From race track to train track
Powering the UK's first next-generation train connectivity.

MOTION APPLIED

Peninsula Transport & Great Western Rail (GWR)
Wi-Fi Proof of Concept.

Trial Summary

Train: GWR IET 802101
Period: 90-day trial

Motion Applied Ltd

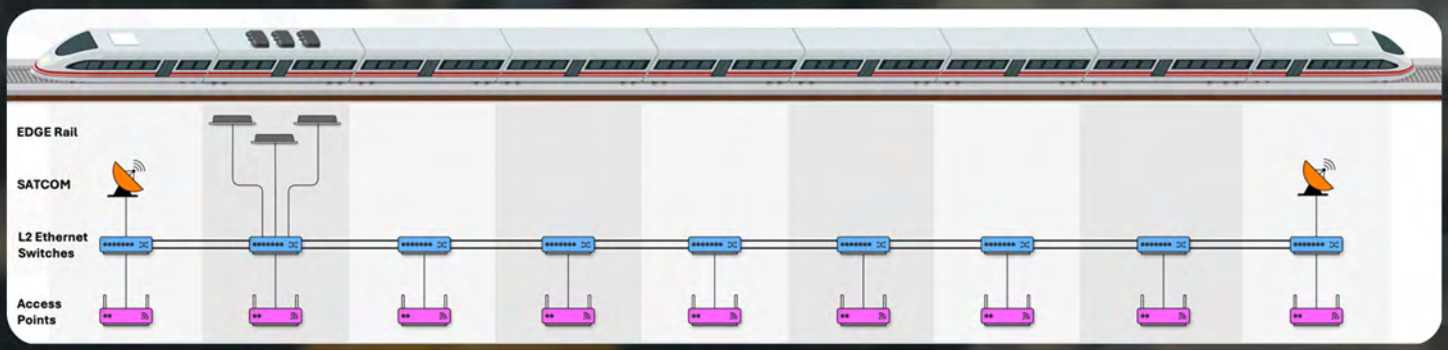
Transforming rail connectivity at scale.

The Peninsula Transport Wi-Fi Proof of Concept delivered a step-change in onboard connectivity, demonstrating, in live passenger service, what next-generation rail Wi-Fi can truly achieve.

Delivered in partnership with **Great Western Railway, Network Rail, Hitachi Rail and Peninsula Transport**, the trial combined 5G cellular and Low Earth Orbit (LEO) satellite connectivity, powered by Motion Applied's Formula One-derived **Fleet Connect™** platform.

Over a 15-week period, the system operated across some of the UK's most challenging routes, seamlessly maintaining high-performance connectivity throughout.

On train architecture



3 x MNOs
EE, Vodafone, Three

EDGE RAIL

2 x Starlink
Terminals

Up to 1.2 Gbps peak bandwidth

99.75% connectivity across journeys

>90% improvement in passenger satisfaction

The challenge & opportunity

Why rail connectivity needs reinvention

For passengers, connectivity is no longer a luxury, it's an expectation.

Today's onboard Wi-Fi struggles to meet modern needs:

Poor signal inside trains due to carriage shielding

Inconsistent mobile coverage across routes

Poor connection impacting productivity

The challenging topography of the UK rail environment means that no singular network type, or provider can provide a consistent and reliable connection on its own. **A recent report by Ookla placed the UK in the bottom tier of European countries with an average median passenger download speed of 1.09Mbps.**

