



AUTOSAR Introduction

Part 2 – Current Features in a Nutshell

BMW Group



BOSCH



DAIMLER



PSA
GROUPE

TOYOTA

VOLKSWAGEN
AKTIENGESELLSCHAFT

Agenda

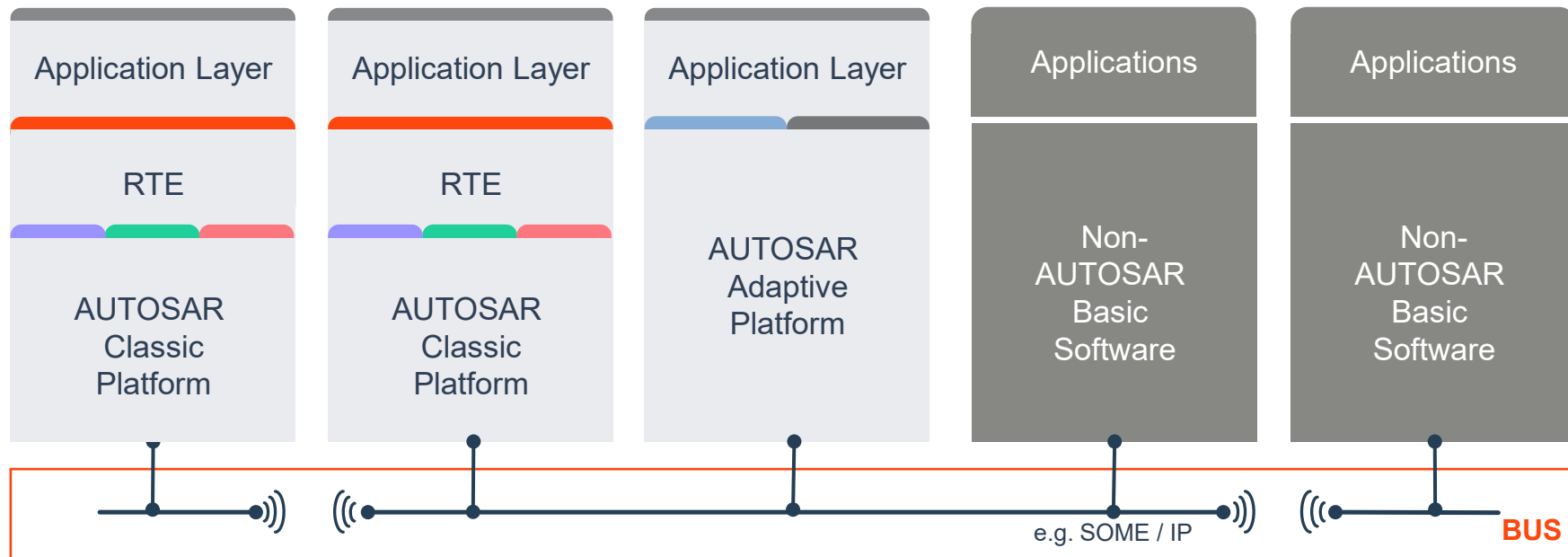
Part 1

- ▶ The AUTOSAR Partnership
- ▶ The AUTOSAR Standardization

Part 2

- ▶ Architecture and Features
 - AUTOSAR in Vehicle Network
 - AUTOSAR Foundation
 - AUTOSAR Classic Platform
 - AUTOSAR Adaptive Platform
- ▶ Smart Solutions Based on AUTOSAR
- ▶ Processes and Quality

AUTOSAR in a Vehicle Network

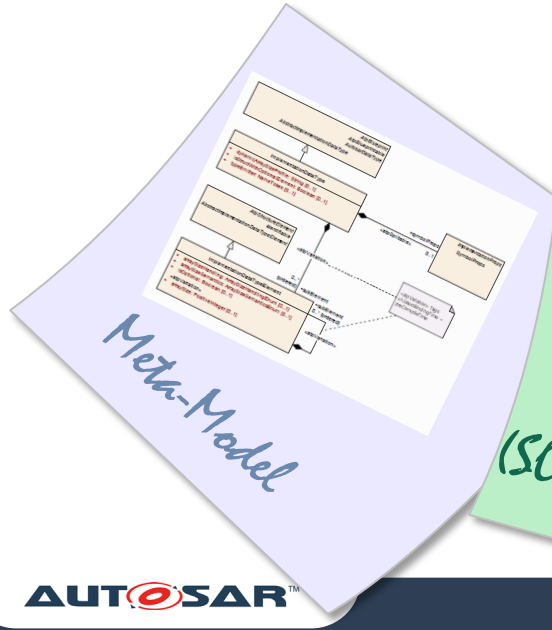


Common Bus Interface Specification

AUTOSAR Foundation

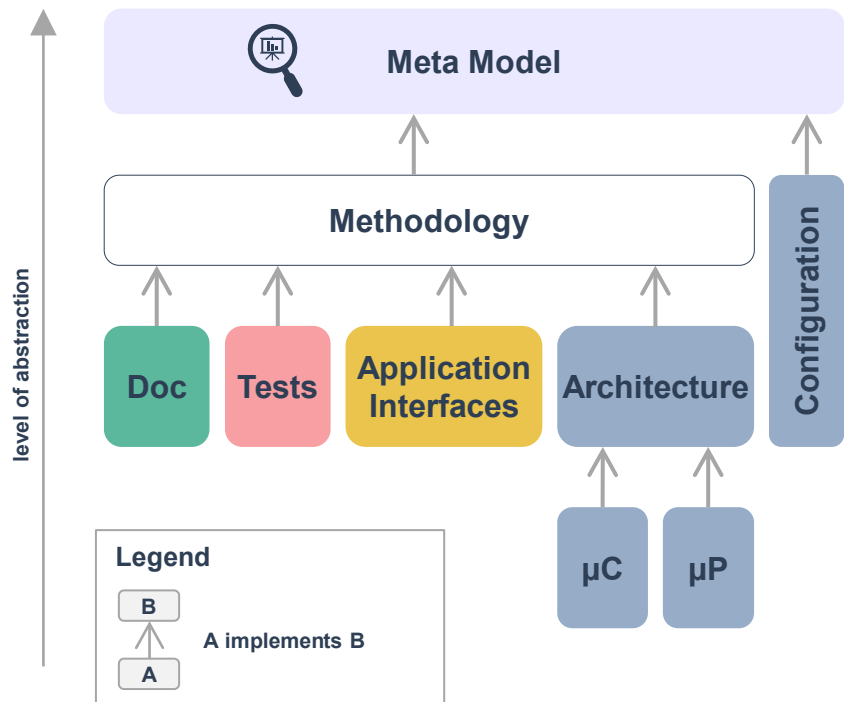
Common Features

The Foundation **assures compatibility** of the different AUTOSAR standards and therefore **contains** all **common artifacts** such as ...



