

UP2DATE4SDV

Enabling safe & secure modular UPdates, UPgrades
and DynAmic Task reallocation & Execution
for Software Defined Vehicles

HORIZON-CL5-2024-D6-01-01

3rd European SDV Convergence Conference

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[https://linkedin.com
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Overview



Project number:	101203060	Starting Date:	1 July 2025
Call:	HORIZON-CL5-2024-D6-01	End Date:	30 June 2028
Topic:	HORIZON-CL5-2024-D6-01-01	Duration:	36 months
Type of action:	Type of action: HORIZON-RIA	Total Cost:	5 999 076,90 €
Service:	Service: CINEA/C/03	Total PM:	677.50
Consortium:	12 partners: DLR, Ikerlan, BSC, ITI, AUMOVIO, AVL, TTTech Auto, STMicroelectronics (2x), ZettaScale, Kernkonzept, Neotera 6 (EU) countries: Germany, Austria, France, Italy, Romania, Spain, (Turkey)	WPs:	7
		Milestones:	7
		Deliverables:	38
Website:	https://up2date4sdv.eu		

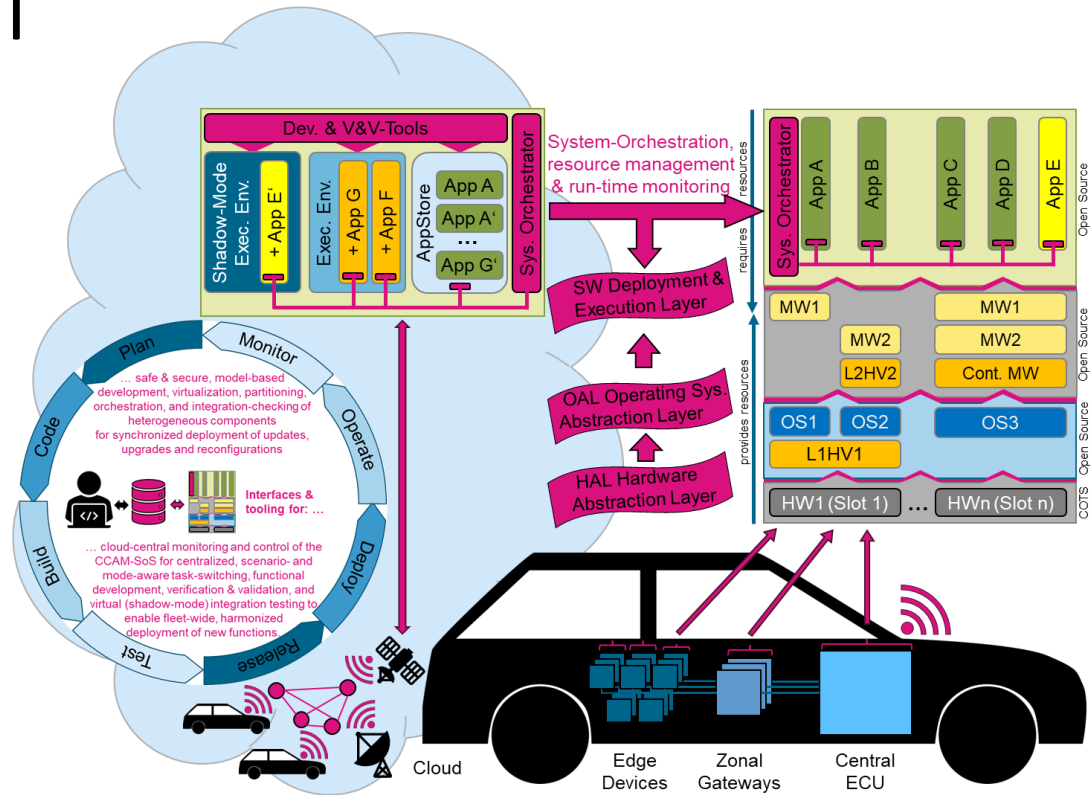
Challenge & Motivation



- Future vehicle architectures will become more centralized and cloud-connected due to higher computation- and information-demands
- More centralized, zonal vehicle architectures are composed of distributed, heterogeneous HW/SW-Stacks with strong dependencies and interactions
- There is no standard interface to upgrade the application-specific SW or HW at the edge- (sensors, controllers, etc.), gateway-, or compute-components
 - upgrades require elaborate and error-prone individual configuration for every new system-setup
 - tests and development of tests are configuration-specific and thus elaborate and error-prone
- Upgrades can lead to loss of safety, security, and function
 - Expensive product recalls, long downtimes, or even severe danger!

Ambition: Enable safe and secure, modular HW/SW-updates, upgrades and dynamic task reallocations within the whole cloud-connected vehicle architecture of the future.

