HACKATHON

Chapter III - 2025

ECLIPSE SDV HACKATHON PORTO 2025

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ECLIPSE SDV HACKATHON BERLIN 2025

OTA-VEZ

SDV Eclipse Software Defined Vehicle

The Plan : initial situation

- ***Complex*** *ECU updates,*
- *dependency* ***conflicts****,*
- *risk of* ***downtime****,*
- *cybersecurity* ***threats****,*
- ***regulatory compliance*** *needs.*

The Plan : the idea

*Secure, **fragmented** OTA updates with **A/B partitioning**, automated **rollback**, **dependency** management, and **auditable** logs using Eclipse Ankaios*

The Idea

Idea for Solving the SDV Hackathon OTA Challenge:

A lightweight OTA update system using **Eclipse Ankaios** to orchestrate secure, fragmented updates for vehicle ECUs (e.g., instrument cluster).

- **A/B partitioning** for atomic updates,
- **Dependency management** (e.g., bootloader before visual templates),
- **Automated rollback** on failures (like checksum corruption), and;
- **Auditable logs** for UNECE WP.29 compliance, with a mock cloud service simulating fleet management.

The Plan : the demo

Plan for Solving the SDV Hackathon OTA Challenge:

- Build a prototype OTA system using Eclipse Ankaios on a Raspberry Pi 5 (Ubuntu, ARM64) to simulate in-vehicle updates,

- Starting with Docker Compose for server, agent, and mock cloud services.

The Plan : the demo workflow

Plan for Solving the SDV Hackathon OTA Challenge:

The workflow would include:

- Generating signed packages with checksums,
- Applying fragmented updates via YAML manifests with dependency resolution and A/B partitioning,
- Validating via static/dynamic tests, and
- Automating rollback on failures like corruption.

Team and Structure

The members of the team and what role each of them played

- **Batista, Michel :** *Cloud Integration + Ankaios Setup, Containers*
- **Ferreira, Antonio :** Tech Leader, Idea Architect, Solution Workflow
- **Le Bihan, Felix :** CI/CD integration and Documentation, SCRUM MAster
- **Pereira, Tiago :** A/B bootloader, ECU update
- **Rodrigues, Andre :** A/B bootloader, ECU Update

The Product / Service

Product/Service Outcome (SDV Hackathon OTA Challenge):

*A secure OTA update system powered by Eclipse Ankaios, enabling **fragmented**, **dependency**-managed updates for vehicle ECUs with **A/B partitioning**, automated **rollback** on corruption, and **auditable** logs for regulatory compliance, demonstrated on Raspberry Pi 5 with a mock cloud service.*

The Added Value

- *Zero-Downtime Updates*
- *Robust Failure Handling*
- *Dependency Management*
- *Regulatory Compliance*
- *Security*
- *Lightweight and Scalable*
- *Eclipse SDV Integration*

Why Our Solution is Better

- *Open-Source Ecosystem (Eclipse SDV)*
- *Lightweight and Hackathon-Ready*
- *Comprehensive Failure Handling*
- *Standards Compliance Built-In*
- *Fragmented Updates*
- *Extensibility for Multi-Site and uServices*
- *Developer-Friendly*

The Market & The Competition

Business Model * Plan & Funds

Contact

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Thank You

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