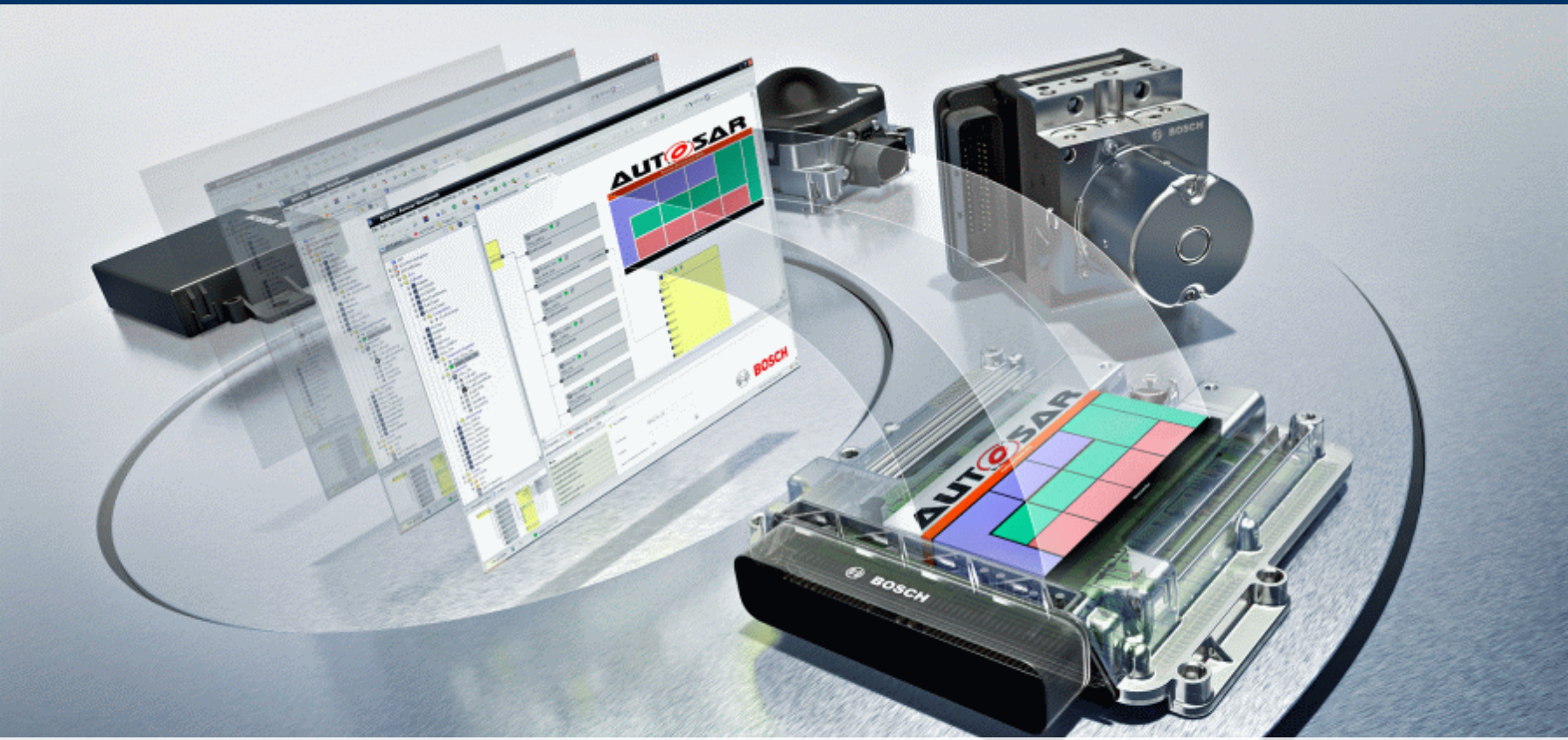
Steps towards an open source platform for automotive SW Build Systems



