Abstract

Virtualization technology in Cloud computing has become important technology to reduce power consumption in data centers. Virtual Machine allocation to hosts is the main concept which carried out during Virtual Machine migrations in data centers. Virtual Machine allocation helps to utilize hardware resources of hosts and leads to power efficiency in Data centers. In the past few years, various mechanisms were proposed to apply algorithms to achieve power efficiency. In this paper, we have proposed a genetic algorithm to optimize various parameters i.e. power consumption, response time, SLA violation and VM migrations. Our proposed hybrid algorithm provisions various VMs to hosts in a way that to minimize power consumption, while delivering approved Quality of Service. Results demonstrate that proposed HVMA algorithm helps to minimize power consumption and to optimize various performance parameters during live migrations in various environment conditions.


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Index Terms

Computer Science
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Keywords

Data center, Virtualization, VM Allocation, Power Consumption, Virtual Machines (VMs), HVMA