

ПОДСЕКЦИЯ АНГЛИЙСКОГО ЯЗЫКА

5G: THE FIFTH GENERATION OF NETWORK COMMUNICATION TECHNOLOGY

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The purpose of this paper is to analyze the difference between the existing generations of network communication technology, to study perspective of the 5G and its application possibilities.

Communication has always been of great importance for mankind. The evolution of cellular communication systems includes five generations: 1G, 2G, 3G, 4G and 5G.

Mobile networks of the first generation were based on an analog method of information transfer and received their commercial implementation in 1984.

The first mobile networks of the second generation appeared in 1991. Their main difference was the digital way of information transfer; it became possible to use short messages service (SMS).

The main feature of 3G technology is that it supports greater voice & data capacity and high data transmission at low-cost. It has greater security features than 2G like Network Access Security and so on. 3G Technology presents localized services for accessing traffic and weather updates. Video calls and video conference is another feature in 3G mobile technology

The fourth generation of network communication technology aims to offer the users faster, more reliable mobile broadband internet. 4G technology provides mobility, It is more flexible, It is easier to standardize and it offers affordability.

In the modern world, the requirements to the quality and speed of receiving and transmitting information are growing. In this regard, the field of information technology does not stand still. One of the direction of advancement in this field is the active development of 5g technology.

The 5G uses such concept as network slicing. This means cutting network resources for different types of traffic, and for each slice (a piece of the network), its own data transmission technology can be used. Due to the flexibility of the approach, it is possible to satisfy the most diverse and even conflicting requirements of any user. In a sense, 5G will become a "cake" combining different technologies, the use of each of which will be determined depending on the requirements of a particular user.

Prospective applications and services require significantly higher characteristics of mobile Internet connections that cannot be implemented in existing commercial LTE networks. It is expected that 5G networks will allow to connect a lot of devices capable of installing billions of connections, due to which it will be possible to create new services in:

- tactile Internet;
- IT sphere and communication;
- car industry (unmanned driving);
- leisure industry;
- education;
- agriculture.

Due to the networks of the fifth generation it will also be possible to improve the quality of the use of already existing services, where large amounts of traffic are involved. A lot of different devices will be connected to 5g networks. That means that a very important parameter will be low power consumption. Smartphones and tablets will not disappear, but in addition to them, a whole "zoo" of various devices will appear on the network, including CCTV cameras, weather sensors, smart grid sensors, smart homes and cars. With 5G users can watch 3D TV without glasses, download in seconds or watch online Ultra HD videos. It will also be possible to use applications of virtual and augmented reality at a new level, for example, to include elements of augmented reality in the educational process, creating virtual museums and models of the universe in classes. In the projects of smart cities, 5G will allow real-time transmission of information from a much larger number of sensors at various sites.

At the international level, the frequencies for 5G are not yet approved, although the fifth generation communication technologies are already ready for use. Commercial launch of 5G networks may take place already in 2018, as now different countries allocate frequencies for testing of 5G. So, for example, on September 29, 2017 it became known about the launch of the first in Europe network of the fifth generation, to which anyone can connect. Together, the project was implemented by Intel, Ericsson and Telia. A public 5G-network in test mode is deployed in the port of Tallinn in order to explore the possibilities provided by the new technology, which provides high rates of Internet connection quality. A high-speed network was also launched on a cruise liner, allowing 2,000 passengers to enter the network via Wi-Fi, and also connect to the Internet communication systems of the ship. Ericsson, Intel and Telia have continued testing the technology in yet another direction - the building one. The companies demonstrated the possibility of remote control of the excavator with the help of augmented reality system, which connects to the machine via a 5G connection.

Minister of Communications and Informatization Sergey Popkov said that Belarus will be ready to provide 5G services right after its international standardization.

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