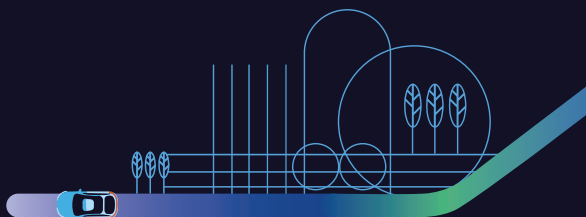


Autware Open AD Kit

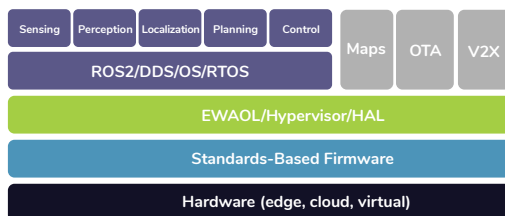
A Mature SDV Framework for Autonomous Driving



SDV requires a dramatic change in how the automotive software is developed and deployed requiring new methods and techniques, such as containerization, cloud-native development, consolidated ECUs, and connected software upgradeability. It calls for collaboration based on open standards across the industry.

As the first SOAFEE Blueprint, the Open AD Kit brings key automotive stakeholders together to prototype and build a full-stack open-source autonomous driving software framework with a microservices architecture.

Open AD Kit Blueprint



A quick glimpse at the Open AD Kit project

The First

SOAFEE
Blueprint

20+

Contributing
Organizations

10+

Generations of
Open AD Kit
PoCs

10+

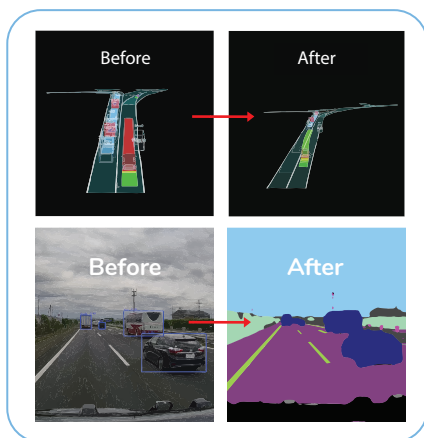
Supported
Platforms

Improve and Enhance AD Features in a Cloud-Native Way

In the SDV world, the vehicle development and enhancement no longer stop with the SoP. Through OTA updates, the vehicle performance can be improved, new functionalities can be added and the vehicle becomes a connected and living object.

The new Open AD Kit demos at CES 2025 showcase how the autonomous driving behaviour can be improved via software updates and how a specific AD stack component can be enhanced by updating the containerized workload.

To design, develop, test and deploy AD solutions using modern software delivery methodologies, try Autware Open AD Kit!





