




Enhanced On-Train Passenger Announcements (OTPA) via GSM-R

Network Change Notice – Industry Briefing
30 November 2022



Welcome and introduction

Jo Shelley, Head of Programme Management, Network Rail

- Introductions
- Smarter Information Smarter Journey programme
- Delivering onboard customer information – audio
- OTPA application as an Network Rail Service
- Network Change Notice: On-train implementation

Enhanced On-Train Passenger Announcements via GSM-R



Industry briefing for Enhanced OTPA via GSM-R

DESCRIPTION	SPEAKER
Introduction	Jo Shelley, Head of Programme Management (Freight and Customer) Network Rail
Why? - TOC perspective	Steve White, Managing Director, Southeastern
Why? - ORR perspective	Ian Prosser CBE, Director, Railway Safety, ORR
On-Train Passenger Announcement (OTPA) video	
Customer Information and TOC Control perspective	Anne Gray, Customer Information Strategy Manager (Scotrail) Kim Griffin, Head of Real Time Information (GTR) John Till, Head of Information Delivery (Southeastern Railway)
OTPA Service and System	Lynn Tippet-Wilson, Senior Delivery Manager, Network Rail Paul Owens, Enterprise Architect, Worldline
Industry collaboration	Dan Mann, Director of Industry Operations, Rail Delivery Group
Implementation Plan	Mike Johnston, Customer Project Director, Network Rail
GSM-R Cab Mobile software	Russell Clarke, General Manager Mobile Communications, Siemens
Network Change Notice (NCN)	Patrick Shaddock, Project Manager GSM-R Cab Mobile, Network Rail
Questions	Ryan Newsam, Project Manager, SISJ Programme

