

# openMDM®

Plan. Measure. Share



**Open Source Platform for implementing  
Test Data Management**



Dr. Hans-Jörg Kremer

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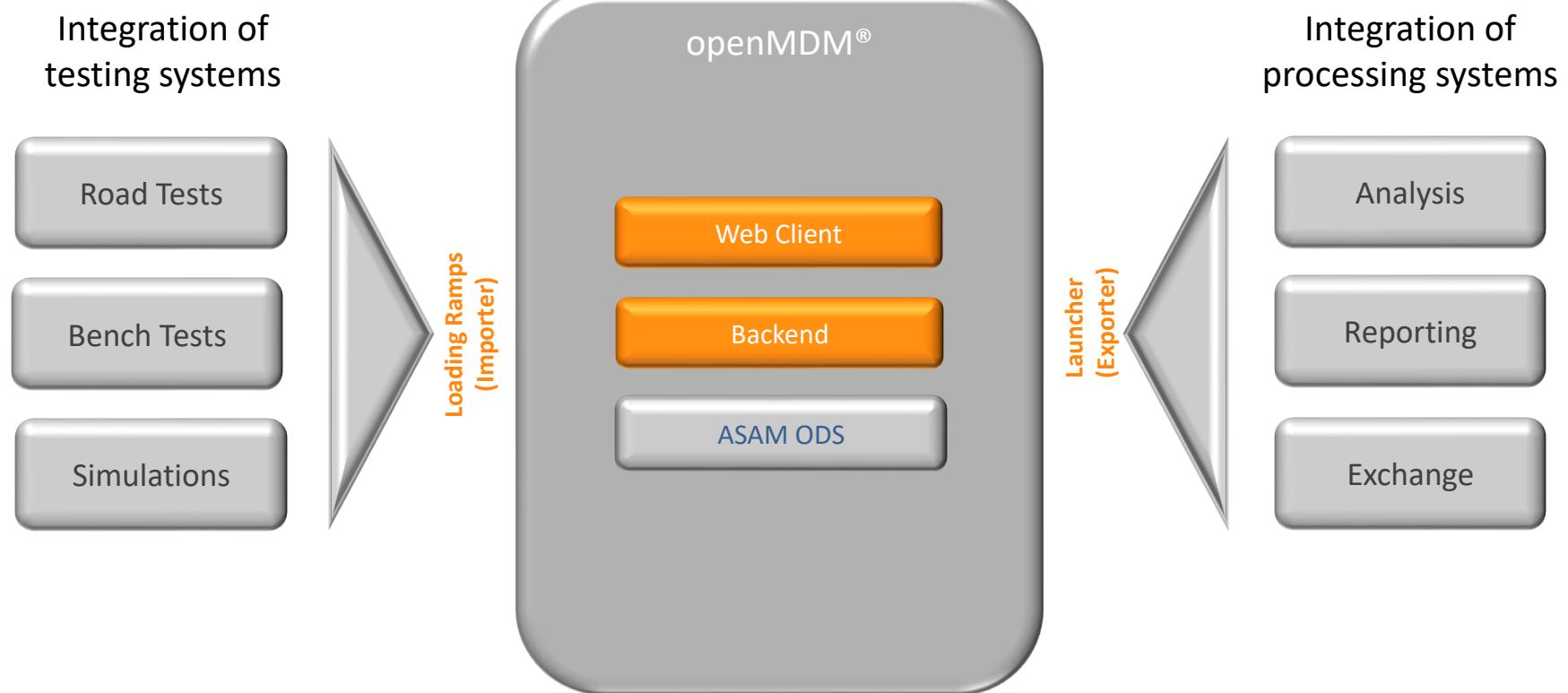
## Features

- Independent from specific measurement and analysis tools (vendor-neutral)
- Flexible adaptable to different and changing requirements of varied test domains
- Scalable in terms of data volume, number of users and local use
- Capabilities to protect data from unauthorized access
- Reliable basis for fulfilling documentation and proof obligations



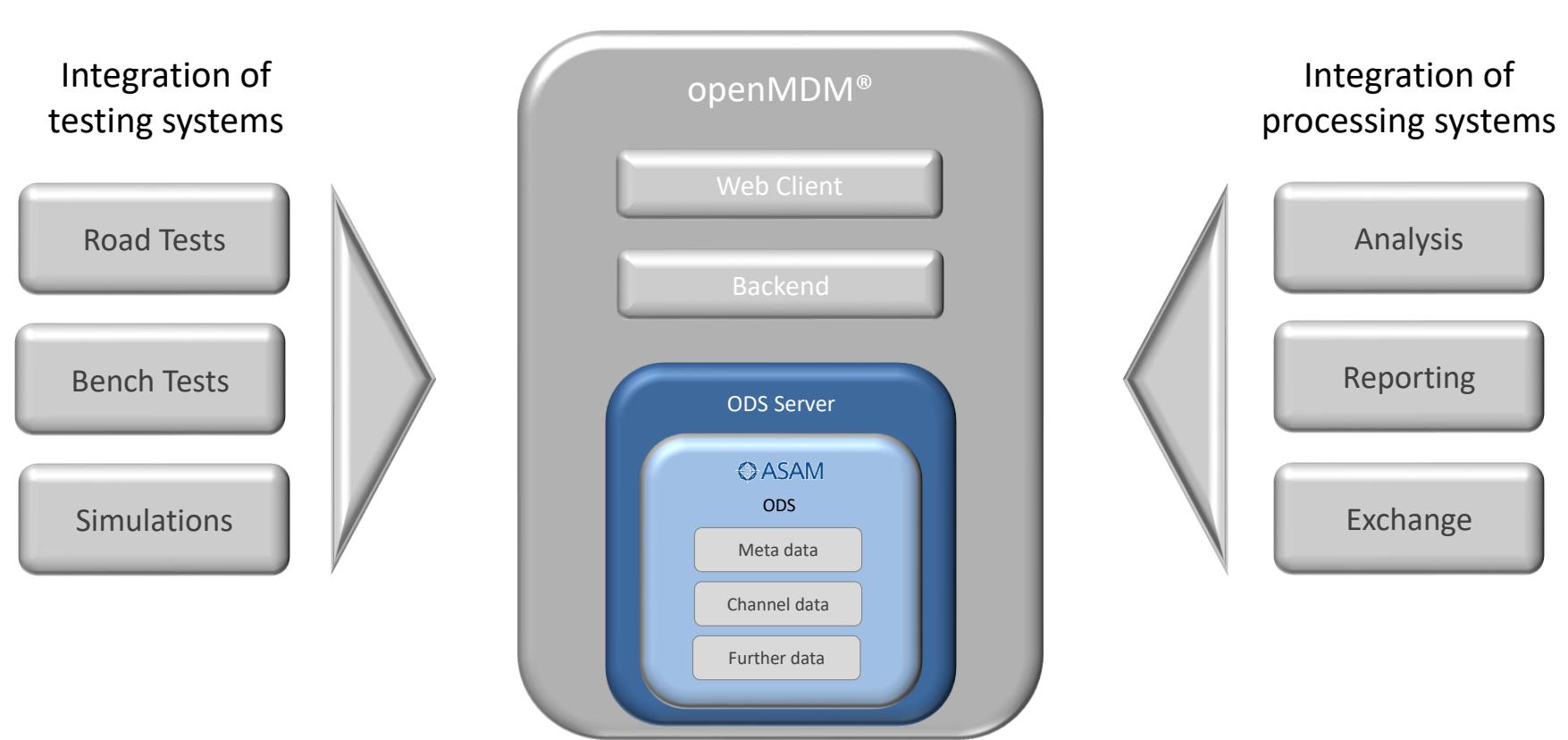
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## Platform for Test Data Management



