

Problems and Solutions on Computer Network Maintenance

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Keywords: Computer; Network Maintenance; Solution; Fault Classification.

Abstract. Computer network maintenance is the most important part in the field of computer development, which directly affects the normal operation of the network. According to the different fault problems, taking the correct solution and having a certain working efficiency are the key problems of network maintenance work. In this paper, a number of faults occurred in the common computer network maintenance is systematically analyzed and the corresponding solutions are put forward. In addition, the fault classification method is proposed to improve the work efficiency.

Introduction

For computer network, sound computer network maintenance task and management work are important support parts to ensure that the computer network work efficiently. Implementing comprehensive maintenance of computer networks to ensure a stable and secure functioning of the computer network. Implementation of reliable management of computer network can maximize network functions. In the process of computer network maintenance and management development, China is still in the initial stage, some of the computer related staff is still relatively lack of technology knowledge in this area and reasonable network maintenance management approach, which thus has a negative impact on continued and stable running of computer network. Actively inspiring the computer network technicians to further efforts on complementarity and learning of related technology and making computer network operation in a safe and reliable environment become very important [1-2].

The main purpose and significance of computer network maintenance and management can be summarized into two aspects [3]; ①Can improve the network security and stability. Network maintenance work can be considered based on the content of computer hardware and software, under normal circumstances, completing the basic situation of the network access through network monitoring technology, which aims to complete the adjustment of network conditions to ensure its normal operation in secure and stable environment; ②To ensure the well confidentiality of network information. In recent years, the development of Internet technology is becoming more and more popular in many fields and the industry is increasingly inseparable from computer technology, the rapid development of Internet banking, online shopping etc. are based on computer technology, and all these businesses are closely related with the money, how to ensure the normal work of confidentiality has become particularly important. The use of the technology can avoid theft of the majority of user information [3].

Main Content of Computer Network Maintenance

Computer network technology covers many aspects, how to implement a sound computer network maintenance tasks: First of all, we should understand the main contents included in network maintenance work [4].

Understand the Basic Equipment. Firstly, we need to get a comprehensive and systematic familiarity with network equipment and deep understanding of the specific functions of each part, to master handling measure in a variety of different situations of failure and the corresponding fault. In addition, we should also be familiar with a variety of fiber optic interface to avoid improper wiring connection to cause a computer failure, affecting the normal work. Furthermore, we should be able to make a accurate judgments on the different work status of the computer.

Familiar with the Network Connection. The most important characteristic of the network is that it has the features of sharing and coverage. The feature of sharing in computer network not only brings convenience, but also brings some difficulties to most of security processing. Under normal circumstances, the virus takes use of the feature of sharing in computer network to attack. Therefore, we should be well aware of the basic structure of the computer network and its connection mode, so as to know your enemy and know yourselves, so that we are capable to know the network failure in the first time and take the right solution.

Be Familiar with the Faults That May Occur during Network Operation. In the process of network operation, there will be many problems. If you want to make timely remedy, timely problem-solving and effective problem-solving to improve the efficiency of the trouble-shooting once fault occurrence. You should know failure in advance as it may occur in the computer network operation. When you are very familiar with the situation of the network operation and common fault problems, you can solve the problem in more efficient way. In the process of network operation, we usually pay attention to several issues, for example, where is the network transmission of the centralized location? Is the information secure and reliable during the transmission of the network? Where is the source of information?

Clearly Aware the Connected Network Cable Failure and Handling Methods. For most office and home computers, the mainly type of computer is desktop-based, supplemented by other, so the network connection depends on the network cable to complete. To ensure a stable network operation, the importance of network cable connection cannot be ignored. Cable production should be correct and strict, because it directly affects the speed of information transmission, if the network cable is not completed in accordance with standard specifications, it will largely affect the dissemination of information efficiency. Well-understanding of the network cable connection and composition, the common fault, the correct diagnosis program etc. will help to make a better maintenance for the network normal operation.

