

Eclipse Developer Console

Eclipse Community Day

Connected Mobility | Lisbon 29th of March

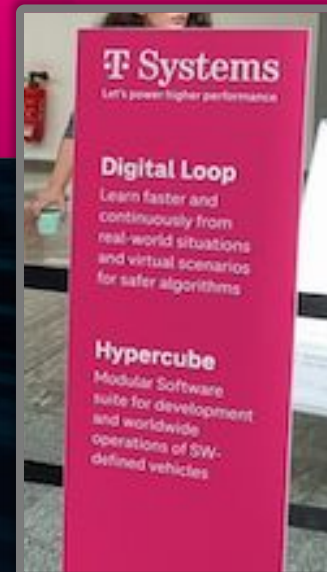
T Systems

Let's power
higher performance

Connected Mobility | Lisbon 29th of March

We started our Eclipse SDV journey in September 2022 ...

- 1st Contribution Day
- Telekom HQ in Bonn



... starting our 1st Eclipse SDV Project

Eclipse Ambient Light Services



- interactive lighting concept
- vehicle SW component
- easy to adopt to vehicle platform
- sensor input for vehicle status
- color, brightness and motion commands
- animation scenarios

The Eclipse SDV WG priorities & T-Systems' match

Eclipse SDV Priority

T-Systems Portfolio Match

T-Systems: Solutions

**Architecture & SW Stack
(In-Vehicle and Backend)**
SDV.Dev

- Connected Car BE Building Blocks
- In-Vehicle SW Development
- Digital Twin
- Homologation
- In-Car Entertainment/5G



Ambient Light Services

Cloud-based CI/CD Toolchain
SDV.Ops

- Dev Ops Offering
- Managed Cloud
- Systems Engineering
- Remote Test Lab



Hypercube
(e.g. DevOps for vehicle SW)

Vehicle Operations (incl. OTA)
SDV.Edge

- Vehicle Operation Center
- Security Operation Center
- OTA Features



Hypercube
(e.g. Data-enabled insights/ services)

Here in Lisbon we continue our journey with our 2nd Eclipse Project

#2 Eclipse Developer Console



- Automotive SW-Lifecycle Management
- Core Cube of T-Systems Hypercube
- User Interface
- Track Management
- Scenario Management



“

The product doesn't get old. It actually gets better. Just like a fine wine.”



Ola Källenius

Chairman of the Board of Management
of Mercedes-Benz AG,
on Over-The-Air-Upgradeability





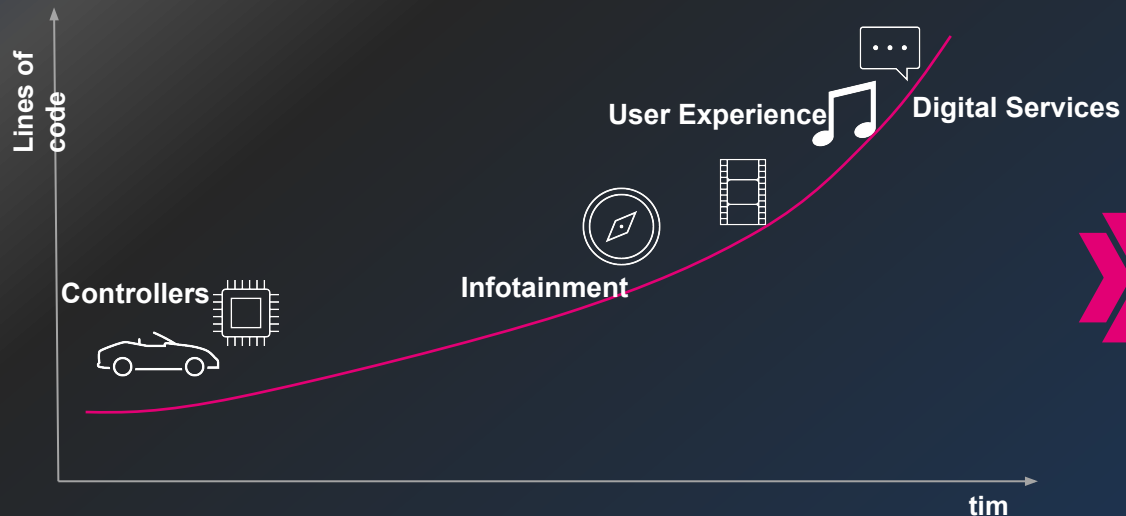
Quick Launch	Real Devices(44)			
Android	SAMSUNG		Galaxy S5	4.4
iOS	Galaxy S10	9	Galaxy S4	4.4
Windows Phone	Galaxy S9	8	Galaxy A8	7.1
Windows	Galaxy S8	7	Galaxy Note 9	8.1
10	Galaxy S10e	9	Galaxy Note 8	7.1
8.1	Galaxy S9+	9	Galaxy Note 4	4.4
8	Galaxy S9+	8	Galaxy Note 3	4.3
7	Galaxy S8+	9	Galaxy Tab S4	8
XP	Galaxy S8+	7	Galaxy Tab S3	7
Mac	Galaxy S7	6	Galaxy Tab S3	8
	Galaxy S6	5	Galaxy Tab 4 10.1	4.4
Drag a browser here to add to				