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## Test Data Management based on ASAM ODS

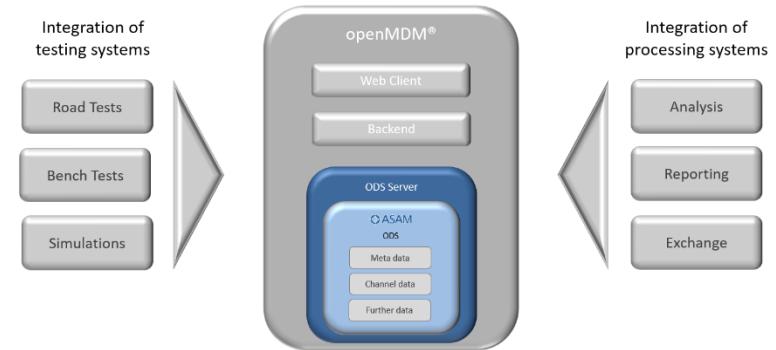




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## Test Data Management based on ASAM ODS

- Uniform storage of **test data** coming from different sources
- Comprehensive information regarding the test context (**meta data**)
- Semantically unambiguous interpretation of stored test data
- Supported by a variety of ODS-compliant software tools



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## ASAM ODS – scope of the standard

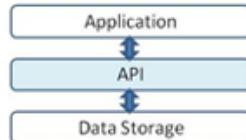
- **Base Data Model**

Well defined data elements with respect to syntax and semantics