AUTOSAR Foundation

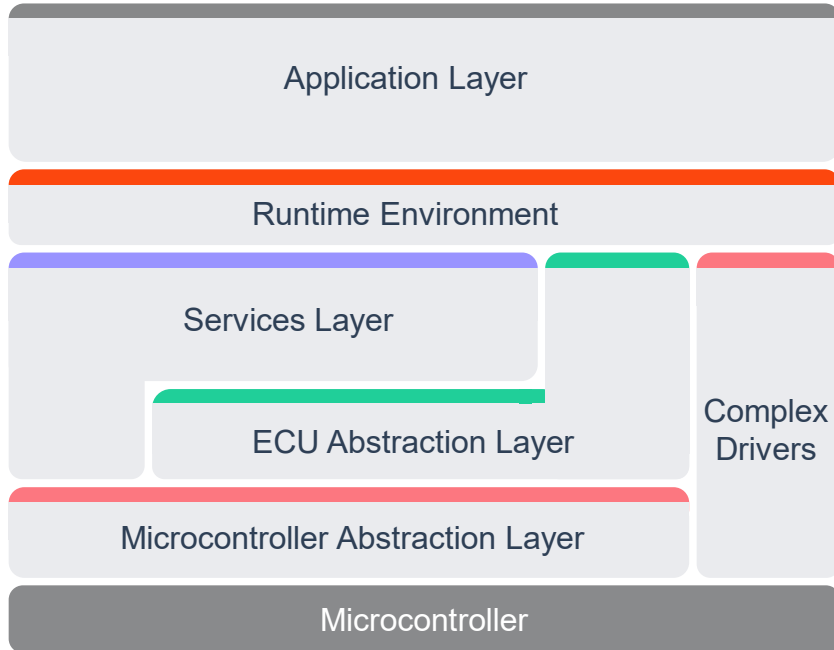
The Methodology, derived out of the Meta Model, ...



- ... provides means to describe the AUTOSAR **architecture** with all its **interfaces**
- ... defines **exchange formats** and description **templates** (e.g. manifest) to enable
 - a seamless integration of the complete vehicle E/E architecture,
 - the automatized configuration of the μ C- and μ P-software stacks and
 - the seamless integration of application software
- ... supports means to **ensure safety** and **security** of the system
- ... provides templates to **document the standard**

AUTOSAR Classic Platform

Layered Software Architecture (1/2)

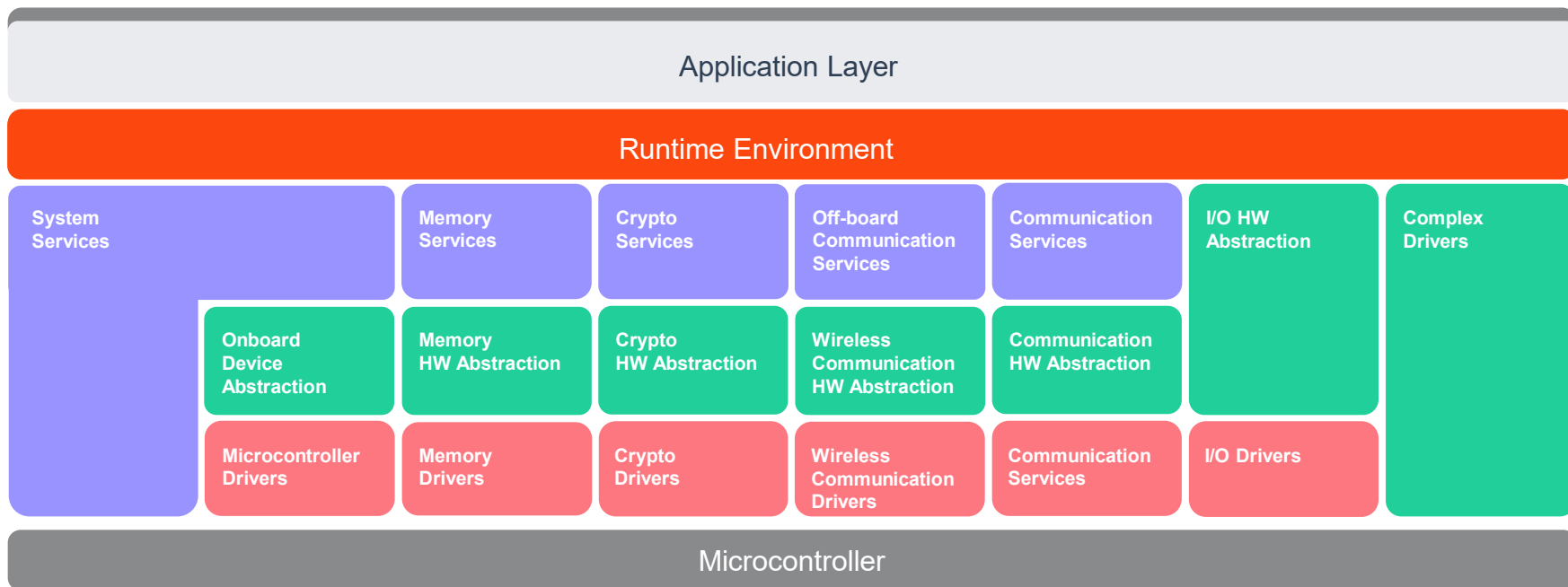


The layered architecture of the classic platform basically supports

- Hardware abstraction
- Scheduling of runnables and tasks (OS)
- Communication between applications on the same hardware and over the network
- Diagnosis and diagnostic services
- Safety- and
- Security Services

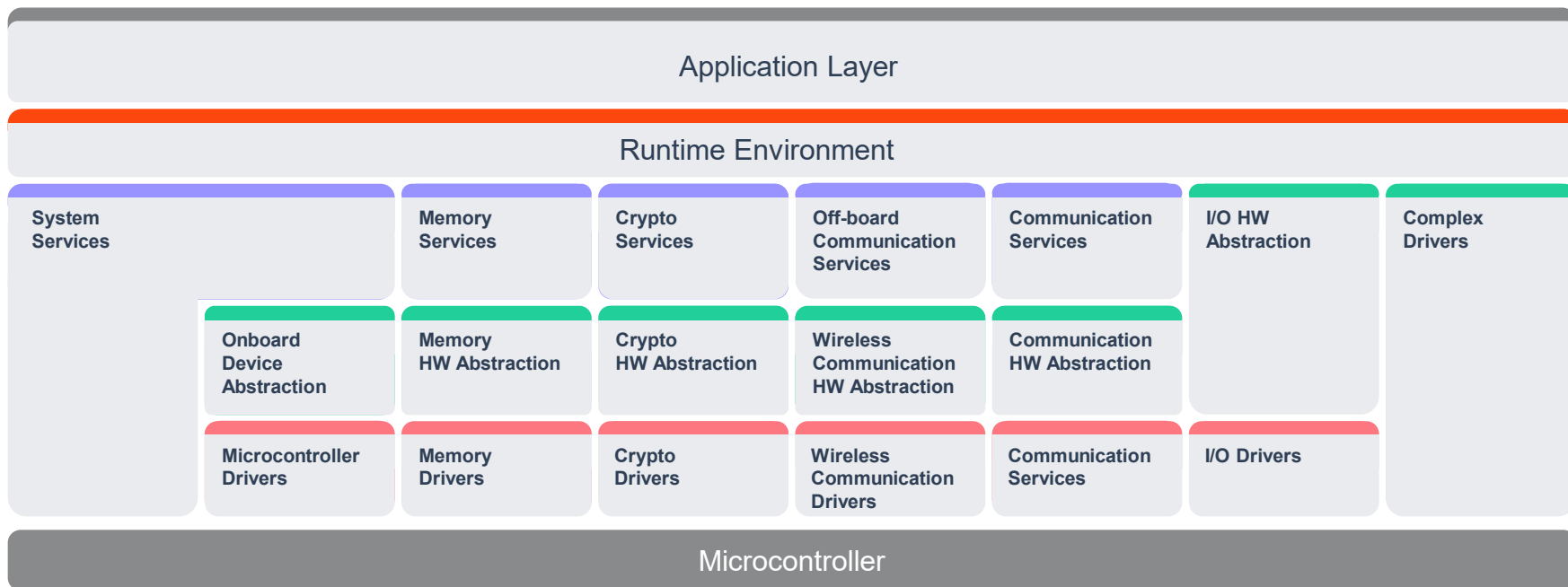
AUTOSAR Classic Platform

Layered Software Architecture (2/2)



