



openETCS Generic API

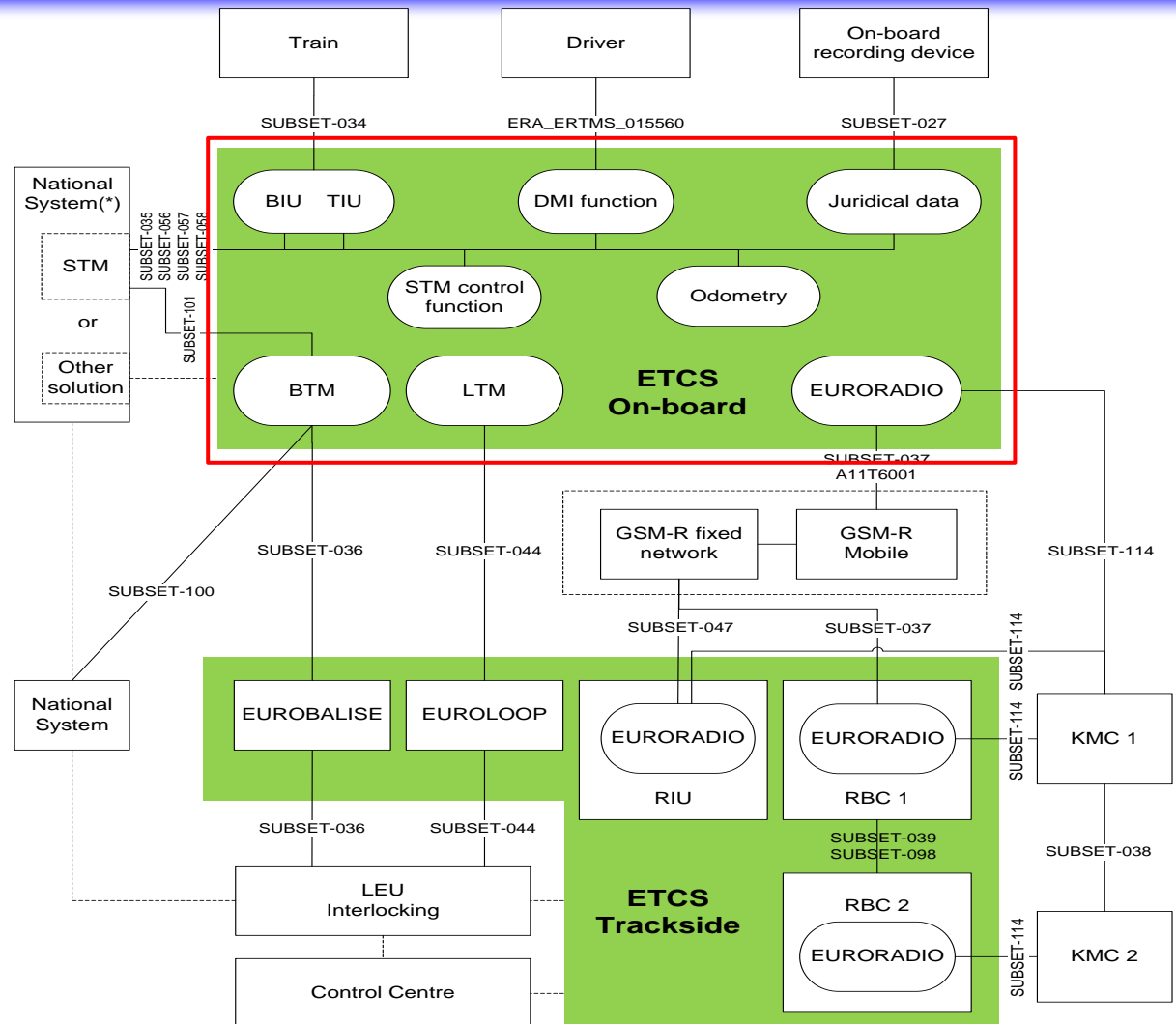
openETCS API Workshop

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Munich, 13.5.2014

openETCS Generic API – WHAT?

