how the emergency services would contact each other and their supporting agencies if various types of communications facilities became unavailable, as might happen during major terrorist attack either in public places or communications centres.

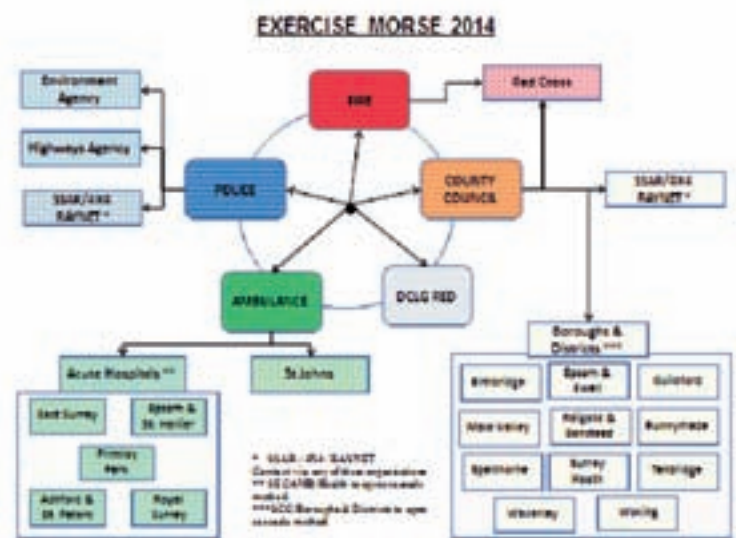
Each week Surrey Fire and Rescue Service initiated Exercise Morse by contacting the other four main agencies, ie police, ambulance Surrey County Council and DCLG Red. In addition they contacted the Red Cross as their main supporting agency.

Once the agencies had received a contact from the Fire Service, they in turn would contact their supporting agencies as shown on the diagram, right. With each contact notes were made of the method of contact and who accepted the call. If it was not possible to contact a particular agency after a number of attempts, that was also noted.

Having made contact (or otherwise) with their identified agencies, the results were emailed to Jason Wright at the Royal Surrey Hospital, who collated the results before passing them to Sue Lampard, the TSG Chair.

Each week a type of communication was removed from the available contact options, (see diagram below) until Week 6, when none of the conventional methods of communication were available. This could have resulted in the semaphore scenario, but the enterprising people in the emergency control rooms despatched people in vehicles to make contact with their counterparts and their support agencies.

So, what was the result of the Exercise Morse? All agreed that it had been useful, because it had highlighted some areas for improvement as well as the need to plan for closer working between the agencies and communications checking, particularly with the less frequently used methods, such as VHF and satellites. SFRS will lead on this and the plan will be mandated in the updated TSG Plan. In addition, a technical sub-group will be formed, headed by Alan Stuart, to look into VHF services across the agencies, to identify gaps in connectivity and also identify what users want from the VHF service. The PCT Channel will be included in the work to be undertaken by this sub group. And what did those taking part think? There was a very positive comment from Brianne Vally of Surrey County Council, who summed up the exercise: 'It was great to be part of Exercise Morse although it proved quite challenging at times, for example in making sure that the equipment was up and running, readily available and with up-to-date contact details. Some great learning came out of the exercise which will hopefully become part of business-as-usual activities.'



EXERCISE MORSE 2014

Technical communications that are **UNAVAILABLE** to use:-

Week 1 (20 th May) Degradation Level 2	Week 2 (27 th May) Degradation Level 3	Week 3 (3 rd Jun) Degradation Level 4	Week 4 (10 th Jun) Degradation Level 5	Week 5 (17 th Jun) Degradation Level 6	Week 6 (24 th Jun) Degradation Level 7
Mobile phones	Mobile phones	Mobile phones	Mobile phones	Mobile phones	Mobile phones
	Landline phones & pagers	Landline phones & pagers	Landline phones & pagers	Landline phones & pagers	Landline phones & pagers
		Internet & Email	Internet & Email	Internet & Email	Internet & Email
			Airwave	Airwave	Airwave
				VHF radio	VHF radio
					Satellite phones



Building a robust network for Bristol

Bristol's new ANPR network enhances operational effectiveness for Avon and Somerset Police, write Alex Game, Detective Chief Inspector Intelligence and Targeting, Avon and Somerset Police, and David Richmond, CEO of Videalert.

Bristol is the tenth largest city in the UK and, situated off the busy M4/M5 corridors, experiences a high volume of traffic movements every day. However, despite being ranked third out of the eight core cities in England in terms of performance in reducing serious acquisitive crime, Avon and Somerset Police's operational effectiveness was being seriously restricted through the lack of a reliable and efficient ANPR network.

Although the force had a rudimentary ANPR capability comprising a small number of moveable cameras controlled by Bristol City Council's CCTV department, it had fallen out of use due to frequent faults and outdated technology. This left two fixed sites on major arterial routes and 10 portable re-deployable units, capable of covering one traffic lane per camera, which were used in line with changing crime pattern hotspot analysis.