Build FrameWork – Advanced Technology for SW Sharing

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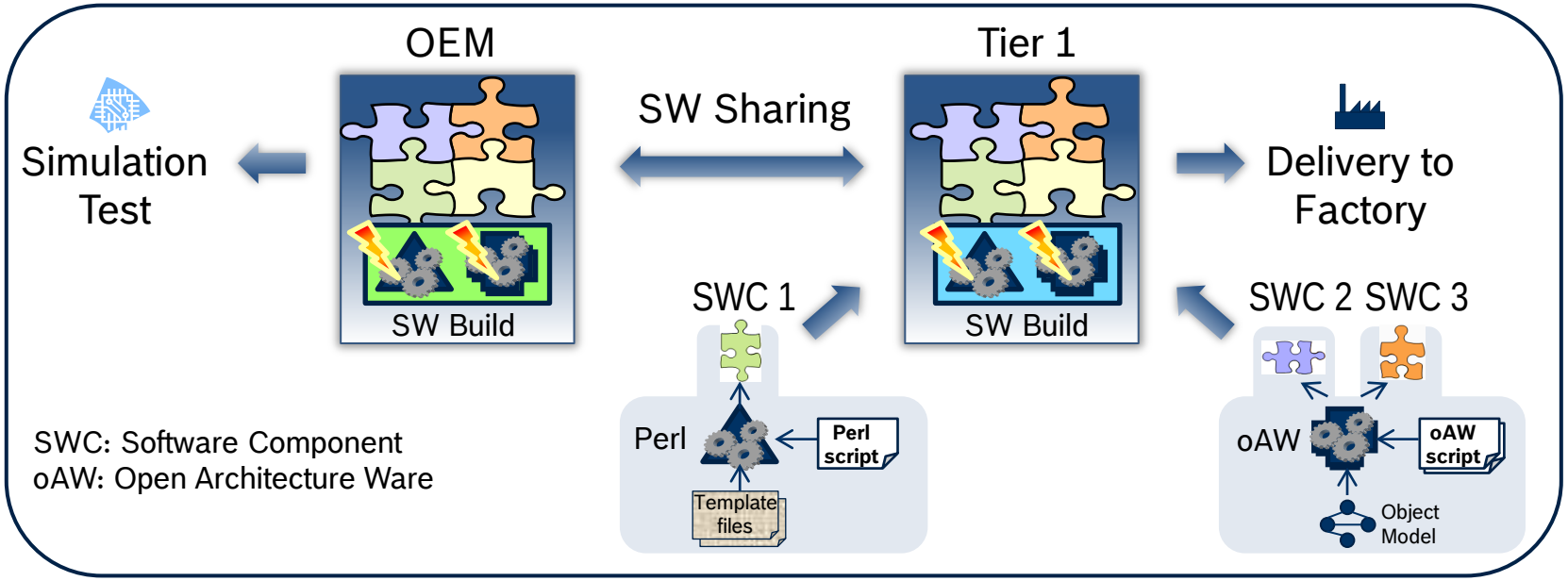
EclipseCon Unconference, Toulouse, France, 17th June 2014

BOSCH

A typical ECU project



Tool integration efforts in today's SW Sharing projects due to:

- Different code generator technologies (file/model/database/…)
- Individually grown SW Build environments @ each SW Sharing party
- Tool interface changes possible with every SW delivery, again and again

Selection of the optimal SW Build framework

WANTED:
A SW Build framework which automates the integration of arbitrary scripts/tools, by:

- **Formal description of tool interfaces and dependencies**, based on:
  - File artifacts
  - Object model artifacts
- **Incremental processing** of:
  - File artifacts
  - Object model artifacts

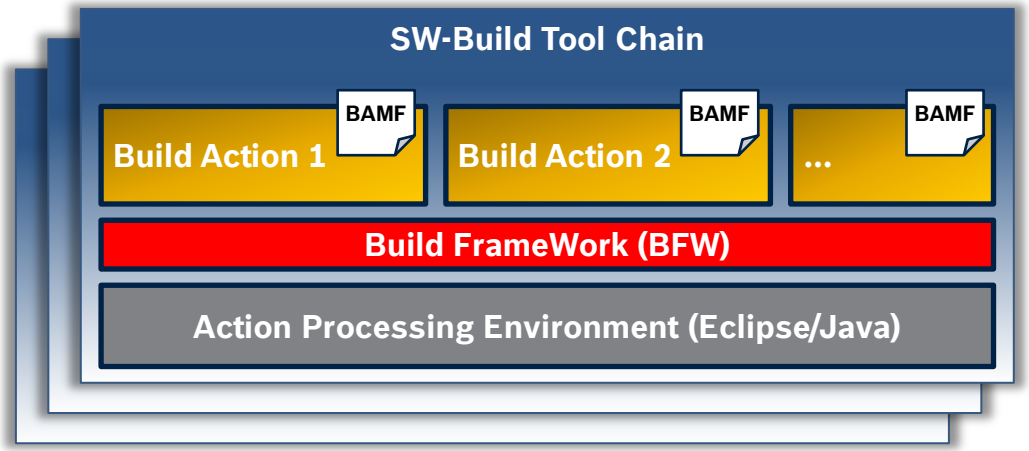
Result:

	make	Ant	…	Build Frame Work (BFW)
File artifacts	✓	✓		✓
Object model artifacts	✗	✗		✓
Incremental processing of: File artifacts	✓	✗		✓
Incremental processing of: Object model artifacts	✗	✗		✓

Result of investigation made in year 2008:
No off-the-shelf SW Build framework available for handling of data flows across the boundaries of file and object model artifacts

➔ Therefore Build FrameWork (BFW) development has been focused

Build FrameWork - Approach

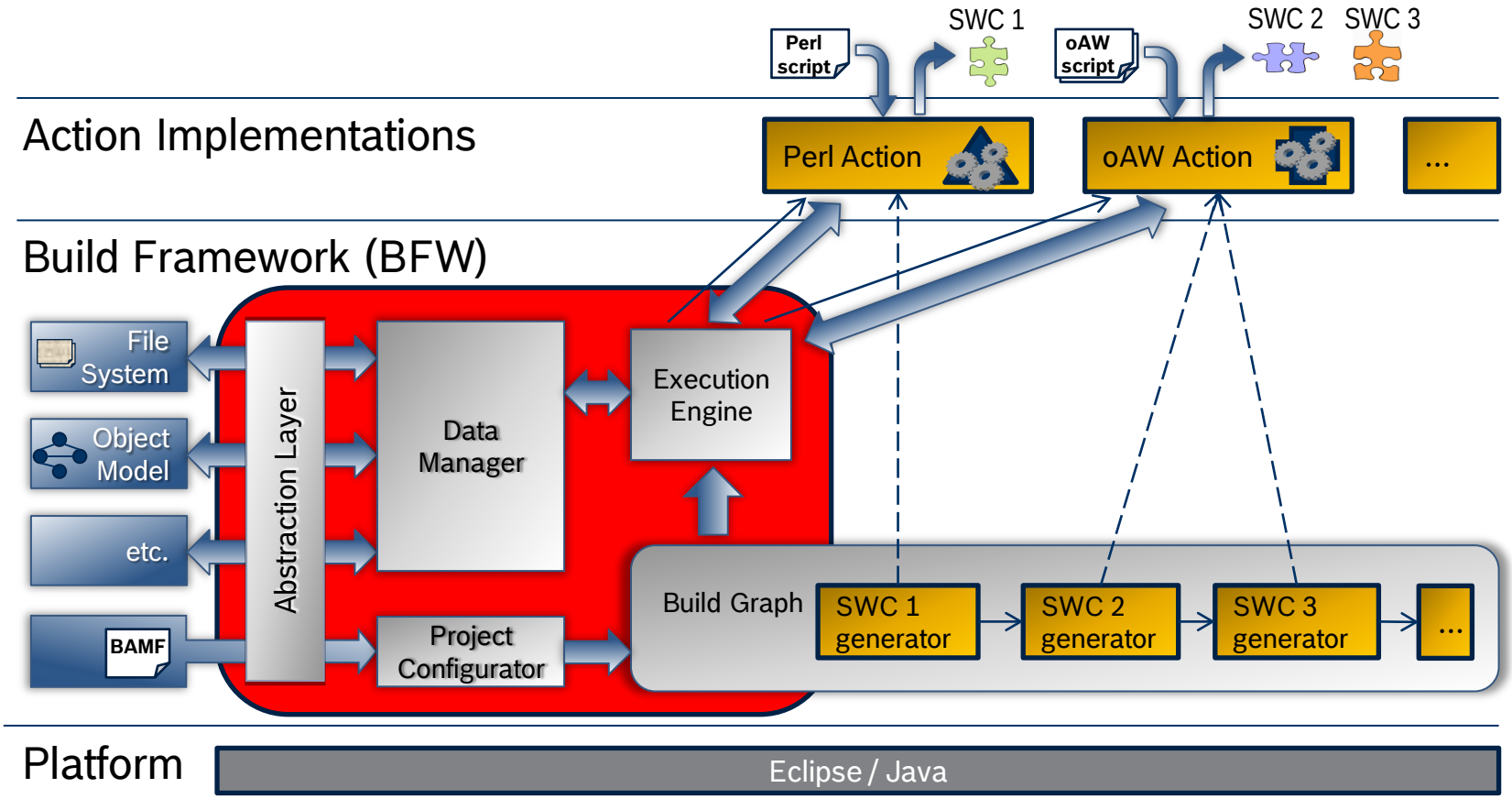


BAMF: Build Action Manifest

Unified software build tool chain architecture, consisting of:

- **Build Actions**: Adapters to tools/scripts being called during SW Build
- **Build Action Manifests (BAMF)**: Specs of Build Actions
- **Build FrameWork (BFW)**: Central controller for SW-Build flow
- **Action Processing Environment**: Eclipse/Java platform

Build FrameWork - Usage Example



Build FrameWork - Status & Next Steps

Status

- Unique feature: incremental processing of both model- and file-based data
  ➔ Enabler for mixed AUTOSAR © / legacy SW Build systems
- BFW is available and ready to be used for automotive SW Build tool chains
