



TRACK
MONITORING FOR
NETWORK RAIL





NETWORK RAIL MAP



THE CHALLENGE

Network Rail is moving over to a new regime for monitoring the ongoing quality of its track, an essential process which provides the data for prioritising track maintenance and renewal. Traditionally this has been performed by purpose-built (so called “yellow”) trains fitted with elaborate track measuring and data recording systems. These have to be staffed by technicians and run in specially allotted paths amongst the network’s busy timetable, making it an expensive process.

Network Rail has developed the UGMS system, an unattended system for recording and storing track geometry data (i.e. the parameters that equate to track quality), which can be installed on normal passenger trains operated by the Train Operating Companies. These UGMS systems measure and store the track quality data continuously over the routes operated by the TOC. By selecting approximately 10 such trains the majority of the network can be measured more frequently and more cost effectively than was possible using “yellow trains”.

To make the UGMS process truly effective, Network Rail wanted the data collected by the UGMS system to be retrieved from the trains remotely, regularly and automatically.





THE SOLUTION

Nomad's understood the exact requirements of Network Rail to have a reliable communications platform. The system connects from passenger operated trains to six key railway terminus sites where the UGMS data is transferred completely automatically over a secure VPN connection, to Network Rail's data processing centre.

Data download anytime

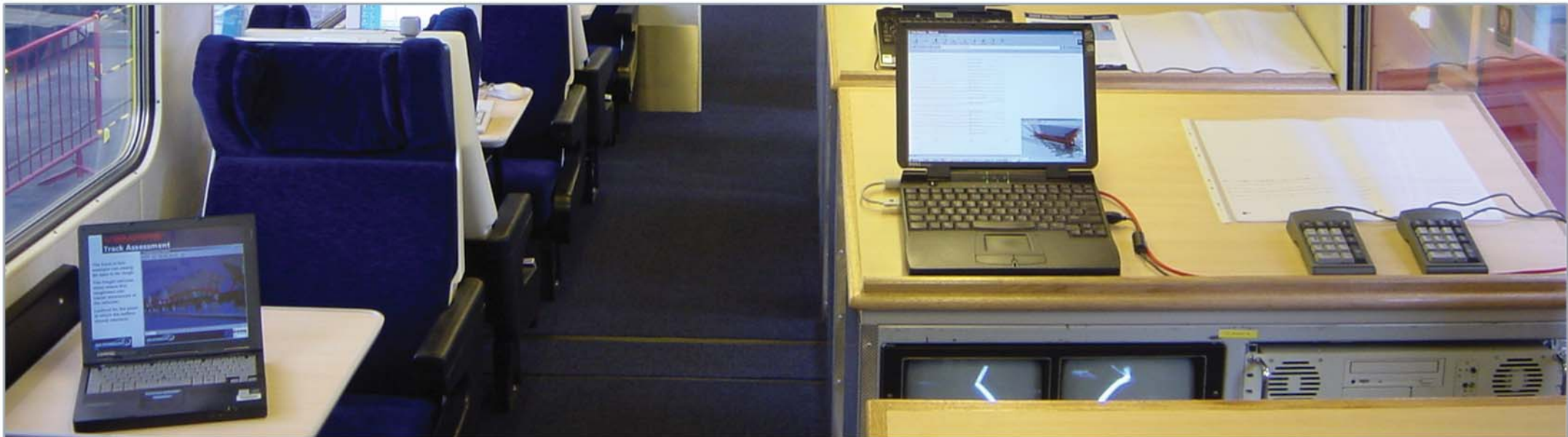
Nomad has built, and operates for Network Rail, a data download and backhaul system that does just that. The UGMS data is transferred over a secure Wifi link and saved onto a local server.

When the data set is complete the local server transfers the data to Network Rail's data processing centre. This process enables rapid and frequent analysis of vital track quality data, allowing Network Rail to apply its track maintenance and renewal effort exactly where, and when, it is needed.

Operated sites

The system is currently operational at six key sites around the UK;

- Euston Station, London
- Paddington Station, London
- Kings Cross Station, London
- Marylebone Station, London
- Willesden TMD, North London
- Sheffield Station



THE RESULT

The success of the UGMS project has enabled Network Rail to have a cost effective method of extracting data on their track condition quickly and consistently. As passenger trains travel along Network Rail's track more frequently, then Network Rail are able to collect far more data for analysis purposes than previous methods. This in turn has enabled them to improve forecast in advance of possible repair work needed to the network.

Due to the success of this project, then Nomad and Network Rail are looking to expand possibilities of both train and track condition based monitoring to automatically download to databases.

“The UGMS project is a very early example of wireless data downloading from trains. The whole industry is coming to accept that trains can be run more effectively and economically when they are connected to their corporate data networks.

Some applications require continuous connectivity and others need periodic, but very high bandwidth. UGMS is a path finding example of the latter requirement and we are delighted to have successfully met the Networks Rail's needs.”

**Nigel Wallbridge,
Executive Chairman,
Nomad Digital**



Nomad Digital

About Nomad Digital

Nomad Digital is the world's premier provider of high-speed data communication solutions to the transportation sector.

Nomad specialises in the provision of "always on" mobile data solutions to operators, delivering an enhanced customer experience, additional revenues and reduced operational costs. Applications include;

- Passenger WiFi
- Real-time CCTV
- Operational data download
- Integrated media systems

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BUSINESS CASE

Condition based monitoring for cost saving efficiencies

The Nomad data link is a high-speed link able to download and upload information to databases, able to interrogate the information. Nomad's experience in the train to shore market has highlighted the need for cost saving methods of extracting train information quickly and effectively.

The extraction of frequent data enables rapid and frequent analysis of vital track quality data, allowing operators to apply track maintenance and renewal effort exactly where, and when, it is needed. This in turn saves operators costs that are able to be redeployed elsewhere.

FURTHER USE OF THE NOMAD SOLUTION

The success of the UGMS project has spurred Network Rail to look at further cost saving methods of extracting information on their network. In turn Nomad has been discussing the possibilities of replicating the UGMS download solution with a number of train and trackside operators worldwide.

