

We live in a connected world with apps and cloud based services on every smartphone, tablet and PC. There is tremendous value in connecting people and things not only at fixed locations, but also while on the move. New customer experiences can be created, ways to optimize operations can be discovered and more revenue streams can be generated. As a bus fleet operator, you can:

- Enable services like onboard Wi-Fi, real time travel updates and infotainment for superior customer experience
- Enable remote diagnostics to minimize delays e.g. a stuck door in a bus 100 miles away analyzed from your control center
- Monitor and improve driver behavior by looking at sudden acceleration, turns, braking and over speeding

## The Connected Bus

The way to creating the value is to transform your bus into a connected bus. What it means is:

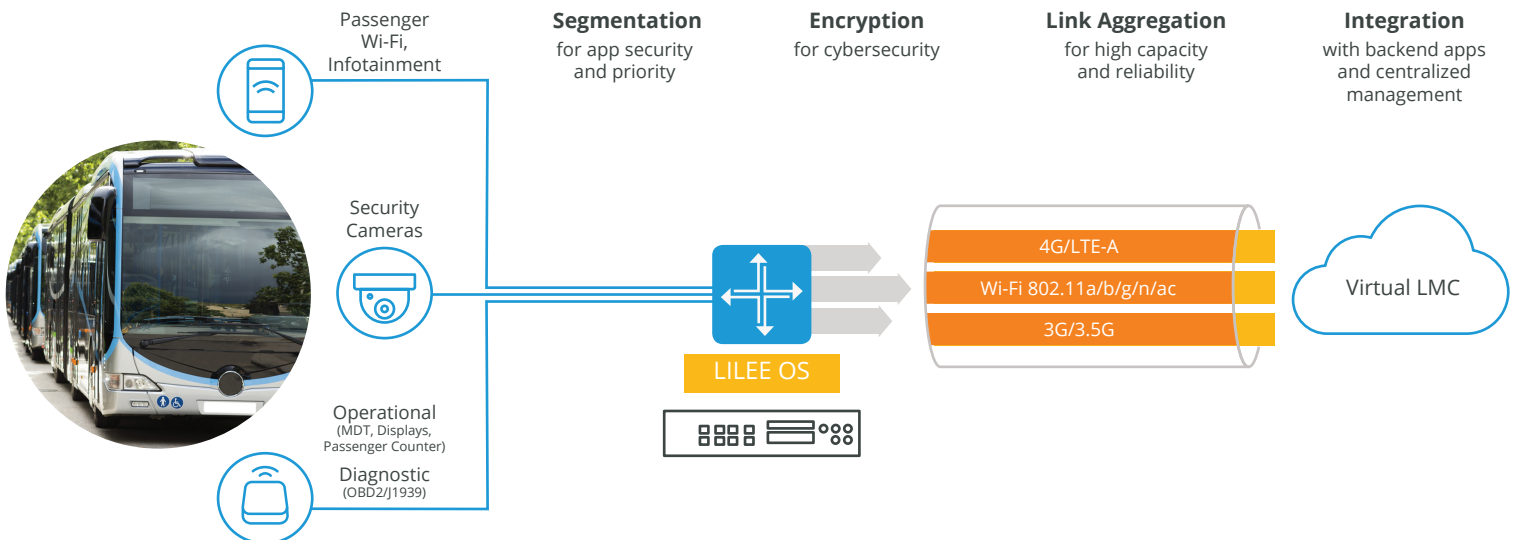
- Always on Connectivity**  
 For onboard devices, sensors and applications like onboard computer, CCTV cameras, ELD, fare machines, vehicle diagnostics and riders' personal devices to the cloud/data center
- Intelligent Management**  
 Of the bandwidth requirements of onboard devices by segmenting and prioritizing critical applications
- Open Platform**  
 To introduce new software applications faster for your bus fleet
- Simplified Onboard Architecture**  
 To reduce operational complexity and total cost of ownership