A Number of Issues and Solutions of Computer Network Maintenance

In the computer field, network maintenance plays an important role in the whole computer network operation. With the development and popularization of computer technology, from the government down to the home network, also covering the commercial, financial, IT industry and so on, all these are inseparable from the computer, and the computer network maintenance work is also closely with various industries. A good network operating environment, can not only ensure the normal operation of various businesses, but also effectively improve work efficiency and ensure the safe transmission of information operations, and therefore bring great convenience for people. Of course, in the process of computer network operation, there will inevitably be a lot of problems, we need to take appropriate measures to carry out timely processing, common problems are divided into physical failure and logical fault two aspects, different fault problems have corresponding solutions to ensure the normal operation of the computer network[5-6].

Physical Failure and Solution Strategies of the Network Maintenance. In the process of computer network operation, and ultimately we still need hardware equipment to do support, and hardware devices in the course of running ultimately will have some problems, serious cases can even lead to network paralysis. It can be seen in the network operation process, the hardware device can maintain normal working condition, which plays an important supporting role in the entire computer network [7]. In the computer hardware failure, the main common problems are: ① computer itself failure; ② equipment connected between the cable, network cable failure; ③ failure of hub or switch connection or exchange failure; ④Server-side failure and so on. Regardless of which one or more problems appears, it will directly or indirectly lead to computer network failure.

When the computer hardware equipment failure, first of all, we should check the status of external hardware devices. If the external conditions of the hardware device is good, and then check the internal condition. If there are computer problems, we should use the correct method to

complete the fault diagnosis. If necessary, you should open the computer chassis to check the hardware operation of the equipment and the wiring status of the various parts, if there are external equipment problems in the hardware, you can directly replace the fault components with new components. If there is failure in the connection between the equipment, we should check whether the connection cable connector is firmly in the wire or the production of the cable is standard. If the failure occurs in server side, we not only need to check the appropriate hardware devices, but also need to pay attention to the problem and failure in software part.

The Logic Failure and Solution Strategy in Computer Network Maintenance. In the computer logic fault, the common fault problem is that the protocol configuration and configuration parameter changes cannot meet the network requirements, the information backup is unreasonable, and the file configuration is missing, etc. In addition, there are also other failures in which the external network connection configuration problems and network communication conditions cannot match the network requirements. There may be problems caused by the operating system, network card driver problems and attribute configuration problems that do not meet the standards ^[8]. Common software failure problems are listed below:

Completely Broken Network in Computer. Completely broken network in computer is the common problems in computer network running, mainly for IE browser, QQ and other network software, FTP etc. and all other network functions are lost. Usually there are three main methods.

Confirm that the network card is working properly. First check the network card's light is working properly. If the indicator does not light, you need to log into the computer's Device Manager to see if there is a network adapter, enter the dial-up network (WIN2K / XP) or computer network neighborhood (WIN98) to check the network connection is normal. When the network link light is normal, the local connection is bad, it is possible to conclude that the network cable, hub or switch fails, hubs, cables and switches should be promptly replaced respectively to determine the specific fault location of problems. In addition, we still need to focus on the card light when the lamp is on and everything is connected properly in the correct state, the computer cannot access the Internet, there may be a problem on the issue of cable or physical connection, we should carry out hardware troubleshooting.

Replacement network card. If the network physical connection is in a normal state, you should try to replace the network card or a simple dust clean-up work inside the computer, this is because the dust near the socket of the network card will cause the card in abnormal working condition.

Fixed IP or reset the gateway. Fixed IP failure to remove the failure is rarely used unless the DHCP server fails, the method is a relatively effective solution .WIN98 can usually set the correct gateway to troubleshooting.

FTP cannot connect. FTP cannot complete the normal connection: mainly as FTP cannot be accessed, for example ftp://xxxy.lzu.edu.cn/ and other sites can not normally access. We have the appropriate solutions for such a failure, this type of FTP site applications is PASV mode, IE browser does not support, tools such as CUTEFTP etc. can be used to access, you can also change the IE property, and set the property as passive FTP. Moreover, firewall restrictions can also cause the problem.

