

While bus operators can increase and retain ridership by offering high-quality passenger Wi-Fi, the business benefits don't stop there. The business case for fast, secure, and reliable mobile connectivity becomes even more compelling when a wide range of applications and services are integrated into a single communications hub. With Bus Connectivity solutions from LILEE Systems, operators gain a single, integrated, and open IoT platform to provide high-performance connectivity, surveillance and safety, onboard infotainment and advertising, and fleet and network management.



Connected Bus: Integrated IoT platform for Operational Efficiency

The LILEE Systems Connected Bus solution is designed to help bus companies improve operations and generate new revenue streams. It begins with LILEE's intelligent IoT gateways that offer multiple wired and wireless connectivity options for the highest amount of throughput at the lowest possible cost. LILEE SafeRide™ protects passengers, drivers and assets with real-time and on-demand videos. LILEE T-Cloud, the centralized management platform provides valuable insight on remote devices, network performance, user statistics, ridership reports, and more.

LILEE Systems simplifies the way operators enable a connected bus fleet for a better passenger experience and improved efficiency and safety.

The LILEE Systems Connected Bus Solution

Reliable Connectivity

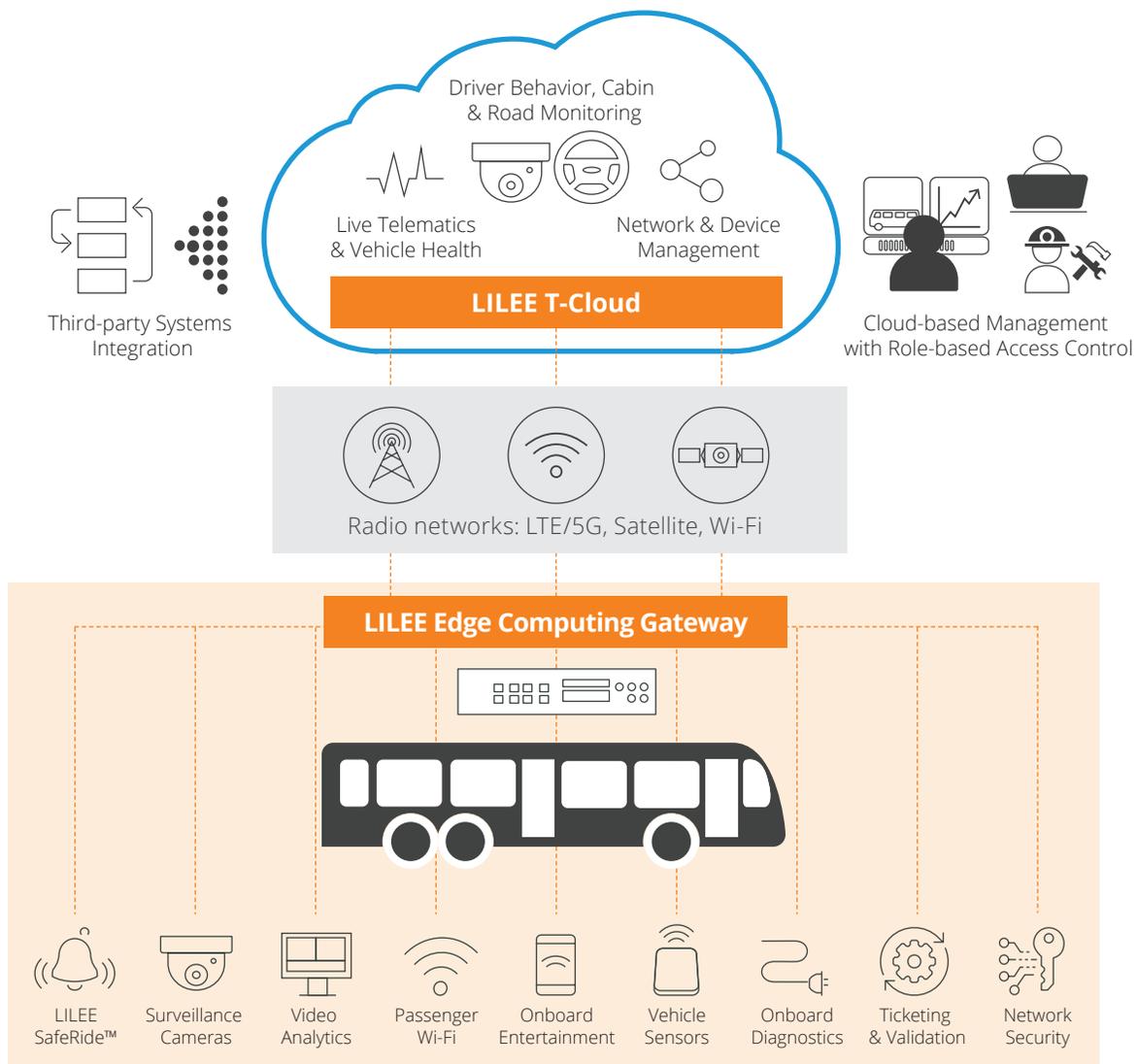
LILEE's industry-leading link aggregation and dynamic load balancing technologies provide reliable, always-on wireless connectivity, secured through Layer 2 tunneling and SSL encryption. LILEE detects and reports malicious and "man-in-the-middle" attacks on the network.

