

THE INTERNET OF THE FUTURE

As soon as people need something, they invent it. In the ancient times, when people felt hunger, they went hunting and for that they invented the bow and arrows. When they needed to carry heavy cargos to large distances the wheel was discovered. Since that time we have travelled far. Scientists like Albert Einstein and Isaac Newton, and many others have turned the tables of the world. Science had brought great laurels in every field but it has really shone in technology.

Internet has made many things possible: communication, online education, and other unlimited opportunities. You can visit your distant relatives on the other side of the globe within a day. Being in Minsk, you can watch an award ceremony held in London.

It's amazing, however, that every new invention made by the Man, immediately generates new needs, demands and requirements. What seemed luxury only yesterday is now found in the pockets of millions. And no doubt — tomorrow it will be out of date. So, scientists are looking for new ways of Internet development. Ultra-fast 5G Internet from drones with solar panels will be possible thanks to advancements in technology development.

Google is working on solar-panel drones that will distribute ultra-fast Internet in the project called Project Skybender. Drones are expected to provide Internet services 40 times faster than in 4G networks, allowing you to transfer gigabytes of data per second. The project includes the use of millimeter waves to provide the service. Jacques Rudell, a professor of electrical engineering at the University of Washington in Seattle says: “The huge advantage of millimetre wave is access to new spectrum because the existing cellphone spectrum is overcrowded. It’s packed and there’s nowhere else to go” [1,p.12].

However, these waves have a shorter range than the 4G mobile signal. Google is working on this problem, and if they can solve all the technical problems, the Internet may soon appear at an unprecedented speed.

Communication via Internet will become much easier. You'll no longer need Skype or any other VoIP service to establish voice or video communication: WebRTC technology allows you to organize video chat between any users of social networks directly from the pages of networks. The technical basis of WebRTC is a JavaScript API that is integrated directly into the browser. WebRTC also uses a lot of developments in the field of audio and video movements, including noise and echo cancellation, as well as signal compression for transmission over slow channels.

Video consultations of potential customers in online stores will become common. Today only Amazon can boast of such a service: in the latest generation of Kindle readers, you just need to click a button to start a video chat with technical support. In addition, the introduction of WebRTC can raise the interactivity of websites to a fundamentally new level. If the user gives the site access to their webcam, different services will be able to see their visitors. This will allow, for example, to automatically change the font size if the user leans too close to the monitor, to scroll through the page if the eyes are lowered to the bottom of the screen: a similar function that tracks eye movement is already available in some Samsung smartphones.

Lots of information on the Internet results in a problem of its storage. Scientists have created a 5D disk that records data in 5 dimensions that can be stored for billions of years. A single disk can store 360 terabytes of data and withstand temperatures of up to 1000 degrees. The files on the disk are made of three layers of nanodots. The five dimensions of the disk refer to the size and orientation of the points, as well as their position within the three dimensions. When light passes through the disk, the dots change the polarization of the light, which is read by the microscope and the polarizer.

The team from Southampton who are developing the disc was able to record the Universal Declaration of Human Rights, Newton's Optics, Magna Carta and the Bible on the disc. In a few years, such a disk will no longer be an experiment, but will become the norm of data storage [2 p.9]. Of course, many inventions have given us freedom and independence, power and opportunities, but at the same time they also impose certain responsibilities upon the mankind. On the one hand, today's technology has led to a drastic increase of labour productivity. But on the other hand, the mankind should foresee the consequences of its actions, namely, the impact on Nature made by the human activities.

So network technologies consume too much energy, and experts agree that the future architecture of computer networks should be more energy efficient. Boston Consulting Group reports that Internet service accounts for about 2% of the world's waste. In other words, twenty minutes of "Titanic" is equal to 2 km by car. So now the new trend of "green" Internet is appearing.

Probably, the man's greatest invention yet to come will be the decision to return to Nature, to return on a new, higher level — not as a conqueror but as a friend and a partner. This is becoming the greatest necessity of all time, and the sooner the humanity realizes this, the better.

References:

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2. Hubbard, D. W., & Seiersen, R. (2016). How to measure anything in cybersecurity risk. John Wiley & Sons.