Nottingham City Transport Success Story

The Challenge

The "Safety and Respect for Transport" campaign was originally launched by the city of Nottingham in 2004. This ongoing program is a partnership between public transport providers, local authorities and the police. The campaign mission is to provide public transport passengers with a "cleaner, safer, friendlier and more pleasant experience" and to encourage an increase in the use of public transportation.

A major component of the campaign strategy is the deployment of a CCTV (Closed Circuit Television) infrastructure throughout the city's transport network. The visibility of CCTV cameras act as a natural deterrent for antisocial and criminal misconduct, provide the police with evidence for the prosecution of illegal activities, and enables the rapid handling of insurance claims.

Nottingham City Transport (NCT) rolled out CCTV technology to its fleet of 324 buses as part of the Safety and Respect for Transport Campaign. When an incident report is filed, the relevant digital CCTV footage is collected from the bus, processed by the NCT staff and archived for long term access. Incident data is retained for up to six years and can be extended in cases involving minors. The challenge for NCT was to define an affordable and reliable CCTV archive strategy that can be easily integrated with their management system, provides sufficient data life, and meets strict legal standards for record authenticity.
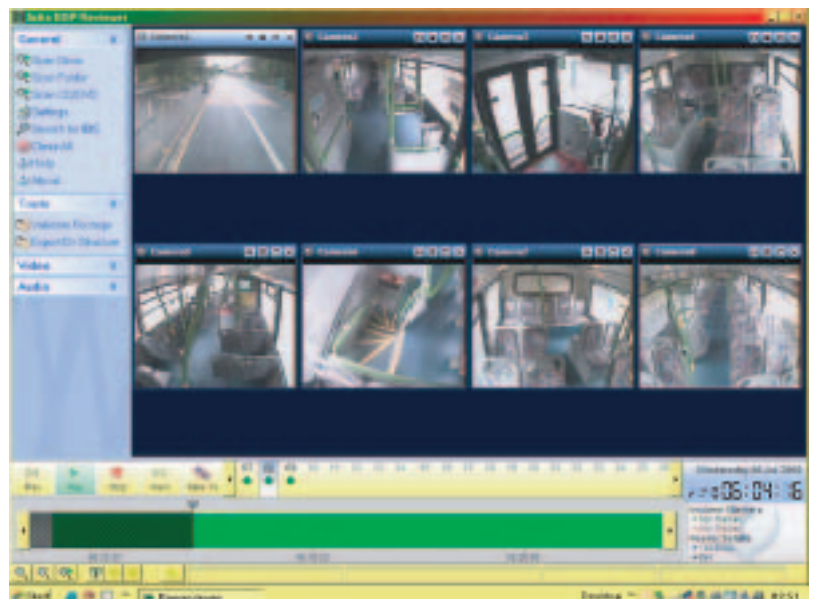
INDUSTRY
Public Transportation

APPLICATION:
Archiving of CCTV Images

SOLUTION:
QStar HSM software
DISC 1000 Blu-ray Library

The Solution

All NCT buses are quipped with between five and eight internal and external digital CCTV cameras (over 2,200 cameras in total) collecting four frames per second in an MJPEG format. Each 30 minute file is approximately 2GB in size and is recorded on a hard drive securely locked inside the bus. The onboard hard drives cache an average of 4.5 days of video content before being over written. Most incidents are reported within 24 hours and only then is content from a hard drive processed and archived by the NCT staff. With 15 to 20 incidents reported each day, the archive capacity began at 1.5TB a year and has quickly grown to over 2.5TB annually.

QStar Success Story
Nottingham City Transport

NCT requires an archive environment that can retain incident CCTV footage for many years and since the older data is infrequently accessed, it was also needs a solution that supports secure offline storage. After researching the market and discussing their needs with other transport agencies, NCT selected Blu-ray optical storage technology. Further consultation and a live demonstration convinced NCT to purchase QStar's HSM software and a DISC 1000 Blu-ray library.

