# 5G Internet technology

*Sorochinskiy V.A.*
*Belarusian State University of Informatics and Radioelectronics*
*Minsk,Republic of Belarus*
*Lasarenko A.M. – Senior Lecturer*

5g Internet technology is considered . Benefits and disadvantages of 5g are discussed.

At the dawn of the quick development of the telecommunications industry, it is difficult to imagine life without mobile systems.The main theme of the new era is the development of the Internet of things and its maintenance of the fifth generation network, called 5G. Popularization of connected devices is the strongest catalyst in the development of the telecommunication industry, especially with regard to high speeds, virtualization and cloud services.

The cost of passing an ever increasing traffic through the networks of telecommunication operators as of 2019 is not covered by revenues from traditional services (see Picture 1). Search for new services, called the killer application of traditional telecom platforms usually does not produce the expected results. Meanwhile, the main growth of traffic and incomes does not occur in the sector of people devices, but in the Internet of things devices sector, which is one of the basic goals of the 5G functionality. Therefore, 5G networks can be considered one of the necessary digital transformation and the digital economy components.


Picture 1 – Revenue gap of data traffic and revenues

5G is the fifth generation of mobile communications based on telecommunication standards following the existing 4G standard.

The main requirements for 5g:

- Connection quality
- High average data transfer rate - from 1 Gb / s
- The average number of simultaneous connections is 1 million persquare km
- Delay - up to 1 ms
- High energy efficiency
- Safety for human health

The key 5g services:

- Multimedia services
- Cloud services
- Virtual reality services
- Augmented Reality Services
- Social networking services
- M2M services
- Personal services

The Internet of Things is one of the main technologies in the fifth generation networks. The Internet of things is not just a multitude of different devices and sensors connected by wired and wireless communication channels and connected to the Internet, it is a closer integration of the real and virtual worlds in which communication is made between people and devices (see Picture 2). To implement this, technologies such as wireless sensor networks and RFID will be used.


Picture 2 – The Internet of things

The technology of “slicing” is used in 5g, that means prioritization of the network. For example, if an accident happens, journalists, police, ambulances will come to this accident, in such situation the communication priority will be given to the police and ambulance.

In the future 5g will open the possibility of remote control of robots, loaders, cars and even trains. For example, in hazardous industries, bulldozers, cranes and other equipment can be controlled remotely, without human intervention. You can implement an intelligent transport system. Smart Transport will be able to interact with roads, traffic lights, street signs, parking lots. Unmanned vehicles will be able to exchange data in traffic jams or accidents on the roads. According to PwC forecast, unmanned vehicles will have been fully implemented in major cities by 2040.

It’s hard to predict when 5g technology will be fully implemented. According to GSMA forecasts, by 2025, 5g will have accounted for 15% of world telephony, 30% in Europe and China, 50% in the USA.

To my mind, until investments in 5G become economically attractive, industry organizations and policy makers should worry about such investmentswhile improving the availability and quality of existing 4G networks.

***References:***

1.https://ru.wikipedia.org/wiki/5G
2.http://www.tadviser.ru/index.php/Статья:5G
3.https://knowledge.allbest.ru/programming
4.https://nag.ru/articles/article/30498/tehnologii-5g-setey.html