Connecting a Sustainable Transport System for a Greener Future with IoT

Our role is more than getting people from A to B quickly. We want to make our city cleaner and greener, and contribute to a better quality of life for everyone today and in the future.

Challenges

The City Transport Authority (CTA) introduced new rules on air pollution, which meant that the CTA had to reduce and monitor pollutant emissions from its fleet of diesel and hybrid buses by 2020. In doing so, the CTA is aiming to reduce the running costs and enable additional assets to be added to the fleet. With sustainability to the forefront of the operations, the solution needs to be cost-effective and demonstrate environmental sustainability.

- **Mobile** With thousands of assets running across hundreds of service routes, the solution needs to operate remotely in the field

- **Secure** All data emissions from the connected vehicles need to be secured and made available in a private cloud; the solution should be compliant with industry security regulations, e.g., ISO27001

- **Efficient** The solution needs to be flexible and self-sustaining with minimal impact on the day-to-day operations

The City Transport Authority

INDUSTRY
Transportation

BENEFITS
- **Zero Disruption:** Simplified install procedure; done in minutes, no disruption to running systems

- **OpEx Driven:** Insights into monthly data usage patterns, data anomaly reporting and controls

- **As a Service:** Managed as a service, zero requirement for networking infrastructure and expertise

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Our transport systems are the gold standard to which cities worldwide aspire to. Security of our systems is top priority. Partnering with Akamai who are also ISO27001 compliant, gave us the confidence that we were choosing a world-class solution for our vehicle connectivity.

– Chief Security Officer, CTA

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Solution Deployed

The CTA retrofitted nitrous oxide and particulate matter reduction systems and SIM-enabled data loggers to more than 4,000 buses in its fleet. The CTA worked with Akamai to securely connect each vehicle in its fleet and the environmental-related emissions data gathered from the data loggers to a private cloud. This secure edge-to-cloud connection from each bus logger to a cloud-side server database provided for continuous real-time data transmission.

The private IoT connectivity off the public internet, ensures that the CTA remains free from the unwanted attention of cyberterrorism. In addition, the network insights helped to identify devices that are exhibiting abnormal behavior, on which corrective action could be taken.

The private network provided a scaled pool of static IP addresses, simplifying identification and scheduling of maintenance on a per-vehicle registration basis. The bidirectional connectivity enabled system administrators to manage the solution from a centralized location, while the vehicles were in service, hence minimizing disruption to daily operations.

Results

The CTA has benefitted in several ways from deploying Akamai SPS Secure IoT as part of the overall connected vehicle solution delivery:

Sustainability
The CTA was able to achieve a 99% reduction in emissions. By utilizing the shared resources of mobility and cloud, the solution is future-proofed from day one, making it economically viable as more vehicles were brought into service.

Expenditure reduction
The solution is delivered as a managed network as a service, thereby eliminating long-term contracts. By retrofitting buses, the CTA was able to save on the cost of acquiring replacement vehicles.

Operational efficiencies
The solution improved scheduling and routing of vehicles for maintenance, over-the-air updates, and maintenance of environmental systems on the vehicles. It provided real-time insights and data control of monthly data usage.

Akamai makes secure connectivity simple for any size of mobility or IoT deployment in a hyperconnected world.

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> A core concern for us was the ease in which we could connect, secure and manage a vast fleet. Not only did Akamai simplify the secure rollout, they give us the insights we need to maintain a healthy operation.
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> **Director of IT**
> CTA

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The City Transport Authority (CTA) is tasked with managing the public transportation infrastructure for one of Europe's largest metropolitan cities. The CTA is responsible for over 8,500 buses travelling on 673 routes, operated by 12 different companies, carrying over 2.3 billion passenger journeys per year. They oversee the day-to-day operation of the public transport and road networks, with a mandate to build a more sustainable future and to make the great city more greener and safer for everyone.