Stream on the move

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

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

Chief Inspector Graham McLaughlin, Derbyshire Constabulary.

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

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

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

The barcode system also provides the necessary proof that a piece of footage was recorded at the claimed times date and location for use in court. "It's vital this information can be used in court as its potential is massive," notes Wilks. "It's no good capturing what could be useful evidence if it isn't permissible in court. We made sure all evidence gathering and storage complied with the necessary guidelines, and Derbyshire have already seen the benefits of this with footage captured already helping secure convictions."

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

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

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

Integrated solutions for operational support

Visualisation, communication and sharing of data in real-time is critical for blue light and homeland security services.

To support these services, we deliver dependable solutions which integrate into and support command & control systems, utilising multiple communication data bearers including TETRA, TETRAPOL and GPRS.

From strategic planning to resource management - our solutions enhance operational effectiveness & service delivery.

Meet us on stand 408 at BAPCO '09

+44 (0)191 213 5555
info@imass.co.uk
www.imass.co.uk

Resilient data communications combined with operational information & geospatial data is at the centre of our solutions.

- Automatic Resource Location System (covert/overt)
- Mobile data
- Real-time GIS
- Strategic Emergency Planning & Response System
- Corporate gazetteer & spatial data management
- Aerial photography provision & OS MasterMap® management
- 3D city & building models

imass® an Infoterra company

infoterra an EADS Astrium company

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

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

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

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

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

"Northern Ireland Fire and Rescue use our products and they have said they find it very useful when they are at an event because they are able to send live streaming video back to a commanders in a central command and control unit."

Tim Close, 802 Global.

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

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

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

Rinicom launch COFDM channel-hopping Rhino

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

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

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

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