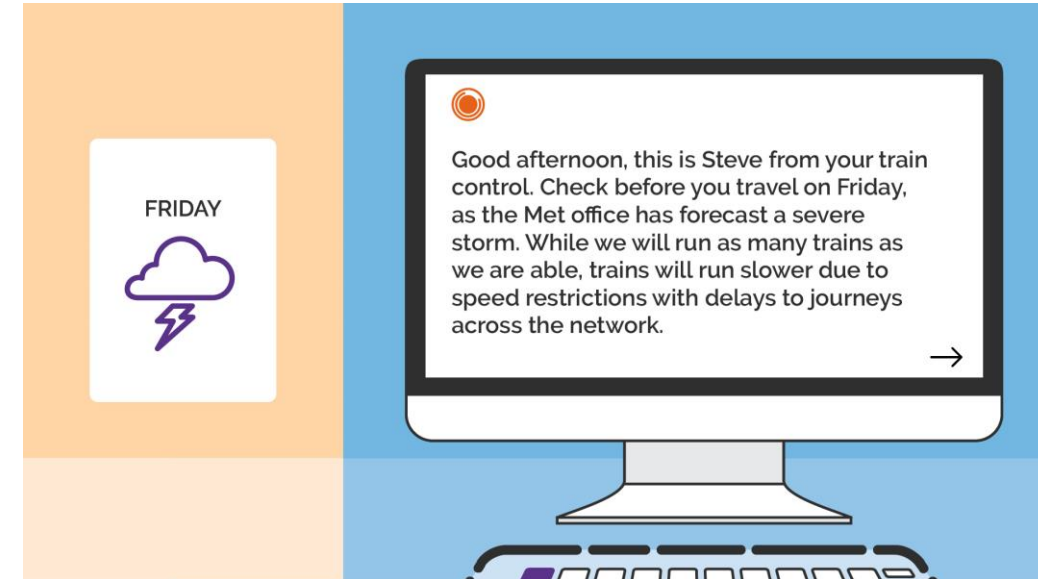


Onboard

Why? – TOC perspective

Steve White, Managing Director, Southeastern

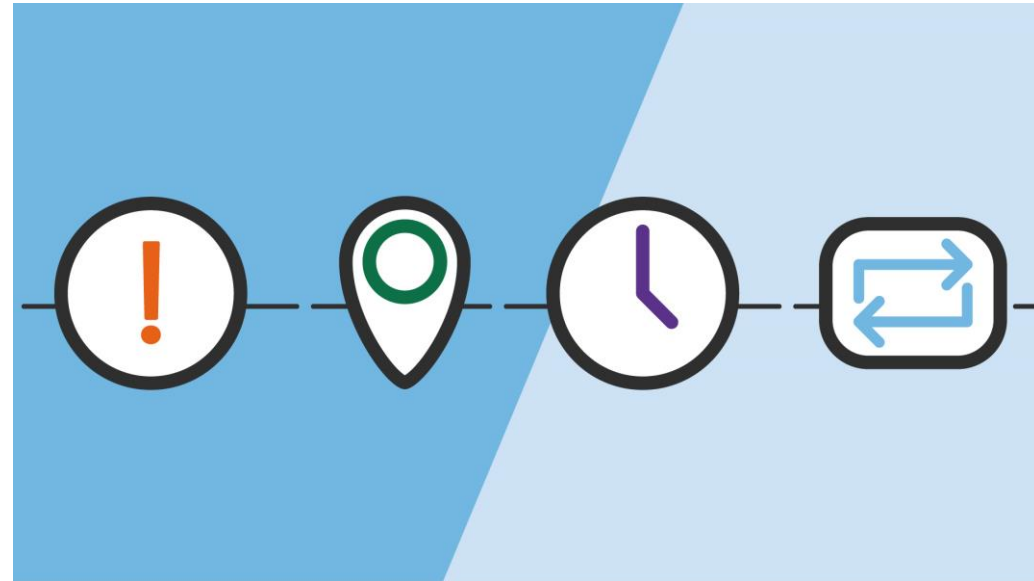
- Service will enable TOCs to keep customers better informed, especially on DOO services
- Lack of information is a recognised customer pain point, especially during disruption
- Solution leverages existing technology and resources
- Enhancing safety through reducing self-evacuation risk
- Supports train crew with regular customer messaging, if train crew need to prioritise incident management



Why? – ORR perspective

Ian Prosser CBE, Director, Railway Safety, Office of Rail and Road

- ORR commissioned the 'Winder Phillips' report into customer information which underpins SISJ programme
- Industry was not doing enough and needed to improve
- Capability existed through GSM-R and PA systems, but not configured and exploited effectively
- OTPA will enable relevant, timely and consistent information onboard if used correctly



Passenger Information During Disruption – GSM-R functionality

Anne Gray, Customer Information Strategy Manager, Scotrail

- GSM-R Fixed Terminals currently used to call individual trains
- Trial shows demonstrable improvement in customer satisfaction
- Current system limitations include:
 - Live messages only
 - Require driver permission, not always granted even during disruption
 - Shares voice channels with signaller, risk of interrupted messages
 - One train at a time
 - No location triggered or pre-scheduled messages
- Benefits being delivered, opportunity to enhance

Case study: threat of self evacuation



Friday 6 September 2019

2N02 1806 Glasgow Central to Neilston came to a stand outside Glasgow Central on the railway bridge with multiple running lines on each side of the train. The service was carrying football fans to Mount Florida station for an international fixture at Hampden Park.

Social media alerted Control of tweets showing below.

Both the GSMR operator and BTP embedded inspector used the PA to reassure fans that engineers were on site and working on a fix.

We better be getting refunded for this shite otherwise we will bust these doors open

It's going nowhere. There is already talk of folk opening the doors / emergency exit! Train is rammed.

6:51 PM · Sep 6, 2019 · Twitter for iPhone



If you can remove the sound from the Driver's cab then you will remove the main source of complaints from Drivers. If you can remove the requirement for an initial call to the Driver then the sky's the limit for GSMR usage.

Kevin, Scotrail Driver and Fixed Terminal Operator

Developing requirements through TOC working group

Kim Griffin, Head of Real Time Information, GTR

- We've taken a collaborative industry approach to the development of the system including its user and technical requirements.
- A bi-monthly working group has established what we should and could do and fed back regularly on the best approaches.
- Focused with TOC Control professionals who lead the teams that will ultimately utilise the system including the all important feed in from controllers themselves.
- We've got consensus across the working group TOCs that this is the right technology driven approach.



Lack of information creates risk and dissatisfaction

John Till, Head of Information Delivery, Southeastern

- Significant pain point for passengers is lack of information on DOO services – they don't feel “in control” when things go wrong
- Lewisham incident in March 2018, large number of passengers detrained from multiple DOO trains onto tracks during heavy snow – ability to speak to passengers onboard the trains would potentially have prevented this.

DISGRUNTLED commuters risked their lives jumping off stranded trains to walk alongside live tracks in a frustrated bid to get home after being trapped for three hours.

Passengers fled their packed trains as they were stuck in carriages with overflowing toilets, without heating or lighting, and some panicked as they needed to get home to take medication.