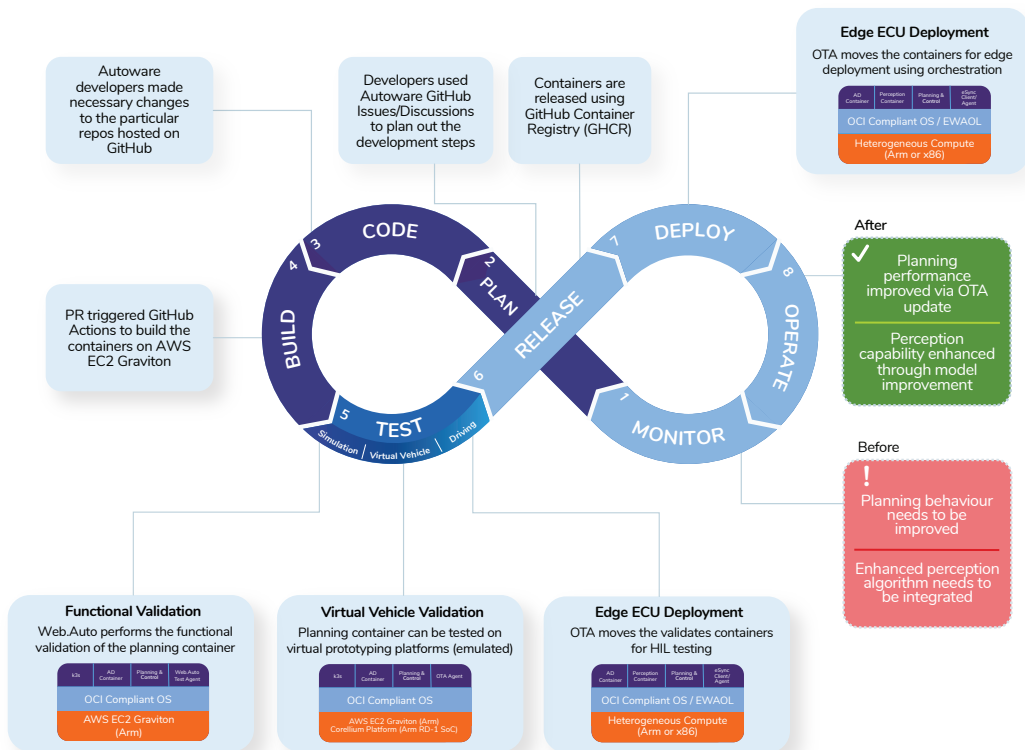
Completing the Big Loop

Software First

Built and tested on the cloud and deployed to the edge using orchestration.

Modern and Agile

Leveraging modern software development paradigms such as containerization and cloud-native.



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 allow massively scalable testing.



Over-the-Air (OTA) Updates

Using orchestration and connected services allow software upgradeability.



Environment Parity

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



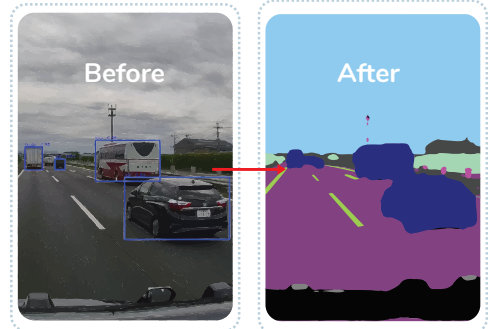
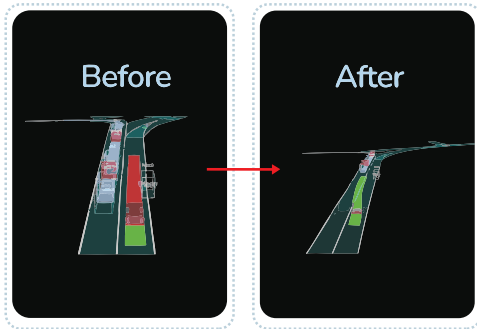
Continuous Software Upgrades

Improving Performance

Autonomous driving behaviour can be altered and/or improved after the product rollout - via continuous software updates/upgrades using the OTA technology

Enhancing Functionality

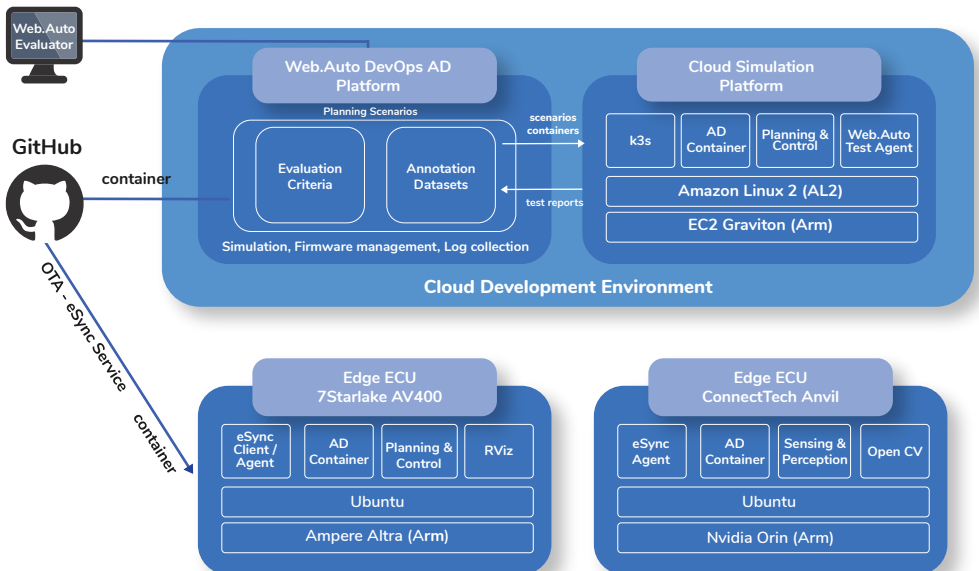
Autonomous driving stack components can be exchanged or improved via updating the specific workload without the need of updating entire stack



Bridging the Cloud and the Edge for AV Development

TIER IV's Web.Auto platform allows Autoware developers the use a plethora of DevOps tools to build their solutions on cloud and later on deploy those solutions on edge devices via OTA technology.

