Eclipse SDV Blueprints
a collaborative initiative
to bring the "software defined vehicle" concepts to life

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The Eclipse SDV Blueprints Project

**collaborative initiative**
- Eclipse SDV members
- SDV Concepts in action!
- Sandboxes for project collaboration and feedback

**Eclipse SDV Blueprints**
- Project hosts a collection of blueprints
- Standalone Exemplary

**Learning**
- Showcases for SDV technologies
- Blueprints facilitate self-learning
- Easily reproduce and run
- Well documented
Governance

An Eclipse Project

○ Committers
○ Github Repositories
○ Issue Tracking
○ Periodic Releases
Documentation

Upto date

- Blueprints is a learning resource
- Documents and tutorial
- Best practices and advice
- Blueprints blog

Eclipse SDV Blueprints

A collaborative initiative led by Eclipse SDV members to bring the "software defined vehicle" concepts to life. A crucial aspect of each blueprint is to ensure users can easily reproduce it on their own. This requires well-written and highly clear documentation. Users can utilize blueprints as they are, for inspiration or as a foundation to customize and meet their specific needs.

Fleet Management
The truck fleet management blueprint is focused on capitalizing on all the data that a fleet of trucks generates. There are also a variety of apps and services running on a fleet of vehicles that must be tracked and managed.

ROS Racers
Based on ROS, this blueprint orchestrates and manages the F1/10th stacks that power the miniature vehicles racing around a track. Blueprint documentation is the best place to get started.

Insurance and Data Spaces
A showcase for integrating Eclipse Software Defined Vehicle (SDV) and Eclipse Dataspace for insurance applications. Enable exchange of vehicle and risk events to support risk assessment, underwriting processes and customer experiences.

Documentation

Community

- Slack
- Twitter

More

- Blog
- GitHub

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## FMS - The Fleet Management Usecase

<table>
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<tr>
<th>Summary</th>
<th>A close to &quot;real-life&quot; showcase for truck fleet management where trucks run SDV stacks so that logistics fleet operators can manage apps, data and services for a diverse set of vehicles.</th>
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<tr>
<td>Includes</td>
<td>Data collection from vehicle, In vehicle data brokers, VSS Signal Specification, FMS servers, Apps and Services using this data</td>
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<td>Eclipse Leda, Eclipse Velocitas, Eclipse Kuksa.val, Eclipse SommR (?), Eclipse Charriot</td>
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<td>Other Tech</td>
<td>InfluxDB, Prometheus, VSS, Eclipse Hono, Eclipse Kanto, Digital.Auto, Eclipse Sumo</td>
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## ROS - The ROS Racer Use Case

### Summary
A showcase for integrating Eclipse Software Defined Vehicle (SDV) and Eclipse Dataspaces for insurance applications. Enable exchange of vehicle and risk events to support risk assessment, underwriting processes and customer experiences.

### Includes
Orchestration of ros software on racers and data collection from vehicles, providing remote control, race Apps and Services using SDV stacks.

### Projects
- Eclipse Muto
- Eclipse Leda
- Eclipse Charriot
- (Eclipse Kuksa?, Eclipse Velocitas?)

### Other Tech
- OSRF ROS2
- Eclipse Kanto
- Eclipse Ditto

### Coordinator
Naci Dai
## Insurance and Data Exchange

### Summary
A ROS based showcase where autonomous racers that run F1Tenth stacks that are orchestrated and managed by SDV

### Includes
Identification of common driver risk events (maneuver detection) such as tailgaiting or speeding using CAN bus signals. Data capture / snapshotting and transmission of risk events to a telematics platform using MQTT pub. Data storage in a Insurance Landing Zone. Data exchange using Eclipse Dataspace components between two entities representing the OEM and the Insurance Platform

### Projects
- Eclipse Charriot
- Ibeji
- Kuksa

### Other Tech
- Eclipse Dataspaces
- MQTT

### Coordinator
Mario Ortegon
Blueprints are a Sandbox

● Discover
  ○ Blueprints have common architectural components and requirements
    ■ Cloud connectivity, publishing and receiving data
    ■ Security & Policy
    ■ Edge middleware
    ■ Orchestration

● Prototype
  ○ Reusable “glue” code
  ○ Contributed back to SDV projects
Eclipse SDV
Blueprints
Fleet
Management
Fleet Management Systems

**Problem Statement:**
Fleet Operators are required by law to collect certain types of data points like Fuel Consumption, Mileage, Driver Information and others from Commercial Vehicles.

**The Challenge:**
How do we get this very specific data out of the vehicles and into the Fleet Management System?
FMS > How it is done today

Status Quo:

FMS vendors and/or TIER’s build dedicated Telematics Units to put into commercial vehicles.

The Challenge:

This needs to be done for each and every commercial vehicle brand in an FMS proprietary way.

This is slow and costly and particularly tedious across brands and FMS vendors.
FMS > How does SDV help?

SDV potential:

Having a generic SDV in-vehicle computer allows to adapt any given commercial vehicle HW environment to any backend FMS simply by deploying some SW

The Challenge:

We still however need to have different SW that is specific to each Commercial Vehicle brand and FMS
FMS > How do standards help?

Standards potential:

Using standard APIs for accessing data allows for employing the same hardware & software components in Commercial Vehicles across brands and FMS vendors.

The Solution:

This is the final stage in making the transition towards a fully software defined vehicle by leveraging Open standards and technology we can now

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

To achieve it & what is done already
Hardware Abstraction
Planned Initial Architecture

• What’s missing
  - Service Discovery
  - (FOSS) cloud environment
  - more advanced edge client
  - Simulating Vehicle behavior

• Topics for community discussions
  - Identify relevant and missing VSS signals
  - Map VSS signals to other standards
  - Vehicle Application SDK + data-driven broker client
  - Authentication & Authorization
  - an onboarding point for new devs (tutorial etc)
  - Something to use for demos
Idea: Adding Simulation

• What’s missing
  - Service Discovery
  - (FOSS) cloud environment
  - more advanced edge client
  - Simulating Vehicle behavior

• Adding Eclipse SUMO
  - Run simulation scenario in Eclipse Sumo
  - Use Traci interface to get simulation data and write it to Eclipse Kuksa.val data broker as converted VSS
  - Future potential for integration with Eclipse Mosaic
Possible other Extensions

- Here's what we'd like to do...
  - Implement FMS Feeder as Eclipse Velocitas App
- Topics for community discussions
  - Start developer journey with Eclipse Autowrx/digital.auto
  - Auth using Eclipse Chariot
  - Onboarding point for new devs (tutorial etc)
  - Something to use for demos
  - Eclipse SommR based SOME/IP feeder
Thank You