

COMPUTER NETWORKS AND THEIR BASIC CONCEPTS

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ABSTRACT

This article describes the types of regional support of computer networks, the importance of files in the computer program, the relationship between user and computer, file-server and client-server differences and their basic classifications. This article also covers the principles of network interconnection.

Keywords: Computer networks, file server, client server, workstation, LAN, network.

Computer networks can be classified according to many characteristics, including territorial security. There are global, regional and local networks. Currently, two basic principles of creating such software have been introduced. In the first principle, the programmed software of the network is designed to provide accessible computer resources to many users. It is called a file server. It got its name because the main resource of the host computer is files. It can be programmable modules or files with data. A file server is the most common type of server. Interestingly, the disk size of the file server should be larger than that of a normal computer, as it is used by many computers. There can be many file servers on the network. It is possible to enumerate other types of file-server servers that are provided for sharing by users of the network. For example: printer, modem, device for facsimile communication. File server resource management and access for many network users the software that provides the software is called the network operating system. Its main part is located on the file server; on the workstation, only a small layer is placed between the resource and the file server, which acts as an interface between the applications being accessed. The second principle is called "client-server" architecture. Its software is designed not only to use resources collectively, but also to process them and allocate resources according to user requirements. The client-server architecture software system consists of two parts: the server software and the user-client software. The operation of these systems is organized as follows: client-programs are executed on the user's computer, and a request is sent to the server-application running on a public access computer. The processing of the bulk of the data is done by a powerful server, only the results of the completed query are sent to the user's computer. Database servers are designed to handle large amounts of data (several 10 gigabytes and more) and provide high-performance,

reliable, and secure performance to a large number of users. Client-server architecture (in a sense) is the core of global network applications. Popular Web servers, FTD servers, email servers, etc. that provide storage and processing of large text pages are known. The client programs of the listed types of services allow these servers to receive the service and request to receive a response from them.

Any computer network with shared resources can be called a server. This is because a computer with a split modem that is allowed to be used on other computers is a modem or communication server. Network subscribers - objects that generate or consume information in the network.

A station is a piece of equipment that performs the functions of transmitting and receiving information. The subscriber and station complex is called the subscriber system. The practice of using personal computers in various branches of science and technology, production, has shown that in the application of computer technology, local computer networks, rather than a separate computer, are more effective. Any communication network must include the following main components: transmitter, message, transmission medium, receiver.

The main task of any computer network is to provide the user with information and computing resources. In this sense, a local area network can be thought of as a set of servers and workstations.

A server is a computer that is connected to a network and provides certain services to its users. Servers can store data, manage databases, process issues remotely, print issues, and perform a number of other tasks.

A workstation is a personal computer connected to a network through which the user accesses information resources. The network workstation operates in both network and local mode. It provides the user with all the necessary tools to solve practical tasks provided by the personal operating system (MS-DOS, Windows, etc.). One type of server is the File Server.

The file server stores users' data from the network and ensures that they have access to that data. This computer has a large amount of RAM and a large hard drive. It runs under a special operating system.

The file server performs the following functions: data storage, data archiving, data change synchronization, data transfer. Multiple tasks require the use of a single file server. At this time, several file servers can be added to the network. Manage the interconnection of devices in the network. Information systems are built on the basis of computer networks, which solve the following tasks: storage, processing of data, ensuring user access to them and transmission of the results of data processing. In a centralized processing system, these functions are performed by a central computer (Mainframe, Host). Computer networks redistribute and process data. In this case, data processing is divided between two objects: the client and the server.

Management of network device interconnection Information systems are based on computer networks, which solve the following tasks: storage, processing of data, ensuring user access to them and transmission of data processing results. In a centralized processing system, these functions are performed by a central computer (Mainframe, Host). Computer networks redistribute and process data. In this case, data processing is divided between two objects: the client and the server. A client is a user of a task, workstation, or computer network.

The client can perform difficult tasks in the process of data processing, read the file, send a request to the server to search for information in the database. The predefined server executes the request from the client. The server stores the data that everyone uses, organizes access to that data, and provides the data to the client. The client processes the received data and presents the processed results in a user-friendly format. The term client-server or client-server architecture has been adopted for such systems. The client-server architecture can be used in a single-tier local area network, as well as in a dedicated server network. One-tier network. Such a network does not have a single workstation interaction center and no single device for storing data. The network operating system is distributed across all workstations. Each network station can act as both a client and a server. It can service requests from other workstations and send Facebook requests to the network. The advantage of a one-tier network: low cost and reliable reliability.

Disadvantages of a tiered network:

Network efficiency depends on the number of stations;

complexity of network management;

difficulty in protecting information;

the difficulty of updating and modifying the station software.

These types of networks are widely used in LAN tastic, NetWare Lite network operating system. Dedicated server network. In a dedicated server network, one of the computers performs data storage for all workstations, manages the interconnection between workstations, and a number of other functions. Such a computer is commonly referred to as a network server. It will be equipped with a network operating system, and all external distributed devices - hard drives, printers and modems will be connected to it.

Interaction between workstations is usually done through a server. The role of the central device is played by the server. In centralized management networks, there is an opportunity to exchange information between workstations. You can use Netlink for this.

Advantages of a dedicated server network:

Reliable information security system;

fast movement;

unlimited number of workstations;

simplicity of management relative to the primary network.

Disadvantages of a dedicated server network:

The cost is due to the allocation of a single computer for the server;

low flexibility over a single-level (color) network.

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