  - Bosch experience in model-based development leads to maturity of BFW
  - BFW is operational in COMASSO ©
- BFW topic is discussed in auto-iwg, WP6: Build Framework

Next steps

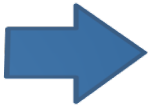
- Standard Actions => Toolbox for automotive SW-Build environments
- Further data abstraction => Meta Data Framework provides connectivity to engineering backbones, for e.g. Application Lifecycle Management (ALM)
- Make BFW implementation available to the AUTOSAR © community

Conclusion

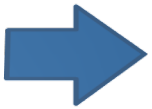
Enabling tool integrity, reuse & seamless integration

- between software sharing partners - Tier1, OEM, Tool Supplier
- across different ECU projects

by using



Build FrameWork (BFW)
as the common software build integration platform,



Build Action Manifest (BAMF)
for describing how to build the software.

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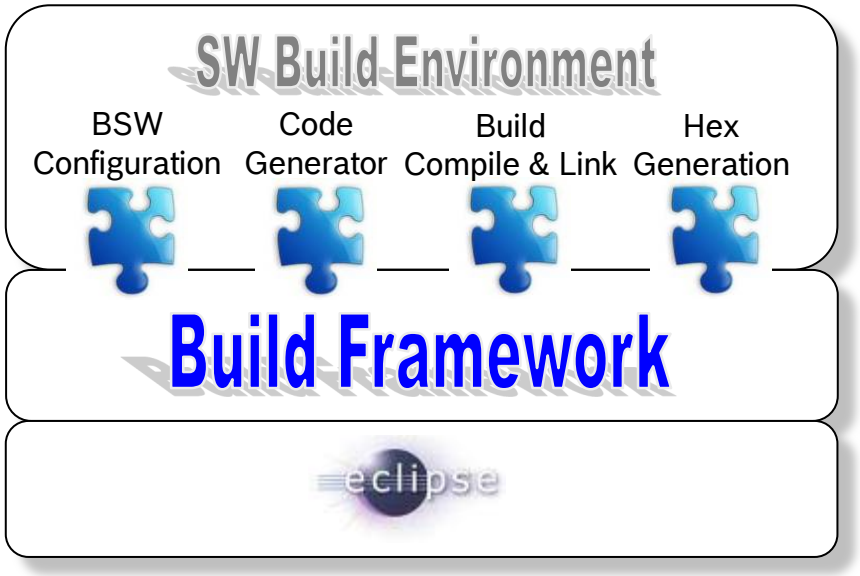

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SW SHARING

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AUTOSAR
AUTomotive Open System ARchitecture