- **Application Programming Interface (API)**

Standardized interface for storing and retrieving the database



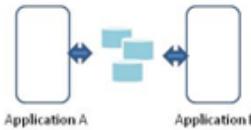
- **Physical Data Storage**

Storage formats and schemes for storing measured data and meta data



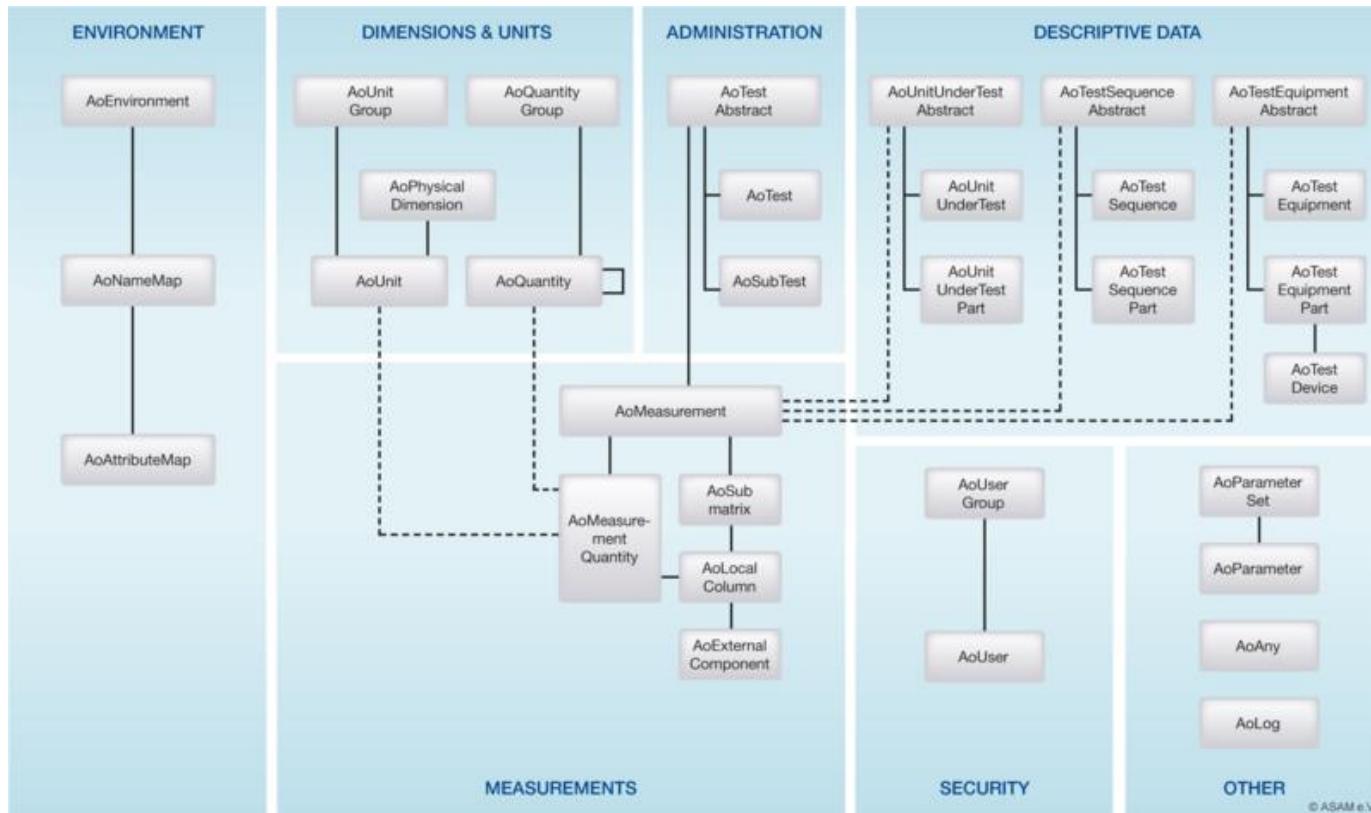
- **ASAM Transport Format (ATFx)**

XML based file format for the exchange of measured data and meta data



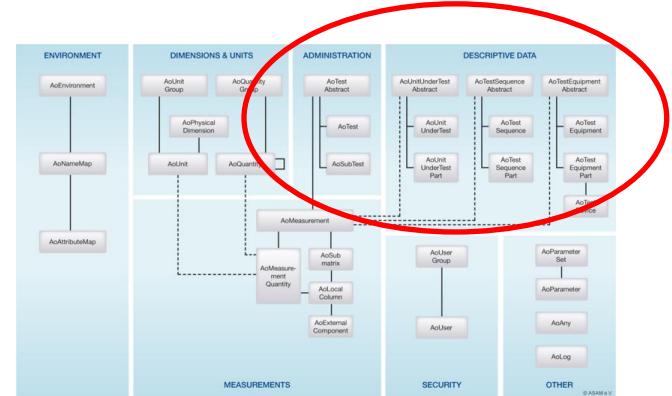
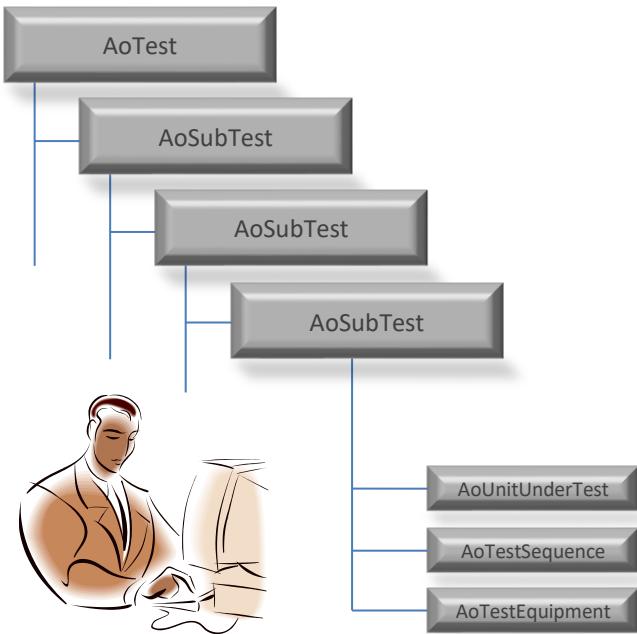
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## ASAM ODS – Base Data Model



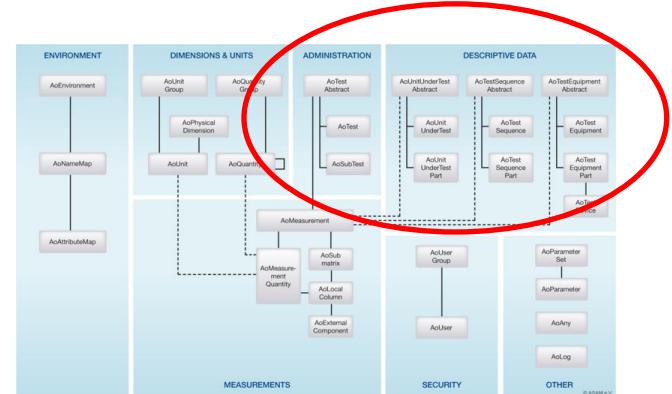
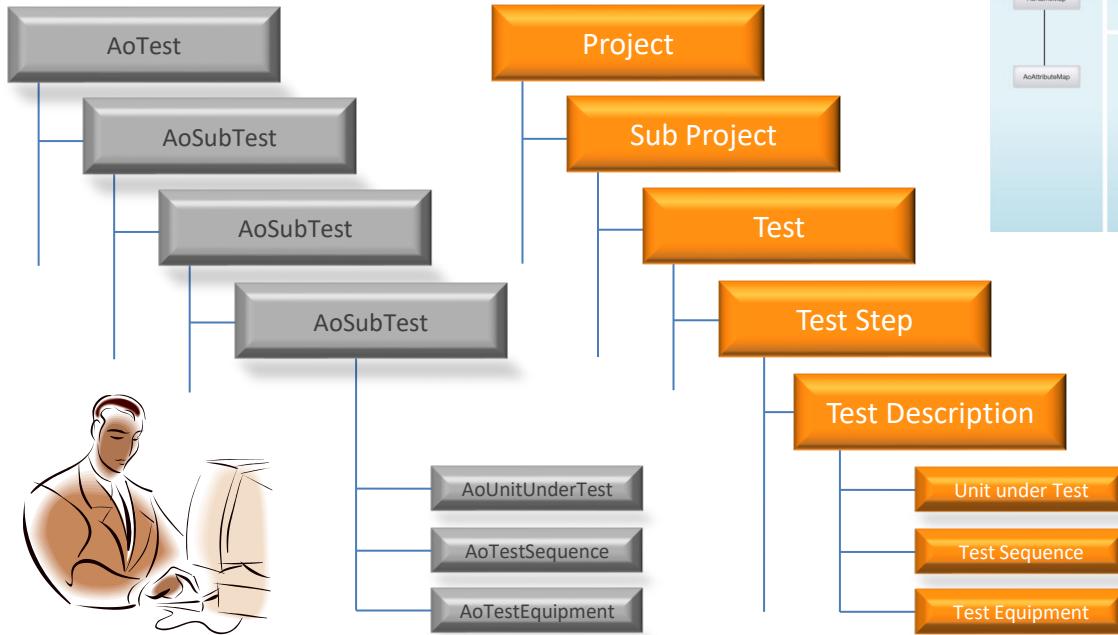
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## ASAM ODS – Use of the base data elements



