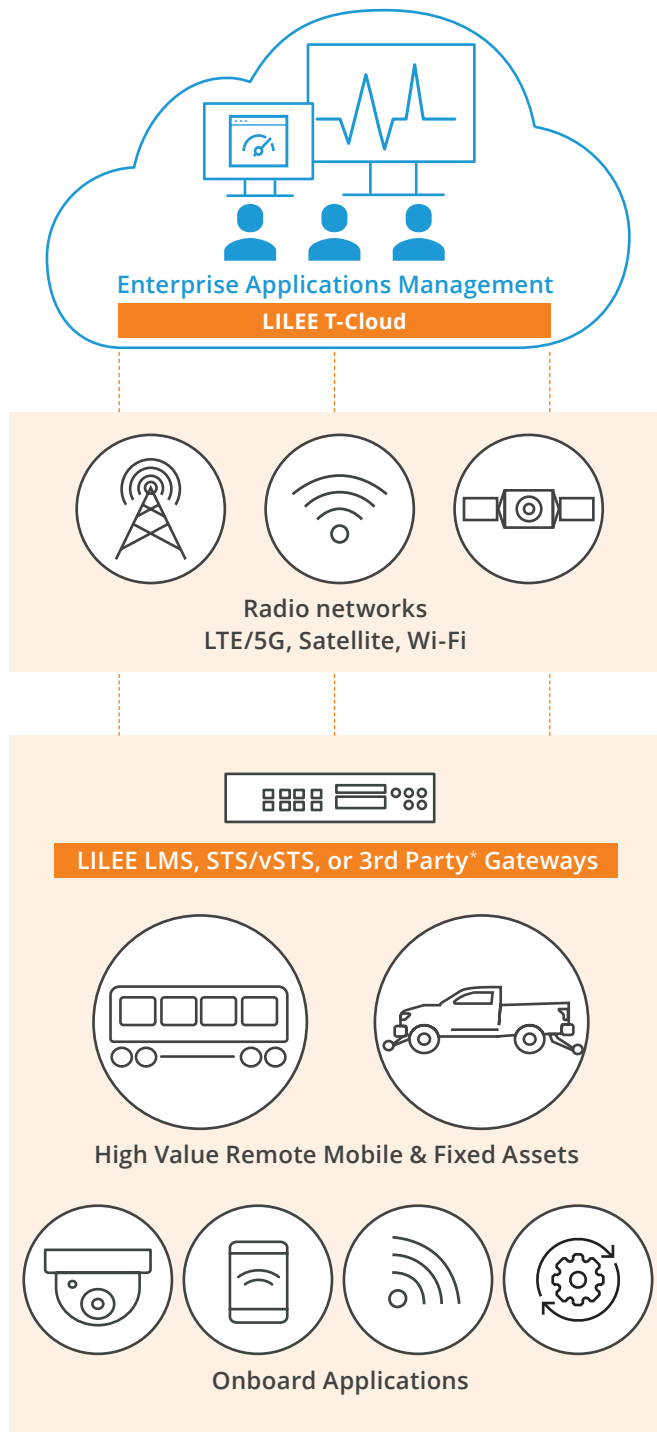


SD-WAN Cloud Networking

Policy-driven WAN virtualization and edge connectivity abstraction with elastic traffic management provides load balancing, cellular aggregation, and effective cost management



*The 3rd party gateways must be subject to LILEE's evaluation for compatibility.

Railroads depend on cellular networks for mission-critical applications. Despite advances in technology, guaranteeing network availability, mapping costs and ensuring quality of service can be challenging. Realistically, users experience gaps in service when radio connections become unstable, only a fraction of the advertised bandwidth can be achieved even under ideal conditions, and lack of transparency prevents effective cost containment.

LILEE SD-WAN is a cloud-ready solution that uses L2 tunneling technology to abstract underlying radio, wireless or physical links into logical connections. It creates virtual private network to ensure secure and reliable connectivity. Dynamic load balancing continuously monitors and measures links for loss, latency and congestion and then uses policy-based rules to optimize paths for traffic supporting mission-critical applications.

SD-WAN provides:

Simplified Management

- Advanced cloud-based remote device configuration and upgrades
- Zero-touch deployment
- Public cloud or hybrid topology

Reliable Connectivity

- Aggregation of asymmetric links such as LTE, Wi-Fi, and Gigabit Ethernet
- Link monitoring and dynamically weighted load balancing prevents link quality degradation and failures
- Quality of service (QoS)

Security

- Secure Layer 2 tunneling with DTLS encapsulation to carry user traffic between mobile remote platforms and applications
- Continuous IP connectivity between mobile remote platforms and applications in the cloud

Ubiquity

- End-to-end IP layer routing transparent to carrier technologies
- Topology-agnostic connectivity hides complexity of underlying network and supports mobility across heterogeneous networks

Net-Ops Intelligence

- Machine data analytics
- Event detection
- Real-time fault detection

Benefits of LILEE SD-WAN

Customization of network policies for different services on mobile and fixed assets. Optimized link aggregation to **support large data transfers** such as locomotive videos and log files

Lower operating and capital expenses through management and optimization of data costs and roaming / overage prevention across distributed systems



Continuous IP connectivity reducing the need to re-establish connections when connections and IP addresses are dropped, **maximizing uptime** for critical applications

Seamless provisioning of connectivity and services from the cloud

A virtual network secured by DTLS-encrypted tunnels providing **secure connections** between locomotives and the back office

To learn more about the LILEE Connected Rail with SafeRide or schedule a demo, please contact Kevin Nichter at Kevin.nichter@lileesystems.com or call +1 502-438-6950.

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