



Nomad Digital

Nomad Digital



Something to Twitter about – Virgin Trains has passenger WiFi



Introducing Nomad

- ❑ Established in 2002
- ❑ A pioneer of real-time wireless broadband data connectivity platforms and solutions to fast-moving vehicles
- ❑ More reference broadband communications projects and trials than any other train communications solution provider globally



Nomad Rail Projects (just the announced ones!)

Heathrow Express



NSB

Virgin Trains



Caltrain & CCJP



Brighton Express



Dubai Metro



c2c



Frontrunner



Railrunner



Wuhan



Rotem Maglev



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Dubai Metro launched!





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NSB – World's 1st Interactive Entertainment Service on a Train

- ❑ Launched Sept 09
- ❑ 250 movies
- ❑ > 20,000 songs
- ❑ 30 games

Welcome to NSB INTERAKTIV
test - internet and entertainment
onboard

Receive free access code [here](#). Already got an access code? [Log in here](#).

This train is from Larvik station to Oslo S:
Departure 20:21 Arrival 22:38

Point out your journey:
From: Sandefjord To: Oslo S
Arrival time for your destination: 22:38

Technical note
You will need a Windows PC with Windows Media Player 11 to watch movies. Get Windows Media Player [here](#).
A Windows PC can be rented in NSB MBVY Kafé.

For Kids Buy access or log in Entertainment to keep the kids happy.

Entertainment Buy access or log in Movies, games and music!

Train Internet Buy access or log in Connect to internet services.

Your Journey Follow the map and learn and discover more about it.



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Acela – The President's Train





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A new type of bandwidth “aggregation”



Nomad Digital

Nomad Digital delivers additional bandwidth capacity to enable enhanced application performance

Network aggregation capabilities added to Nomad’s communications routers

Once again, NOMAD Digital has set the benchmark for train to shore data transmission. The world's premier provider of data communications solutions to moving vehicles can now aggregate bandwidth from multiple radios to provide even faster connections.

UK-based Nomad already leads the world with its innovative switching solution which allows vehicles to move seamlessly between wireless networks such as different 3G providers and mobile WiMAX. Now Nomad has successful

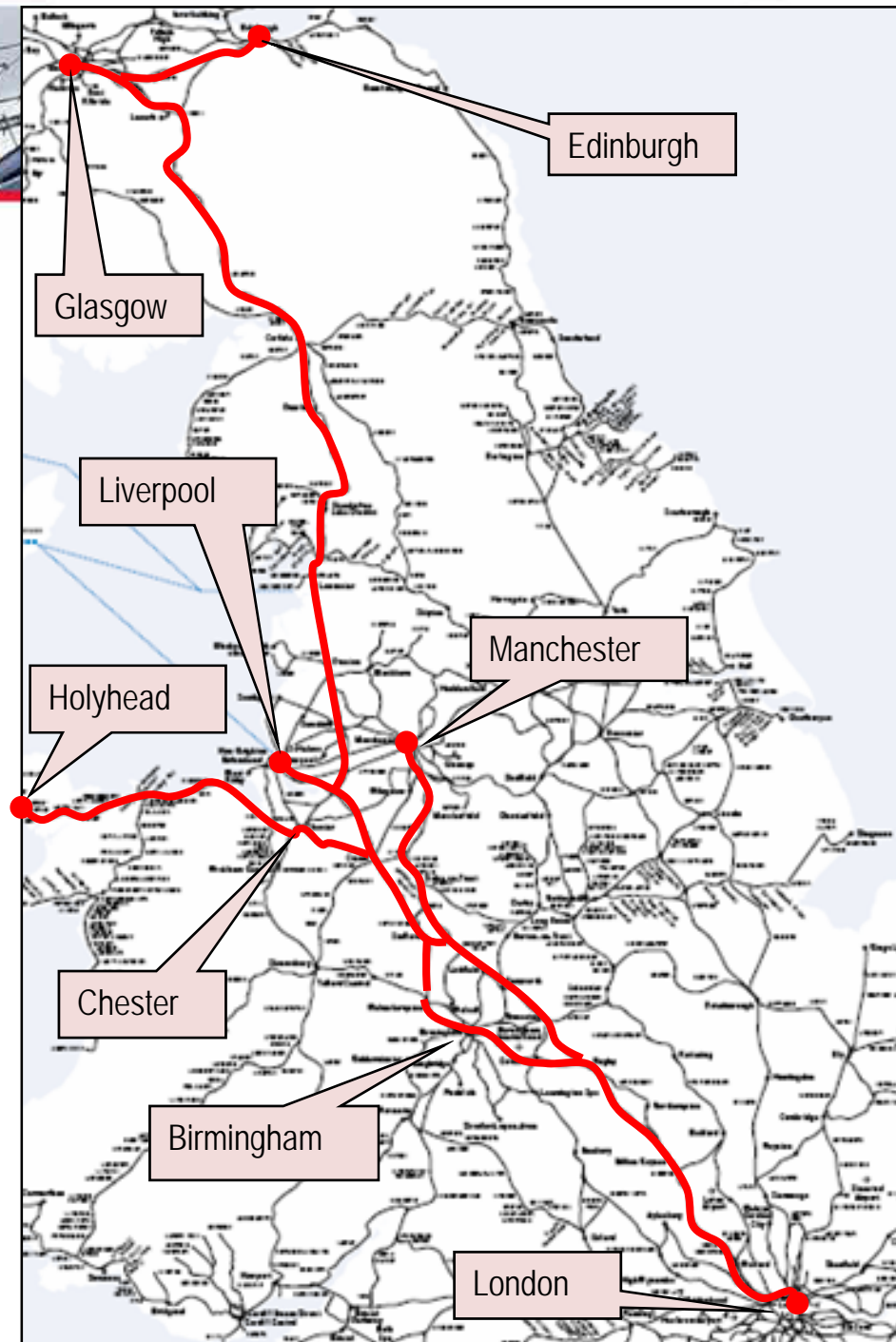
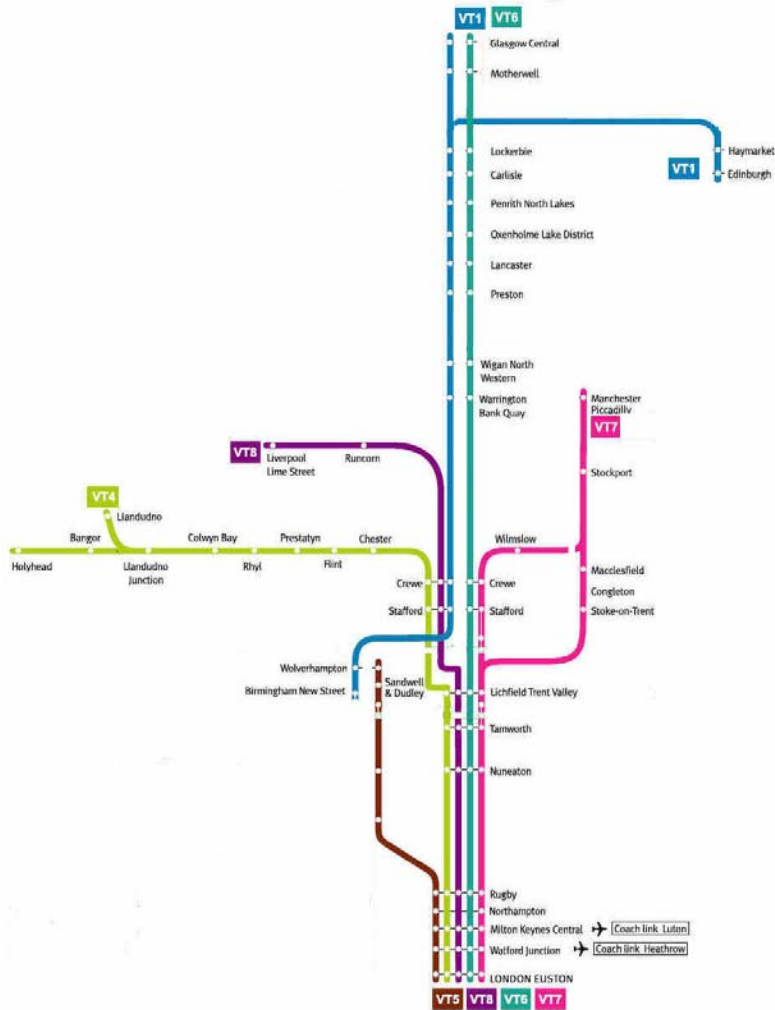


