

# 10th Symposium on Software Performance (SSP) Würzburg, November 5–6, 2019

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<http://www.performance-symposium.org/2019/>

## 1 Introduction

Around fifty participants from Karlsruhe, Würzburg, Stuttgart, München, Kiel, Nürnberg, Leipzig, Hannover, Ulm, Mannheim, Linz and Hildesheim attended the 10 year anniversary edition of the Symposium on Software Performance in Würzburg. Performance is one of the most relevant quality attributes of any IT system. While good performance leads to high user satisfaction, weak response times lead to loss of users, perceived unavailability of the system, or unnecessarily high costs of network 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 should be applied in smart combination. Therefore, the "Symposium on Software Performance" brings together researchers and practitioners interested in software performance, where performance is understood both in classical sense as "the amount of useful work accomplished by a software system compared to the time and resources used", as well as in a broader sense as "the manner in which or the efficiency with which a software system reacts or fulfills its intended purpose". The scope of the symposium spans measurement, modeling, benchmark design, and run-time management. The focus is both on classical performance metrics such as response time, throughput and resource utilization, as well as on the relationship of such metrics to other software quality attributes including but not limited to scalability, elasticity, (energy) efficiency, dependability (in terms of availability and reliability), resilience, security and privacy. Topics of interest include the design of metrics, benchmarks and tools for quantitative system evaluation and analysis, as well as the development of methodologies, techniques and tools for modeling, measurement, load testing, monitoring, profiling, workload characterization and run-time management of software systems with re-

spect to the mentioned quality attributes. The symposium is organized by the three established research groups Kieker [1], Palladio [3], and Descartes [2]; thus this symposium also serves as a joint 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 architectures of IT systems and for simulating quality properties, such as for example performance or reliability metrics. The symposium program included contributions from practitioners and researchers in the field of software performance, including but not limited to approaches employing Descartes/Kieker/Palladio. In addition to the three organizing groups, SSP is also supported by the special interest group "Softwaretechnik" (software engineering) of the "Gesellschaft für Informatik (GI)" and by the special interest committee "Messung, Modellierung und Bewertung (MMB) von Rechensystemen" (measurement, modeling, and evaluation of computer systems) of GI. We solicited two types of contributions, technical papers and extended abstracts for industry or experience talks. Submitted proposals were evaluated by the program review committee:

- Dusan Okanović, University of Stuttgart
- Teerat Pitakrat, Vector Informatik GmbH
- Reiner Jung, Kiel University
- Henning Schnoor, Kiel University
- Holger Knoche, Kiel University
- Norbert Schmitt, University of Würzburg
- Johannes Grohmann, University of Würzburg
- Sebastian Krach, KIT/FZI

- Dominik Werle, KIT
- Robert Heinrich, KIT
- Holger Eichelberger, University of Hildesheim
- Johannes Kroß, Fortiss GmbH

The program committee was chaired by:

- Nikolas Herbst, University of Würzburg

The steering committee consists of the following members:

- Ralf Reussner, KIT
- Wilhelm Hasselbring, Kiel University
- Samuel Kounev, University of Würzburg
- André van Hoorn, University of Stuttgart
- Steffen Becker, University of Stuttgart
- Anne Kozirolek, KIT

We would like to thank the local organization team lead by Simon Eismann, all participants that contributed to the event, including the authors and presenters, Infosim for hosting the symposium, as well as our sponsors Novatec, QAWARE, PASS Consulting Group and RETIT!

