



## **Automatic Clustering of VMs by Their Availability**

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**Abstract:** In rapid growth of cloud usage it is necessary to study the failures virtual machines that turn the VM un-available or violate the SLA (Service Level Agreement). The VM Presence discover in the cloud infrastructure is help full to the service provider for designing SLA guided services. In this paper we propose a simple but effective model to discover the presence of a large scale cloud infrastructure, here the failures are analyzed with the migration of machines across clusters of four-states :Hot (running), Warm (turned-on, but not ready), Cold (turned-off) and Busy (over-loaded). The real time classification of VMs by their current state, can implicitly replace the corrupted and busy VMs in request-resource mapping. Since it is necessary to use the presence information of the VMs in request mapping by keeping the computational overhead stable for large systems, to reduce the complexity and delay i-Markov chain is used. The four clusters are designed with the sub-groups. The results show that our approach can be recommended for very large Cloud Infrastructures.

**Keywords:** Virtual Machines, Availability, cloud computing, stochastic reward nets, Service Level Agreements (SLA).