Josh Harsant
@joshharsant

...



Sebastian Groth
@showa58taro

Replying to @Se_Railway

Correct. No announcements about the delay was visible and no announcement was made by the driver or anyone else as we sat from 17:24-17:44 at which point I got off to go get the 17:48. Laughably at 17:47 my former train left anyway, unannounced, so I guess I'm home a bit later.

Hey @Se_Railway, on the 07:59 arrival into London Bridge, and we've been stopped just outside of Lee for nearly 10 mins. No announcement from driver. Do you know what's happening?



Lia Bright
@liabright

@Se_Railway can the driver on the broken down train at Belvedere make an announcement, so we can plan the rest of our journey

Improving passenger experience with great information

John Till, Head of Information Delivery, Southeastern

- Providing high quality information provides reassurance, especially those with anxiety for example, whilst at the same time helping to keep passengers “on side”
- When done well, it can increase satisfaction or at least minimise the impact of disruption



Tonbridge Commuters
@TonLinCommuters

Great announcement from the driver of the delayed 7.53 HLB to CHX service. Ticked all the boxes for me. First class [@Se_Railway](#) ^RM



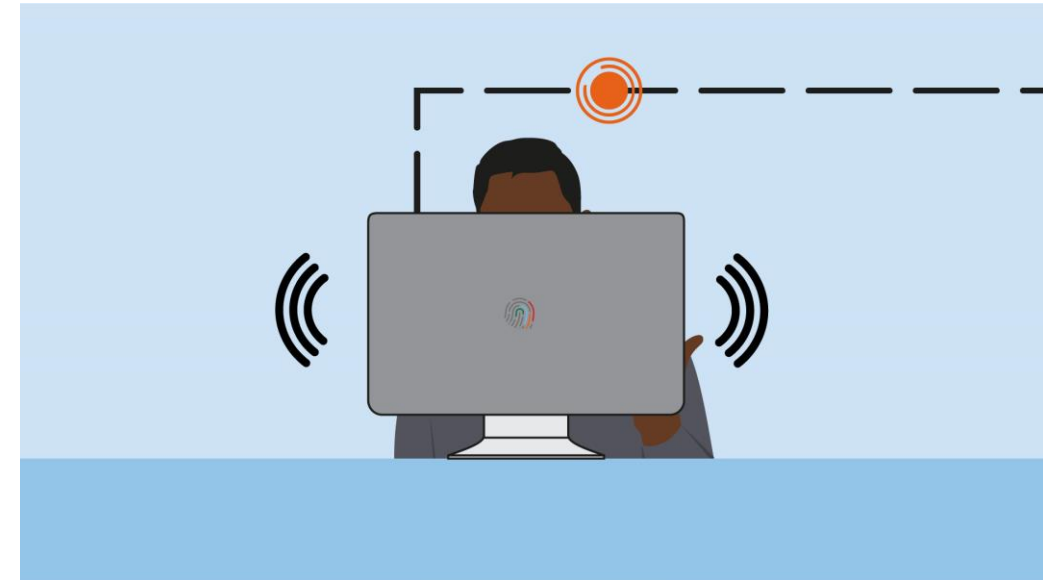
Rishi #TeamLH
@onesquish

18.50 from Cannon Street train driver is great with his announcement and sentiment about the delays
[@Se_Railway](#)



