

A CONFIDENTIALITY PROTECTION MODEL FOR SECURING DATA IN CLOUD COMPUTING

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Abstract:

Cloud computing is a key enabling technology for fast wide-area networks and it has more powerful server computers. Cloud operates on a high-performance virtualization. Cloud provides wide range of users like individuals, businesses and governments to provide virtual resources such as CPUs, memory, hard drives, bandwidth, platforms, and applications in an on-demand environment. Every day, the data is growing at a rapid rate in enterprises. To store data, a large number of processing units, hard drives, network infrastructure and other resources are required. Cloud satisfies this entire computational requirement to any enterprises by its infrastructure, but, at the same time, cloud is step-down by some of the security related issues. Maintaining confidentiality of data in the cloud is the most important security issue. This paper describes the cloud computing architecture, data management in cloud environment and data confidentiality issue in cloud. Cloud has many issues among that security is the top most issue. This paper opens the confidentiality problem in cloud data storage and also helps the researcher to kick start their research to address data confidentiality issues in the cloud environment.

Keywords: Cloud Computing; Data Confidentiality; Security Issues; Cloud Storage.

1. INTRODUCTION

This Cloud computing is an internet based computing. It is evolved from grid computing, utility computing, parallel computing, distributed computing and virtualization [1]. It has more powerful computing infrastructure with a pool of thousands of computers and servers [2]. It provides computational resources like server, storage, software, memory, network etc., as on-demand services [3]. It helps to reduce the computational infrastructure investment and maintenance cost of IT requisite for Small and Medium scale Enterprises (SME) [4]. It provides Everything (X) as a Service (XaaS) where „X“ denotes software, OS, server, hardware, storage, etc [5]. Cloud services are scaling up and down based on the users“ demand [6]. Cloud has multiple datacentres placed in different geographical locations in the world to provide reliable services to the users [7]. It provides unlimited service provisioning without any human intervention. Cloud automates the service provisioning by way of running a number of Application Programming Interface (API) in the cloud storage environment. The major feature of cloud computing is that it allows sharing and scalable deployment of services as needed by the users from any location. Cloud computing saves time and money during software up-gradation; cloud services are updated by the provider; so users are always working on the latest platform. Virtualization empowers the cloud as a scalable and elastic service environment. It enables a dynamic datacentre where servers provide a pool of resources that are connected as needed, where the relationship of applications to compute business demands. Cloud is mainly used for storing data in the remote cloud server.

2. RELATED WORK

The current cloud computing system mainly consists of three service models, Software as a Service (SaaS), which provides online software to users and it is controlled by CSPs. Platform as a Service (PaaS), which enables the web application developers to easily host their online web application on the cloud platforms and user only control the application whatever they are hosted in the cloud.

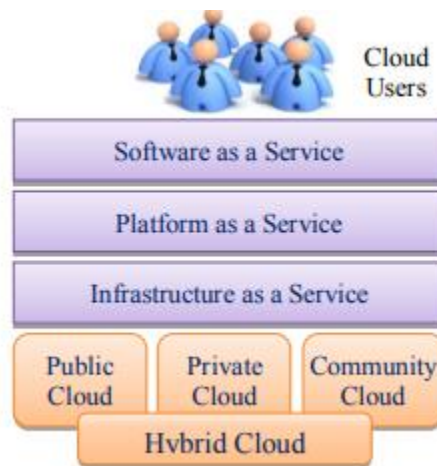


Fig.1. Cloud Architecture

Infrastructure as a Service (IaaS), provides computing infrastructure in virtualized manner based on the users demand. Broad Network Access, High-bandwidth communication links must be available to connect to the cloud services. Highbandwidth network communication provides access to a large pool of computing resources. Location-Independent and Resource Pooling, Computing resources are pooled to serve multiple users using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to users' demand. Applications require resources. However, these resources can be located anywhere in the geographic locations physically and assigned as virtual components whenever they are needed.

3. ANALYSIS

In DaaS model, enterprises store data through internet into the database that is managed by Data Base Administrators (DBA) of the Service providers. DBA sought to have full control over the database to perform responsibilities of DBA like database backup, database restore, and recovery of database in case it is crashed and also to achieve performance and tuning of the database. Data sent to the cloud are not stored in a single cloud storage server. It is replicated to different cloud data centers located in different places in the world. Data centers are controlled and maintained by different experts from CSPs. The current cloud computing system consists of three layers: software layer, platform layer and infrastructure layer. The software layer provides the interfaces for users to use CSPs' applications running on a cloud infrastructure. The platform layer provides the operating environment for the software to run using system resources. The infrastructure layer provides the hardware resources for computing, storage and networks. They are easily compromised the confidentiality of data stored in the cloud. So, maintaining confidentiality of data is more essential in cloud environment. Ensuring confidentiality helps all types of cloud users to securely store and maintain their data in the cloud. The vital important factor to be considered in cloud environment is securing

the host OS. If it can be accessed by the illegal users, the customer data would be compromised. The provider should deploy an OS that manages to identify where the security policy or configuration might be lacking and prevent future invasions.

CONCLUSION

The unique and attractive features of cloud computing have been fuelling the integration of cloud storage in the enterprises. The mixture of pay-as-you-go with on-demand elastic operation of cloud makes the transition of onpremises storage to off-premises storage. The cloud storage reduces the capital expenditure and operational expenditure of users, as the users delegate the responsibilities to the cloud environment. Regardless of its benefits, it has many security concerns and issues. Confidentiality is the main issue to be addressed by the researchers. There are many confidentiality issues described in the paper, researchers could take these issues for their research and address a proper solution for the issues in the cloud environment.

REFERENCES

- [1] Rajkumar Buyya, Chee Shin Yeo, Srikumar Venugopal, James Broberg and Ivona Brandic, "Cloud Computing and Emerging IT Platforms: Vision, Hype, and Reality for Delivering Computing as the 5th Utility", Elsevier Science Publishers, Volume 25, Issue 6, 2009, pp. 599-616.
- [2] Borko Furht, "Cloud Computing Fundamentals", Handbook of Cloud Computing, Chapter-1, Springer Science, Business Media, LLC, 2010, pp.1-17.
- [3] Peter Mell and Tim Grance, "The NIST Definition of Cloud Computing", Technical Report-800-145, Version 15, National Institute of Standards & Technology, Gaithersburg, MD, United States, 2011.
- [4] Ali Khajeh-Hosseini, Ian Sommerville and Ilango Sriram, "Research Challenges for Enterprise Cloud Computing", Proceedings of ACM Symposium on Cloud Computing, 2010, pp. 1-11.
- [5] Dawei Sun, Guiran Chang, Lina Sun and Xingwei Wang, "Surveying and Analyzing Security, Privacy and Trust Issues in Cloud Computing Environments", Elsevier Journal of Advanced in Control Engineering and Information Science, Procedia Engineering, 2011, pp. 2852-2856.