Today’s Speaker

THE AUTOWARE FOUNDATION

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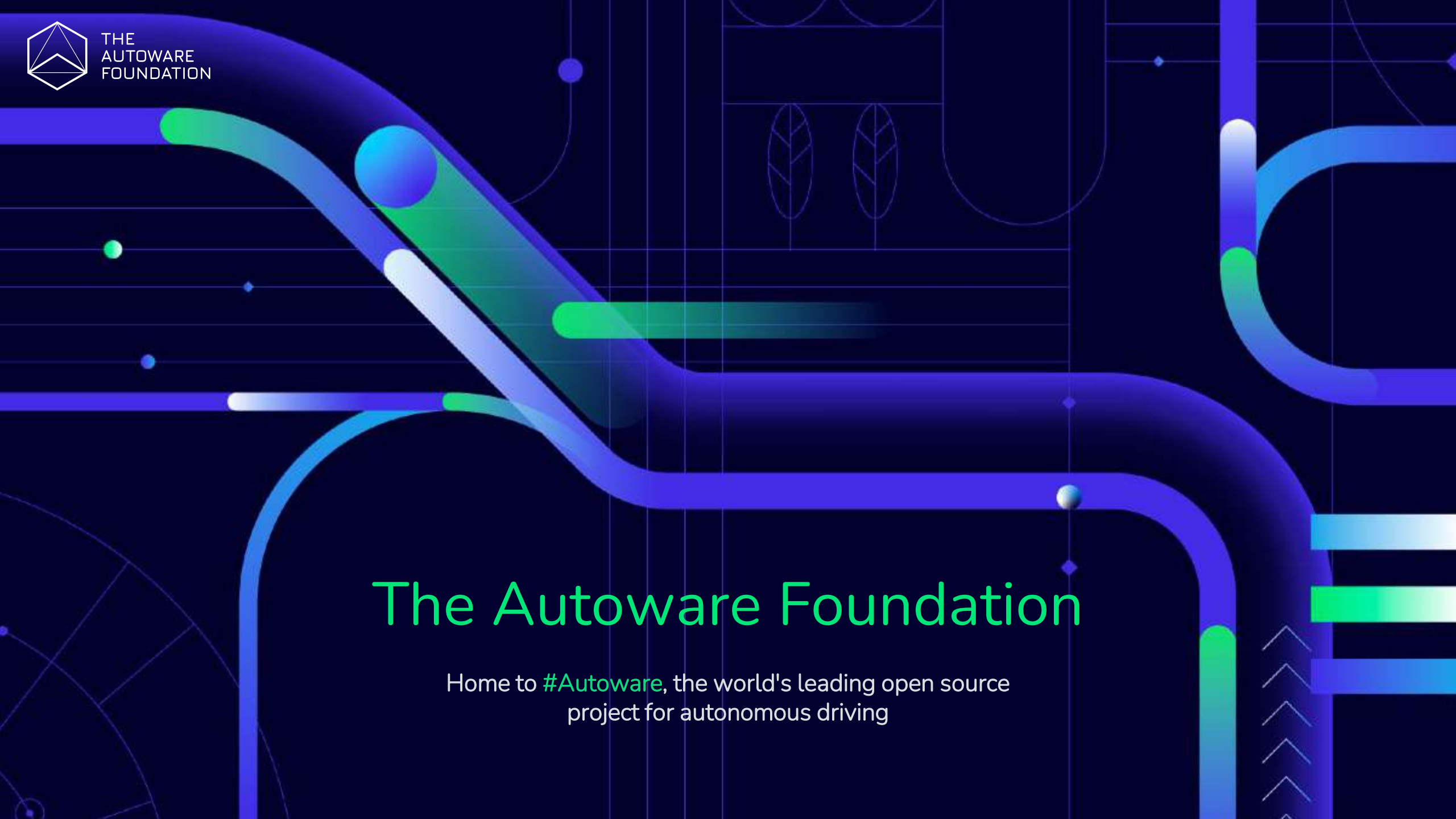

The Autoware Foundation

Home to #Autoware, the world's leading open source project for autonomous driving

Members, Alliances and Network

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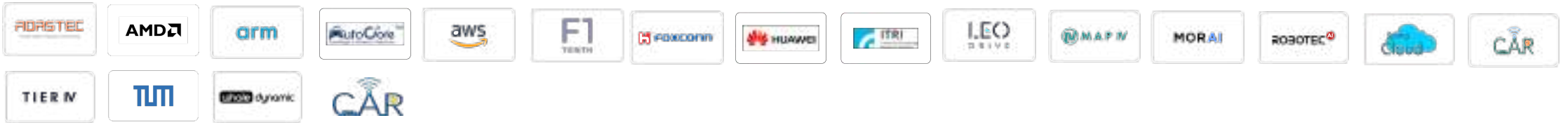
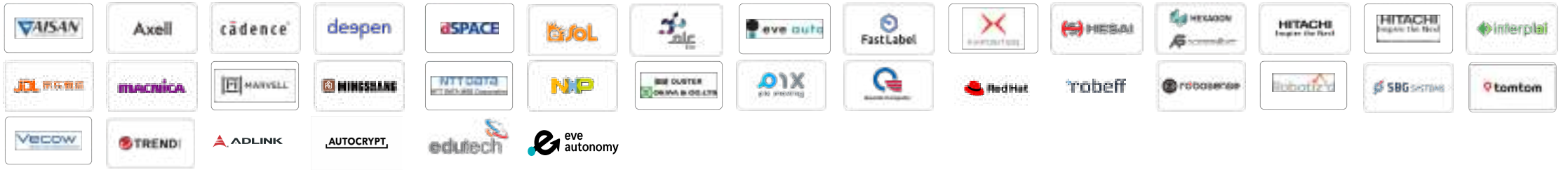
19	36	16	25	8
Premium Members	Industry & Government Members	Academic & Non-Profit Members	Centers of Excellence Members	Affiliated Organizations

