Оглавление

[**1 HISTORY OF COMPUTERS** 2](#_Toc153360618)

[**2 TYPES OF COMPUTERS** 3](#_Toc153360619)

[**3 COMPUTER HARDWARE** 4](#_Toc153360620)

[**4 PRIMARY STORAGE** 5](#_Toc153360621)

[**5 SECONDARY STORAGE** 6](#_Toc153360622)

[**6 SOFTWARE** 7](#_Toc153360623)

[**7 NETWORKS OSI** 8](#_Toc153360624)

[**8 TIPE OF NETWORKS** 9](#_Toc153360625)

# **1 HISTORY OF COMPUTERS**

# **2 TYPES OF COMPUTERS**

# **3 COMPUTER HARDWARE**

# **4 PRIMARY STORAGE**

The main storage is divided into three main types: RAM, ROM and cache memory.

RAM is very important for a computer. In RAM, the computer stores the data it needs to perform active tasks. RAM is non-volatile, which means data loss when the power is turned off. The memory size can be increased by additional chips.

In contrast, the ROM is non-volatile and stores data even when the power is off. That is why space is used in the BIOS. However, this type of memory is much slower than RAM.

Cache memory acts as a bridge between high-speed DRAM and more capacious and slower storage. This is the fastest memory in the computer. It is located close to the processor.

Thus, RAM, ROM and cache memory form the main storage, without which it is impossible to operate a computer.

# **5 SECONDARY STORAGE**

Secondary storage is necessary for long-term storage of data in computers, and it is available in various forms, including hard drives, solid-state drives and optical drives.

HDD, use magnetic storage to store and retrieve data.

They have a large capacity and a low price, but they are inferior in the speed of reading and writing data.

SSDs differ from HDDs in that they use flash memory to store data. Because of this, SSD writes and reads data faster, but flash memory is a more expensive alternative to magnetic disks. Also, the storage period of information without data loss, SSD is much less than HDD.

Optical storage involves the use of discs, such as CD, DVD and Blu-ray discs, for data storage. These disks use laser technology to read and write data, and although they have less capacity compared to hard drives and solid-state drives, their features are low price and lack of data loss.

Thus, secondary storage is presented in the form of HDDs, known for their availability and high capacity, SSDs that provide speed, and optical drives that use disks.

# **6 SOFTWARE**

Software is a set of applications designed to control a computer. The software is divided into two types system software and application software

System software is a set of software tools that are necessary to control the hardware of a computer. They serve as bridges between application software and hardware. Basically, the System Software includes operating systems and device drivers. Such software is often written in low-level languages and is characterized by high execution speed and low memory costs.

The application software is used to perform the tasks set by the user. Unlike system software, application software is often run in a separate visual interface. For its work, the Application software uses the functions of the system software. Often this type of software is written in high-level languages. The most common types of application software are the editor of documents (MS Word), web browser (Yandex browser, Google) and database software (MySQL).

# **7 NETWORKS OSI**

Open System Interconnection (OSI) is a model that can be used to represent how data moves in a network. It has seven levels.

Level one is the application layer. This level is visible to the user.

Level two is the presentation layer. It puts the user's requests in a form that is understandable to another computer. It use ASCII code for encoding.

The third level is the session layer. It controls the opening and closing of connection sessions.

The fourth layer is transport. He is responsible for data transmission and error checking.

The fifth level is the network layer. It uses ip addresses for packet routing.

The sixth level is the data link layer. It is responsible for splitting packets into frames and transmitting them to the host.

The last layer is physical. This is represents a physical connection between devices.

# **8 TIPE OF NETWORKS**

A network is a collection of computers connected to each other for the purpose of exchanging data. There are several types of LAN (Local Area Networks), MAN (Metropolitan Area Networks), and WAN (Wide Area Networks) networks.

Networks can be divided by architecture. There are peer-to-peer and client-server networks. In peer-to-peer networks, computers have the same capabilities for data exchange, and in client-server networks, the exchange takes place through the server.

Networks are also divided according to the topology used. Topology is the organization of a network. There are several basic topologies: bus, ring, tree, star, mesh and hybrid.

A bus topology is a network where all computers are connected to a single cable that acts as the backbone of the network. the number of network nodes is unlimited.

The star topology implies the connection of all network nodes to one central one.

The topology of the ring is implemented by connecting a node to its neighbors on the left and right.

Mesh topology is implemented by directly connecting each node to the maximum possible number of other nodes.

A tree-like topology can be represented by connecting nodes, according to the principle of tree branches, where the server acts as the root and the leaf nodes are the end nodes.

Hybrid topology - combines all of the above, depending on the type of tasks that it needs to solve.

The network is also divided into wired and wireless. A wired network is a network that is implemented by connecting through wires (twisted pair, optical fiber). A wireless network uses radio waves such as Wi-fi or bluetooth to connect.