FRMCS

Future Railway Mobile Communication System

On-Board Architecture – Technical Key for Migration

CCRCC2019 CONFERENCE, VALENCIENNES

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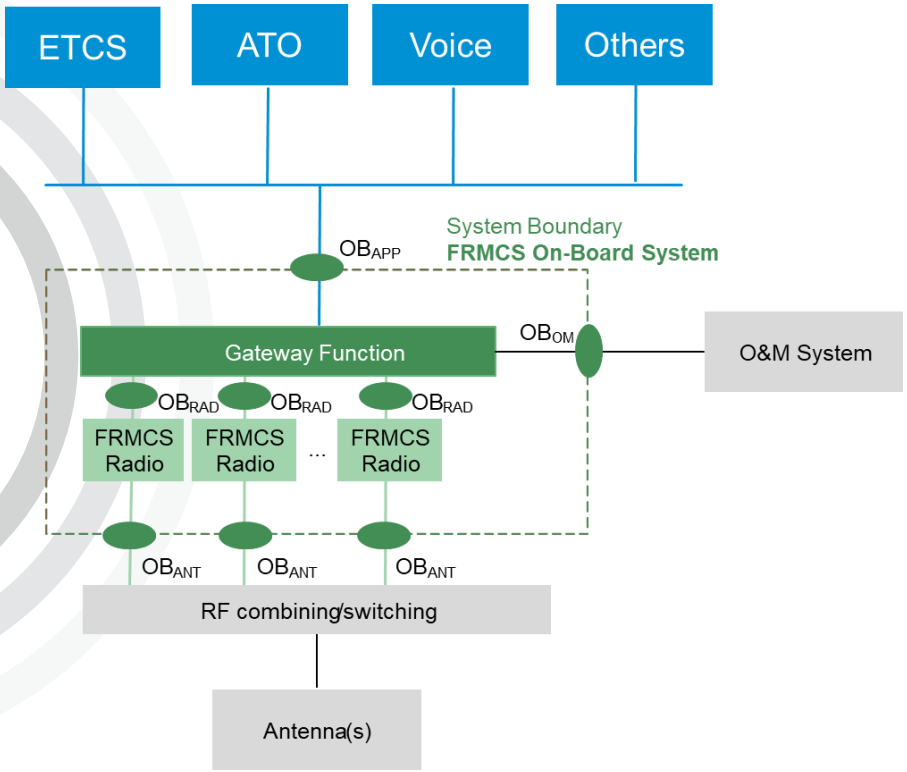
FRMCS On-Board System – Getting Ready for the Future



FRMCS Radio: Any Radio Access Technology considered to be an FRMCS compliant technology (Bearer Flexibility)

Key Design Paradigms

Decoupling of Applications and Transport

A radio access technology agnostic, standardised interface between the applications and the FRMCS on-board system.

Flexibility & Upgradability

The FRMCS on-board system provides transport services using a selection of different access technologies to address different deployment scenarios.

The decoupling of application and transport paired with bearer flexibility concept, allows the addition of future radio access technology without impacting the applications.

Efficiency & Redundancy

Delegation of the transport service selection from the applications to the FRMCS on-boards system allows efficient use of the radio resources available

The architecture with multiple, centrally managed radios provides the possibility to establish redundant connectivity.

Operation & Maintenance

O&M remote access to the FRMCS on-board system facilitates operation and maintenance tasks, like deploying new software or configurations.

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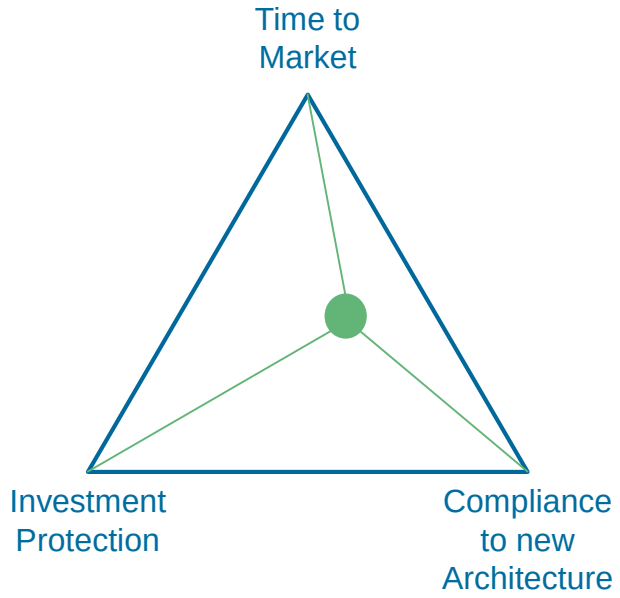
Migration Options for ETCS and Voice

How to best migrate existing installations, ensuring backwards compatibility with GSM-R during the (trackside) migration period?

It is a **trade-off** between

- **Investment Protection** – avoiding changes to existing equipment
- **Compliance to new architecture** – leverage the benefits of the FRMCS on-board system
- **Time to Market** – Standardisation, development, certification



Migration Options for ETCS Installations

Existing

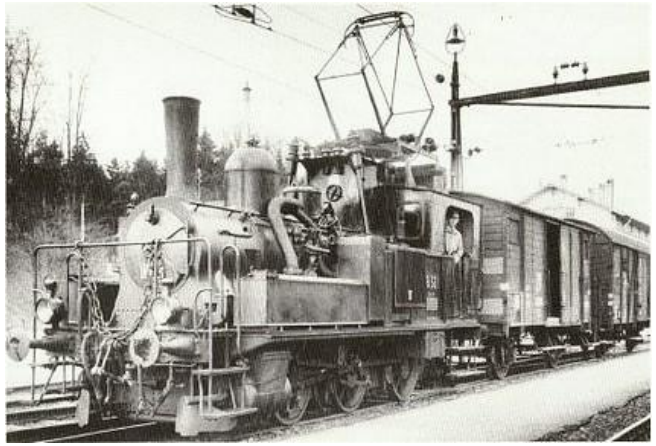
Modified

Adaption

Target

Keep Existing Interfaces & Protocols

(Var. 1b in TOBA-7515)



Benefits

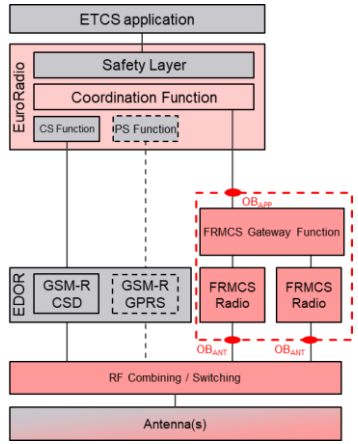
- No changes to existing (= BL3 R2) ETCS installations

Disadvantages

- Development of challenging protocol adapters to emulate a GSM-R EDOR
- Requires an additional migration step to introduce the target architecture

Leave GSM-R untouched, add new Interface for FRMCS

(Var. 3 in TOBA-7515)



Benefits

- No protocol adapters
- Full feature set of FRMCS on-board system architecture

Disadvantages

- New OB_{APP} Interface / protocol to be implemented in existing on-board installations

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Thanks for your kind attention