Research on application of computer network technology in electronic information engineering

Shu Chen
Guangdong Communication Polytechnic, Guangzhou 510650, China

Abstract: Computer network technology is an indispensable part in the field of electronic information engineering. With the popularization of the Internet and the wide application of electronic equipment, the development and application of computer network research has become an important topic in the field of electronic information engineering. However, the application of computer network technology in electronic information engineering is insufficient, the security of information engineering needs to be optimized, and the development of electronic equipment, software and technology also needs to be adjusted and improved. This paper summarizes the role and application of computer network technology in communication, data transmission, network security and distributed system, hoping to provide more reference for relevant practitioners, promote the wide application of computer network technology and meet new challenges.

Key words: computer network technology; Electronic information engineering; Fusion significance; Applied strategy

Introduction

With the rapid development of information technology, computer network technology has become a very important item in the field of electronic information engineering. Computer network is to connect many computers through communication lines to realize information sharing and transmission. It is not only the basis of the Internet, but also the bridge of communication and interaction between electronic devices. The application and exploration of computer network technology is of great significance for improving the efficiency of information transmission, ensuring network security and building distributed system. In addition, computer network technology also expands the scope of application of electronic information engineering, so that it covers a wider field.

I. Theoretical basis of computer network technology and electronic information engineering

1. Computer network technology

Computer network technology is the use of certain communication equipment and network equipment, the distribution of computer systems in different places to connect each other, to achieve information exchange and resource sharing technology. Its basic principle includes data transmission, routing, flow control and network security. In computer network technology, the protocols involved are TCP/IP protocol, HTTP protocol, etc., and the network architecture includes different types of local area network, wide area network and Internet. Through computer network technology, people can achieve remote communication, online resource access, remote control and other functions, become an indispensable infrastructure in the modern information society, for the construction of information society, the realization of digital transformation is of great significance.

2. Electronic information engineering

Electronic information engineering is a comprehensive discipline involving electronic technology, communication technology and computer technology, aiming at the study of applied electronic equipment, electronic systems and information transmission and processing. The fields involved are circuits and systems, signals and systems, communication principles, digital signal processing, electromagnetic field and microwave technology, optical fiber communication, wireless communication, networks and protocols, etc. The goal of the electronic information engineering major is to train talents with comprehensive electronic technology and information technology, who are able to design, manufacture, research and development, application and management in the field of electronic information. By mastering the basic theory and practical skills of electronic information engineering, we can provide the society with efficient, safe and reliable information processing solutions, and promote the development and innovation of information technology.

II. The significance of computer network technology and electronic information engineering integration

1. It is conducive to creating a good environment for information dissemination

Through computer network technology, people can quickly and conveniently get various forms of information. The popularization of the Internet and high-speed network make the transmission of information more rapid and extensive, and promote the sharing of knowledge and information. Based on computer network technology, electronic information engineering can realize the efficient processing, storage and retrieval of information, so as to improve the accuracy of information transmission. This is of great significance for the accurate transmission of scientific knowledge, the promotion of quality culture and the guarantee of information authenticity, and helps to create a good environment for information dissemination. In addition, people can participate in the information dissemination process in their personal capacity to express their own views and opinions. This helps form a diversified and open environment for information dissemination and promotes knowledge sharing and exchange. To sum up, the integration of computer network technology and electronic information engineering has virtually created a good environment for information dissemination, providing more favorable conditions for

social development, cultural exchanges and knowledge popularization.

2. It is conducive to ensuring the safety of electronic information engineering

The integration of computer network technology and electronic information engineering promotes the security of information dissemination and information system. At present, in the period of information explosion, electronic information is one of the most important assets of countries and enterprises. Therefore, it is very important to ensure the security of electronic information system. More and more advanced network technology can provide strong security guarantee for electronic information system, such as network security protection, data encryption, identity authentication and other technical means. At the same time, network technology can also provide a reliable communication channel, making the transmission of electronic information more secure and stable. In other words, the integration of computer network technology and electronic information engineering can provide a comprehensive guarantee for the security of electronic information systems and escort the information assets of countries and enterprises.

3. Meet the development needs in the information age

Through the computer network, people can realize rapid and extensive information exchange, and various forms of information such as text, pictures, audio and video can be quickly transmitted to all parts of the world, providing more convenience for people's study, work and life. And the more and more advanced technology makes the security and stability of information transmission continue to improve, virtually creating a favorable environment for information exchange and dissemination. In the information age, all walks of life are inseparable from the support and application of electronic information engineering, and computer network technology provides the necessary basic support for the development of electronic information engineering, so that we can better promote the digital and intelligent development of social economy, improve production efficiency, optimize resource allocation and improve people's quality of life. To sum up, the integration of computer network technology and electronic information engineering meets the development needs in the information age.

