Abstract

Today the computing technologies require high level of efficiency and infrastructure that datacenters were unable to provide previously. Lack of efficient infrastructure can serve only limited number of users and simultaneously emits large amount of carbon footprint and over utilizes electrical power. Virtualization emerged as prime technique for service management and reduced energy expenses at datacenter. Hence, there is a need of virtualization techniques that enhance energy efficiency and CPU utilization along with required user's QoS (Quality of Service) in terms of minimum response time and maximum throughput. We propose efficient virtualization technique for dynamic VM consolidation according to the current power consumption by considering multiple resources (CPU, ram, and storage disk) with live migration of VMs by switching idle server to sleep mode, thus minimizing energy consumption at datacenter. The proposed approach can effectively handle strict SLA (Service Level Agreement) in homogeneous as well as in heterogeneous environment. The result verifies that the proposed algorithm reduces the number of active physical machines and it results into reduction of power consumption.
Power-Aware Virtual Machine Consolidation considering Multiple Resources with Live Migration

References


Index Terms

Computer Science Distributed Systems

Keywords

Virtualization VM Consolidation Live Migration Service Level Agreement Energy Efficiency.