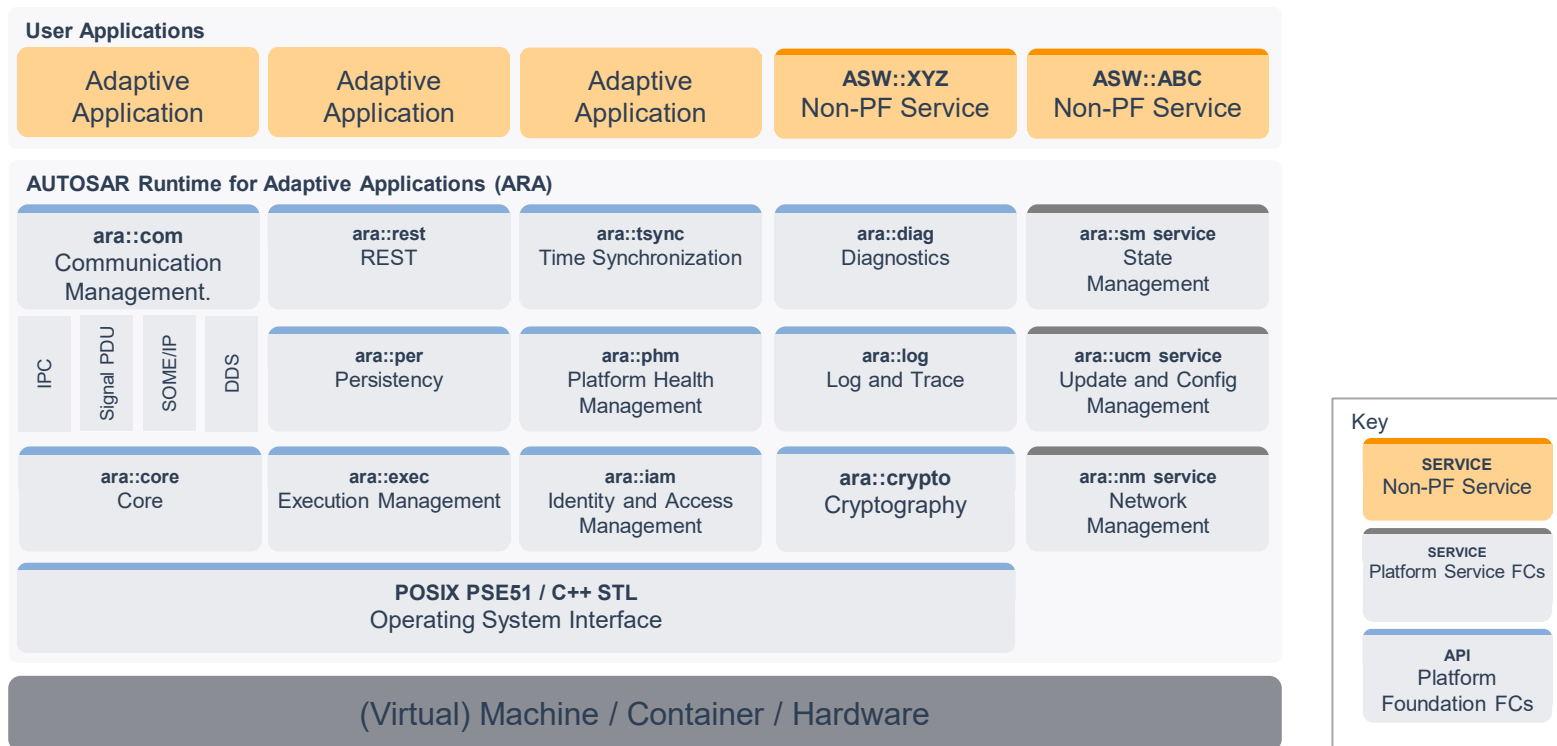
AUTOSAR Classic Platform

Layered Software Architecture (2/2)



AUTOSAR Adaptive Platform

Architecture - Logical view



AUTOSAR Standards Roadmap



Agenda

Part 1

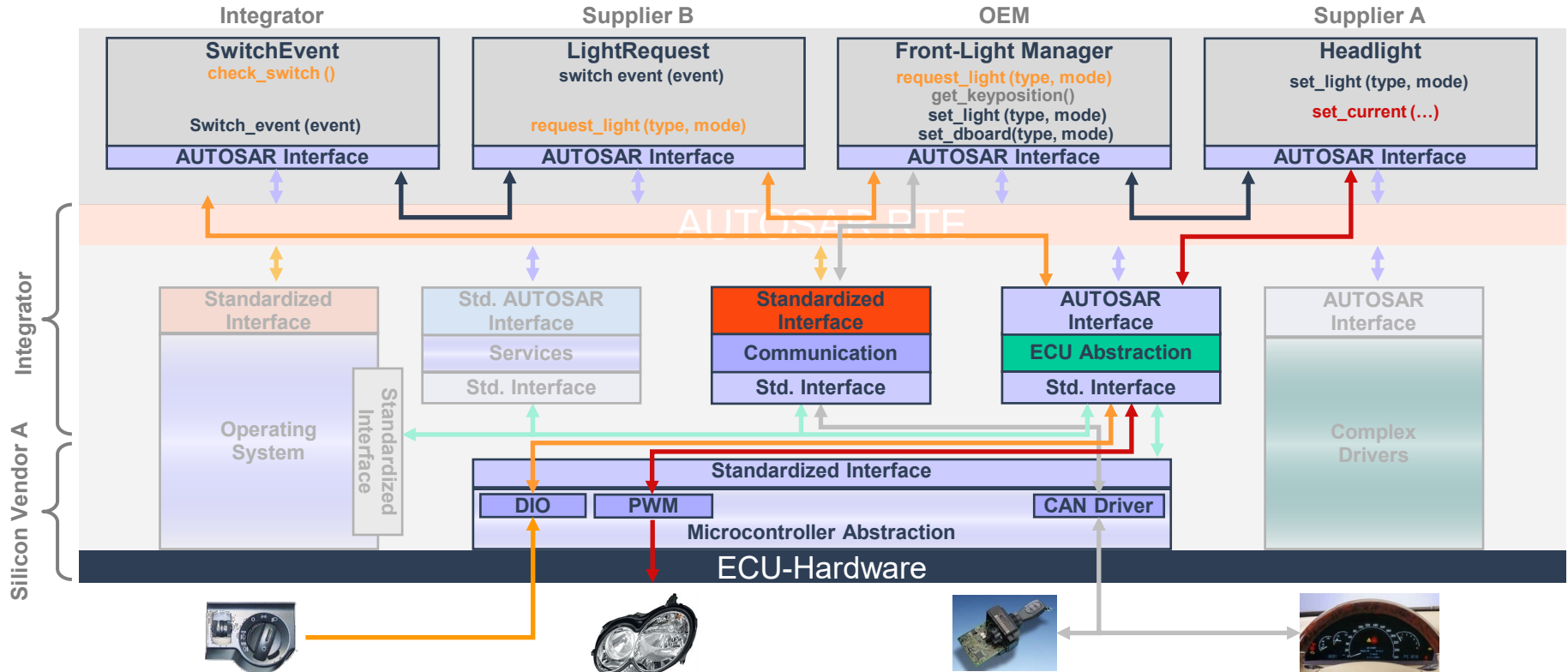
- ▶ The AUTOSAR Partnership
- ▶ The AUTOSAR Standardization

