Abstract

Cloud Computing is a paradigm in which tasks are assigned to a combination of computing resources, software and services accessed over a network following the pay-as–you-go financial model. It has been also described as on-demand computing. With the continuous increases of cloud service providers, it becomes crucial to develop a simulation tool to reflect the properties of such complex environment to help clients selecting the appropriate providers. Available Cloud-based tools are designed for cloud architectures and resources scheduling, not the problem of provider selection. Even the Grid-based tools who share many features with the Cloud cannot cope with such problem due to the novel characteristics and services of the Cloud. This paper provides a new simulation tool that reflects the nature of clouds embedding all its aspects, as well as its QoS parameters. Such tool is designed to simulate any framework or solution for service provider selection problem. The proposed simulation tool is validated by running a framework developed for service provider selection problem based on QoS and utility functions. The paper also reviews various mathematical approaches that have been used to model cloud services, where most of them are formulations of cloud services that aim to optimize its quality of service, performance or energy efficiency under given constraints.
A Generic Framework for Modeling and Simulation of Cloud Computing Services

References


Index Terms
Keywords
Cloud Computing  Simulation  Quality of Service