

Design of High Performance Computer Management and Application Network Platform Based on Working Process

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Abstract: With the rapid development and wide application of computer network, the computer network management system and its security technology are constantly developing and growing. The management and security technology of network system is very complicated, and it can't meet the growing social needs by using artificial methods. In today's information age, computer network has penetrated into every aspect of our lives more and more, and the importance of computer network management system and its security technology analysis is also reflected. High-performance computing and its application level have become important indicators of national scientific and technological strength. In order to improve the usability of high-performance computing environment and lower the use threshold, this paper proposes a general scientific computing application platform construction scheme based on high-performance computing environment, aiming at providing users with more convenient, experience-friendly, simple and efficient scientific computing services.

1. Introduction

Computer technology is widely used in people's social production and life. The application of this technology has greatly changed people's way of life and work [1]. After a long period of development, computer network management system has made considerable achievements, but in-depth investigation found that there are still some shortcomings [2]. The computer network management system has been widely used in hospitals, libraries, electric power enterprises and other industries, especially for the service enterprises with scattered work and many departments, they are facing more and more pressure in the daily information management work, and also bring a certain lag to the information management [3]. In modern scientific research, with the substantial increase in the amount of calculation of scientific problems in various scientific fields, the data scale shows an order of magnitude growth, high-performance computing technology has been more and more widely used, and a large number of computing needs and tasks need to be completed with the help of supercomputer and computing environment [4]. With the rapid development and wide application of computer network, computer network management system, together with its security technology, is also growing. The management and security technology of network system is very complex, the simple use of artificial methods can not meet the growing social needs [5].

With the new generation of high-performance computer system officially put into operation, the system resource usage and workload are increasing day by day, and the demand for resource statistics and query is becoming increasingly complex. The existing resource management system has exposed many problems that need to be improved [6]. Social form has experienced the evolution from agricultural society to industrial society. At present, human society has stepped into the information society marked by computer and network [7]. The development of high-performance computer systems, which are highly integrated products of these two

technologies and also represent the highest achievements of scientific and technological development, has attracted more and more attention from all over the world [8]. In order to improve the usability of high-performance computing environment and reduce the use threshold, this paper proposes a construction scheme of computer management and application network platform based on high-performance computing environment, aiming to provide users with more convenient, experience friendly, simple and efficient scientific computing services.

2. Analysis of the construction of computer network management system

In the construction of computer network management system, we should start from the systematicness and totality, apply mathematical methods to analyze and evaluate each part of the system, and finally achieve the effect of the system work. Generally speaking, the computer network management system can be divided into two parts: centralized and distributed. The centralized management structure can be divided into two parts: management platform and management application. In the process of building computer management system, we should realize the characteristics of hierarchy, integrity and relevance, so as to achieve the goal of scientific and optimal management. Computer network management system in the process of building to have the concept of integrity, computer network management system is a digital information system, it through information technology will be scattered in different geographical locations of different carriers of information resources concentrated in the computer management system. Firewall technology as a kind of security technology, most of the enterprises are through the setting of this technology to achieve the maintenance of enterprise internal information emergency data security. Enterprises can selectively accept the access requests from the network, and can also make the response of forbidding, rejecting or allowing or receiving the access requests from the Internet according to the specific enterprise requirements.

To strengthen the hierarchical and good relevance of computer network management system is to ensure the connection between the internal information of the system, so as to achieve the connection function of clear hierarchy, mutual connection and interlocking. Encryption technology can encrypt the contents of electronic documents or data repositories in the process of dissemination, so that malicious elements can not illegally obtain the contents of the documents. At present, the most popular encryption technology is double key code. The sender and the receiver hold different keys respectively, which makes it twice as difficult for the third party to break the secret [9]. Therefore, it can be said that encryption technology largely avoids the content leakage of electronic documents due to its own characteristics. In the construction process of computer management system, we should choose the appropriate computer technology according to the specific human, financial and material resources, and also consider the characteristics and practicability of the industry. Otherwise, if the advanced network management system does not meet the professional requirements, it will be difficult to give full play to the functions and functions of the system. In the process of building the computer network management system, we should pay attention to its long-term characteristics, and maintain the balance between practicality and advanced nature. Using the management platform to collect and sort out a large number of information data, in the management application, it is to conduct deep processing of the collected and sorted information data, so as to provide an important basis for decision-making.

3. Improved design of high performance computer resource management system

In the process of modern information management, the computer has played an important role in

the process from information control to information search. Different computing software has different functions and computing methods, and the running parameters of applications and the types and quantities of input and output files are different. Therefore, it is necessary to abstract and encapsulate applications and computing tasks in a unified way, so that all applications and computing tasks can support unified operation. Computer management system has fully realized its value in the process of information management. The more common form in the application of computer management system is the website and digitalization of information, which greatly facilitates people's information search and utilization. Through the establishment of the corresponding information website, the service mode and means have been changed [10]. Computer network management protocol is the bridge between administrators and computer network management. The important responsibility of the network management protocol is to explain many instructions sent by administrators to devices in the implementation of network management, and to build a system that can communicate with each other and issue instructions. Because the output files of different applications are different, the result data to be displayed and utilized are different, and the visualization and post-processing of the result data are quite different, so it is necessary to satisfy the customized input/output and calculation result display of different applications on the basis of unity and abstraction, and meet other subsequent processing, such as data visualization. The hierarchical information security organization is shown in Figure 1.

