

Reliable Data Distribution Services in Cloud Computing

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Abstract: The cloud computing technologies have been rapidly risking in recent years due to its ready expansion, high reliability, low cost and other advantages. Therefore, in combination with the advantages of cloud computing in terms of technology and cost, the research on cloud-computing-assisted reliable data distribution technologies is a practical and challengeable topic. We will present a scenario for increasing the availability of services in cloud. We will mainly focus on classification of data with ensured security and making them available to the nearest data centers. This study aims on increasing the availability of services in cloud according to the classification and replication strategies that have been defined. The in-depth analysis on the characteristics of reliable data distribution and cloud computing and their relations, the innovative proposing of a model of forwarding structure of cloud-computing-assisted reliable data distribution, the research on the cloud-computing assisted data recovery and error control theory on the basis of aforementioned model together led to the introduction of a set of readily deployable, cloud-computer-assisted, and reliable data distribution service system.

Keywords: Reliable Data Distribution, Cloud Computing.

1. Introduction

The adoption of Cloud computing has been increasing steadily for some past few years in the technology market. By adopting cloud computing, IT (information technology) industries got benefited as cloud provides with less maintenance costs and infrastructure costs. Cloud computing, thus, may be defined as a multitenant environment that provides you with the resources and services abstracted from the underlying infrastructure. Services and resources are provided “on demand” and “at scale” in cloud environment.

Now a days cloud computing is one of the beneficial technology. It overcomes the difficulties of additional technologies like cluster, grid and distributed computing. Cloud computing provides the thousands of server as a rent and executes the application on most powerful system available anywhere and anytime. It deals with data storage application, infrastructure using service oriented technology. While the threat concept arises from the intruders and hackers, makes the information very much vulnerable to unauthenticated access and alterations. So they are focusing their attacks directly or indirectly through e- Government. Indirect Tampering of information such as finding loopholes in the TCP / IP model caused by the negative attacks. Intruders attacking the E

government system through amendments or changes and steal vital information Protect sharing data and use in real-time allows for owners of protected data to quickly and securely share real-time decision support and data real-time. The world is turning into one community-driven quickly through the amount of the increase that communication between civilizations. Information technology really has become an information society, in which information and communication technologies play a key and important role.

This paper designs and implements a A Reliable Data Distribution Solution Assisted by Cloud Computing, called RDDSACC. While designing RDDSACC, we consider an multicast infrastructure in combination with the advantages of cloud computing in terms of technology and cost for solve the problem. Theoretically, the main contributions of this paper are as follows: a) a new data forwarding model which is assisted by the cloud virtual machine and is open to the reliable data distribution is proposed. Methods for constructing the relevant structures are offered so as to overcome the structural obstacles in the forwarding of data and to provide the reliable data distribution with new room for performance improvement and abilities to solve relevant problems. According to our investigation, no researches and results based on the above ideas could be retrieved from the database. b) In lights of the possible data error or loss on the process of reliable data distribution, a technology for data recovery and error control based on the cloud-computing assistance is proposed. In combination with low costs for cloud computing and adjustment of resources on demand, this technology is capable of significantly improving the reliability of data distribution. Our research results show that the organic combination of cloud computing and reliable data distribution has the apparent innovative nature. c) In combination with the current practical status of cloud computing, a readily-deployable, could computing- assisted and reliable data distribution service system is innovatively proposed.

2. Types of cloud deployment models

They are four types of deployment models:

- *Public cloud* – The resources of public cloud are made available to the general public by the provider itself. Public clouds are those which are mostly stand-alone

clouds and are present off premises and run by third party companies or organizations. Providers they try to make their infrastructure as such so that they are able to provide cloud resources at a scale to support general public. Public cloud uses third party companies and their example is Amazon, Microsoft and Google.

- *Private cloud* – private cloud computing resources are only available to finite group of consumers, typically it may be an organization. The cloud infrastructure runs in the organization’s physical data center or it may be third party co-location. Private clouds are designed and managed by an IT department within an organization. It is built specifically to provide services internally to an organization. Private clouds may be in an existing data center. This model gives a high level of control over the cloud services and the cloud infrastructure.

