

A software platform for bridging the gap between electronic systems of hugely different life cycles and modernity/ Micro SOA

Bringing Service Oriented Architecture to the embedded world

Project Idea! – Call for Partners

Presenter:

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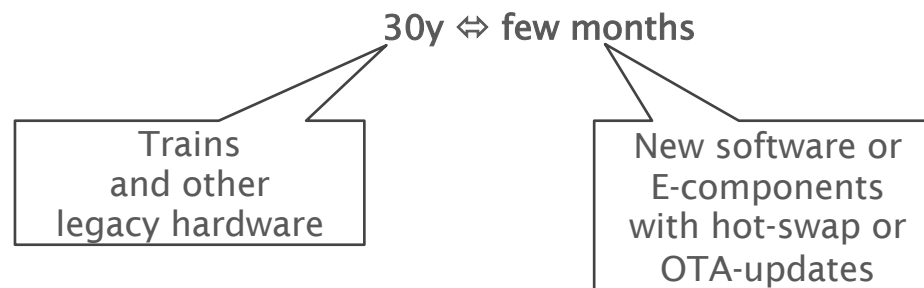
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Shift2Rail Open Call Info Day 2019

Current Situation

Electrical and Electronic (E/E) architectures must deal with a shift in environment with forces applying all at the same time:

- Highly disruptive technologies all maturing at the same time: power electronics, fast backbones...
- Adds complexity, impacts product development thinking and creation of systems of systems
- Demand for Vehicle internet connectivity is challenging existing software and electronics architectures.
- Growing cyber security risks and safety regulations create new corporate obligations
- Increasingly difficult to manage this complexity in a coherent way
- Manufacturers and operators must deal increased technology complexity, safety and cyber-security implications, while always reducing costs and time to market.
- **Products/system consisting of sub-systems of very different life cycles**



Solution:

Bring Service Oriented Architecture (SOA) to the embedded rail world: the concept of “Micro SOA”
=> Compare to AUTOSAR

embedded S.O.A.

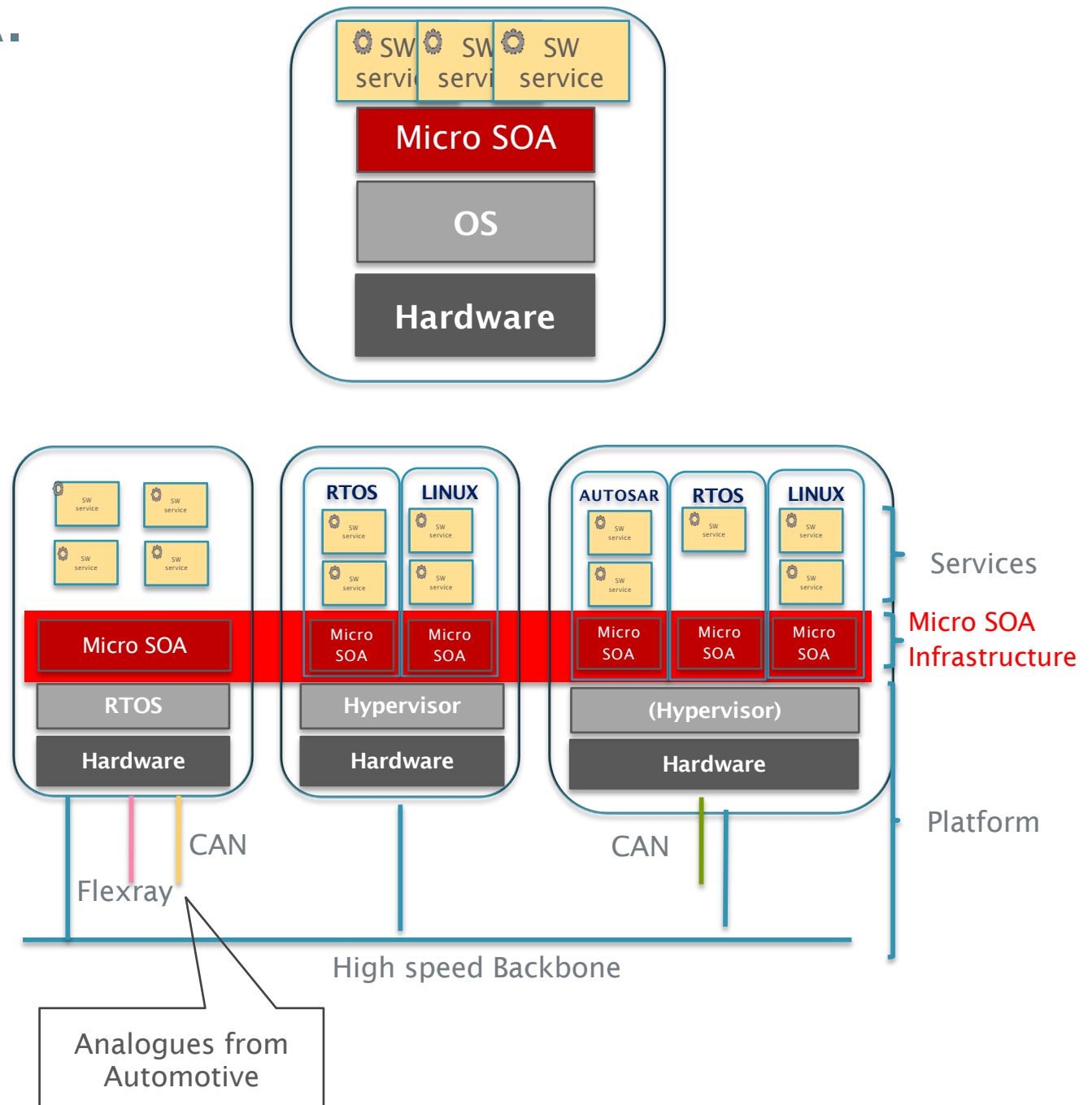
A **SW Middleware** (runtime) for modern vehicles and machines.

