Research on a Virtual Machine Mode Transfer Method Supporting Energy Consumption Optimization

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Abstract—In traditional cloud resource optimization scheduling, excessive pursuit of service performance and system reliability has resulted in low utilization of system resources and severe energy dissipation. In this paper, transfer target of virtual machines was taken into account with respect to the above problem, including virtual machine mode transfer method, hot mode sleep selection method and cold mode wake-up selection method that support energy protection. In other words, the operating mode and hot mode virtual machines are converged in a cluster of physical machines of minimum amount to reduce energy consumption by shutting down idle physical machines; the cold mode virtual machines are converged in another cluster of physical machines of as few physical machines as possible to reduce energy consumption through collective sleep. The experimental results show that the energy optimization resource adjustment strategy in this paper reduces the energy consumption of the system while ensuring the required system performance and reliability.

Keywords—Virtual machine mode transfer, Hot mode sleep method, Cold mode wake-up method, Energy consumption optimization；

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