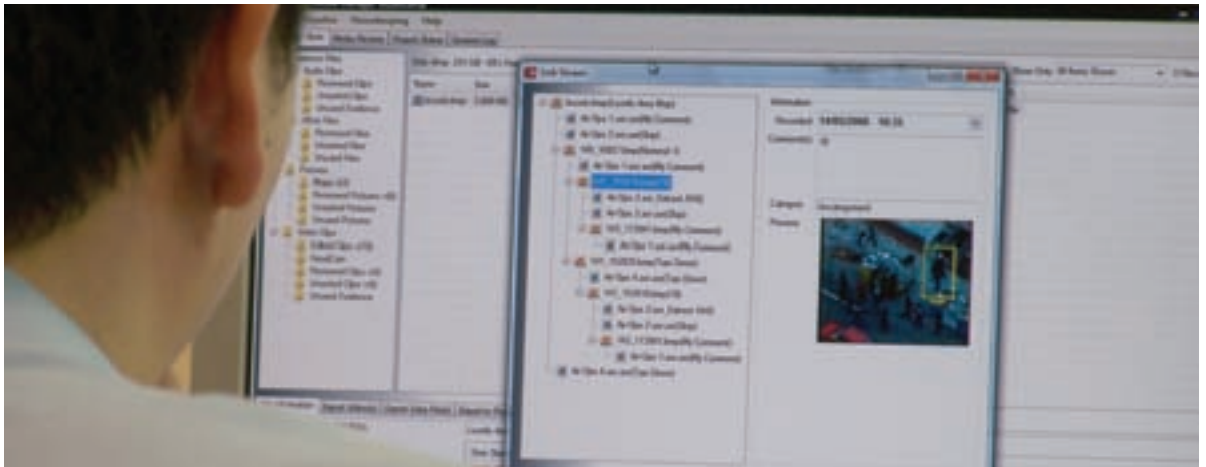


Making sense of the bigger picture



On May 6 The Guardian ran a story in which it quoted Detective Chief Inspector Mick Neville from the MET as saying, "CCTV was originally seen as a preventative measure. Billions of pounds has been spent on kit, but no thought has gone into how the police are going to use the images and how they will be used in court. It's been an utter fiasco: only three per cent of crimes were solved by CCTV. There's no fear of CCTV. Why don't people fear it? [They think] the cameras are not working."

Mike Wilks, CEO of Scyron, explains that Scyron's Digital Evidence Management Operation Network software (top) has been designed to treat CCTV as the third forensic science.



DCI Neville had actually said only three per cent of street robberies in London were solved using CCTV, and The Guardian did quote this in their introduction, but the damage was done and the "three per cent" soundbite was the main talking point. The BAPCO Journal decided to follow up this story in depth and talk to both the man who's comments caused the debate, as well as some leading CCTV companies to find out just what CCTV can achieve, and what the future holds for this technology.

"In some ways what was said is true," says Mike Wilks, CEO of Scyron, "there are not enough systems to cope with the amount of CCTV cameras on the streets. This doesn't mean it is bad to have them there, it just means we need to make sure we are getting the most from the technology.

"As a company we don't believe monitoring the public for the sake of it is worthwhile, we believe the benefit comes from turning the information into evidence." Mike continues, "one thing we have to consider is that we need to treat CCTV as the third forensic science, alongside fingerprints or DNA evidence." Scyron's Digital Evidence Management Operating Network (DEMON) software is designed to do just that and was designed in conjunction with West Midlands Police.

The DEMON suite of software helps turn footage into

potential evidence very quickly, and is designed to be admissible in court. Furthermore, rather than having officers trawl through hours of footage to find just a few seconds of relevant evidence, the software has a series of tools to speed up this process. The process is improved because the search functions run through the meta-data, rather than the actual video. By making the search function more instantaneous and user-friendly it will make it easier for officers to use it and find potential evidence.

The benefits of this are clear, as Mike explains: "if you can turn footage around quickly and confront people with evidence you can secure more guilty pleas, which saves time and money and means officers can be on the streets, rather than searching through endless footage. Because DEMON was designed with a 50-50 split between our staff and police personnel it has been designed with their input so that it has functions they need to do their jobs as effectively as possible. They told us almost 70-80 per cent of cases have the potential for CCTV footage to be beneficial, but time and effort means it can't be fully taken advantage of. However, with the DEMON software this should change."

Another way to improve the use of CCTV is to move to "IP-surveillance". This involves either using network cameras, or converting analogue CCTV images using a

video encoder as both transmit digital images over an IT network. Images can then be accessed throughout an organisation or across the globe via the Internet, but are managed securely to deny unapproved access. IP-surveillance or "network video" as it is also known, also opens up a world of new live and stored applications, such as motion detection and people counting.