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Virgin Trains





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Virgin Trains

- ❑ 22 million passengers pa
 - ❑ 10% in 1st Class
- ❑ 36% business passengers
- ❑ >850km end-to-end





Nomad Digital

UK's truly brand driven TOC

- ❑ Virgin brand principles
- ❑ Marketing led
- ❑ Service innovation
- ❑ Virgin Trains “people”
- ❑ End-to-end customer experience
- ❑ 1st Class is fully inclusive
 - ❑ Lounges and
 - ❑ On-board





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But rail is still very much at its heart

- But very much a rail operator
- Similar constraints to many other TOCs
- Franchise limitations
- Financial constraints
- Timescales





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WiFi Journey

- ❑ Broadreach WiFi trials
 - ❑ Satellite proved challenging
- ❑ OJEU ITT
 - ❑ started in March 2006
 - ❑ driven by customer research
 - ❑ concluded in June 2007
- ❑ Nomad selected
 - ❑ Efficient terrestrial network solution (3G, WiMax & WiFi)
 - ❑ Concession/Nomad investment
 - ❑ T-Mobile HotSpot as Nomad's chosen service provider



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Engineering challenges

- ❑ 2 fleets
 - ❑ 52 Pendolinos (Alstom built & maintained)
 - ❑ 21 Super Voyagers (Bombardier built & maintained)
- ❑ 2 designs
- ❑ 2 install programmes
- ❑ 2 maintainers
- ❑ Limited train availability at all stages
- ❑ Different deployment approaches
- ❑ Tortuous trackside access for new build sites

Fun! Fun! Fun!



Launch #1 – Pendolinos – 27th April 2009

Virgin Trains Buzz NEWS FROM AROUND OUR NETWORK

WE'VE GONE WI-FI!

Macworld

WE CAN NOW OFFER WIRELESS INTERNET on some Virgin Trains services, as you might have seen from the article on page 13. What Hazel Davis, who used to campaign on Facebook to get Wi-Fi on Virgin Trains, is more than a little excited about this, and we hope you will be too. And what's more, if you're in First Class, it's completely free to use.

Wi-Fi replaces the audio entertainment system that we used to offer on Virgin Trains, because with internet access onboard, there's no limit to what you can listen to – you're completely free to hunt down as many obscure songs as you like on iTunes, YouTube, Spotify or whichever zeitgeisty website you like, and to write a Twitter update that you're doing so. So if you today has Virgin Train instruction page 90.

Virgin Trains get T-Mobile Wi-Fi high-speed Internet access
Internet access runs from London Euston to Scotland
Carrie-Ann Skinner [PC Advisor](#)

T-Mobile HotSpots on Virgin trains

April 27, 2009
T-Mobile to roll out its Wi-Fi HotSpot service to allow high-speed wireless internet on 52 Pendolino Virgin trains

T-Mobile and Virgin Trains have announced the launch of high-speed wireless internet for passengers on all Pendolino Virgin trains on the West Coast Main Line.

The Wi-Fi HotSpot service, which has been rolled out by T-Mobile's solution partner Nomad Digital, will provide passengers with fast access to the internet, email and other applications.



Virgin trains offer wireless internet in joint deal

The BIRMINGHAM POST

Innovation & Technology

Virgin offers wireless internet on trains

Apr 28 2009 by Jon Griffin, Birmingham Post
T-Mobile and Virgin Trains have announced the launch of internet for passengers on all Pendolino Virgin trains

The wi-fi HotSpot service will provide a wireless broadband connection throughout the entire journey, including all tunnel sections, at high speeds. The HotSpot service has been rolled out by T-Mobile's solution partner, Nomad Digital.

