

# Symposium on Software Performance (SSP) 2015

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## 1. PREFACE

Performance is one of the most relevant quality attributes of an IT system. While good performance leads to high user satisfaction, bad performance leads to loss of users, perceived unavailability of the system, or unnecessarily high costs of networking or computing resources. Therefore, various techniques to evaluate, control, and improve the performance of IT systems have been developed, ranging from online monitoring and benchmarking to modeling and prediction. Experience shows that for system design or later optimization, such techniques need to be applied in smart combination.

Therefore, the Symposium on Software Performance (SSP) brings together researchers and practitioners interested in all facets of software performance, ranging from modeling and prediction to monitoring and runtime management. The symposium is organized by four already established research groups, namely Descartes, Kieker, Palladio, and PMG who will use this symposium also as a joint developer and community meeting.

Descartes' focus are techniques and tools for engineering self-aware computing systems designed for maximum dependability and efficiency. Kieker is a well-established tool and approach for monitoring software performance of complex, large, and distributed IT systems. Palladio is a likewise-established tool and approach for modeling software architectures of IT systems and for simulating their performance. PMG's research and tool developments are concentrated on performance management work to guarantee performance of complex software systems.

The SSP is furthermore supported by the special interest

group "Softwaretechnik" (software engineering) of "Gesellschaft für Informatik (GI)" and by the special interest committee "Messung, Modellierung und Bewertung (MMB) von Rechner-systemen" (measurement, modeling, and evaluation of computer systems) of GI and "Informationstechnische Gesellschaft ITG im VDE". Furthermore, the SSP gratefully received sponsoring from codecentric and QMethods.

The SSP 2015 has 62 registered participants from 26 different organizations: 12 industry companies, two research institutes and 12 universities. The two-and-a-half day program features developer meetings, 23 talks (including two keynote talks), and a dedicated poster session with eight posters. In the first keynote talk, Yury Oleynik (codecentric) will report about real-time analytics for application performance management. In the second keynote talk, Torsten Hellwig (QMethods) will report on his life in the wild as a performance specialist. In addition to the invited keynotes, we welcomed contributions from academic, scientific, or industrial contexts in the field of software performance, including but not limited to approaches employing Descartes, Kieker, and/or Palladio. We solicited the following types of contributions: technical papers, extended abstracts for industry or experience talks, and posters. Submitted proposals were evaluated by two reviewers for technical papers and by one reviewer for extended abstracts and poster submissions.

This proceedings volume includes 15 technical papers and the overall SSP program which serves as an overview of all accepted contributions. We would like to thank all participants that contributed to the event, including the authors and presenters, as well as our sponsors codecentric and QMethods!

## 2. PROGRAM

In the following sections, you can find an outline of the SSP program in 2015 for each of the symposium days.

### 2.1 Wednesday, November 4th: Developer Day

Venue: fortiss GmbH, 2nd floor, Guerickestraße 25, 80805 München

2:00 pm	Developer meetings
7:00 pm	Dinner and Socializing

### 2.2 Thursday, November 5th: SSP Day 1

Venue: Vorhoelzer Forum, 5th floor, Arcisstraße 21/Room 5170, 80333 München

8:15 am	Registration
8:30 am	Opening and Welcome Reception
8:45 am	PCM/Kieker/Decartes Introduction and Status Updates
9:15 am	Yury Oleynik - <i>Go Beyond Data: Real-time Analytics for Application Performance Management</i>
10:15 am	Coffee Break
	<b>Session 1: Industry</b>
10:30 am	Florian Lautenschlager, Andreas Kumléhn, Josef Adersberger and Michael Philippsen - <i>Fast and efficient operational time series storage: The missing link in dynamic software analysis</i>
11:00 am	Wolfgang Gottesheim - <i>Performance Challenges along the Continuous Delivery Pipeline</i>
11:30 am	Andreas Brunnert - <i>RETIT - Performance Modeling in Industrial Practice</i> & Felix Willnecker, Andreas Brunnert, Bernhard Koch-Kemper and Helmut Kremer - <i>Full-Stack Performance Model Evaluation using Probabilistic Garbage Collection Simulation</i>
12:00 pm	Lunch Break
	<b>Session 2: Efficiency</b>
1:00 pm	Jóakim von Kistowski - <i>Common Errors and Assumptions in Energy Measurement and Management</i>
1:30 pm	Hendrik Eikerling and Sebastian Lebrig - <i>Analyzing Cost-Efficiency of Cloud Computing Applications with SimuLizar</i>
2:00 pm	Simon Spinner - <i>Resource demand estimation in distributed, service-oriented applications using LibReDE</i>
2:30 pm	<b>Poster Session + Coffee Break</b>
Poster	<i>SPEC RG DevOps Performance Working Group</i>

