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Karlsruhe Institute of Technology

Institute for Program Structures and Data Organization
Chair for Software Design and Quality
DFG Research Group ("Emmy Noether" Programme)

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Descartes Research Group
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Datum: 2013-04-15

Diploma / Master Thesis

Elasticity Benchmarking in Cloud Environments

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Motivation

Elasticity is a central aspect of the cloud computing paradigm and heavily used in cloud providers' advertisements and even in the naming of specific products or services. Different metrics capable of quantifying aspects of elastic behavior have been proposed so far. Comparability in terms of elasticity is not yet given, as a comprehensive measurement methodology for elasticity metrics is still open for development.

Goals

An elasticity benchmark is expected to deliver reproducible results and generate a consistent order of the different systems under test (SUTs) reflecting their potential and observed elasticity, while not mixing this with general system efficiency and scalability aspects.
The goal of this thesis is the development of a measurement methodology for elasticity metrics together with an implementation targeting IaaS and PaaS platforms. To validate the approach, experiments on different representative cloud platforms should be conducted.

- **Collaboration opportunity with SPEC and major leading cloud providers including Google, IBM, Salesforce, and SAP**
- **Results will be fed into benchmark standardization efforts at SPEC**
- **Excellent working environment and intensive mentoring**
- **Work with state-of-the-art and innovative technologies**

Duration
6 months

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spec
RG Cloud