Part 2

- ▶ Architecture and Features
- ▶ Smart Solutions Based on AUTOSAR
 - Software Architecture – AUTOSAR Defined Interfaces
 - Distribution ECUs
 - AUTOSAR Platform Application
- ▶ Processes and Quality

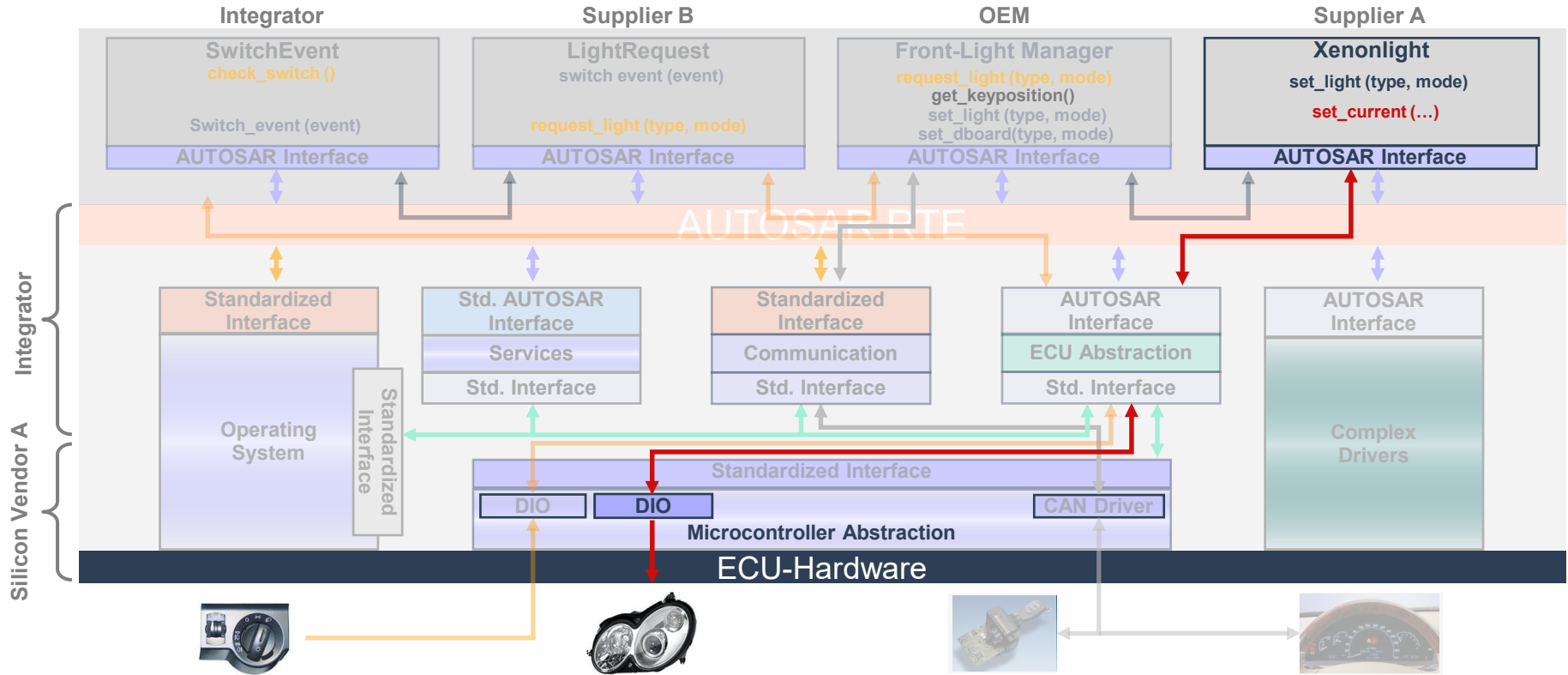
Software Architecture – AUTOSAR Defined Interfaces

