5G Mobile Technology and Wireless Communication

P. Samundeeswari [#1], R. Sankar [#2]

[1]*Master of Computer Applications, S.A. Engineering college, Chennai-77.*
samundeeshwari.08@gmail.com
[2]*Asst Prof., Department of Computer Applications, S.A. Engineering College, Chennai-77.*
sankar@saec.ac.in

Abstract— 5G Technology means fifth generation technology. From generation 1G to 2.5G and from 3G to 5G, world of telecommunication has seen improvements with improved performance in each passing day. The speedy revolution in mobile computing alters our day to day life like the method we work, interrelate, study etc. It centers on all previous generations of mobile communiqué with fifth generation equipment. The light on network architecture of fifth generation technology has a main future in 5G mobile networks and can connect multiple wireless technologies and offer switching between them by the user.

Keywords— Improvements; Connectivity; Angle of Arrival; UWB Network.

1. Introduction

5Gdenotes the major phase of mobile telecommunications standards beyond the current 4G/IMT-Advanced standards. 5G has speeds beyond what the current 4G can offer.5G technologies include all type of advanced features which make 5G technologies most powerful and in huge demand in near future. It offers huge quantity of broadcasting data which is in Gigabytes. This technology also provider   remote diagnostic feature- provide up to 25 mega bytes per second connectivity.

2. 5G Mobile Technologies

5G is an ordinary platform for all radio entrée technology. 5G architecture is IP based mobile apps such as mobile portals, banking and others are obtainable via cloud computing resources.

Cloud computing is a model for convenient on-demand network access to configure the computing resources. Very high speed, high capacity, and low cost per bit [1]. 5G technology offers global access and service portability. It offers the high speed quality service due to high error tolerance. 5G can also give big transmitting ability up to gigabit which sustaining approximately 65,000 links at a time. 5G employ remote administration which client can obtain improved and rapid solution. The speed of 5G for uploading and downloading files is very lofty.

5G technology offer high resolution for crazy cell phone and bi-directional large bandwidth shaping. 5G technology offer transport class gateway with unparalleled consistency [2]. The advanced billing interface of 5G technology makes more attractive and effective. 5G technology also given that subscriber direction tools for speedy action. The high quality services of 5G technology can avoid error. The remote diagnostics also a great features of 5G technology. The 5G mobile technology providing up to 25 Mbps for connectivity speed.

The 5G technology also support virtual private network. The uploading and downloading speed of 5G technology is touching the peak. The 5G mobile phones will have access to different wireless technologies at the same time the terminal should be able to combine different flows from different technologies.
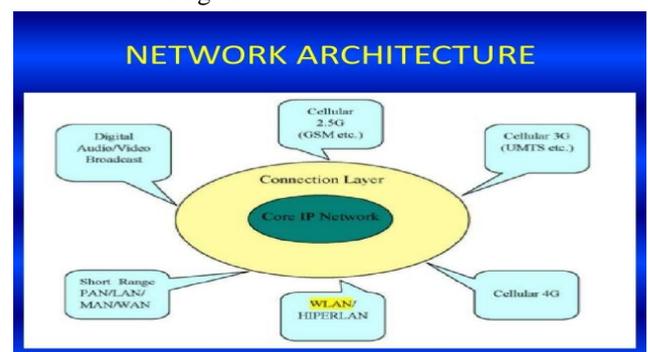

Fig. 1: Network architecture

We can watch TV channels at HD clarity in our mobile phones without any interruption. The 5G mobile phones will be tablet PC. Real wireless world with no more limitation with access and zone issue large broadcasting & less traffic. High speed, high capacity, and cost per bit. One unified global standard. Global access, service portability, and scalable mobile service are wearable devices of AI capabilities.

2.1 Hardware and Software

A. 5G hardware

- *UWB Network:* higher bandwidth at low energy levels. The UWB provides the needed cost-effective, power-

Special Issue of Engineering and Scientific International Journal (ESIJ)
Technical Seminar & Report Writing - Master of Computer Applications - S. A. Engineering College
(TSRW-MCA-SAEC) - May 2016

ISSN 2394-187(Online)
ISSN 2394-7179 (Print)

effective, high bandwidth solution for data from host devices to devices in the immediate area.