Even more challenging was that, due to 3G bandwidth issues, the existing redeployable system could not handle the high volume of traffic and it could take up to four minutes for results to come through. It was of little value for live operations, and it was clear that the deployment of an effective ANPR solution was essential to ensure that declining crime trends continued. However, the big question was how to fund the installation of dedicated ANPR cameras, bearing in mind that between 2010/11 and 2016/17 ASP will have experienced a cut in funding equivalent to 27% due to cutbacks and inflation pressures. A radical rethink was required.

Partnership approach

The prime mover for the project was initially Bristol City Council, which wanted to install a journey-time monitoring system to enable faster detection and reaction to incidents and

changing traffic conditions in and around the city centre. It also wanted to gain a greater understanding of traffic movements and the impact that planned business developments would have on traffic flows.

The Council undertook a review process of all available technologies to determine what would be the most appropriate solution. This included the full range of ANPR, Bluetooth and a myriad of single point solutions, each of which would require separate systems presenting significant integration challenges. ANPR was the preferred solution, mainly due to the need for origin-destination data, which could not be provided by any other system. The key project partners at this point were:

- the city's major projects team, which required data for micro-simulation modelling
- the transport monitoring team, which needed journey time and traffic flow data
- the public transport team, which wanted journey time comparisons between park and ride buses and general traffic.

ASP and the Safer Bristol Partnership opened up discussions with the Council about their plans and quickly identified the benefits that a dedicated fixed site ANPR network could deliver as an efficient tool for fighting crime. This, combined with the additional funding support that the partnership could bring, was sufficient to gain full political buy-in for the project.

The tender document specified that any new system must have the ability to handle and process video from 125 analogue cameras and generate vehicle registration mark (VRM) data for use in a number of key applications:

- real-time data to Urban Traffic Management Control (UTMC) database
- near real-time aggregate data to UTMC
- real-time police ANPR data to BOFIL

- CSV data to SCOOT/Paramics traffic modelling systems
- CSV data to car park operators
- online data access and review.

The solution

Key to the success of the project would be the council's city-wide B-Net, a fibre optic network currently used for running traffic signals and other traffic management applications. This would provide a cost effective way of connecting fixed analogue ANPR cameras and had the required spare capacity. It would enable video feeds to be transmitted to a centrally located image processing and data management server with the ability to add digital cameras as required. It would also facilitate the simultaneous sharing of ANPR data with the council's traffic management team and ASP. In the case of the Police data, a reply from the Police National Computer (PNC) at Hendon would be feasible within the ACPO four-second recommended maximum time.

Videalert's intelligent digital video platform was selected as it provided a more cost effective solution compared to traditional single point CCTV systems. This multipoint solution uses standard off-the-shelf equipment and would seamlessly integrate with the existing CCTV infrastructure in use across the Bristol region.

According to Duncan Laird, Group Manager – Transportation at Bristol City Council: 'We wanted to engage a single supplier to implement a back-office hardware and software solution that would give us the flexibility to support multiple traffic management applications and disseminate information to the council, ASP and other stakeholders. The Videalert platform is highly scalable, supports our existing analogue cameras and allows us to progressively migrate to a mixed analogue/

digital camera environment.'

Videalert's solution could be deployed without impacting the council's existing CCTV and IT infrastructure, offering the flexibility to support a full range of deployment options including wired LAN, Wi-Fi LAN, 3G-WAN, mobile, as well as analogue and ONVIF compliant digital megapixel cameras. The platform would also allow phased migration from analogue to digital without additional major capital expenditure.

Working closely with Bristol City Council and Safer Bristol, a working group chaired by DCI Alex Game was established to develop pragmatic and straightforward ways of evaluating performance and ensuring that value for money would be returned in line with the level of proposed investment. This group identified key sites across the city where ANPR cameras could be located based on traffic flows, crime hotspots and access to the fibre network to minimise installation costs.

Go live

The first phase of the project went live in March 2014 within eight weeks of Bristol City Council placing the order, when the Videalert platform was integrated with 48 strategically located ANPR and context-view cameras at 14 sites, with real-time data transmitted to the council's CCTV control room and ASP's police database, over the B-Net optical fibre network. This initial phase was rapidly operational due to the close working partnership of Videalert's project management team and BCC's project manager.

The system immediately started delivering real-time VRM data to Bristol's central UTMC system, providing essential intelligence to optimise the design of transport schemes in and model the impact that business or retail developments will have on future congestion levels. It also provides the Travel West website with real-time mapping updates on congestion hotspots, enabling drivers to avoid delays.

Operational applications

ASP's command and control operators can now monitor all new ANPR sites around the dock and deploy an appropriate police response, linking with Safer Bristol CCTV operators as required.

Real-time VRM data is transmitted by the Videalert digital video platform with fast links to PNC and intelligence systems, providing a maximum two-second response from a subject vehicle passing a camera to a read/hit back to the police database at the local level. This has already delivered an immediate improvement in

response capability by enabling crime investigations and offender targeting to be more accurate, calculated and immediate.

Officers on patrol can enter index data into mobile data Toughbook terminals, installed in all marked police vehicles, for checking against all ANPR databases to establish the existence of valid insurance, road tax and MOT. These checks reveal whether any intelligence reports are held against target vehicles, particularly when they are being driven by known offenders.