## 2 Program

Developer meetings were preceding the symposium on November 4th. The program of the symposium consisted of five invited industry talks:

- *Quo Vadis Network Monitoring*  
David Hock and Stefan Köhler (Infosim GmbH)
- *Timeseries gone wild: small- and big-data analysis with Software-EKG*  
Stefan Krause and Harald Störrle (QAware)
- *Do we need a resource efficiency label for software?*  
Andreas Brunnert and Richard Vobl (ReTiT)
- *inspectIT is dead – long live inspectIT Ocelot!*  
Henning Schulz, Marius Oehler, Alexander Wert and Jonas Kunz (Novatec)
- *Field Report: KPI-based management of commercial software development*  
Stefan Luckhaus (PASS Consulting)

At the symposium, the following research papers were presented:

- *Identifying Bottlenecks in a Visualization Platform for Tracing Adaptation Decisions*  
Martin Pfannemüller and Christian Becker

- *Using OPEN.xtrace and Architecture-Level Models to Predict Workload Performance on In-Memory Database Systems*  
Maximilian Barnert, Adrian Streitz, Johannes Rank, Harald Kienegger and Helmut Krcmar
- *Graph-Based Analysis and Visualization of Software Traces*  
Richard Müller and Matteo Fischer
- *Memory Leak Visualization using Evolving Software Cities*  
Markus Weninger, Lukas Makor and Hanspeter Mössenböck
- *On the Difficulties of Supervised Event Prediction based on Unbalanced Real-World Data in Multi-System Monitoring*  
Andreas Schörgenhumer, Mario Kahlhofer, Peter Chalupar, Hanspeter Mössenböck and Paul Grünbacher
- *On Learning Parametric Dependencies from Monitoring Data*  
Johannes Grohmann, Simon Eismann and Samuel Kounev
- *Towards domain-specific extensibility of quality-aware software architecture meta-models*  
Sebastian Dieter Krach
- *Towards Reverse Engineering for Component-Based Systems with Domain Knowledge of the Technologies Used*  
Yves Richard Schneider and Anne Kozirolek
- *Towards Testing the Performance Influence of Hypervisor Hypercall Interface Behavior*  
Lukas Beierlieb, Lukas Iffländer, Aleksandar Milenkoski and Samuel Kounev
- *Towards Understanding the Performance of Distributed Database Management Systems in Volatile Environments*  
Jörg Domaschka and Daniel Seybold
- *On the Validity of Performance Antipattern at Code Level*  
David Georg Reichelt, Stefan Kühne and Wilhelm Hasselbring
- *Improving Batch Performance when Migrating to Microservices with Chunking and Coroutines*  
Holger Knoche
- *Data Stream Operations as First-Class Entities in Palladio*  
Dominik Werle, Stephan Seifermann and Anne Kozirolek
- *Modelling and Predicting Memory Behavior in Parallel Systems with Network Links—Palladio-based Experiment Report*  
Philipp Gruber and Markus Frank

- *Mapping Data Flow Models to the Palladio Component Model*  
Stephan Seifermann, Dominik Werle and Mazen Ebada

and the following regular presentations were given:

- *The Applicability of Palladio for Assessing the Quality of Cloud-based Microservice Architectures*  
Floriment Klinaku, Dominik Bilgery and Steffen Becker
- *“PerformoBot, please help me!” - Chatbot-supported Performance Evaluation*  
Samuel Beck, Lasse Merz, Christoph Zorn, Fabian Beck, Leonel Merino, Dušan Okanović and André van Hoorn
- *Chaos Experimentation based on Established Risk Analysis Methods: Experiences from an Industrial Case Study*  
Dominik Kesim
- *Assessing and Improving Dependability and Security of CI/CD Infrastructures*  
Thomas F. Düllmann

The fifteen short papers are included in the present volume of Softwaretechnik Trends as post-proceedings. Additionally, the slides of most presentations are available via the program Web page.

## References

- [1] A. Van Hoorn, J. Waller, and W. Hasselbring. “Kieker: A framework for application performance monitoring and dynamic software analysis”. In: *Proceedings of the 3rd ACM/SPEC International Conference on Performance Engineering*. ACM. 2012, pp. 247–248.
- [2] N. Huber et al. “Model-based self-aware performance and resource management using the descartes modeling language”. In: *IEEE transactions on software engineering* 43.5 (2016), pp. 432–452.
- [3] R. H. Reussner et al. *Modeling and simulating software architectures: The Palladio approach*. MIT Press, 2016.