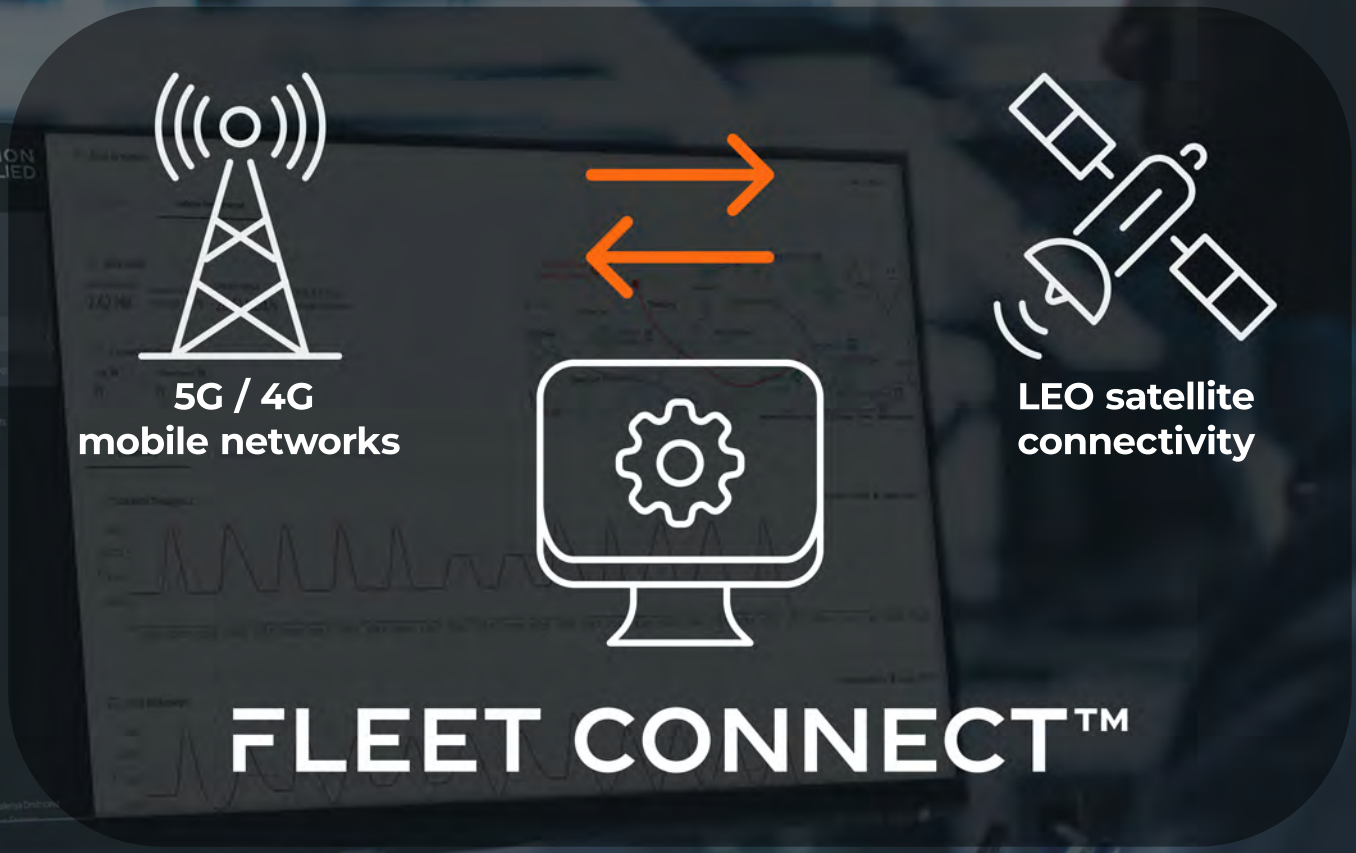
Mobile networks have historically focused on population centres and coverage of any given area varies by provider. Nascent LEO satellite networks provide an answer to some of these locations but also require a continuous unobstructed view of the sky.

The use of the patented **Fleet Connect™** software within this trial bridged the gap between these two technologies, aggregating the Mobile Network connection and the Satellite Network connection seamlessly to provide a consistent and reliable experience for passengers and systems onboard.

A hybrid connectivity breakthrough

Seamless, consistent performance

Combining 5G and satellite for uninterrupted connection.



At the heart of the system is Fleet Connect™:

Combines multiple networks into a single seamless connection.
Dynamically adapts to changing signal conditions.
Maintains uninterrupted service for passengers.

Unlike traditional systems that switch between networks, our platform utilises them all at once, ensuring consistent performance throughout varying conditions across routes.

