Cloud Car

Building a car that gets better every day

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24th ReVision Webinar

Wipro Focus on SDV Engineering

NextGen E/E	SDV	Connectivity & Telematics	SDV
MAGNA Cross Domain E/E NextGen Solution Microservices	gm Strategic Partner for Ultify Platform & Application development	MARELLI NextGen Cockpit CES 23	Ford FNV4, Sync 5, DAT 3
DriveOS	**CarOS**	**SDV**	**Mobility Service**
NVIDIA DriveOS Development, Functional Safety	BIG Tech Leader CarOS for Stellantis development partner	OSHKOSH SDV Platform (Nvidia)	VOLTA TRUCKS Digital Platform for 'Truck as a Service'

Leading in SDV Ecosystems

ADAS/Cockpit	Open Source	Hypervisor	Engineering	Microservice	Middleware	Autosar	AAOS
Qualcomm	Red Hat	QNX	FEV	arm SOAFEE	TTTechAuto	VECTOR	Google

Our SDV Engineers are laserfocusssed on NextGen E/E solution…

- **1250+ SDV** Engineers (Platform, Cloud, Middleware, Application Migration)
- **2.5+** years of SDV experience
- **60+** SDV (CloudCar) Partner enabled
- **1st SOP MY24** Chevrolet Silverado EV
- **>80k Certified Cloud Engineers**

Other Engagements of relevance

- Continental – 200+ Connectivity
- APTIV – 100+ Engineers in cockpit electronics

Industry view..

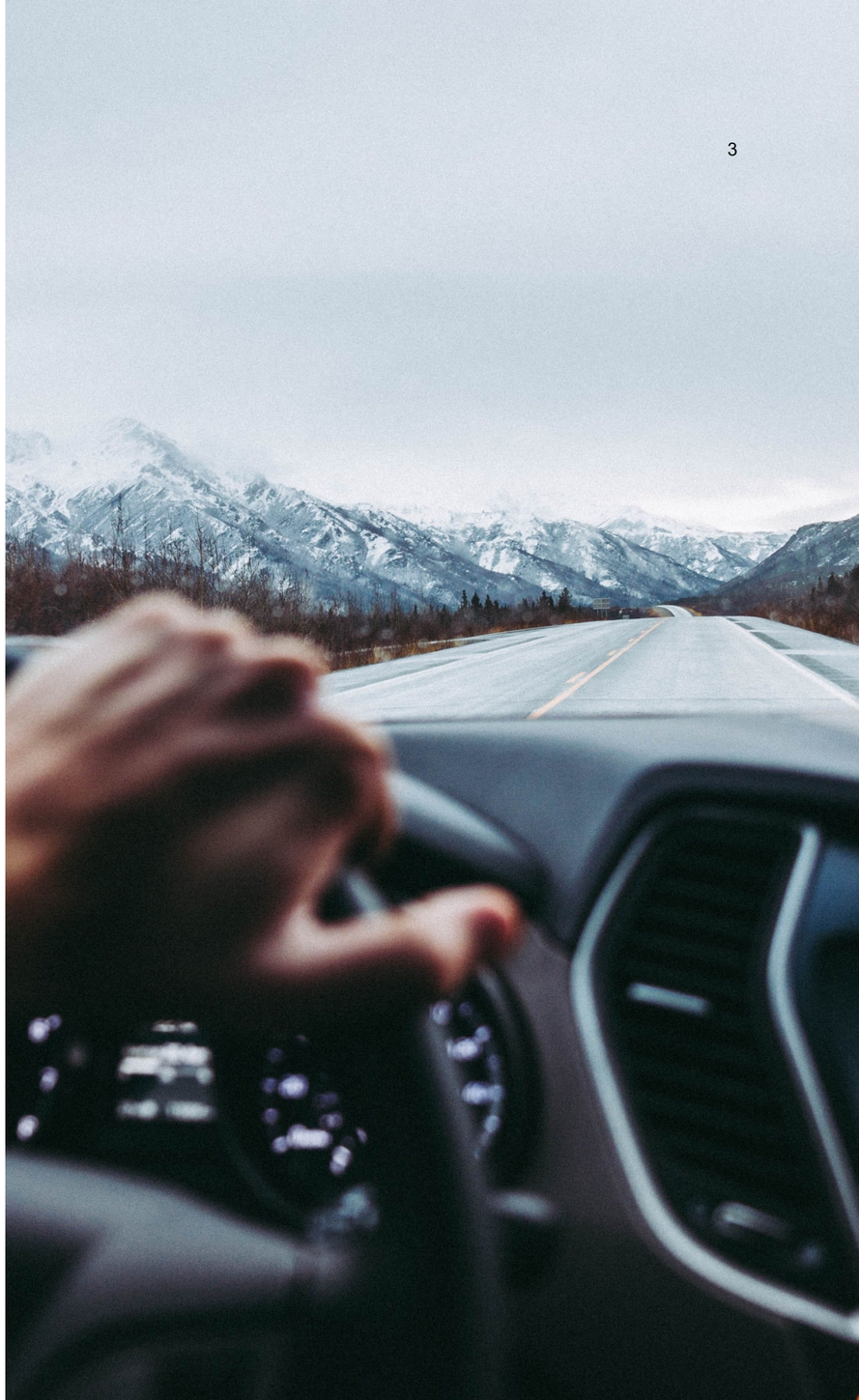
How to…

build a car that get’s better every day ?

