

Market View: Public Transportation

The Added Value of Public Transportation Security: Creating opportunities for operating efficiency, public communication, revenue generation and cost-savings

The Challenge

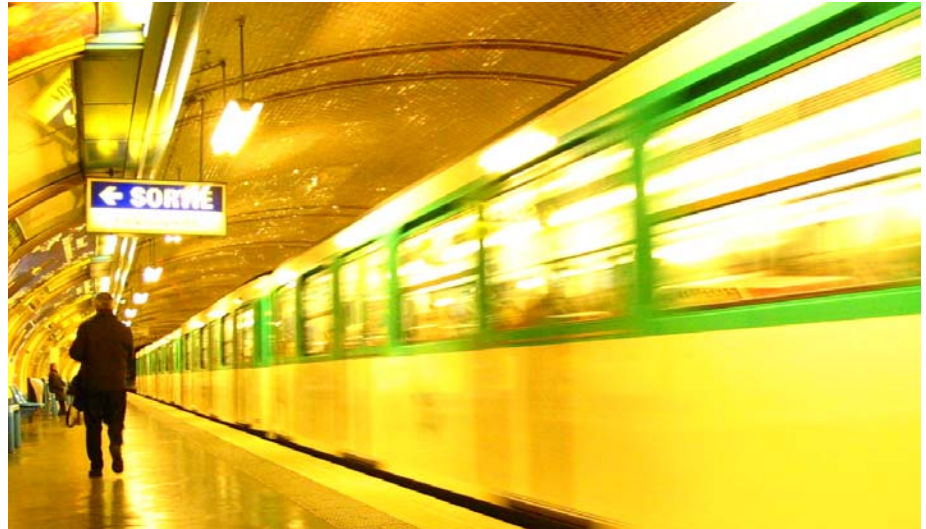
Public transportation, a critical component of transportation infrastructure, is a complex and multi-faceted operation. The need to provide safe, secure and efficient public transportation that meets mobility, environmental and energy objectives is placing increasing demands on public transit systems. These demands, coupled with an ongoing requirement to implement strategies that show a measurable return-on-investment present a significant challenge to public transit authorities.

The breadth of issues and challenges facing public transit authorities of all sizes and locations around the world range from terrorist attacks to the rising price of fuel and from funding to strategies for increasing ridership. The need to address issues both at underground and ground level stations and stops as well as within mobile environments further complicates the matter.

There is a variety of new technologies and best-practices aimed at addressing these widespread issues. The right combination can provide a platform for measurable return-on-investment by providing the tools to; enhance safety and security, measure operating efficiency, communicate with the public, generate revenue and provide for cost-savings.

Safety and Security

Vandalism on buses and in train stations, robberies of transit drivers,



public violence and the threat of terrorist attacks are each a source of passenger safety concerns. Addressing these concerns by minimizing the number of robberies and attacks, providing police with evidence of crimes, reducing vandalism, reducing the number of injuries and deaths, shortening response times to alarms and minimizing false alarms is an important strategy to increase public confidence in the public transportation system.

This can be accomplished with the installation and integration of technology including cameras, fixed and mobile digital video recorders, video analytic, panic alarm, help phone, fire alarm, and access control and intrusion detection systems. Managing these various systems from one central system can significantly mitigate risk by reducing time and errors associated with gathering and associating multiple sources of data. Additionally, an ability to incorporate pre-defined "best-practice" procedures reduces the risk associated with operator decision errors by removing decision-making requirements from operators.

Operating Efficiency

Keeping buses and trains running on schedule is of utmost importance not only for passenger satisfaction, but also assists in fuel optimization.

Efficient scheduling takes into account passenger loads, vehicle location and traffic control systems. Intelligent, on-board transportation systems can integrate this information and use it to create algorithms that assist in keeping transit on schedule. For example, if an on-board automatic vehicle location system indicates the bus is behind the scheduled location and has a passenger load above a set threshold, the intelligent transportation system could send an infra-red signal to the traffic control system to turn all traffic lights green until the bus is back on schedule.