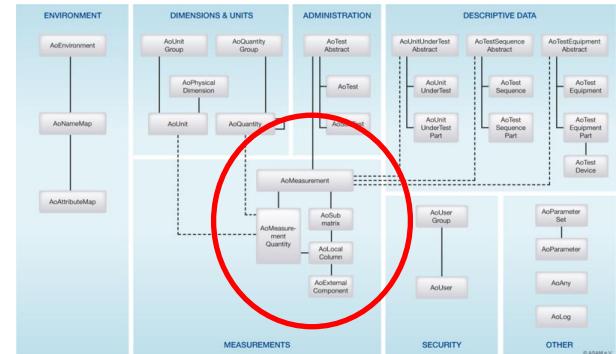
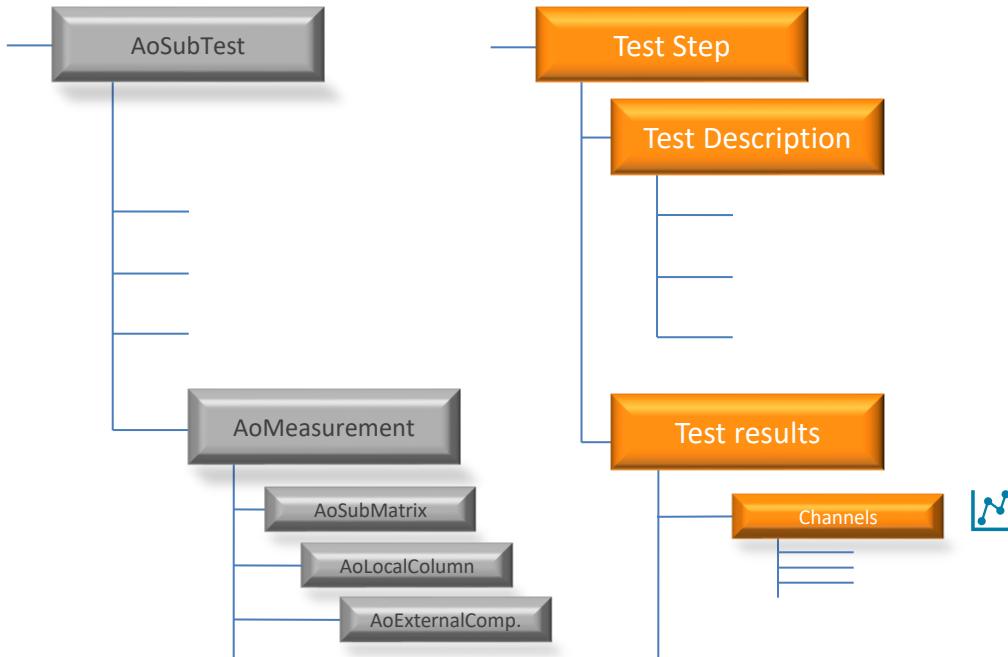
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## ASAM ODS – Derivation of the application model



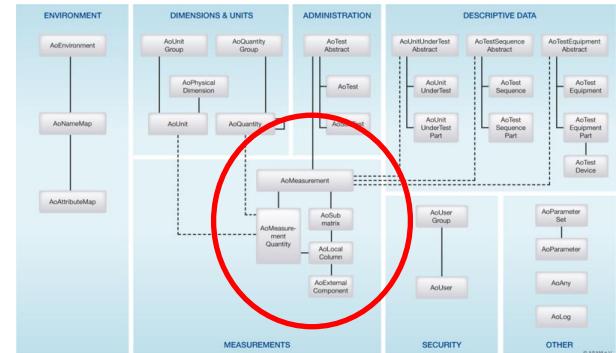
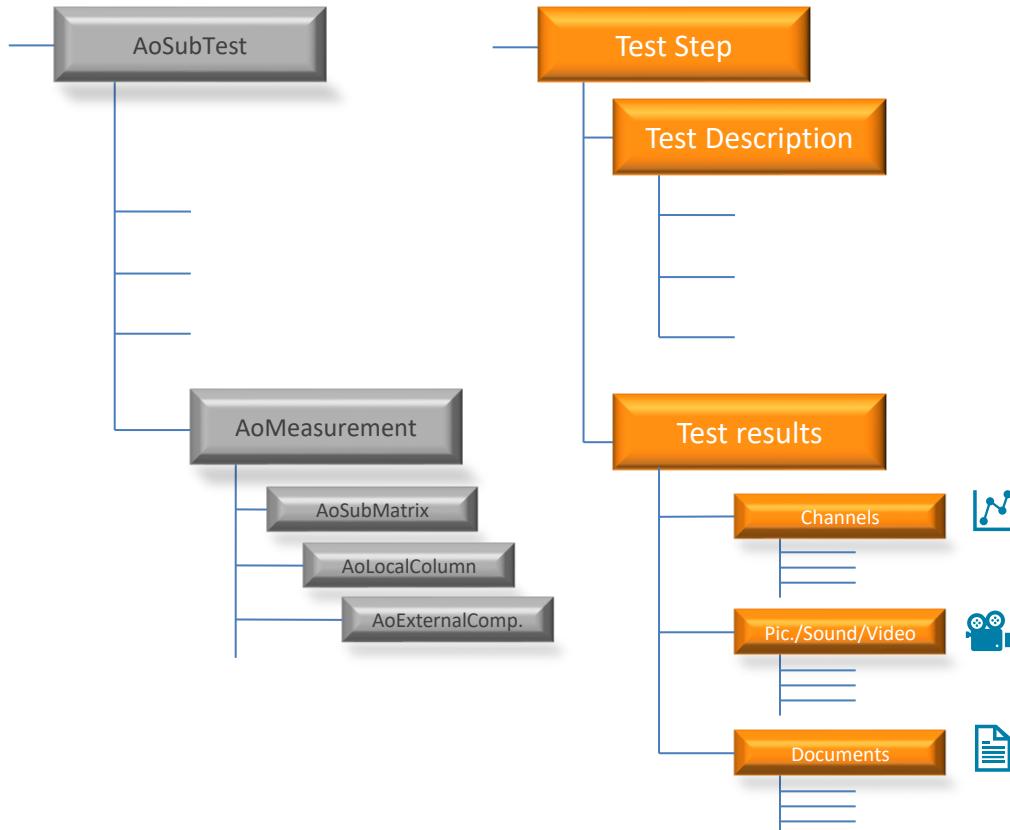
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## ASAM ODS – Derivation of the application model



