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A Cloud Service Adaptive Framework Based on Reliable Resource Allocation

Dan Liu, Xin Sui, Li Li*, Zhengang Jiang, Huan Wang, Zetian Zhang, Yan Zeng

Changchun University of Science and Technology, College of Computer Science and Technology, 130022, China
CorrespondingAuthor:LiLi,email:ll@cust.edu.cn

Abstract: In the process of resource allocation in the cloud service system, the failure of the resource node could cause the failure of cloud service. It not only reduced the quality of service, but produced a lot of "extra" energy consumption. Based on this problem, the paper proposed a reliable resource supply scheme for cloud service, on the basis of reliable resource supply, constructed the cloud service adaptive frame Cloud_RRSSF. The framework can provide adaptive adjustment of cloud service according to specific conditions when the user supply or service abnormality occurs. The experimental results showed that the Cloud_RRSSF proposed in this paper can provide reliable resource supply, it can also efficiently reduce the consumption of the data center.

Keywords: Cloud Computing; Cloud Services; Resource Allocation; Cloud_RRSSF

1. Introduction

The rise and development of cloud computing is gradually changing the utilizing way of computer resources and services which has becoming a hotspot in the field of computer application. The massive and diverse cloud service resources (CSR) constitute a huge service system in cloud environment. And the cloud service system (CSS) can combine multiple single cloud services and generate composite services according to the needs of users and these services are flexible, elastic and extensible. As a formality of non-global service provision and model resource organization, the cloud services are aggregated on users' dynamic requirements and provision demand, these cloud services are on the basis of IT resource distribution and their resource supply relationships are shown in figure 1. The physical IT resources in CSS are virtualized to provide available and independent virtual resources for users. These same physical server-hosted vms would be independently assigned to the user who can make configuration on his demand.

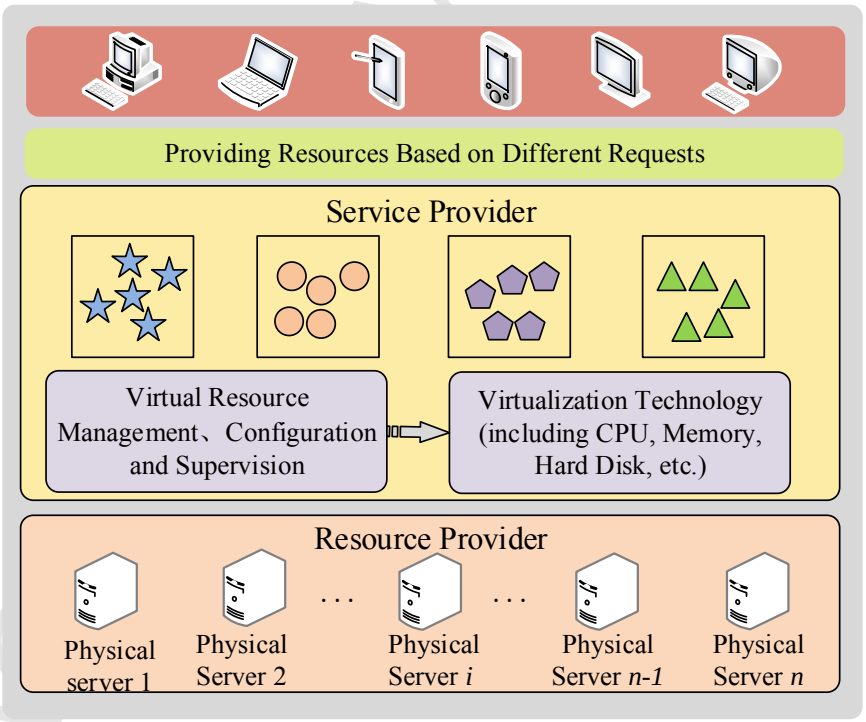

Fig 1. Service and resource supply

Users only acquire the cloud services and virtual resources and they needn't understand the specific distribution of resource nodes and the details of the virtual resources allocation. As the carrier of cloud service, the resource node is the guarantee of providing effective cloud services. All of the cloud services based on these nodes would be invalid when the failures in CSS's resource nodes occur. The reliability has

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