Use Case ‘Front Light Management’: Exchange Type of Front Light

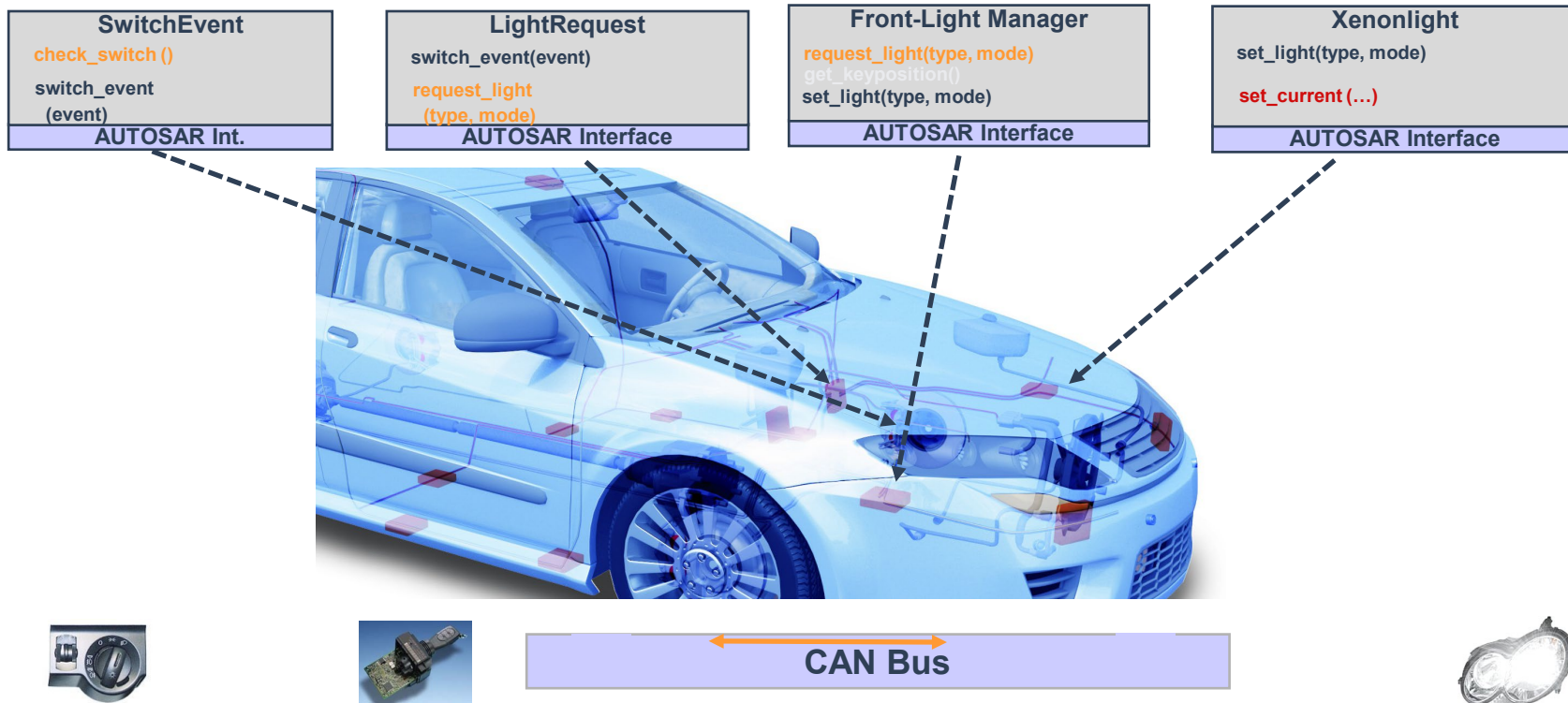


Software Architecture – AUTOSAR Defined Interfaces

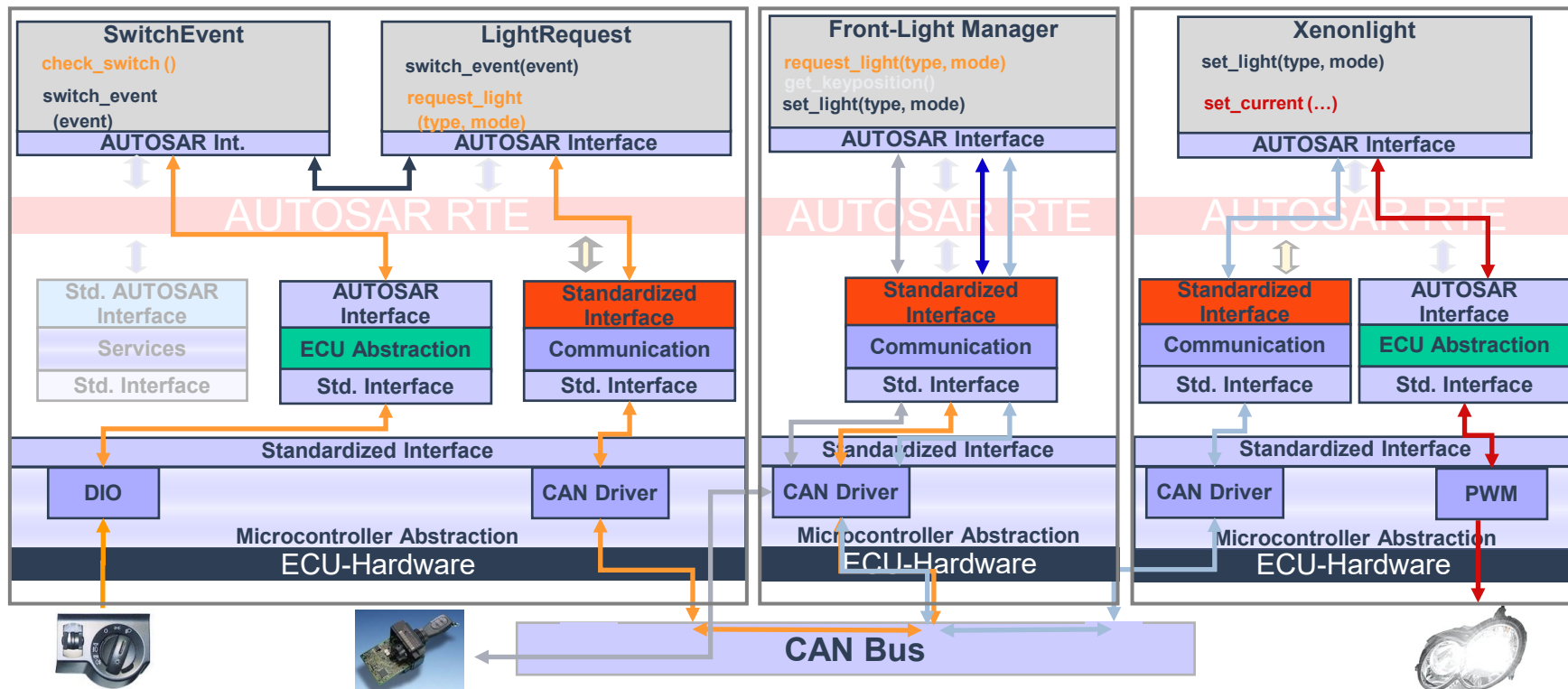
Use Case ‘Front Light Management’: Exchange Type of Front Light



Distribution on ECUs – ‘Front-Light Management’