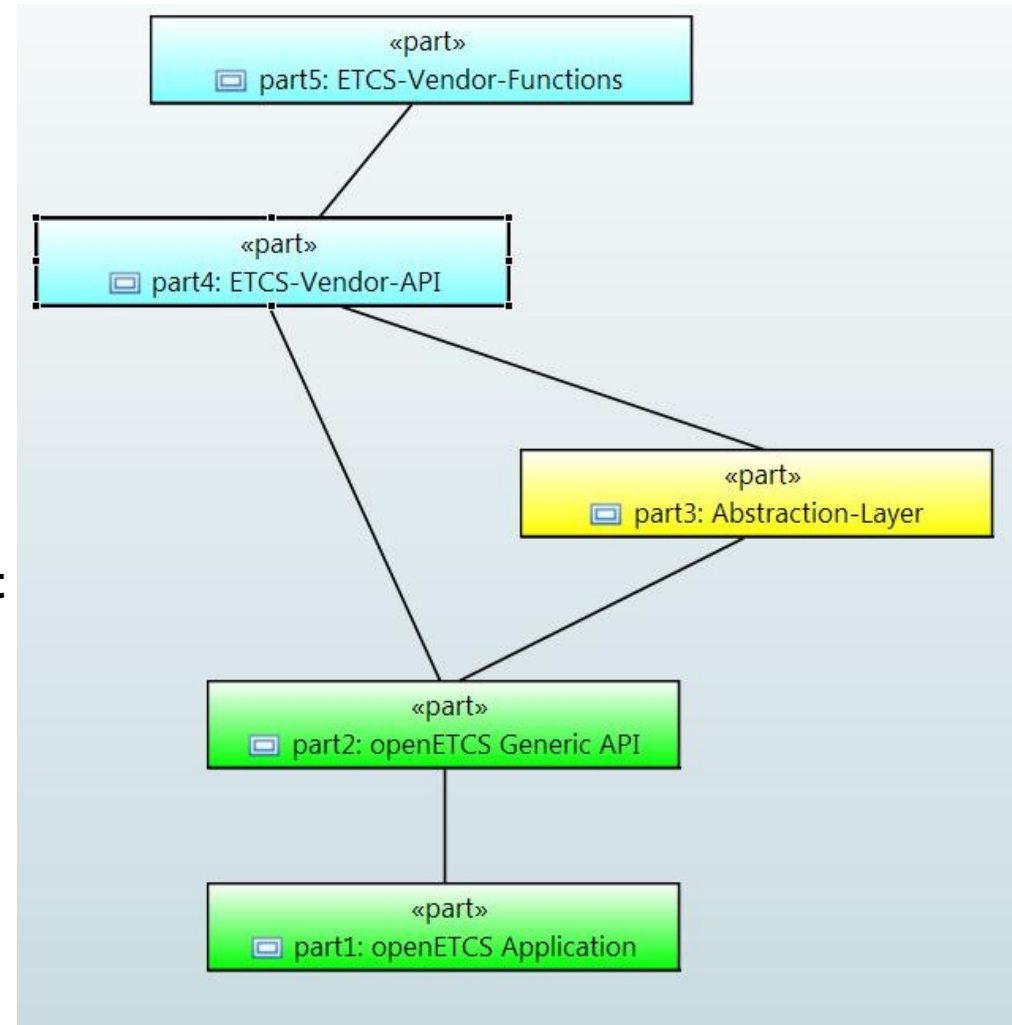
- SRS defines in detail interfaces between ETCS On-board and ETCS Trackside
- But most interfaces inside the On-Board System are foggy. They are left open to the implementation skills of the ETCS suppliers.
- The openETCS Generic API defines interfaces between functions of the On-Board and the Application function in a supplier- independent way.
- Target: Keep as much as possible generic and implement the openETCS runtime model.



(*) Depending on its functionality and the desired configuration, the national system can be addressed either via an STM using the standard interface or via another national solution

openETCS Generic API – Architecture

- The openETCS Generic API is part of the published openETCS model. It defines a well-organized interface to the openETCS application software.
- To provide interfaces between the openETCS Application and other vendor's existing implementations an Abstraction Layer is foreseen.
- In the openETCS ItEA project the Abstraction Layer is needed to connect to the Alstom API implementation and to the ERSA demonstrator.
- The Abstraction layer can provide simple mapping of dimensions and more complex functions.



- **API-Dimensions**
 - The API defines dimensions for time, distance, speed, acceleration and the corresponding in-accuracies.
 - Where-ever a dimension is needed, the generic dimension has to be used.
- **API-Interfaces to ETCS Functions**
 - The API defines interfaces for all Functions documented in SRS Subset 26 section 2.5.3 (ERTMS/ETCS reference architecture).
 - Where possible, ETCS language elements for defining interfaces.
- **Abstraction Layer Runtime System**
 - provides runtime services like generic Time System, Fault Management, Initialization and more.
- **Abstraction Layer: Design Decision Decoding and Encoding**
 - The de-/encoding of ETCS messages and packets is part of the Abstraction Layer. The openETCS Application does not need to take care on such functions.
- **Abstraction Layer: Hiding of design decisions related to the assignment of functions to software/hardware subsystems.**

- Timeline Generic API
 - The interface definition of the generic API has to be done with high priority to be able to deliver to WP4 and WP5.
 - The generic API has to be improved in steps and as a part of the modelling work.
 - The first release has to cover the architecture and the majority of the interfaces.
- Timeline Abstraction Layer
 - The implementation of the Abstraction Layer can follow in iterations.
 - The layer will be growing in parallel to the openETCS coverage of the ETCS functions.
- Implication on Verification & Validation?
- Implication on Demonstrator?