Alerts can be generated onscreen, by email or using real-time map tracking when target vehicles are picked up by ANPR cameras within a specified radius. Depending on which cameras are triggered, the quality of the overview images received can often be good enough to help corroborate details held on the PNC. The images also provide useful information to help identify target vehicles such as stickers, tow bars, aerials and any vehicle body damage to help develop investigations.

Investigating officers can search by index data, date and time to receive results of ANPR cameras that have been triggered to place an offender in a locality as well as helping to establish driving patterns, times and routes used, allowing more coordinated vehicle stops. They can also track the movement of single or multiple target vehicles through the city in real-time during live operations, and liaise with teams on the ground to safely make arrests and minimise the incidence of dangerous pursuit.

Intelligence analysis

The ANPR data helps intelligence researchers deliver a wide range of additional applications including the identification of vehicles travelling with cloned number plates and event analysis to track travel patterns for lifestyle and crime series analysis. ASP can also generate high-quality evidence packs with digital signatures and time stamps to aid convictions.

The ANPR database allows hotlists to be maintained ensuring that vehicles with PNC ACT

markers trigger system alerts with a notification display giving the vehicle index, date/time and location of the camera triggered, enabling nearby officers to deliver an appropriate response. Hotlists are categorised into crime types which can be searched as appropriate to assist specific operations. To speed up searches, individual cameras can be selected when specific locations are being targeted.

The analytical functions of the new system are helping increase police effectiveness in dealing with travelling criminals by enabling intelligence to be shared with 14 other forces in major cities across England.

If vehicles have been marked as being of particular interest, the data is stored for a further 3-5 years. To accommodate this requirement, additional hard drives were installed to give 9TB local storage for ANPR data.

The Videalert system is running 24 hours a day and has proved to be highly stable, handling any occasional network outages to Bristol City Council's and ASP's target systems, with automated recovery and data delivery once systems come back on-line.

The second phase of the project saw the ANPR network extended to the north west of the city including metro bus routes. The third phase was completed mid-October when an outer ring of ANPR cameras were installed on key routes into the city. The system now comprises approximately 81 cameras across 28 sites with further potential for growing this number in the future.

Future proofing

The Videalert platform provides significant cost savings and high levels of future proofing by allowing additional traffic and data applications to be added as required. It is the only digital video platform that can run multiple ANPR, civil traffic enforcement, traffic management, community safety and crime prevention applications from a single CCTV infrastructure without requiring specific equipment for every point solution. These applications could include:

- moving traffic offences including bus lanes, banned turns and yellow box junctions
- parking offences on school keep clears
- continuous video recording outside schools
- automatic car park entry/exit and tolling.

Bristol's new ANPR network demonstrates how police resources can be cost-effectively focused to deliver greater operational efficiency, against a background of continuing budget reduction.



Growing confidence in cloud computing and its security – partly thanks to the G-Cloud – is encouraging take-up in the public sector: B-APCO Journal talks with John Glover of Inovem to find out why collaboration software such as Kahootz is becoming popular with the emergency services.

Ahead in the cloud

Cloud-based collaborative software is not a new concept in the public safety communications world. In 2008/09, when the Firelink wide area radio system standardised England, Wales and Scotland's fire and rescue services' (FRS) critical voice and data communications, the Firelink project team adopted the Kahootz software as a sharing platform for its multiple stakeholders – different FRSs, DCLG, Welsh and Scottish Governments, suppliers and managing consultants.

The Firelink project didn't end with the installation of 9,000 TETRA radios and PCs in incident response vehicles. Because the system required ongoing commercial and service management to ensure that the Airwave platform met users' needs, DCLG decided to continue with Inovem's Kahootz collaborative system, contracting the service via the Government's G-Cloud procurement framework to 2015.

The G-Cloud procurement framework has revolutionised the marketplace for these types of applications, explains John Glover, Inovem Sales & Marketing Director, providing confidence in the security aspect of cloud applications as well as the integrity of the companies providing those services. The G-Cloud has effectively de-risked procurement through pan-Government accreditation of services such as Kahootz. It has also simplified the process and shortened procurement times ('the quickest I have seen is four days'). This is a huge change in comparison to the old days of building a system with an integrator and then testing it, a process that could take months and cost millions. 'With a project like Firelink, people needed to share documentation quickly and they needed to know the paperwork was safe. The point is, they didn't want, or have time for, another big IT project in order to deliver the Firelink project.'

G-Cloud-approved Kahootz collaboration software has solved another major headache of multi-agency projects – the danger of multiple versions of the same contracts and specifications being stored on different organisation's servers. 'This type of challenge is quite easily solved by the cloud, but not so much by email or file transfers. Firelink wanted a single version of truth, an online repository where the definitive version of each document would reside.'

Key benefits of collaborative applications such as Kahootz are flexibility and adaptability, adds John. Being a cloud product means there is no need to worry about having to develop bespoke shared IT infrastructure, or the restrictions

of firewalls blocking attachments. Emergency planning authorities can work on contingency planning with power stations as well as emergency services, on the same platform, adding new users when needed. The Health and Safety Executive, for example, used Kahootz during Buncefield to share information with relevant parties. 'And contracts can be for as little as 10 users for three months, or as big as thousands of users on an ongoing basis.'