Deploying the technology

Real-world performance, proven in service

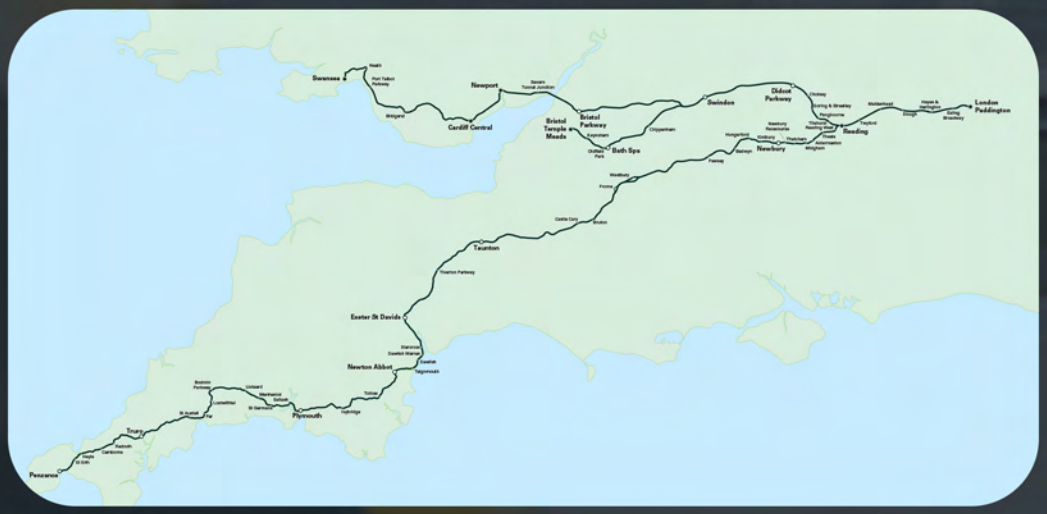
Motion Applied delivered the end-to-end connectivity solution, combining F1-derived Fleet Connect™ software, and EDGE Rail active antennas with hybrid cellular + LEO capability, plus integration and analytics.

Great Western Railway (GWR) acted as customer lead, defining passenger experience requirements, providing train access, and ensuring the trial aligned with real-world operations.

Peninsula Transport funded and championed the trial, representing regional needs and connecting stakeholders, operators, and government.

Network Rail provided infrastructure oversight and governance, and coordinated the trial launch at London Paddington.

Hitachi Rail (Train OEM) enabled safe integration on the Intercity Express Train, ensuring installation met fleet, safety, and maintenance requirements.



The trial operated for **15 weeks** onboard a Great Western Railway Intercity Express train travelling across key routes in the South-West of England and Wales.

London | Cardiff | Swansea | Bristol | Exeter | Plymouth | Penzance

A scalable platform

The trial demonstrated that hybrid connectivity can be deployed successfully within existing rail operations, creating a strong foundation for future fleet-wide adoption.

Delivering a step change in connectivity performance.

The trial delivered outstanding results across every key performance measure, proving the power of hybrid 5G & LEO satellite connectivity combined with **intelligent aggregation of Fleet Connect™.**

Passengers experienced faster speeds, greater reliability and a more consistent connection from start to finish.

