8th Symposium on Software Performance (SSP) Karlsruhe, November 09–10, 2017

Ralf Reussner
Karlsruhe Institute of Technology
Am Fasanengarten 5
76131 Karlsruhe, Germany
reussner@kit.edu

Wilhelm Hasselbring
Kiel University
Christian-Albrechts-Platz 4
24118 Kiel, Germany
hasselbring@email.uni-kiel.de

Samuel Kounev
University of Würzburg
Am Hubland
97074 Würzburg, Germany
samuel.kounev@uni-wuerzburg.de

André van Hoorn
University of Stuttgart
Universitätsstraße 38
70569 Stuttgart, Germany
van.hoorn@informatik.uni-stuttgart.de

Steffen Becker
University of Stuttgart
Universitätsstraße 38
70569 Stuttgart, Germany
steffen.becker@informatik.uni-stuttgart.de

http://www.performance-symposium.org/2017/

1 Introduction

More than fifty participants from Karlsruhe, Würzburg, Stuttgart, München, Chemnitz, Kiel, Hannover, Hildesheim, and Argentina attended the 8th Symposium on Software Performance in Karlsruhe. 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 all facets of software performance, ranging from modeling and prediction to monitoring and runtime management. The symposium is organized by the three established research groups Kieker [1], Palladio [2], and Descartes [3]; 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 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. Moreover, this years topics also focused on security and containerization using Docker, as well as the investigation of specific systems like SAP HANA, Raspberry Pi, and GPUs.

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:

- Robert Heinrich, KIT
- Reiner Jung, Kiel University
- Christian Stier, FZI
- Dusan Okanović, University of Stuttgart

- Jürgen Walter, University of Würzburg
- Joakim v. Kistowski, University of Würzburg
- Holger Eichelberger, University of Hildesheim
- Henning Schnoor, Kiel University
- Felix Willnecker, fortiss GmbH

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 supporters andrena objects, codecentric, connyun, and NovaTec!

2 Program

Kieker and Palladio developer meetings were preceding the symposium on November 8th. At the symposium, two keynotes

- *Visualizing Software Dynamics*
  Fabian Beck (University of Duisburg-Essen)
- *Performance-related Aspects in the Architecture of the connyun IoT-Platform*
  Stefan Kusterer (connyun)

and the following regular presentations were given:

- *Monitoring and diagnosis of performance problems in enterprise applications with mobile front-end*
  Tobias Angerstein, Alper Hidiroglu, Manuel Palenga and Matteo Sassano
- *Applying Concession-based Negotiation to Architectural Tradeoffs in SQuAT*
  J. Andres Diaz-Pace, Alejandro Rago, Santiago Vidal, Sebastian Frank and André van Hoorn
- *Performance and Security Influence of Augmenting Intrusion Detection Systems using Software-Defined Networking and Network Function Virtualization*
  Lukas Iffländer and Jonathan Stoll
- *Vulnerability Recognition by Execution Trace Differentiation*
  Fabien Patrick Viertel, Oliver Karras and Kurt Schneider
- *ContinuITy: Automated Performance Testing in Continuous Software Engineering*
  Henning Schulz, André van Hoorn, Christoph Heger and Alexander Wert
- *RadarGun: Toward a Performance Testing Framework*
  Sören Henning, Christian Wulf and Wilhelm Hasselbring
- *Providing Model-Extraction-as-a-Service for Architectural Performance Models*
  Jürgen Walter, Simon Eismann, Nikolai Reed and Samuel Kounev
- *Towards Extracting Realistic User Behavior Models*
  Reiner Jung, Marc Adolf and Christoph Dornieden
- *The Raspberry Pi: A Platform for Reproducible Performance Benchmarks?*
  Holger Knoche and Holger Eichelberger
- *Automating the Build Pipeline for Docker Containers*
  Nikolai Reed, Jürgen Walter and Samuel Kounev
- *Don't just watch the containers pass by: How we (plan to) use Docker to streamline the Kieker development process and infrastructure*
  Thomas F. Düllmann
- *Debugging a Complex Systems, the Long Way from Data to Knowledge*
  Marcus Hilbrich and Markus Frank
- *Refactoring Kieker's I/O Infrastructure to Improve Scalability and Extensibility*
  Holger Knoche
- *Converting Traces of In-Memory Database Systems to OPEN.XTRACE on the Example of SAP HANA*
  Maximilian Barnert, Harald Kienegger and Helmut Krcmar
- *Leveraging State to Facilitate Separation of Concerns in Reuse-oriented Performance Models*
  Dominik Werle, Stephan Seifermann and Sebastian D. Krach
- *Is the PCM Ready for ACTORs and Multicore CPUs? - A Use Case-based Evaluation*
  Markus Frank, Stefan Staude and Marcus Hilbrich
- *Towards Predicting Performance of GPU-dependent Applications on the Example of Machine Learning in Enterprise Applications*
  Felix Willnecker and Helmut Krcmar

For ten 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.

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*. ICPE '12. Boston, Massachusetts, USA: ACM, 2012, pp. 247–248.

[2] R. H. Reussner et al. *Modeling and Simulating Software Architectures: The Palladio Approach*. The MIT Press, 2016.

[3] 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 (May 2017), pp. 432–452.