

Tutorial 1

The Palladio Component Model

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Categories and Subject Descriptors

D.2.11 [Software Engineering]: Software Architectures;
C.4 [Performance of Systems]; I.6.5 [Simulation and Modelling]: Model Development

General Terms

Performance

1. TUTORIAL OVERVIEW

The Palladio Component Model (PCM) has been developed over the last 5 years. Today it is a mature modeling language for modeling component-based or service-oriented software systems with a special focus on predicting extra-functional properties of the system based on its constituting components. The PCM highly relies on model-driven software development techniques for this and uses automated transformations into well-known prediction models or simulation systems. It is supported by a mature, industry proven tool set based on the Eclipse platform.

The tutorial presents the PCM's foundational ideas from the area of component-based or service-oriented software development, its analysis capabilities, its tooling support, and possible extension points. In the component-based foundations, the tutorial defines the term component and presents components in different phases of their life-cycle. The discussion is completed by showing the PCM's understanding of a typical component-based software development process and the developer roles involved into it. The way these developer roles collaborate highly impacts the way, how components are being modeled and parameterized in the PCM.

The following part of the tutorial then focuses on performance predictions and the annotations necessary for this. It introduces the stochastic expression language (StoEx) which is used in the PCM to specify generally distributed stochastic and/or parametric performance annotations. Additionally, it shows how these annotations are being interpreted by the PCM's analysis transformations. The last part of the tutorial introduces the PCM's tool set and shows how to use it to create and analyze PCM models.

2. PRESENTER

Steffen Becker is Department Manager at the Forschungszentrum Informatik (FZI) in Karlsruhe in the division for Soft-

ware Engineering since January 2008. Before, he graduated from the University of Oldenburg with a PhD in computer science. From July 2003 he was a member of the young investigators excellence program Palladio of the National German Research Foundation. He got his diploma in business administration and computer science combined in 2003 from the Technical University of Darmstadt. He participates regularly in conferences where he gives presentations, holds tutorials, and participates in panel discussions. He is known for being one of the initiators of the Palladio Component Model, a meta-model for describing the performance aspects of component-based software. His further interests include model-driven software development, software architectures, and model-driven quality predictions.

3. REFERENCES

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