Research on Application Technology of Computer Communication and Network Development Based on Data Mining Technology

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Abstract. With the development of computer technology and internet communication, every country in the world began to implement information management, and applied technical means to upgrade the development scale of social industry, so as to promote the development of national economy in an all-round way. Computers break the limitation of people's spatial communication, can give full play to the role of network resource sharing, and contribute to the high-speed processing of information. Scientific and rational application of computers can quickly transmit data, which plays an important role in promoting China's economic development. With the advent of the Internet era, the rapid development of information technology has provided convenience for people's lives and greatly improved their comprehensive national strength. With the development of digital science, computers and networks are widely used. The development of computer communication and network has been widely used in various fields. From the perspective of technology research and development, this paper explores and analyzes the application and function coordination of computer and network based on data mining technology.

Keywords: Data mining; computer communication; network

1. Introduction
With the rapid development of economy, people's quality of life is gradually improved, therefore, higher requirements are put forward for communication means [1]. In order to adapt to the trend of the times, China's communication technology is constantly developing. The basic concept of the Internet is mainly to realize the network communication function, while local area network and metropolitan area network can realize the networking function, and the computer networks in different regions are closely connected, thus forming a computer network [2]. In order to meet all kinds of communication requirements, the research and development of various communication technologies and equipment combined with computers has been continuously promoted [3]. The combination of communication technology and computer technology is the biggest booster to promote the coming of human information age. With the development of economy and the progress of science and technology, the new era can also be called the era of informationization and globalization. The Internet industry has made great strides in the new era, and has penetrated into all areas of people's lives and lives [4]. In order to prevent hackers from attacking computer networks maliciously, people usually use computer
firewall technology to keep the transmitted information confidential. People pay more and more attention to the computer network environment and the confidentiality of information. Therefore, various protection technologies for computer network security have also been affirmed and applied by people [6]. Computer communication and network technology is a combination of computer network technology and communication technology, which plays a huge role in the development of society [7].

In today's life, computers have played an increasingly important role, and computer technology has gradually become popular. Computer network has the characteristics of openness and sharing in use, so it is difficult to guarantee the absolute security of computer network [8]. Therefore, people apply data mining technology to computer network security management, which promotes the above problems to be effectively solved [9]. Social economy, science and technology are still developing rapidly, China's economy is getting better and better, science and technology and high-tech products are upgrading faster and faster, and people's quality of life is getting better and better [10]. In essence, computer communication network is the product of both, which is also a basic condition of information society and a prerequisite of scientific and technological civilization. Nowadays, the network is developing faster and faster, and the update speed of science and technology is faster and faster [11]. In this information age, people's requirements and standards for things have become different. People will not only be satisfied with the status quo, but hope to make more changes [12]. People pay more and more attention to computer network security, and information transmission is disturbed and deliberately destroyed by various external factors. Targeted use of computer firewall technology can greatly reduce the interference of computer security by the outside world, improve the security of information transmission, and prevent the invasion of criminals [13]. From the perspective of technology research and development, this paper explores and analyzes the application and function coordination of computer and network based on data mining technology.

2. Characteristics of computer communication network technology

With the increasing demand for multimedia applications in the market, it also strongly promotes the integration of technology and industry. For example, the requirements of HDTV, distance education, telemedicine and e-commerce for 3D video signals and interactive voice, as well as the development of games and music publishing, Internet TV, etc., are all powerful driving forces for the continuous development of multimedia technology. Intelligentization and popularization of intelligence bring a common phenomenon to modern computer communication and network technology, which is to apply corresponding computer design standards and design methods to help users build intelligent systems and realize intelligent networking and intelligent management. In the process of using computer network, malicious attacks are harmful, which is also the biggest difficulty in the current network. Malicious attacks mainly refer to computer operators using related technologies to obtain computer information from individuals or companies, or spreading viruses and Trojans to related computers, which has a great impact on the lives and work of others. Among computer network security problems, human error is one of the main causes, but most of the problems come from unconscious operations or behaviors [14]. For example, in the normal use of computers, it is easy for people to borrow their related operating accounts to relatives or friends, which leads to the leakage of a large amount of personal information.

Under the tide of Internet development, computer technology is also making continuous progress. Among them, data mining is a very important technology for analyzing and researching data in computer industry. Because the real network is very common and information exchange is very convenient, integrating and processing data is also a very critical thing. When the coverage and communication rate of the network continue to expand and reach the advanced standardization level, then the signal conversion and signal transmission of the broadband network will have a larger range and frame width, which can increase the signal transmission range and strengthen the information transmission volume, thus realizing the digital transformation. With the advent of the new era of rapid development of the Internet, various industries linked to the Internet have made great and small progress. Wireless networks are becoming more and more popular, and more and more software can
be used by applying networks. Especially, artificial intelligence is developing very fast, and it has been applied to television, film and television programs, hospitals, shopping malls and other places where people must survive and develop. Because computer operators do not have a strong sense of security protection, it is easy to bring more security problems to computer networks. Many computer users do not pay attention to the regular killing of network viruses, and pay less attention to the security protection of information, which eventually leads to the loss of personal property.

