

Atos

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The openMDM roadmap

The future of measured data management

Dr. Dietmar Rapf

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Speaker information

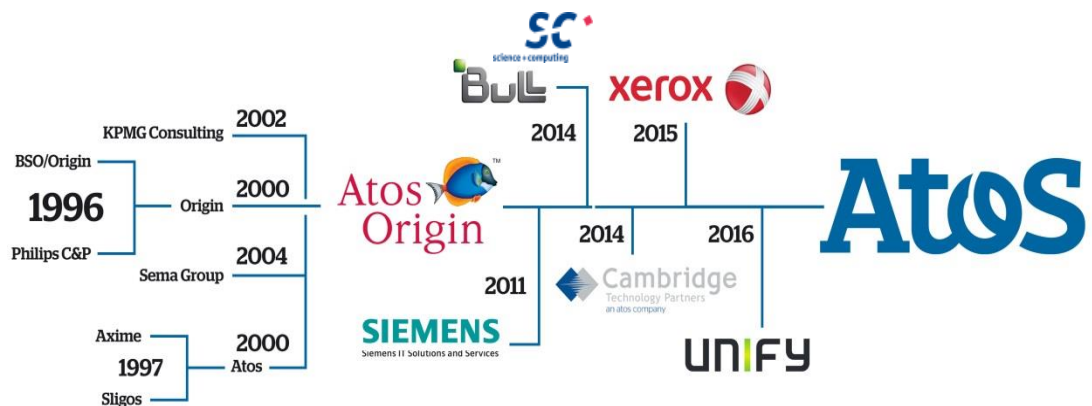
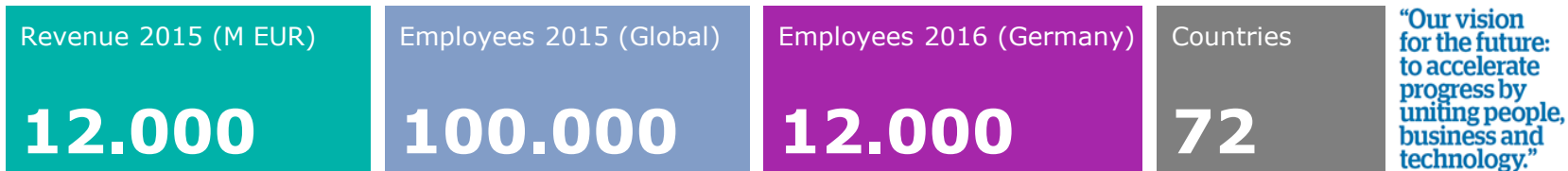


Dr. Dietmar Rapf

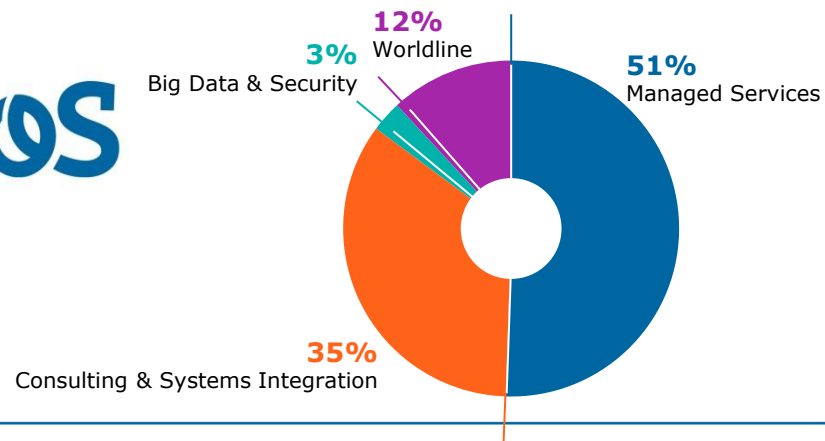
- ▶ Biologist (biocybernetics) doing psychophysics of human motion detection and software developer
- ▶ At science + computing ag since 1997
- ▶ Senior Manager CAT
- ▶ Senior Consultant for Measured Data Management
- ▶ Member of ASAM ODS standardisation group
- ▶ Member of the openMDM® Eclipse Working Group

Atos SE

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Revenue distribution (in %) per Business Unit



Measured Data Management (MDM)

Crash 	Pedestrian protect. 	Powertrain 	Endurance testing 
Durability 	Thermal properties 	Aerodynamics 	Wheels, Tires 
Summertesting 	Wintertesting 	Roof pressure 	... many, many more disciplines produce measured data

Why do YOU need a MDM system?