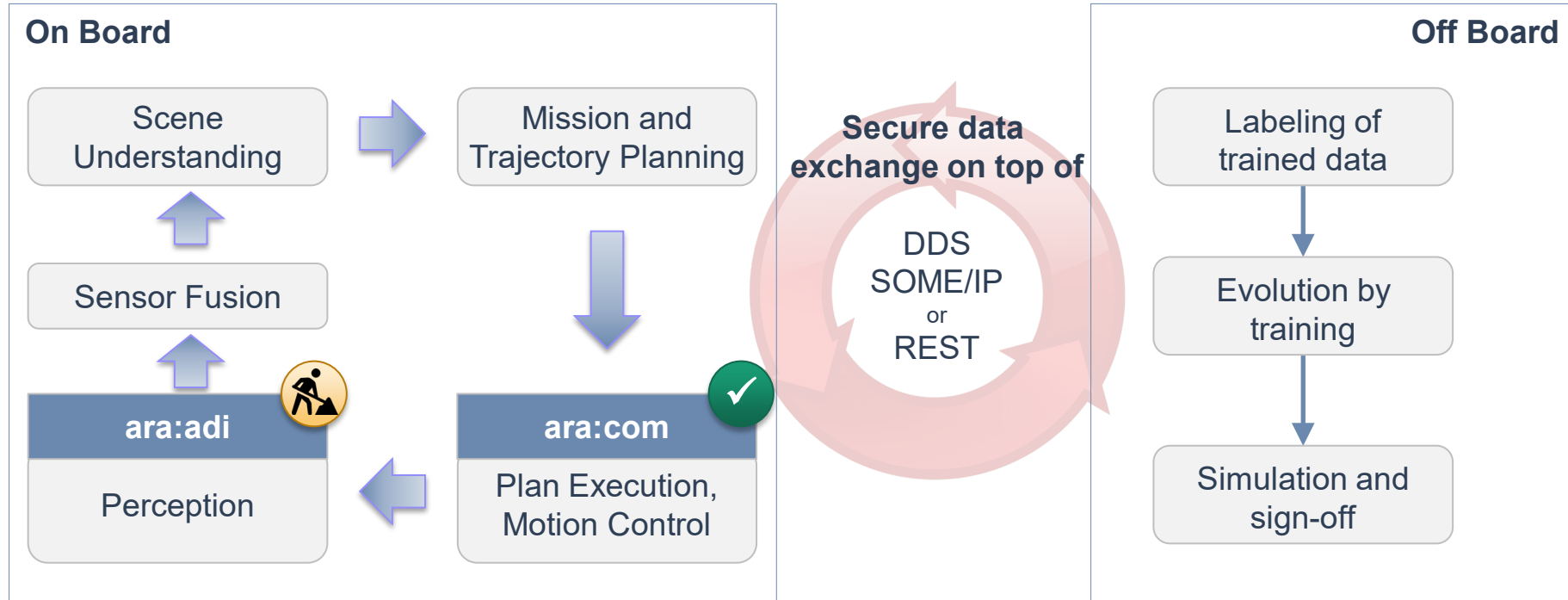


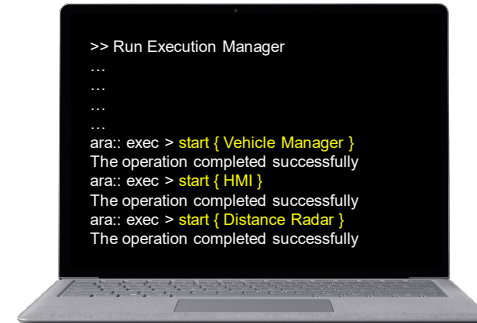
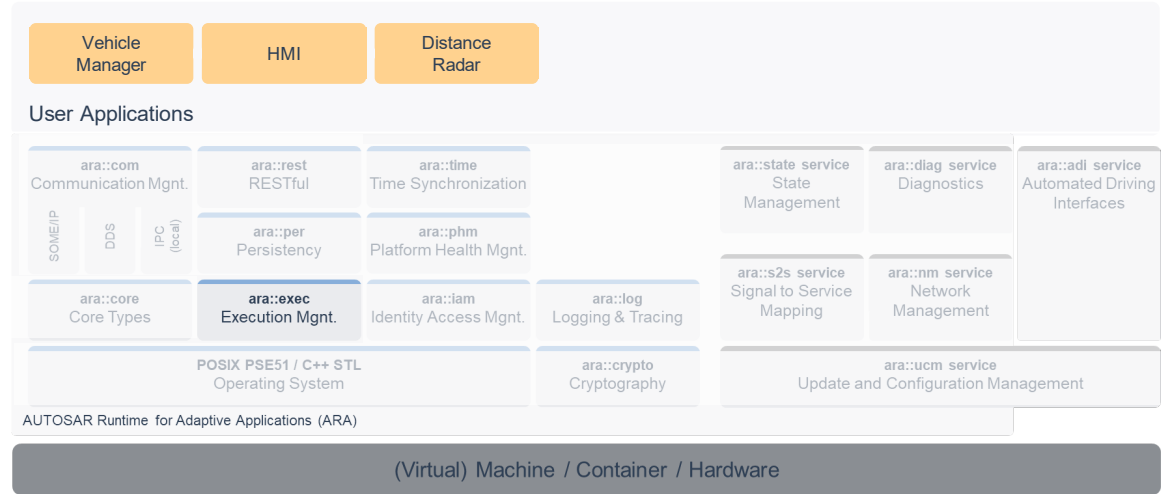
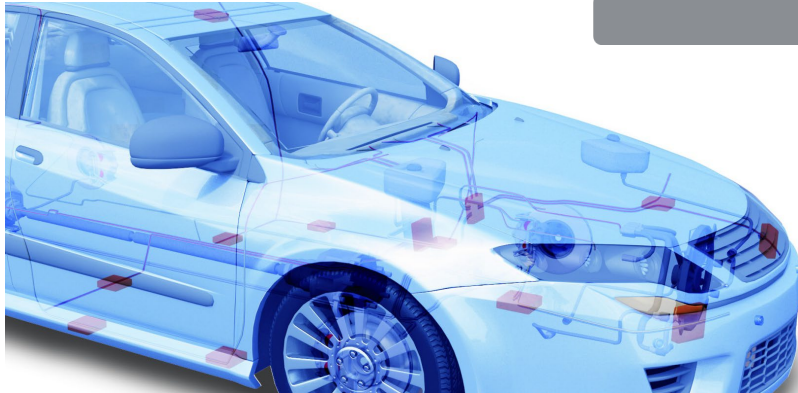
Distribution on ECUs – ‘Front-Light Management’

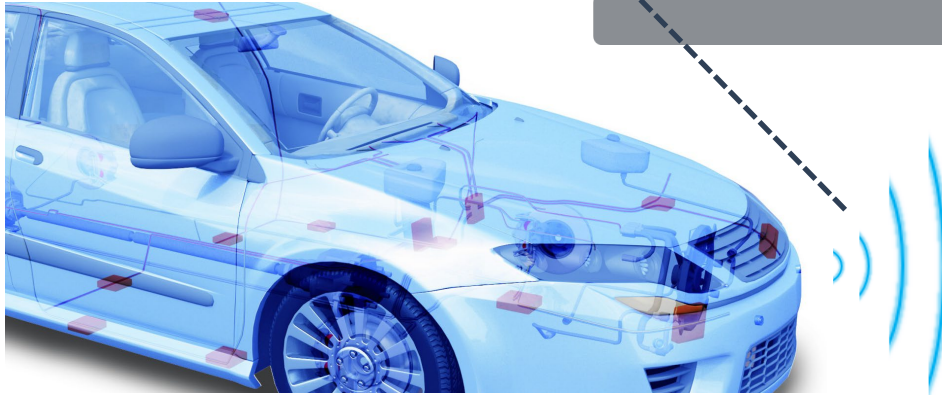
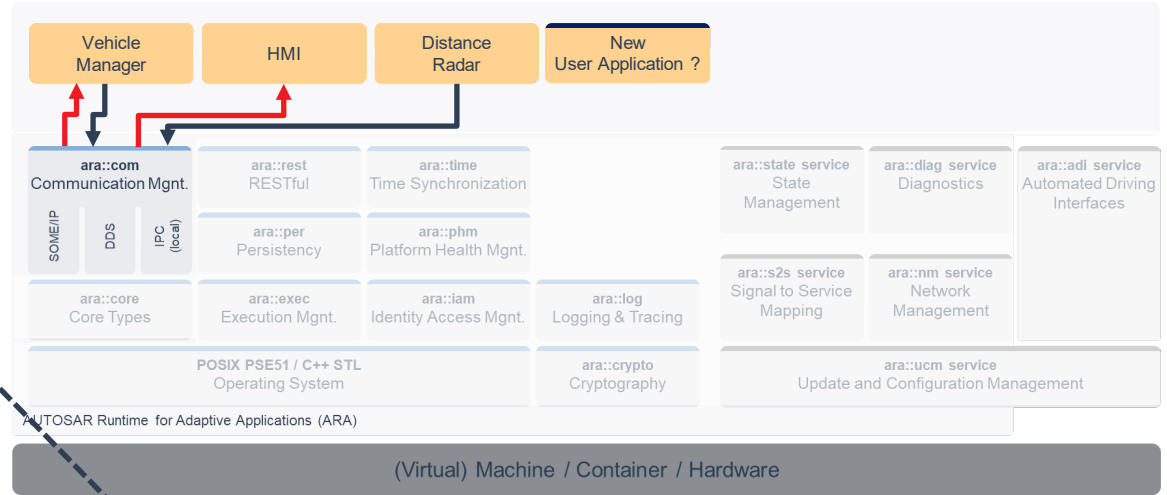


