

Valley Metro in partnership with LILEE Systems achieves 85% passenger satisfaction score with onboard Wi-Fi.

Valley Metro is the 13th busiest light rail system in the United States with 26 miles of double track, 35 stations, and an overhead catenary of 750 Volts. Valley Metro serves over 16 million riders annually, with an average of 51,000 daily weekday ridership.

Challenge

To increase overall passenger satisfaction and ridership to serve the community in the Phoenix metropolitan area, and after an independent ridership survey showing 97% of respondents wanted onboard Wi-Fi during their commute, Valley Metro started to explore the implementation of a connectivity solution onboard their light rail vehicles (LRV) that would allow them to provide Internet access to their daily commuters and to enable operational applications and services.

The two-sided vehicles of Valley Metro can accommodate 175 passengers with a maximum capacity of 226. An onboard connectivity solution would require providing reliable, “always-on” Wi-Fi Internet to all passengers with a bandwidth capacity that supports uninterrupted social media, video streaming, email, and web browsing, at an average train speed of 45mph. The trains already have an onboard train management computer (TMC), public address amplifier, surveillance cameras, and a network video recorder (NVR). Therefore, the new solution would also integrate the TMC and NVR to simplify the current network architecture and provide remote diagnostic capabilities before the LRV returns to the yard.

Solution

LILEE Systems Connectivity-as-a-Service Solution consists of a modular mobile IoT gateway, a virtual back-end, live help desk, and support services. The primary platform is the LMS-2450-ME-100 mobile

IoT gateway, equipped with five 4G-LTE radios and connected to the cloud-based virtual LILEE Mobility Controller (vLMC). LILEE’s Dynamic Weight Load Balancing algorithm efficiently aggregates the capacities of each radio into one virtual communications channel. LILEE’s management software suite is a web-based service that provides the user interface for all administrative functions to provision, configure, manage and monitor the onboard mobile gateway.

During phase one, LILEE provided Valley Metro hardware, software, and support services, as well as comprehensive operational reports to give the operator insights into passenger behavior, usage, and operations. LILEE started with the installation, and configuration of passenger Wi-Fi and onboard operational connectivity in two-car trains along predefined sections of track. The selected route included three right angle turns as well as stops to test the resilience of the LILEE onboard mobile gateway.





Valley Metro Light Rail Case Study

During phase two, LILEE will provide connectivity to the TMC and NVR systems to enable remote operations management that are not currently available. It will streamline fleet dispatch, maintenance, and real-time CCTV, while enhancing train safety and security. Connectivity and remote operations management will be provided by the same onboard LMS gateway and cloud-based vLMC, minimizing the time and cost of implementation.

Results

The delivery of the LILEE Systems Connectivity-as-a-Service Solution for Valley Metro demonstrated a successful deployment of passenger Wi-Fi and reliable connectivity between the light rail vehicles and the operations office. LILEE Systems also demonstrated the benefits of their managed services that allowed Valley Metro to:

- Increase customer satisfaction with reliable, “always-on” passenger Wi-Fi and excellent technical support, receiving 85% satisfaction score among their riders
- Monitor the condition of the onboard network from the operations control center (OCC) with real-time visibility into vehicle locations, speed, passenger Wi-Fi and cellular data usage
- Manage the use of cellular links intelligently with dynamic selection of lower-cost cellular links
- Enable future operational and safety applications using the existing, scalable, and modularized connectivity platform

After the successful proof of concept, Valley Metro received detailed data statistics that revealed the

amount of data the riders were consuming, the types of their online activities, the devices they were using, and the health and usage of the connectivity platform and various cellular links. The valuable information allows Valley Metro to design and develop more targeted passenger services, such as infotainment and mobile advertising, to build customer loyalty and generate new revenue streams.

LILEE’s subscription-based service includes:

- Enterprise class passenger Wi-Fi
- Secure connectivity
- Edge computing for IoT applications
- Application enablement platform
- Cloud-based management
- Real-time analytics
- Technical support

About LILEE Systems

LILEE Systems, recently listed as an Inc. 500 fastest growing private company, delivers integrated, open, and reliable industrial IoT wireless and wired connectivity solutions incorporating hardware, software, and services. LILEE solutions are improving operating efficiency and reducing costs in a wide range of industries. LILEE is headquartered in Silicon Valley, with offices in Taipei and Amsterdam.

Contact LILEE Systems today to learn more about our solutions and discuss business opportunities.

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