

ABSTRACT

This paper studies the economic interaction between cloud provider (CP) and clients in the cloud market. In the current cloud business environment, various resources can be provisioned such as CPUs, memory, and storage in the form of Virtual Machine (VM) instances which are then leases to clients. Clients are charged a fixed price and face the service cost. New scheme for provisioning VMs is proposed in this paper. The main objective of the proposed scheme is maximizing the profit of CP while guaranteeing the quality of service (QoS) for clients. Profit maximization problem is formulated as Semi-Markov Decision Process (SMDP). A linear programming (LP) is suggested to extract the optimal provisioning policy. Numerical analysis stresses the ability of our approach to avoid QoS constraint violation while maximizing CP profit under varying cloud environment conditions.