

Towards a case-based reasoning approach for cloud provisioning

Eric Kübler and Mirjam Minor

Wirtschaftsinformatik, Goethe University, Robert-Mayer-Str.10, Frankfurt am Main, Germany,

{ekuebler, minor}@informatik.uni-frankfurt.de

Abstract. Resource provisioning is an important issue of cloud computing. Most of the recent cloud solutions implement a simple way with static thresholds to provide resources. Some more sophisticated approaches consider the cloud provisioning problem a multi-dimensional optimization approach. However, the calculation effort for solving optimization problems is significant. An intelligent resource provisioning with a reduced calculation effort requires smart cloud management methods. In this position paper, we propose a case-based reasoning approach for cloud management. A case records a problem situation in cloud management and its solution. We introduce a case model and a retrieval method for previously solved problem cases with the aim to reuse their re-configuration actions for a recent problem situation. The case model uses the container notion correlated with QoS problems. We present a novel, composite similarity function that allows to compare a recent problem situation with the cases from the past. During retrieval, the similarity function creates a ranking of the cases according to their relevance to the current problem situation. Further, we describe the prototypical implementation of the core elements of our case based-reasoning concept. The plausibility of the retrieval approach has been tested by means of sample cases with simulated data. The original version of this re-submission has been published at CLOSER 2016 [Kübler and Minor, 2016].

Keywords: cloud management, case-based reasoning, intelligent cloud provisioning

References

- [Kübler and Minor, 2016] Kübler, E. and Minor, M. (2016). Towards a case-based reasoning approach for cloud provisioning. In *Proceedings of the 6th International Conference on Cloud Computing and Services Science (Accepted for publication)*, volume 2, pages 290–295, Rome, Italy. SciTePress.