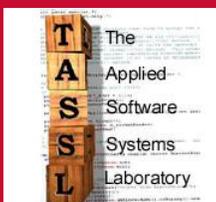


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Automatic Workflow Management on Hybrid Clouds using CometCloud

A Demonstration at the ACS ITO Client Symposium, October 2010

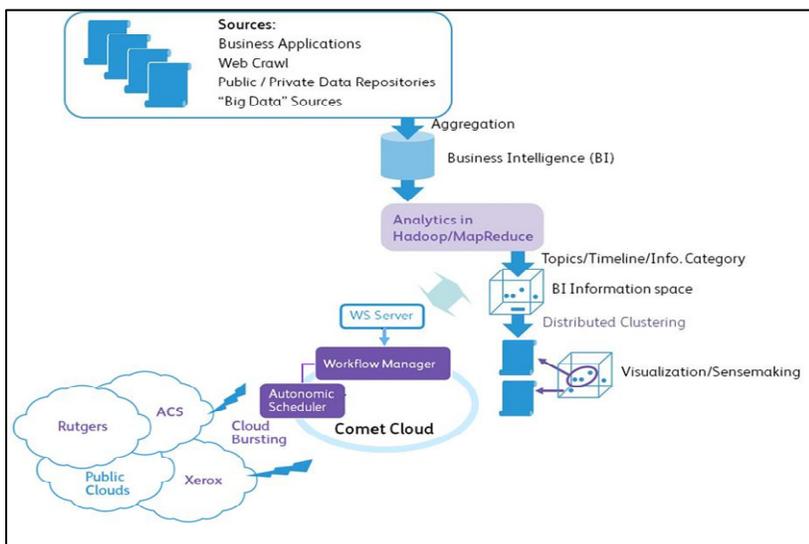
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As hybrid infrastructures that dynamically federate private and public clouds are being increasingly used by enterprises to meet their IT requirements, autonomic workflow management frameworks become essential to effectively execute business process workflows on these hybrid and dynamic platforms while satisfying complex and highly heterogeneous requirements as well as constraints for performance, cost, privacy, etc. Such an autonomic framework can dynamically select an optimal mix of resource classes based on QoS and resources requirements, policies and constraints, can monitor the execution of the applications services, and can adapt both the resources as well as the services to ensure that these requirements and constraints continue to be satisfied. Adaptations may involve scaling up, down or out (using autonomic Cloudbursts) and can handle, for example, unanticipated workload bursts or resource failures.

Rutgers and Xerox collaborated to develop and deploy such an autonomic workflow management framework on top of the CometCloud autonomic cloud federation engine (www.cometcloud.org), and demonstrated it at the ACS ITO Client Symposium, Orlando, Florida, on October 11-13, 2010. This effort demonstrated the following capabilities:

1. Policy driven synthesis of customized hybrid clouds using the dynamic, on-demand cloud federation services provided by CometCloud. Specifically, the hybrid infrastructure in the demonstration dynamically integrated private clouds at Rutgers, ACS and the Amazon EC2 public cloud with approximately 600 cores.
2. Programming abstractions and autonomic management mechanisms to support policy driven scale-up/down/out based on application requirements as well as system state.
3. Deployment of real-world enterprise application workflows executing on a real federated hybrid cloud infrastructure.

This demonstrated the benefits of hybrid cloud infrastructure to support heterogeneous and dynamics workloads, the feasibility of on-demand cloud bridging, and the ability of the CometCloud autonomic cloud federation framework to robustly provide this capabilities in a production environment.



An illustration of the scenario used in the demonstration