DOS Partition Server Fails to Start. When the server DOS partition cannot start, there is a fault in DOS partition server. The solution is to use a clean disk to start the system, use the "DIR" command to view the SERV-ER.312 in directory to check whether there are application program associated with the SERVER, if it exists, then there is destroy in the DOS boot file only, you can run the anti-virus software on the DOS partition to implement anti-virus processing, and then use NDD software to re-delivery system, or use the system command to update the system. If the DOS can start properly, but SERVER application can no longer perform, the associated SERVER application should be re-copy in DOS partition SERVER.312 directory, if the "DER" command detects SERVER.312 directory in which file is missing or partially lost, then be sure to complete the two steps: Completing the transfer system and copying the associated SERVER application .

To Improve the Efficiency of Computer Network Maintenance Strategy

According to the different processing methods of computer network, the fault is divided into physical fault and logical fault. Physical failure of the computer is mainly a fault problem often appears in the appearance of equipment, such as wiring connection problems or specific component damage, and the latest electromagnetic interference etc. The logical fault mainly refers to the computer network configuration errors, such as common router port parameter settings do not match the problem, mask configuration problems etc. Of course, it can also be classified according to other different classification criteria. This paper mainly enumerates the specific two kinds of conventional fault problems in physical fault and logical fault:

Cable Problems. When the cable is accidentally squeezed or stamped, it may cause the network socket connection loose or even damaged. So when the computer network connection is abnormal, even the icon cannot appear, you should first check the flashing lights in the network jack is normal, and then check the cable between the computer and the socket is intact, and check the interface is loose.

Network Configuration. Network configuration includes the working status of the network card, IP address settings, gateway settings and other properties of the settings. Judge the different working status, the options of the corresponding treatment have been described in details in the front.

Hub or Switch Failure. Because the switch is composed of a variety of modules together, any situation appears in any module, or even a little problem will make the computer a great or incalculable loss. Thus, in the normal state, we should be extra careful in handling or moving the switch, and it should avoid collision. When the power supply has unstable condition, we should stop using switches etc.. We should strictly comply with the safe use of methods to be able to protect Hub, or switch effectively to avoid such failures. To summarize, computer network maintenance is a comprehensive technical issues, we should be familiar with these basic knowledge and propose specific solution based on specific issues, fault classification improve the efficiency of troubleshooting more effectively.

Conclusion

Computer network maintenance work and management not only relates with the system administrator's business literacy, but also with each user's security operations. We not only need the management faculty have basic management skills, but also good management quality, working seriously and be responsible and rigorous, also having good communication skills and teamwork awareness. The rapid development of computer network technology brings our life more convenience and makes us facing new problems and challenges. We should understand the vulnerability and potential threat of network and adopt a strong security strategy, which is very important for the network security.

References

- [1] Pan Yue-ming. Analysis on Computer Network Maintenance and Management [J].Computer Knowledge and Technology, 2013, 14:3265-3266.
- [2] GAO Ce,Li Ai-lian. Analysis on Computer Network Maintenance and Management [J].Computer CD - ROM Software and Application, 2013, 21:106-107.
- [3] Zhang Wen.Analysis on Computer Network Maintenance and Management [J].Digital Technology and Application. 2013, 10:228-230.
- [4] Lv Ying-chun.Some Thoughts on Computer Network Maintenance [J].Computer Knowledge and Technology.2011, 17:4051-4052.
- [5] Wang Wei.Discussion on Computer Network Management and Maintenance Technology [J].Electronic Technology and Software Engineering.2015, 03:36.

- [6] Guo Ming. Computer Network Maintenance Work and Management [J]. Information and Computer (Theory Edition). 2015, 04:68-74
- [7] Hu Yi. Analysis on Maintenance Strategy of Hospital Computer Network Security Management [J]. Digital Technology and Application. 2015, 05:196-197.
- [8] Li Jing. Analysis of Computer Network Maintenance and Its Management [J]. Silicon Valley. 2014, 06:85-78.

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Received date; 2016-10-18

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