VERIFICATION
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METHODS

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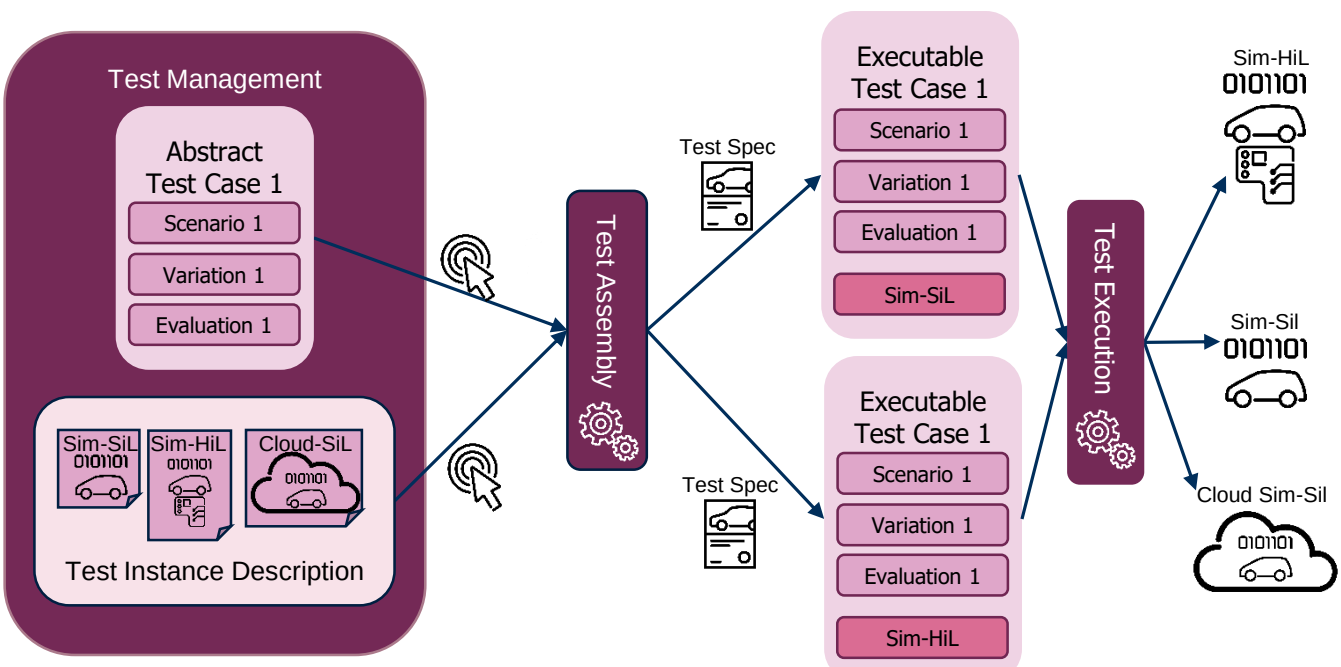
SCENARIO-BASED-TESTING AT SCALE

Handling large numbers of simulations using cloud technology

Slavisa Krebs-Radic, Franziska Körtke, ZF

Automatic execution of high numbers of scenario-based simulation tests on different test instances requires a sound specification of the tests as well as a reproducible and auditable test execution log.

ZF has designed a **test specification language** along with a **simulation framework for scenario-based tests**.



Simulation framework

The simulation framework consists of three main components. **Test management** manages **abstract test cases**, references to **test instances** and references to any other simulation assets.

In order to attach simulation models to the test instance, the adaptation must be defined and also managed as an asset.

Test cases along with a reference to the target test instance and the corresponding model references with the appropriate adapter are being assembled into an executable test case by the **test assembly component.** This generates a **Test Spec** document.

The Test Spec document can be consumed by the **test execution component**, which resolves all asset references and distributes the tests to the corresponding test instances.

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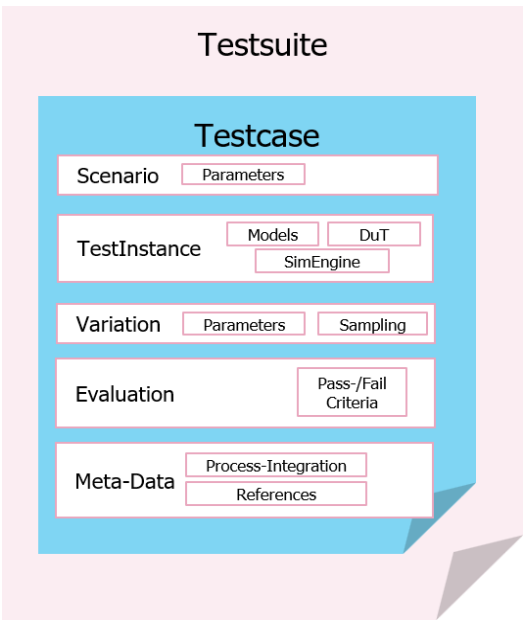
TECHNICAL TEST ORCHESTRATION AT ZF