…or create a car, that

stays digitally relevant for at least 10 years ?

…How do YOU ‘Evergreen’ your car ?



Changing expectations

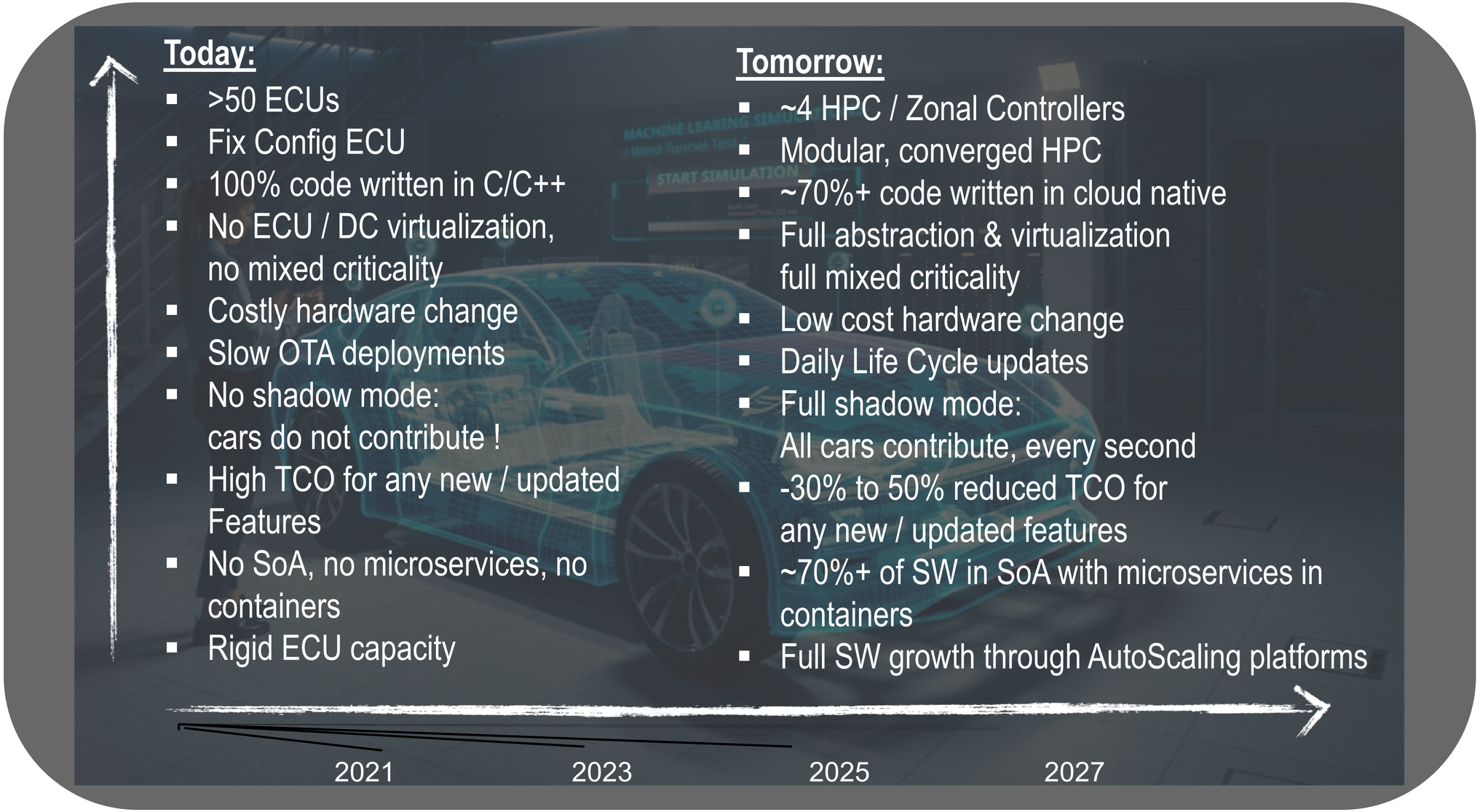
Continuous Innovation – Car to deliver features beyond what it had on day 0

Software Defined Platforms are a way to achieve this. OEMs across the world are approaching it in this way and based on the degree and economy of scale, they are at different phases in the journey.

