11th Symposium on Software Performance (SSP)
Leipzig, November 12-13, 2020

Richard Müller
rmueller@wifa.uni-leipzig.de
Leipzig University, Leipzig, Germany

Ulrich Eisenecker
eisenecker@wifa.uni-leipzig.de
Leipzig University, Leipzig, Germany

http://www.performance-symposium.org/2020/

1 Introduction

Almost 50 participants from Germany, Austria, USA, Canada, and India have attended the 11th Symposium on Software Performance (SSP). Because of Corona it took place as a virtual event for the first time.

Performance is one of the most relevant quality attributes of IT systems. While good performance leads to high user satisfaction, weak response times lead to perceived unavailability of the system, or unnecessarily high costs of network or computing resources, or may even cause a loss of users. 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 subsequent optimization, such techniques should be applied in smart combination.

For these reasons, the 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 the three established research groups Descartes [2], Kieker [3], and Palladio [1]; 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 as well as for simulating their performance.

The symposium program includes contributions from practitioners and researchers in the field of software performance, including but not limited to approaches employing Descartes, Kieker, or Palladio.

In addition to the three organizing groups, the 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 and the "Informationstechnische Gesellschaft ITG im VDE".

We solicited two types of contributions, namely technical papers and extended abstracts for industry or experience talks. Submitted proposals were reviewed by a program committee with the following members:

- Holger Eichelberger, University of Hildesheim
- Johannes Grohmann, University of Würzburg
- Robert Heinrich, KIT
- Reiner Jung, Kiel University
- Holger Knoche, ivv GmbH
- Sebastian Krach, FZI
- Johannes Kroß, Fortiss GmbH
- Dušan Okanović, Novatec Consulting GmbH
- David Georg Reichelt, Leipzig University
- Norbert Schmitt, University of Würzburg
- Henning Schnoor, Kiel University
- Dominik Werle, KIT

The program committee was chaired by:

- Richard Müller, Leipzig University

Currently, the steering committee has the following members:

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

2 Program

The program comprises two industry talks from the sponsors, fifteen paper presentations, and nine industry or experience talks.

- [Industry Talk] *How we replaced a Gartner APM Leader with an open, Grafana-based monitoring solution*, Henning Schulz and Tobias Angerstein

- [Industry Talk] *Analysis and Visualization of SAP Custom Code and its Relationships to the SAP System*, Pascal Kovacs

- [Paper] *Vision of Continuously Assuring Performance*, David Georg Reichelt, Stefan Kühne, and Wilhelm Hasselbring

- [Paper] *A Journey to realistic User Behavior Models*, Reiner Jung and Lars Jürgensen

- [Paper] *Selecting Time Series Clustering Methods based on Run-Time Costs*, Andreas Schörgenhumer, Paul Grünbacher, and Hanspeter Mössenböck

- [Paper] *Investigating High Memory Churn via Object Lifetime Analysis to Improve Software Performance*, Markus Weninger, Elias Gander, and Hanspeter Mössenböck

- [Paper] *Heap Evolution Analysis Using Tree Visualizations*, Markus Weninger, Lukas Makor, and Hanspeter Mössenböck

- [Paper] *Combating Run-time Performance Bugs with Performance Claim Annotations*, Zachery Casey and Michael D. Shah

- [Paper] *Enhanced execution trace abstraction approach using social network analysis methods*, Ji Wang and Naser Ezzati-Jivan

- [Paper] *Graph-Based Performance Analysis at System- and Application-Level*, Richard Müller and Tom Strempel

- [Paper] *Towards Language-Agnostic Reuse of Palladio Quality Analyses*, Malte Reimann, Stephan Seifermann, Maximilian Walter, Robert Heinrich, Tomas Bures, and Petr Hnetynka

- [Paper] *Catching Up with State of the Art Continuous Integration Pipelines in Palladio - An Experience Report*, Stephan Seifermann and Sebastian Krach

- [Paper] *Supporting Backward Transitions within Markov Chains when Modeling Complex User Behavior in the Palladio Component Model*, Maximilian Barnert and Helmut Krcmar

- [Paper] *Performance Modelling of Message-Oriented Middleware with priority queues*, Snigdha Singh, Larissa Schmid, and Anne Koziolek

- [Paper] *Toward Efficient Scalability Benchmarking of Event-Driven Microservice Architectures at Large Scale*, Sören Henning and Wilhelm Hasselbring

- [Paper] *A Dynamic Resource Demand Analysis Approach for Stream Processing Systems*, Johannes Rank, Andreas Hein, and Helmut Krcmar

- [Paper] *Heat-aware Loadbalancing - Is it a thing?*, Lukas Iffländer, Norbert Schmitt, Andreas Knapp, and Samuel Kounev

- [Extended Abstract] *Exploring the Feasibility of Performance Regression Testing for Serverless Applications*, Simon Eismann, Diego Costa, Lizhi Liao, Cor-Paul Bezemer, Weiyi Shang, André van Hoorn, and Samuel Kounev

- [Extended Abstract] *Software doesn't make a noise when it breaks*, Piyush Verma

- [Extended Abstract] *Tailored Load Testing for Continuous Software Engineering: Approaches, Experiences, and Outlook*, Henning Schulz

- [Extended Abstract] *An Overview of Methods for Detecting Contexts in Workload Data*; Dušan Okanović and Thomas Sievering

- [Extended Abstract] *SQuAT-Vis: Visualization and Interaction in Software Architecture Optimization*; Sebastian Frank and André van Hoorn

- [Extended Abstract] *Scenario-based Resilience Evaluation and Improvement of Microservice Architectures: A Case Study*; Dominik Kesim, Lion Wagner, Joakim von Kistowski, Sebastian Frank, Alireza Hakamian, and André van Hoorn

- [Extended Abstract] *Predicting Performance Degradations of Black-box Microservice Applications*; Martin Sträßer and Johannes Grohmann

- [Extended Abstract] *Benchmarking AI-methods on Heterogeneous Hardware Resources*; Christopher Noel Hesse and Holger Eichelberger

- [Extended Abstract] *Developing a Resource Efficiency Benchmark*, Norbert Schmitt, Richard Vobl, Andreas Brunnert, and Samuel Kounev

The fifteen papers are included in the present volume of "Softwaretechnik-Trends" as post-proceedings. Additionally, the slides of the presentations are available on the program web page.

3 Outlook

The next SSP in 2021 will take place in Leipzig, hopefully in presence. More information will be available at `http://www.performance-symposium.org/`.

References

[1] R. Reussner et al. *Modeling and simulating software architectures: The Palladio approach.* MIT Press, 2016.

[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 (2017), pp. 432–452.

[3] W. Hasselbring and A. van Hoorn. "Kieker: A monitoring framework for software engineering research". In: *Software Impacts* 5 (Aug. 2020), pp. 1–5.