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Based on cloud computing technology of network security management system for the enterprise to set up a research

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ABSTRACT

cloud computing with virtualization technology, through the network platform to provide software, platforms and other services, in the next generation network technology, cloud computing technology will become the core technology; it provides reliable information storage, security, has strong ability of data processing and fast Internet service. This paper is important to explore the cloud of the construction of the enterprise network security management system, improve the level of enterprise management, accelerate the development of enterprises.

KEYWORDS

Cloud computing; Enterprise networks; Safety management; Build.

INTRODUCTION

In recent years, along with the rapid development of science and technology and network information technologies, cloud computing is applied in all fields. Information network technology has greater convenience for people's production and life, but also brings the problem of information security. Enterprise network security problem increasingly highlight, cloud computing as a new type of core technology, is widely used in all walks of life. Application of the cloud computing in the enterprise network security technology can realize the network of efficient and fast operation, and the management of the business enterprise to provide convenient, has a broad application prospect.

AN OVERVIEW OF CLOUD COMPUTING

In 2007, the cloud computing is the new and at present, the definition of it is still debated. Sum up, cloud computing refers to a computing model, through the network, in the form of services to provide customers with IT resources, data, applications, so that users use. For cloud computing, it is the development of network computing, distributed processing and the data in a distributed computer, integrating resources, and realize work together. Users connected to the Internet, using the cloud computing technology, can be accurately, effectively and quickly obtain large amounts of digital information and data. Cloud computing with computing and programming technology, data storage technology, the virtual machine technology, data processing technology, etc.

Compared with other technologies, cloud computing technology specific characteristics, mainly including: quick start, powerful computing and storage capacity, high security, scalability, etc. [1]. The use of cloud computing technology has low cost, and its wide application range, efficient operation, widely used in various enterprises. Cloud computing will data distribution on the computer, provides the powerful computation ability for computers, computer can accomplish complex, large computing tasks. At the same time, in the cloud computing model, the storage of data, make it easier to monitor the safety of the data. Based on cloud model in the data center, managers to implement the unified management of data, and the reasonable allocation of resources, the deployment of software, the system run in real time monitoring and control the security, to ensure the data security. In addition, the hardware, software and IT resources can be virtualization in the cloud computing platform, unified management, the dynamic extension of virtualization level, the implementation resources, the expansion of the hard and software. Cloud computing technology also has the characteristics of sustainability, virtualization, have the characteristics of sustainability, can make the system of the whole consumption reduced.

The types of cloud computing can be divided into the public cloud, community cloud, a hybrid cloud and private clouds. The public cloud is mainly used for public service platform for the cloud, which provide the public with cloud storage and cloud computing services; Community cloud is the use of cloud services in a particular area, thus many affiliates provided by the cloud services; A hybrid cloud is two or more of cloud; Private cloud is refers to the internal use of cloud services, suitable for private network is used to structure. Are shown in Figure 1 below:

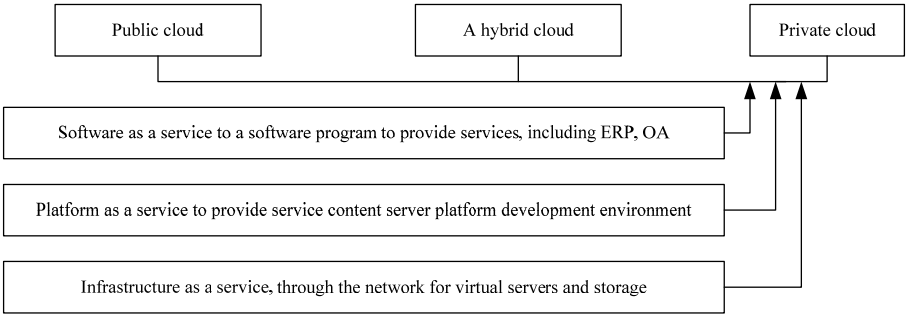

Figure 1 : The standard of cloud computing

THE STANDARD OF CLASSIFICATION OF CLOUD COMPUTING TECHNOLOGY

In recent years, with the rapid development of science and technology, enterprise management system and platform construction industry applications have gradually with the large-scale, multi-functional, high efficiency, the direction of high performance. In order to ensure the reasonable operation of enterprise network security management system, scheduling, maintenance, make the enterprise internal network more complete, cloud computing technology in the application of enterprise network security management is indispensable. Based on the application of cloud computing technology that integrates data information resources, it can ensure the safety of the enterprise safety management system data[2].

The Cloud Computing System Implementation.