Axis Communications, a major company for network video, is enjoying success in areas such as education, retail and transport where technology is being continually upgraded and a host of analogue/IP solutions are now providing improved security.

IP-surveillance applications such as motion detection allow incidents such as graffiti, bullying, vandalism and theft to be captured and recorded – it can also be programmed to send a text message to a designated mobile to alert the user to the presence of an intruder. Axis UK managing director, Phil Doyle states, "the scope of the technology is increasing all the time. The cameras can be accessed in the same way as a computer or server. You can even turn lights on and off by logging into a camera from a remote computer, PDA or mobile phone and see if you need to activate or deactivate something." The increased quality of footage allows for better evidence as well and Phil says that megapixel technology is the latest development on this, allowing cameras to pick up details in far greater clarity.

Axis also ensures that its network video cameras and encoders have minimal impact on an organisation's IT infrastructure through the use of H.264 transmission protocol that compresses data down to smaller file sizes by removing superfluous information.

Phil explains more: "by compressing the data but keeping its quality you can effectively double your storage space or half the bandwidth requirements to store and view data remotely. This allows you to keep footage on your server for longer, with increased quality and with applications to search the video, evidence

gatherers can get through it far more quickly."

Axis uses a range of applications that are designed by outside partners to give added value to the hardware it manufactures: "With digital zoom and colour filtering you can make searching through video far more efficient, for example if you know the person you want to find was wearing a red jumper you can set the camera to highlight any moment when a red jumper is on screen. Functions like that are giving surveillance cameras their added value that was previously lacking."

A further benefit of IP CCTV is that allows for far better network infrastructure. As Dave Astley from NTL Telewest explains, "NTL have around 65 per cent of the UK covered, especially in urban areas, so it is possible to supply the IP software so cameras can be accessed on a network, rather than having huge banks of TV screens in one room. Furthermore you can link the IP CCTV to VoIP systems and messaging software and the system can cope with it as it has the capacity to do so."

By increasing the capabilities of CCTV there is increased potential to make them work as active security devices so that rather than merely recording incidents, they can actually alert the operators to potential incidents. Dave says, "by setting parameters on a camera you can make it alert you to people walking through invisible 'trip wires' in places they shouldn't, like at a railway station, or if an object is stationary for more than two minutes, such as a suitcase, the system can sound an alarm to alert the operator who can then instantly rewind the tape to see why the object hasn't moved. Functions like this make the whole system more efficient and dramatically reduce how long everything takes."

The secure, legal storing of CCTV information is vital to ensure it can be used in a court of law. BAE Systems' Universal Video Management System (UVMS) creates an audit trail of the data and time stamping so the footage is admissible in court.

The UVMS software also has the ability to link both IP



Megapixel technology, as used by Axis Communications, is the latest CCTV development and it allows cameras to pick up details in far greater clarity.

Airborne drones

As CCTV and related technology continues to improve, the scope of its uses increases too.

Tellemachus is a company that provides systems which allow CCTV images and audio to be instantaneously accessed remotely utilising various wired and wireless networks.

Having recently partnered with MW Power – a company that produces flying "drones" – Tellemachus is now providing the equipment that enables the footage captured from the air to be viewed remotely. Peter Wood from Tellemachus explains, "In terms of our technology the drones are just another camera source from which to receive/send video to

virtually anyone, anywhere, who might need it."

Cameras in the air are currently most often used attached to helicopters at the cost of thousands of pounds per hour, and often the footage is not used to its full advantage. "At the Buncefield incident, the police had a helicopter in the sky recording the scene but we believe that the Fire & Rescue services had very little access to this live video footage. With a drone viewing an incident, we can transmit the live video footage to those who need it whether they are static or mobile. We believe this provides far more benefit in the management of an incident," says Peter.

Tellemachus also provides a new mobile surveillance and camera

system called Equinox that allows cameras to be quickly deployed in virtually any location, and record & transmit video and audio footage. Peter explains the benefits: "with this system you can set up cameras in areas that are not covered by fixed cameras, or for temporary requirements such as anti social behaviour or events.

"One of the problems with fixed CCTV is that if criminals become aware of the positioning they can simply move out of its vision. But with a mobile solution you can counteract this by setting up cameras where you need them. Furthermore as they transmit their video and audio wirelessly, you don't need to spend thousands investing in cables or wait months to get the cables installed."



BAPCO Journal CCTV poll – your votes are counted

The *BAPCO Journal's* online poll last month asked, "For what purpose is CCTV most useful?"