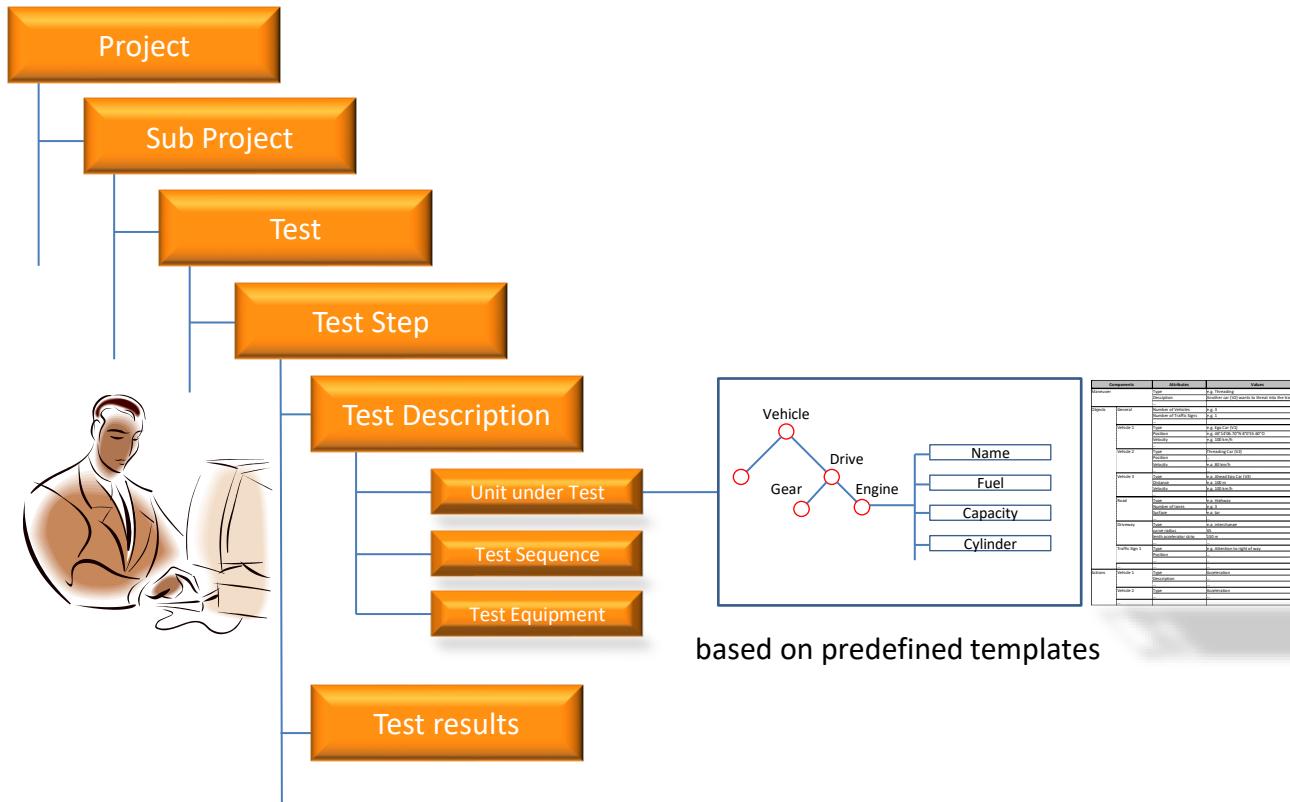
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## ASAM ODS – Derivation of the application model



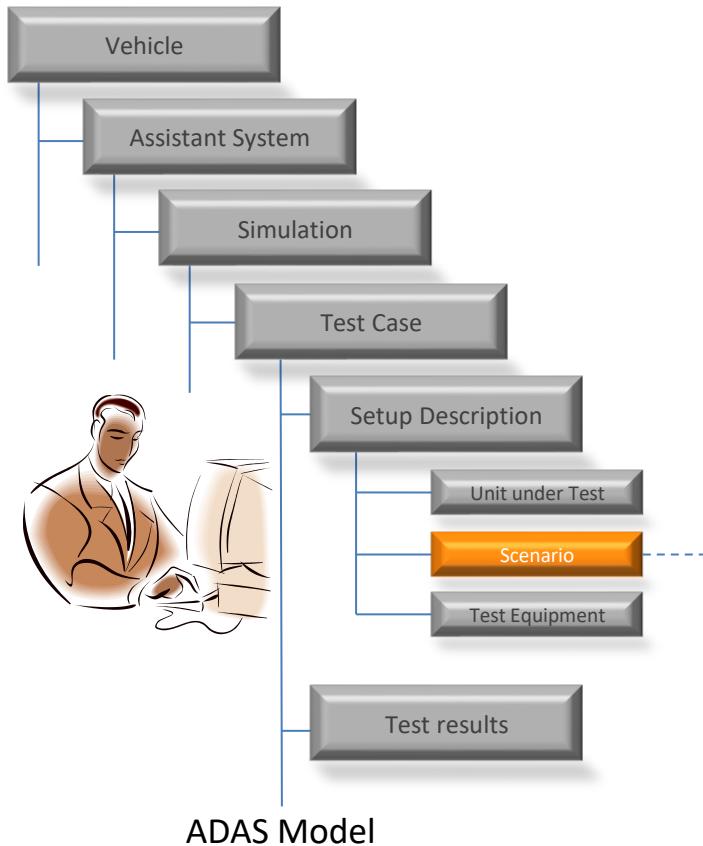
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## Description of the test context



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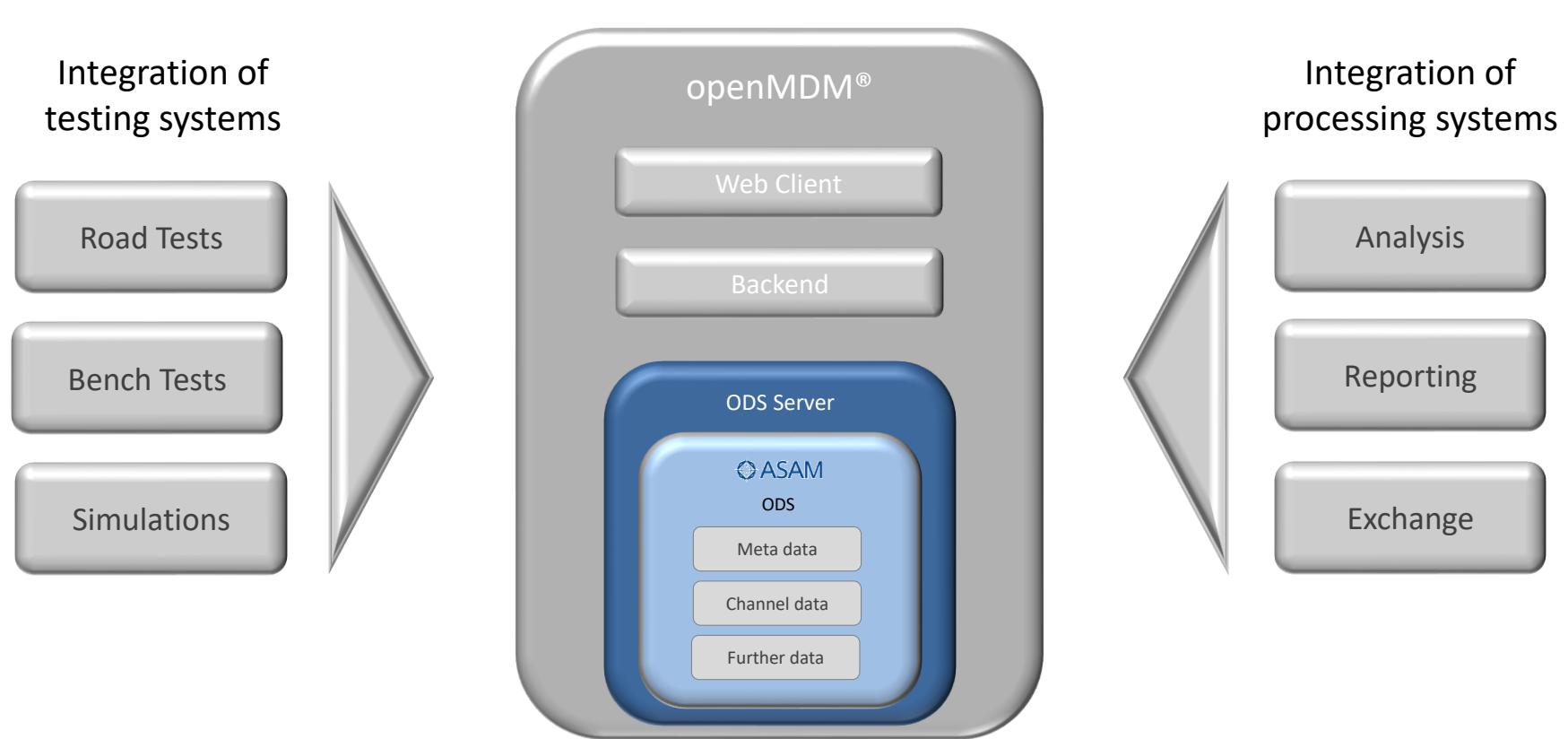
## Example: Describing traffic scenarios



