



UKRAINE ON THE WAY OF 5G IMPLEMENTATION

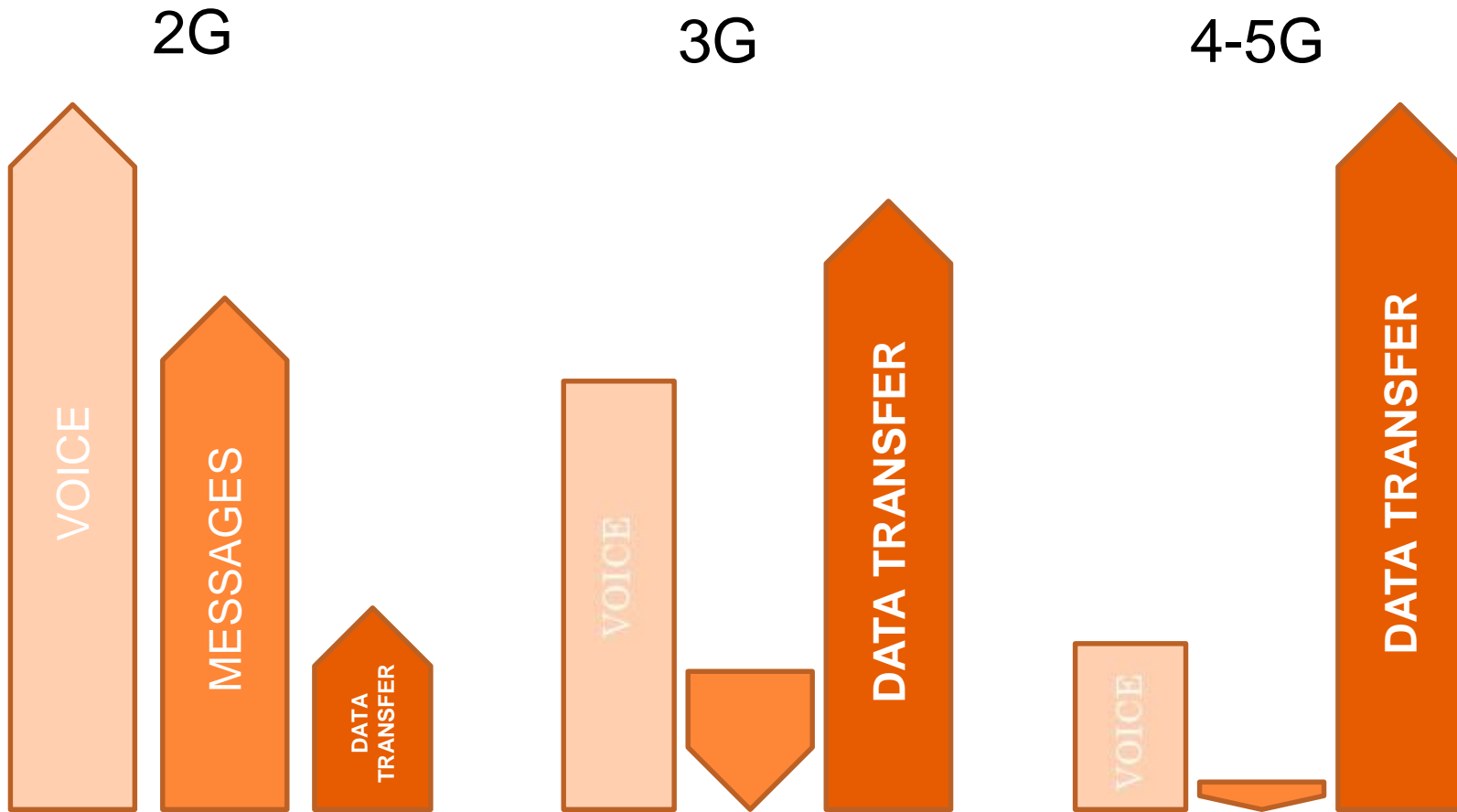
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CONTENT

- ❖ Development of mobile communication generations up to 5G
- ❖ The promises of 5G
- ❖ Situation in Ukraine regarding the readiness of 5G implementation
- ❖ Legislative and government initiatives
- ❖ Organizational and technical tasks that must be solved



EVOLUTION OF SERVICES: FROM 2G TO 5G



INTERCONNECTION OF GENERATIONS OF MOBILE COMMUNICATIONS ON THE WAY TO 5G

- The 5G concept will use the shared wireless access infrastructure for mobile networks 2G/3G/4G;
- For the implementation of 5G will be used both the already used frequency resource of mobile communication and new broadband radio channels in the ranges above 6 GHz;
- Functional networks 2G / 3G / 4G will become the basis of multi-technological and multi-frequency 5G network with support of mutual handover and service transparency;
- Business models for the 5G will be based on 3G/4G business models with some changes.



WHAT CAN 5G BRING?

Amazing volume,
amazingly fast

Always best
connected

No perceived
delay

Massive
amounts of
connected things
and people

Energy efficiency

Flexible,
programmable,
secure networks



REALIZATION 5G IN PRACTICE





How **5G** unleashes the Power of immense **Internet of Things?**

- The internet of things is already made for the ease of life and the task of installing 5G is not an impossible one and to make it done will definitely bring the endless possibilities in the world.