Premium



Industry & Government



Academic & Non-Profit

Affiliated Organizations

Autoware — The world's leading open-source project for autonomous driving

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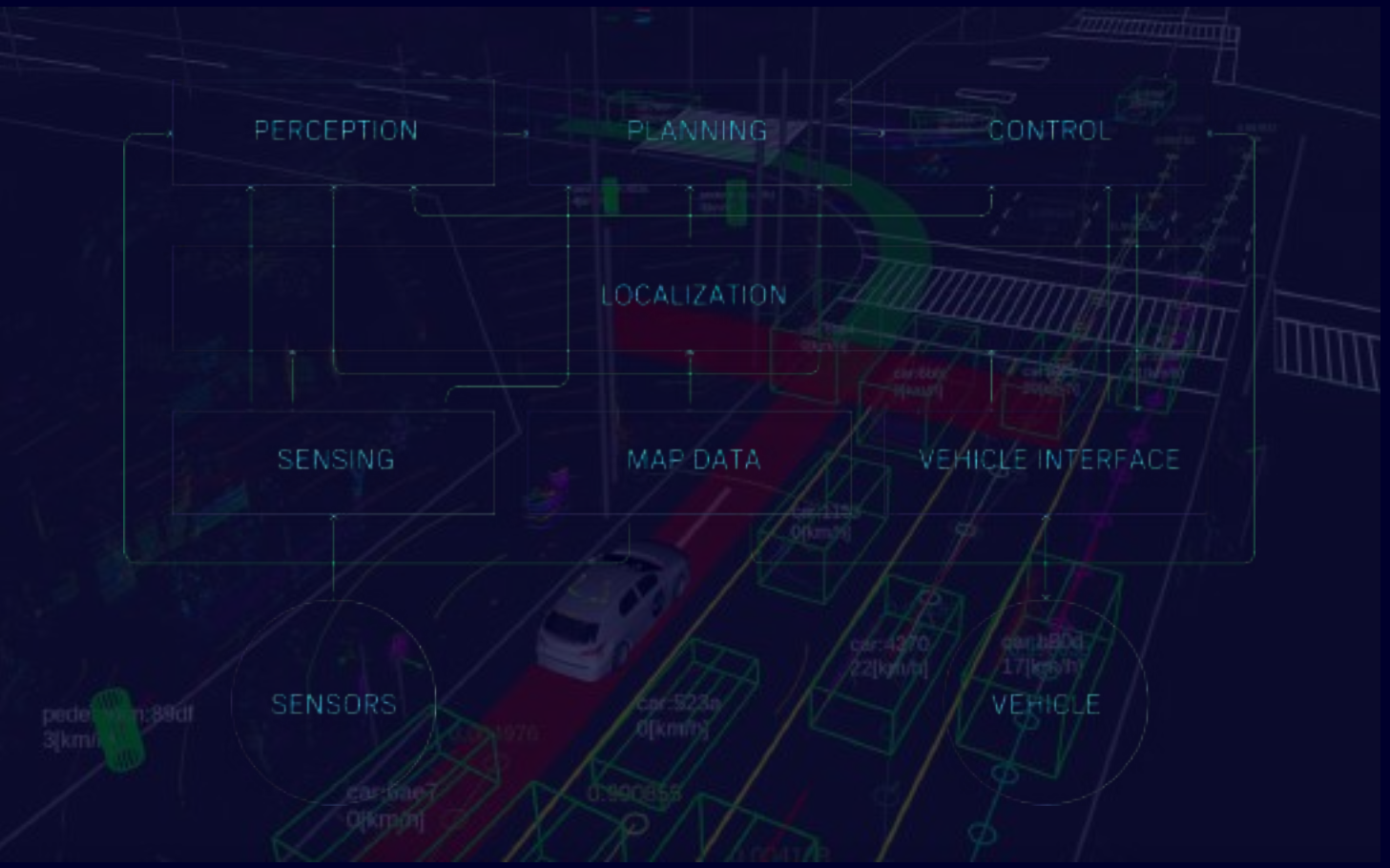

- ❑ Complete AD software stack running on ROS2
- ❑ Independent of the vehicle type or electronic hardware
- ❑ Governed by an independent organization (Autoware Foundation)
- ❑ Completely open-source (licensed under Apache 2.0)

Visit Autoware Github - https://github.com/autowarefoundation/autoware

Autoware 3.0 – Core/Universe

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Autoware Core

- Complete end-to-end autonomous driving framework
- Supports all current Autoware ODDs
- Strict code and quality control
- Stable base implementation
- Heavily managed by The Autoware Foundation