Model Based Tooling

- Application development
- System topology definition

Aimed at providing **coherence** to the engineering of increasingly complex intelligent systems.

- Bringing **SOA** principles and methods of the consumer technology and IT industry to the **embedded world**: the **Micro SOA** concept
- Progressive deployment by dealing with **legacy sub-systems**



Proposal abstract .. to be modified..

The objectives of this project are to develop a future, sustainable, reconfigurable, distributed railway TCMS architecture and TCMS system that will enable better and faster integration of different OEM electronic, HW, and SW systems including safety systems, and better cross-operation and standardization. Similar developments are underway in the avionics and automotive industries that are also leading standardization of suppliers and control, safety, and communication systems, as exemplified in the case of the Autosar partnership (Autosar = automotive open system architecture).

Threefold objectives are targets to be achieved within SMART-TCMS project:

(1) development of future concepts and technologies to enable distributed, standardized and safety relevant / enabling TCMS (enabling SII3/SIL4 functional safety integration), based on functional distributed architecture

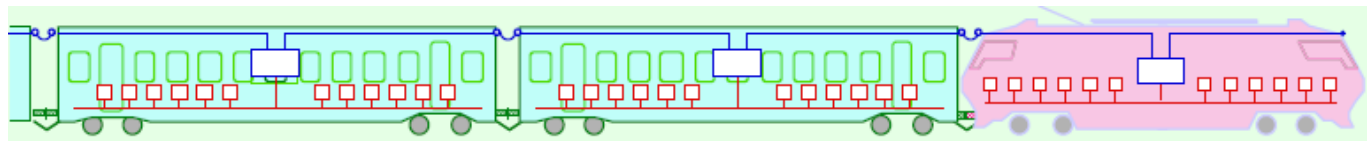
(2) conduction of corresponding technology feasibility studies, and

(3) progressing on standardization in the railway sector similar to the Autosar approach Goal: RailwaySAR.

Cross-functional methodologies in Technology and Innovation management will be applied throughout the project, coupled with enhanced V-cycle model of architecture and product development (covering requirements, systems engineering, architecture analysis, as well as working out SMART-TCMS specifications and proof-of-concept feasibility & demonstrator cycles).

Partners wanted

- Manufacturers and operators in EU dealing with above problems, or having similar ambitions.
- Embedded software specialists/SMEs.



RailwaySAR

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