1.2 Gbps+
PEAK THROUGHPUT

900 Mbps
AVERAGE AVAILABLE THROUGHPUT

60/40% split
SATCOM & CELLULAR

31,000+
PASSENGER DEVICES

Tested reliably across a range of network landscapes

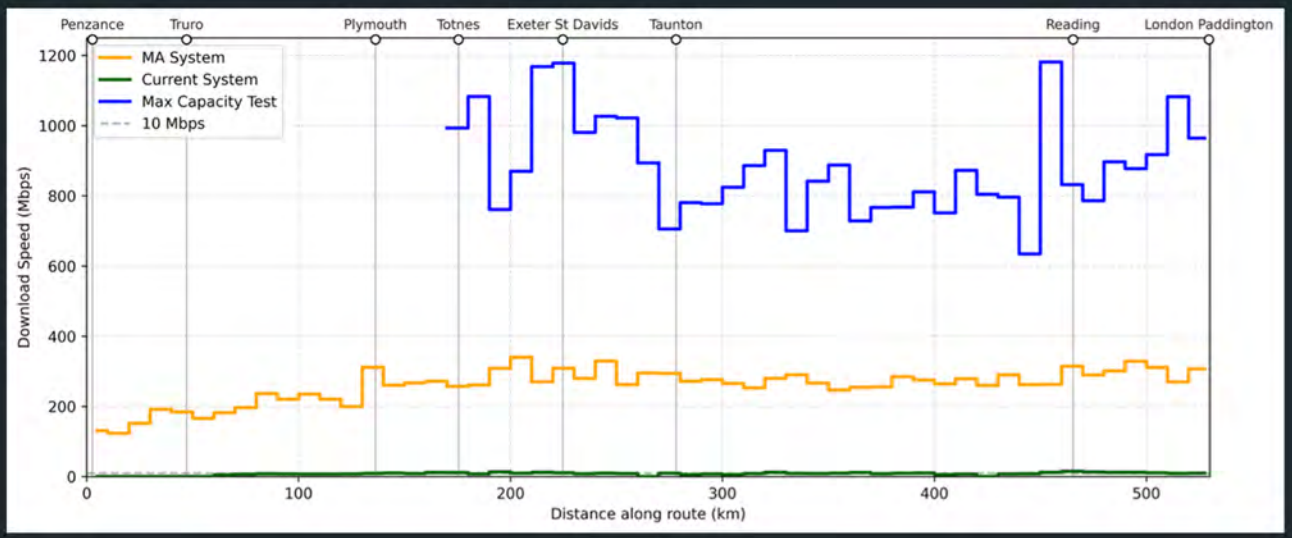
Urban · Rural · Coastal · Stations

Built for High demand

Enables high passenger density with ease
Strong headroom for future capacity increase.

Resilient by design
Multiple networks working together to avoid interruptions.

Future ready
Scalable platform supporting tomorrow's digital services.



Hybrid connectivity + **Fleet Connect™** keeps passengers connected where traditional networks struggle.

Delivers gigabit-class speeds, continuous reliability and an exceptional passenger experience.

> *"Wi-Fi is the best that I've seen on any train ever, and that's coming from someone who spends half their life on trains..."*
>
> *"This new Wi-Fi is so reliable... the train Wi-Fi is now faster then my home Wi-Fi..."*
>
> *"When I was in areas where I had zero service but in the train was getting over 100Mbps. The Wi-Fi did not drop out at all"*

Transforming the passenger experience

Passenger feedback throughout the trial was overwhelmingly positive, with many reporting a significant improvement compared with existing onboard Wi-Fi services.

Passenger benefits

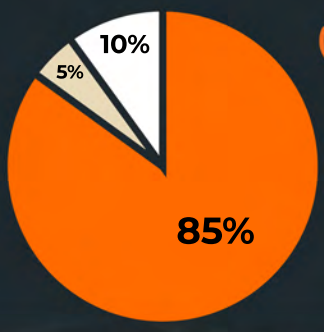
Business travellers

- Join video calls reliably
- Work productively during journeys
- Transfer files more easily
- Stay connected on longer routes

Leisure travellers

- Reliable streaming
- Fast browsing & gaming
- Stable social media access
- Fewer connection interruptions

'Passenger feedback: Could you achieve what you needed to using the WI-FI?'



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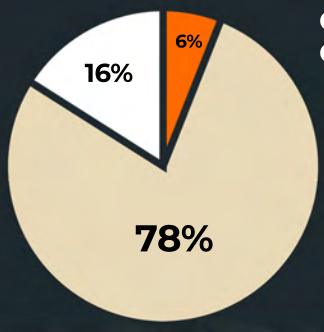

Comparative GWR train

- YES
- NO
- BLANKS

National media attention

Generating over £1m in earned media value from the launch event

The project was a major step forward for UK rail innovation, generating significant attention across the rail, technology & national media sectors:

BBC NEWS | THE GUARDIAN | THE INDEPENDENT | RAIL MAGAZINE

A blueprint for the future of connected rail

The trial successfully demonstrated that hybrid rail connectivity can deliver a significantly improved passenger experience whilst operating successfully in live rail service conditions.

Supporting the modern passenger

Passenger expectations around digital connectivity will continue to grow. Reliable onboard internet access is increasingly viewed as an essential part of the journey experience rather than a premium feature.

The Great Western Railway Superfast Wi-Fi Trial demonstrated that next-generation onboard connectivity is no longer a future ambition. **It is achievable today.**

Get in touch

Find out how Motion Applied can enhance your onboard connectivity:

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