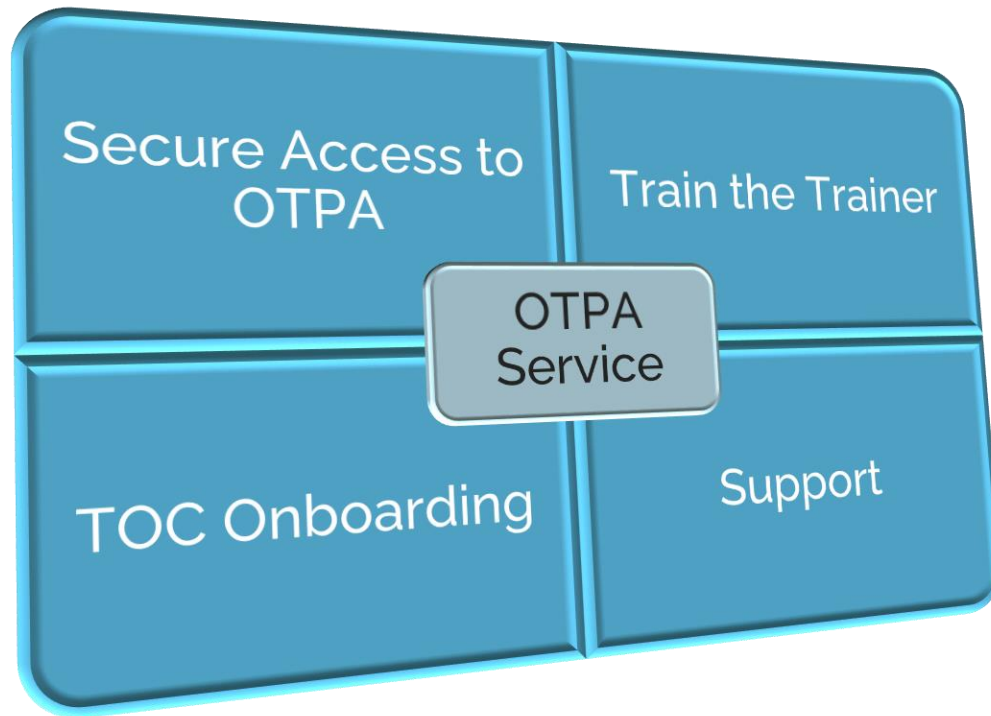
Lee Andrews
@lda1

[@Se_Railway](#) the driver of the 7.10 Slade Green - Charing X today has excellent announcement skills. Clear, friendly and helpful. Great for today's issues at New Cross. Please pass on my thanks if you can.



OTPA Service and System

Lynn Tippet-Wilson, Senior Delivery Manager, Network Rail



A screenshot of the Network Rail "On Train Passenger Announcement" web application. The interface includes a navigation bar with links: "New Announcement", "Announcement List", "Announcement History", "Manage TOC", and "Manage TOCs". The user "Peter" is logged in. The main section is titled "On Train Passenger Announcement" and contains a "Create Announcement" form.

Train Selection

<input type="checkbox"/>	Headcode	Origin	Departure Time	Destination	Arrival Time	Last Reported Location	Last Reported Time	Lateness	Schedule ID	Day of Run
<input type="checkbox"/>	2A44	TIPLOS	2022-10-16 00:09	TIPLOCE	2022-10-16 00:11				X54321	2022-04-28
<input type="checkbox"/>	2A45	TIPLOS	2022-10-16 00:09	TIPLOCE	2022-10-16 00:11				X54325	2022-04-28
<input type="checkbox"/>	2A46	TIPLOS	2022-10-16 00:09	TIPLOCE	2022-10-16 00:11				X54326	2022-04-28

Announcement

Announcement title: Network Rail Announcement Location Trigger

Announcement trigger:

- ☐ Send now
- ☐ Send at a specific time
- ☒ Send at a specific location event

Location Name: NEWBRGH - STANME

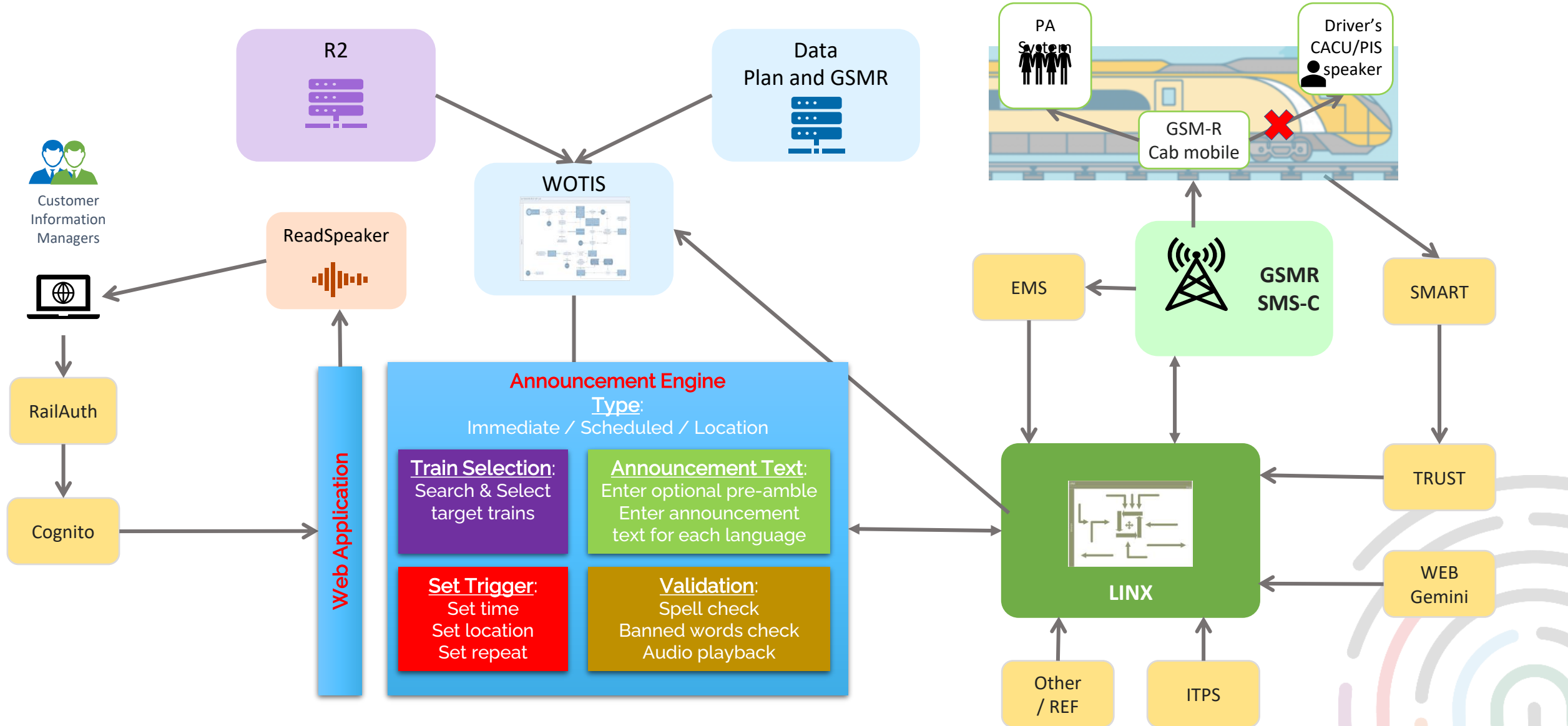
Between: 10-11-2022 10:00

And: 10-11-2022 15:00

Movement Type: ☒ Arrive ☐ Depart

OTPA technical solution

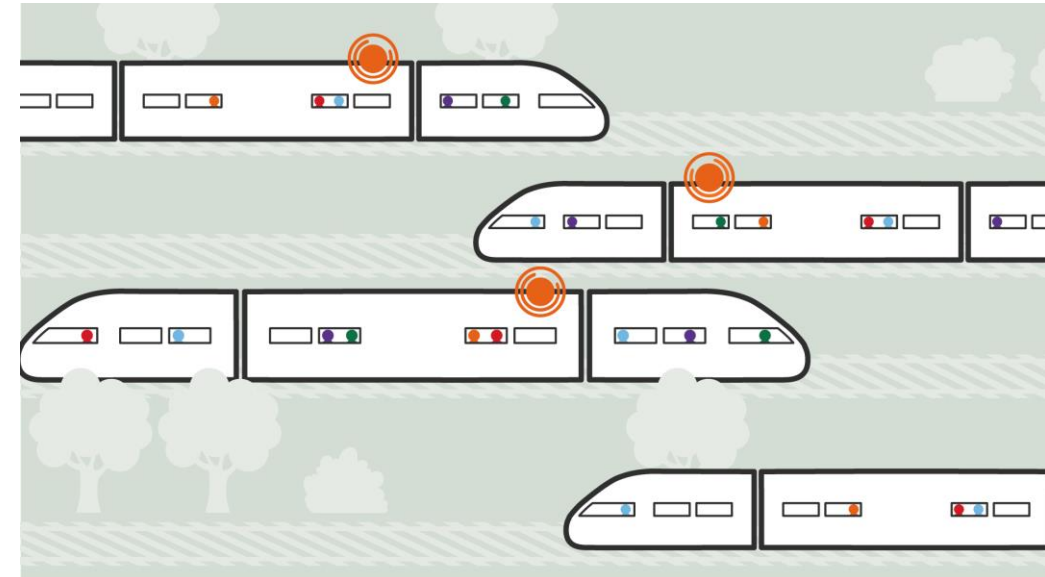
Paul Owens, Enterprise Architect, Worldline