Domain Controllers are the new trend in the industry and OEMs are largely successful in creating a software defined platform by taking control of the complete software in the cockpit.

High Performance Computing (HPC) based architecture is the next wave.

Wipro Cloud Car - Our Vision for SDV



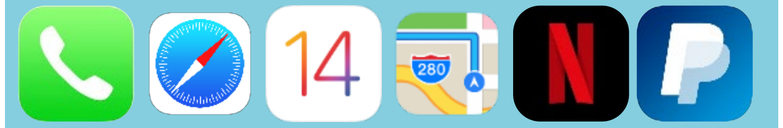
The vision for OEM's software-defined vehicle is to establish a Software/ Hardware solution which stays 10+ years relevant

Software-defined vehicle | Vision & objectives for OEM

Smartphone architecture

Vehicle architecture

Apps



Deploy **SW features** (unknown today) and **security updates**

Applications

Drivetrain | ADAS/AD | Info-tainment | Connect | Energy/ charging | Comfort

Software platform and SDK

iOS | App Store | iCloud

Ensure efficient development costs by ensuring to **reuse generated code**

Middleware / Software Platform

Middleware / OS | App Store (e.g. ADAS) | OEM Cloud

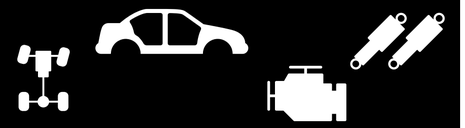
Device hardware

Enables the **interchangeability** of hardware

E/E architecture

Mechanical layer

Sensors/Actuators



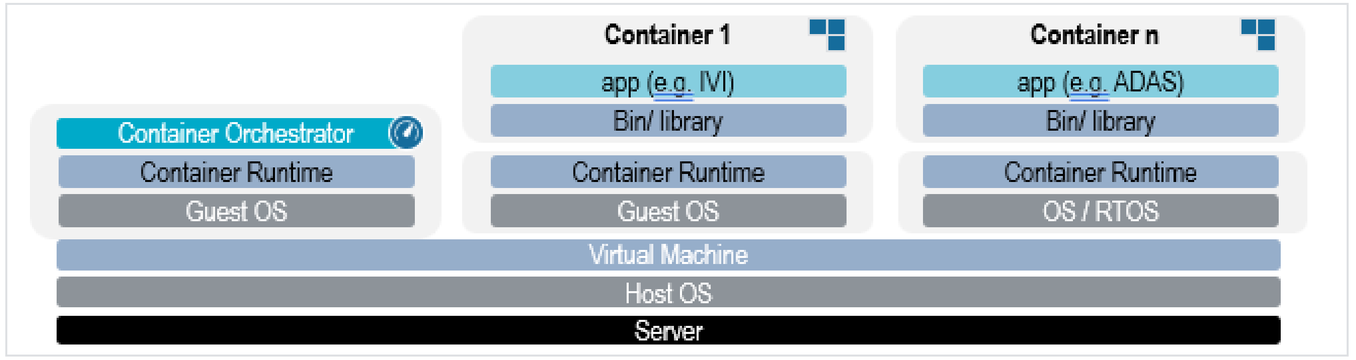
Future-proof SW solutions should be designed to support containerized applications in the car (on-board) as well as in the cloud (off-board)

Software solution | Framework for enabling mixed critical workload across Car and Cloud

Simplified Example

Cloud

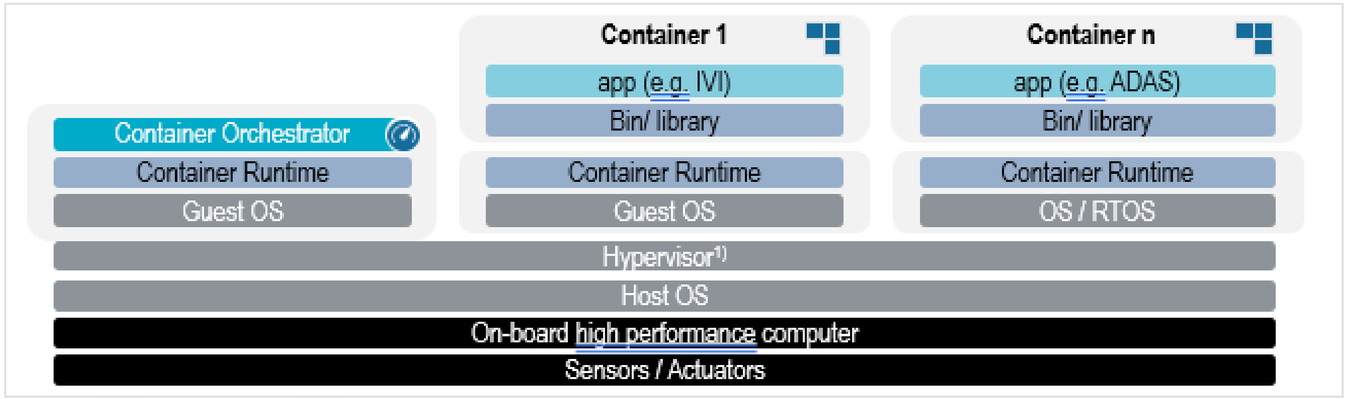
Cloud Compute Cluster
"in the cloud" / off-board