The automotive industry is UNDERGOING A TRANSFORMATION

... vehicles will be defined by software.

Vehicles change from mainly hardware based to software centric

OEMs have big challenges in managing software releases and tests



- Testing of digital services and continuous improvement of ^e products
- Software defined vehicles require more software updates in future
- The release cycles need become more frequent



Testing of vehicle and backend functionalities has a lot of manual efforts using physical vehicles for testing



Testing new functionalities is becoming more complex and has to be done in shorter time frames



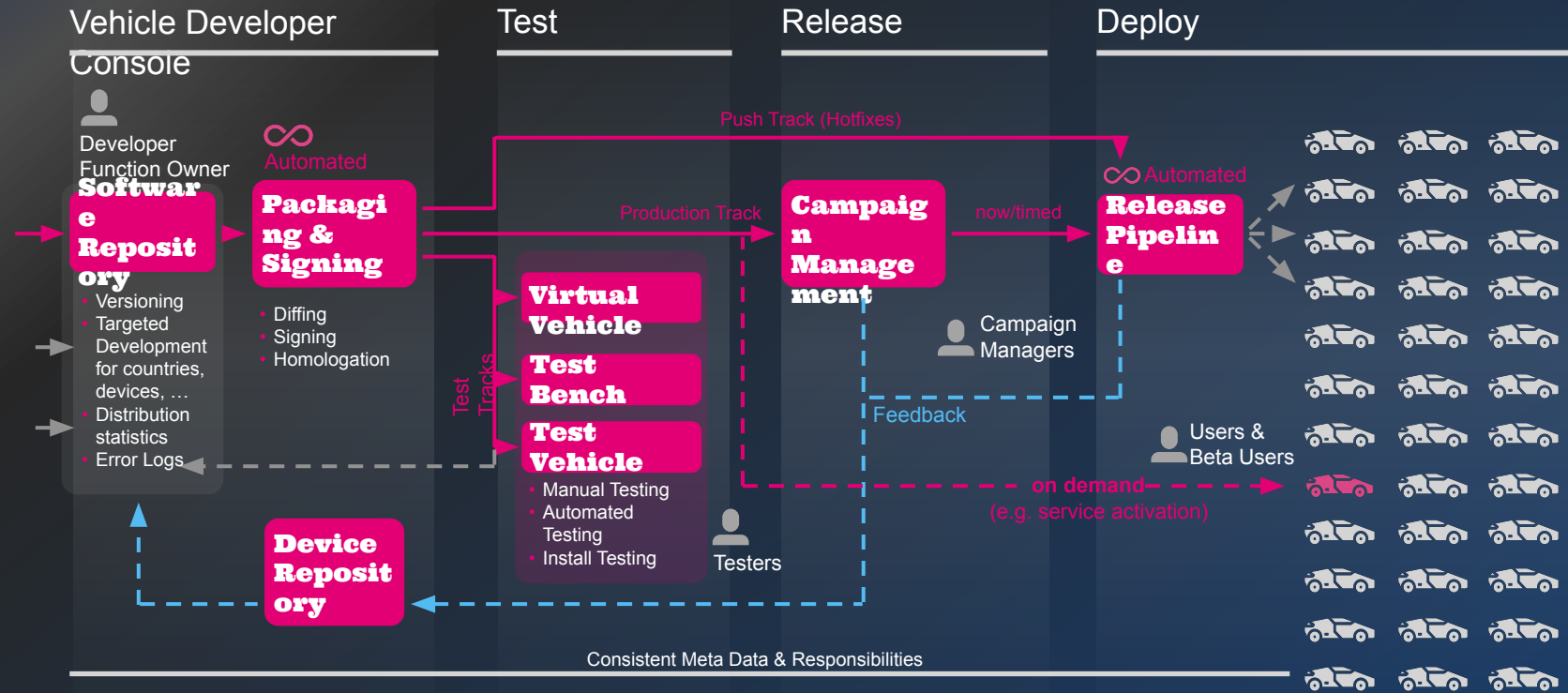
Costs for physical vehicles and test benches are increasing