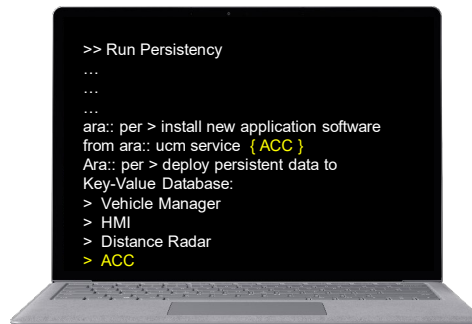
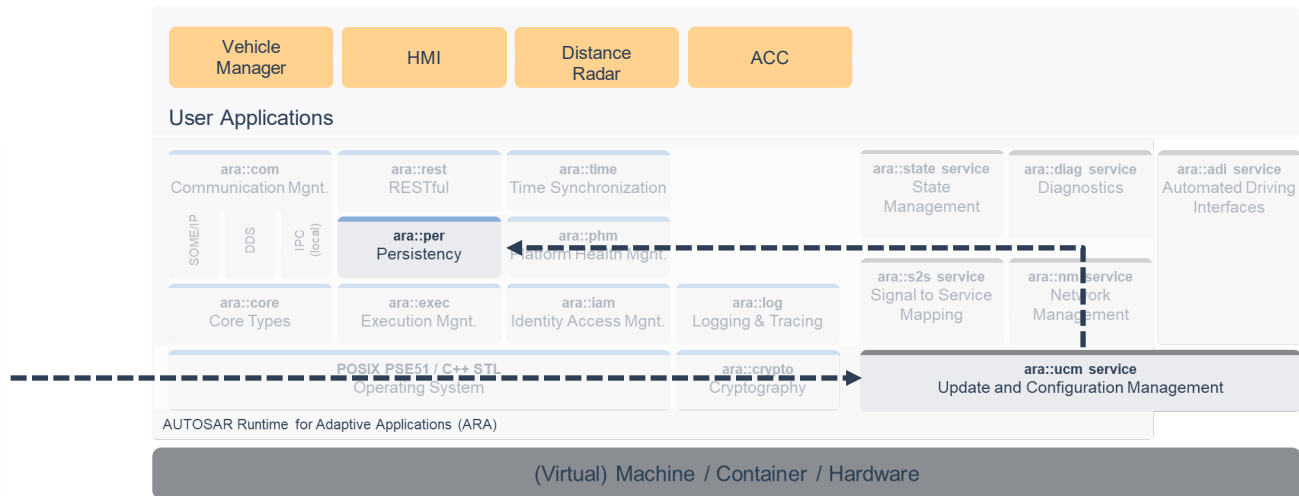
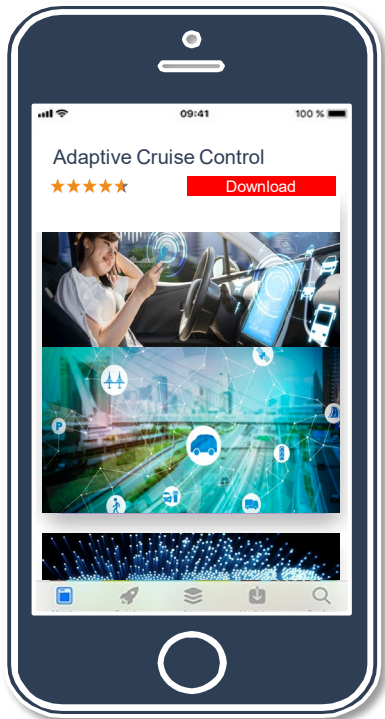
AUTOSAR Platform Application

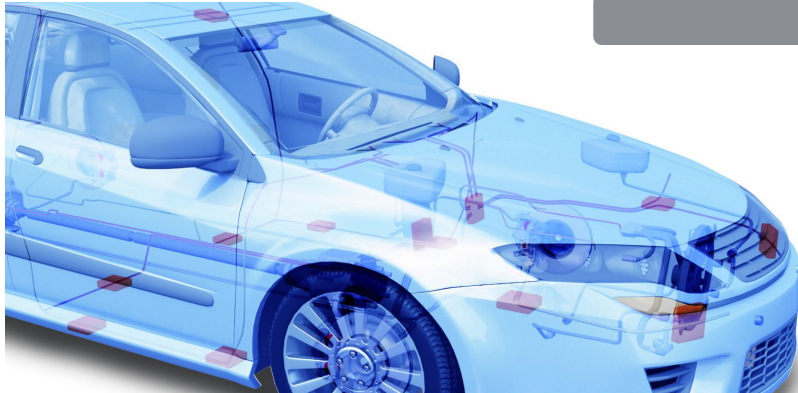
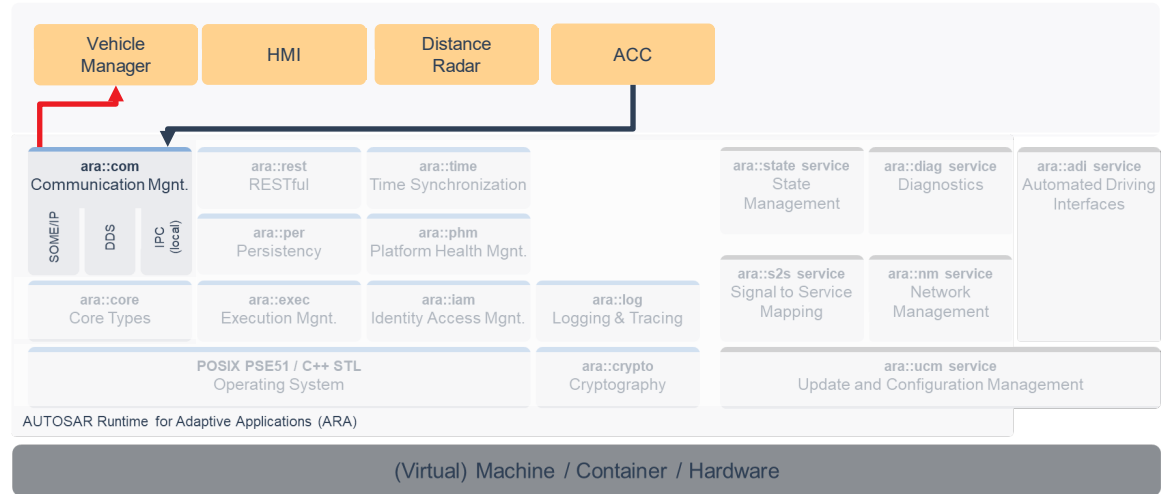
Continuous improvement cycle for ADAS systems

