

## TYPES OF COMPUTER NETWORKS AND THEIR ANALYSIS

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### ABSTRACT

Today, the level of information exchange in computer systems and networks is increasing, the diversity of information, its high-speed transmission through networks, the task of protecting information in the process of timely, accurate and complete delivery to receiving users is one of the main issues. remains. Many tools and methods have been developed to ensure the information security of computers running modern operating systems.

**Keywords:** Information, computer, terminals, network, operating systems.

**Network**– it is a complex of computers, terminals and other devices interconnected by communication channels that provide information exchange. The network provides the possibility of transmitting information, organizing the joint operation of computers being used separately, solving a single issue using several computers. Such networks that provide cross-computer data sharing are called Computer Networks [16].

Identifying network threats in network security is one of the pressing problems of today. Timely prevention, elimination of threats are among the most important tasks of information security specialists.

The main problem in solving problems related to the management and protection of network resources is the rapid identification of the state of the network, ensuring its full or partial operation.

As a result of linking computers with each other, the following classifications can be cited [3]:

# Classification of network

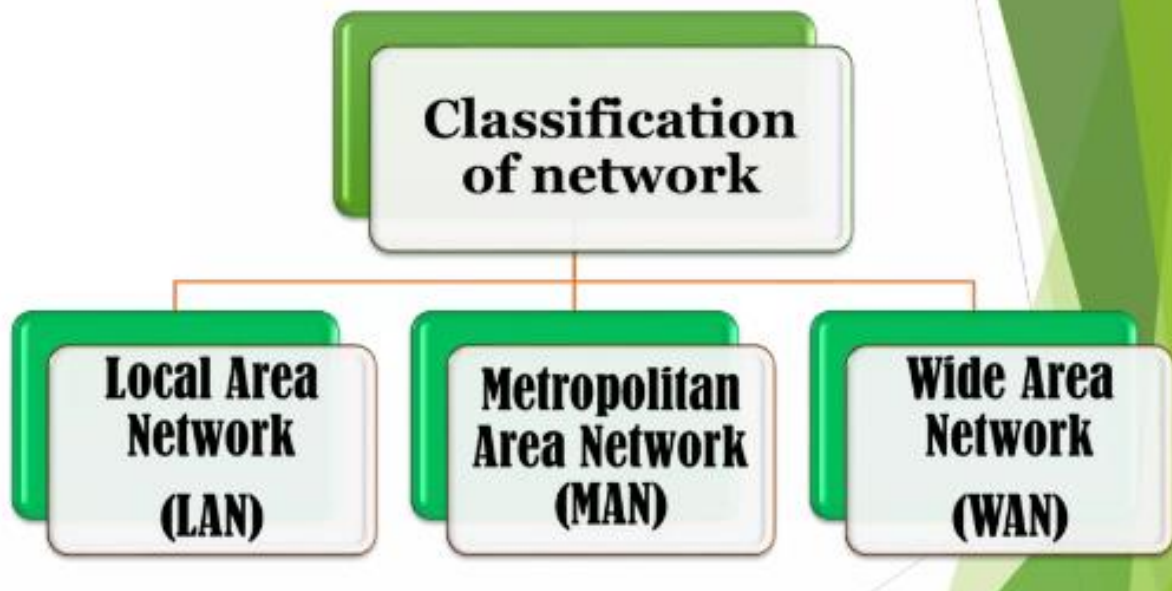


Figure 1. Classification of a computer network.

## Types of networks

1.PAN (Personal Area Network) – there may be at most 8 participants, and the radius coverage is up to 30 meters.

2.LAN (Local Area Network) – 10 to 100 users can be available and radius coverage is up to 100 meters.

3.CAN (Corporate Area Network) – unites several LAN networks to itself. A large and multi-segmented LAN is formed.

4.MAN (Metropolitan Area Network) is an urban coverage network. It covers a distance of 1000 meters and unites 1000 users in itself.

5.WAN (Wide Area Network) is a global computer network. Unites a Million subscribers in itself (Internet).

## Type of network organization

While there are different ways to connect computers together, basically two types are common: peer-to-peer and client-server network [6].

In a Peer-to-peer network network, all computers are equal. In client-server type networks, the so-called server computer is the heart of the network. It stores information and resources and makes them available to other computers on that network. The rest of the computers that use the network to obtain this information are

called clients. Client-server networks are the best option for connecting more than a dozen computers to the network.

Basic requirements for the network:

- \* ease of management;
- \* reliable protection against external and internal hazards;
- \* customization for the most popular types of cables and devices;
- \* availability of backup channels and potential for their further expansion and optimization;

**Local Area Network** - a network that interconnects computers in several nearby buildings in an enterprise or institution. A local area network unites subscribers located in a small area, that is, local area networks are a network that allows the exchange of information between themselves on computers located in the same building or close to each other. Such a network is usually connected to a specific location [7].

#### **Services provided via local area network**

Computer networks are an environment that specializes in transmitting and receiving information in the form of electrical signals. Examples of network services include:

**File server service.** *In this case, all computers on the network can use the data of the main computer (server) or place their data in the memory of the main computer;*

**Print server service.** *In this case, all computers on the network can print their data on paper through the computer control on which the service is introduced;*

**Proxy server service.** In this case, all computers connected to the network can use the Internet or other services at the same time through the Computer Management where the service is introduced;

**Computer and user management service.** In this case, the behavior and functioning of all computers connected to the network and the users recorded on them in the network is determined and monitored.

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