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## TELECOMMUNICATION TECHNOLOGIES

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Each generation tends to develop new technical means, improve the system of accounting, processing, transmission and storage of data. The telegraph, telephone, teletype, radio receiver are recognized as the first telecommunication means. The middle of the 19th century was marked by the massive use of satellite communications, computer technology, and a computer network. As a result, this had a positive impact on the development of new telecommunication technologies.

The modern world is impossible without telecommunication technologies that erase state borders and distance between people, make mobile and video communications available and allow solving many problems in the field of management, education, and commerce. Every person encounters them on a daily basis, sharing phone calls, checking mail or buying goods in online stores. Definition and concept of telecommunication technologies

The general concept of information and communication technologies includes a set of methods, processes and devices that allow receiving, collecting, accumulating, storing, processing and transmitting information encoded in digital form or existing in analogue form.

In a narrower sense, telecommunication technologies are understood as a set of software and hardware tools that make it possible to establish communication without the use of wires and transmit information packets, including audio and video information. Types of telecommunication technologies. Telecommunication technologies can be considered as services provided by providers of various levels [1].

*According to this principle, the following types of telecommunication technologies can be distinguished:*

- telephone communication, modern telephone communication makes it easy to switch from an analog standard to a digital one, connect city phones to the Internet and connect analog and mobile devices to one network;
  - radio communication, which today has turned into cellular communication, the phone, moving within the network, is in the coverage area of various transmitting devices;
  - satellite communication, which is used by providers to create mobile communication systems and for government communication systems;

- The Internet is the most common type of telecommunications technology, in which connection to the network can be carried out both wired and wireless [2].

Information and telecommunication networks and the Internet

Telecommunication technologies used on the Internet are now undergoing a stage of rapid development and growth.

*New networks of various types are being created, among which:*

- local networks of companies or institutions, communication between computers in them is carried out both in a wired and wireless way, the number of users of these networks is limited. Local networks can be corporate, in some countries urban local networks are also being created;
- Wide Area Networks (WANs) are a collection of a large number of computer nodes located in different countries of the world and interconnected by optical fiber communication channels. Local networks are connected to these networks representing the services of providers.

Hardware and software of telecommunication technologies

The performance of the Internet is based on the use of network nodes and communication channels. Hosts include both individual computers and hosts that provide IP addresses and domain names [3].

*Communication channels are generally divided into 4 types:*

- analog telephone networks;
- wires through which electricity is transmitted;
- fiber optic communication channels;
- wireless communication channels, modem or satellite.

Telecommunication channels mainly include the third and fourth types.

*Among the communications used to organize communications, one can separately note programs that ensure the operation of telecommunications equipment such as:*

- IP-PBX;
- routers;
- computers.

Separately, it is necessary to name application programs that simplify the work with the processing of information arrays.

Telecommunication technology software

To transfer data using the capabilities of telecommunication technologies, special software is used. This software operates according to certain protocols or according to mechanisms designed to simplify and standardize the work of all network nodes, building it according to a single algorithm.

So, for transmission over computer networks, the MIME (Multipurpose Internet Mail Extensions) standard has been developed, which translates data into a format understandable to the mail server. Communication between the user's computer and the server takes place in the form of a dialogue in the Client-Server mode, where a certain program is a participant on each side.

Separate programs are used for the operation of instant messengers that allow you to exchange messages, make phone calls with the transmission of voice and video information. Here communication takes place not only a computer - a mail server, telephone exchanges are also connected to the dialogue [4].

Among the new technologies, a special place is occupied by programs that allow you to work in networking mode, combining CRM systems with social networking capabilities, and much more.

The creation of corporate networks, both office, computer, and telephone, also falls into the field of network technologies, designed to provide synergy through effective communication of users.

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