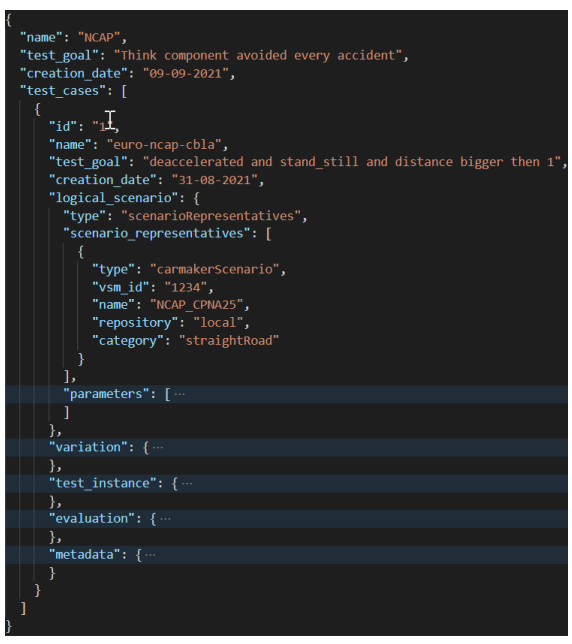
Machine-readable representation and automatic execution and evaluation of test specifications

Slavisa Krebs-Radic, ZF; Franziska Körtke, ZF

The Test Spec document specifies all relevant details for generating an executable test on a particular test instance. This includes information on the scenario, the test instance itself with models, the parameter variation, information on the criteria that will be evaluated as well as a block of meta information.

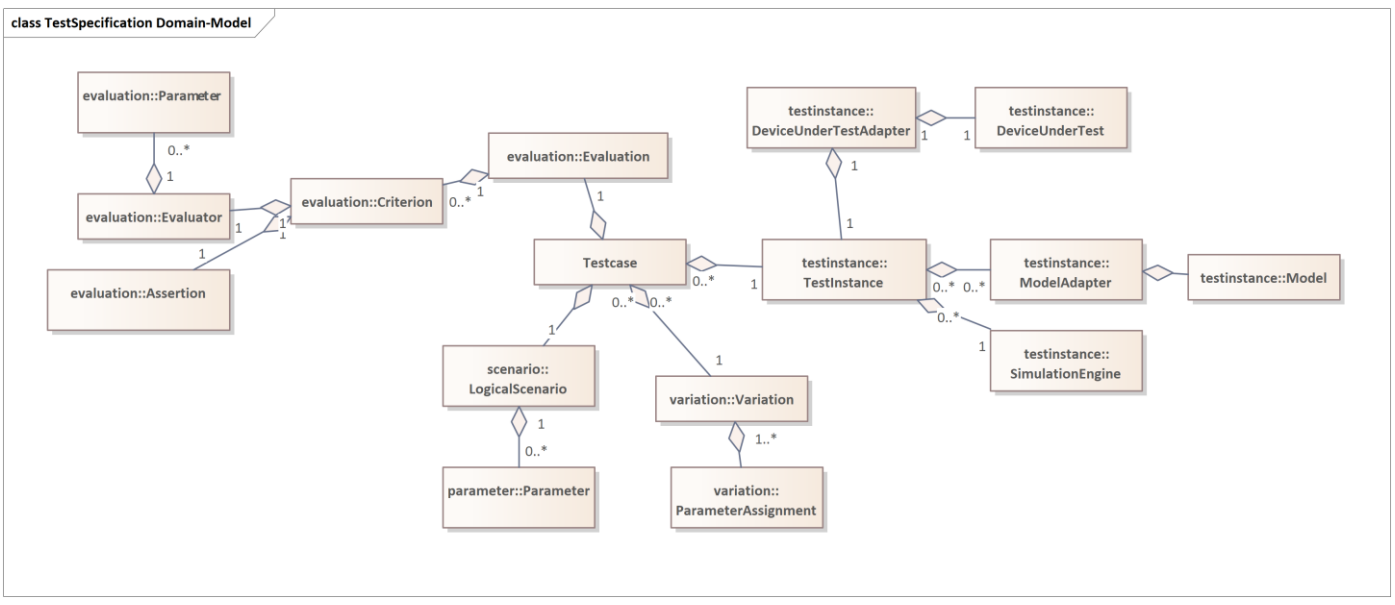


Structure of Test Spec document



Machine-readable Test Spec document in JSON format

To represent the test specification in a machine-readable format, a **domain model** was created. Based on this domain model a **JSON representation** of the **Test Spec language** was defined. This is essential for enabling the Test Execution Component to use the test specification and execute the specified test.



Domain model for Test Spec language

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