

5G: Everything you need to know about it.

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Abstract:

This paper introduces what is 5G network technology and its advantages and disadvantages. It mainly analyzes the future of 5G network, and gives introduction of the basic concepts and important benefits it will provide to the people.

Introduction:

5G is a unified, more capable air interface. It has been designed with an extended capacity to enable next-generation user experiences, empower new deployment models and deliver new services. With high speeds, superior reliability and negligible latency, 5G will expand the mobile ecosystem into new realms. 5G will impact every industry, making safer transportation, remote healthcare, precision agriculture, digitized logistics and more a reality.

5G is the fifth generation of cellular mobile communications, with evolutionary and revolutionary services. 5G being the next generation of mobile networking standards, promises to deliver improved end user experience by offering new applications and services through seamless coverage, high data rate, low latency, and significantly improved performance and reliable communications. It will increase energy efficiency, spectrum efficiency and network efficiency. 5G enhances the variety & scope of the use cases that LTE is able to minimally address today, and brings new revenue streams to operators by leveraging new solutions that LTE was not able to serve.

What is 5G?

The fifth generation of mobile wireless communications promises to offer us with lower latency, greater stability, the ability to connect more devices at once, and move more data thanks to faster speeds. Previous generations of mobile networks addressed consumers predominantly for voice and SMS in 2G, web-browsing in 3G and higher-speed data and video streaming in 4G. The transition from 4G to 5G will serve both consumers and multiple industries. With global mobile data traffic expected to grow eight times in the next few years, there is a need for a more efficient technology, higher data rates and spectrum utilization. New applications such as 4K and 8K video streaming, virtual and augmented reality and emerging industrial use cases will also require higher bandwidth, greater capacity, security, and lower latency. Equipped with these capabilities, 5G will bring new opportunities for people, society, and businesses.

Why 5G?

Reasons 5G is important: 5G is not only important because it has the potential to support millions of devices at ultrafast speeds and also because it has the potential to transform the lives of people around the world.

1. Improving accessibility:

Improvements in 5G technology can help make life better. For example, significant advances in autonomous vehicle technology are possible with 5G, creating the potential for people to have new levels of personal and professional freedom. Connected appliances can help automate tasks around the house, which can not only improve personal convenience but also help those who need assistance with everyday tasks.

2. Extending the reach of mobile broadband:

5G can power technology well beyond what current mobile technology permits. Thanks to its speed and bandwidth, 5G promises to make significant improvements in 3D holograms, virtual reality and augmented reality, creating opportunities to connect people far beyond what current cellular technology allows.

3. Improving safety, health and security:

Access to 5G technology promises to improve mission-critical services that affect safety and security of services today. Opportunities include smart cities with 5G in public spaces, the potential for remote surgery, better traffic control and many other applications that depend on nearly instantaneous response time.

Benefits of 5G:

More efficient networks will address the capacity needs from the growing mobile data traffic. Industries will be transforming by new capabilities brought on by 5G.. Examples of these capabilities include:

1. The ability to download a full-length HD movie in seconds.
2. The quick reaction time (low latency) to enable remote robotics.
3. The ability to spin up virtual networks on-demand with network slicing.
4. Battery lifetimes beyond 10 years for remote cellular devices.
5. 5G towers are significantly smaller and therefore can be put in a variety of locations that would never have worked in the past.

Disadvantages of 5G:

1. Developing infrastructure and building new towers will be expensive and will lead to deforestation.
2. Most of the old devices would not be competent to 5G, hence, all of them need to be replaced with new one.
3. 5G technology is still under process and research is going on.
4. Security and privacy issue is not yet solved in 5G.