- ▶ Measured data are key to achieve highest product quality
 - They are very valuable and should be safely stored
 - They should be accessible over a long period

- ▶ Cars are produced in fast growing numbers of variants
 - Number of measured data is growing exponentially
 - Variants need to be manageable

Why do YOU need a MDM system?

- ▶ Faster development cycles demand earlier product validation
 - Measured data of component tests need to be accessible
 - Data from dissimilar tests need to be combinable and comparable
 - Data need to be aligned with calculated and simulated CAE data
 - Software versions on ECUs are highly volatile and must be linked to the measurement

- ▶ Amount of cross-linked data is growing fast
 - Measured data needs to be cross-linked with bus data
 - Validation statements need to be transferable

Challenges with test data

- ▶ Data formats vary with test software
 - each software vendor uses his own data format – and there are many of them
- ▶ Different and undocumented units and dimensions of measures
- ▶ Undocumented measurement environment
- ▶ Documentation and data stored in unconnected locations
- ▶ Data stored somewhere
- ▶ Data not crosslinked

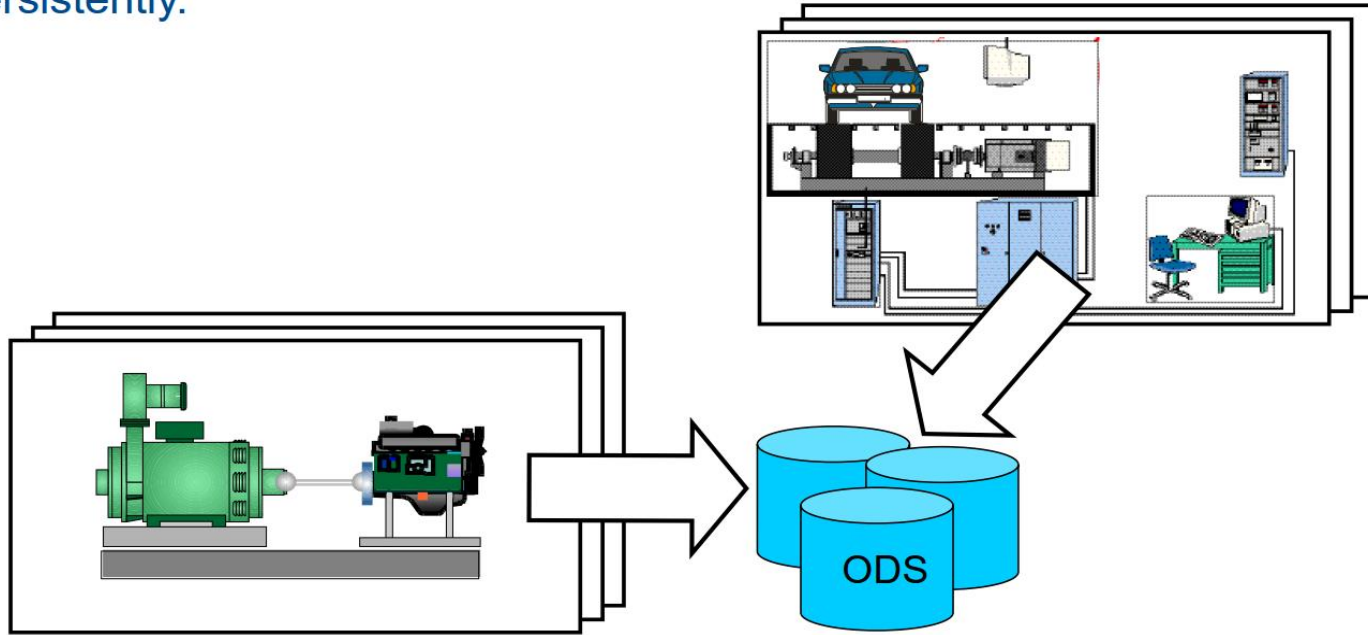
Unmanaged Test data are:

- ▶ Not comparable
- ▶ Useless
- ▶ Uninterpretable
- ▶ Unfindable
- ▶ Undocumented
- ▶ Not to be set in relation

Standardizing the storage of measured data

ASAM ODS 5.3.0

- ▶ ASAM ODS is intended to define a standard for archiving test result data persistently.



