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The First Year of Eclipse Software Defined Vehicle: a successful “code first” approach

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What is Open Source?

0. Freedom to **run** the program, for any purpose

1. Freedom to **study** how the program works, and change it

2. Freedom to **redistribute** copies

3. Freedom to **distribute** copies of your modified versions
The Eclipse Foundation - By the Numbers

- **Projects**: 410+
- **Members**: 360+
- **Committers**: 1900+
- **Lines of Code**: 450M+
- **Staff Members**: 65+
- **Industry Collaborations**: 20
Open Collaboration for a business-friendly ecosystem

Companies are looking for developers

But companies want governance

Developers like open source
Strategic Focus Areas

Cloud Native Java  IoT & Edge  Automotive  Tools

Eclipse Foundation Services

Governance & Processes  Ecosystem Development & Marketing  IP Management & Licensing  Infrastructure
Our Impact: Open Innovation at Industrial Scale

**Value Line**

**Competition Layer**
Commercial Adopters focus resources on rapidly building differentiating features

**Collaboration Layer**
Technology Producers jointly define roadmap and build core capabilities

**Governance Layer**
The Eclipse Foundation provides an open, vendor-neutral development environment to enable collaboration

$20+ billion of shared investment to date
What about Software Defined Vehicle?
Motivation: Automotive Software saves lives but is increasingly complex

Automotive hardware and software: key trends

Share of electronics in total cost of a car

Deloitte

22% 2000

35% 2010

50% 2030

Evolution of e/e architecture McKinsey

distributed
domain centralised
vehicle centralised

today

Automotive SW and e/e market (USD billions)

McKinsey

238

362

469

24% EU share in global demand in 2030

Lines of SW code in a car

Today

2020

2025

2030

100 million

200 million

1 billion

The mission of the Eclipse Software Defined Vehicle (SDV) Working Group is to provide a forum for individuals and organizations to build and promote open source software, specifications, and open collaboration models needed to create a scalable, modular, extensible, industry-ready open source licensed vehicle software platform to support in-vehicle and around the vehicle systems development and deployment.
A brief history

Collaboration on non-differentiating SW: SDV WG is born!

Beginning of time

Every organization is an island but complexity is too high

March 2022

Code first: The SDV cake
A brief history II

From single organizations to a **Community**: from Developer to Community Days

Focus on project **integration** with SDV blueprints and onboard **tooling** projects

- Q1 Community Days: March 2023
- A OSS June 2023
- Q2 Community Days: July 2023
- EclipseCon Oct 2023

Getting senior managers on board: Starting the **mentality shift**

Eclipse Software Defined Vehicle
Our Governance principles

- Code First
- Active Participation
- Vendor Neutrality
- Transparency
- Openness
Where we stand today: Our Members (Nov 2023)

41 Members!
Where we stand today:
More than Middleware?

From Middleware-centric to Blueprints & DevOps
Where we stand today:
Project Integration & Collaboration

Eclipse SDV Blueprint:
Fleet Management System

Eclipse SDV Blueprint:
Software Orchestration Blueprint
SDV Blueprint: Fleet Management System

Transition to SDV by leveraging Open standards and technology enables to:

- Run Fleet SW on any vehicle
- Make changes to data reqs. & scale
- Simplify HW & focus on API's

Source: S Jeroschewski @ Eclipse SDV Community Day ZF
I’m planning to go on travel and need to carry additional cargo. I connect my cargo trailer to my vehicle and I’m off to enjoy a fun week!

1. The system detects that a smart trailer is being connected to the car.
2. A signal is raised to the orchestrator that a smart trailer provider and application is required
3. Adjust body functions and powertrain accordingly
Where we stand today: Process and Standards

Automotive-SPICE Standard
- Derived from ISO 15504
- Dedicated for Automotive
- A collection of best practices accompanied by an Evaluation Model.

Automotive Functional Safety Standard
- Derived from ISO 61508
- Dedicated for Automotive
- Collection of guidelines to minimize the risk of accidents and unintended failure of automotive systems / subsystems.

Automotive Cyber Security Standard
- Derived from ISO 15408
- Dedicated for Automotive
- A collection of guidelines on protecting the SW running in vehicle, communication between vehicles, smart devices and cloud.

What about Open Source?
Automotive-grade OS SW methodology

What?

● Design automotive grade best practices for SDV projects

Why?

● Ensure high quality Eclipse SDV Projects.
● To increase projects’ success - Can we make consuming “us” easier for integrators?
● To be part of the automotive industry’s innovation

How?

● Define and apply a set of best practices that can bring OS Projects closer to being “certification-ready”
● Ensure “continuous compliance”
  ○ Define measurements (KPIs) that can ensure a “continuous compliance” of the defined practices
  ○ Periodical KPIs measurement and analysis and badges allocation
● SDV Projects Maturity Badges as part of the business card of the projects
● Exploit Synergies with other initiatives
  ○ ELISA - Enabling Linux in Safety Applications
  ○ ISO norm definition for third party SW certification
SDV Working Group: How to participate

- **Mailing lists**
  - Open community mailing list
  - Voting Members mailing list

- **Slack Workspace [sdvworkinggroup.slack.com]**
  - Dedicated technical discussion channel #technical-alignment
  - Other interest group channels

- **Technical alignment activities**
  - Bi-weekly tech alignment call - contact Sara for invitation
  - Special interest groups meeting weekly

- **Strategic and Participant members alignment every month**

- **Community Days organized on site on a Quarterly basis**
  - Community Days @ EclipseCon 2023
REGISTER FOR SDV HACKATHON 2023!

Build the car of the future - use current Eclipse SDV projects to solve real automotive challenges!

November 28 - 30, 2023
Accenture | Munich, Germany
THANK YOU!