Goal



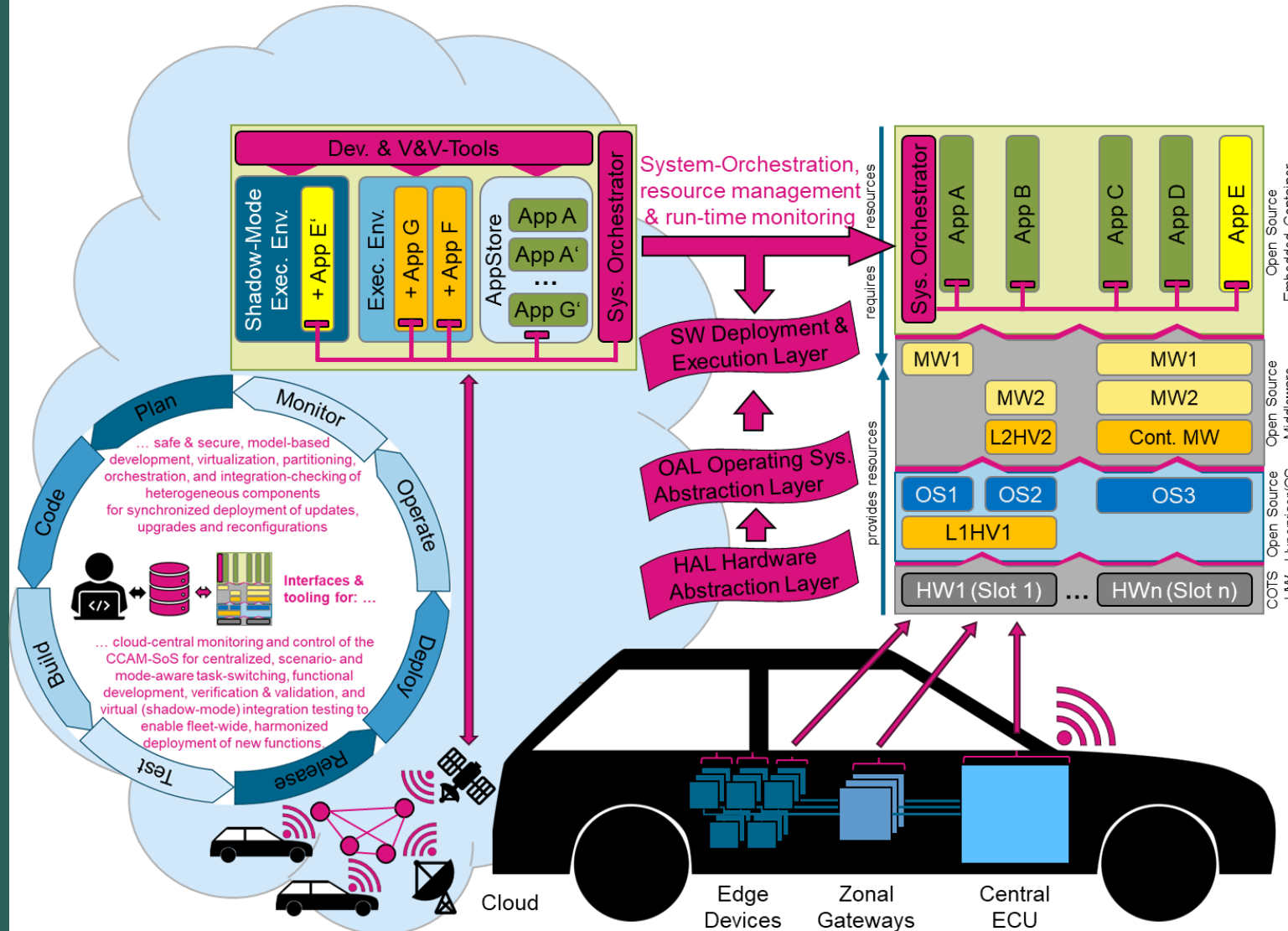
Main concepts of the UP2DATE4SDV approach:

- **C1: Composition** with heterogeneous local/remote components
- **C2: Updateability** of any part (HW, SW, app, node, either local/remote)
- **C3:** Enable synchronized updates for a **consistent view** of the system
- **C4:** Preserve **security and safety** during all those processes