ASAM ODS –

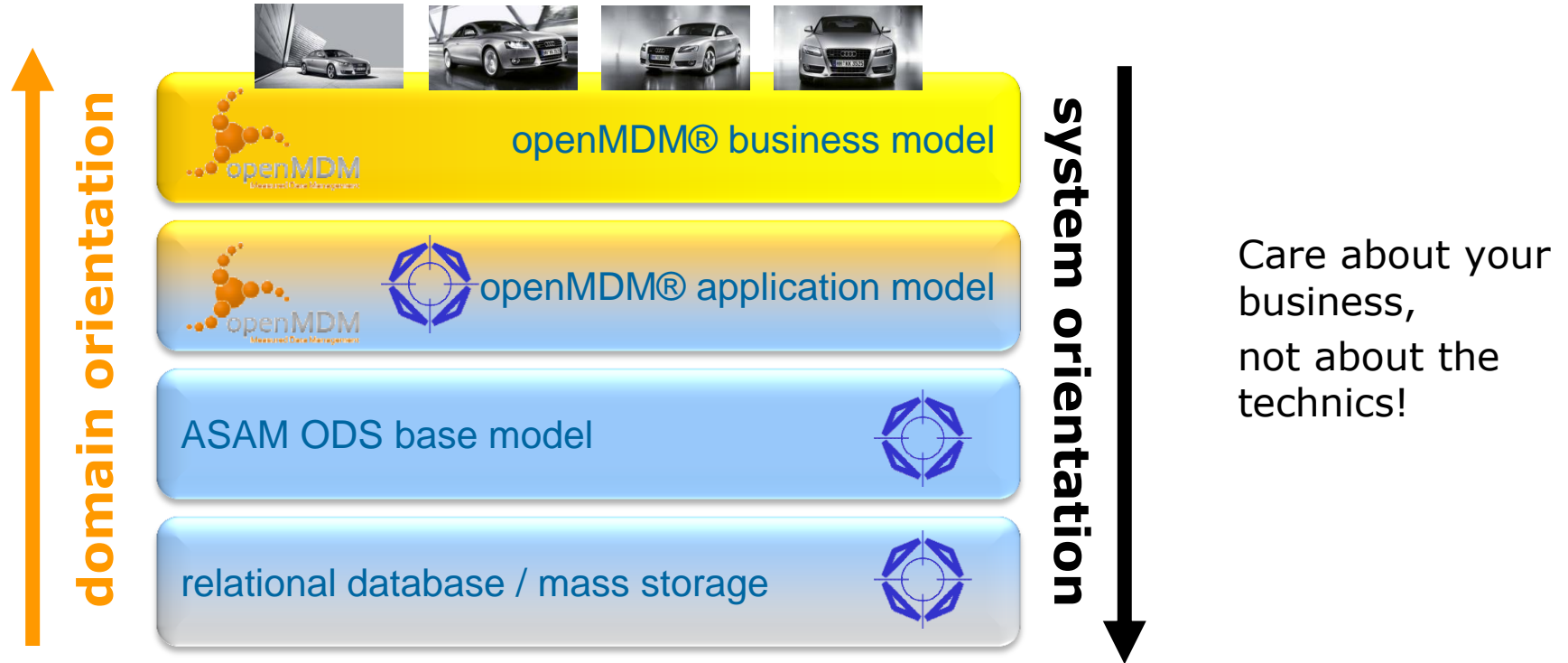
Standardizing the storage of measured data

- ▶ Defined data model with well-defined semantics
 - Specific information can always be found at the same position
- ▶ Standardized description of data
 - Which descriptive data are needed, where are they stored
- ▶ Standardized data format
 - Vendor independent, Stable over long time periods
 - File storage compatible to MDF 4.1 standard
- ▶ Data and descriptive information are stored together
 - No data without description – always interpretable
- ▶ Standardized exchange format for data and their descriptions
 - ATFX – ASAM Transport Format (XML)

openMDM® – Implementing MDM systems

- ▶ Generic ASAM ODS application model
 - No need to define data model for your application
- ▶ Application Programming Interface (API)
 - For measured data management
 - Basis for application development
- ▶ Collection of system components for various tasks
 - A pluggable modules for productive use
- ▶ Collection of methods for measured data management
 - Measured data management process
 - Modelling of measurement processes (workflows)
 - Application development and integration
 - Roles and data access rights