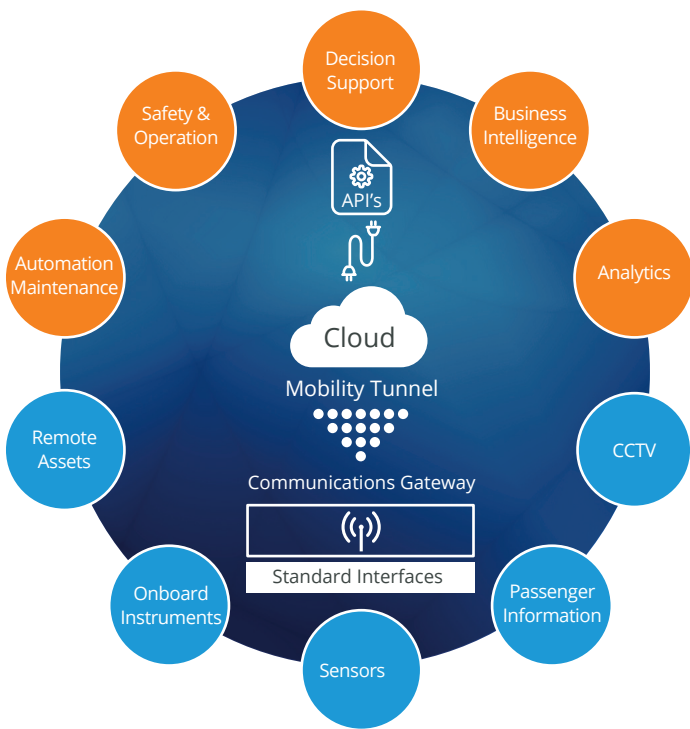
## Challenges

- Device Proliferation**  
 Traditional connectivity architecture requires multiple devices, routers, and antennas onboard a bus resulting in unsustainable and expensive operations
- Gaps in Wireless Coverage**  
 There may be areas along the route with inadequate or zero Wi-Fi, cellular or radio connectivity
- Bandwidth Conflicts**  
 New types of applications create bandwidth constraints and interference with bus operations

## The Connected Bus with LILEE Systems

You can transform your fleet into a connected bus fleet by addressing these challenges with LILEE's Connected Bus solution. The comprehensive solution encompasses edge gateways with up to 10 LTEs, cloud-based management and analytics and onboard/backend integration.





### Wireless Connectivity to Your Cloud/Control Center

LILEE's Connected Bus solution provides enterprise class wireless connectivity to all onboard devices like onboard computer, cameras, ELD, fare machines, vehicle diagnostics and riders' Wi-Fi devices. You can eliminate multiple connectivity devices, antennas and associated management. Bus operations get zero interference from passenger Wi-Fi devices as they are segmented.

### Enterprise Class, Always-on Connectivity

Aggregates multiple links up (cellular, Wi-Fi and radio) for high capacity, and provides up to 99.999% uptime. The solution dynamically balances load thus maximizing link usage despite quality degradation (e.g. LTE becoming 3G).

### Compute Platform for Software Applications

The onboard edge gateway has embedded processor and expandable storage to host and run Windows, Linux, and Android software applications, without the need for additional onboard servers.

### Cloud-based Management and Analytics

Provides a web-based user interface to manage configuration and remotely monitor connectivity. The solution includes auto-onboarding of gateways, alerting and reporting of events and connectivity, fleet & passenger analytics.

### Turn Key Solution

LILEE's Connected Bus solution includes the implementation of your fleet's connectivity platform and the integration with existing devices and back-office applications.

### Cybersecurity

Securely encrypts data using AES 256 encryption to protect against cyber attacks.

## Methodical Approach to Lower Cellular Data Cost

LILEE Connected Bus solution uses a methodical approach to lower cellular data cost for each vehicle.

1

Selects the **best available least cost link** based on predefined criteria – data transmission cost, latency, or throughput

2

Prioritizes **critical applications** over less critical ones like browsing the Internet

3

Throttles **data usage** by bandwidth hungry applications and users, and blocks unwanted content

4

**Caches** Internet content<sup>1</sup> and **serves local content** like infotainment

5

**Processes vehicle operational and security data locally**, and intelligently determines what data to send to the cloud in real time

## Cloud Based Analytics

LILEE's Connected Bus solution provides connectivity, fleet and passenger analytics for real time monitoring and historical analysis. Key analytics data: they are available for each vehicle in LILEE's T-Cloud.



### Connectivity

Total cellular data used per bus, cellular quality index based on provider technology in use (CDMA, 2G, 2.5G, 3G or 4G), latency and throughput



### Fleet Management

Real time vehicle location, snail trail on Google maps, 6-point driver behavior based on sharp turns, sudden braking, and vehicle diagnostics



### Passenger

Number of personal devices connected to the Wi-Fi, most accessed applications and websites, and Wi-Fi bandwidth usage per device



## Conclusion

Gartner, a leading industry analyst firm, says 89% of marketers expect customer experience to be their primary differentiator by 2017<sup>2</sup>. And a connected bus helps achieve that and efficiency through optimization and predictive maintenance.

As the industry's first to offer full link aggregation and dynamic load balancing, LILEE Systems can partner with you to achieve greater value from your bus fleet while lowering costs.

Contact LILEE Systems at [sales@lileesystems.com](mailto:sales@lileesystems.com) to discuss your onboard connectivity needs for your bus fleet. To learn more, please visit [www.lileesystems.com](http://www.lileesystems.com)