

On Improvement of Cloud Virtual Machine Availability with Virtualization Fault Tolerance Mechanism

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Abstract

Virtualization is a common strategy to improve the existing computing resources, particularly in cloud computing field. Hadoop, one of Apache projects, is designed to scale up from single servers to thousands of machines, and each offer local computation and storage. However, how to guarantee stability and reliability have become great study topics. In this article, we use current open-source based on software and platform to reach our goal. For instance, Xen-Hypervisor virtualization technology, OpenNebula virtual machines management tool, and so on. After extending component capabilities, we developed a mechanism to support our idea and reached Hadoop High Availability which called Virtualization Fault Tolerance (VFT). We consider a practical problem that occurs frequently in our system, and the results in this paper also confirm the downtime time can be shortened if failure occurred. In this case, it is not only for the Hadoop applications, but also extended to more areas of clusterbased systems.

Keyword : High Availability; Cloud Computing; Virtualization;