# Using In-Vehicle Networks to Securely Connect Modern Public Transit Technologies

LTE Solutions for Highly Reliable, Secure & Centrally Managed Connectivity

To increase ridership, optimize operations, and drive new revenue streams — all with public safety and the bottom line in mind — public transportation agencies are finding more ways to use connected devices and applications in vehicles. From buses and trains to trolleys and ferries, mass transit authorities see the value of telemetry data, real-time surveillance footage, advanced payment systems, GPS for route status apps, and rider Wi-Fi. However, all of it depends on highly reliable connectivity.
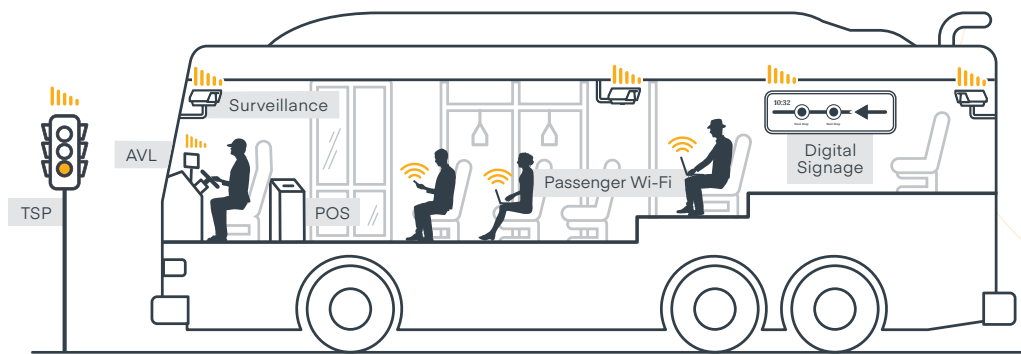
Mass Transit Networking Challenges

Insufficient Bandwidth for Expansion of Connected Technologies

The sheer volume of video, credit card, GPS, and vehicle performance data — not to mention passenger streaming — flowing from transit vehicles to the cloud makes it difficult not only to accommodate existing devices and applications, but to continue adding more as needs arise and evolve. Flexible, high-bandwidth wireless LTE networking solutions are essential.

Inconsistent Connectivity

Frequent connection drop-offs make real-time data impossible, which is disastrous for applications such as GPS data for AVL systems and passenger apps, streamed video surveillance footage, and Traffic Signal Priority systems. Dual-modem LTE solutions enable active connections to multiple cellular carriers, which greatly improves network uptime.

Network Management Limitations

With many vehicles spread across an entire city or county, IT and fleet management teams don't have time to visit vehicles in person to manage connection problems, configuration changes, security updates, and other issues. They need centralized, cloud-based access to online dashboards and the ability to make network adjustments from anywhere.

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> *The biggest obstacle in our bus system was inconsistent connectivity."*
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> *Nick Moran,*
> ITS administrator,
> Valley Regional Transit

Wireless Networking Solution Checklist for Public Transit Vehicles

Cloud Management Services for Centralized Control of All Routers

Set policies for entire group (security, data usage, captive portal)	◉
Dashboards for security, health, mapping, and application visibility	◉
Full security including zone firewall, IPS/IDS, and content filtering	◉
Location tracking and cellular health mapping	◉

Ruggedized Routers

Gigabit-Class LTE modem with support for multiple carriers	◉
Dual modems with simultaneous dual carriers available	◉
Active GPS and simple integration with AVL/telematics software	◉
Dual-band, dual-concurrent Wi-Fi 5 (2.4/5.0 GHz)	◉
Supports up to 100 Wi-Fi clients	◉
WiFi-as-WAN for video offload	◉

Cradlepoint's NetCloud Service for Mobile and LTE Routers

Cradlepoint NetCloud Service for Mobile provides the enterprise capabilities that public transit agencies need for their wide-ranging on-board connected technologies. Delivered through purpose-built ruggedized routers, NetCloud provides connection reliability, manageability, and security — at scale — at the converged LTE edge.

Learn more at cradlepoint.com/mobile

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