Components		Attributes	Values
Maneuver		Type	e.g. Threading
		Description	[Another car (V2) wants to threat into the trafic flow]
		...	
Objects	General	Number of Vehicles	e.g. 3
		Number of Traffic Signs	e.g. 1
		...	
Vehicle 1		Type	e.g. Ego Car (V1)
		Position	e.g. 46°14'06.70"N 8°0'55.60"E
		Velocity	e.g. 100 km/h
		...	
Vehicle 2		Type	Threading Car (V2)
		Position	...
		Velocity	e.g. 80 km/h
		...	
Vehicle 3		Type	e.g. Ahead Ego Car (V3)
		Distance	e.g. 100 m
		Velocity	e.g. 100 km/h
		...	
Road		Type	e.g. Highway
		Number of lanes	e.g. 3
		Surface	e.g. tar
		...	
Driveway		Type	e.g. interchange
		curve radius	45
		length accelerator strip	150 m
		...	
Traffic Sign 1		Type	e.g. Attention to right of way
		Position	...
		...	
		...	
Actions	Vehicle 1	Type	Acceleration
		Description	...
		...	
Vehicle 2		Type	Acceleration
		...	
		...	

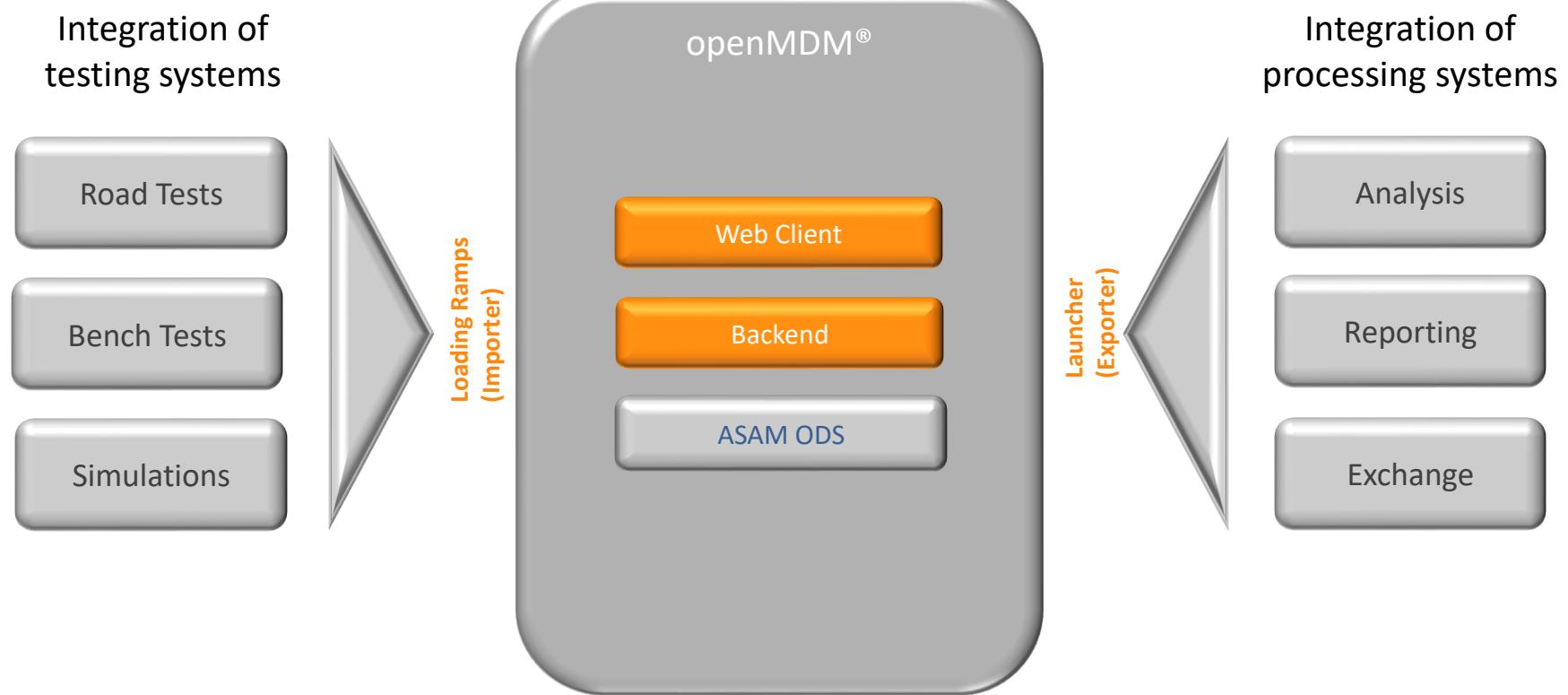
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## Test Data Management based on ASAM ODS



