

Discussion of Practical Application of Virtualization Technology in Computer System

Wang Sanchao^a, Wang Wenqian^b

Henan Vocational University of Science and Technology, Zhoukou, Henan, 466000, China
^awang3chao@163.com, ^bmailwwq@163.com

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Abstract: In recent years, with the gradual development of information technology, most industries in China began to pay attention to the advantages of information technology, especially in the enterprise resource management and business model management, which can bring advanced management ideas and models for enterprises. Traditional information technology is no longer satisfactory, in this case, the application of virtual technology and computer system can greatly improve the computer productivity and system stability. In the era of highly developed information technology, the innovation of information system and the use of virtualization electronic technology to realize the urgency of effective integration ability to solve some common problems in computer system to improve the working quality of computer system, with the development of computer technology, virtualization technology application in computer system will gradually increase, the role of the enterprise will be more obvious.

1. Introduction

Virtualization technology began in 2000 and aims to support advanced software and thus provide users with more software application environments. With the development of technology, the popularization of personal computer and the development of operating system functions, the operating system of personal computer is more and more powerful, and the security of computer is less and less insecure. Researchers solve computer problems through virtualization. Virtualization technology improves the security of different computer systems by isolating their programs on the virtual machine and running them on the virtual machine.

2. The importance of applying virtualization in a computer system

As computer systems play an increasing role in the real world and computers are running faster and faster, innovation in the field of information systems is becoming more and more urgent, and the use and management of information systems is becoming more and more difficult due to their complexity, which is especially important adopting virtualization technologies will greatly reduce computer optimization time and procedures, simplify the development of applications and software, greatly improve portability of computer systems and enable their development to multi-layered,

multi-faceted and multiple architectures.[1] By applying virtualization technology to computer systems, you can use and manage computer systems efficiently, and leverage the potential of computer systems to deploy multiple application environments. With the development of operating system functions and the improvement of computer hardware system technology, the virtualization technology has been enhanced. Due to the large number of computer systems, hardware costs and management challenges increase, as well as security and reliability problems increase, and virtualization technology can help solve computer problems.

3. Problems related to applying virtualization technology to high-power consumption computers

3.1 Cost issues

Traditional server virtualization requires additional costs. The preferred operating mode places the guest operating system in a running virtual machine, thereby increasing the time required to access the device, unlike the requirements of high-performance computers. Therefore, the use of virtualization techniques on high-performance computers requires optimizing the virtual machine design for true system optimization.

3.2 Virtual Machine Collaboration

High-performance computing systems use more complex virtualization techniques than traditional servers without just ignoring the underlying hardware devices of the server. Multidimensional heterogeneous machines particularly need to create virtual machines on multiple nodes. Therefore, to use virtualization technology on high-performance computers, multiple virtual machines need to work together to form a large interconnect system. This also requires relevant researchers to explore the synergistic mechanism.

3.3 Virtual memory problems

A single deployment of thousands of virtual memory can support the development of computer applications, much different from traditional computers. How to dynamically deploy such a large amount of virtual memory, how to start virtual memory faster at a lower cost, and how to manage virtual memory are all issues that high-performance computers must address.

3.4 System compatibility issues

Using virtualization technology, the hardware system of high-performance computers is abstract, thus changing the organization of resources that computer users can access, and making them unable to adapt to the requirements of virtualization, which requires researchers to develop programming models such as compilers, parallel functions, etc.

4. The practical application of virtualization in computer systems

4.1 Computer storage applications

Applying virtualization technology to a computer system means storage virtualization. Because the storage capacity of the existing computer equipment cannot meet the growing computer storage needs of the user, the storage technology can be used to increase the storage capacity of the computer equipment. According to the topology of virtualized storage technology, it can be divided

into two types: asymmetry and symmetry. Deploying virtualized storage, scalability, easy management, security, etc., these factors must be considered and system costs to ensure data storage capacity. [2] The various components of the virtualization storage system complement and interact with each other to form a complete system. At present, the development of virtualized storage systems is relatively good, but further research is needed to improve the efficiency. To improve the overall advantages of virtualized storage systems, we must consider how to optimize the drivers of virtualized storage systems and improve the correlation between them.