The fact that Kahootz is on the G-Cloud means that Inovem can refresh and resubmit its Kahootz service description every six months. 'With the G-Cloud, service offerings can be changed and improved continuously, both in terms of technology but also licencing models, which I think are just as important.'

One recent innovation that John says has gone down very well in the public sector world is the addition of Active User pricing. This enables client organisations to pay only for the actual usage of the Kahootz system, on a consumption basis – so if a user has only visited the site twice in a year, the system only charges for that. 'Most projects we get involved with have to do with some form of transformation, which are very elastic types of environments. As with Firelink, eventually it moves to a stable environment, but as it moves through different stages more staff and external stakeholders may need to be engaged. Having this type of scalable approach to licencing is very attractive.'

More fine-tuning of the service model in the last six months has also directly addressed the question of, who pays for a licence when multiple organisations are working together? The result is a partnership licencing scheme which enables other organisations to use the software but at a lower cost. 'Organisations, especially in emergency planning, often need a shared communications infrastructure, but they may also need the ability to share the cost as well.'

Concluding, John Glover highlights another strong plus for collaborative software – it is fully intuitive and requires no training to use. In fact, around 80% of Kahootz's G-Cloud clients have never had any training. 'When we started we would offer a day's training but our clients would inevitably say, "no thanks, we are fine." So we provide all the tools and help resources online so people can answer their own questions. It makes good business sense and speeds up user adoption.'



A warm welcome in St James' Park!

The British APCO 2014 Autumn event took place November 11-12 offering delegates a rich programme that included practical workshops and live demonstrations as well as networking opportunities. Here are just some of the highlights, writes Carrie Service.

Above left: night view of St James' Park, taken from the conference dinner room.

Above right: Luana Avagliano, Head of Resilience Direct, and Dave Barnes, CCS, speaking during the TSG Symposium.

Telecommunications Sub-Groups Symposium

The UK Civil Contingencies Secretariat gave an overview of current projects and Ian Whitehouse, Deputy Director, Resilience Capabilities at the CCS, set out some of the general strategic issues across contingency planning, looking at the severe flooding last year and what implications that might have on planning going forward, particularly for those working at local level. He also talked about the work the CCS is currently undergoing to improve how resilient telecoms capability is assessed – a process they are calling the National Resilience Capability Assessment. 'We have gone through a process of trying to articulate what kind of broad requirements we might have against the defined success goal,' explained Dave Barnes, also from the CCS, 'looking at the national-level communications, strategic-level communications, tactical-level communications and then the bits in between to link those sections up... We are trying to understand where we need to focus our efforts centrally,' he added.

Peer review

This was followed by a presentation from The Department for Communities and Local Government, Resilience and Emergencies Division. They provide staff who work and interact on a daily basis with contingency planners out in various organisations. They were recently involved in a joint exercise with the CCS, looking at a series of resilient telecoms plans to identify examples of good practice, and also areas that required improvement. The CCS also launched a new peer review process at B-APCO, which it is hoped will encourage different local areas to share their

resilient communications plans with one another to encourage knowledge exchange – the idea being that two or more pairs of eyes are better than one. 'We are trying to encourage different areas to share their plans so they can learn from each other. We might also be able to take some points away for ourselves to improve the guidance we can provide for contingency planners locally,' explained Dave. The CCS and their colleagues at the Resilience and Emergencies Division will act as a hub for the project, asking local forums to send in their plans so that information can be compared, assessed and lessons collated and fed back to responders.

Sue Lampard, B-APCO President and chair of the Surrey Local Resilience Forum, and Paul Collard from Sussex TSG, spoke about how they are already trying to implement capability assessment and knowledge exchange across areas, as discussed by the CCS that morning. They have already put their heads together and shared ideas to improve their respective plans going forward.

Resilience Direct

The afternoon session focussed on a product called Resilience Direct, which has been developed by the Cabinet Office, in partnership with Ordnance Survey. Luana Avagliano, Head of Resilience Direct at the Cabinet Office gave delegates an overview of the 'trailblazing' project, which was recently awarded Most Innovative Product Of The Year by the Emergency Planning Society at the 2014 Emergency Services show.

It is hoped that the project will revolutionise response and planning for multiple agencies, in a secure and interoperable

manner – something that Luana insists is long overdue. 'For too long, the public sector has had to make do,' she told delegates at the event. 'It's about time the public sector had the same tools that our colleagues in the private sector have. Because when you're faced with some of the most difficult challenges, what you want is something that is easy, doesn't feel cumbersome and difficult to use, and that actually supports and helps you, rather than becomes a hindrance.' The Resilience Direct tool itself will combine a document store system, with a unique mapping app which makes use of detailed Ordnance Survey data. But these functions currently run as two separate entities. 'At the moment, there are two infrastructures, two services,' explained Luana. 'We want to bring everything into one hub. I'm looking at using the Government crown services that are due to go live around February to move mapping and document store all into one place, so that if you have plans and if you have other documentation – so think of COMAH sites – and you've got something in the document store, you can geo-tag it, pull up a map, during either your planning or your response, and see straight away what was in that area.'