The HotSpot service will provide train passengers with fast and reliable access to the internet, email and other applications, whether for work or leisure purposes.

First Class passengers will get complimentary access to the service, while other passengers can purchase HotSpot passes online from their wi-fi enabled device.

T-Mobile Mobile Broadband pay monthly customers have unlimited

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T-Mobile Mobile Broadband pay monthly customers have unlimited

T-Mobile and Nomad Digital have been at the forefront of the provision of access to internet on trains and partnered for the world's first ever broadband wi-fi service on trains on the London to Brighton Southern route.

The two companies also partnered to provide onboard wi-fi access to passengers on all Heathrow Express trains. T-Mobile provides wi-fi HotSpot access across the UK in places where you need it most – including the places regular cellular network technology finds harder to reach.

In January 2009 T-Mobile's Mobile Broadband service came top in the independent YouGov survey of 3,000 mobile broadband users. The results ranked T-Mobile first in nine out of 13 categories including download speeds, customer service, easy start up and use.

computing.co.uk

Virgin Trains rolls out on-board wireless internet access

Train operator completes first stage of implementation following years of delays

Written by [Angelica Mari](#)
Computing 29 Apr 2009



Virgin Trains had been planning to offer Wi-Fi since 2006. Pic Credit: Gene Hunt

After years of delays, Virgin Trains has finally completed the rollout of wireless internet access on all Pendolino trains serving West Coast main line destinations.

The implementation of T-Mobile-supplied wireless broadband technology was completed in March by

Virgin Trains has announced a deal to offer passengers on its Pendolino trains on the West Coast Main Line high-speed Internet access with a partnership with T-Mobile.



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Customer Proposition

- ❑ Called WiFi
- ❑ = passenger internet access
- ❑ Available to all passengers
- ❑ On all trains
- ❑ 1st Class – “complementary”
 - ❑ WiFi in lounges too
- ❑ Standard Class – “for pay”
 - ❑ multiple options
- ❑ Branded service provider is T-Mobile HotSpot
- ❑ At seat power

Allowance	Expiry	Price (inc VAT)
Pay As You Go (10 minutes minimum)	n/a	75p per 10 minute block
60 minutes	24 hours after first login	£5
24 hours	24 hours after first login	£10
30 days	30 days after first login	£40
Unlimited	1 year after first login	£20 per month
Unlimited for First Class Passengers	n/a	Free



Nomad Digital

Promotion & Marketing



Next stop, anywhere
On-board now: fast, reliable, WiFi internet, with T-Mobile HotSpots on Virgin Trains.

How DO I USE A T-MOBILE HOTSPOT?
 All passengers can enjoy this service. Simply log on in 3 steps:

- Switch on your laptop's WiFi.
- Launch your web browser and enter any web address.
- Choose how to pay, specify how long you want to be online, get surfing.

How much does the HotSpot service cost?
 One hour costs £5, but for just £10 you'll get a 24-hour pass. If you're travelling in First Class, it's complimentary.

On a PC:

- **Confirming your settings:** From the Start menu, click on the Control Panel, choose Network Connections, and select the wireless network. Don't change the data connection (WiFi enabled option).
- **Obtaining an IP address:** Open the Internet Options, Network Connections, and select the Internet Protocol (TCP/IP) appropriate choosing Properties.

On a Mac:

- **Confirming your settings:** From the Apple menu, click on the System Preferences, click on the Network, and select the Internet Protocol (TCP/IP) appropriate choosing Properties.
- **Obtaining an IP address:** Open the System Preferences, click on the Network, and select the Internet Protocol (TCP/IP) appropriate choosing Properties.
- **Use automatic configuration script.**
- **Use a proxy server for your LAN.**

On a PC:

- **Setting up Microsoft Internet Explorer:** From the Internet Explorer menu, click on the Tools menu, then select Internet Options and click on the Connection tab. Open the Windows LAN settings and if the following are checked, you'll need to remove them:
 - Automatically detect settings.
 - Use automatic configuration script.
 - Use a proxy server for your LAN.

On a Mac:

- **Configuring the settings on your laptop with the configuration below:** use the HotSpot service instructions as based on the Mac OS X operating system using a laptop with a built-in Airport card.
 - **Click on Airport:** in the toolbar.
 - **Click Turn AirPort On:**
 - **Click "Choose" from the list of available networks.**
 - **Select the Open Internet Connect:**

Questions? If you have any questions about the T-Mobile HotSpot service, or need help connecting, call our **Support Team** on 09454 122 528.

Life's for Sharing

T-Mobile



Promotion & Marketing

GuideLine

Welcome onboard. Whether you're traveling with us for a short trip or a long journey, we want you to enjoy your time with us today. So sit back, relax and check out our guide to what we can offer during your journey.

Safety posters

- Safety posters are located in every carriage. Please take a moment to read.

Toilets

- Located in most carriages. Disabled accessible toilets are available. Please ensure you use the lock button after closing the door.

Mobile Phones

- We have boosted mobile phone signal on all of our transcontinental services. If you'd prefer to use a phone, make yourself comfortable in the mobile-free journey.

The Shop

- From sandwiches and cakes to drinks and magazines, our onboard shop carries all the delights you could ever need. You can find The Shop in Coach K on Pendolino trains and in Coach D on Super Voyager trains.

WiFi Internet

- Coming soon, new, fast wireless internet will be available on all Virgin Pendolino trains. Provided by T-Mobile HotSpot, WiFi will be complimentary to all First Class passengers and available at an early rate to Standard WiFi will be available on Super Voyagers later this year.

First Class

- Travel in First Class on Virgin trains on any weekday and you can relax and enjoy complimentary food and drink. From our Best of Britain menu newspapers, including seat games, jackets at every table and attentive service throughout your entire journey. You'll find First Class in Coaches G, H, I & K on our Pendolino trains and in Coach P on our Super Voyager trains.