Autoware Universe

- Additional packages built on top of Autoware Core
- Extends Autoware functionality beyond Autoware ODDs
- Dependent on Autoware Core functionality
- Enables quick experimentation and prototype testing
- Managed by the Autoware Community

Traction and The Way Forward

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2020	2021	2022	2023 (and onwards)
Autonomous Valet Parking (AVP) support in Autoware.Auto 	**Cargo Delivery** support in Autoware.Auto  **Autonomous Racing** Autoware-based package for the IAC 	**Autonomous Bus ODD** support in Autoware Universe  **Autonomous Racing** Autoware running on F1TENTH 	

Integrating dense urban areas, highways and final service destinations to offer a full self-driving experience

Autoware Deployments

THE AUTOWARE FOUNDATION

30+
Type of Vehicles

20+
Countries

500+
Companies

Autoware Foundation Korea

THE AUTOWARE FOUNDATION KOREA

Inaugurated on July 18th

University Faculty Partners

KAIST, 고려대학교 KOREA UNIVERSITY, 연세대학교, 서울과학기술대학교, 서울대학교, Stanford Center at the Incheon Global Campus, KNU, 한양대학교 HANYANG UNIVERSITY, 상명대학교 SANGMYUNG UNIVERSITY, 서울시립대학교 UNIVERSITY OF SEOUL, 울산과학기술원 UNIST, DGIST 대구경북과학기술원, 숭실대학교, POSTECH 포항공과대학교, 충북대학교, 국민대학교, GNU 경상국립대학교, 울산대학교 UNIVERSITY OF ULSAN, 동아대학교 DONG-A UNIVERSITY