“UP2DATE4SDV aims

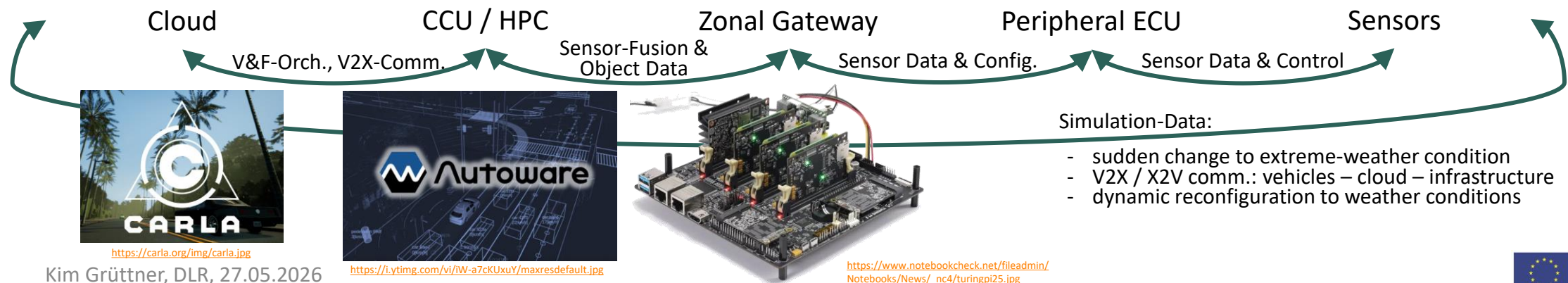
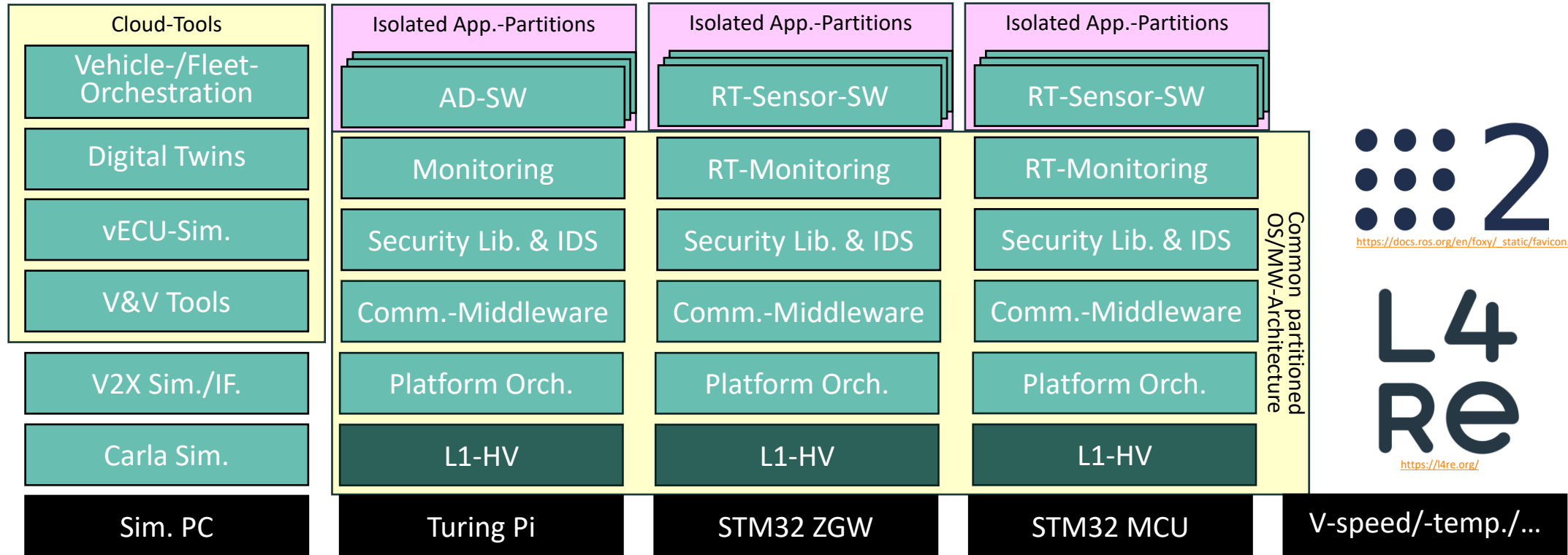
... to develop a **comprehensive ecosystem** for seamless and efficient **software-updates, hardware-upgrades, and situation-dependent reconfigurations** of software-defined CCAM vehicles”

