An Effective Green Computing Virtualization Model to Optimize the Computer Operating Process by Lessening Energy Consumption

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Abstract

The goal of this dissertation is to facilitate a Green Computing Virtualization Model (GCVM), a technology which will provide energy efficiency to virtually monitored computer systems by utilizing Virtual Machines (VMs) through optimization of power consumption in idle periods. This proposed model will reduce the energy consumption by 33% if it is operated successfully. This Energy Efficient Model (GCVM) was constructed with three consecutive iterative phases which are monitoring phase, virtualization phase and termination phase. Initially, Monitoring phase starts the system as it monitors activities to establish a time frame for the virtualization phase. After monitoring phase, Virtualization process keeps the system ready to launch according to the time frame provided by Monitoring phase which is used in saving energy and utilizing resources. At the end, Termination phase terminates the virtualization process upon checking the time frame demand and then the system repeats these phases in order. The model is constructed utilizing virtual machines, an emulation of computing system that provides functions of an actual computer. The proposed model showed us that energy consumption can be
reduced for idle periods on computers implementing this model. The outcome was certainly efficient compared with the data from existing technology which is elaborated in Data Collection. Our framework perhaps could become more effective if it is being assembled in a virtual environment.

References


Index Terms

Computer Science                Distributed Computing
Keywords

GCVM, Estimated energy consumption (EEC), Estimated cost (EC), Green computing, Monitoring phase, Virtualization phase, Termination phase, Time frame.