Luana spoke about the importance of feedback in developing the Resilience Direct tool further, and how vital it was that they maintained a dialogue with users to ensure the outcome was of true benefit to those at the helm. 'You're the people that do the job, we are the enablers, facilitators if you like. We have lots of working groups, we have lots of feedback, our team mailbox is inundated... Every time we update, we communicate what's different... Users can see that we do communicate what we've done, we are very open and honest with you.' With this in mind, the aim is for there to be a mapping champion in each Local Resilience Forum to help feedback how mapping can be used in each area to help support emergency response on a practical level, observing the unique challenges of each locality.

Data visualisation

The key function of Resilience Direct is to enable responders to have access to crucial information in a reachable, useable way – things like live weather feeds that can be overlaid onto a map, with population and geographical data pulled in at the same time. All of this information would be available electronically, directly from the source, eliminating the worry that it could be out of date. 'What we are trying to do is prepare for what you know, but give you a tool that, if at any point during the response we identify another data feed, we can pull it in,' explained Luana. She was hopeful for the future of the project, but stressed that this was a 'vital time' in its progress. 'We can do this and we are on the cusp of it,' she said: 'We are keeping everything crossed.'

B-APCO President, Sue Lampard, gives update on MAIT project – vision for multi-agency transfer laid out

Multi Agency Incident Transfer (MAIT), a protocol that seeks to facilitate interoperability between systems from different



manufacturers, is a project that Sue Lampard, B-APCO President, has been heavily involved with since its inception. At the autumn event, she gave an overview of progress to date and talked about the vision for the project going forward.

A common language, universal symbology and shared information sets for GIS systems were some of the key objectives laid out, with an emphasis on 'keeping it simple',

Sue Lampard updated delegates on MAIT's progress.

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Cathy Bishop explained how from 2015 OnStar will be able to receive automated collision notifications from the cars of UK customers.

concentrating on instant contact between emergency services as its central aim. The project is currently on Version One of the MAIT technical standard, which Sue believes will soon be at the stage where it can be put through the consultation process.

Key to the development of the protocol has been looking at other standards from different organisations. An example is the 111 non-emergency phone number from the NHS, which incorporates NHS pathways to allow an ambulance from a 999 ambulance centre to be despatched as a result of a 111 call, if needed. 'The technical infrastructure that they've put in place to do that looks entirely different to what we are doing for the MAIT side,' said Sue, 'so we know that ultimately our roadmap has got to somehow bring the health service in, so that you can coordinate the information exchange.'

The team of resilience experts working on developing MAIT have also looked at what they can learn from overseas solutions, such as the National Information Exchange Model used in the US, and the Common Alerting Protocol used in Europe.

Because of the nature of information held by public safety agencies, in particular the police, there is some resistance to the idea of open exchange, and Sue suggested there needed to be a culture change in order for this to happen. But defining and agreeing the requirements of the protocol itself seems to be the biggest challenge of all, trying to integrate the differing needs of fire, police and ambulance.

In terms of putting MAIT to the test, both Surrey and Wales are already making headway in sharing resources being

deployed out on the ground. 'For example, if you've got a 999 call that comes in and which comes into the police, but actually you've got an ambulance vehicle that's nearer and it's suitable for that ambulance vehicle to go and attend, then potentially they are looking at sharing resources in that sense,' explained Sue.

OnStar discusses plans for in-car safety services in the UK

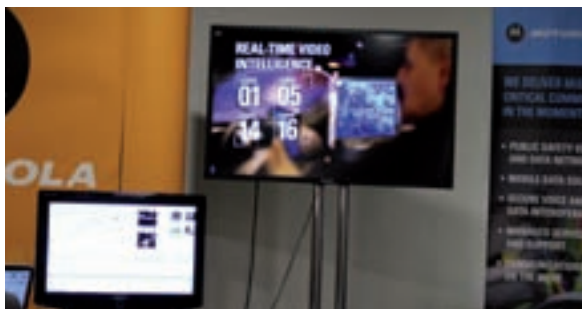
Cathy Bishop, OnStar's Global Emergency and Strategy Outreach Manager spoke about the US-based company's plans to launch its in-car safety services in the UK next year, working alongside Andy Heward OnStar's Emergency Outreach Leader. 'We appreciate having local expertise as we roll out services in the UK,' said Cathy. 'We've been working with public safety for 18 years in the US and Canada and the public safety front-line personnel really see us as a partner, and I hope that you will [too] when we embark upon this journey next year.'

The OnStar service works by having a series of buttons fitted in a car which are connected to a dedicated call centre (run by OnStar itself) to enable a request for police, fire or ambulance in the case of an emergency.

Starting next year – several years before the European-wide eCall mandate – OnStar will have the ability to receive an automatic call notifying them when one of their vehicles has been in a collision. 'It will be automatic, with no intervention on the part of the occupant, because they may be unconscious,' explained Cathy. This callout will relay specific information about the crash: the location, if it's an electric vehicle, if the airbag's deployed, which side of the vehicle was struck, if there were multiple impacts, and the all-important delta velocity. 'We also know, based on our experience, that this is a lot of raw data to interpret,' added Cathy. 'So as the system migrates and matures, we will introduce [a way of] taking that raw data and making an injury severity prediction that is actionable, so that you don't have to deal with all of this extra data when time is of the essence.'

