



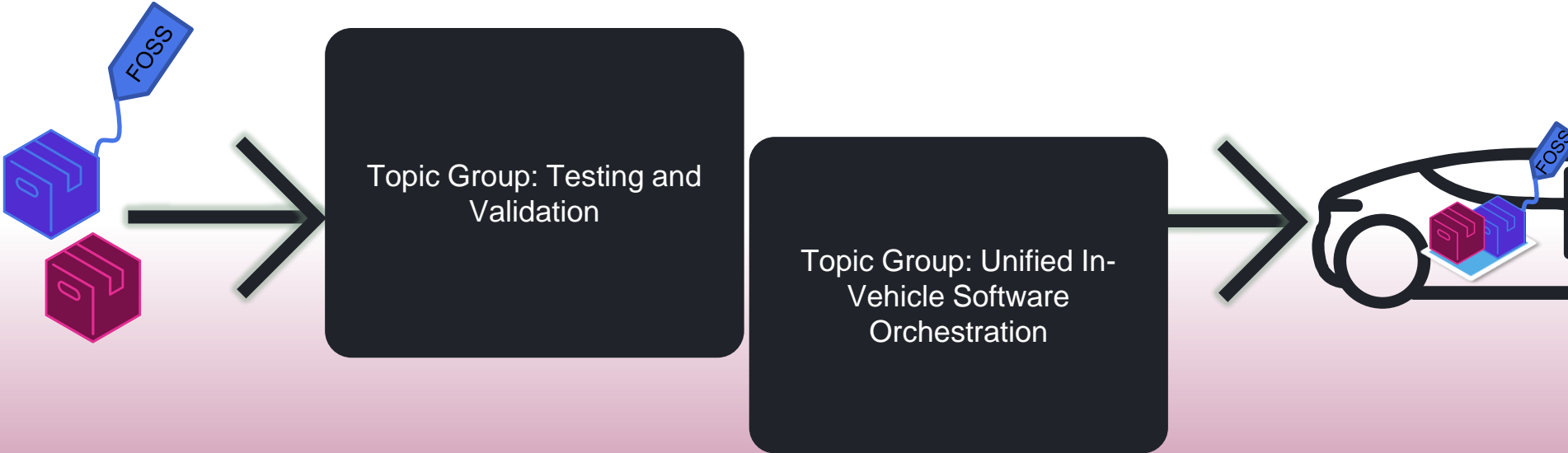
Topic Group Testing and Validation

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Motivation



Helping SDV Projects to become automotive grade

Validate automotive grade Software* by providing



Guidelines

- How to validate FOSS software for automotive use cases*



Code

- Enhance existing code bases with vendor neutral T&V Cases



Projects

- Automated tool chain for vendor neutral automatic T&V-cases

*starting with QM use cases

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Framing of the Topic Group so far

3-Step approach from a neutral T&V-Case Definition to an executed and understandable Test and Result:



creates the test setting based on the test case.

- Request virtual or real HW
- Set up Software
- Set up Rest of Vehicle and Sensors
- Set up Network
- Check QoS



tests in an open or closed loop on real or emulated hardware

- Execute the neutral T&V-Case definition
- Systematic/Stochastic config variations
- Internal Monitoring and Diagnostics

Cucumber + gherkin



process the results and insights for the different roles/users

- Observe and provide understandable information
- What should be changed by developers to pass the validation
- Offer reports on the validation for legal aspects

e.g. DLT, openTelemetry

Code Example - kuksa.val

Goals::

- Evaluate suggested technologies
- Evaluate if our approach gives value to the community



<https://github.com/eclipse/kuksa.val/pull/504>

Scenario Outline: Reading the current value works

Given a Data Entry <path> of type <type> having value <value>
When a client gets the current value of <path>
Then the current value for <path> is <value> having type <type>

Examples:

path	type	value
Vehicle.Cabin.Sunroof.Position	int8	-128
Vehicle.Powertrain.ElectricMotor.Power	int16	-32768
Vehicle.Powertrain.ElectricMotor.Speed	int32	-2147483648
Vehicle.Cabin.Lights.AmbientLight	uint8	255
Vehicle.Width	uint16	65535
Vehicle.Powertrain.Range	uint32	4294967295
Vehicle.TraveledDistanceHighRes	uint64	23425462462563924
Vehicle.CurrentLocation.Longitude	double	145.023544
Vehicle.Speed	float	45.5
Vehicle.IsMoving	bool	true

Scenario Outline: Setting current value of wrong type fails

When a client sets the current value of <path> of type <type> to <value>
Then setting the value for <path> fails with error code 400

Examples:

path	type	value
Vehicle.Cabin.Sunroof.Position	bool	true
Vehicle.Powertrain.ElectricMotor.Power	uint8	15
Vehicle.Powertrain.ElectricMotor.Speed	uint16	13648
Vehicle.Cabin.Lights.AmbientLight	int32	-2552565
Vehicle.Width	int8	-35
Vehicle.Powertrain.Range	int16	-7295
Vehicle.TraveledDistanceHighRes	float	-6.3924
Vehicle.CurrentLocation.Longitude	uint16	14502
Vehicle.Speed	bool	false
Vehicle.IsMoving	uint8	4

A scenic landscape featuring a winding asphalt road that curves through a green field. In the background, there is a white barn with a red roof, a wooden fence, and a range of mountains under a hazy sky. The scene is bathed in the warm, golden light of a sunrise or sunset, with long shadows cast across the road and fields. Large trees with autumn-colored leaves are visible on the right side of the road.

Reproducible builds

Qualifying FOSS for safety
relevant use cases

Topics you would like to work on
– join us and shape the road ahead



THANK YOU!