

5G TECHNOLOGY

SURANA COLLEGE

Mohammed Irfan

Mob: +91 8310663399, Email: tabsim79@gmail.com

Abstract:

5G Technology stands for fifth Generation Mobile technology. 5G technology will change the way of using cell phones with increase in the high bandwidth. From generation 1G to 2.5G and from 3G to 5G this world of telecommunication has seen a number of improvements along with improved performance with every passing day. The revolution in mobile generation changes our day to day life. This paper also focuses on all previous generations of telecommunication along with 5G technology. The 5G technologies include all types of advanced features which makes 5G technology most powerful and in huge demand in near future.

Keywords: 5G, 5G Architecture, Evolution of telecommunication, Comparison of Generations

INTRODUCTION:

The word wireless is defined as “without wires”. In networking technology, wireless is the term used to describe any computer network where there is no physical wired connection between sender and receiver, but the network is connected by radio waves or microwaves. Wireless networking utilizes specific equipment such as NICs and routers in place of wires (copper or optional fibre). The Fifth generation technology will be having some new advanced features which will make 5G the most powerful medium in the near future. The 5G networks can be completely wireless without any limitation, on the network which makes it perfect wireless real world–World Wide Wireless Web (WWW).

5G will be most powerful technology which will interconnect the entire world without any limitations. This generation is expected to be released by 2020.

EVOLUTION OF TELECOMMUNICATION:

Telecommunication has been more popular in last few decades due to revolution in technology. The revolution of telecommunication is because of the increase of the telephone users. The evolution of telecommunication starts right from the very first generation 1G, 2G- the second generation, 3G- the third generation, and then the 4G the fourth generation, 5G- the fifth second generation.

1. First Generation(1G)

- 1G the 1st generation of wireless telephone technology, mobile telecommunications which was first introduced in 1980s and completed in 1990s.
- Its speed was up to 2.4kbps.
- 1G network uses analog signal.
- AMPS was first launched in U.S.A in 1G mobile systems.

2. Second Generation(2G)

- 2G the 2nd generation which is based on cellular network of GSM.
- It was first launched in Finland in the year 1991.
- 2G network use digital signals.
- Its data speed was up to 64kbps.
- It enables the user to send text messages picture messages and also MMS.
- It provides better quality and capacity.

3. Third Generation(3G)

- 3G the 3rd generation which was introduced in the year 2000s.
- Data transmission speed increased from 144kbps – 2Mbps.
- Typically called smart phones and features increased its bandwidth and data transfer rates to accommodate web-based applications and audio file video file.

4. Fourth Generation(4G)

- 4G the 4th generation which was started from late 2000s.
- It provides 100Mbps-with 1 Gbps speed.
- It provides better quality and capacity from the previous generation.

WHAT IS 5G?

5G wireless- 5th generation wireless technology. Concept is only theoretical not real. It complete wireless communication with almost no limitations and can be called REAL wireless world. It has incredible transmission speed and is capable of supporting wireless world wide web (www).

HARDWARE OF 5G:

5G Hardware:

- It uses the high level bandwidth at low energy levels.
- The size of the bandwidth is of around 4000Mbps which is faster than today's network.
- Uses smart antenna.
- It uses CDMA(Code Division Multiple Access)

SOFTWARE OF 5G:

5G Software:

- 5G software defined radio, encryption, flexibility, Anti-virus.
- 5G will be single unified standard of different wireless networks including LAN, WAN, WWW and combination of broadband.

FEATURES OF 5G:

- High resolution.
- Incredible transmission speed.
- Uploading and downloading speed is high.
- Expected speed up to 1 GB.
- Supports virtual private network.
- More effective and reliable.
- Ten times more capacity than other.

APPLICATIONS OF 5G:

- Global networks.
- Radio resource management.
- VOIP (Voice over IP) enabled devices.
- With 6th sense technology.
- Wearable devices with AI (Artificial intelligence).
- We are able to pay all our bills in a single payment with our mobiles.

CURRENT STATUS OF 5G:

- The European Telecommunications Standards Institute is formulating 5G global technology standards which are likely to be formulated by 2019.
- Telecom companies such as Nokia, Ericsson, NTT, Samsung, and Huawei are driving bulk of the 5G related innovations.
- 5G network are likely to be rolled out commercially between 2020 and 2025.
- 5G will require new chipsets and devices which are capable of supporting the speed of 5G.

CONCLUSION:

Today's wired society will be wireless because of 5G. 5G technology is going to bring a new revolution in wireless system market. It is the next frontier of innovation for entire mobile industry. 5G technology will give the best competition for different compatible computers and laptops. It will be available in the market 2020 at affordable cost with more reliability than previous generations.

References:

[1] <http://www.engpaper.com/5g-2015.htm>
[2] <http://ijarcet.org/wp-content/uploads/IJARCET-VOL-2-ISSUE-2-568-571.pdf>

[3] “5g Wireless Architecture” By Vadan Mehta
[4] “5G Mobile Phone Technology” from www.pediain.com