Managing frequent and efficient vehicle software updates require an integrated toolchain from development to release.

Vision: From OTA towards a Continuous SW Deployment Pipeline

Automation, Faster Iterations, Flexible Release Scenarios, Pre-Systems Continuous Development Pipeline



Our Approach

- Provide one **integrated pipeline from development** to vehicle and realize a seamless and continuous pipeline
- **Break the silos** and bring the information to developers and business
- **Simplify and automate** the processes to reduce cycle time of releases

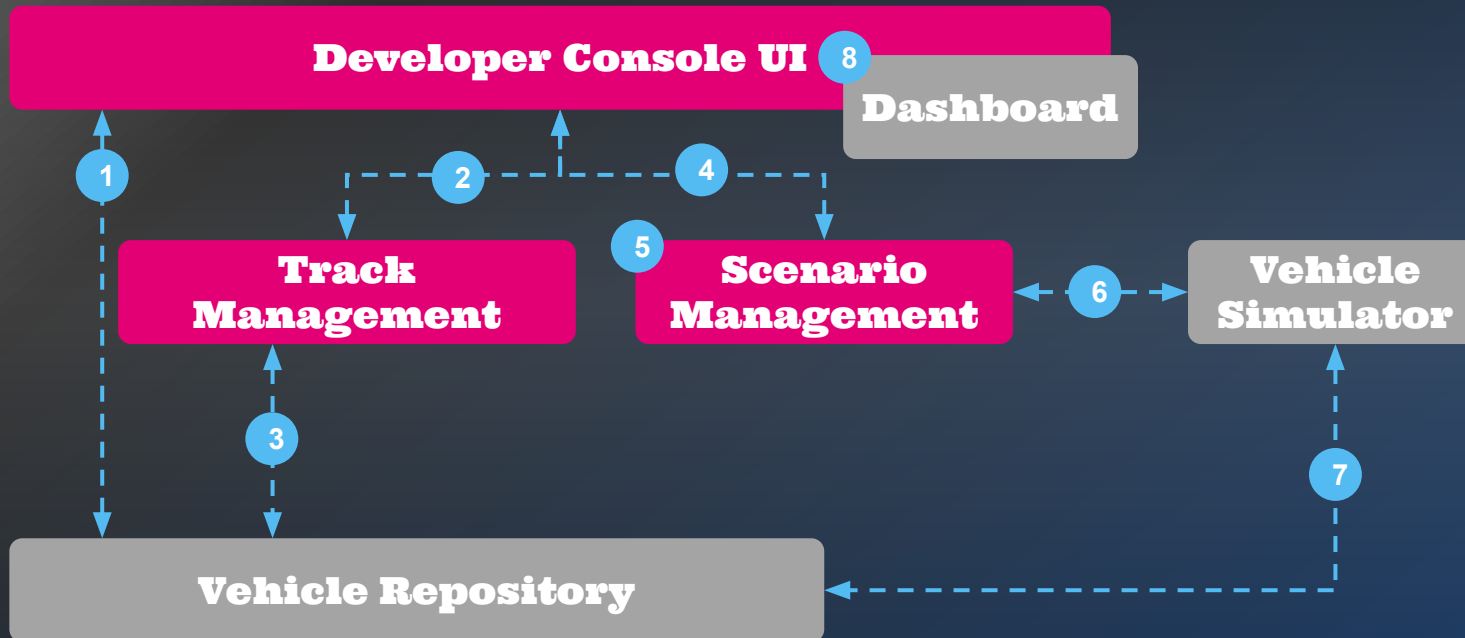
WHAT is ECLIPSE DEVELOPER CONSOLE about?

Developer Console enables **tester and developers** to **plan, prepare, execute and monitor simulations** of scenarios – from vehicle & fleet behavior to services for software defined vehicles.