Industry collaboration

Dan Mann, Director of Industry Operations, Rail Delivery Group

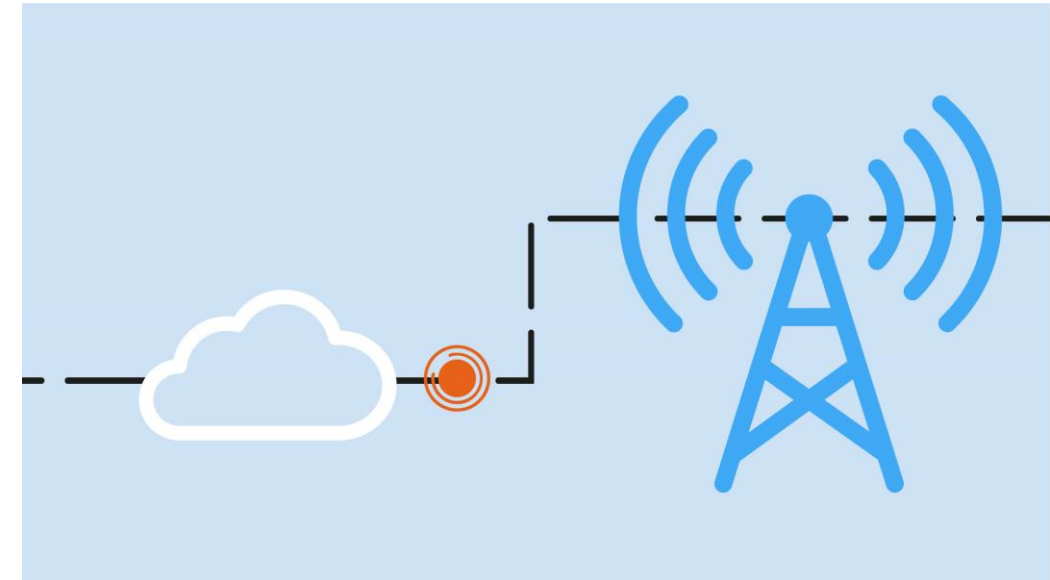
- This industry is at its best when it works together
- TOC collaboration under the Customer Information Group (CIG) governance achieving positive outcomes
- Deliver benefits working together and share best practice
- Not just a technology project, success will be driven through managing change
- Solution is a start not an end, manage the in-life service, and seek opportunities to develop



Implementation and scope of Network Change Notice

Mike Johnston, Customer Project Director, Network Rail

- Operations teams need to be ready to exploit
 - Business change templates being developed to support adoption
 - Train the trainer package will support TOCs to embed
- Accessibility and Inclusion compliant
- Network Change Notice will cover full scope of train modifications
 - GSM-R cab mobile V5.0 software and Text to Speech engine
 - CACU/PIS modifications to address Driver Distraction
- Engineering teams will implement technical changes under Network Change Notice
 - Completion without impacting fleet availability