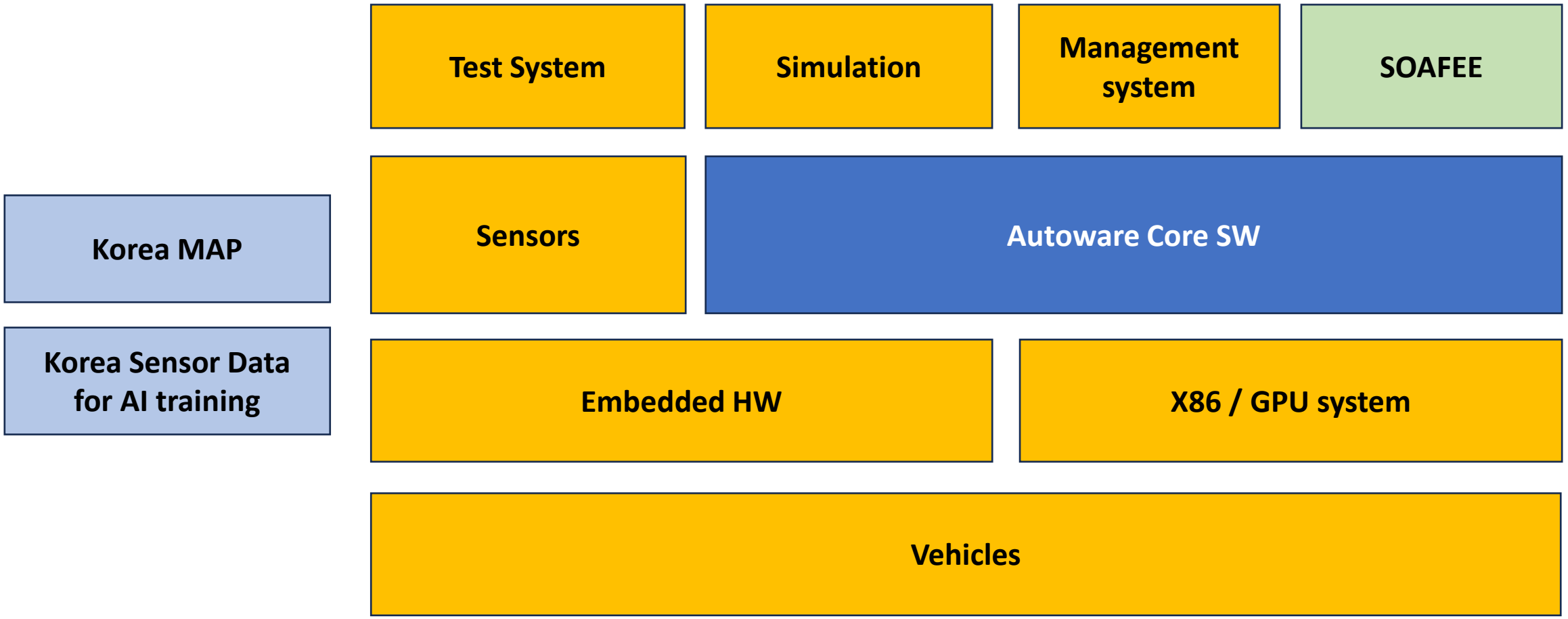
Industry Partners

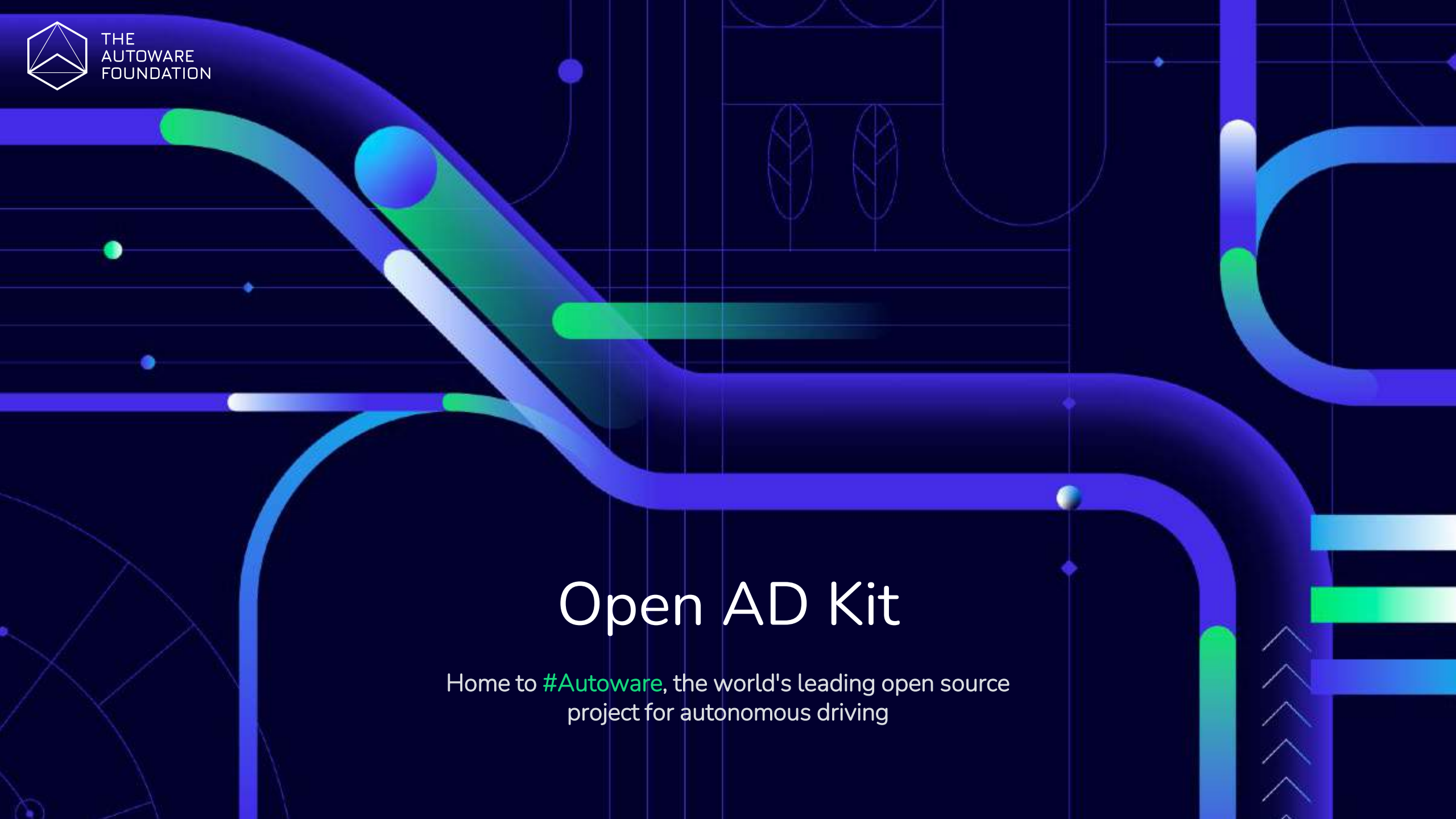
FutureDrive, SOS LAB Smart Optical Sensors, ZETA MOBILITY, MOA SOFT, Karke, ALLAI., TREEZE ENGINEERING

Autoware Foundation Korea

THE AUTOWARE FOUNDATION KOREA

AWF-K Reference system





Open AD Kit

Home to #Autoware, the world's leading open source project for autonomous driving

Open AD Kit Blueprint (The First **SOAFEE** Blueprint)

