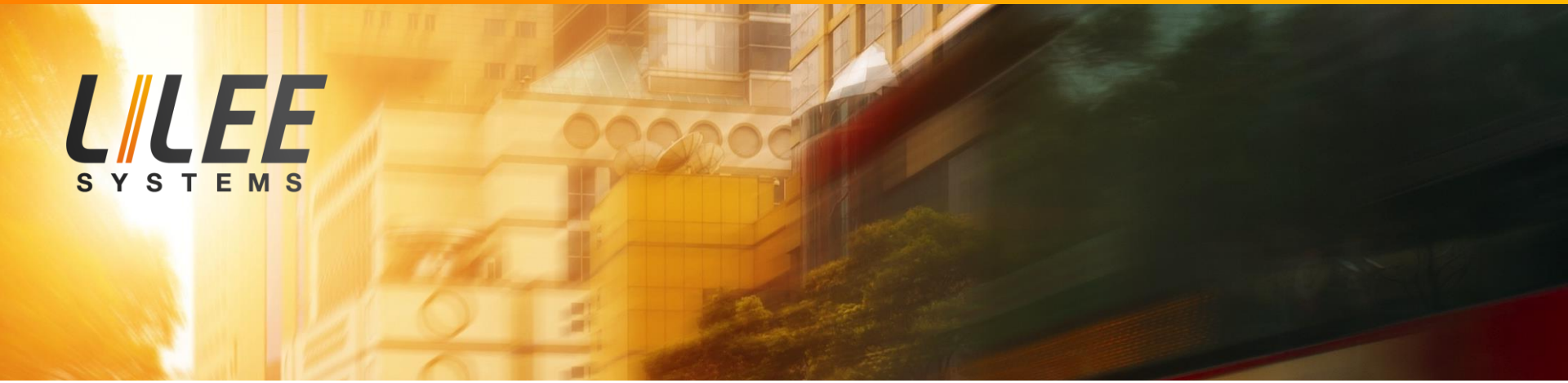


Onboard technology for real-time applications

Increased operational efficiency and lower total cost of ownership

Edward Brandis, Jr.
Director of Business Development, Public Transit
April 2018

Connected Vehicle

Single Connectivity To All Onboard Devices. Cloud Managed.

Dual active, dual redundant LTE/LTE-A for remote monitoring and access

802.11AC

MIMO 802.11AC for video offloading and in vehicle client connectivity

Advanced GPS positioning for fleet management

Gyro for Driver Behavior

J1939 for Vehicle Telemetry

Application engine for integration and 3rd party

Advancements in onboard ITS solutions are don’t reach their full potential

- AVL reporting epochs are faced with limitations in how frequently vehicles can report and how much data they can provide with each report. More frequent reporting = increased granularity = higher cost
- You have to be selective about which data and how much can be sent in real-time
- Data is filtered and down-selected onboard
- CCTV and APC systems are able to perform facial recognition and distinguish ordinary from suspicious objects but may not be able to communicate in real-time
- Decisions are made regarding what data can wait to be downloaded via Wi-Fi once or twice a day
- Advancements in real-time time schedule and route changes require greater bandwidth
- Passenger amenities and new revenue streams such as Infotainment require performance and full coverage

Trying to achieve the full potential of your ITS applications with conventional plans is cost prohibitive and complex

- Limited – Unlimited

$30

- 5Gb
- Pooled v. un-pooled

$47.50

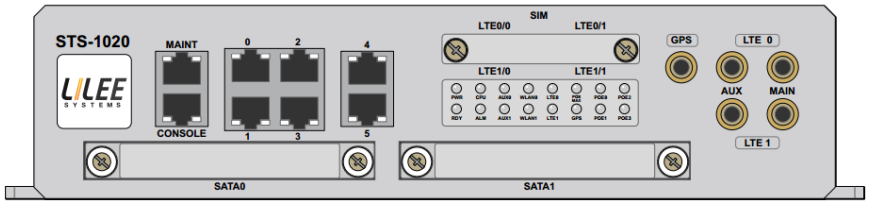
- 10Gb
- Overage: $25 per 10GB

$50

- Throttle to lower speed when plan is exceeded

$40

Intelligent Mobile Gateways increase operational efficiency and lowering the total cost of ownership



- Manage 4 SIMS as 1
- Link aggregation across multiple providers (including local providers)
- Lower cost than multiple individual cellular plans
- Get out of the SIM management business all together.
- Pay for only the data that you need while ensuring complete coverage
- Manage how applications use the data

Link Aggregation For Cost and Quality Management

Onboard
Mobility Server

Link Aggregation

LTE from ATT/VZ

LTE from Sprint/T-Mo

Wi-Fi 802.11, Radio, Satellite

Band 14 (Firstnet)