As a collection of multiple service system, main power cloud layers include: physical storage layer, basic management, high-level interface to access layer, application layer, the system architecture is shown in Figure 2.

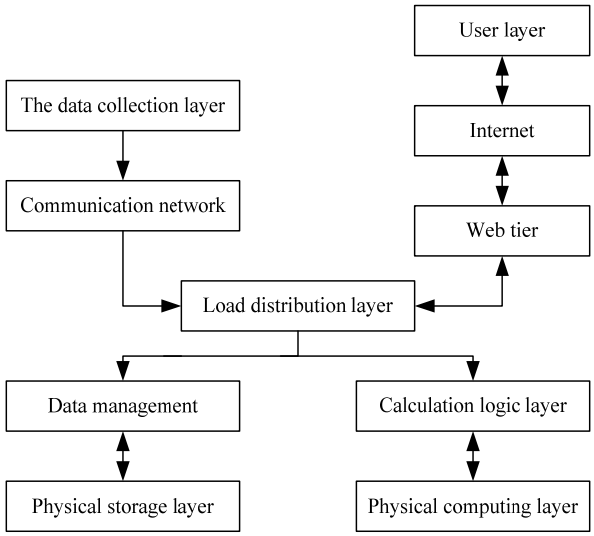

Figure 2 : Enterprise network security management composition of the picture

Cloud computing in the enterprise network security management system, the physical storage layer is the foundation of the network storage and equipment, distribution in different location with different cloud physical device, for this different equipment, mainly through the Intranet connection. For basic management, the use of cluster, the distributed system, make the cloud storage devices to work together, in this level, are classified, data backup content[3]. Advanced access layer mainly includes basic and advanced application of the management system, through the efficient operation of the software platform to implement security management software. In the enterprise network security in the cloud system, the most flexible part is the application of the interface layer, system operation and management of the institutions of information and data acquisition are realized by application of the interface layer.

Cloud Computing, the Information Integration

Information sharing of enterprise network security management system rely on cloud computing technology, the use of common information model, the standard component interface, make different enterprise network of the exchange and sharing data in the database. At the same time, through the automatic analysis and separation technology, the system of the resources of the clutter in the fusion, making it a smaller subtasks. For the integration of resources is through the enterprise network security management system in an information system will request sent to the cloud, when it received the request, the data request to send to the enterprise network security management of public information platform, according to the request, the system of resource storage, calculation[4]. Through analysis, calculation of cloud resources, and then calculates the point to return to the information structure, realize the integration of resources.

Resource Management and Scheduling

In order to realize the reasonable application of cloud computing technology, we need to strengthen the management of resources and scheduling. Its specific performance as follows: first, in order to ensure the safety of enterprise network security management system, reliable operation, the need for each use of cloud computing technology integrating computer equipment, and the user permissions, user IP address, user terminal level of integration. Secondly, describe the computer resources, and the Cache, MFLOPS data structure was described. Then, realize the cloud within any terminal access, using cloud scheduling technology, effective management of cloud resources, realize the system resources reasonable, scientific sorting, convenient access, utilization of resources. The application of enterprise network security management system and cloud computing has quick computing speed, high safety and reliability, wide application range. In order to make the enterprise network security management system run efficiently, cloud computing technology is to specifications, technical standards shall adopt the data model, realize the stability of the data exchange.

The Key Technology of Cloud Computing.

(1)Data security technology. Cloud computing technology was applied to enterprise network management system, the data of the distributed data storage security issues, and security issues in the system. In system operation, to ensure the safety of the data need to carefully study the data management, user management, resources, rights management, such as technology, to ensure the security of the application data, integrity. In the operation of the system, therefore, cloud computing technology should strengthen the confidentiality of data, improve the security of the data, through data encryption technology. For example, the use of Hawaii technologies IaaS layer resource management software, the data security problem to solve. In addition, data security technology for improvement of the user data in the system safety, ensure the safety of the

user data sharing, which guarantees the data obtaining[5]. When the application transfer data, the data is sent to the protocol stack one by one into the network through each layer until which is treated as a string of bit streams, each layer must increase header information for received data (sometimes increase trailer information), the process shown in Figure 3.