Testers and Developers can create **scenarios as well as simulations, with integrating third-party solutions and services** for instance simulators, virtual vehicle repositories or simulations analysis and monitoring tools.

ECLIPSE DEVELOPER CONSOLE

Component View of Eclipse Developer Console



Description

1. Create virtual vehicle (VV) and manage meta data of VV
2. Prepare track, define simulation settings
3. Select virtual vehicles, testbenches and simulators
4. Create a scenario and upload a scenario recording
5. Associate created track with scenario
6. Launch simulation on defined target list of track
7. Execute on virtual vehicles
8. Monitoring and error handling of scenario simulations

ECLIPSE DEVELOPER CONSOLE - User Interface

Developer Console

13 simulations

New Simulation

scenario

tracks

simulations

Simulation Name	Status	Number of vehicles	Brand	Scenario Type	Number of Scenarios	Platform	Environment	Start Date
Simu-1	Timeout			Data Collection	1	Test	Test	3/14/2023, 10:01:32 a.m.
	Timeout			Data Collection	1	test	test	3/15/2023, 6:04:04 a.m.
Test Simulation	Timeout			Over-The-Air Service	1	Task Management	Development Demo	3/16/2023, 11:35:42 a.m.
Test Simulation1	Done			Over-The-Air Service	1	Task Management	Development Demo	3/16/2023, 11:36:27 a.m.
Test Simulation	Running			Over-The-Air Service	1	Task Management	Development Demo	3/20/2023, 4:51:43 a.m.
simulation test mahima	Done			Vehicle Management	1	Task Mangement	Demo	3/22/2023, 5:23:46 a.m.
testing simulation ma	Error			Data Collection	2	Task Mangement	Demo	3/22/2023, 5:24:39 a.m.
simulation	Done	7	Mercedes-Benz	Vehicle Management	2	Task Mangement	Development	3/22/2023, 5:28:07 a.m.
simulation 4	Error	7	Mercedes-Benz	Data Collection	1	Task Mangement	Demo	3/22/2023, 5:51:20 a.m.
simulation 5	Running			Over-The-Air Service	2	Task Mangement	Development	3/22/2023, 5:51:51 a.m.

Developer Console

< track

Details

7 vehicles

Region

FR LU PL GR

Brand

Mercedes-Benz Ford VW Nissan Opel eGO BMW

Software component, Version

Component, 24ndc130 Software, 1779121250 Software, 1779121250 ComponentTest, 3.0.1 Software, 1779121250 COMPONENT, 9824902229 COMPONENT, 9824902229 COMPONENT, 9824902229

Devices

84c32703-982a-4ef4-920b-b8... 34e5322b-920e-4fb9-ac25-56... TESTDEVICE3013 TESTDEVICE2940 41e5242c-aafa-4def-a81a-961... DEVICEID665457956 DEVICEID773051816

Name

Track

VIN	Type	Last connected	Country	Brand	Status
BBTEST00000000340	----	2023-02-22T00:58:01.734361	FR	Mercedes-Benz	DRAFT
VINTEST1B80003013	----	2023-02-22T00:58:01.729348	LU	Ford	DRAFT
VINTEST1B80002940	----	2023-02-22T00:58:01.739486	PL	VW	DRAFT
VINTEST1B80002939	----	2023-02-22T00:58:01.729547	GR	Nissan	DRAFT
TESTVIN00000003337	----	2023-02-22T00:58:01.73495	PL	Opel	READY
TESTVIN00000003408	----	2023-02-22T00:58:01.738612	PL	eGO	DRAFT
VINPM128167865193	----	2023-02-23T00:53:00.110147	FR	BMW	READY

Features of ECLIPSE DEVELOPER CONSOLE



Manage Vehicle Tracks

Group any type of vehicle (e.g. physical vehicle, virtual vehicle, test bench) and push Software and Simulations to the track



Manage Scenarios

Upload test scenarios like trip recordings in different kind of protocols e.g. CAN, MQTT, etc



Manage Simulations

Run vehicle simulations on tracks with replaying recorded scenarios and integrate into your software defined development tool chain



Integrate Virtual Vehicles

Integrate the vehicle simulations you need to trigger your vehicle test sessions



Simple UI

Manage all your tracks, scenarios and simulations in an easy to use UI

Thank you!