The Kitchen

- In Coach C of every Pendolino train you will find the Kitchen. These are full service kitchen areas in which we prepare all of our onboard First Class food. Did you know? The Kitchen on our Pendolino trains is actually the biggest in any train in Europe!

Luggage

- We'll make sure that you're luggage more than you can carry. Small bags can fit in the overhead luggage shelf, larger bags can be placed in luggage racks - all free of charge.

Bicycles

- We do accommodate bicycles onboard our trains but these must be booked in advance. This service is free and can be booked at any station or by calling 08457 222333. To locate the correct area to load your bike, look for the blue sign on station platforms.

Virgin Trains Network

Weekly Services



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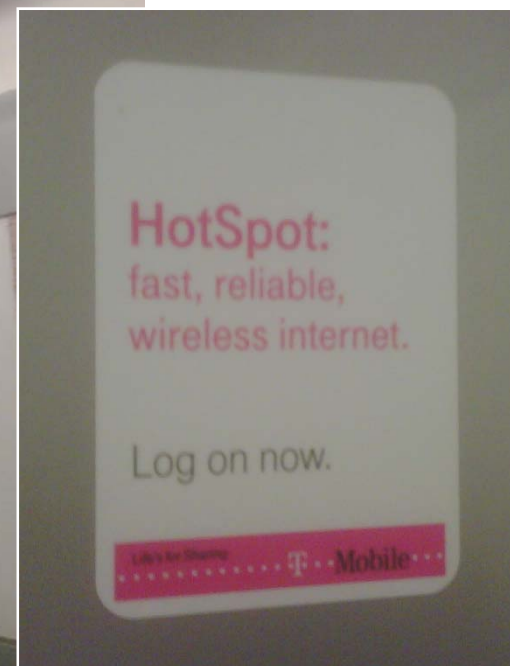
Signage





Nomad Digital

Virgin Shop Area





Nomad Digital

Virgin Trains People





Nomad Digital

Ambassadors





Nomad Digital

Virgin Carriage End Dot Matrix WiFi Message & Train Guard Announcements





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Virgin Lounges

VTU
Virgin Trains Update April 2008

Bank Holiday Engineering
Preparing for the new high frequency timetable

Connecting
FREE WiFi in First Class lounges

Bridging the Gap
New lifts at Lockerbie station

virgintrains.com

Virgin
trains
Love every second





Virgin Website

Wi-Fi on Virgin Trains

Make the most of your journey with onboard Wi-Fi. Catch up on emails, work, play, shop, download, upload, twitter or tweet, as you enjoy a fast connection to the internet as well as to your destination.

[Buy tickets now](#)

Service Availability

You'll find Wi-Fi available on all Virgin trains.

You'll also find it:

- Superfast, connecting you to the internet as well as your destination.
- Free, in first class.
- Instant, if you have a Wi-Fi enabled laptop you don't need any extra software or devices. Simply connect in a flash.
- Flexible, just pay as you go with a 1-hour or 24-hour pass.

Getting connected

Want to get connected while onboard? Okay, first you'll need a device with Wi-Fi capability, such as a phone, PDA or laptop. Most laptops now have Wi-Fi built in.

If you don't, no worries, you can buy a PC card or USB adapter at any good computer retailer. Then simply sign up or create a HotSpot account when you connect.

Costs and options

Wi-Fi access is free for First Class passengers. A number of package options are open to all Standard Class passengers. Valid passes can be used at any T-Mobile HotSpot in the UK. Go to the [T-Mobile HotSpot](#) page for more details.

Allowance	Expires	Price (per VAT)
Pay As You Go (30 minutes minimum)	n/a	75p per 10 minute block
48 minutes	24 hours after first login	£3
24 hours	24 hours after first login	£10
18 days	18 days after first login	£40
Unlimited	1 year after first login	£20 per month
Unlimited for First Class Passengers	n/a	Free

* View our [Wi-Fi broadband](#) and [upload](#) capabilities for more information.



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Virgin Station Posters

Our onboard
Wi-Fi is
something to
twitter about.

All our Pendolino trains are wi-fied up.

Book your journey in advance at virgintrains.com

 *where do you want to be?*

No more
getting
your
dongle out.

All our Pendolino trains are wi-fied up.
Book in advance at virgintrains.com

Birmingham to London
one way **£7.00**





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Virgin Marketing Campaign – WiFly?

Wi-Fly?

With Wi-Fi, enhanced mobile coverage and more seamless working time, business is better by train. Glasgow to London only takes 4 hrs 32 mins on average, and arrives directly into the city centre. So now you can wave goodbye to the plane forever.

Book in advance at virgintrains.com

**Virgin
trains**
Where do you want to be?

Wi-Fi Free in First Class, hourly rates apply to Standard Class. Average Journey time Monday to Friday, correct according to timetabled journey times.

Wi-Fly?

When all our trains are wi-fied up.

Book in advance at virgintrains.com

**Virgin
trains**
Where do you want to be?

Wi-Fi Free in First Class, hourly rates apply to Standard Class.



Nomad Digital

WiFi Message incorporated into Virgin TV Adverts





Nomad Digital

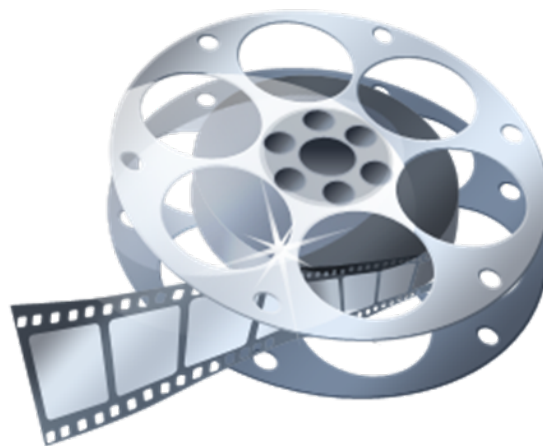
WiFi Message incorporated into Virgin TV Adverts