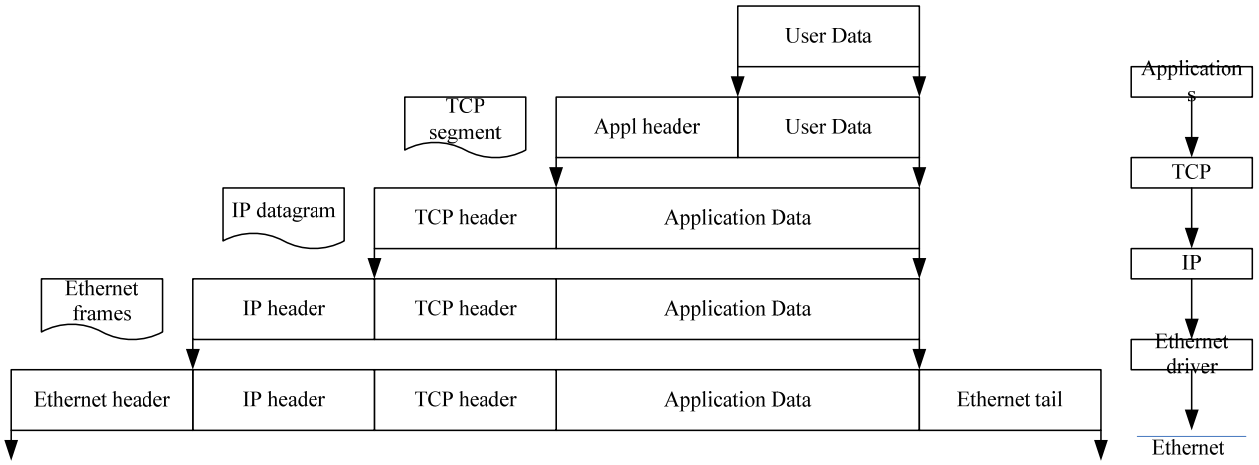

Figure 3 : Encapsulation process when data entering the protocol stack

TCP protocol works in the transport layer, PI protocol in the network layer, and frame work in the data link layer. Data unit is transmitted in LAN is "frame." And "package" is included in the "frame". Visibility, a number of key information and operations of LAN, are in the data link layer. It can be seen, the e-mail sent by application, during the sending process in the network, the data and the operation first through the packaging process shown in Figure 3, encapsulated in LAN transmission of "frames", and then sent over the network to develop PI address host computer. Therefore, in order to monitor e-mail, you must enable access to information kernel-level data link layer, ie, packet capture technology.

(2) Dynamic task scheduling technology. Transient and steady-state computing tasks such as diversity exists in the enterprise network management system, due to the calculation time is uncertain, and calculate the dependencies between, thus make computing tasks scheduling more complicated. Therefore, in order to improve the operation efficiency of enterprise network management system, the system of cloud computing center, through the task to the combination of early allocation and dynamic distribution, and use the distributed file with a combination of local documents, in order to improve resource utilization, and reduce the loss of time data transmission, scheduling management.

(3) the integrated data management technology. In multistage scheduling system, adopting the integrated data management technology and the model. With the integrated data management technology to realize the unification of the data model, reducing to convert the data loss caused by the different model and error, the data are calculated by use of a unified standard. In the current data model, generally USES EICCIM international standards, and its E data exchange format specification, for calculating the input data, can use BPA and PSASP compatible mode.

THE APPLICATION OF CLOUD COMPUTING TECHNOLOGY IN ENTERPRISE NETWORK SECURITY MANAGEMENT SYSTEM

Cloud computing application in the enterprise network security management system can be divided into three levels, namely: the infrastructure layer, platform, service and software service layer. The infrastructure layer is the application of object oriented, platform service level to the service and software service level to the user. At each level of detail can be according to the functional requirements. And according to the logical order, can be divided into data acquisition in the infrastructure layer and its transformation, and depending on the hardware, it can be divided into the user terminal device, storage devices and the server, etc. In addition, the information management of cloud computing is mostly through virtualization technology to realize the resources visualization, and pass the data to the service platform. According to the design and development of related processes at the same time, the platform service layer can be divided into development, test and operation. Each layer should be in accordance with the relevant design for development.

Monitoring client software installed and played in a particular computer, by using the removable disk to control the sub-module mainly. Computer networking monitoring sub-modules and three modules of virtual disk management sub-module make the realization of a removable disk. Use network control, and computer and transparently encrypt and decrypt data within mobile disc where the virtual disk is a virtual disk device similarly, but not a real disk, but same as operations can be like a disk, the virtual disk can be formatted in the sub-region to create, delete, modify various documents. The system control end is used by safety management departments, which mainly to provide strategic sent removable disk authentication management. Networking policy settings are shown in Figure 4.