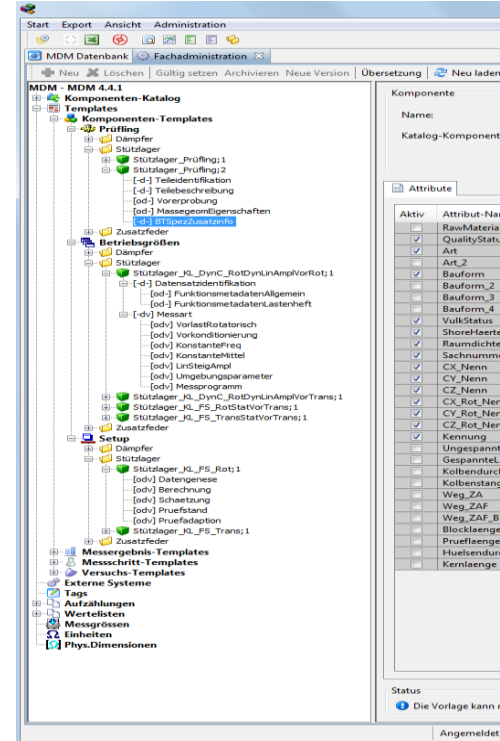
openMDM® – Implementing MDM systems



Application development with openMDM®

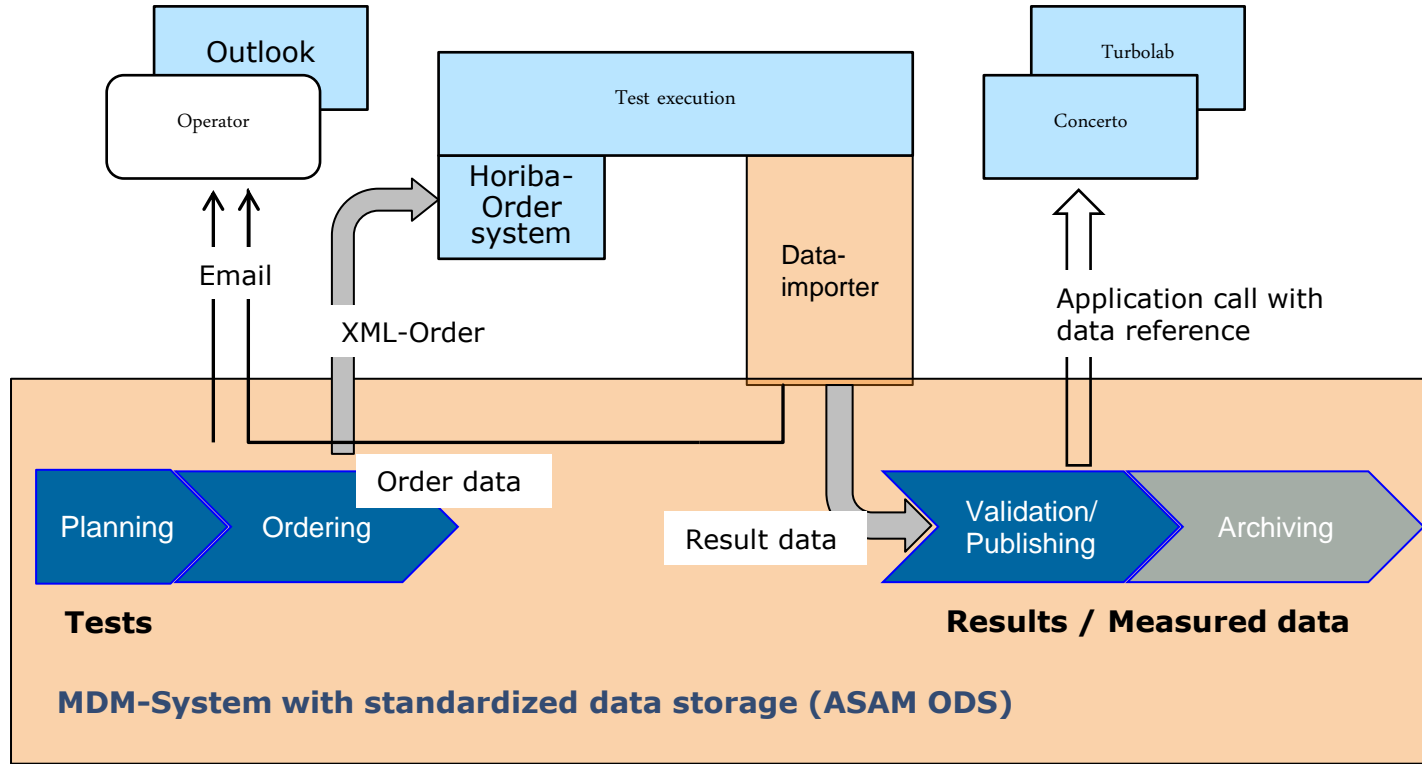
Simple and fast

- ▶ Understand your data and your requirements
 - Define your data structures
 - Define your tasks and workflows
- ▶ Configure your data structures
 - Using the openMDM® configuration GUI
- ▶ Configure system components you want to use
 - Configure the system components
- ▶ Program your own pluggable system component
- ▶ Compile your application
- ▶ Test and rollout your openMDM® application