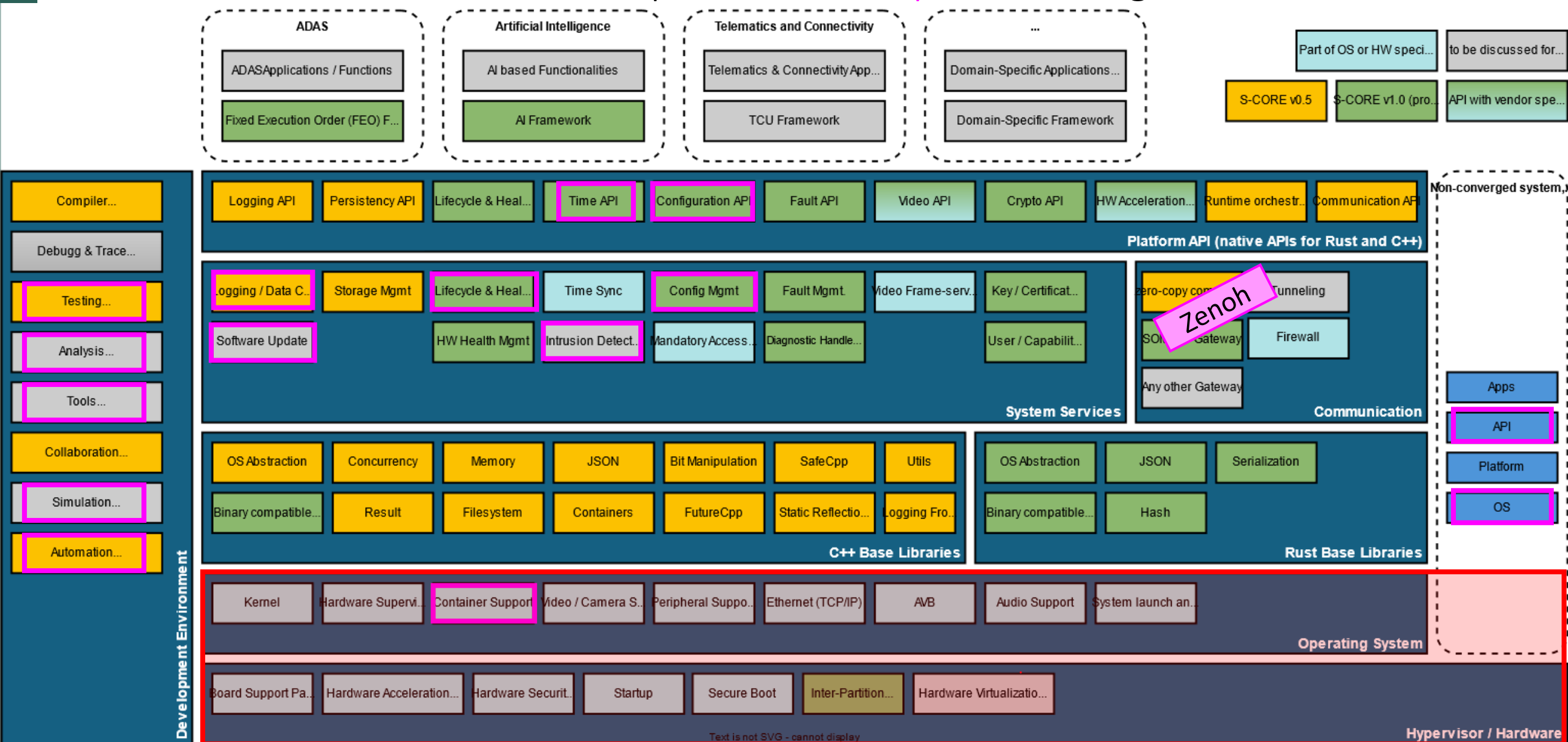
Objectives



- 01: **reconfigurable cloud connected zonal vehicle architecture blueprint** (exploiting and building on a unified HAL)
- 02: **resource composable SW deployment, execution & communication reference layer** (exploiting and building on a unified OAL)
- 03: **dynamic update, orchestration & reconfiguration plane**
- 04: **harmonized and simplified development, integration & validation processes** (framework for SDV applications)
- 05: **joint Safety & Security (SASE) from O1, O2 & O3**
- 06: **Demonstration on CCAM relevant Use Cases**
- 07: **participation around CCAM & SDV Initiative** community and ecosystem

Research & CCAM-Demonstrator





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Summary and Suggestions



- UP2DATE4SDV

- project was created without S-CORE supports in mind
- possible contributions on
 - meta data for modularisation + extra-functional properties
 - definition of updateable units and update process
 - update management system
 - consistency checks at design and runtime
 - additional operating system support (L4 based)
 - configuration tooling (SDV modeller)
 - ...
- But code-first and x-as-code has be extended by semantic information on module integration...
 - horizontally (e.g. user data and events)
 - vertically (e.g. resource mapping)
 - Separation of functional and extra functional properties
 - Separation of safety and security (?) from functional aspects
- ... to enable support of certifiable AI-based configuration and optimization

Thanks to:





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THANK YOU



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THANK YOU