Self-Adaptive Resource Allocation for Elastic Process Execution

Reference:

P. Hoenisch, S. Schulte, S. Dustdar and S. Venugopal, “Self-Adaptive Resource Allocation for Elastic Process Execution (accepted for publication),” in IEEE 6th International Conference on Cloud Computing (CLOUD 2013), Santa Clara, CA, USA, 2013, pages 220-227.

Abstract:

Especially in large companies, business process landscapes may be made up from thousands of different process definitions and instances. As a result, a Business Process Management System (BPMS) needs to be able to handle the concurrent execution of a very large number of workflow steps. Many of these workflow steps may be resource-intensive, leading to ever-changing requirements regarding the needed computing resources to execute them. Using Cloud technologies, it is possible to allocate workflow steps to resources obtained on demand from Cloud platform providers. However, current BPMS do not feature the means to make use of Cloud resources in order to execute workflows.
This work presents an approach to automatically lease and release Cloud resources for workflow executions based on knowledge about the current and future process landscape. This approach to self-adaptive resource allocation for elastic process execution is implemented as part of ViePEP, a research BPMS able to handle workflow executions in the Cloud.