Santa Clara Valley Transit Authority Gets Cutting-Edge Transit Solution

Santa Clara Valley Transportation Authority

Solutions that move you

Envigilant, an Allied Telesis managed services provider, implements passenger information and paratransit fleet monitoring for the Santa Clara Valley Transportation Authority (VTA).

THE CHALLENGE

Allied Telesis first worked with VTA in 2011, providing a secure, upgraded network to accept Clipper® cards. VTA is based in San Jose, California, and is responsible for bus, light-rail and paratransit operations throughout the area known as Silicon Valley. More than 40 million passengers move through this network of buses and light-rail vehicles (LRV) every year.

In 2014, VTA approached Allied Telesis again, this time for help improving passenger information throughout the light-rail network. At that time, the network consisted of 42 miles of track and more than 100 platforms. VTA's primary requirement was to capture data that would allow them to improve the customer experience—and in turn increase public transport usage and reduce traffic congestion in the Santa Clara region.

VTA also wanted better monitoring of their fleet of paratransit vehicles. These provide transport to those with disabilities or who are unable to independently use bus and light rail. The priority was to ensure passenger safety throughout the entire journey.

SOLUTION

To meet VTA's requirements, a Passenger Information Monitor System (PIMS) was deployed on each light-rail platform. This allowed delivery of real-time arrival information, notification of service changes, and public safety announcements. Ruggedized large-screen displays and a hardened industrial-grade server—a miniaturized datacenter server called EtherGRID—were deployed on each platform, to cache content and drive the displays. A customer feedback station was installed on each LRV to measure passenger satisfaction.

Each paratransit vehicle was also fitted with a small EtherGRID system consisting of a ruggedized server, location-based router for GPS and internet backhaul, and various sensors including high-definition video cameras. These allow automatic video recording of passenger loading and unloading, and a live "look-in" facility to ensure safe practices are followed. It also collects engine diagnostics to record how vehicles are driven, and capture useful maintenance data.

At the VTA datacenter, a fully-featured Content Management System was deployed to enable VTA staff to manage PIMS content and view the status of the network in real time. A dashboard application also shows a real-time, map-based visualization of the location of each vehicle in the fleet. It provides live look-in video, and safety incident reporting with heat maps to show long-term trends.

For the solution to be successful, it had to be capable of receiving and processing large volumes of data, particularly video, that would consume bandwidth and storage in the datacenter. As such, the network capacity needs were calculated prior to installation, and new equipment was deployed to increase VTA's datacenter capabilities.

SUCCESS

VTA deployed the Envigilant Transportation solution from Allied Telesis in 2015. Since then, the solution has been in everyday use on the VTA network, providing reliable fleet monitoring, emergency communications, and real-time LRV arrival information across all light-rail stations.

FUTURE SOLUTIONS

Envigilant provides an ideal platform for future expansion, and will easily scale to include:

Provision of on-board video surveillance and analysis to provide a means for tracking individuals through the transport system. This could provide useful for assessing rider journey patterns, but would also be of interest to public safety agencies, for example to help investigate crimes, or automatically identify missing persons if they are in the transport system.

Data acquisition from existing on-board sensors for propulsion, braking, HVAC, and door systems to provide operational and maintenance data to identify optimum maintenance schedules.

Integration with additional safety-related sensors, such as smoke and fire detectors, explosives sensors and on-board gunshot detection.

CONCLUSION

The result of the Envigilant Transportation deployment is that VTA passengers enjoy up-to-the-minute travel information on platform displays, along with emergency alerts and notifications to make their journeys easier and safer. VTA also benefits from video coverage of all paratransit journeys, providing safer transportation and better-maintained vehicles. Since deployment, ridership numbers and customer satisfaction have both improved. VTA has better visibility of their assets, and is thus able to take more responsibility for passenger safety.

Envigilant is an industrial IoT services platform by Allied Telesis. Built from open technologies, it increases profitability by improving process efficiencies for manufacturers, transit operators and smarter industries everywhere.

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