III. The application strategy of computer network technology in electronic information engineering

1. The development of electronic equipment

With the continuous development of computer network technology, it plays a crucial role in the development of electronic equipment, bringing us many unprecedented application possibilities. With the support of computer network technology, different electronic devices can be interconnected and realize the rapid transmission, sharing and series of data. This means that various electronic devices can exchange data through the network, which not only improves the collaborative work efficiency between devices, but also provides users with a more convenient operating experience. For example, in the field of smart home, through computer network technology, various household electronic devices can be connected to each other to achieve remote control and intelligent management. There are many similar cases, which have a positive impact on our life, work and study. At the same time, computer network technology also supports the development of remote monitoring equipment, so that engineers can obtain the running status and data information of equipment in real time, find problems and make adjustments in time. At the same time, remote maintenance is also possible, through the network to upgrade the equipment, repair and troubleshooting, greatly reducing the maintenance cost. In addition, through the network connection, the equipment can realize large-scale data collection, analysis and application, thus providing strong support for equipment optimization and intelligent control. For example, in industrial production, sensors and actuators connected through the network can realize the automatic regulation of the production process, improving production efficiency and product quality. In general, the application of computer network technology in the development of electronic equipment has brought us a lot of convenience, promoted the intelligent, networking and information development of electronic equipment, and promoted the sustainable development of the field of electronic information engineering.

2. Ensuring information security

In today's information age, various electronic devices and systems are widely used in all walks of life, making the transmission and storage of information more convenient. However, the problem of information security is becoming more and more prominent, so ensuring information security has become a crucial task. First, through the use of encryption algorithms and key management systems, it is possible to ensure that data is not stolen or tampered with by unauthorized personnel during transmission. For example, when conducting e-commerce transactions on the Internet, users' personal and financial information can be effectively protected by encrypting data using SSL/TLS protocols. Secondly, by establishing a powerful intrusion detection system and firewall, network traffic can be monitored in real time, potential network attacks can be discovered and prevented in time, abnormal network behaviors can be identified, and corresponding measures can be taken to defend against them, ensuring network security and stability. In addition, through the use of biometric identification technologies such as passwords, fingerprints and iris, it can be ensured that only authorized users can access specific information and resources. The identity authentication and access control system can effectively prevent the intrusion of illegal users and provide traceable security logs, which are easy to trace and audit. In addition, by establishing a distributed storage system and data redundancy strategy, data can be backed up to multiple locations to prevent data loss due to natural disasters, hardware failures or human errors. When data is accidentally lost, data can be quickly restored to its original state through data recovery technology. To sum up, ensuring information security is an important application of computer network technology in electronic information engineering. By means of encryption and decryption, intrusion detection and prevention, identity authentication and access control, data backup and recovery, we can effectively protect the confidentiality, integrity and availability of information.

3. Information transmission

In the field of electronic information engineering, the application of computer networks can not only improve the efficiency of

information transmission, but also support a variety of complex application scenarios, such as remote communication, distributed systems and cloud computing. Through the construction of computer network, people can conveniently carry out information exchange and communication across regions and institutions. Whether at the individual level or the enterprise level, remote communication can greatly improve work efficiency and collaboration ability. For example, through email, instant messaging tools and teleconference systems, people can communicate and communicate with others anytime and anywhere, without being constrained by time and space. In addition, in electronic information engineering, distributed systems can provide services with high availability, high performance and high fault tolerance; Cloud computing can provide elastic computing resources to meet the needs of different application scenarios. For example, with virtual machine services provided by cloud server providers, users can quickly deploy and adjust computing environments based on their own requirements, saving hardware and maintenance costs. To sum up, the application of computer network technology in electronic information engineering expands information transmission channels, supports a variety of complex application scenarios, and brings people a more convenient and efficient information transmission experience.

4. Information sharing

In the traditional way of working, departments or individuals often need to carry out a lot of communication and coordination to complete a project, which wastes a lot of time and energy. With computer network technology, by sharing information resources, relevant personnel can cooperate on the same platform, avoiding repetitive work and improving work efficiency. Enterprises share a variety of different fields of information resources, can organize employees to quickly learn new knowledge and skills, improve the corresponding work efficiency. At the same time, it can also help enterprises to better implement management, reduce the loss of knowledge caused by employee dimission and other reasons, ensure the sustainable development of enterprises, and can also supervise and evaluate the work of employees, helping enterprises to better manage human resources. In actual work, different departments or different companies need to cooperate to complete a project together. If these units can share information resources, they can cooperate better and enhance the sense of trust and closeness between partners. In a word, information sharing is a very important application direction of computer network technology in electronic information engineering. We should actively promote information sharing and use computer network technology to improve work efficiency and competitiveness.

Concluding Remarks

In a word, the application research of computer network technology in electronic information engineering is of great significance and value. Through the application of computer network technology, we can create a good information dissemination environment, ensure the safety of electronic information engineering, and meet the development needs in the information age. Computer network technology plays an important role in the development of electronic equipment, information security, information transmission and information sharing. In the future, we need to constantly deepen the application of computer network technology in electronic information engineering in order to promote the further development of information construction in our country and make more contributions to social progress and people's well-being.

References:

[1] Zilun Wang. Research on Application of Computer network Technology in Electronic Information Engineering [J]. Science and Technology Innovation, 2018(2):2.

[2] Shifeng Yuan,Liqing Tang. Research on application of computer network technology in electronic information Engineering [J]. Industry, 2022(5).

[3] Ruijuan Zhang. Application research of Computer network technology in the field of Electronic Information Engineering [J]. Computer Products and Distribution, 2019(10):1.