Experience at the **TIER IV** booth
(LVCC West Hall, #3460)





Mixed Criticality and Shift-Left

Achieving Mixed Criticality

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

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).

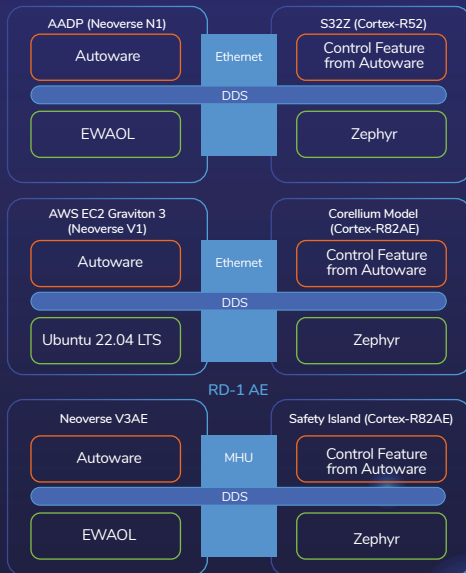
Showcased at Embedded World 2024!

Mixed Criticality and Virtual Platform

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

Enabling Shift-Left

Access future IP before silicon is available.
Save costs and get faster feedback.



Virtual Prototyping Before the Silicon is Available

Shift-left paradigm is bringing cutting-edge innovation to the automotive space.
You can simulate Autoware workloads on Corellium virtual platform - this means you can validate workloads even before the silicon is made available.

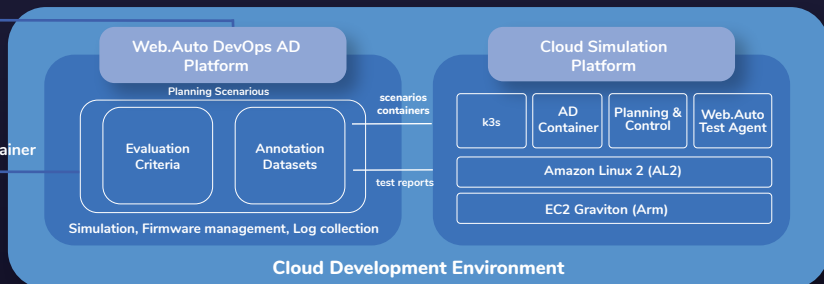
Learn more at the Red Hat Booth
(LVCC West Hall, #5576)



GitHub



container





Browse All Demos and Get Started

Software in the Loop

Simulating the validated containerized workloads for benchtop and batch cloud testing.

Benchtop Testing



Edge ECU Deployment

Use the benchtop development system to develop your solution in the office setting.



Hardware in the Loop

Deploying validated containers on actual an vehicle to perform road testing.

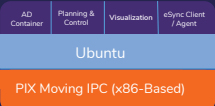


In-Vehicle Testing



Edge ECU Deployment

Move the validated containers for HIL testing on real vehicle



Cloud Batch Testing



Massively-Scaled Testing

Use the power of batch simulations to converge to the solution faster



Future Work Coming to the Open AD Kit



Simulation in the Cloud

Adapting AWSIM Digital Twin Simulator for cloud use, and incorporating into the CI/CD pipeline.



Unified Acceleration

Commonizing acceleration technologies to streamline the solution.



WebRTC Based Visualization

Integrating WebRTC to have browser experience for the user interface.



Reference Designs

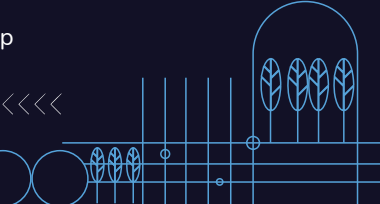
Creating distinct reference designs for various use cases, allowing easy replication of solutions.

Resources and Useful Links



Join Discord
Autoware Github
Become a Member

Join a Working Group
Ecosystem
Open AD Kit



Autoware Open AD Kit Project is brought to you by



TIER IV

Do you want to explore further?



Getting Started Guide

Read technical blogs, watch Autoware podcasts and signup to our newsletter to stay up-to-date with the **Autoware Foundation**.