- *Bandwidth:* 4000 megabits per second, which means 400 times faster networks.
- *Smart Antennas:* Switched been antennas support radio position angle of arrival (AOA) information collected from nearby device.
- *Adaptive array antennas:* The use of adaptive array antennas arrays is one area that for informing capacity of wireless systems and providing safety through a position location capabilities.
- *Multiplexing:* Code Division Multiple Access- CDMA analog to digital conversion-ADC in mixture of extend spectrum equipment and audio participation is initial digitalized in binary rudiments. The frequency of the broadcasted signal is then to be anxious distinct prototype code by a receiver whose frequency reply is programmed with the identical code. So it follows exactly along with the transmitted frequency.

B.   5G Software

- 5G will be single unique standard of different wireless networks and including wireless technologies (for example, IEEE 802.1), LAN/WAN/PAN and WWWW, unique IP and seamless communications of broadband.
- Software defined ratio, packet layer, implementations of packets, encryption, flexibility etc.

3.   Fifth generation System (5G)

5G is a major phase of mobile telecommunications standards around 4G. The concept of handheld devices is going to be revolution with the advent of 5G[3]. The services and apps are going to be procedure by single IP as telephony, betting and numerous other multimedia apps. It is not a new thing or gadget in market and millions of users are experienced all over the world of wireless services and till now they are observed to this wireless technology. It is not easy to shrink from using this new 5G network technology. They require creating it reachable so that an ordinary man can effortlessly create gainful packs obtainable by the companies so that 5G network could grasp place in the telecommunication field. To complete with the previous wireless equipment in the bazaar 5G networks has to tender something dependable and further revolutionary. All telephony, camera, mp3 player, are developed in new mobile phone models. 5G is given that all these usefulness in mobile phone. By viewing the features of 4G one can gets a rough idea about what 5G network could offer. There would be no difference between a PC and a mobile phone and both would act as same. 5G technology is going to be a new mobile revolution in

mobile market. Through 5G technology you can use worldwide cellular phone and this technology also strike the china mobile market. The user is being proficient to get access to Germany phone as a local phone [4].

4.   Conclusion

The 5G technology is going to give a tough competition to computer and laptops and its market place value will also be affected. There is lot of improvements from 1G to 5G in the world of telecommunications. The newly coming 5G technology is available in the market with high rates and high peaks. Future has much reliability than its preceding technologies. The development of the mobile and wireless networks has become higher data rates and all IP principle. Mobile terminals of each year can increase more processing power, memory on board, and longer battery life for the simultaneous applications. The latest technologies included in 5G are cognitive radio, SDR, nanotechnology, cloud computing and based on all IP address platform. It is expected that the initial internet philosophy of making the networks are simple as possible and giving more functionalities to the end nodes. 5G will become a reality in the future generation of mobile.

5.   Future work

5G network technology is used to open a new era in mobile communication technology. The 5G mobile phones will have access to different wireless technologies at the same time and the terminals should also be able to combine different flows from different technologies.

References

[1] Dr. Anwar M. Mousa, "Prospective of Fifth Generation Mobile Communications", University of Palestine, Gaza- Palestine, International Journal of Next-Generation Networks(UNGN), Vol.4, No.3, September 2012, pp.311-315.
[2] Akhilesh Kumar Pachauri and Ompal Singh, "5G Technology-Redefining wireless Communication in upcoming years" , published in International Journal of Computer science and Management Research Vol. 1, Issue 1, Aug .2012 , pp.231-250.
[3] Ms. Reshma S. Sapakal, Ms. Sonali S. Kandam, "5G Mobile Technology" Volume 2, Issue 2, Febrauary 2013, pp.244-249.
[4] Saddan Hossain, "5G Wireless Communication Systems" American Journal of Engineering Research, Vol. 02, Issue 10, pp-344-353.

P.Samundeeswari is holding a Under Graduation Degree in B.Sc computer science from Mahalashmi women's College of Arts And Science and pursuing Post-Graduation in master of computer applications from S.A Engineering College. This paper is a part of curriculum covered under in (MC7413) Technical Seminar and Report Writing.

R. Sankar , is a Assistant Professor, Department of Computer Applications at S.A. Engineering College, Chennai. He has published many articles in the National and International Journals of Computer Science and presented papers in many Conferences.