Abstract

Cloud computing environment provides on-demand access to shared resources that can be managed with minimal interaction of cloud service provider. It is a heterogeneous environment where number of users request for shared resources with different possible conditions. Cloud computing provides reliable and validated services to the users on pay as-you-use basis. In a cloud computing environment, resources are allocated in terms of virtual machines and allocating the virtual machine to an appropriate user is very important so as to efficiently utilize scarce resources and to satisfy QoS requirements. In this paper, an attempt has been made to develop a stochastic simulator that allocates virtual machine to the user with efficient resource utilization and minimal investment. In present simulator, resource allocation strategy depending upon the time and cost has been proposed to allocate resources (virtual machines) in order to fulfil the requirements of both, cloud users and service providers. In additions, it has been assumed that each VM is capable of executing all requests and the execution times are generated as samples from a specific non-uniform probability distribution i.e. by Exponential Distribution function. Simulation results demonstrate the better performance of clouds with minimum makespan of jobs on a given set of heterogeneous virtual machines (VMs).

**Index Terms**

Computer Science  
Distributed Computing

**Keywords**

Cloud Computing  
Resource Allocation  
Simulator  
Execution time  
Distribution  
Makespan.