Supporting Software Evolution to the Multi-cloud with a Cross-Cloud Platform

Invited Presentation

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ABSTRACT

The evolution of software to best exploit the capabilities and advantages of cloud computing is attracting growing academic and industrial interest. The potential advantages - flexibility, scalability, pay-as-you-go - to software deployment are enhanced by multi-cloud deployments (e.g., public-private hybrid clouds). However, this evolution requires specialized knowledge at the systems level, some level of autonomous self-management, and specialized knowledge about the behavior of various cloud systems. In this talk, I introduce a platform that enables developers to deploy and manage applications on cloud systems with a significantly reduced requirement for specialized knowledge. The platform offers an abstracted view of deployed resources, and abstract actions to execute changes on those resources, allowing the author of an autonomic system to focus on analyzing the environment and making sound planning decisions. This allows developers with limited systems knowledge to write self-managing algorithms for their applications. I describe a proof-of-concept implementation, demonstrate its use in a cloud bursting scenario, and present early evidence of scalability.

Dr. Michael Smit is an Assistant Professor in the School of Information Management, Faculty of Management, Dalhousie University. As a computer scientist in the field of information management, he explores the intersection of technology, people, and information. He has particular expertise in cloud computing, and actively conducts research in using and organizing cloud-scale data, managing cloud-based resources, research dissemination and discovery in research communities, and open data. His past academic contributions include making cloud technology more accessible to Canadian academics and small businesses; simulating large-scale software systems; providing secure, segmented Big Data sharing; and distributed scalable monitoring systems for heterogeneous resources.