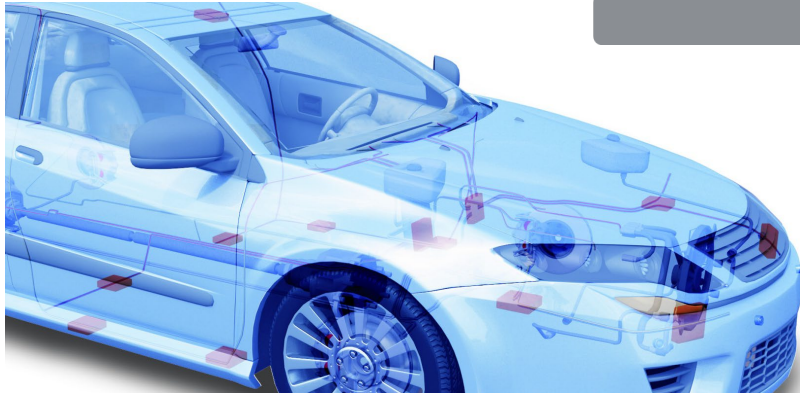
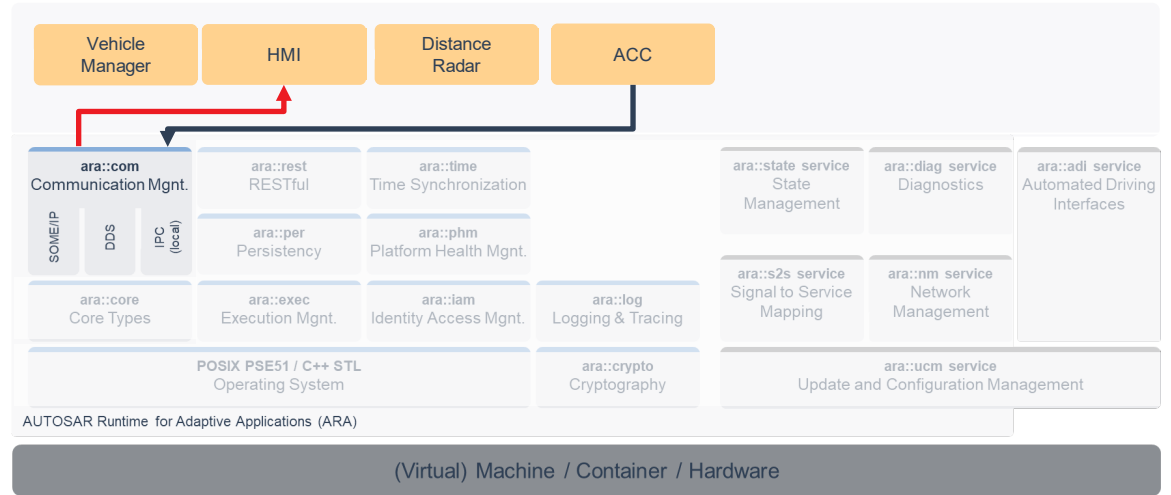


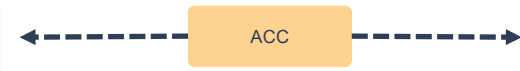
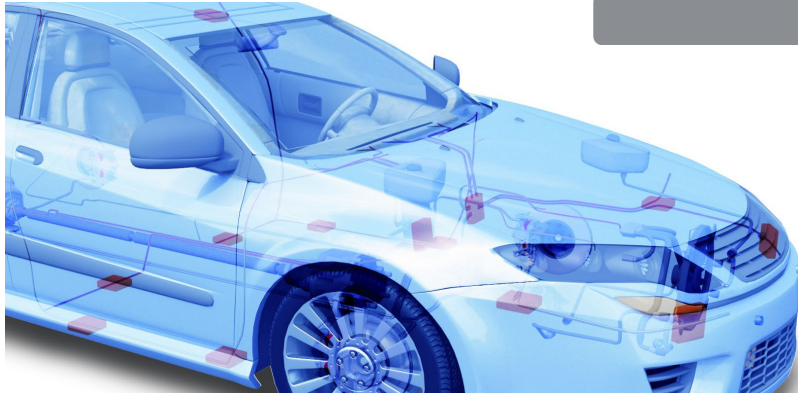
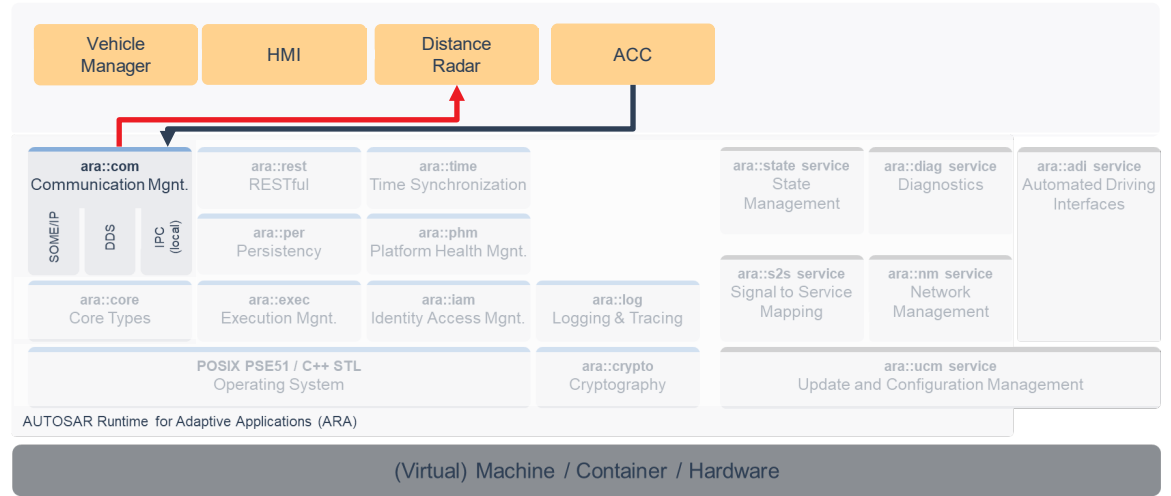












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 - AUTOSAR Adaptive Platform Development Approach

AUTOSAR Adaptive Platform Development Approach

Specification

Identify needs & use-cases:

- 1) Concepts
- 2) Features
- 3) Requirements



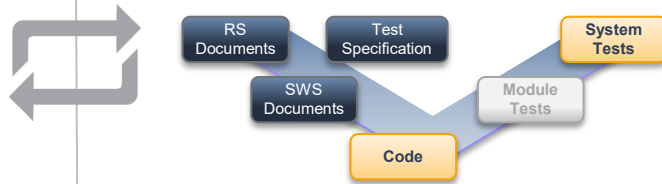
Quality:

- TF-ARC approval
- Cross team review
- Lifecycle : preliminary → draft → valid

Implementation

Gain speed:

- 1) Spec validation
- 2) Reduce room for spec interpretation
- 3) Training / dissemination of AP



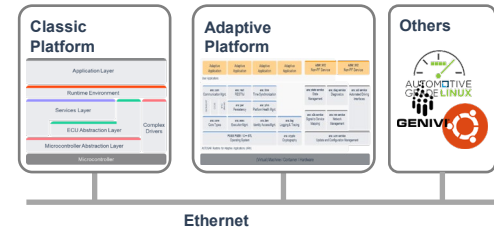
Attracting environment for coders:

- Appealing technology (C++, Yocto, Git, ...)
- Modern use case (ADAS EBA)
- Handy documentation (Wiki)
- Peer programming sessions

Demonstration

Gain trust:

- 1) Advertises the progress
- 2) Highlights some specific features



Show AUTOSAR interoperability

- of classic and adaptive platforms
- but also with others

Best tradeoff between commercial cooperation & compatibility between different vendors



Thank you
for your attention

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