Evaluasi pemakaian energi pada data center berbasis cloud computing menggunakan simulator greencloud = Evaluation of energy consumption of data center based on cloud computing using greencloud simulator / Nuri Tidia Hera Pratiwi

Nuri Tidia Hera Pratiwi, author

Abstrak

ABSTRAK
Pemakaian energi pada data center berbasis cloud computing semakin besar maka dari itu diperlukan penghematan pemakaian energi pada komponen data center seperti server dan switch. Skripsi ini membahas evaluasi pemakaian energi pada data center berbasis cloud computing menggunakan simulator GreenCloud yang merupakan ekstensi dari Network Simulator 2 (NS2). Simulasi evaluasi diuji pada arsitektur two-tier, three-tier dan three-tier high-speed dengan tipe Computationally Intensive Workload (CIW) dengan penerapan metode penghematan Dynamic Voltage and Frequency Scaling (DVFS), Dynamic Network Shutdown (DNS) dan DVFS+DNS. Hasil yang diperoleh menunjukkan bahwa penerapan dengan metode DNS menunjukkan penghematan yang paling efisien yaitu penghematan sekitar 69,13% pada server dan hampir 100% pada switch.
<hr>
ABSTRACT
Energy consumption in the cloud computing data center is huge. Energy consumption in the data center consists of computation energy consumption, communication energy consumption and non-IT data center facilities energy consumption. In this project we evaluate IT data center energy consumption such as server and switch using GreenCloud Simulator, that is an extension of Network Simulator 2 (NS2). Simulation applied is in the three kind of data center architectures such as two-tier, three-tier and three-tier high-speed with energy saving method such as Dynamic Voltage and Frequency Scaling (DVFS) mechanism, Dynamic Network Shutdown (DNS) mechanism, and both DVFS and DNS mechanism. The type of workload is Computationally Intensive Workload (CIW). The results indicate that the most efficient energy saving mechanism is DNS which saves energy the average of 69,13% on server and almost 100% on switch.