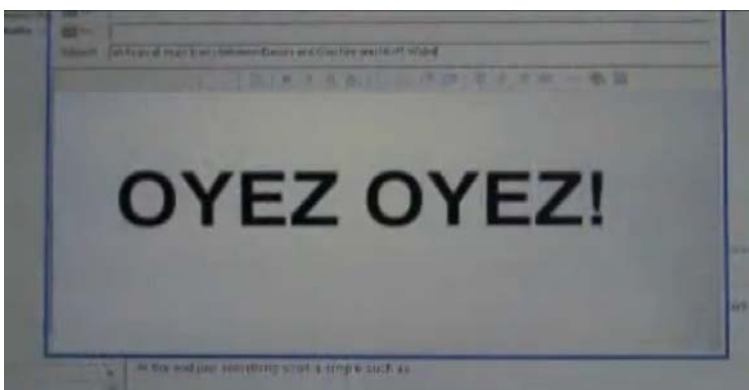
Nomad Digital

WiFi Message incorporated into Virgin TV Adverts





Launch #2 - Voyagers



Oyez, oyez! Virgin Trains customers get on-board WiFi from North Wales and Chester

On the day the Prime Minister used Virgin's 125 mph service to travel to engagements in Cheshire, Chester's Town Crier has launched high speed wireless internet for passengers on all Virgin trains between London Euston, Chester and north Wales.



Customer Experience

Virgin Trains - Windows Internet Explorer
 http://10.114.160.1/

Monday September 28 2009 13:12

...on-board wireless internet service

HotSpot:
Fast, reliable, wireless internet.

Available now on all Virgin Trains services that carry the T-Mobile HotSpot sign.

[Log on Now](#)

Cannot connect? [Click here](#)

T-Mobile

Where is it available?

T-Mobile HotSpot is available on this train and on all Virgin Trains routes.

[How Does It Work?](#)

Payment Options

First class

No Charge

Standard class

50 mins (within 24 hours)	£4.90	equivalent to 8.2p/min
24 Hour Access	£9.79	ideal for a day return trip
Monthly Access	£39.15	equivalent to less than £2/weekday

T-Mobile customers (add to your T-Mobile phone bill) from 74p/10 mins

BT Openzone, iPass & other major roaming partners p/min rates vary

Payment can be made via creditcard or on your T-Mobile bill. Receipts are provided. "Log on Now" for more details.

Apple iPhone & iTouch users

Apple iPhone and iTouch users may experience difficulties accessing the internet (here and at other hotspots) due to recent firmware updates from Apple. These problems have been fixed in the latest firmware release - version 3.1. Firmware upgrades are available via iTunes. In the meantime click here to be connected.

Useful Links

Route Maps
Where do we go? View a map of our network.

Feedback
Let us know your thoughts on the service.

About T-Mobile HotSpot
Information on the Hotspot service.

FAQs
Common questions relating to the service.

Help
Help and support on using the service.

© 2009

iPod 10:44 T-Mobile - HotSpot

hotspot.t-mobile.net/landing/TMUK/Vi... Google

T-Mobile Let's for sharing

Go online now with T-Mobile HotSpots

High-speed wireless internet access

Login to start surfing here.

[Login](#)

Get connected another way

Use Mobile Broadband from your laptop 24/7 for just £15/month. Plus, use FREE access to HotSpots too.

Virgin Trains now call at Google, Amazon and Hotmail.

Make the most of your journey by making the most of onboard wi-fi. Catch up on work emails, surf the net or what online as you enjoy a fast connection to the internet as well as to your destination. You can even browse the [Virgin Trains website](#). Free.

iPod 10:44 T-Mobile - HotSpot

hotspot.t-mobile.net/wlan/start.do Google

T-Mobile Let's for sharing

Home
 Payment Methods
 Finding T-Mobile HotSpots
 Roaming to other HotSpots
 Security
 Software Downloads
 Help
 My HotSpot

HotSpot: Welcome!

Welcome to the Internet

IMPORTANT - Please make a note of your username and password. If you need to end your session for any reason, you will need to use this to log-in again during the time period you have purchased.

You are now online with high-speed access. The session counter to the right will tell you how much time you have left.