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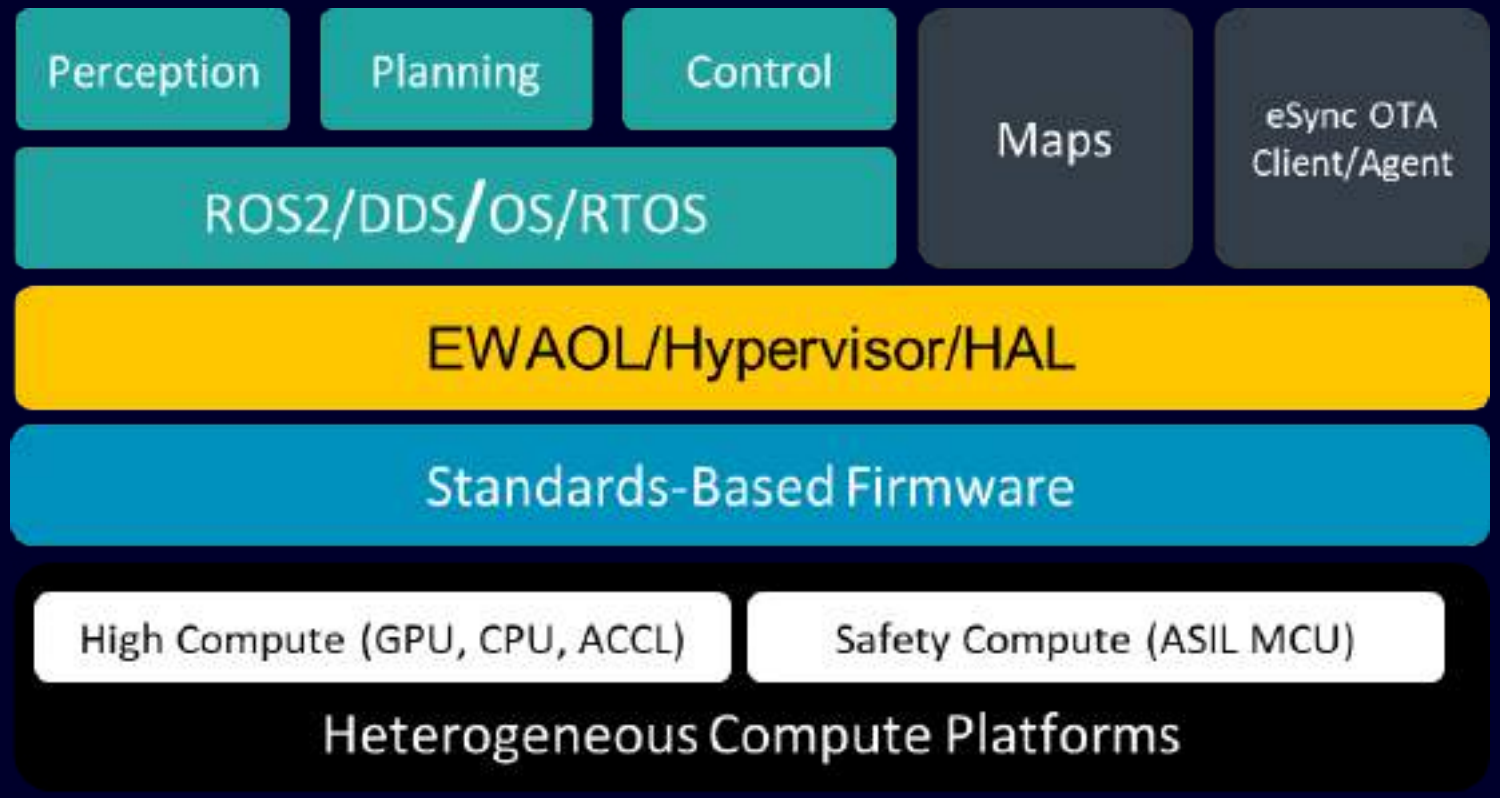
Full stack and open-source autonomous driving software Autoware running on **containerized workloads** (essential to SOAFEE's SDV vision)

EWAOL is the SOAFEE reference implementation, which is a custom Linux distribution via the Yocto Project, enabling **virtualization container engine** and **orchestration**

Third-party applications connect the Open AD Kit blueprint with various applications (e.g., IVI, V2X, OTA, maps)