4.2 Application in educational management

In teaching, many colleges and universities have set up computer passwords to protect equipment, so many network resources have not been fully utilized and teachers in class, where students only learn knowledge by watching and listening, not practical practice. In this way, the students do not really understand the meaning and are deeply impressed. In order to solve this contradiction, virtualization technology is gradually applied to the computer teaching practice in colleges and universities, virtualization technology can become the students practice auxiliary tools, not only use virtualization to overcome the lack of experimental equipment in school and university computer teaching, but using the introduction of virtualization technology in school as a supplementary learning tool of computer practice, and used in the existing computer equipment, students can have the opportunity to take over the operation.

4.3 Enterprise-class virtual desktop applications

In the popularization of modern information technology, enterprises and institutions gradually regard online office as a necessary condition for work. For government agencies, need to deal with a variety of items, the process is very complex, the implementation of virtual computing technology makes public time flexible unified platform of multimodal transport, but also allows the electronic process, thus greatly reduce the public time processing time and improve the efficiency for enterprises, customized software services can meet their needs, computer virtualization technology can improve enterprise productivity, optimize different levels of workflow, at the same time provide more reliable data processing function.

4.4 Application of network virtualization technology in cloud computing

The cloud computing infrastructure mainly includes servers, networks, and storage. The network can be divided into three stages: data center network, data center network, and cloud access network. In the cloud computing network layer, the connected servers, storage and firewalls, load balancing, application servers, IDS / IPS, etc., are the data center LAN and virtual device networks in your environment. After the computer host is virtualized, multiple virtual network switching networks are created between the virtual machines, while distributing the virtual switch, virtual gateway, and virtualization. Network connections between data center networks occur mainly between data centers and thus can be switched between data centers. The data center network is the core of the cloud computing platform, which mainly uses virtualization technology to efficiently integrate specific physical resources and improve the maintainability. Then, dynamic language allocation and planning methods are adopted to improve resource utilization and service reliability, while reducing operating costs. Since traditional data center networks no longer meet today's needs, technological innovations are needed to address inconsistent interfaces and data formats between heterogeneous operating systems and leading software environments, and servers. If you use cloud computing, you must focus on large traffic, backup, and virtual machine migration (in this case, unified

communication) in the data center.

4.5 Enterprise computer virtualization applications

To reduce costs, many organizations have used computer systems for many years, and as the life of computers increases, both computer hardware and hardware devices have become old and unable to track software updates. Other old systems are not compatible with new hardware and software, which seriously affects the efficiency of staff. To extend the computer life and optimize its performance, you can use server virtualization to simulate the operating environment of old servers.[3] Most organizations use stand-alone servers, and if the server fails, the entire server stops running, seriously affecting business operations. While server failures rarely occur, the system requires regular maintenance and updates, which can cause downtime and business disruption. After implementing the virtualization technology, the enterprise separates its core servers from other servers. Even if the basic server fails, it will not affect the operation of other servers. In addition, managers can migrate the core server activities to other platforms (system platforms) to ensure the stability of the business.

4.6 The development of virtualization technology

Virtualization technology helps the activity of all industries, but also exposes some problems that hinder the development of technology, and due to the various types of networked computers, it increases equipment consumption, which is not conducive to cost control, and thus the stability of computers. Low server data utilization is a major problem in virtualized applications. China's information technology industry has developed rapidly, but it has not received enough attention in the past, leading to the acquisition of basic skills in the early stage of research. As the problem deepens, problems related to the direction of development are emerging. To recognize the shortage of talents, enterprises must recognize the importance of talent training, provide comprehensive theoretical and practical training, and create favorable conditions for the development of virtualization technology. In order to make full use of the progress of information technology, we must actively change the traditional development ideas and accelerate the development of information technology virtualization technology. The development of virtualization technology needs to recognize the advantages of technology and create a large-scale virtualization technology application environment to ensure the development of virtualization technology.

5. Conclusion

Today, virtualization technology has become a mature technology in the computer industry, which has a huge impact on reducing computer costs and improving efficiency. It has significant advantages in flexibility, reliability, security and portability. Virtualization enables virtualization to become an advantage of computer applications, benefiting all industries.

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