The results were as follows:

- Post-incident evidence gathering: 43%
- Crime prevention: 21%
- Incident crowd monitoring: 18%
- Not a lot, the technology needs improving: 18%

This suggests that, as most people seem to say in the article, improvements in CCTV need to focus on making sure the handling of video evidence is the top priority.

If you missed out on voting, sign up to our E-Newsletter and we'll make sure you never miss it again – visit www.bapcojournal.com.



Jamie Wilson (top), of NICE Systems, believes that expert CCTV operators need to work in harmony with the latest technology in order for CCTV to evolve.

and analogue CCTV cameras into one manageable system, as Nick Swift from BAE explains: "one of the benefits of UVMS is that it makes the role of the operator so much easier by linking all cameras into one piece of software. With our system an operator can just drag and drop a camera they wish to view onto their screen and they can search through footage from the IP cameras using a time and date function. As it's a very intuitive system and simple to use an operator can be trained on it in about one to two hours. Because the system is fully scalable, it can handle huge amount of cameras linked together – from 10s to 100s of cameras – making the job of the operator as simple as possible. Additionally they can use a map system to click on any camera on the network to view that camera."

A further system offered by BAE, called Advantage.Net Plus, enables the "teaming up" of cameras from across user groups – local authorities, commercial organisations, transport companies – so that incidents can be monitored more closely.

The UVMS and Advantage systems have proved popular in over 100 areas. Nick adds, "the Advantage system makes it a lot easier for information to be gathered by the operators, allowing them to access cameras owned by different user group. There are still some issues here, such as how to work out who has ultimate control of a camera, when it might be needed by two organisations, but we are working with customers to help them resolve this operational issue."

The need for expert CCTV operators to work in

harmony with the latest technology innovations is something that Tim Giles of NICE Systems believes is a fundamental in the evolution of CCTV. "It is important to provide the benefits of technology to the CCTV operators as they are the ones who are tasked with watching live incidents unfolding and to send resources as required. This is an area of CCTV that would be hard to quantify as to its 'success' but has certainly made policing a lot easier as officers can now be directed to an incident and told what they will face."

NICE Systems provide the incident management system, NICE Inform, that manages multiple forms of evidence – CCTV footage, audio, digital images, fax messages etc - generated in the control room into one secure platform. Jamie Wilson, also from NICE Systems, says, "With NICE Inform you can really narrow down search parameters when reviewing CCTV footage as well as annotating or tagging information for other officers working on a case to review. This means they can see the right parts of the information."

NICE Inform is also designed to accommodate emerging technologies such as body worn cameras. As Tim notes: "It's often said there are four million cameras in Britain but with almost everyone carrying a mobile phone with video capability on it, in reality there are a lot more cameras that can be used to present evidence to the police. The ability to add this information alongside CCTV footage and tag, annotate and place it in a system where it can be used and stored helps streamline the whole process of incident information management."

Setting the record straight – DCI Mike Neville

"CCTV can be better, it needs to be handled better and managed better – currently criminals aren't scared of CCTV but they should be."

➤ DCI Mike Neville, Operation Javelin, Metropolitan Police.

The *BAPCO Journal* spoke to DCI Mike Neville, the project manager of Operation Javelin Catching Criminals Caught on Camera, which covers both VIIDO and the Met Circulation Unit, to follow up on his comments from *The Guardian* and to ask him what he saw as the main barrier to the effective use of CCTV.

"CCTV can be better, it needs to be handled better and managed better – currently criminals aren't scared of CCTV but they should be. With DNA and fingerprints criminals know it can lead to convictions. It should be the same with CCTV – if you're on a bus, why would you commit a crime? It's an environment full of CCTV yet people still do because they don't fear the cameras. We need to organise systems so that footage is handled correctly and will result in convictions. Our VIIDO unit at the MET is proving to be a success by outlining clear official procedures we have set

down that should be followed for the use of CCTV as evidence. In Islington (North London) they have been following our guidelines and from April 2008 of the first 25 Tier 1 (Serious Violence) and Tier 2 (Serious Acquisitive) solved, 20 per cent were done so by CCTV – compared to 12 per cent for DNA and 4 per cent for Fingerprints. In another inner London borough not using VIIDO, 16 per cent of Tier 1 and 2 crimes were solved with DNA and fingerprints, but none with CCTV. At the end of the day improved cameras with megapixel technology are all well and good but we need people not machines to improve the use of CCTV so that it becomes feared by criminals and can prove far more useful than it currently is."

The next issue of *BAPCO Journal* will feature an exclusive report on the MET's VIIDO unit.