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Fokus!MBT and ModelBus

– Heading Towards Test Automation

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Agenda

- Introduction
- Technology Overview
- TestRequirements-driven approach
- Demo
- Conclusion



What's wrong with testing?



Introduction

What's wrong with testing?

- Time-/Resource consuming
 - Mostly manual, repetitive work
 - Tends to be unstructured and intransparent to the developers
 - Test case derivation is often bound to a tester's ingenuity (implicit knowledge)
 - Lack of documentation

- Testing do not receive appropriate recognition
 - Testing is destructive (and disruptive)
 - Testing is not an engineering discipline and testers are opponents
 - Lack of communication between tester and developer due to different expertise

- Testing (and all its related activities) can easily extend the development budget
 - Extends time to market
 - Efforts for testing are often underestimated, hence, testing starts too late



Technology Overview

Fokus!MBT – Flexible, Extensible, Interoperable, Automatable

- Comprises a compound set of domain-independent testing services for model-based testing purposes
- Allows the realization of tailored, domain-/project-specific tool chains to establish model-based testing scenarios
- Supports several activities of a test process
 - Test analysis and design
 - Test realization and execution
 - Test result analysis
- Based on a proprietary metamodel for testing purposes (TestingMM)
 - Conceptual merge of UML, SysML, UTP, TTCN-3



Technology Overview

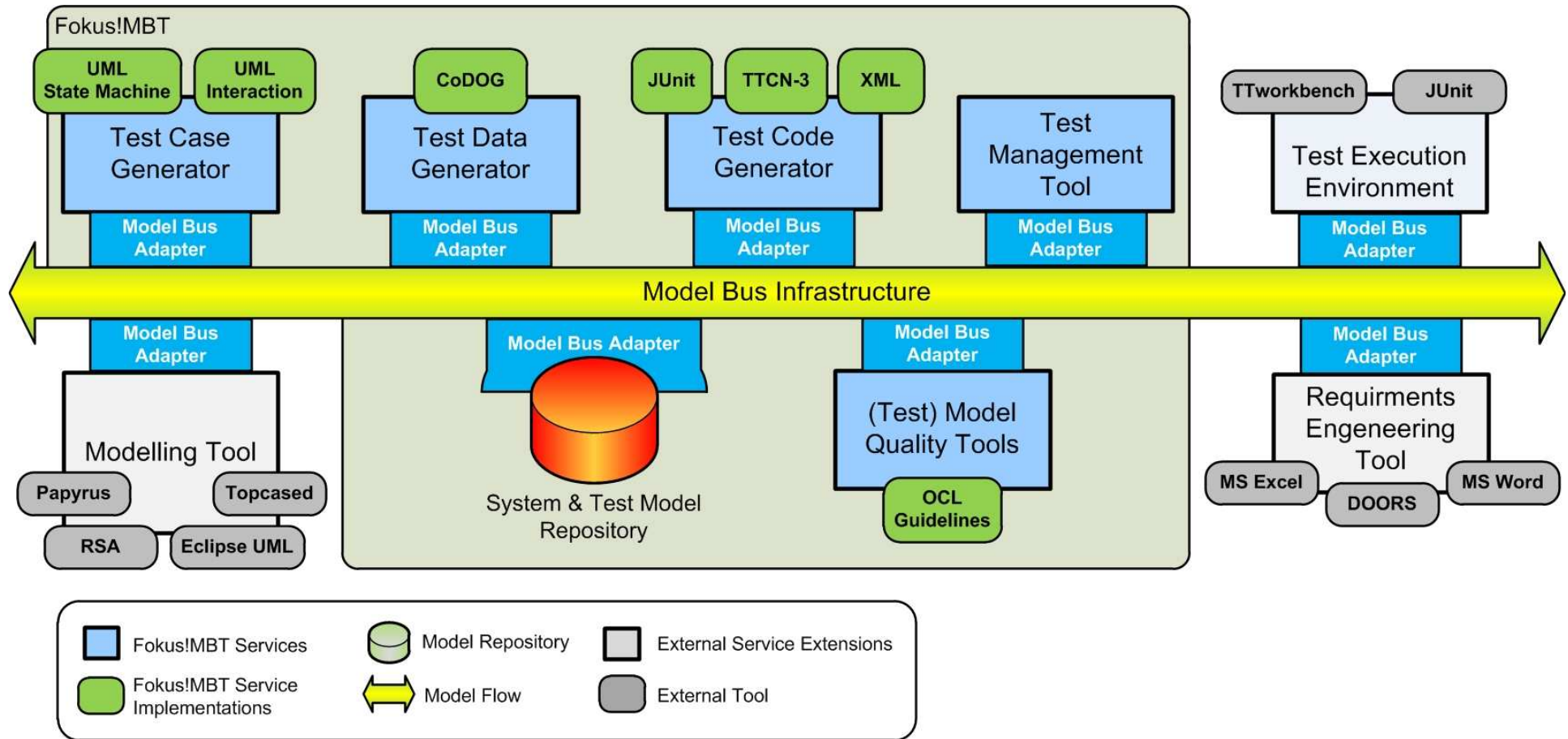
ModelBus

- ModelBus is a service-oriented architecture platform based on WebServices
 - Deals with tool heterogeneity
 - Allows effective process automation
- Support for modeling services (e.g. transformations)
- Model aware repository service (svn for Models)
- Services are plugged into the ModelBus via adapters
- Process automation is controlled by service orchestration
 - Business Process Modeling Notation (BPMN)
 - Business Process Execution Language (BPEL)