Video-Based Safety

SafeRide provides video feeds of drivers, cabin and road conditions integrated with data like hard brakes, speeding, idling and DTC codes. This video-based intelligence fills in missing information and is available both in real time and on demand to ensure safety, eliminate uncertainty and mitigate risk.

Centralized Management

LILEE provides operators with tools to self-manage passenger Wi-Fi services, monitor and update remote devices, and support cellular routing optimization to maintain high-quality network performance. Operators can also configure access control through a powerful and user-friendly web interface.



5-in-1 Integrated Solution

CLOUD MANAGEMENT	Manages communications protocols, dynamic distribution of data, asset register, third-party application management, and over-the-air updates to all integrated systems.
COMMUNICATIONS HUB	Provides intelligent and secured communications, aggregating multiple links and performing least-cost routing.
EDGE COMPUTING	Includes powerful computing capability to run third-party software. Enables local analytics to avoid non-critical data transmission.
APPLICATION INTERFACES	Ensures maximum consolidation of systems via industry-leading interface density and variety.
SENSORS	Incorporates GPS, gyroscope and accelerometer, digital I/O, and OBDII.

Intelligent Communication

Flow-Based: The LILEE mobility controller aggregates multiple cellular networks to deliver the best possible and least expensive mobile broadband service. It also enables monitoring of signal strength, packet loss, and throughput to improve the passenger Wi-Fi experience.

Event-Based: When data transfer becomes time critical, LILEE edge computing allows operators to control when real-time data should be transmitted by integrating sensor information and video analytics. For example, a security incident on a bus would trigger video streaming, or cabin temperature exceeding a threshold would trigger sensor data transfer immediately.

Media-Based: LILEE's on-board storage capacity and northbound Wi-Fi enables third-party data to be stored until Wi-Fi become available for off-load. There is no need to have data collected manually, as this occurs the moment the bus returns to the garage.

Reducing Capital and Operating Expenses

The LILEE edge computing gateways can run an operator's third-party applications and removes the need for multiple mobile gateways, antennas, and cabling. LILEE's support for flow-based, least-cost routing enables operators to further reduce capital and operating expenses.

Account Management

Each operator's LILEE account manager will maintain a solid working relationship by serving as the liaison for support requirements, including roadmap updates, third-party application integration/management, billing, reporting, and escalations.

Flexible Purchasing Options

LILEE's bus connectivity solution is optionally available as a fully managed service subscription for trouble-free and cost-effective operation.

The LILEE Systems Connected Solution Components



STS: Cloud-Enabled IoT Gateway

- Compact, industrial-grade form factor
- Cloud and edge-computing architecture enabled
- Two dual active/standby LTE-A, dual Wi-Fi, and gigabit switched power over Ethernet, plus integrated sensors including advanced GPS
- Application server to run third-party applications for edge computing



LMS: Scalable and Hardened IoT Gateway

- Industry-leading modularity and scalability
- Rail-certified rugged design well-suited for use on mobile assets such as locomotives, buses and maintenance and construction vehicles
- Smart Modules and Interface Cards available for a wide variety of configurations, including gigabit switched power over Ethernet, GPS, and Wi-Fi
- Supports up to 10 LTE SIM cards



vLMC: Virtual Mobility Controller for LILEE Gateways

- Manages aggregation of asymmetric links, such as LTE and Wi-Fi
- Operations-prioritized communications for cost and performance control
- Link aggregation, link monitoring, channel bonding, dynamic weight load balancing to maintain link quality



T-Cloud: Cloud-Based Management Platform

- Centralized cloud-based device, network and application management
- Fully Managed infrastructure to support SaaS
- Seamless integration with third-party applications, GPS, and sensor data through open APIs to support end-to-end solutions

About LILEE Systems

LILEE Systems, 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.



LILEE Systems Gateways support Buy America requirements

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