TOP 5 BENEFITS OF 5G

COMPARED TO 4G NETWORKS

100X

energy efficiency



10-100X

data rates

5-10X

latency reduction



10-100X

connected devices



100X

area traffic capacity



- 4G / LTE technology will continue to evolve and will be an important part of the 5G radio access infrastructure supporting backward compatibility



- 2018 – 4G implementation (Lifecell, Vodafone, Kyivstar 2600 MHz, 1800 MHz) 200 settlements in 18 regions

In the spring, two 4G auctions were held in Ukraine, where the government distributed frequencies between the mobile operators in the 2600 MHz and 1800 MHz bands.

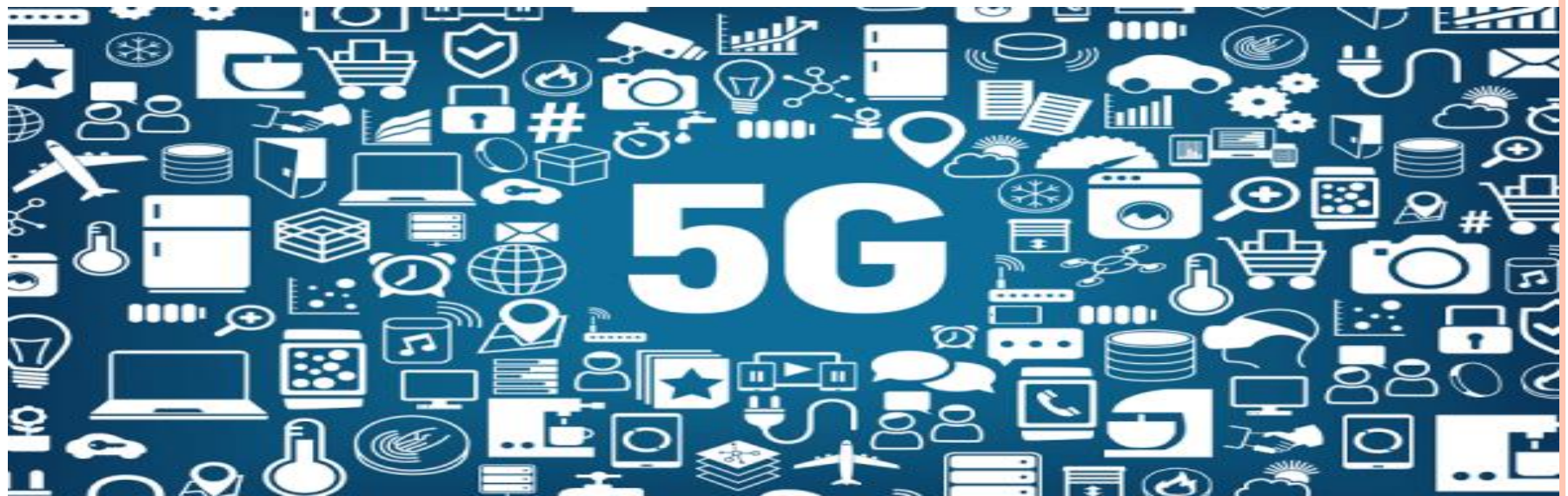
According to the terms of the tender, the indicated telecommunication operators, starting July 1, 2018, must provide the opportunity to receive services using 4G in the range:

- within 12 months (that is, until July 2019) not less than 90% of the population of each regional center of Ukraine;
- within 42 months (that is, by December 2021) not less than 90% of the population of each settlement with a population of more than 10,000 people.



Lifecell, Ericsson, Huawei top managers, signed a memorandum on promoting 5G development in Ukraine, which potentially can help the rapid introduction of 5G in Ukraine and market development.

Ukraine is largely based on European norms and frequencies suitable for launching 5G in Europe, which will only be determined in 2019 during the WRC-19 (World Radiocommunication Conference).



LEGISLATIVE AND GOVERNMENT INITIATIVES

Today, the development of the market for information technology and innovation is impossible without the interaction of the IT sector and government.

Starting from 2016, the government began to pay extra attention to the development of IT industry in Ukraine and the implementation of IT innovations in all fields of activity through cooperation with business and commerce IT-sector as well.

Initiatives to develop the IT industry are supported and stimulated even at the highest level - the President of Ukraine.



LEGISLATIVE AND GOVERNMENT INITIATIVES

Within the framework of the speech Petro Poroshenko called on the parliament to accelerate the adoption of laws relating to electronic communications and other laws in the field of telecommunications.

Also in order to cover the entire country's network, including the countryside, and not just the major cities and routes, operators need access to low-frequency bands, for example 900 and 800 MHz.

So another tender in the 900 MHz band is expected and also our president initiated the rapid disconnection of analogue TV, which will help to release even more frequencies in these bands under 4G.



ORGANIZATIONAL AND TECHNICAL TASKS THAT MUST BE SOLVED

- Improvement and adaptation of Ukrainian legislation to key EU standards in the digital sphere (Law of Ukraine "On Electronic Communications")
- Release of the radio frequency spectrum for 5G needs
- Development of ranges above 6 GHz to provide ultra high data rates and areas with dense buildings



ORGANIZATIONAL AND TECHNICAL TASKS THAT MUST BE SOLVED

- Improvement of mass inter-machine communication and increase of its reliability
- Changes in the business model of 5G
- Devoting great attention to the issues of informational security
- Permanent cooperation between government and IT sector
- Preparing high qualified specialists, who will implement all new technologies and IT solutions in practice





Thank you for your attention!

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