Software Engineering Seminar (WS 2015)

Checking Energy-Consumption of Clouds

Description

The usage of cloud computing resources grows steadily. There are already big data centers consuming the same amount of energy as a small city. It means that the contribution of the data centers to the global carbon emission becomes more and more significant. Hence there is a need for green computing where one tries to reduce the wasted energy by running unused resources.

CloudSim is a simulation framework which allows to test different usage scenarios and configurations at different aaS-levels without having a real cloud infrastructure.

The aim of the seminar is to provide a small overview of some power management strategies for cloud systems at the IaaS-level, to implement at least two of them on CloudSim, and to evaluate based on one power consumption metric.

The provided literature can be seen as a starting point and it is expected to extend the literature search and present a coherent view on the current state of the art in this area.

References

[1] Anton Beloglazov, Jemal Abawajy, and Rajkumar Buyya. Energy-aware resource allocation heuristics for efficient management of data centers for cloud computing. *Future Generation Computer Systems*, 28:755–768, 2012.

[2] Rodrigo N. Calheiros, Rajiv Ranjan, Anton Beloglazov, César AF De Rose, and Rajkumar Buyya. Cloudsim: a toolkit for modeling and simulation of cloud computing environments and evaluation of resource provisioning algorithms. *Software: Practice and Experience*, 41:23–50, 2011.

[3] Liang Luo, Wenjun Wu, W.T. Tsai, Dichen Di, and Fei Zhang. Simulation of power consumption of cloud data centers. *Simulation Modelling Practice and Theory*, 39:152–171, 2013.

[4] Fei Zhang, Yizhou Yan, Wenjun Wu, and Liang Luo. A heuristics approach for reducing power consumption of cloud data center. In *Green Computing and Communications (GreenCom), 2013 IEEE and Internet of Things (iThings/CPSCom), IEEE International Conference on and IEEE Cyber, Physical and Social Computing*, 2013.

Contacts

Lars Grunske (`grunske@informatik.hu-berlin.de`)
Software Engineering Group
Institut für Informatik
Humboldt-Universität zu Berlin