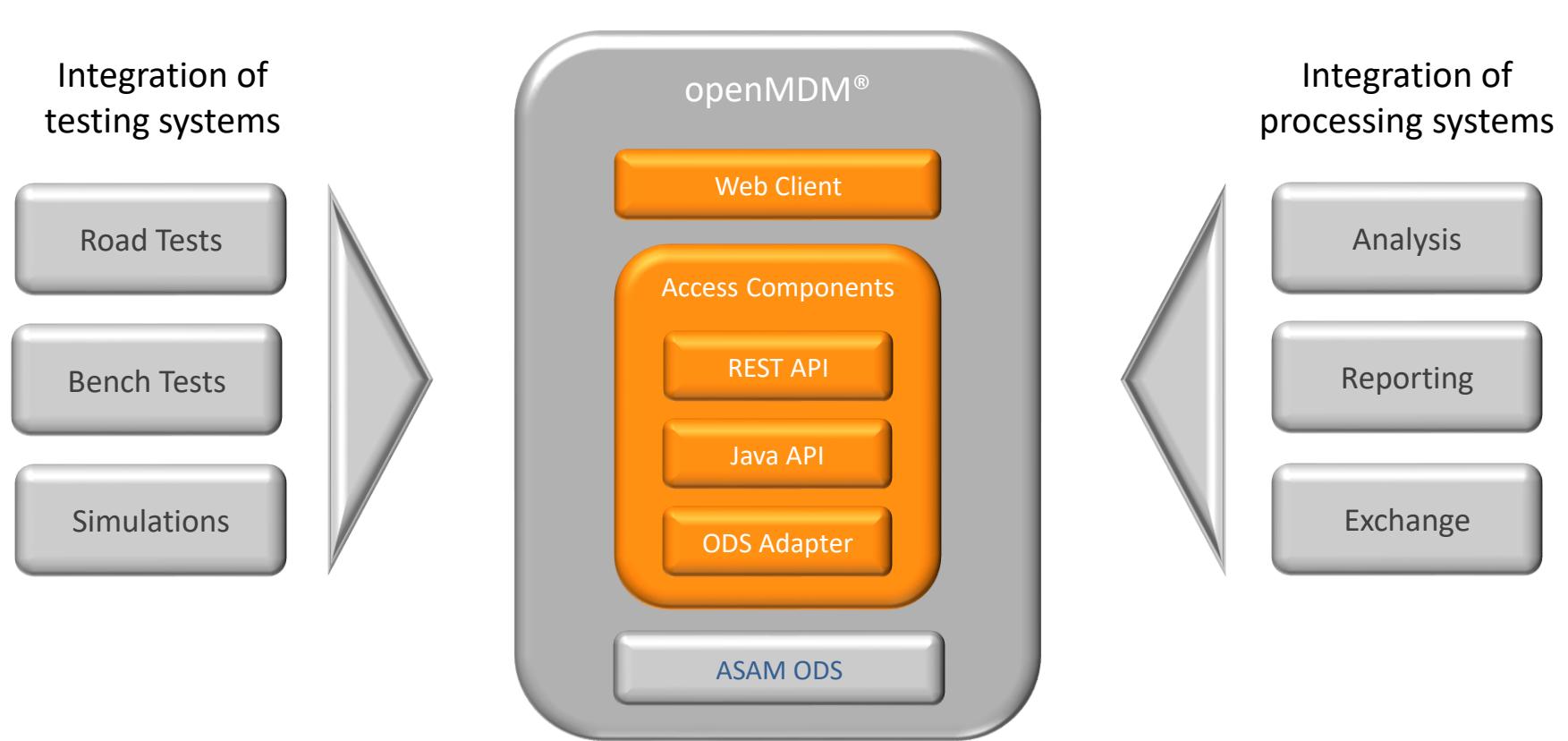
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## Platform for Test Data Management



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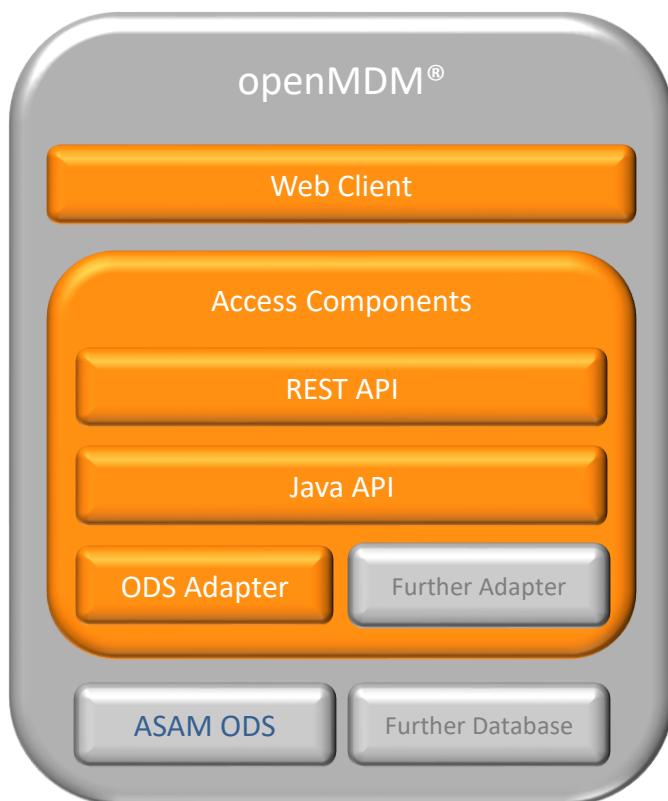
## Backend Components





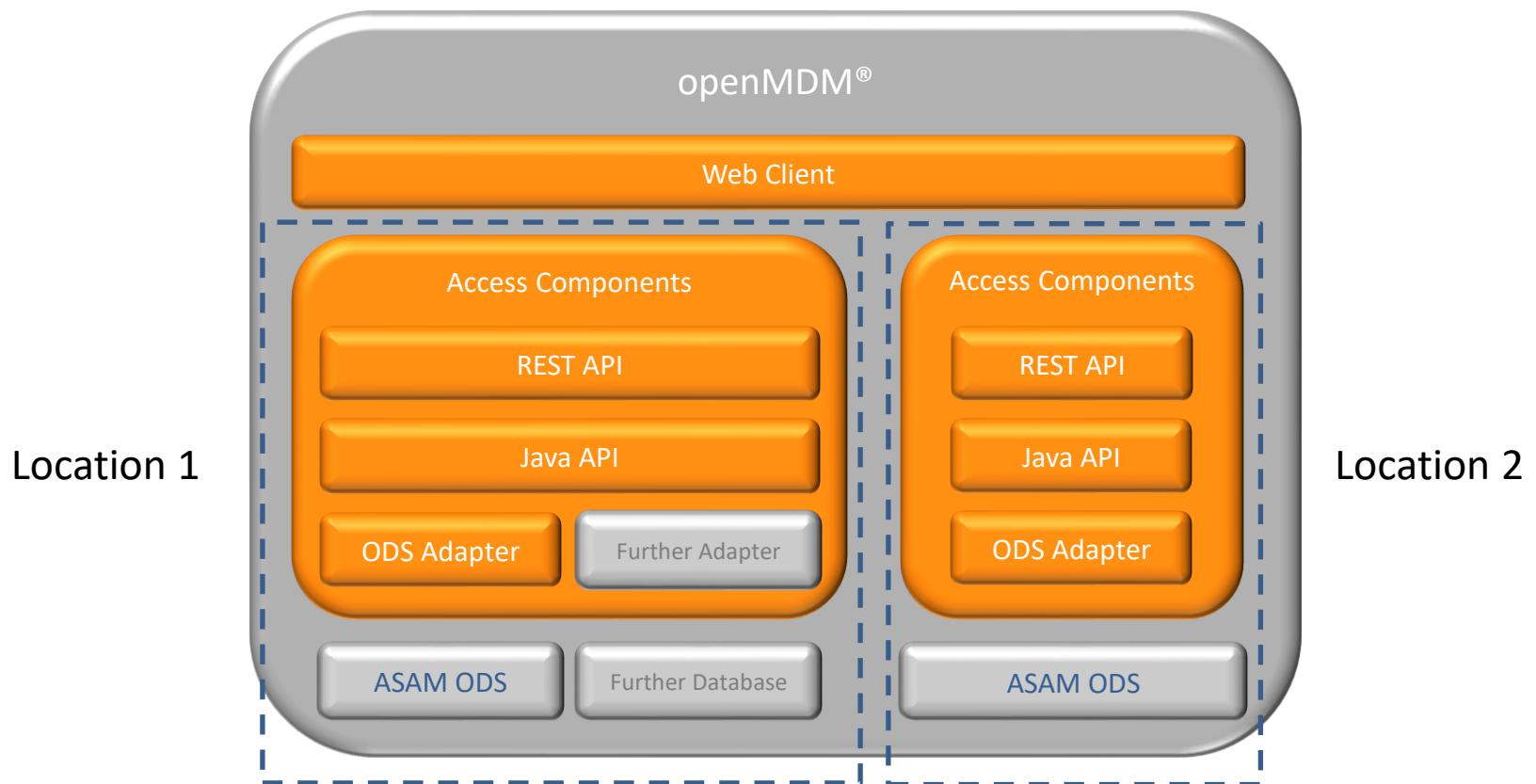
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## Extensibility