Visit EWAOL repository - https://gitlab.com/soafee/ewaol/meta-ewaol

Open AD Kit – Cloud Native

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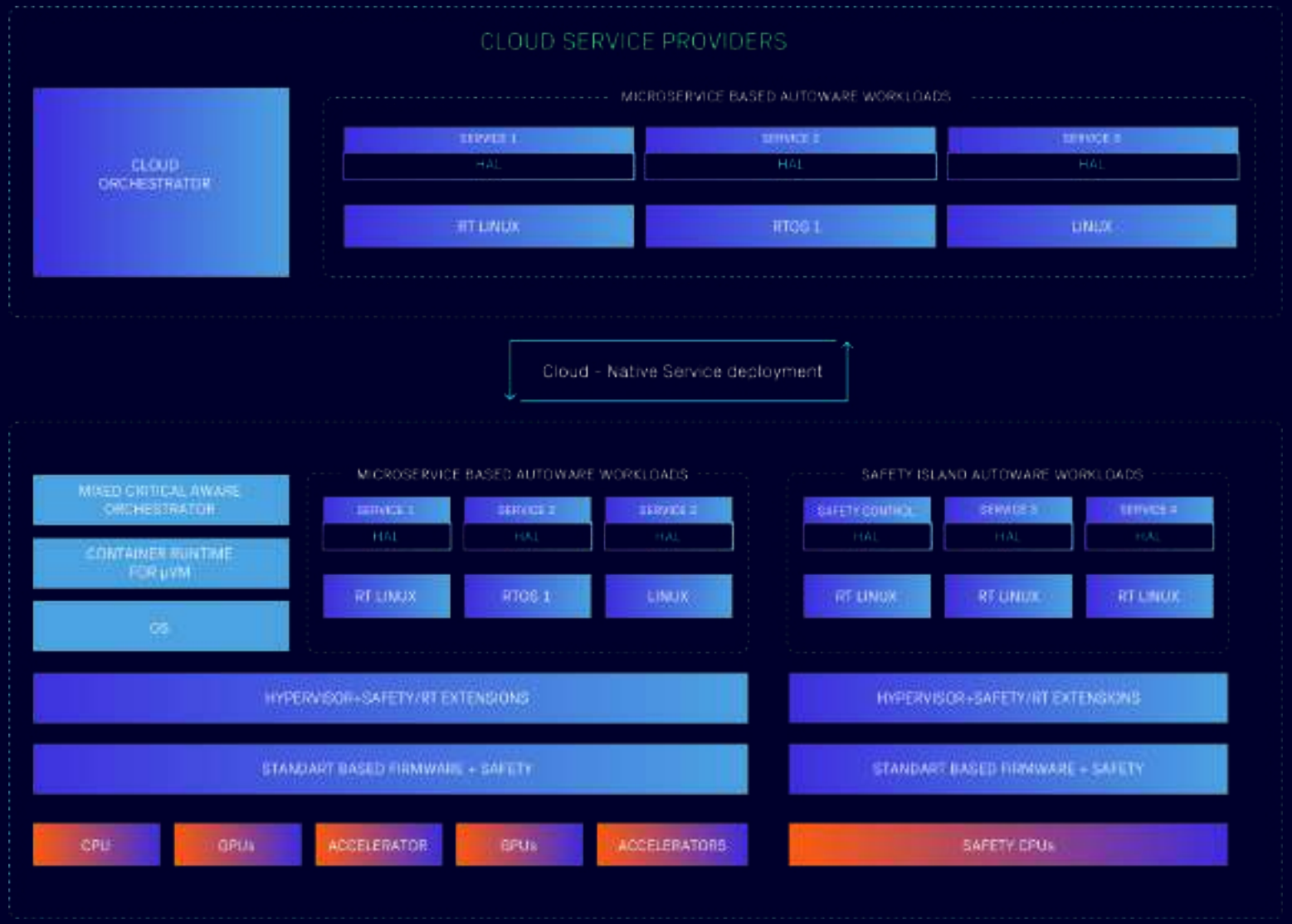
Based on the common firmware standards and compute architectures, Open AD Kit demonstrates **ISA-level parity** between **cloud and edge**

Being able to leverage the capabilities come to SOAFEE to build the Open AD Kit on **heterogeneous** (CPUs, GPUs, acceleration logic) and **safety enabled** compute platforms

Performing the development, validation and verification **on the cloud** and passing down the updates over the air to the edge to **accelerate development and testing**



Completing the Big Loop

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Software First
Built and tested in the cloud and deployed to the edge, using orchestration

Open Collaboration
Many SDV stakeholders came together to build this demo – collaboratively and intuitively

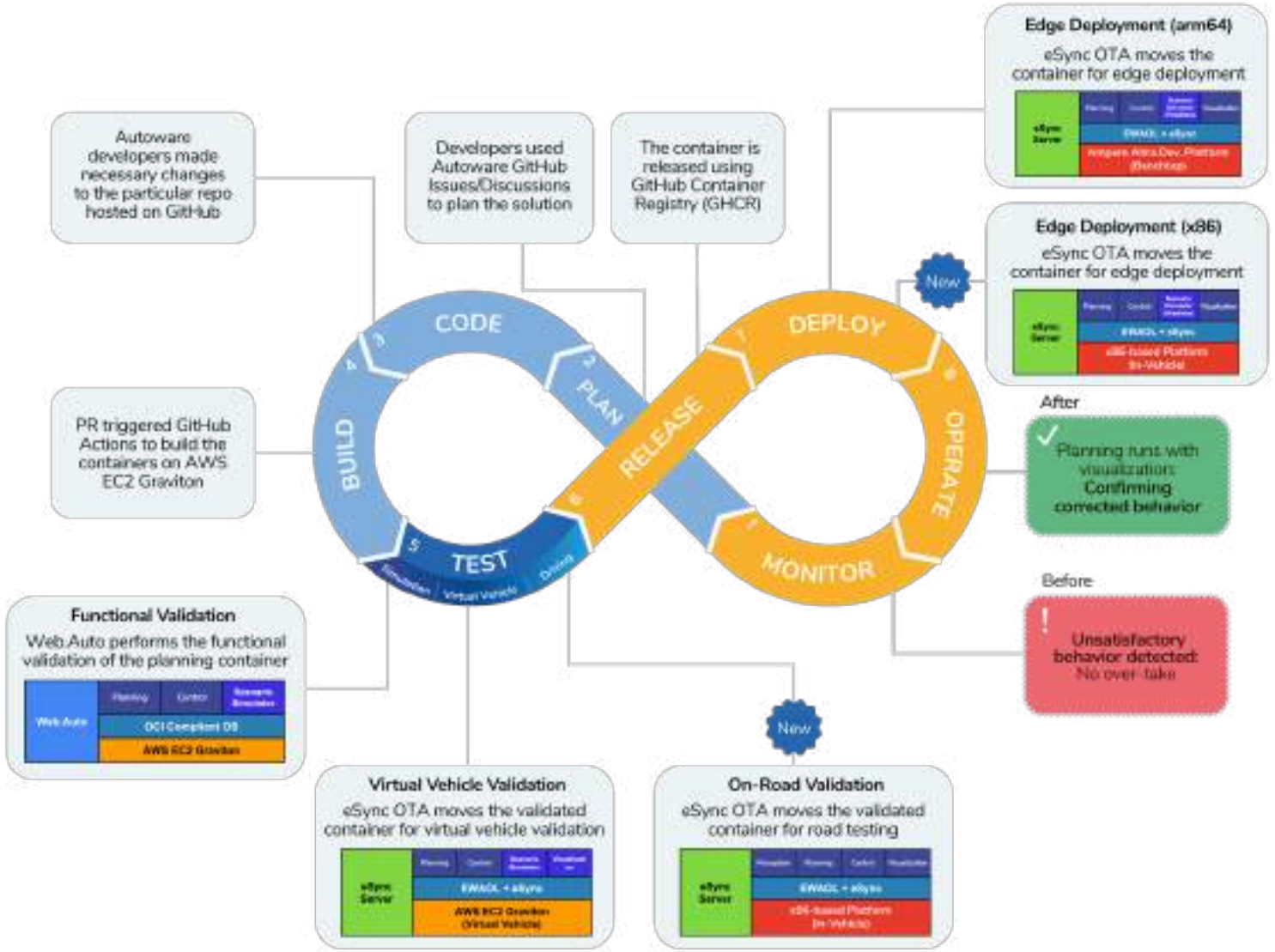
Built on the Pillars of the Software-Defined Vehicle

