Scopus

Documents

Bashar, A.

Autonomic scaling of Cloud Computing resources using BN-based prediction models
(2013) *Proceedings of the 2013 IEEE 2nd International Conference on Cloud Networking, CloudNet 2013*, art. no. 6710578, pp. 200-204. Cited 15 times.

Abstract
The recent surge in the popularity and usage of Cloud Computing services by both the enterprise and individual consumers has necessitated efficient and proactive management of data center resources which host services having varied characteristics. One of the major issues concerning both the cloud service providers and consumers is the automatic scalability of resources (i.e., compute, storage and bandwidth) in response to the highly unpredictable demands. To this end, an opportunity exists to harness the predictive and diagnostic capabilities of machine learning approaches to incorporate dynamic scaling up and scaling down of resources without violating the Service Level Agreements (SLA) and simultaneously ensuring adequate revenue to the providers. This paper proposes, implements and evaluates a Bayesian Networks based predictive modeling framework to provide for an autonomic scaling of utility computing resources in the Cloud Computing scenario. In essence, the BN-based model captures the historical behavior of the system involving various performance metrics (indicators) and predicts the desired unknown metric (e.g. SLA parameter). Initial simulated experiments involving random demand scenarios provide insights into the feasibility and applicability of the proposed approach for improving the management of present data center facilities. © 2013 IEEE.

2-s2.0-84893815615
Document Type: Conference Paper
Publication Stage: Final
Source: Scopus