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# Computer Network Maintenance Strategy Based on LAN

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**Abstract:** With the continuous development of society, Internet technology has also been popularized in people's daily life and work. With the popularization of Internet technology, the computer will be interfered by all kinds of external information in the daily work process, and a series of network faults will appear. It is necessary to strengthen the maintenance and management of regional network to reduce the probability of computer network failure and ensure the normal and safe operation of computer system. This paper analyzes the ways of strengthening LAN maintenance and reducing computer network failure.

**Keywords:** LAN maintenance, computer network, network failure.

## Introduction

The combination of computer technology and network technology has changed people's original mode of production and life. The convenience, low cost and fast characteristics of computer network technology make it quickly become one of the important ways of data transmission, storage and processing. The important role of computer network in people's work and life also makes once the computer network breaks down, it will bring great trouble, sometimes even great loss to people's work and life. In this case, the maintenance of computer network is particularly important, so the network management department should strengthen the analysis and maintenance of computer network fault.

## Definition of LAN

Several computers connect by means of ordinary network card or wireless network card, router and hub, and realize the rapid sharing and exchange of information, which is the definition of LAN. Generally, LAN will be connected to its processing center through a special data circuit, and on this basis, a complete information processing system will be formed to exchange information among users in the LAN. The coverage area of LAN is generally small, but compared with Wan, it has a very fast running speed, and the

distribution is relatively regular. In the LAN, there will be no problems such as node exchange and router, which makes the LAN more suitable for the internal information transmission of campus or related enterprises. Therefore, it is necessary to analyze the problems in the process of LAN management and maintenance [1].

### **Check the network card in time in case of LAN problems**

#### *Check the connection between the network cable and the device*

If no fault is found in the network card, the maintenance personnel shall check whether the connection between the computer equipment and the network cable is normal. The specific operation process is: Open Network Neighborhood - check. If other computers can be viewed in the network, it is proved that the connection between the computer device and the network cable is in a normal state, otherwise, it indicates that the network cable connection of the device has failed. In this case, the maintenance personnel can detect the network circuit, and can use the line tester to detect. If it is detected that the computer operates normally in terms of network equipment, it is necessary to detect the running software in the computer, and consider whether the network signal of the computer is interrupted due to software problems. The coverage area of LAN is generally small, and its network cable is also relatively short. During the maintenance, one end of the network cable can be connected to the socket, and the other end can be connected to the normal port, and then the ping machine can be used to connect the host and router, and the power on condition of the ping machine can be analyzed. For some LAN with long lines, we can use the network line tester to test the connection of network lines effectively. In the process of testing, in order to avoid electromagnetic interference, maintenance personnel need to use shielded circuit to test [2].

#### *Set up the server hard disk properly*

Some users who use LAN to work often access some files on the network, but when these users encounter the phenomenon that the access speed of the network is too slow, some users will think that it is because of the excessive number of users' browsing that the network speed is reduced. But in fact, the biggest impact on the network transmission rate is the operation efficiency of the server's hard disk. Therefore, in the process of installation and application of computer equipment, we should reasonably configure the hard disk, and improve the network speed in the LAN. Therefore, in the maintenance of local area network, the relevant maintenance personnel should try to choose some hard disks with high speed and large capacity. On this basis, it is also necessary to determine the server interface model to ensure the operation efficiency of the LAN. With the permission of the school and related enterprises, the maintenance personnel can also install the hard disk display card in the LAN server to effectively improve the operation speed of the network hard disk [3].

### *Check the driver*

After the inspection of the hard disk, the maintenance personnel shall also check the driver of the computer, and check whether there is any damage or installation error of the hard disk in the driver. At present, most users use the windows system. If the maintenance personnel don't find the problem of the computer's driver in the process of inspection, they should delete the adapter of the network, and on this basis, they should re detect the new hardware, and then install the driver for the computer again, which can solve the problem of the driver.

### *Set up the switch reasonably*

In the process of LAN operation, it is necessary to use the switch as the data exchange equipment, which requires the computer maintenance personnel to configure the switch reasonably in the process of LAN maintenance, so as to further improve the data transmission capacity of the LAN. In the face of some large traffic data transmission process, it is also necessary to ensure that the operation speed of the network card in the switch is consistent with the duplex. In the process of setting network parameters, maintenance personnel must fully follow this rule [4].