An intelligent transportation system can also gather vehicle diagnostics, fuel usage and other relevant information required to optimize fleet management. This information can be translated into reports, providing public transportation authorities with the information required to make informed and accurate decisions regarding the fleet. Integrating the operating systems with the above-mentioned security systems can assist in information consolidation and allow for faster, more informed response to both operational and security situations. Sharing resources like cameras, sub-systems and sensors also provides a cost-savings opportunity without compromising either objectives.

Public Communication

Public Communication is essential in the event of an emergency, but is equally important for providing passengers with up-to-date information. Public communication can take a number of forms. Scheduling information, next-bus, next-stop, and public announcements can be easily delivered using some of the same operational and security systems discussed above.

Signs at stations or stops can be integrated with the automatic vehicle location system to display the amount of time until the next bus arrives. Additionally, the automatic vehicle location system can be integrated with the on-board public address system to announce the name of the next stop. The scheduling software, along with the automatic vehicle location system and mapping can be used to create transit information tools like an interactive voice response system or real-time schedule website.

On-board and station LCD screens can display messages announcing transit disruptions, route changes or other routine public messages. The same screens could also be used to provide critical information in the case of an emergency. Content delivered to the screens can be stored on the same mobile unit that stores video from the surveillance cameras providing additional value. Help phone or intercom stations also play a critical role in effective public communication and for public safety, easily connecting the public to a central station operator.

Revenue Generation and Cost Savings

Opportunities for revenue generation exist by providing customers with value-added information or services. For example, with the installation of a mesh network, passengers may have the option to subscribe to mobile internet services that can be accessed while on a bus or train. Advertising revenue may be enhanced with the ability to offer new advertising mediums using content delivery and LCD screens.

Public transportation authorities can also realize a significant reduction in litigation costs by using internal and external security cameras along with on-board recording and storage for insurance purposes.

Additionally, the management of all systems from one central system and the incorporation of pre-defined procedures play a role to reduce time and costs associated with operator training and turn-over.

The Platform for Measurable Return-on-Investment

Command and Control Center (3C)

3C is a common management platform providing public transit authorities with a customizable and scalable solution to converge physical security and operational subsystems into one easy-to-manage system. Its ability to integrate and manage third-party systems suits the needs of public transportation authorities by consolidating a vast amount of information from various sources and presenting it a way that will draw an operator's attention to the most critical information.

3C is an intuitive system comprised of four modules; an event management and response module, a mapping module, a virtual matrix module for video management, and an intercom management module.

Event Management and Response

The event management and response module displays notification of an alarm indicating alarm type, description and priority. Alarms can be generated by any integrated subsystem, be it security or operational. The associated predefined procedure for responding to the particular alarm also appears on this screen to guide the operator through the required response actions.

Mapping

The multi-level mapping module is designed to respond to alarms (i.e. fire alarm) from the event management system, instantly



'popping up' a map with an alarm icon to indicate the location of the alarm. The operator also has visual representation of nearby cameras and can double click to display in fast alarm verification.

Video Management

The Virtual Matrix System (VMS) allows operators to view both live and recorded video from multiple sources like analogue cameras, IP cameras and digital video recorders from any vendor.

Video Analytics

The VMS seamlessly integrates with video analytics to detect elements such as motion detection, directional movement or people counting.

Wireless Video

The Visual Defence Eye is a designed for streaming video over narrow bandwidths to allow the ability to access video data on a wide variety of devices including laptops, tablet PCs, rugged PDAs, stationary PCs as well as a range of cellular phone

Mobile Digital Video Storage System

With a removable hard drive, ruggedized hardware and IP-61 compliancy, the Mobile DVSS is a full featured Digital Video Recorder designed for mobile architecture. 6 Power-Over-Ethernet (POE) connections provide direct power to IP cameras with no other power connections required.

Intercom Management System

The IMS is a standards-based VoIP Intercom solution. IMS integrates voice, image and data into one cohesive solution allowing for the ability to communicate across vast distances over the network.