OTPA TIMELINE

01 AUTHORITY

NR authorised the development of the software solution

02 REQUIREMENTS

Detailed requirements agreed with CIG / TOCs

03 CACU SCOPE

CACU scoping to specify and commence any modifications required

05 APPROVALS

Factory, Site and User Acceptance Testing, Industry body approvals

04 DEVELOPMENT

Completion for the software development for User Application and cab radio

06 OPERATIONAL TRIAL

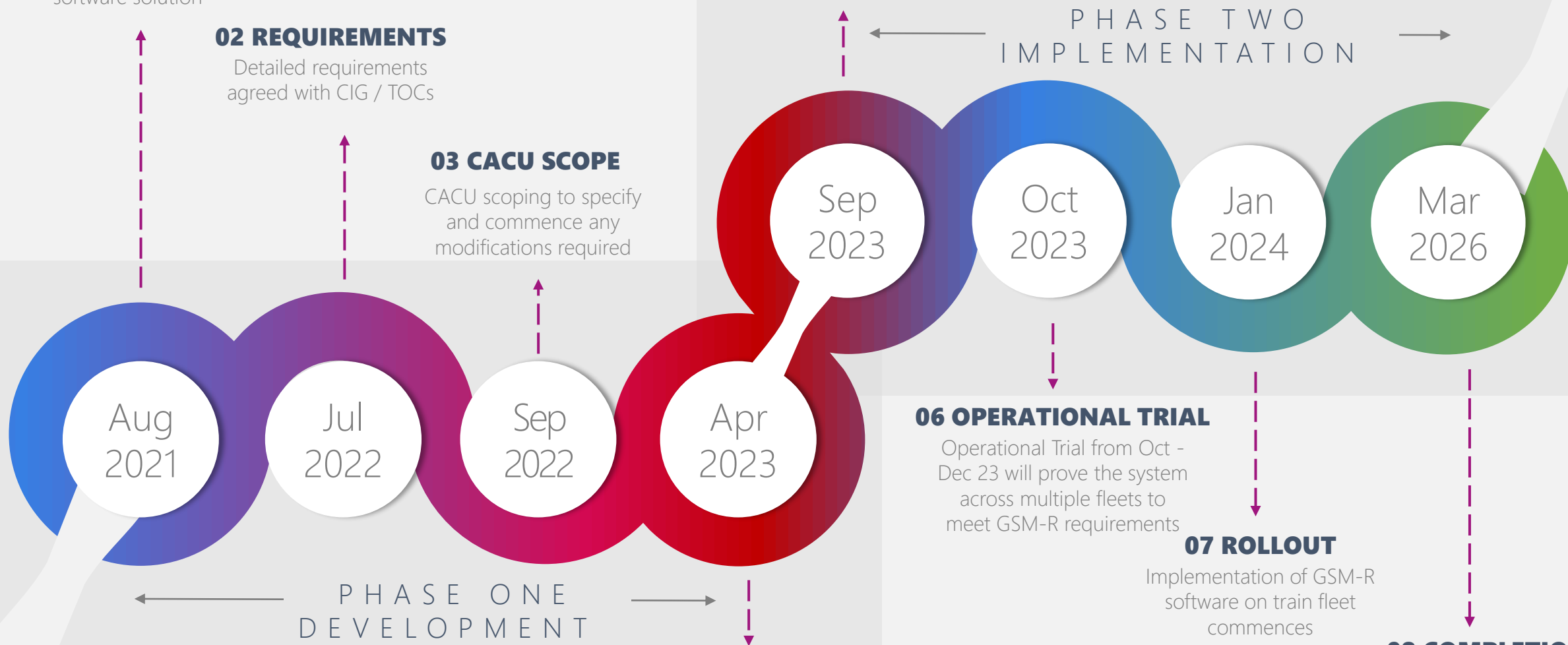
Operational Trial from Oct - Dec 23 will prove the system across multiple fleets to meet GSM-R requirements

07 ROLLOUT

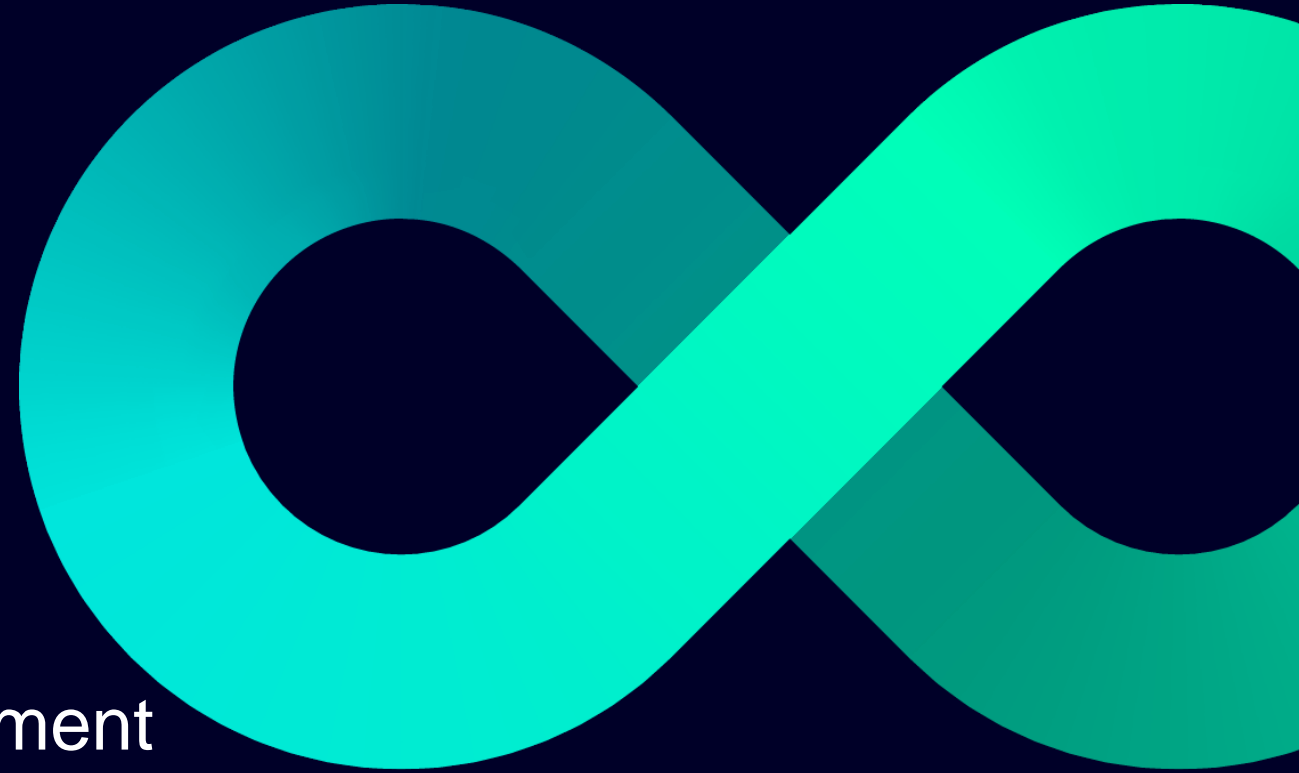
Implementation of GSM-R software on train fleet commences