UK vehicles will be factory installed with the OnStar system, which will be completely integrated into the electrical architecture of the vehicle. The vehicle's audio system will be used for communication with the occupants and an externally-mounted, skyward facing antenna will enable contact even in areas where a mobile signal isn't present. The call will go through to the third-party call centre where specially trained emergency advisors will call BT and indicate what kind of an emergency has occurred. They will then connect to the control centres and will have the opportunity to allow responders to speak directly to the occupants in the vehicle. 'The beauty of this additional call centre – our call centre – is that our experience has dictated that about 90% of red SOS button presses are false; they do not need to be sent on to BT and they do not need to have any intervention by a control centre,' said Cathy. 'We can help them out with what they need, or thank them for calling and remind them that we are here when they really need us.'

The Autumn Event was supported by a number of sponsors and table-top exhibitors, including Motorola.



Resilience through separation

It is sometimes better to separate voice and data systems, writes Andrew Jones, Marketing Director at Multitone.



Smart mobile devices have, by their very nature, brought voice and data convergence to a mass market.

It's easy to be convinced they offer a panacea communications solution – addressing all needs and offering the best value for money. However, when critical communications are a key requirement the situation can become much more complicated and it may even become clear that separating voice and data systems could be a better solution, which could contradict the 'unified communications' trend. It is certainly possible to bring voice and data together when planned carefully with the right level of consideration for the longer term – but it may not be that one size fits all, and alternative designs and infrastructure may prove to be a more effective solution.

One of the biggest benefits to using smartphones in an organisation is the ability to not only use the commercial cellular services but also private networks (either a private cellular/GSM network or even a WiFi-enabled solution) – and, rightly so, this is the kind of flexibility that is highly useful and simply was not available in the past. Today we continue to build our onsite networks and links to the outside world to provide high speed rich data content to suit our needs. However, as each year passes, the content, definition of graphics and tolerance to delays shift, requiring us to carefully manage and upgrade our onsite wifi and internet connectivity so it provides the best for our employees for the foreseeable future. We continue this stepwise investment to keep abreast of IT demands of our users and, as far we know, this trend is set to continue. But is introducing VoIP (Voice over IP) onto a WiFi network that continually struggles to keep abreast of our needs counterproductive?

The answer is not a simple one. The issue with VoIP is that voice grabs bandwidth making less available for data. As we struggle to keep up with our data needs, introducing something which deteriorates our level of service may not

be sensible.

We also need to consider vulnerability to disruption. If our WiFi goes down and we lose voice and data, the disruption is more serious to the business than just losing data. So, should businesses, especially where communications are an important part of the operations, consider voice and data separately?

When it comes to voice communications, VoIP systems have long been touted as a cost-effective and user-friendly way of making voice calls which are perfectly suited to running over powerful WiFi systems. However, the downside to using VoIP is the bandwidth resources it demands to carry voice over a network. While it uses an existing asset, upgrading a WiFi network for voice is not inexpensive.

For many organisations it will involve substantially increasing the WiFi capacity to gain the desired result. Modern voice systems such as onsite mobile networks could bring the benefits of smart devices and onsite reliability to an organisation, without the burden on IT, with savings not only in terms of the systems and the financial outlay for them, but also with regards to the time and resources required by the IT team and department in running them. Whilst there are considerable benefits to incorporating the IT and communications functions in one department, it also means that the resources of this department can suddenly be heavily stretched.

It's a bold statement, but could it sometimes be better to separate voice and data systems? Whilst this seems to contradict the popular unified communications message, when an organisation wholly relies upon its communications, having diversity and resilience is a very desirable feature. In some cases this might feel like a step backwards – but actually this is a great strength of using smartphones which are able to utilise both WiFi and private or public GSM mobile networks, and making full use of dedicated apps to administer this efficiently. It also means that the IT/communications team can plan in

detail the best ways to address communications needs for data without the interruption of voice.

The use of a private mobile network has many advantages when smart devices need to be part of the future communications mix. Owning a private GSM network onsite can be economical whether deployed through onsite base stations or over a data acquisition system network. It will not only remove public mobile network dead-spots within buildings, it also provides resilience when then public networks become congested or experience failures. Equally, onsite calls are owned and managed by the business, so capacity can be managed in accordance with demand, whilst data and text messaging can be performed without the delay of crossing public networks – making your most common communications method quick and reliable. Voice calls avoid a potentially congested WiFi network, but can still be made from the same device as data is sent and received. In the event of a network failure, voice calls plus text and mobile data continue.

If used properly, smart devices could be the future communications tool of a robust solution which offers excellent capacity and resilience across WiFi, private GSM and public GSM networks. Whilst the pervasive trend is undoubtedly towards unification, careful planning of the infrastructure is essential and for some businesses this will mean diversification to ensure users get the most from these systems. It is of course possible to integrate data and voice data streams over a single IT network successfully, but this requires careful upgrades and may ultimately impact on the overall performance of data when the need for information and rich content is booming, so returns on investment could be not so attractive. Happily the flexibility of smart devices means that different technologies can be used in the network design without an adverse impact on the people using the service. Whilst network design may be becoming more complicated, the usability of communications looks set to become easier.