Technology Overview

Fokus!MBT Service Integration



Technology Overview

Eclipse Inside

- Fokus!MBT and Modelbus both heavily rely on Eclipse technologies
 - Equinox
 - EMF
 - Eclipse RCP & EMF Databinding
 - Eclipse M2M and M2T technologies (Acceleo, QVT-O)
 - ...
- The tool chain integrates several Eclipse based applications
 - ProR / RMF
 - Papyrus UML
 - IBM Rational Software Architect
 - TTWorkbench



Image sources: http://www.eclipse.org/projects/project_summary.php?projectid=modeling.mdt.papyrus
<http://www.testingtech.com/products/ttworkbench.php>
<http://eclipse.org/rmf/>



Methodology and Scenarion

TestRequirements-driven approach

- Testing efforts are often underestimated and starts too late
 - Testing should take place as early as possible
 - Depends on the level of testing
- The consolidated requirements specification is the earliest point in time were testing activities make sense and are purposeful for acceptance and system testing
- Based on the system requirements dedicated test requirements are defined
 - An item or event that can be verified by one or more test cases
 - Semi-informal specification of what a test case should verify
- Allows prioritization and assessment of testing activities before detailed system design is specified



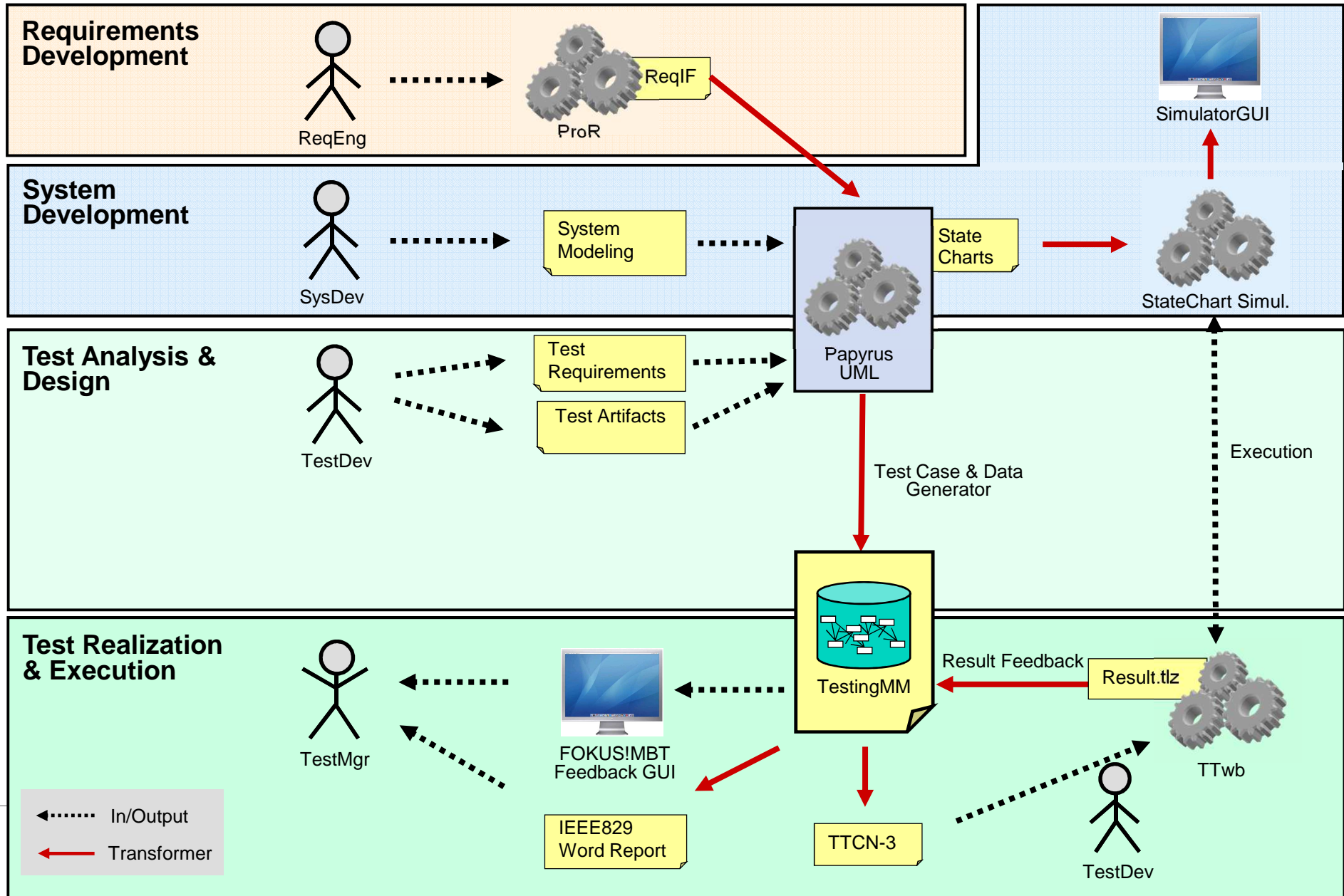
A LITTLE DEMONSTRATION



Source:
<http://www.bi-luechow-dannenberg.de/chronologisch/bi-on-tour/freiburg-atom-endlager-erkundung-erfolgreich>



Demo Scenario - ModelBus and FOKUS!MBT



Summary

Model-based test automation

- Modeling and test modeling based on well-known, proven and established standards
- Early testing based on (test) requirements
- Requirements traceability from initial elicitation all the way down to test code
- Several autarkic services worked together to realize a tool chain for a particular methodology
- Orchestration was done via BPMN
- Generation of fully executable test cases
- Result analysis and report generation with Fokus!MBT Core Editor and Word





Thanks for your attention

QUESTIONS?

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