Poster	<i>Kieker: Application Performance Monitoring and Dynamic Software Analysis</i>
Poster	Christoph Heger, André van Hoorn, Dušan Okanović, Stefan Siegl and Alexander Wert - <i>diagnoseIT Project: Expert-guided Automatic Diagnosis of Performance Problems in Enterprise Applications</i>
Poster	Reiner Jung, Wilhelm Hasselbring and Robert Heinrich - <i>A Tool for Hypergraph-based Complexity and Modularity Analysis</i>
Poster	Marcus Hilbrich and Markus Frank - <i>Job-Centric Monitoring as Enabler for Better Resource Usage</i>
Poster	Michael Langhammer, Max E. Kramer and Erik Burger - <i>Change-Driven Consistency for Palladio Components, Behavior Specifications, Code, and Contracts</i>
Poster	Ana-Maria-Cristina Nicolaescu, Horst Lichter, Artjom Göringer, Peter Alexander, Dung Le - <i>The ARAMIS Workbench for Monitoring, Analysis and Visualization of Architectures based on Run-time Interactions</i>
Poster	Christian Stier, Anne Koziolék, Henning Groenda and Ralf Reussner - <i>Model-Based Analysis of Energy Efficiency for Software Architectures</i>
	<b>Session 3: Best Practices</b>
3:15 pm	Günther Blaschek and Philipp Lengauer - <i>Time Matters: Minimizing Garbage Collection Overhead with Minimal Effort</i>
3:45 pm	Christoph Heger, Dušan Okanović, Stefan Siegl, André van Hoorn and Alexander Wert - <i>Fighting Groundhog Days: Expert-guided Automatic Diagnosis of Performance Problems in Enterprise Applications</i>
4:14 pm	Holger Eichelberger, Cui Qin, Klaus Schmid and Claudia Niederee - <i>Adaptive Application Performance Management for Big Data Stream Processing</i>
4:45 pm	Coffee Break
	<b>Session 4: Cloud &amp; Services</b>
5:00 pm	Andreas Weber, Nikolas Herbst, Henning Groenda and Samuel Kounev - <i>BUNGEE: An Elasticity Benchmark for Self-Adaptive IaaS Cloud Environments</i>
5:30 pm	Henning Groenda and Christian Stier - <i>Improving IaaS Cloud Analyses by Black-Box Resource Demand Modeling</i>
6:00 pm	Philipp Merkle and Holger Knoche - <i>Extending the Palladio Component Model to Analyze Data Contention for Modernizing Existing Software Towards Service-Oriented</i>
6:30 pm	Closing talk and dinner directions

## 2.3 Friday, November 6th: SSP Day 2

Venue: Vorhoelzer Forum, 5th floor, Arcisstraße 21/Room 5170, 80333 München

8:45 am	Opening and Welcome Reception
9:00 am	Torsten Hellwig - <i>Into the Wild - Life of a Performance Specialist</i>
10:00 am	Coffee Break
	<b>Session 5: Kieker</b>
10:30 am	Christian Wulf and Wilhelm Hasselbring - <i>Software Performance Anti-Patterns Observed and Resolved in Kieker</i>
11:00 am	David Georg Reichelt and Fabian Scheller - <i>Improving Performance Analysis of Software System Versions using Change-based Test Selection</i>
11:30 am	Christian Zirkelbach, Wilhelm Hasselbring and Leslie Carr - <i>Combining Kieker with Gephi for Performance Analysis and Interactive Trace Visualization</i>
12:00 pm	Lunch Break
	<b>Session 6: PCM</b>
1:00 pm	Johannes Kroß, Andreas Brunnert and Helmut Krcmar - <i>Modeling Big Data Systems by Extending the Palladio Component Model</i>
1:20 pm	Jürgen Walter, Simon Eismann and Adrian Hildebrandt - <i>Automated Transformation of Descartes Modeling Language to Palladio Component Model</i>
1:40 pm	Christian Vögele, Robert Heinrich, Robert Heilein, Helmut Krcmar and André van Hoorn - <i>Modeling Complex User Behavior with the Palladio Component Model</i>
2:00 pm	Alexandru Danciu, Andreas Brunnert and Helmut Krcmar - <i>A Performance Model Management Repository Based on the Palladio Component Model</i>
2:20 pm	Closing of the Symposium
2:30 pm	Open Space
3:00 pm	End

## 3. OUTLOOK

The next Symposium on Software Performance in 2016 will take place in Kiel at the occasion of the tenth birthday of the Kieker monitoring framework.

More information may be found at

<http://www.performance-symposium.org/>