

Data Management approach for scenario-based validation of autonomous driving functions

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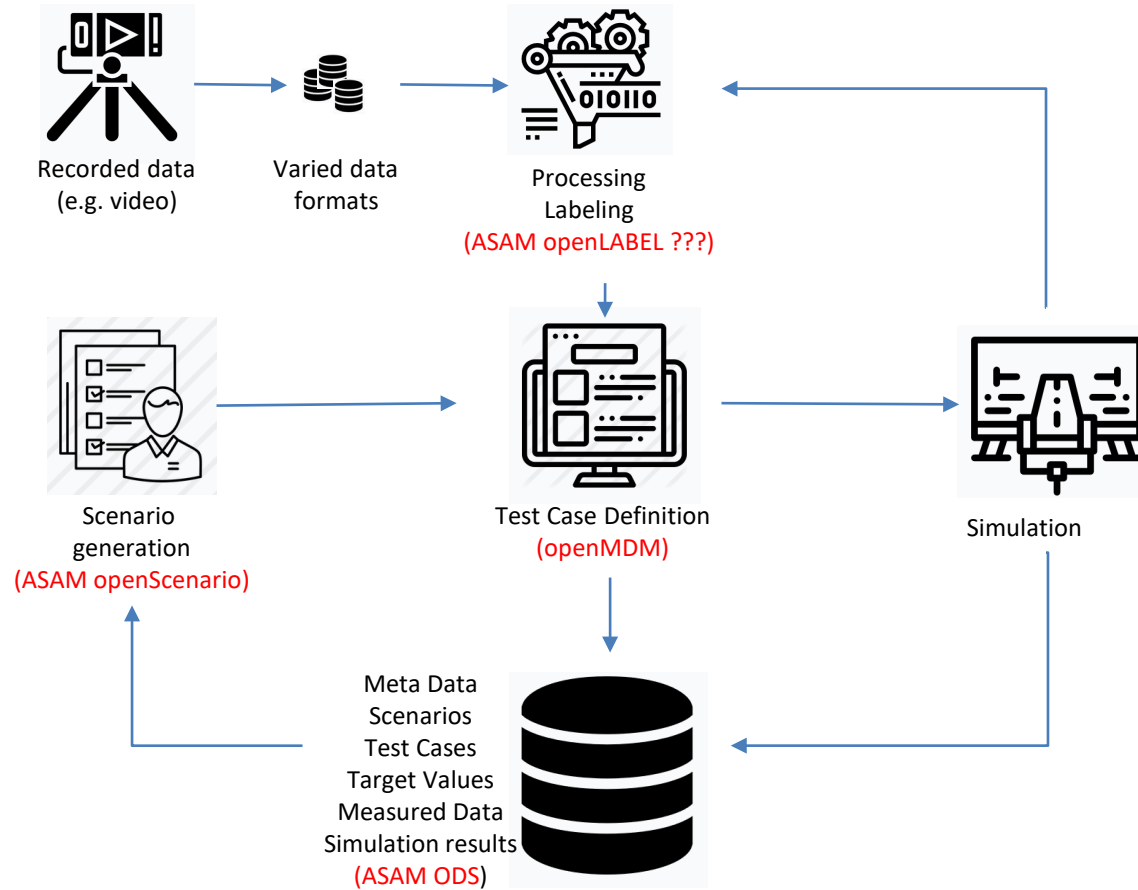
About Peak Solution

- **Specialized in software solutions for data management (among other things)**
- **Key feature: Based on industry standards (like ASAM ODS) and open source frameworks (like Eclipse openMDM)**
- **Suitable as a backbone for building up integrated, vendor-independent tool chains**

Solution proposal

- **Management of the lifecycle of the diverse datasets for the validation of autonomous driving functions based on ASAM ODS and Eclipse openMDM**
- **Managed datasets:**
 - Recorded or generated traffic situations (e.g. scenarios)
 - Target values (e.g. expected behavior of an assist function)
 - Measured data (e.g. vehicle status information from CAN, FlexRay)
 - Simulated results (e.g. derived test cases)
 - Meta data (e.g. vehicle setup and ECU software versions)
- **Challenge: Different, proprietary description and data formats**

Solution proposal



Proven approach

- **Concrete projects: Good experience with using ODS and openMDM for managing data from the field of ADAS validation**
- **Obvious benefits (a few):**
 - ODS is a proven and widely used standard
 - The ODS data model allows the flexible definition of storage structures, descriptive attributes, and relationships for different datasets
 - ODS offers several possibilities to store data (as external reference, in MDF files, or in the database)
 - The currently upcoming Big Data capabilities of ODS further extend storing possibilities by JSON, Parquet and Avro
 - Additionally, openMDM provides a freely available REST API that simplifies the complexity and details of the ODS interface
 - The openMDM Framework provides immediately usable core functions for managing, exploring, aggregating, exchanging, protecting and using the stored data
 - The existing components can be used at any time to implement or extend commercial applications

Further steps

- **Prototypically implementation of a data management solution for autonomous driving validation based on ODS and openMDM**
- **Presentation and discussion of the prototype within different working groups**
 - **ASAM openSCENARIO working group**
 - **Eclipse openPASS working group**
 - **Eclipse openMDM working group**
 - **further...**

Call for action

- **Peak Solution would greatly appreciate collaborating with different interested parties in working groups on an ODS application model and reusable open source components for standardized data management in the field of autonomous driving validation**
- **Everyone is invited!**