"Originally we were writing our archive to a NAS RAID system." explained Dave Tucker, CCTV Coordinator. "However, it quickly became clear that our NAS configuration wasn't going to give us what we needed for a secure, long term archive with offline data management. Our current strategy still uses NAS to process new incident data, but then we immediately archive everything on Blu-ray using the QStar software. The QStar archive offers us much greater flexibility and peace-of-mind that our data is safe and accessible."

The QStar HSM software presents the Blu-ray library as a standard file system making it easy for the NCT staff and their applications to archive and access data on the DISC blu-ray library. In addition to a primary copy of all archive data stored at a central facility, a secondary copy is removed from the Blu-ray library and taken off site as part of a very cost effective disaster recovery strategy. The WORM (Write Once Read Many) quality of the Blu-ray media provides NCT with an unalterable archive which acts to ensure record authenticity for legal purposes, and the 50 year media life also delivers the longevity that NCT needs to meet its six year data retention periods. The QStar software automates the archive management process, and provides offline media tracking for older incident records that has been removed for the DISC library. These HSM software features streamline the reporting process and offer NCT the flexibility to grow its archive without major capital acquisition.

A Union of Process and Technology

The success of the NCT system is based on a unique combination of well defined process and carefully selected technology. When a police incident is reported, it triggers a very tightly controlled procedure. Only licensed and registered staff can retrieve CCTV data from the onboard disk drives. When collecting this data, the staff must complete a detailed check list that facilitates a full audit trail for future accountability. The content is then processed and an Evidence Pack is prepared for the police. The pack is labelled with an incident code and consists of all relevant CCTV footage, timing, telemetric information, and statements.

Evidence Packs submitted to the police are written to a custom labeled CD which contains everything they need to verify the exact time and circumstances of the incident in a format that is legally admissible. At the same time, the QStar master archive is maintained at the NCT primary site with a disaster recovery copy at a secondary location. This strategy allows the original incident data to be securely retained for future access.

CCTV content is also used for insurance claims submitted by passengers or by drivers in other vehicles that have been in an accident with a bus. Access to this CCTV data is subject to the same tight controls, but is used internally to rapidly assess, validate and process insurance claims.

The sensitivity of the CCTV information requires that NCT strictly comply with the UK Data Protection Act 1998, CCTV Code of Practice 2008 and the Police and Criminal Evidence Act. NCT carefully selected QStar's HSM software and Blu-ray WORM storage as the best possible foundation for compliance, and have put rigorous procedures in place to control the handling and viewing of CCTV content. NCT is an excellent example of an organization that has combined process and technology to create a very secure digital archive environment.

Benefit Summary

Nottingham's Safety and Respect for Transport campaign has been an unqualified success, bringing greater security to passengers and improving their transport experience. NCT's contribution to this ambitious scheme is impressive and the benefits can be measured across multiple areas of their business.

The mobile CCTV system and long term archive provides NCT with the ability to better protect bus passengers, facilitates rapid decision making, and offers an opportunity for staff and community education. The CCTV system a significant deterrent to antisocial behavior and it has given police the high quality evidence they needed to secure convictions in a number of criminal cases. The speed of internal insurance claims has also been greatly accelerated and fraudulent claims can now be quickly identified and rejected.

NCT leverages the CCTV content for internal driver education to help them effectively manage incidents with the public. In partnership with the police, NCT staff using appropriate measures to retain anonymity, also presents antisocial educational programs within Nottingham's schools to encourage better behavior among young people in the community.

The QStar HSM software and DISC Blu-ray library play an important role in a much larger social and business program for Nottingham City Transport. The intelligent combination of software, hardware and carefully controlled procedures delivers a very cost effective archive strategy that meets NCT's objectives of the Safety and Respect for Transport campaign. Improved customer service, visible deterrence, content accountability, data longevity, and rapid decision making are all part of what makes the NCT CCTV archive an overwhelming success.

Nottingham City Transport Website:

www.nctx.co.uk

Safety and Respect for Transport Campaign:

www.nottinghamcity.gov.uk/index.aspx?articleid=28 77

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