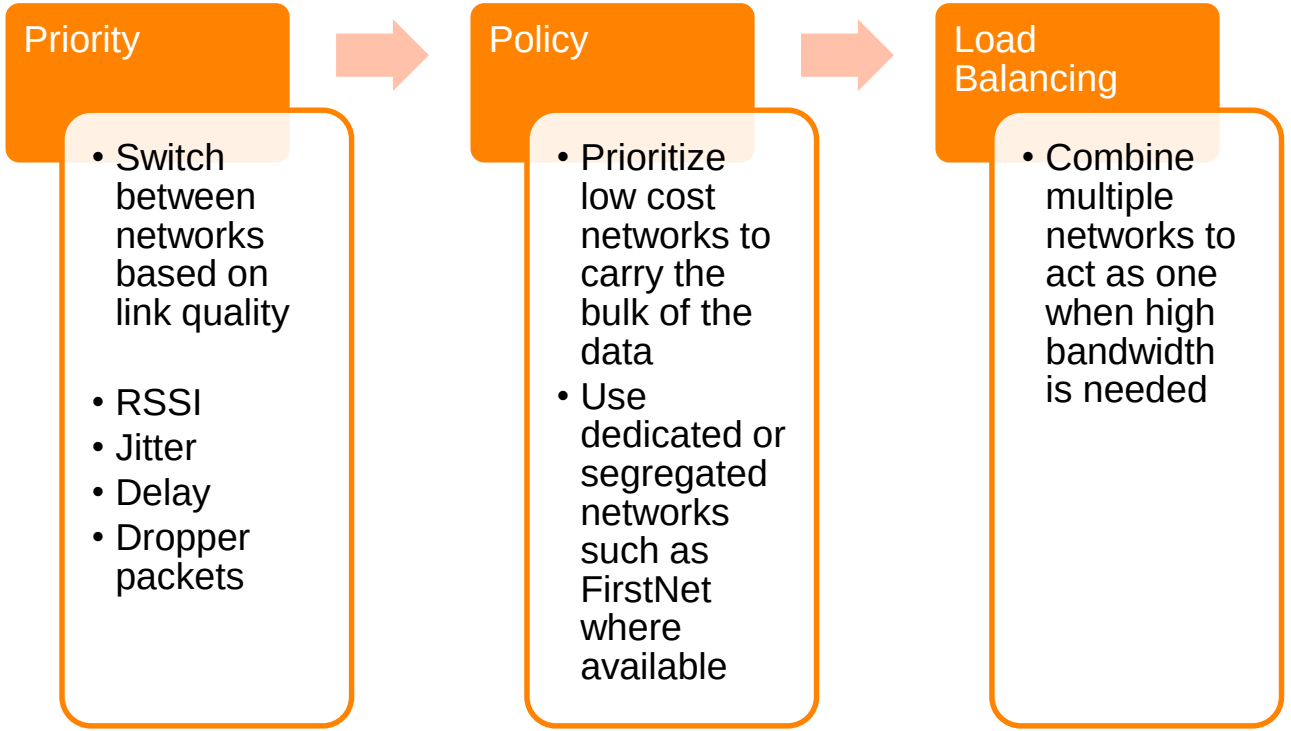
Fluidmesh

Control
Center

Static			Dynamic		
Equal	Preferred	Signal Strength	Latency	Packet Loss	Geofencing

Reduce LTE costs while increase coverage

Link Aggregation For Cost and Quality Management



Application Traffic Management For Cost and Quality

Business Policies
Prioritize business critical applications on the best connections (app based traffic shaping e.g. safety vs. public Internet)

Fair Use/Quality
Limit/throttle bandwidth use of any application (Fair share of available bandwidth to avoid misuse)

Security
Block out of policy websites/content
Custom splash page for T&C*

Caching/Cost
Local infotainment and caching of content to reducing cellular access

Manage end user Quality of Experience (QoE)
Optimize usage of LTE data for higher ROI

Use Case: Silicon Valley Tech Companies

WeDriveU®
Your Car...Our Chauffeur℠

Benefits:

- Attract and retain talent
- Improve productivity
- Boost sustainability

Features:

- Seamless and secure network
- Proactive monitoring
- Internet Policy as if in the office

7 TB
of Data per month

70,000
Clients per week

0
Backend outages

1 hour
Time to turn on services

Google TESLA twitter LinkedIn salesforce

Provide high throughput connectivity at freeway speed to provide extended office


LILEE
SYSTEMS

5 Steps to Accessing Real-Time Data

Methodical Approach to Lower Cellular Data Cost

1. Selects the best available least cost link based on predefined criteria – data transmission cost, latency, or throughput
2. Critical applications can have priority
3. Throttles data usage by bandwidth hungry applications and users, and blocks unwanted content
4. Caches Internet content and serves local content like entertainment
5. Option to processes vehicle operational and security data locally, and intelligently determines what data to send to the cloud in real time