openMDM@BMW

Motorbike emission test



Fully integrated workflow,
all data stored in database

Professional experience with openMDM[®] systems

- ▶ More than 25 productive openMDM[®] systems
 - Some running for more than 10 years in productive mode
 - Approximately 15 systems at Audi AG
 - 3 systems at BMW Group
 - 4 systems at Daimler AG
 - Systems at FEV AG, Bosch GmbH, DAV Trucks, ...
- ▶ More than 10 systems under development
- ▶ Experience in openMDM[®] systems at German automotive companies
- ▶ Application vendors support interfaces to openMDM[®]
- ▶ Ecosystem of experienced openMDM[®] system integrators

“Relaunch” of openMDM® @ eclipse

▶ Technical issues

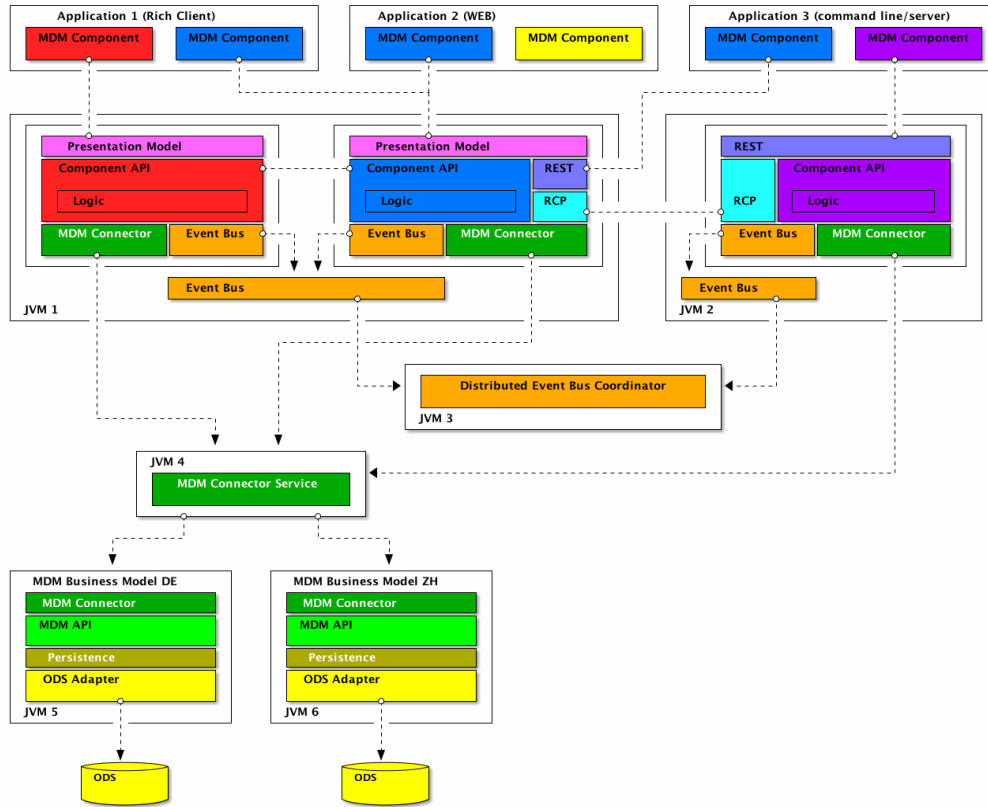
- Revision of the technical architecture
- Issues with the CORBA protocol in enterprise organisations
- Demand for thin clients
- Definition of a clear architecture for openMDM® modules so they can be reused effectively
- Readiness for parallel development

▶ Organizational issues

- A proper base for the open source community is required
- Clear copyright and licensing situation
- A defined community collaboration model
- Readiness for parallel development
- Readiness for the ever growing user base

