ABSTRACT

This work proposes using a neural network with self organizing maps, to build a configuration policy, which enables the management of a supporting infrastructure for *Web* applications using virtual machines. The neural network uses response time, power consumption and workload rate data collected from the cluster to classify the cluster´s operation states. In runtime, based on the classified current state a management architecture performs configuration operations adding or subtracting resources from the cluster. The overall goal is to ensure quality of service, while improving the energy saving compared to the original architecture in which the proposed architecture was based, acting more efficiently on physical servers (*host*s) or manipulating the virtual machines. The work includes a performance evaluation carried out over a system implemented based on the proposed architecture. This evaluation shows that the new configuration policy is more efficient than the original one, presenting better results for response time and energy saving.

Keywords: Virtualization. Neural Networks. Energy Saving. Resource Management. *Web* Servers.