

THE DEVELOPMENT OF WIRELESS COMMUNICATION OR THE ROAD FROM THE PAST TO THE FUTURE

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Nowadays wireless communication occupies a significant place in the world. We briefly review the history of the appearance of a wireless signal. Then, mobile phones are considered: the first mobile phones and how they are similar to today's smartphones. The most relevant and developed topic to date is mobile Internet, comparable to today's success in the transmission of data via wireless channel using mobile phones.

The most relevant technology to date is wireless technology. In everyday life, it is present around us in the form of radio stations, mobile phones, contactless plastic cards, travel cards and so on. Wireless communication greatly simplifies our lives.

Wireless communication originates in 1894, the Italian Guglielmo Marconi for the first time transmitted a wireless radio signal. In 1896 Marconi patented his first telegraph. This invention found its place among the military, but the telegraph could not transmit the voice.

1906 became important for the further development of wireless devices, this year Reginald Fessenden conducted the first broadcast over the radio.

Since the 20-ies of the XX century there were first radio receivers, namely AM receivers. During the Second World War wireless communication played a decisive role. After that the first satellite was launched in 1957. The exploration of space would be impossible without communication. In the 70's the first wireless analog telephone systems of mass use appeared - the first generation of mobile networks. They had many limitations, such as: the inability to communicate when the user moved between the base stations. The devices themselves were expensive and cumbersome.

The temporary use of frequency was a temporary impediment to the development. Originally it was planned to use the radio range for military needs. But large-scale development of production of consumer goods in the communication sector forced the government to develop rules for allocating the frequency spectrum for these needs.

CDMA, WAP, GPRS, GSM, Bluetooth, 3G, LTE and many other terms are not familiar to most people living today, despite the fact that they use them every day and do not suspect it, the technical progress in this sphere is so rapid. However, everyone can learn about them by simply entering these names in the search box of your browser.

Sales of network equipment for the creation of local area networks (LAN) have significantly increased. Today you can meet LANs at every step: at airports and railway stations, in cafes, museums and even city parks. Modern cities are covered by invisible nets, piercing the whole city.

The advantages of wireless communication for commercial organizations are indisputable. All company data can be stored on a well-protected file server, and any employees who have access regardless of their location and device used will have access to the company data stored on the server. Also, instead of a printer for each employee, you can set one for the whole office, and everyone can send documents from their computer to print them. And all this without a single wire!

And we will start with a little-known system of wireless connection with the Internet 1G. Its speed is so small in comparison with modern Internet access points that it is even frightening to imagine that anyone has ever visited it via the Internet. Its speed was up to 2 Kbit/s. Modern users have a hard time imagining what it is. Today's page of google.ru (in the full version) with the help of 1G would load 7 minutes, of course, it also has a lite version, which was loaded much faster. If you compare 1G to 2G, then 2G is 7 times faster and more stable. It was born in the distant 1970, it was refined, perfected and was published in 1984. If you think that 1G is nowhere used now, then you are very mistaken, it is used to transfer calls. When we talk on the phone it is 1G.

Studying 2G transmission system began in 1980, and its introduction as a permanent network began in 1991. The data transfer rate in it is also very small from 9 to 20 Kbit / s. The most common transmission format in 2G was GSM, which was introduced as a standard because it was the most stable and did not intersect with other signals. It was intended for voice and text messages.

2.5G - its name is little known, but it is used everywhere for access to the Internet by many mobile operators. It is known as GPRS to many users. Its breakthrough was that the user began to pay not for the time of using the Internet, but for the number of used traffic because it allowed to account for traffic. The development started in 1985, implementation began in 1999.

2.75G - its name is also little known, although many heard it under the name EDGE, for a while it was introduced in Russia, but, realizing that it would not pay off, they refused to use it.

Very well-known 3G, had a data transfer rate of up to 2 Mbit/s. Support for multiple threads was the main innovation, it became possible to simultaneously download different types of data. The development started in 1990, implementation began in 2002. However, it was replaced by 3.5G almost immediately.

3.5G or HSDPA was widespread for some time. The data transfer rate in practice is 3-14 Mbit/s. Developments started in 1995, implementation since 2006. DC-HSDPA, HSPA +, DC-HSDPA +, DC-HSPA +

Enhanced 3G (HSDPA), these technologies allow to achieve speeds up to 40 Mbit/s, in practice we see up to 20 Mbit/s

The new generation 4G (LTE) network has a theoretical speed of 20 Mbit - 1 Gbit/s, in practice we meet 20 -70 Mbit/s. The development started in 2000, implementation began in 2008.

I would like to note that, regardless, they still play and will play a key role in providing broadband Internet access in hard-to-reach areas. It is more advantageous for the operator to build a single 4G station that will provide communication at a distance of tens of kilometers than for covering, for example, agricultural land with a network of fiber-optic lines.

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