Now online

Online for
0:00:01:49
 days hours:minutes

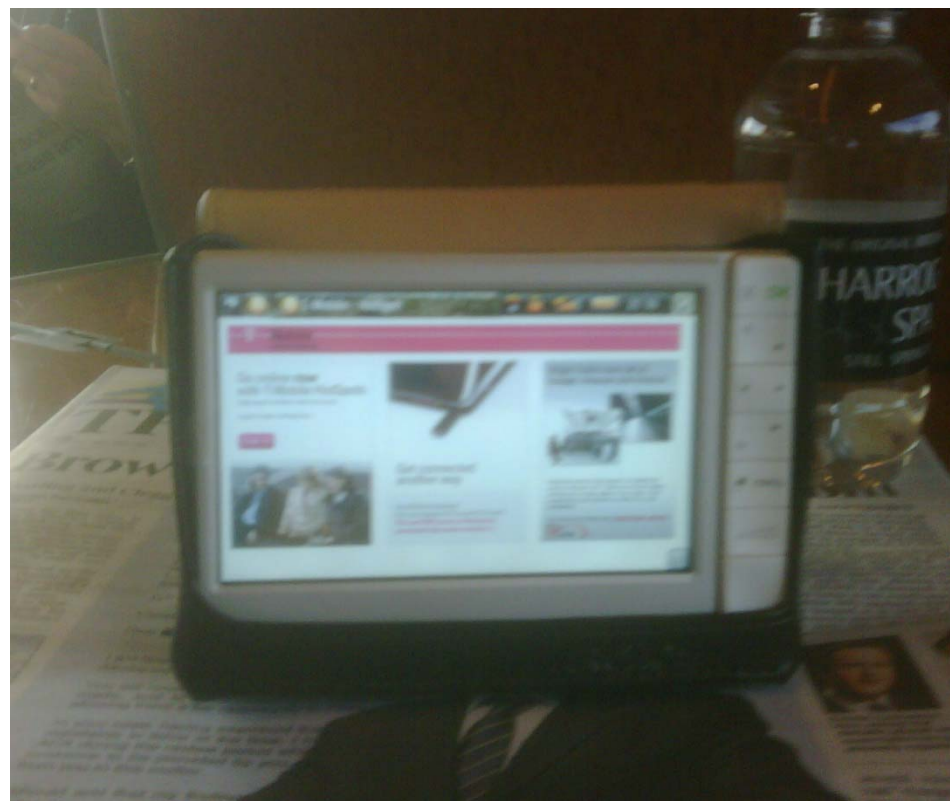
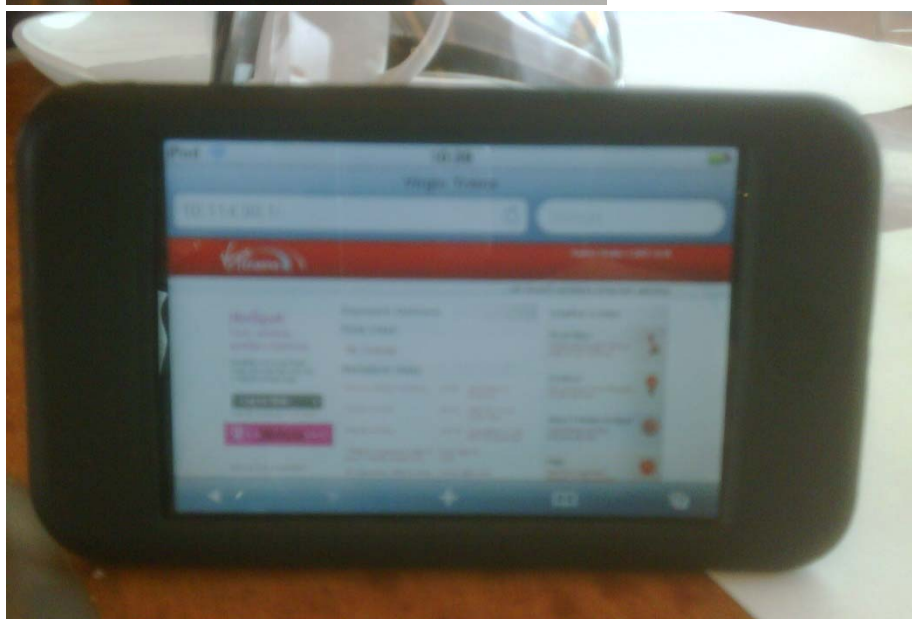
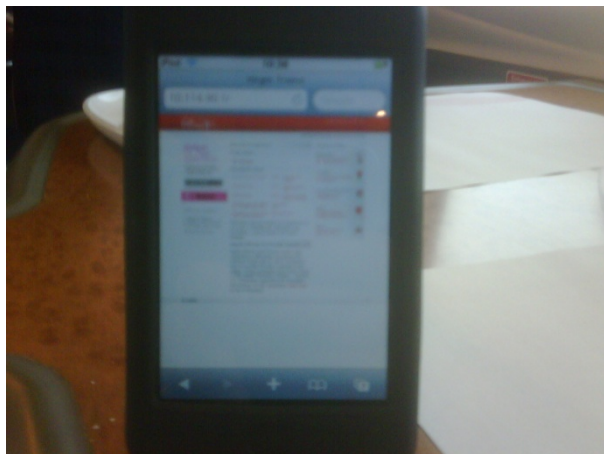
[Logout](#)

Expiry date
 28/09/2009 00:00



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Customer Experience





Genuine Users (posing for the camera)





Nomad Digital

What Customers Say

Twitter / Terry Underhill: ... x

http://twitter.com/terry2009/status/5097459903

Imported From IE | Sharepoint | Salesforce.com - Cu... | hotspot.t-mobile.ne...

twitter Login Join Twitter!

Virgin trains free wi-fi in first class really works Hasn't dropped once throughout the journey about to arrive in London then on to Camden!

7:14 AM Oct 23rd from web

 **terry2009**
Terry Underhill

Twitter / Alan Morgan: W... x

http://twitter.com/Alan1010/status/2815297542

Imported From IE | Sharepoint | Salesforce.com - Cu... | hotspot.t-mobile.ne...

twitter Login Join Twitter!

Wifi on Virgin trains... Cool!!

