On Customization of Virtual Cluster and Its Performance Analysis

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Abstract

Cloud computing integrates virtualization technology and service-oriented architecture, forming a new computing and service model, to provide dynamic, scalable and virtualized resources. One of the main advantages is that businesses (or applications) can rapidly, economically and dynamically obtain its required IT resources based on the actual demand. In recent years, due to the significant increase of data-intensive applications, the hardware cost and energy consumption, have been regarded as one of the most important issues for the next generation cloud computing era. To this end, virtualization plays as key enabling technology towards cost optimization and energy efficient. This paper introduces a customizable virtual machine management system (CVMS), which aims to efficiently provide cloud platforms that are suitable to individuals and enterprises. Given that the virtual platform is customized system, its autonomy and performance will be further enhanced. To evaluate the performance of the proposed architecture, we have deployed various systems with different hardware, software and virtualization techniques. Experience and performance profiling obtained from the experiments can benefit users in selecting cloud systems that are suitable to their applications. For datacenter, effectiveness of different virtual machine deployment strategies were also reported to facilitate cloud providers managing their resources in an economic manner.

Keyword：Virtualization, virtual machine management, virtual cluster, cloud computing, customization, dynamic migration