With the development and progress of the Internet industry, all fields of social development are inseparable from the development of the Internet, which keeps close contact with the Internet industry, and ordinary people's daily life is increasingly inseparable from the Internet. As an advanced communication method, personalized communication has attracted wide attention in the process of informationization of human society. The so-called personalized communication means that anyone can communicate in a variety of ways at any time and in any region. No matter which field of enterprises, if they want to gain a firm foothold in the new era or find their own new development direction, they must organically combine their practical work with the Internet, give full play to the advantages of network technology, and strive to bring more benefits to enterprises. It is also a general trend to combine computer data mining technology with the fast-growing Internet industry. This combination will not only promote the development of science and technology, promote the development and progress of the Internet, but also promote the development and progress of people's life and work. At the present stage when science and technology and communication technology are developed, the Internet and computer communication technology have continuously made breakthroughs, which has brought great convenience to the common development of society and all mankind. In most cities of China, the whole city network coverage has basically been realized, and Internet communication has become smoother and faster with the development of science and technology.

3. Application of data mining in the field of computer network security

3.1. Network data preprocessing

For individuals, how to adapt to this fast-changing society is also an important issue, and computer mining technology can make people meet this era quickly and adapt to the new period of rapid progress of the Internet as much as possible. Because the firewall is constantly being updated and perfected, it has the advantage of accurately identifying some deliberate attacks. At the same time, in order to ensure the safe transmission and communication of information, the firewall should first be familiar with all the information and running programs in each computer, and classify them for internal and external protection. In the process of information classification, we mainly classify the filtered information, so as to highlight the information format and type. If most network information types are not uniform, it is necessary to make use of data conversion to make the information become the same type. In this way, all kinds of information will get the same application opportunity, which greatly saves the time of data mining and simplifies the data mining process effectively [15].

In the whole Internet industry, computer data mining technology has emerged and is active in all aspects of Internet development. Especially, many companies need to know more professional information and expand their network services, which cannot be separated from computer data mining technology. The data storage security architecture is shown in Figure 1.
Access policy plays a leading role in computer network security, and is the core and essence of firewall technology in computer security application. In order to effectively protect the application of firewall technology in computer network security, reasonable planning must be carried out under scientific overall arrangement. Figure 2 is a schematic structural diagram of an intrusion detection system.

![Figure 2 Schematic diagram of the structure of the intrusion detection system](image)

3.2. Network rule base subsystem

In the process of building the network rule base subsystem, the data mining technology is mainly used to highlight the construction requirements and purposes of the computer network security system, and summarize the rules obtained in the past data mining process to avoid the recurrence of the same network security problems. When the computer accesses the policy, it will focus on protecting the information inside the computer to prevent external invasion. In addition, the firewall technology will check when the computer uses the access policy, and deal with the threats in time, so as to protect the computer security. From another point of view, both the network data mining subsystem and the decision processing subsystem can classify and detect the relevant data, and organize the information into different data sets, so as to help people identify the rules and avoid the long-term existence of network security problems. In order to minimize the access to dangerous websites, firewall technology forms a wall, all data will be protected by firewall, and information transmission must be carried out with the permission of the host. After using computer mining technology to create a perfect perception and evaluation system, the company can understand customers' hearts more comprehensively and reduce the distance between them.

Specifically, the value of data mining technology in the company's perception evaluation system is very great. For example, the staff can use this technology to screen, summarize, summarize and
analyze the evaluations given by customers. The hierarchical information security organization is shown in Figure 3.

Figure 3 Hierarchical Information Security Organization

For some enterprises, when they need to modify some software in the intranet, if the intranet contains more content, firewall technology can be applied to ensure the information security in the software modification. In order to protect the security of computer network, firewall will carry out tedious operations and generate a large amount of information. If firewall technology is comprehensively optimized to ensure the security of log monitoring, it will slow down the running speed and waste time, which will not achieve high efficiency. In the specific work, people can reasonably calculate the relevant mining data according to the data provided by the data processing subsystem, including the subsystem collection state of the network rule base, so as to select the most suitable network data mining strategy and realize the effective classification and integration of detection information. Computer network communication will enter a deeper field with the innovation of information technology in the future development. The prerequisite for this change is that information technology has been revolutionarily developed, which has greatly subverted the definition of traditional computer, and made multi-channel access and network sharing possible.

4. Conclusions

With the continuous development of network technology, the virus transmission technology mastered by many lawless elements is becoming more and more advanced, which makes the computer network security problem more and more serious. The dependence of various industries on computers has greatly increased. Therefore, the network security problem can not be ignored. Firewall technology effectively purifies the computer network environment and makes information transmission between people safer. In addition, firewall effectively prevents malicious attacks such as hacking. Through the application of data mining technology, information mining and analysis are realized, which is applied to the communication industry, thus creating more benefits for enterprises. By using computer technology and Internet environment, it can provide more opportunities for different industrial organizations around the world, such as realizing information management and helping modern enterprises achieve strategic development goals. The development of computer has a powerful role in promoting the progress of society, which can improve users' network experience, change the previous entertainment methods, and greatly improve the security and effectiveness of network data. Data mining technology can collect and analyze specific computer network information, avoid risk factors from being mixed into data, and provide a basis for the safe use of computing.
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