Abstract

Cloud computing offers utility-oriented IT services like: pervasive applications from consumer, scientific, and business domains based on a pay-as-you-go model. So, the workload in cloud environment is usually dynamic. At cloud data centers, different virtual machines (VMs) Provisioning techniques cause different CPU utilization. Therefore, VM Provisioning on PMs to improve resource utilization and reduce energy consumption is one of the major concerns for cloud providers. The problem of VM Provisioning includes queuing of VM requests, placing the VMs on hosts, and the optimization of the current VM allocation using Live Migration. The existing VM provisioning schemes are to optimize physical server and network resources utilization, but many of them also focus on optimizing multiple resources utilization simultaneously. The setting up of utilization thresholds for resources is one of the common optimization techniques. The ultimate aim of Cloud providers is to optimize resource usage and reduce energy consumption with the obligation of providing high Quality of Service (QoS) to customers, while maintaining the Service Level Agreements (SLAs). We surveyed various Live
Virtual Machine Provisioning techniques and presented the comparison among few benchmark techniques based on adaptive utilization thresholds, as contribution to Green Cloud computing solutions. A performance evaluation study and comparison is done using the CloudSim toolkit.

References


Index Terms

Computer Science

Distributed Systems

Keywords

Adaptive Threshold, Cloud Computing (CC), Cloud Providers, Energy, Energy efficient, Quality of Service (QoS), Service Level Agreements (SLA), Virtual Machine (VM), VM Allocation, Green computing