Masters Thesis

Continuous Integration of Performance Model

Motivation
Model-based performance prediction (MBPP) has been recently applied to avoid the non-expected low performance through simulation and performance prediction. Modelling the performance model is an expensive process that is not preferred by agile software development. The automatic extracting/updating of performance model can reduce constructing effort and keep the developer aware of the impact of code changes on performance. The Vitruvius approach supports consistent view-based development of heterogeneous models. It is implemented to keep Java Source Code and PCM instances consistent during the development of a software system. However, the performance parameter cannot be extracted by Vitruvius process but rather they should be measured. CASPA is a ready-to-use and extensible evaluation platform that already includes example applications and state-of-the-art software performance engineering components like monitoring and model extraction.

Task
The Thesis aims to perform an automated process based on CASPA and Vitruvius to measure the performance parameters and provide them to the PCM model that is being kept up-to-date using Vitruvius approach. The main tasks are:

- Integrate a new case study (for example mRubis) in CASPA platform.
- Using Kieker monitoring tool that is dockerized in CASPA to measure the Performance parameters like resource demand.
- Provide the performance parameters automatically into the PCM model (Palladio is also dockerized into CASPA).

We provide
- Working with latest and innovative technologies
- Close relation to current research project
- Very good working environment and intensive supervision

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