



RESEARCH ON THE SECURITY ISSUES OF CLOUD COMPUTING

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Abstract- Cloud fears largely stem from the perceived loss of control of sensitive data. Current control measures do not adequately address cloud computing's third-party data storage and processing needs. In approach's I present, the writers propose to extend control measures from the enterprise into the cloud using Trusted Computing and applied cryptographic techniques. These measures should alleviate much of today's fear of cloud computing, and, I believe, have the potential to provide demonstrable business intelligence advantages to cloud participation.

Keywords – Cloud Security, Cloud Computing.

1. INTRODUCTION

The cloud computing is a new computing model which comes from grid computing, distributed computing, parallel computing, virtualization technology, utility computing and other computer technologies and it has more advantage characters such as large-scale computation and data storage, virtualization, high expansibility, high reliability and low-price service. The security problem of cloud computing is very important and it can prevent the rapid development of cloud computing. This paper introduces some cloud computing systems and analyzes cloud computing security problem and its strategy according to the cloud computing concepts and characters. The data privacy and service availability in cloud computing are the key security problem. Single security method cannot solve the cloud computing security problem and many traditional and new technologies and strategies must be used together for protecting the total cloud computing system. The cloud computing becomes the host issue in industry and academia with the rapid development of computer hardware and software. The cloud computing is the result of many factors such as traditional computer technology and communication technology and business mode. It is based on the network and has the format of service for the consumer. The cloud computing system provides the service for the user and has the character of high scalability and reliability. The resource in the cloud system is transparent for the application and the user do not know the place of the resource. The users can access your applications and data from anywhere. Resources in cloud systems can be shared among many users. The cloud system could improve its capacity through adding more hardware to deal with the increased load effectively when the work load is growing. Cloud resources are provided as a service on an as needed basis. The cloud itself typically includes large numbers of commodity-grade servers, harnessed to deliver highly scalable and reliable on-demand services. The amount of resources provided in the cloud system for the users is increased when they need more and decrease when they need less. The resource can be the computing, storage and other specification service. The cloud computing is the important change of information industry and will make more impact on the development of information technology for the society. Most of cloud computing infrastructure currently consists of reliable services delivered through data center that are built on servers with different levels of virtualization technologies. The services are accessible anywhere in the world, with The Cloud appearing as a single point of access for all the computing needs of consumers. The cloud computing changed the style of software. The data can be stored in the cloud system and the user can use the data in any time and in anywhere. The data often stored in the private or personal system such as PC. The cloud computing can guarantee the data security and the user do not protect the data by himself again. So, the cloud computing must ensure the security of data stored in the cloud system. Many companies provide the cloud computing platform such as Google, IBM, Microsoft, Amazon, VMware and EMC. As the cloud computing system has more data which may be the private data of user, the data must not be destroyed or grabbed. Because the data in the cloud system may be important for the user, the hacker may pay more attention to get the data. The system must be protected more carefully than the traditional system. The company uses the cloud system and stores the data in it. The data can be seen by other people who are not person of company. The company must have confidence in the cloud computing if they want to store the private data in the cloud system. Governance and security are crucial to computing on the cloud, whether the cloud system is in firewall or not. The security of cloud computing is the key import problem in the development of cloud computing. The traditional security mechanism cannot protect the cloud system entirely. The cloud computing application is no boundaries and mobility and can lead many new security problems. The main security problems include data security, user data privacy protection, cloud computing platform stability and cloud computing administration.

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The produce of Cloud computing has its potential background. With development and popularity of the Internet network application technology, especially Web 2.0, the amount of Internet users and data grows rapidly which requests for higher data processing. In addition, the imbalance state occurs between the demand and utilization of network resources: some applications require large amounts of network resources, while many network resources have not been fully utilized. Thus, integration and optimization of resource is the inevitable trend of network development, and Cloud computing came into being. Cloud computing is a kind of computing paradigm and means service-oriented architecture. However, we should never overlook the fact that Cloud computing applications are accompanied by security risks, such as the risk of enterprise applications, data availability, and data integrity etc. Cloud computing security issues are critical issues in the study of, which affects the use and popularity of Cloud computing. [1]

2. CONCEPT AND CHARACTERISTICS OF CLOUD COMPUTING

Cloud computing is a kind of large-scale distributed economy-driven computing mode, which provides on-demand to outside users with the abstract, virtual, scalable, manageable computation, storage, platform and service resource pools by Internet. Therefore, it is not a specific technology, but a new computing model, which builds up on virtual technology, distributed computing, utility computing, network technology, web and software services technology, grid technology and others related technology developed during the last ten years. And it distributes the computing tasks into resource pools formed by many computers, so that all applications can obtain calculation capacity, storage space and a variety of software services according to need. In addition, it combines almost all computing forms of IT fields, such as distribution, grid, utility computing, on-demand computing, source; Web; P2P; Web2.0; SaaS etc. and it also synthesizes the skinny, fat and mobile client, which allows enterprises, business and service providers to access the cloud resources. Therefore, cloud computing has the following characteristics:

- 1) Large-scale: only the massive Cloud computing can achieve its service advantage, especially it's the ability of the service and scale economies of service.
- 2) Virtualization: it encapsulates each layer function to the abstract entities, and provides users with various levels of Cloud services with virtualization technology.
- 3) Reliability: Its development relies on Cloud services market, and the development of Cloud service depends on its service reliability.
- 4) Scalability: The size of Cloud can be dynamically expanded to satisfy with the scale growth need of the application and the users. At the same time, Cloud services also support the user application in cloud scalability.
- 5) Dynamic configuration: It can be customized on-demand and supply on-demand.
- 6) Economic: It relies on scale economies, which has the low-cost advantage. [2]

3. ARCHITECTURE OF CLOUD COMPUTING

Table 1 describes the architecture of Cloud computing. It is divided into five levels: physical layer, core layer, resource framework layer, development platform layer, application layer. Among them, five levels are corresponding to seven types of services, and each service can provide services for the user by UI interfaces of Web Services, and all services have the reliable, secure, scalable, on-demand services, economic and other characteristics.

Table 1. The architecture of Cloud Computing

Structure	Service form	Function
Application layer	SaaS (Software as a Service)	To develop various applications in the development platform and provide all kinds of distributed application services.
Development platform layer	PaaS (Platform as a Service)	To build development platform in the resource structure layer and provide all kinds of distributed application services.
Resource framework layer	IaaS (Infrastructure as a Service)	To build computing resources architecture in the inner nuclear layer and provide the distributed computing services.
	DaaS (Data-Storage as a Service)	To build storage resource architecture in the inner nuclear layer and provide the distributed storage services.
	CaaS (Communication as a Service)	To build communication resource architecture in the inner nuclear layer and provide the distributed communication services based on LAN or Internet.

4. CONCLUSION

Cloud computing is the most popular notion in IT today; even an academic report [6] from UC Berkeley says, "Cloud Computing is likely to have the same impact on software that foundries have had on the hardware industry." They go on to recommend that "developers would be wise to design their next generation of systems to be deployed into Cloud Computing". While many of the predictions may be cloud hype, I believe the new IT procurement model offered by cloud computing is here to stay. Whether adoption becomes as prevalent and deep as some forecast will depend largely on overcoming fears of the cloud.

5. REFERENCES

- [1] https://en.wikipedia.org/wiki/Cloud_computing
- [2] https://en.wikipedia.org/wiki/Cloud_computing_security