Correlation Modeling and Resource Optimization for Cloud service With Fault recovery

Abstract:

Cloud computing is a newly developed technology with numerous novel characteristics, such as large-scale resource sharing, on-demand resource provisioning and safe isolation of co-located workloads. Virtualization, a core technology of cloud computing, enables flexible resource management for various cloud services. The use of virtualization supports cloud providers in developing rational resource scheduling to reduce power consumption of a physical server.

Existing system:

Most of existing approaches for achieving energy efficient computing focus on connecting these two metrics and balancing the tradeoff between them, which however is inadequate because important factor reliability is not considered. In fact, both virtual machine (VM) failures and server failures inevitably interrupt execution of a cloud service, and eventually result in spending more time and consuming more energy on completing the cloud service. Therefore, reliability significantly affects service performance and energy consumption, and thus they should not be handled separately. Connecting these correlated metrics is essential for making more precise evaluation and further for developing rational cloud resource scheduling strategies.

Disadvantages:

1. Application performance is slow because of the virtual machine failures.
2. Energy consumption is high.

Proposed system:

We present a correlated modeling approach applying Semi-Markov models, the Laplace-Stieltjes transform (LST), a Bayesian approach to analyze reliability-performance (R-P) and reliability-energy (R-E) correlations for cloud services using a retrying fault recovery mechanism. A recursive method is also proposed for modeling the correlations for cloud services using a check-pointing fault recovery mechanism. The proposed correlation models can be used to calculate the expected service time and energy consumption for completing a cloud service.

Moreover, the models can contribute to analyzing the expected performance-energy tradeoff. We formulate the expected performance-energy optimization problem by describing performance and energy consumption metrics as functions of assigned CPU frequencies.

Advantages:

1. Application performance has been improved by using a check-pointing fault recovery mechanism.
2. We formulate the expected performance-energy optimization problem by describing performance and energy consumption metrics.

SYSTEM REQUIREMENTS

H/W System Configuration:-

- Processor - Pentium –III
- RAM - 256 MB (min)
- Hard Disk - 20 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

S/W System Configuration:-

- Operating System : Windows95/98/2000/XP
- Application Server : Tomcat5.0/6.X
- Front End : HTML, Jsp
- Scripts : JavaScript.
- Server side Script : Java Server Pages.
- Database : MySQL 5.0
- Database Connectivity : JDBC