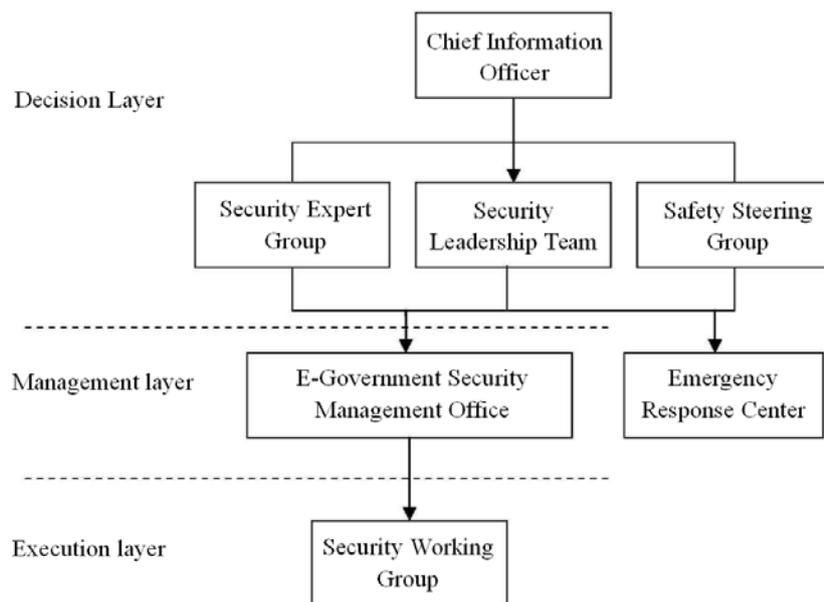


Figure 1 Hierarchical information security organization

In the application of computer management system, the accuracy of information data is a common problem, which leads to the difficulty of information retrieval in the process of information management and utilization. For example, in the process of information input, the input information is incomplete due to the negligence of the staff, or the input information is duplicated, which makes the system unable to store and retrieve effectively, resulting in the loss of information. Administrator is an indispensable and important content in computer network management system, which is the core of computer network management system and occupies a very important position. Administrators can not only directly manage computer network systems, but also issue numerous instructions and supervise the operation of instructions, which is the main structure of computer network management system [11]. There are a large number of functions in the platform that are commonly used by all computing applications, such as communication with high-performance

computing environment and related operations, file operations such as compression and decompression, email notification and task execution status monitoring, etc.

In the application process of the system, it is necessary to ensure the standardization of information input and output formats, facilitate quick and accurate information query and statistics, and automatically generate index files and back up information files. The top-level module architecture of the network flow feature extraction system is shown in Figure 2.

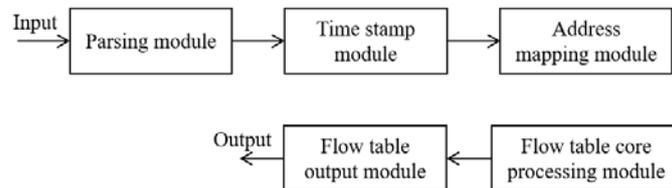


Figure 2 Top-level module architecture of network flow feature extraction system

In the process of using the system, the protection function of the system should be improved to reduce the occurrence of system collapse caused by user misoperation. With the setting of regional managers, the function realization of computer network management system is supported by many managers, and at the same time, it can coordinate the contradictory relationship between global network management and many regional managers. The high-performance computer network management system adopts a tree-like management structure, that is, hierarchical management, in which information and data are exchanged between the upper and lower managers. When the computer network management information base divides information resources, it will be stored in different managers according to the types and attributes of management information resources, which together constitute the computer network management information base. It contains not only equipment safety information, but also equipment configuration, network management data and many other information. When applications and services are based on good user experience, the platform will be really convenient for users, attract more users and promote the application and development of high-performance computing.

4. Conclusions

Since its birth and development, computer technology has made great changes in people's lives and work, and made outstanding contributions to promoting social and economic development. With the rapid development of information technology, the selectivity of computer network management system in the process of construction is getting bigger and bigger, and the development and implementation of management system is getting easier and easier. The high-performance computer network management system adopts a tree-like management structure, that is, hierarchical management, in which information and data are exchanged between the upper and lower managers. In the process of building a management system, the advancement of the system is often proportional to the investment. Therefore, in the process of building and applying the system, attention should be paid to the flexibility of the system, and it is necessary to maintain and change it in time. In the process of building the computer network management system, we should pay attention to its long-term characteristics and keep the balance between practicality and advancement. The management platform is used to collect and collate many information data, and in the management application, the collected and collated information data are deeply processed, thus providing an important basis for decision-making.

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