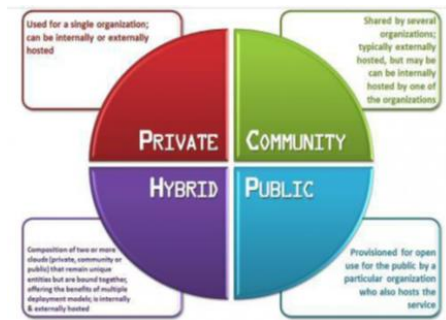


Fig. 1. Types of clouds

- *Hybrid* – Hybrid cloud may be defined as that cloud which comprise of both private and public cloud. For carrying out day to day operations it may consider as private cloud and we need to scale out it may be considered as the public cloud. Hybrid itself means it’s a combination of two and here it combines public and private. As in private cloud the number of client accessing the service will be less so it will be able to carry out the operations on daily basis. Thus, combines the property of both public and private and forms a hybrid cloud.
- *Software as service (SaaS)* - It provides a complete application which consists of various software’s and offered to the customer over internet. A single instance of the service runs on the cloud. On the other side, customer need not invest in software licenses as there is only single application that is to be managed and maintained. SaaS is delivered over the network on the basis of subscription and demand. Google and Microsoft are the providers of software as service in cloud computing.

3. System analysis

In this section, we first present an overview of RDDSACC system architecture and describe its core components. Subsequently, we explain how we design the structure of the data distribution of RDDSACC.

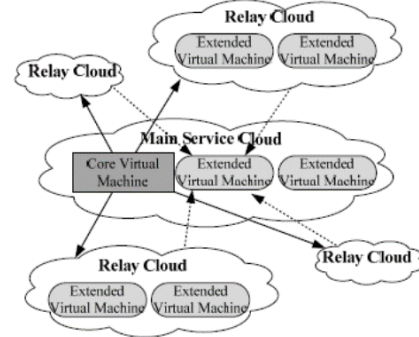


Fig. 2. The system architecture of RDDSACC

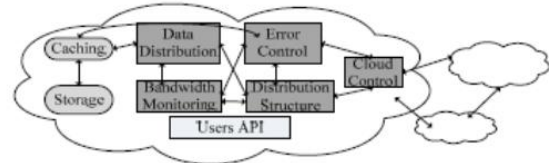


Fig. 3. The system architecture of RDDSACC

Fig. 3: As described by the research status that cloud computing provides data delivery service tolerable of data losing to some degree with assistance has been confirmed. In this paper, the openness of research approach to the completely reliable data distribution service has theoretically utilized the high reliability and dynamic distribution of cloud computing, and further optimizes the reliability index of group so as to construct the cloud-computing-assisted hierarchical forwarding recovery structure model and error-controlling methods. In the practice, this paper investigated the distribution of nodes of cloud computing in China. The figure tells that the cloud computing provides the reliable data distribution with wide-spreading data-forwarding-and-recovering nodes, which confirms the feasibility of the practice foundation of the project. Framework of application-layer multicast service model based on the cloud computing was offered. The proposed service model includes a main service cloud and several relay clouds, just as shown in Fig. 2. Main service cloud is the core of service while relay clouds are used for the bandwidth extension. It takes few minutes to create a virtual machine at the cloud computing platform and several seconds to destroy the virtual machine. Besides, the service programs could be embedded into the mirror image. Under the abovementioned circumstances, the completed cloud virtual machine could be put into usage immediately (or after the simple configuration). Therefore, the service entity in the proposed model mainly relies on the cloud virtual machine. The main service cloud includes a core virtual machine. The virtual machine in the cloud service (excluding the core virtual machine) and the virtual machine in the relay

cloud are generally called extended virtual machines. These virtual machines could be customized and their configurations modified according to their functions and the size of users. Generally, core virtual machine possesses great computing power and high external bandwidth while extended virtual machine has a high demand on the bandwidth for external service and doesn't ask too much for the computing power.

4. Conclusion

The cloud computing technologies have been rapidly rising in recent years due to its ready expansion, high reliability, low cost and other advantages. Therefore, in combination with the advantages of cloud computing in terms of technology and cost, the research on cloud computing assisted reliable data distribution technologies is a practical and challengeable topic. In this paper, the in-depth analysis on the characteristics of reliable data distribution and cloud computing and their relations, the innovative proposing of a model of forwarding structure of cloud-computing-assisted reliable data distribution, the research on the cloud-computing assisted data recovery and error control theory on the basis of aforementioned model together led to the introduction of a set of readily deployable, cloud-computer-assisted, and reliable data distribution service system.

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