Big data and real-time intelligence

Resilience isn't just about networks – it's also about dealing with the challenges of a data-rich world. B-APCO Journal speaks with Peter Goulding and Richard Thompson of Motorola Solutions.



Peter Goulding,
Public Safety
Specialist, Motorola
Solutions.

Setting the scene, Peter Goulding points at two trends that Motorola Solutions is picking up around the world. First, population growth in cities and the associated transport of goods and people is leading to concerns around international events – events that happen in one part of the world and which impact in another community on the other side of the globe, for example organised or cyber-crime and contagion events. Second, the massive growth in users with high technical capabilities in the form of smartphones (including public safety sector users) is leading to an explosion in data usage.

And while an ongoing and well-known challenge is ensuring that public safety networks are resilient enough to handle anything that is thrown at them, an additional and new challenge – and one that Motorola Solutions sees as just as critical – is managing the looming threat of information overload. 'And that is a critical arm of the solutions we are developing now and in the future. How do we make sure those users get the right bit of information at the right time? That what they get their hands on is relevant at that particular point, because as an incident evolves the needs of voice and data can also evolve.'

Social media's potential to benefit the emergency services is a case in point, adds Peter Goulding, but only if used in a timely fashion and in a two-way street. 'You have to be able to use it, analyse it, pick up the important aspects, and relay that to the right people on the street and the communities.'

Most public safety organisations are not yet geared up to dealing with this type of information. 'We have been living in a structured world of databases, but we now live in a world of unstructured data, whether social media, video or sensors. So a lot of the solutions we are working on revolve around helping end users cope with this complexity, so that the right data is captured and is passed on to the right person.' The control room sits in the middle of the process, gathering, exchanging and driving information, while managing both day-to-day events and large complex scenarios.

However, the traditional command and control solutions currently used cannot handle unstructured data. In order to benefit from the new data-rich environment a different approach is required, and one that doesn't necessarily take the form of a traditional command and control offering. It's not just about CAD and ICCS. For Motorola Solutions, it is also about a concept named Real Time Crime Centre (RTCC), at whose heart is the Real time Intelligent Console (RIC). 'The concept grew from taking those very different streams of information such as social media monitoring, facial recognition, CCTV, CAD and other unstructured data, and bringing them together to create a collaborative capability. A

lot of people still use singular control room solutions, and talk about big data, but what does it mean, and can you use it? If you are sitting in front of two screens in the control room, how much can you take in, and what do you do with all that data as an incident develops? An example could be a 999 call coming into the control room, and on the screen you then see that an emergency button has been pushed on a radio with GPS. Then twitter feeds start about an incident in the same vicinity as where the button was pressed.'

Four elements make up the RTCC, explains Peter, all of which revolve around what can be done in real time. The first element is about achieving a common operating picture shared with the people who require it. The second one is a powerful information search engine that can find data across different databases. The third revolves around predictive policing – but predictive policing as close to real time as possible. The fourth, explains Peter, is about intelligent data discovery: 'Let's discover the data you have in your systems and present it so that it serves different people's needs – whether it be the control room, strategic coordinators at different agencies, or even ministerial-level decision makers.'

Each of those core elements are themselves underpinned by a number of different components, such as facial recognition; the capability of fast automated searching through CCTV for specific objects (eg a red rucksack); and even body worn video. 'We have that capability, and our new radios can take still images and securely capture them for evidential use. We have solutions that can extract pictorial image data from our cameras to our radio management system – ITM – and from there to a hosting system, and we are looking to take that forward with a device agnostic solution to manage other kinds of images including body worn video.'

These data-management developments are not being manufactured to service an imaginary need, either. A survey carried out globally by Motorola Solutions revealed that data services are regarded as 'mission critical' in 89% of the public safety organisations surveyed. Location, database access, communications, and applications that revolve around the safety of users are becoming increasingly essential to mission critical operations.

Standards, standards, standards

To reach the level where information can seamlessly move over between systems requires standards, however, and Peter points at the work done in the US with NG911 (Next Generation 911 Standards development) as the model that is being followed in Europe. 'We were involved in developing those standards in the USA, and we are helping to bring the European equivalent NG112 that is being driven by the



Richard Thompson,
Sales Director
(Government
Systems, UK&I),
Motorola Solutions.

Safety in the digital world



B-APCO Journal speaks with Billy D'Arcy, O2 Managing Director (Public Sector Business) about how O2 aims to meet the challenges posed by the Emergency Services Mobile Communications Programme – namely bringing state-of-the-art communications to the whole emergency services.

B-APCO Journal talked to Billy D'Arcy, Managing Director, Public Sector Business at O2 about how the company aims to meet those challenges. 'I passionately believe in our key strategic objective – community safety in the digital world. The ES Network programme is an opportunity to upgrade public service delivery; the new ES network must be for the benefit of all citizens and the government but with the ES at its core. The delivery of a secure and resilient ES network that enables users to work to their full potential, while providing cost efficiencies for the Government, is O2's mission-critical target.