Containerized
Lightweight microservices allowing ease of development and deployment.

Testing in the Cloud
Using CI/CD methodologies allowing massively scalable testing.

Over-the-Air (OTA) Updates
Using orchestration and connected services allows software upgradeability.

Environmental Parity
Running on the Arm architecture with instruction set parity between the edge and the cloud.



What's New? — Since the CES2024

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Mixed-Criticality
Autoware's control feature is ported on safety-critical (RTOS) environment

Enabling Shift-Left
Access future IP before silicon is available. Save costs and get faster feedback.

Upstream in progress

Mixed Criticality and Physical Hardware

Autoware is deployed on the AADP (main compute) and the S32Z (critical compute).

Showcased at AE23 Launch!

Mixed Criticality and Virtual Hardware

Autoware is deployed in the cloud using AWS EC2 Graviton (main compute) and Corellium virtual hardware (critical compute).

Showcased at Embedded World 2024!

Mixed Criticality and Virtual Platform

Autoware is deployed in the cloud using Corellium virtual hardware (main and critical compute)

How It Works — The interaction between the real and virtual worlds

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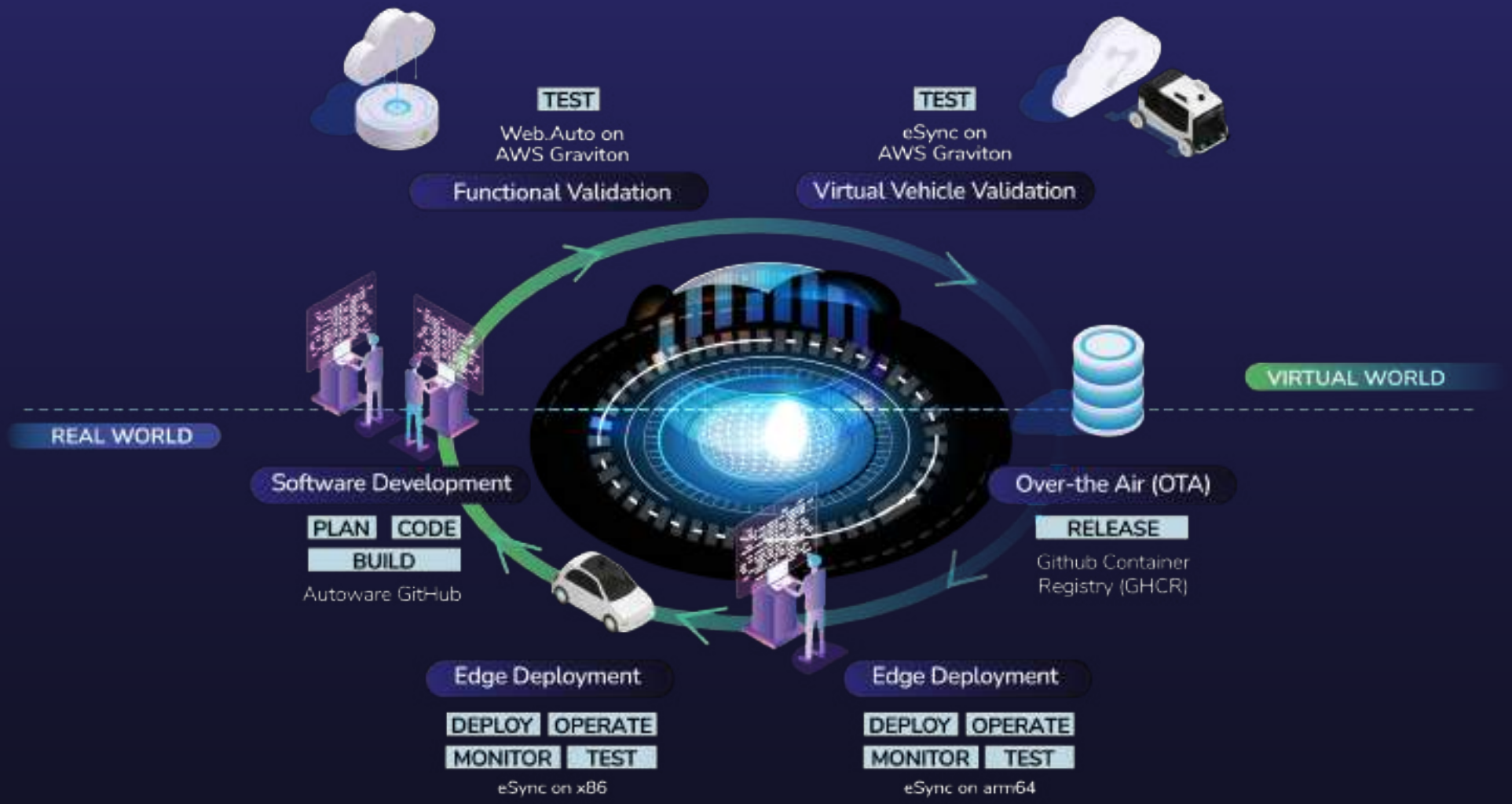

