

Case Study

Massachusetts Bay Transportation Authority

MBTA deploys Genetec Omnicast onboard bus fleet to keep community safer



Greater Boston mass transit operator extends video surveillance onboard public transit vehicles and enables access to multiple agencies to enhance mass transit and city safety.

Business challenge

The Massachusetts Bay Transportation Authority, often referred to as the MBTA, operates a massive fleet of sophisticated vehicles including buses, subways, commuter rails and ferries in the greater Boston, Massachusetts area. The entire mass transit system accommodates over 1.3 million passengers each weekday, ranking the MBTA as the nation's 5th largest mass transit system.

Recently, the MBTA secured a Department of Homeland Security grant to improve the security on its fleet, and appropriated the funds to a first-phase upgrade for video surveillance technology onboard 225 of over 1100 buses, which serve 180 routes throughout the city. The existing video surveillance systems onboard MBTA buses were much older, and offered limited video quality. Accessing video also required analysts to physically retrieve a bus' hard drive and download video, which was described by Kenneth Sprague, Deputy Chief, MBTA Investigative Services Division, to be: "time consuming and inconvenient."

A detailed request for proposal was submitted for public tender, stipulating some very specific requirements and the need for a working proof of concept. After careful consideration, MBTA chose the Genetec Omnicast video surveillance system proposed by system integrator, Minuteman Security Technologies.

According to Adam Peters, Transit Security Projects Administrator at MBTA, "The Genetec Omnicast system offered by Minuteman Security Technologies met our price point as well as all of our technical specifications; these included access to live video from our operations control center (OCC), automatic offloading of video to long-term archiving upon buses reaching the terminals, police officer data access to nearby bus systems via cruiser mobile terminals, and a few other custom applications."

MBTA agencies get quick and easy vantage onboard buses

To date, the Genetec Omnicast video surveillance solution has been installed on 220 buses. On each bus, a monitor displays a live camera feed to passengers on the bus, acting both as a public advisory of video monitoring as well as an added deterrent against criminal activities. The MBTA has also leveraged the security

Summary

Client name: Massachusetts Bay Transportation Authority (MBTA)

Organization size: 6,346 employees

Industry: Mass Transit

Location: Massachusetts, USA

Solutions: Omnicast

Partners: Minuteman Security Technologies, Axiomtek, Panasonic, Moxa

technology to promote an interactive public advisory forum, displaying a message "See something? Say something.", alongside a phone number for the MBTA police. Passengers can also use an interactive app from their mobile device to anonymously and discretely report events.

Two departments within the MBTA have live access to the system from their own control rooms, including OCC operations and the MBTA police dispatch. MBTA transportation executives also have system access. To all, the biggest advantage of the Omnicast surveillance system onboard the bus fleet has been the multiple ways in which the video can be easily accessed. In the event of an incident, dispatchers and analysts can view video from the bus through a cellular Verizon 4G LTE connection, facilitating both real-time emergencies and investigations.

"Recently, there was a report of an assault on a bus driver and the dispatcher was able to quickly pull the bus's cameras up and identify the suspect," explained Deputy Sprague. "Within minutes, responding officers had a full description and were able to apprehend the suspect. Omnicast onboard our buses has definitely made our jobs easier, and has been an invaluable tool to law enforcement."

A customized video requester tool has simplified the retrieval of video on-board buses for long-term archiving. Operators send a request to the Omnicast system for a specific instance of video.

Once the bus is back at the terminal, the system will automatically offload the video to the central archiver through a wireless network, and email a notification to the end user once the transfer is complete. This automatic video offloading was enabled by an Omnicast feature called Video Trickling which helps minimize bandwidth consumption.

“We do a significant amount of forensic video analysis for other agencies such as the Boston Police and State Police, and pull events that happen at intersections, bus stations or anywhere around the buses,” continued Jonathan Wing, Video Analyst, Criminal Investigation Unit. “It’s really a benefit to the whole metropolitan Boston area.”

The Omnicast system also uses a GPS integration to dictate what connection mode will be used. For example, when buses are driving through the city, the cellular network is used to transfer video; but once the bus is within the terminal’s vicinity, wireless communication automatically takes precedence. The GPS integration also is linked to the master OCC system and Google maps, letting operators know exactly where buses are within the city.

Custom applications ensure continuous uptime and enhance bus safety

Custom applications were developed using the Genetec open and mature software development kit (SDK). From mobile data terminals in police cruisers, officers can tap into a nearby bus’s Omnicast system in the event of an emergency. According to Deputy Sprague, “It’s a great safety feature for the officers on the street because they know what they are walking into. They are more prepared to address the situation and also to protect themselves.”

Another application was specifically developed to help bus driver’s alert OCC operators of distress onboard the bus through integration of a panic button alarm. “The bus driver has control of the panic button which prompts an alarm at the OCC. Operators can then click on the alarm to automatically connect to Omnicast system to see what’s going on,” said Peters.



Minuteman Security Technologies developed a customized health monitoring tool for the MBTA, called Transit Sentry, which automatically emails a daily health diagnostic report to Peters to ensure all bus systems are fully functional. Transit Sentry allows Minuteman Security Technologies to provide remote troubleshooting and system maintenance through the application’s web-based interface as part of a comprehensive maintenance program.

Gradual expansion continues to benefit multiple stakeholders

While MBTA is in the process of upgrading another 60 buses, its long-term objective is to gradually enhance the video surveillance systems on all 1100 buses. Meanwhile, Omnicast’s robust Federated architecture has been extremely beneficial to the organization, helping MBTA manage all systems as one from two centralized locations while still preserving departmental autonomy in day-to-day operations.

“Omnicast has provided impressive capabilities for MBTA to respond in real-time while providing video to various stakeholders,” concluded Peters. “Customer and driver feedback shows that they feel safer. Being able to keep people safe by deterring various types of incidents or to extract evidence— it’s invaluable.”

Infrastructure at a Glance

Each bus is outfitted with two 360-degree cameras, one interior fixed high-definition camera, and three external 720p high-definition cameras, all from Panasonic. Video is continuously recorded and stored on each of the bus’s Axiomtek network video recorders (NVR). To support the sophisticated infrastructure of this application, Ethernet switches from Moxa were selected for industrial-grade reliability, network redundancy, and seamless integrated security.