'The UK Police Force is going through significant transformation with reforms being made in the way it operates and how it is held accountable; and all of this in the shadow of reduced government spending. What is impressive is that despite austerity measures, the UK police forces are driving down crime rates across the board. Unfortunately, as crime detection rates improve, criminal activity is changing, and any communications technology provider must help the police respond to the evolving changes. The men and women of the UK police forces protect us 24/7, 365 days a year and O2 is committed to listening and learning from police officers of every rank.

'By using 4G technology, the police can free up thousands of man-hours by streamlining administration, reporting and data collection and allow officers to get out "on the beat" and help and protect the general public.'

B-APCO Journal asked D'Arcy to explain what he meant by that statement: 'Only a couple of summers ago there was social unrest across the country; social networks accessed via mobile devices were used to organise where rioters should assemble and what areas would be looted next. Information was being shared with large groups of individuals so they could avoid concentrations of police officers. Officers often found their tactical moves were being "second-guessed" by the rioters who had a constant stream of intelligence being supplied to them via smartphones.

'The lessons of this unrest have been learnt and O2 is uniquely placed to help police improve their response and keep officers and members of public safe from harm. Mobile data use is now an integral part of criminal activity and O2 will build a partnership with the UK police forces to provide the best possible response and counter-measures. O2 must play its part in providing community safety in a digital world.'

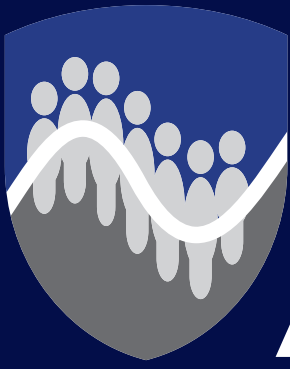
One of the major areas of discussion is the transfer of the ES network from what is a private wireless network to what is perceived in some quarters as 'just' a consumer 4G network. Can the network really handle critical (and potentially lifesaving) communications? D'Arcy responds: 'Coverage, resilience and security are an absolutely priority for O2. Every day more than 24 million O2 customers make over 120 million phone calls on our network, while sending over 150 million text messages and transmitting over 240 terabytes of data. Critically, earlier in 2014, O2 were the first mobile operator to achieve the CAS(T) accreditation for Public Services Network contracts. This is an endorsement of the secure nature of our network and our responsible approach to business. There is zero room for complacency. In times of emergency activity or crisis our network has to support both the ES and general public. The company sees that commitment as a duty we cannot and will not shirk from.

'The switch to the next-generation mobile network will give all the emergency services a powerful increase in the capabilities and capacity of their communications systems. The next generation Emergency Services Network (ESN) will provide a quantum leap in how the three ES organisations can communicate and use data, giving the end users a far richer experience supporting them to deliver and exceed against their KPIs. We believe that the Emergency Services Network programme presents a huge opportunity to upgrade public service delivery for the benefit of all citizens and the government, building on the current mission critical voice to deliver mission critical

data, all joined up intrinsically. The delivery of a secure, resilient and innovative network will allow the emergency services to be productive and flexible, while providing cost efficiencies for the Government.

'Only a month ago B-APCO had a survey on its website that demonstrated a genuine and overwhelming desire to have body-worn video for all officers on the frontline. It is generally accepted that this facility is an invaluable tool in a large numbers of emergency or criminal scenarios. With O2's advanced 4G technology this video can be streamed live to senior officers and control rooms and do much to keep officers and the general public safe. And with products such as O2's highly effective Bluelight Managed Video, we can quickly roll out mobile, wearable cameras for monitoring and recording activity while on duty.'

O2's expertise in the UK marketplace is well known with the company's technology and services being used by organisations such as Network Rail and Transport for London, as well as numerous central and local Government bodies (some 27 regional police services have chosen O2 technology). In addition, O2's parent company Telefonica has an extensive and proven heritage with a number of global emergency services. 'We are trusted by the Ministry of Interior in Spain for our delivery and operation of the national Spanish emergency services communications' award-winning network SIRDEE, for example.' D'Arcy continued; 'We're no stranger to the world of critical communications. We are a massive advocate for digital services and we feel we are best placed to work with the government on new technologies and infrastructure. We recently won a bid to deliver communications services for the Central and South Regions as part of the Smart Meter Implementation Programme, another example is the work we do with the Ministry of Justice on prisoner tagging, we are a vital part of a consortium, providing a part of the critical end to end solution using one of the world's most advanced technologies. Ultimately, we provide the network services that make it work.'



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We are resilient.



Designed to remain operational during the most challenging of events, manmade or natural disaster, Airwave's Emergency Services Network (ESN) has raised the bar on resilience. It has been proven to keep working, time and again, in circumstances where other networks fail. For Great Britain's emergency services, we know the ability to communicate instantly, no matter where or when, can be the difference between life and death. We never underestimate this and work 24/7/365 to ensure they can keep communicating, whatever the conditions, wherever the location.



It's in our DNA. Meet the people who deliver Airwave's resilient service at www.airwavesolutions.co.uk