Containerized App deployment

Car

High Performance Computer (HPC)
"on-board"



Hardware | OS & HV | Middleware | Applications | 1) Virtually distributes HW resources (fixed)

Converged on- and off-board solution

The future-proof framework consists of a **single platform with a transient structure**

The same app, developed with cloud native design principles can **run on the car and in the cloud**

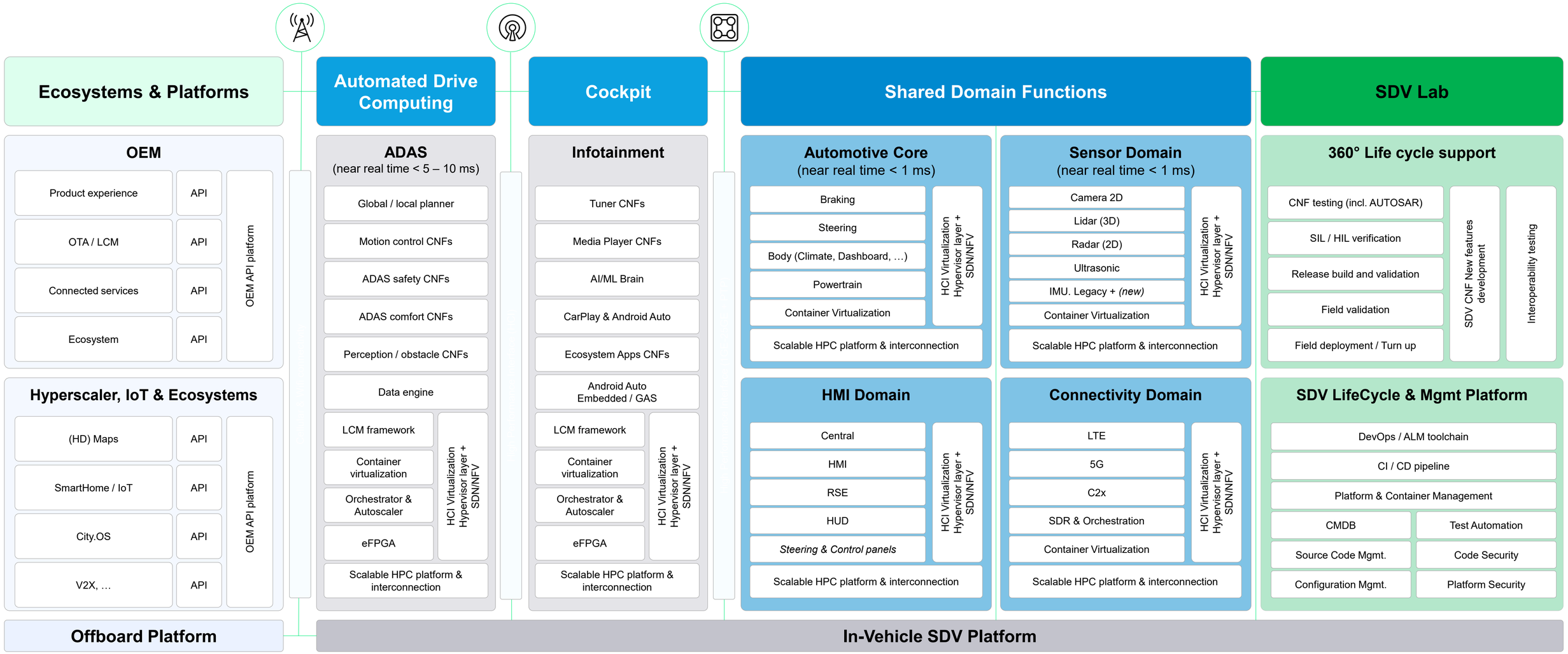
Hardware/Software abstraction for cloud & car

Middleware which acts as hardware/ software abstraction layer enables **efficient and seamless software deployment from cloud to vehicle**

Auto-scaling of cloud-native workload

The **orchestrator** of the platform will assigns computing capacity **in the car or the cloud –** Apps can be dynamically shifted in between

SDV Solution Building Block
Overview of all solutions building block



Thank you!

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