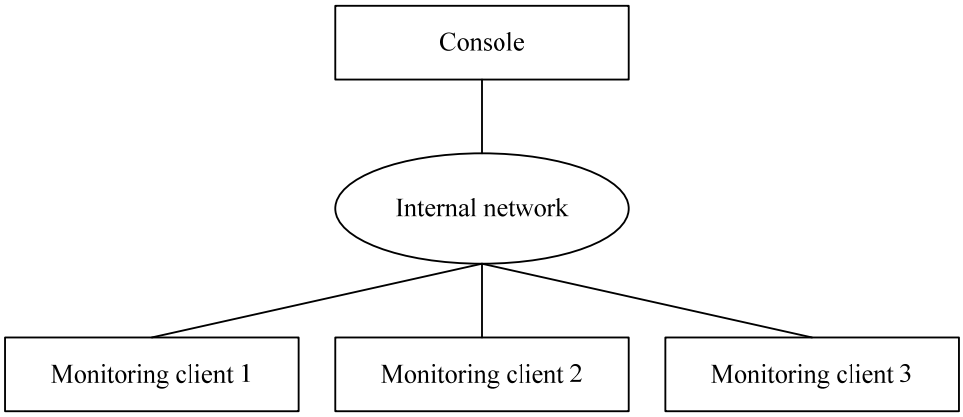

Figure 4 : Deployment diagram of system

Such as: When establishing an enterprise network security management system, first of all, to deal with this type of business enterprise to conduct a comprehensive investigation and analysis and given classification, to see what kind suitable for cloud classification. If the enterprise network security management system appropriate to adopt private cloud computing type, you can use private cloud management system. Then, companies should be based on actual application requirements, need to be equipped enough server equipment. Again, for the internal IT resources, data centers to be integrated, and choose a more appropriate approach to virtualization, storage devices and server virtualization consolidation given the already integrated virtualization manager to give management, and upload it to the cloud computing platform into[6]. Finally, in the software service layer, should according to the practical application of object and its demand, in turn, the user terminal to provide different software, and set up the corresponding operating system. When companies adopt cloud computing technology, should configure software infrastructure or function, etc., and finally to the service provider to provide cost, can effectively reduce the computational cost.

Monitoring client will record irregularities at run time and sent to the management client at any time, management monitoring client-side behavior change strategies based on appropriate feedback to monitor violations and end "behavioral strategies here include: networking strategies and monitoring client removable disk use strategy their relationship as shown in Figure 5.

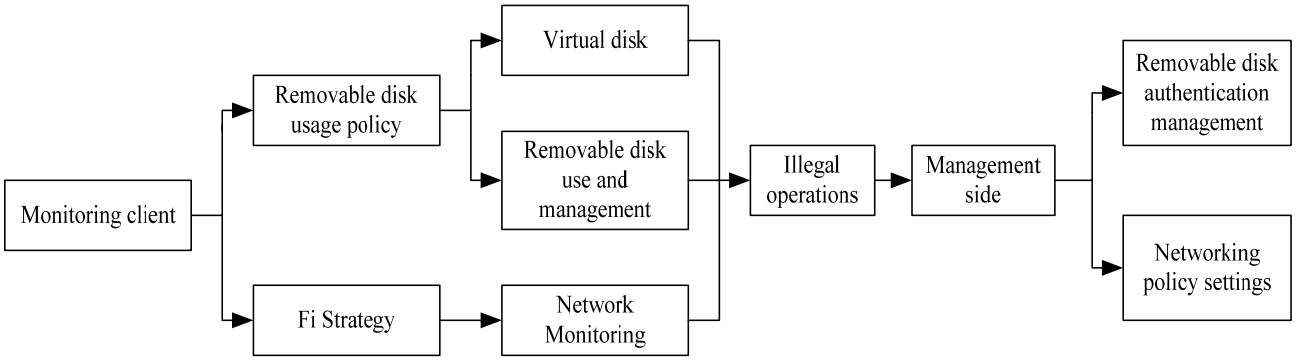

Figure 5 : Relationship between monitoring client and client management

Information management system for cloud computing, which greatly influenced the defects which have privacy protection is not enough, the larger is the service provider and enjoy public resources owned by the arbitrary data, how to ensure that the advantages of resource sharing, achieve the aim to protect the privacy of users, is the need to solve the problem. For the current enterprise network security management system users, require the system has good portability, and can be used in different user platform.

THE CONCLUSION

To sum up, cloud computing is the current popular new technology, has been widely used in all walks of life, and have achieved good results. For enterprise network security management is no exception, also can use cloud computing technology, can improve the management efficiency and quality. This paper applied cloud computing technology to enterprise network security management, to improve the level of information security management, promote enterprise's sustainable development.

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