## **The breakdown maintenance of computer network**

At present, the computer network fault of LAN has become one of the important factors that affect the stability of network use. The main performance of computer network fault in LAN is that the computer in LAN can't be connected to the Internet, or all the computers can't be connected to the Internet effectively. Generally speaking, the causes of network fault are various, but in general, they can be classified into two categories: physical fault and logical fault. Editing faults, that is to say, hardware faults and software faults. Hardware failure mainly includes the failure of various parts of the computer, such as hard disk, memory, display, etc., as well as the failure of connecting equipment, such as power line, network card, network cable, router, etc. At present, the most common software failures are network protocol problems, network equipment configuration, setting problems, virus problems and so on. In view of the important role of the computer network in people's work and life, it is an urgent problem to strengthen the fault analysis and maintenance of the computer network. Generally speaking, it is an effective method to guarantee the normal operation of the computer network system when analyzing and maintaining the computer network fault in time.

From the above analysis, we can see that the network fault is mainly hardware fault and software fault, so the analysis of network fault should start from these two aspects: from the perspective of network, the principle of computer network fault analysis and diagnosis can be summarized as: from server to workstation, it is to determine whether it is a server problem first, and then check the workstation; from outside to inside First, check the

effectiveness of External visible equipment, and then check the internal problems; from software to hardware, check the software problems first, and then check the hardware problems. The following is an example analysis of some faults in the network to illustrate the general analysis methods and steps. Analysis and diagnosis method of network hardware failure: there are many kinds of hardware failures in the network, such as: the connection failure analysis of router and network cable: first, you can check the indicator light of network card and the indicator light of network connection equipment, and then check whether the network cable is in good condition. If there are several computers in the LAN with the same problem, it may be the hub or route in the connection equipment. Analysis and diagnosis of network configuration failure: if you can't see all the computers in the LAN in the network neighborhood, you can only see part of the computers. Analysis: check that the name of each domain and each computer in the network is unique enough, check whether the computer name in the LAN is repeated, use TCP / IP, and check whether the IP address is repeated. Another example is the analysis and diagnosis of protocol failure: confirm that the network protocol used by the computer is the same as other computers in the local area network. If the protocol is different, other computers cannot be seen. When configuring TCP / P protocol, we should pay attention to IP address, subnet mask and routing [5].

### **Daily maintenance mode of computer network**

#### *Set the host network address parameters correctly*

In the running process of LAN, the host often has various logical faults, which lead to the user can't use the network correctly. For example, when the host IP address does not correspond to other computers, the computer can't connect to the network. Therefore, the computer maintenance personnel also need to use the network neighborhood software to check the IP address and other factors in the maintenance process, and need to deal with it in time when the IP address of the computer is inconsistent with the host computer [6].

#### *Check the host's network protocol*

The host's network protocol plays an important role in the whole LAN. If the network protocol is not selected properly, the problem that users cannot connect to the network will appear. Therefore, when setting the host's network protocol, it should be consistent with other hosts, so as to ensure that all parts of the regional network can communicate data normally. Therefore, when the computer can't connect to the network, the maintenance personnel can check whether the host network protocol is correct and repair it in time. Generally, computer maintenance personnel can check the host network protocol by means of network neighborhood and local connection [7].

### **Elements to be noticed in the process of LAN maintenance**

In the process of LAN maintenance, it is necessary to update the network maintenance log in time, and to make some big and complete maintenance records, so as to accumulate enough experience for future maintenance work. In addition, it is necessary to establish a complete component document, which also includes system analysis, maintenance and query. And maintenance plan and other aspects. With the establishment of component documents, the computer information in LAN can be recorded, and can be processed in time in case of LAN problems. In the process of using LAN, network maintenance personnel need to improve their awareness of network security, strengthen the construction of patch program in time, and improve the performance of anti-virus software in computer, so as to effectively reduce the network fault in LAN [8].

### **Conclusion**

In today's information age, computer network has become one of the essential tools for our work and life. In order to ensure the efficient use of computer network, we must eliminate all kinds of faults in the computer network in time and effectively, because once the network fault occurs, it will bring great inconvenience to users, sometimes even great loss. Therefore, it is necessary to strengthen the troubleshooting and maintenance of network faults, but to ensure the safe and effective operation of the computer network in the local area network can't be completed overnight, it is a long-term work. This shows that the network staff has a long way to go.

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