08 COMPLETION

Forecast completion of all GSM-R software and CACU upgrades



GSM-R Cab Mobile



V5.0 Cab Mobile Software Development
Russell Clarke – General Manager Mobile
Communications

V5.0 Cab Mobile Software Update

Enabling Text to Speech for OTPA



- Enhancement to the Cab Mobile to receive text messages from a ground system
- Text messages are converted into speech and played over the PA system
- Utilises existing hardware deployed as part of the V4.0 upgrade
- Text-to-speech engine supports 8 languages , 19 voices
- Embedded text-to-speech engine does not require LTE activity
- Supports Geofencing for triggering announcements (future capability)
- No impact to existing GSM-R operation
- Extensive testing regime planned with the ground system supplier
- Extensive testing regime planned including industry Factory Acceptance Test



V5.0 Cab Mobile Software Update

V5.0 Additional Implementations



- GNSS Dead Reckoning enhancement
 - Increase performance of algorithm to predict GPS location without GPS coverage e.g. when the train is in a tunnel
- Muted radio fix
 - Changing hook-switch state during setting speaker volume
- Silent Cab Mobile response
 - Setting the Cab Mobile tone generator and cross point switch to a 'known state' to reduce the likelihood of such an event occurring



Removing Driver Distraction

Patrick Shaddock, Project Manager, Network Rail

- Driver Distraction from PA broadcasts continue, despite GSM-R software V3.6 removing broadcast from GSM-R cab speaker
- PA calls being played on the in-cab CACU/PIS speaker
- Scope is to revisit the PIDD requirement for removing the driver distraction in the cab and mute the CACU/PIS speaker
- No single solution due to diversity of train fitments
- Train Operators required to work with the CACU/PIS OEM supplier to mute the speaker on the CACU/PIS system in the driver cab
- Full technology refresh not funded, scope is limited to mute



Network Change Notice

Patrick Shaddock, Project Manager, Network Rail

- Update of the Siemen's GSM-R cab mobile software to V5.0
 - Existing Portable Maintenance Unit (PMU) will be used
- Installation of Text to Speech software and associate application onto the processor card to enable the OTPA system to operate.
 - Portable LTE antenna to be free issued for over the air update
 - Combined GSM-R software upgrade should take about 1 hour
- Modification to ensure that the driver's PA system speaker is muted, in line with PIDD standards
- Modification to connect the GSM-R cab mobile to the on-board PA system, where required

Operator cost categories

- Project Management
- Safety Management System (SMS) review and update
- Engineering Change (EC) preparation and submission to relevant ROSCO
- Technician time to download and install software on the GSM-R cab mobile
- Authorisation
- Development costs for suppliers to update CACU/PIS system software to mute the in-cab speaker
- Technician time to modify the CACU / PIS
- Where PA is not connected to the GSM-R cab mobile, reasonable design costs, labour and material cost to connect the PA to GSM-R cab mobile [∞]

[∞] Reasonable costs only for physical changes to on-board systems, technology refresh or hardware upgrades are out of scope

Questions



Closing remarks

Jo Shelley

Head of Programme Management, Network Rail

Please contact:

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for a copy of the slides or access to the recording