1:21 AM Jul 24th from web

 **Alan1010**
Alan Morgan



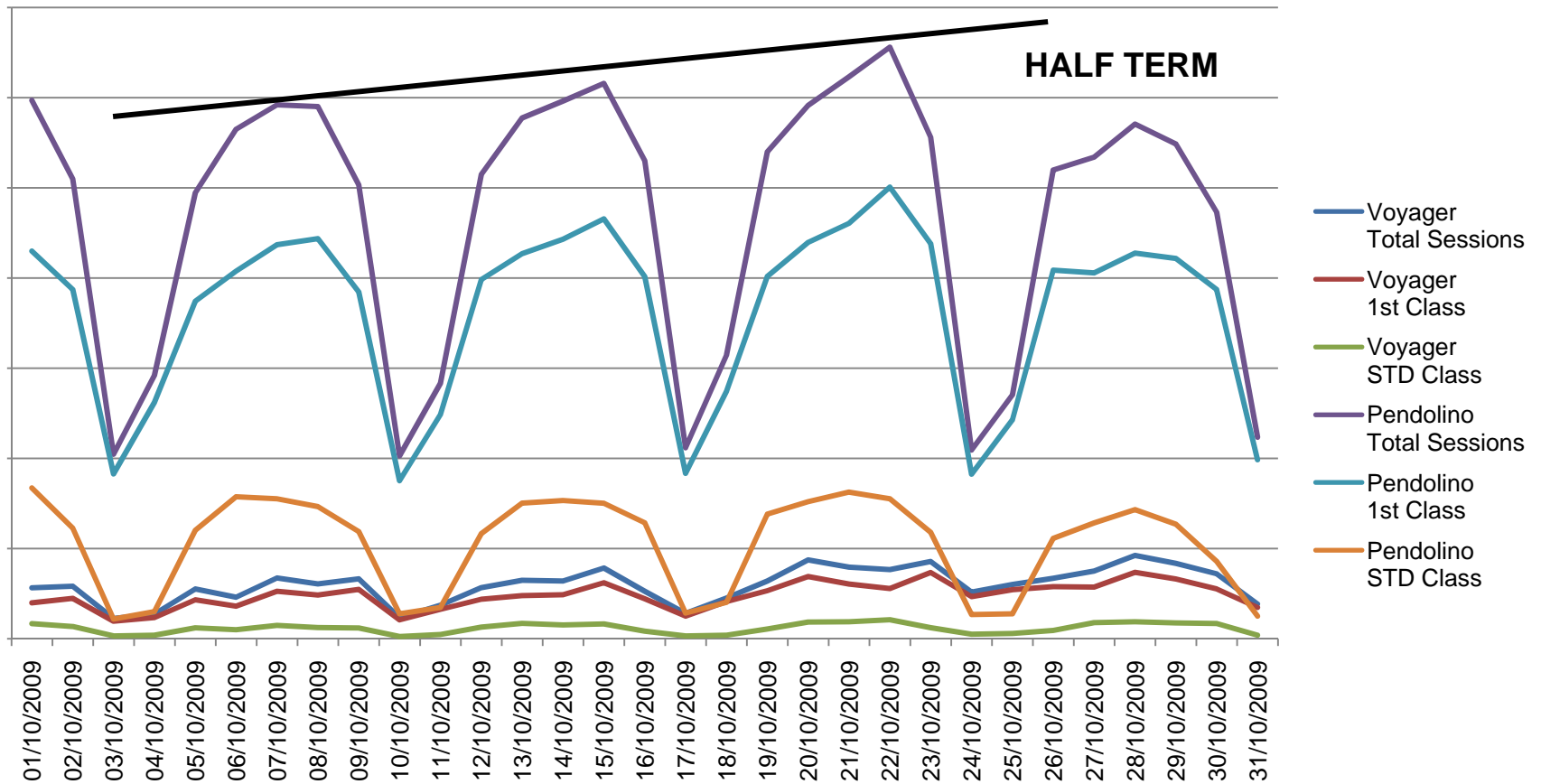
Nomad Digital

Typical Customer Feedback

- ❑ 1st Class - “once I realised WiFi was free in first class I put away my 3G dongle and used the service”
- ❑ Std Class user – “great, but could be cheaper”
- ❑ Customer complaints – less than 0.5%
 - ❑ No 1 complaint – “it should be free in Standard Class”



