Guided Research

WESSBAS@Runtime: Clustering-based Online Characterization of Session-Based Workloads

Motivation
WESSBAS is an approach for workload extraction and specification for session-based application systems. It comprises i.) the WESSIONS-DSL, a domain-specific language for system- and tool-agnostic modeling of probabilistic session-based workloads; ii.) support for automatic extraction of WESSIONS-DSL instances from recorded session information based on clustering; iii.) model transformations of WESSIONS-DSL instances for load generation and model-based performance prediction. So far, WESSIONS is limited to offline-workload characterization: the recorded session log is analyzed as a whole and without considering information about when the sessions were executed by the customers.

Goal
The goals of this project is to investigate how the WESSIONS approach can be extended to support online characterization of navigational profiles, which is, e.g., useful to analyze and predict the evolution of workloads over time. The project comprises the study of state-of-the-art in online model-learning/clustering and workload characterization, the development and proof-of-concept implementation of the extension, as well as a quantitative evaluation of the developed approach.

Possible Collaborations
This thesis can be conducted in the context of the Research Group of the Standard Performance Evaluation Corporation (SPEC).1 Particularly, the WESSIONS approach is currently driven by the RSS group in collaboration with the fortiss GmbH in Munich (associated with the TU Munchen) and Kiel University.

References

Contacts
Dr.-Ing. André van Hoorn
van.hoorn@informatik.uni-stuttgart.de
University of Stuttgart, Institute of Software Technology (ISTE), Reliable Software Systems (RSS)
Universitätsstraße 38, 70569 Stuttgart, Germany

1SPEC and SPEC RG: http://www.spec.org and http://research.spec.org/