Demos to See — Benchtop and Rolling Vehicle

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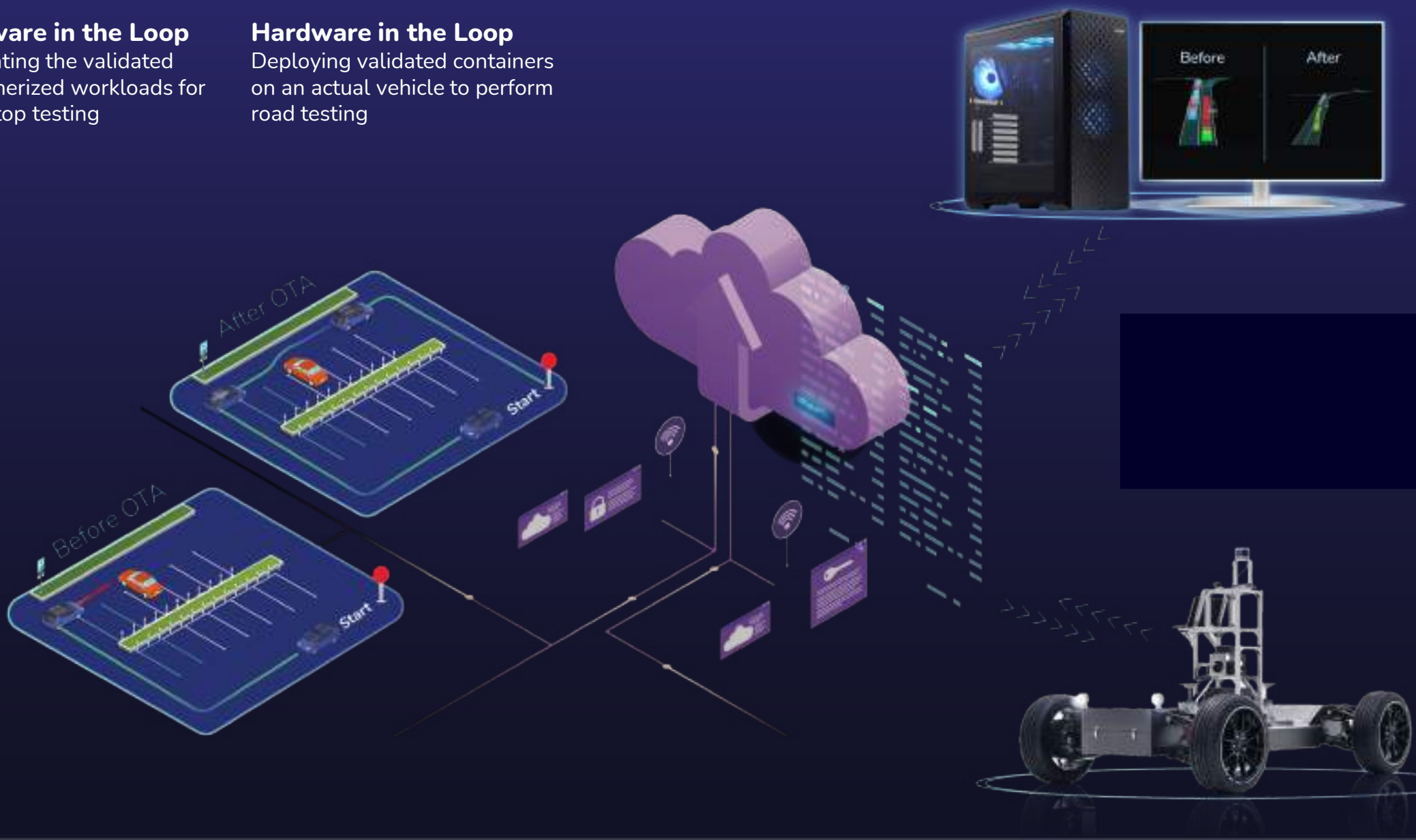
Software in the Loop
Simulating the validated containerized workloads for benchtop testing

Hardware in the Loop
Deploying validated containers on an actual vehicle to perform road testing



Benchtop Testing

In-Vehicle Testing

Any Questions?

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