Uptake – 4000 sessions/day & rising

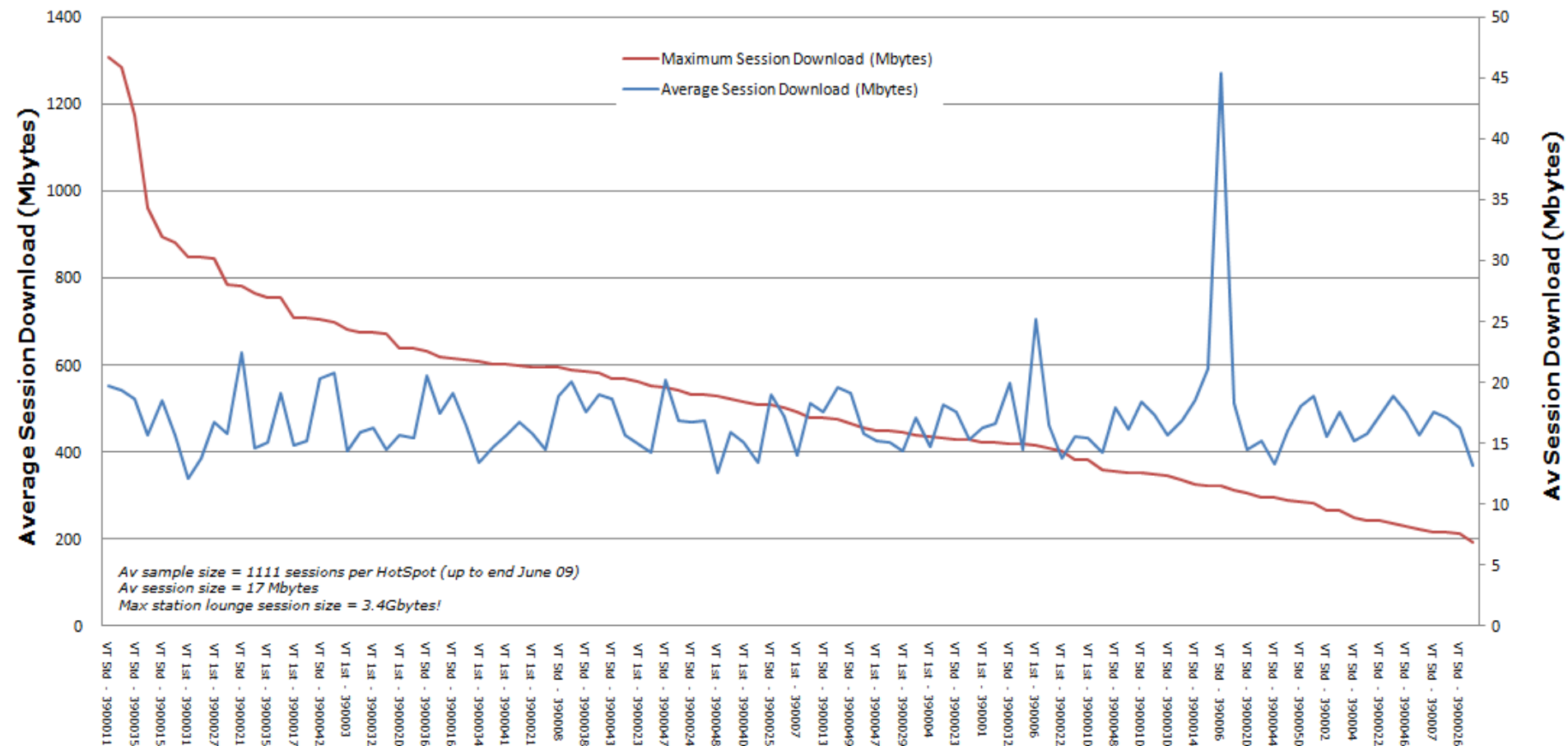




Uptake – Bandwidth Consumption

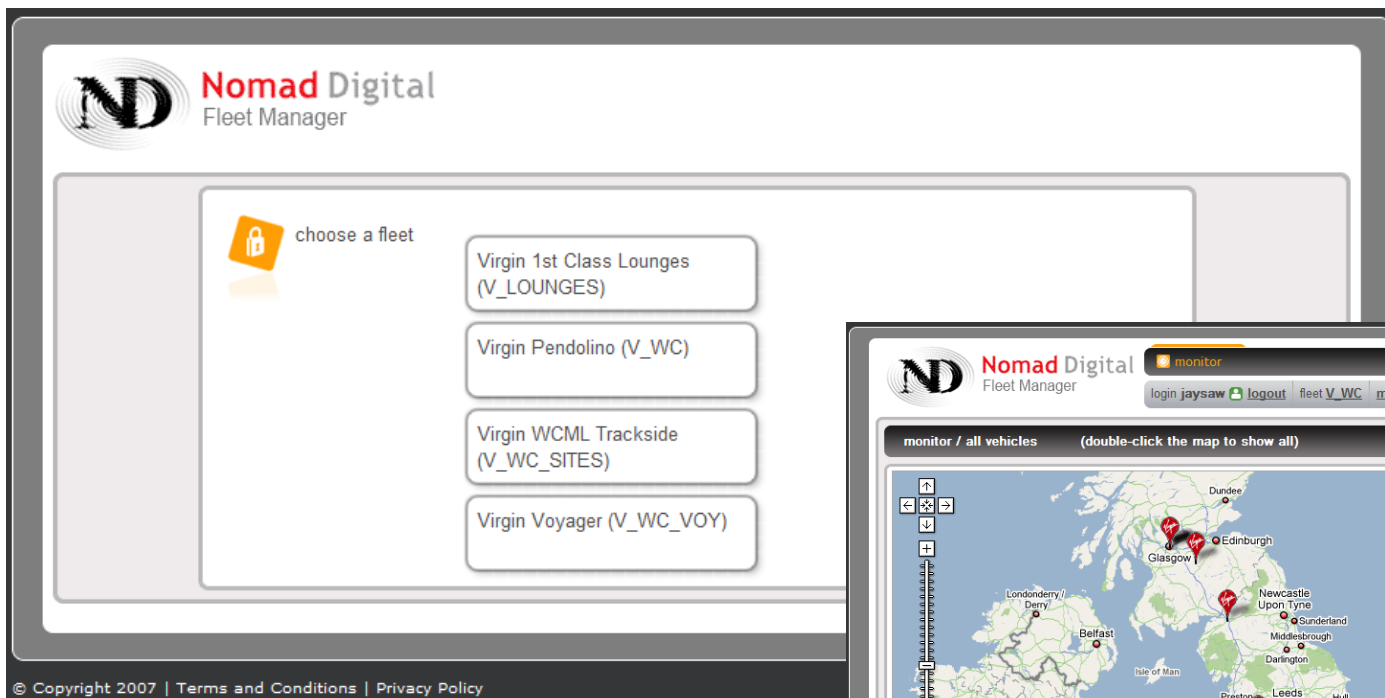
T-Mobile

T-Mobile HotSpot - Bandwidth Use HotSpot Name: Virgin Trains





Operations

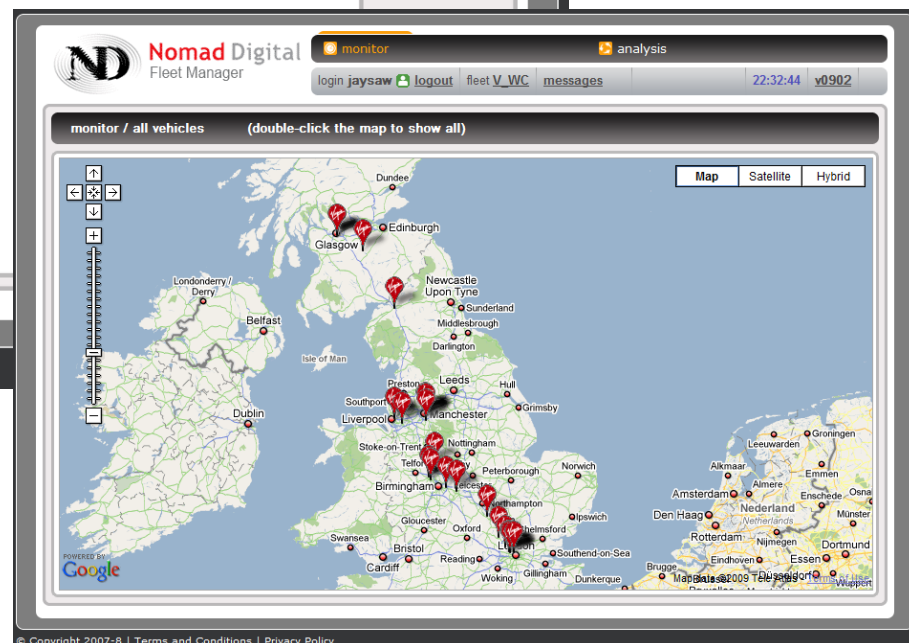


Nomad Digital
Fleet Manager

choose a fleet

- Virgin 1st Class Lounges (V_LOUNGES)
- Virgin Pendolino (V_WC)
- Virgin WCML Trackside (V_WC_SITES)
- Virgin Voyager (V_WC_VOY)

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Nomad Digital
Fleet Manager

monitor / all vehicles (double-click the map to show all)

Map Satellite Hybrid

powered by Google

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What Next

- Bandwidth Aggregation
- Operational applications
- Non-Rail Promotions
- Entertainment/Infotainment?
- More marketing initiatives
- Improved customer experience