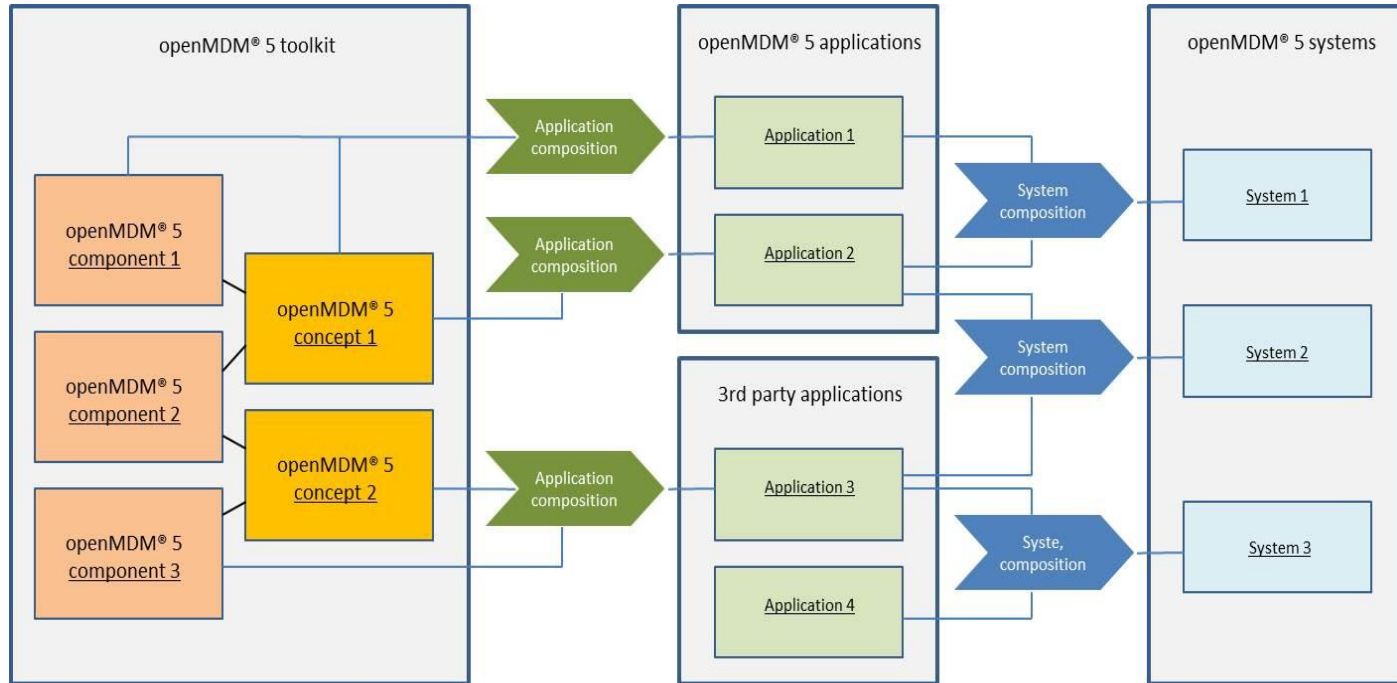


openMDM® 5 architecture



- ▶ Definition of the modular openMDM® architecture and communication protocols
- ▶ Multi-tier architecture to support multiple client architectures
- ▶ Standardisation of the communication with the ASAM ODS backend
- ▶ New architecture is finalised and approved by all members

openMDM®5 hierarchical component model



- ▶ openMDM® systems are build by modular building blocks
- ▶ Business requirements are broken down to components

openMDM®5 Roadmap

- July – Sept.2014 – Eclipse WG was founded (14.07.2014),
 - Charter finalised, all committees in place
- April 2015 – New architecture is approved, infrastructure for source code management is established
- May 2015 – Requirements- and bug-tracking system and process is in place
- June 2016 – PoC for openMDM®5 realized
- December 2016 – PoC evaluated and approved by the members
- Today** – openMDM®5 V 0.7 – 0.9 are being developed right now
- December 2017 – **openMDM®5 V 1.0** will be released
 - first openMDM®5 version that will be production ready!

openMDM[®]5 Roadmap

Where do we go from here?

- ▶ With openMDM[®]5 V 1.0 first productive openMDM[®]5 systems will be realized
 - ▶ Customers are waiting for this release
- ▶ Additional components will be realized
 - ▶ Some of them are already specified
- ▶ A regular release cycle will be established

- ▶ With ASAM ODS 6.0 a new era of data management has started
 - ▶ Connecting stable data management to big data tools and rapid analyses

- ▶ New challenges for the driver member and the business model in openMDM[®]
- ▶ The next major openMDM[®] release will deal with these challenges

Thank you

For further information:

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