Abstract:

Workload generation is essential to systematically evaluate performance properties of application systems under controlled conditions, e.g., in load tests or benchmarks. The definition of workload specifications that represent the real workload as accurately as possible is one of the biggest challenges in this area. This paper presents our approach for the modeling and automatic extraction of probabilistic workload specifications for load testing session-based application systems. The approach, called Wessbas, comprises (i.) a domain-specific language (DSL) enabling layered modeling of workload specifications as well as support for (ii.) automatically extracting instances of the DSL from recorded sessions logs and (iii.) transforming instances of the DSL to workload specifications of existing load testing tools. During the extraction process, different groups of customers with similar navigational patterns are
identified using clustering techniques. We developed corresponding tool support including a transformation to probabilistic test scripts for the Apache JMeter load testing tool. The evaluation of the proposed approach using the industry standard benchmark SPECjEnterprise2010 demonstrates its applicability and the representativeness of the extracted workloads.

Stichworte: workload specifications, load testing, clustering, session-based application systems, load test extraction

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