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## Scalability



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## Backend Components

- Databases Access Components
- Full-text Search
- Services for authentication, monitoring, logging and internationalization
- Services used to instantiate and manage components

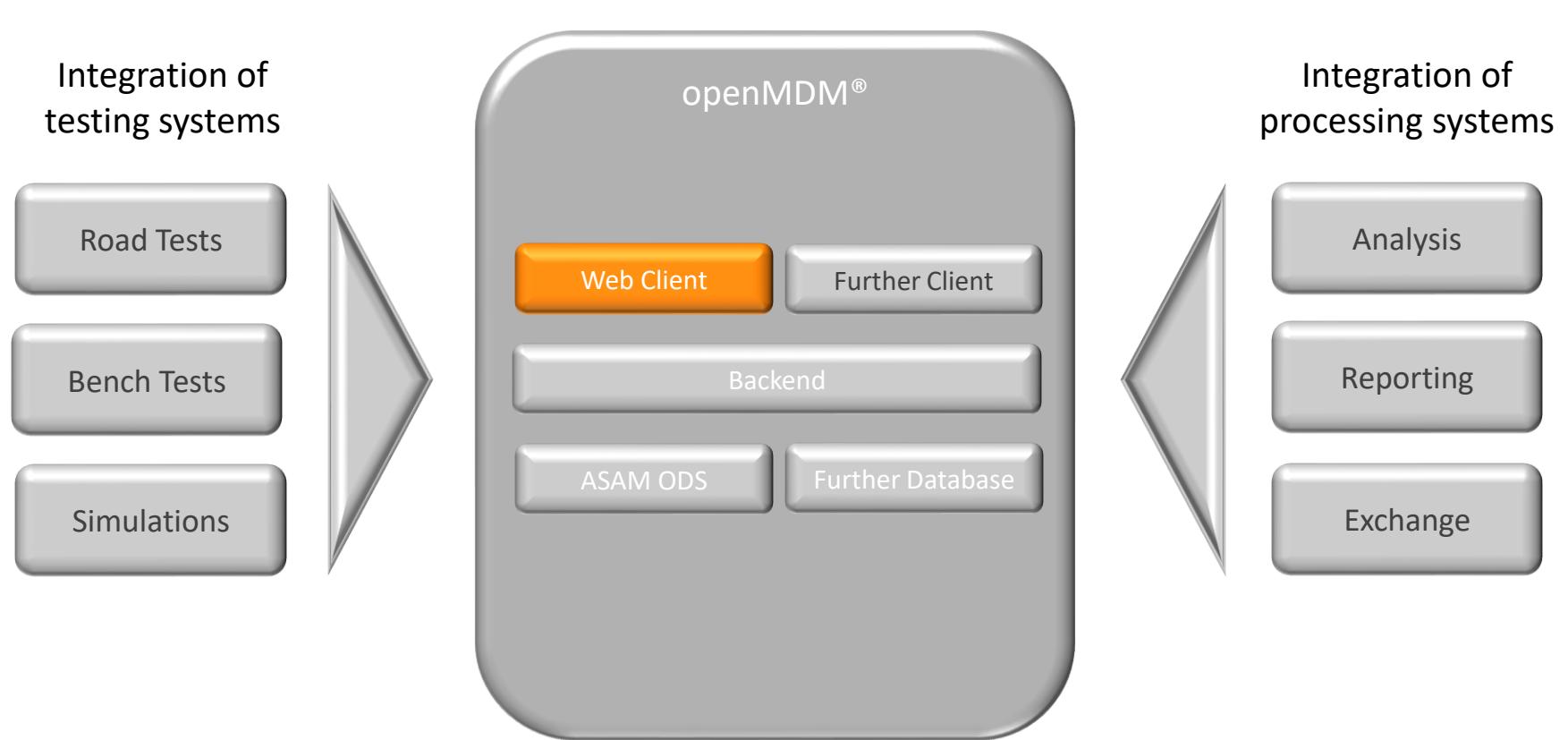
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## Platform for Test Data Management



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## User Interface



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## Web Client

**openMDM Web**

**Navigator**

**Test Description**

**Preview (Channel)**

**Select**

**Download**

**Documents**

**Search**

The screenshot displays the openMDM Web interface, showing various components of the system:

- Navigator:** A sidebar menu with sections like MDM-NVH, PMV 2PV, PMV Model P, PMV Summit, PBN Measurements, SVN Measure, MDMCRASH, Atlas, and others.
- Test Description:** A central panel showing a table of vehicle parameters and their values. It includes tabs for General, Unit under test, Test sequence, Test equipment, and Sensors.
- Preview (Channel):** A graph showing data for CHANNEL01, CHANNEL02, and CHANNEL03 over time.
- Select:** A modal dialog for selecting test names from a list.
- Download:** A modal dialog for handling file downloads, showing options to open or save the file.
- Documents:** A panel displaying imported documents with details like name, description, type, and size.
- Search:** A search interface with filters for Source (MDM-NVH, MDMCRASH) and Result type (Versuche), and an advanced search section.

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Suitable for the openADx tool chain?