

9th Symposium on Software Performance (SSP) Hildesheim, November 08–09, 2018

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<http://www.performance-symposium.org/2018/>

1 Preface

More than fourty participants attended the 9th Symposium on Software Performance in Hildesheim.

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 on-line monitoring and benchmarking to modeling, prediction, and adaptation. Experience shows, that for system design or later optimization, such techniques should be applied in smart combination.

The "Symposium on Software Performance" 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 steered by the three established research groups Descartes, Kieker, and Palladio and was 2018 hosted by the University of Hildesheim. In particular, 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 software architectures of IT systems and for simulating their performance.

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. Work on other related tools such as ExplorViz [1], benchmarks such as TeaStore [2] or JPetStore [3] or initiatives like OpenAPM¹ have been presented.

SSP is also supported by the special interest group "Softwaretechnik" (software engineering) of the "Gesellschaft für Informatik (GI)".

We solicited two types of contributions, technical papers and extended abstracts for industry or experience talks. Submitted proposals were evaluated by

¹<https://openapm.io>

the program review committee:

- Dušan Okanović, University of Stuttgart
- Jürgen Walter, University of Würzburg
- Christian Stier, FZI
- Sebastian Krach, FZI
- Robert Heinrich, KIT
- Reiner Jung, Kiel University
- Henning Schnoor, Kiel University
- Johannes Kroß, fortiss GmbH
- Holger Knoche, Kiel University

In addition to these program review committee members, we would like to thank all participants that contributed to the event, including the authors and presenters, as well as our sponsors and supporters the RETIT, NovaTec, Aptiv and the Sparkasse Hildesheim Goslar Peine.

2 Program

A Kieker developer meeting was preceding the symposium on November 7th. At the symposium, Bert Wessarg (TU Dresden) presented a keynote on *HPC Performance Analysis Tools at ZIH - Vampir & Score-P*. Further, Raimund Vogels (University Hannover and Hildesheim) gave an introduction to the symposium location, the Center for World Music² as well as a guided tour through the collection of musical instruments hosted by the Center. The following regular presentations were given:

- *Simplifying Software System Monitoring through Application Discovery with ExplorViz*
Alexander Krause, Christian Zirkelbach and Wilhelm Hasselbring
- *Exploring Visual Comparison of Multivariate Runtime Statistics*
Hagen Tarner, Veit Frick, Martin Pinzger and Fabian Beck
- *Monitoring the Execution of Declarative Model Transformations*
Raffaella Groner, Sophie Gylstorff and Matthias Tichy
- *Tooling: Improved Management for Monitor Repositories and Measuring Points in Palladio*
Florian Nieuwenhuizen, Lasse Merz, Ba-Anh Vu, Birasanth Pushpanathan, Mehmet Tepeli, Domas Mikalkinas and David Schütz
- *Monitoring Electrical Power Consumption with Kieker*
Sören Henning

- *Analyzing the Evolution of Data Structures in Trace-Based Memory Monitoring*
Markus Weninger, Elias Gander and Hanspeter Mössenböck
- *Architectural Template for Parallel Loops and Sections*
Markus Frank and Mir Alireza Hakamian
- *Improving Service Availability with Rule-Based Adaptation*
Marc Adolf, Reiner Jung and Lars Blümke
- *ORCAS: Efficient Resilience Benchmarking of Microservice Architectures*
André van Hoorn, Aldeida Aleti, Thomas F. Düllmann and Teerat Pitakrat
- *Addressing Shortcomings of Existing DDoS Protection Software Using Software-Defined Networking*
Lukas Iffländer, Stefan Geissler, Jürgen Walter, Lukas Beierlieb and Samuel Kounev
- *Performance analysis of a virtualized vehicle-compute platform: An experience report*
Christopher Hesse, Tim Welsch and Holger Eichelberger
- *Using the CoCoME community case study for evaluating the SQuAT architecture optimization approach: results and experiences*
Sebastian Frank and Santiago Vidal
- *Towards Model-based Performance Predictions of SAP Enterprise Applications*
Adrian Streitz, Maximilian Barnert, Johannes Rank, Harald Kienegger and Helmut Krcmar
- *Using Multi-System Monitoring Time Series to Predict Performance Events*
Andreas Schörgenhumer, Mario Kahlhofer, Peter Chalupar, Hanspeter Mössenböck and Paul Grünbacher
- *SimuLizar NG: An extensible event-oriented simulation engine for self-adaptive software architectures*
Sebastian Dieter Krach and Max Scheerer
- *Using Kieker with Elastic APM: Experience Report*
Valentin Seifermann and Dušan Okanović
- *TeaStore - A Micro-Service Application for Benchmarking, Modeling and Resource Management Research*
Simon Eismann, Jóakim von Kistowski, Norbert Schmitt, Johannes Grohmann, André Bauer and Samuel Kounev
- *OpenAPM - The Initiative for Open, Tailored APM Solutions*
Philipp Merkle and Alexander Wert

²<https://www.uni-hildesheim.de/center-for-world-music/>

- *The JPetStore Suite: A concise Experiment Setup for Research*
Reiner Jung and Marc Adolf
- *Better a Microbenchmark on a Cluster than a User at the Office: Flink Cluster Benchmarking*
David Georg Reichelt, Lars-Peter Mayer and Stefan Kühne

For fifteen of these presentations, 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.

3 Outlook

The next Symposium on Software Performance in 2019 will take place in Würzburg. More information may soon be found at

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

References

- [1] F. Fittkau, A. Krause, and W. Hasselbring, “Software Landscape and Application Visualization for System Comprehension with ExplorViz,” *Information and Software Technology*, 2016. DOI: <http://dx.doi.org/10.1016/j.infsof.2016.07.004>.
- [2] J. von Kistowski, S. Eismann, N. Schmitt, A. Bauer, J. Grohmann, and S. Kounev, “TeaStore: A Micro-Service Reference Application for Benchmarking, Modeling and Resource Management Research,” in *International Symposium on the Modelling, Analysis, and Simulation of Computer and Telecommunication Systems (MAS-COTS '18)*, Sep. 2018.
- [3] R. Jung, M. Adolf, and C. Dornieden, “Towards extracting realistic user behavior models,” *Softwaretechnik-Trends*, vol. 37, no. 3, pp. 11–13, 2017.