

## ***London Bus Firm Finds Secure and Reliable CCTV Solution Thanks To Fortuna Power Systems***

Terabytes of sensitive data that need to be protected over the long term are now much easier to handle, thanks to a bespoke solution put together for London United by UK IT integrator

### **Summary**

Specialist data, specially looked after CCTV cameras are now operating on all London buses, capturing data on to 2.5 inch hard drives. The footage covers a number of perspectives, from the interior of the bus to its immediate outside vicinity, to nearby traffic, pavements, and so on. There's a driver's-eye-view camera as well. This footage must be kept for as long as 18 years in some instances, but must also be easily retrieved if requested by the police or other authorities. It must also be uncompromised, meaning its integrity must be preserved and so no short-cut storage solution or file compression is acceptable. Fortuna Power Systems has created a tailored optical jukebox based solution that meets all these requirements, called FAST (Fortuna Archive Solution for Transport). FAST provides an extremely rapid and efficient retrieval of footage on a scalable and secure platform. The team also ensured the system interlinks with the client's existing network and storage area network (SAN). The integration of specialist third-party hardware and software has delivered a system that saves time, money, and is a better long-term solution than the previous system.

London United, one of the companies responsible for the network of buses that cover the nation's capital, has invested in FAST as part of its strategy to make travelling across London a safe and reliable experience for all.

### **Safety and crime reduction**

Thanks in part to the work of Transport for London, London United's primary customer, crime reduction and passenger safety have become two hugely important driving factors behind the adoption of surveillance, and related technology, across the capital's transport network.

Despite encouraging statistics showing that overall levels of crime are falling across London, investing in technology to assist in the ongoing deterrence and investigation of incidents, as well as to help safeguard passengers, is a responsibility facing all bus operators.

The use of CCTV systems in the UK's towns and cities is now commonplace and reports produced by the Home Office indicate the general public's enthusiasm to see technology deployed that can reduce crime levels and assist in police detection rates. From acts of vandalism to crimes perpetrated against individuals, London's public transport network is, unfortunately, not immune from the acts of a criminally-minded minority. Buses and Tube trains have also been the targets of well-publicised terrorist attacks, and the use of CCTV footage in the investigations of the July 2005 incidents is well documented.

Thankfully such incidents are exceedingly rare, and surveillance technology has clearly played its part in keeping the public safe from a potential proliferation of such attacks.

Not surprisingly, London United's fleet of 800 buses is fitted with between 10 and 14 CCTV cameras each, the actual number being determined by the model of vehicle. The cameras capture footage from on board the bus itself, and from its immediate surroundings as it covers its route. Not only does this reflect the aims of Transport for London, it also demonstrates London United's desire, as a forward-thinking company, to invest in the well being of passengers, drivers and the public at large.

### **Managing data and responding to requests**

London United is one of the six major bus operators serving the capital, operating within central, west and south west London. It carries approximately 100 million people a year, employing over 2,000 people and was Public Transport Operator of the Year at the 2005 London Transport Awards.

A fleet of 800 buses operating for up to 20 hours a day each, fitted with between 10 and 14 CCTV cameras generates a lot of footage. In fact, each bus generates between 1 Gigabyte and 1.5 Gigabytes of footage per hour. Multiplied out across the entire London United fleet that equates to a potential 2 Terabytes of data each day – an enormous amount of data to manage, by anyone's standards.

Coupled to the amount of data is the number of requests London United receive regarding incidents that might have been captured by the cameras on one of its buses.

"We can get 600 requests a month, internally and externally, to look at footage, of which up to half could be from the Police," says Martin Davis, CCTV Manager at London United, who is not an IT specialist but instead heads a team of CCTV analysts.

The team had, in turn, been downloading manually on to DVDs as a way to collate the footage, then on to a regular SAN (storage area network). But when the SAN got to 1.5 Terabytes it could no longer cope and had reached the end of its operational usefulness. Martin Davis then realised it was essential to find a better solution. "There was no way we could be sure we could always store and retrieve data that needed to be kept for a long time. We just had to find a better way to back up."

### **Few options available off-the-shelf**

Martin Davis looked at magnetic tape and early optical disks but found both wanting. "The former tends to corrupt and the latter just suggested endless management problems – we'd have ended up mirroring so much we'd have a daisy-chain of servers the size of a football field!"

He also couldn't use anything that compressed his footage files as it is a requirement that they be watermarked for evidential purposes, when used by the Police in court.

"We looked at the market and to be honest didn't see many options," he recalls.

But he has now found an answer, based on FAST, a solution created for him by UK data storage solutions specialist Fortuna Power Systems. FAST is centred on an optical jukebox containing 140 disks, combined with archive management software, which has been installed and has met his needs.

“FAST is right for us because it is scalable and we are happy that if there were to be a disaster the data could be much more easily recovered,” he says.

### **Fortuna, real partners on a vital project**

Fortuna Power Systems’ deliverable was a combination of hardware and software. Each London United bus stores the files containing its CCTV footage on a hard disk which can be transferred on to the DVD jukebox if a request for footage on a particular bus or route is received. The software date/time stamps the footage and produces an index number for each DVD, which means that while the number of DVDs in the archive can grow and grow, the right disk can always be identified if the need arises to find an incident from a specific date and time. It is now much easier for Martin Davis’ team to provide a specific length of footage against a specific external request.

“For example, a typical Police request might be for all the 30 buses that went through Piccadilly in a set two-hour period. Before the new system was installed that meant a lot of time was spent going through footage, dumping files to disc, collating and labelling the material, which was all very time consuming. Now that is effectively an automated process. Something that would have taken 25 minutes is now done in less than a minute, and since the system came online we must have burned 3,000 DVDs for this purpose. That’s a real help in manpower and time,” he explains.

Up and running since the start of 2007, the system is now approaching 7 Terabytes in capacity but Martin Davis says he has seen no performance problems and says he anticipates staying with the platform until a migration to the denser Blu-ray storage format, but that will not be needed for some time to come, he believes.

He is also pleased with the work Fortuna did. “There have been some glitches and the odd challenge with specialist file formats, but this is a very specialist area and quite a demanding application. There is no question Fortuna has been extremely responsive and professional and I think ‘partner’ is indeed the right word to characterise the relationship.”



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