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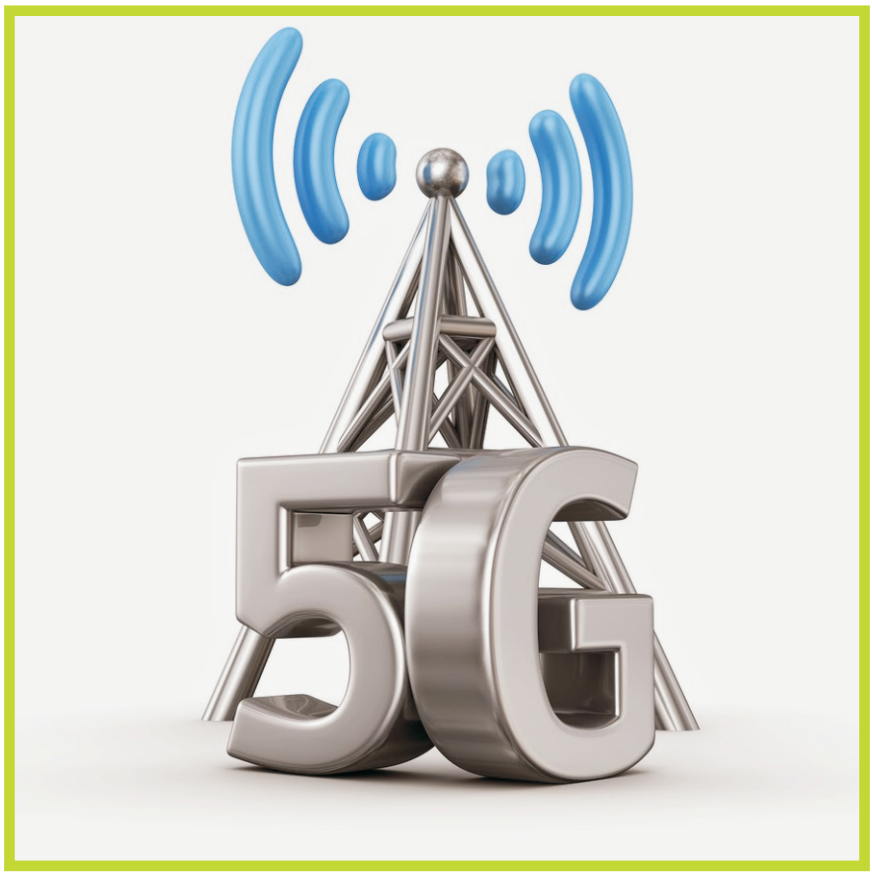
REVIEW OF RESEARCH

ADVANCE TECHNOLOGY IN WIRELESS COMMUNICATION- 5G



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Abstract :

Today wireless services are the most preferred services of the world. The rapid increase in the service is due to the advancement of technology consecutively. The worldwide revolution in mobile and internet technology have changed our way of living life. The paper is definition of 5G (Fifth Generation) mobile network concept .

Keywords: Advance Technology, Wireless Communication- 5g, Worldwide.

INTRODUCTION

In early 1980's when the wireless communication just started, it started with the zero "0G" technology commonly known as radio wireless transmission technology. This technology was wide spread but further it provided facility of voice call only but not data transfer, that was the drawback of 0G technology. Today 3G mobile systems are on the ground providing IP connectivity for real-time and non-real-time services. On the other side, there are many wireless technologies that have proven to be important, with the most important ones being 802.11Wireless Local Area Networks (WLAN) and 802.16 Wireless Metropolitan Area Networks (WMAN), as well as ad-hoc Wireless Personal Area Network (WPAN) and wireless networks for digital TV and radio broadcast. The 5G terminals will have software defined radios and modulation schemes as well as new error-control schemes that can be downloaded from the Internet. The terminals will have access to different wireless technologies at the same time and the terminal should be able to combine different flows from different technologies. The vertical handovers should be avoided, because they are not feasible in a case when there are many technologies and many operators and service providers. In 5G, each network will be responsible for handling user-mobility, while the terminal will make the final choice among different wireless/mobile access network providers for a given service. Such choice will be based on open intelligent middleware in the mobile phone. The OSI layers are

Physical/MAC layers Physical and Medium Access Control layers i.e. OSI layer 1 and OSI layer 2, define the wireless technology. For these two layers the 5G mobile networks is likely to be based on Open Wireless Architecture

Network layer The network layer will be IP (Internet Protocol), because there is no competition today on this level. The IPv4 (version 4) is worldwide spread and it has several problems such as limited address space and has no real possibility for QoS support per flow. These issues are solved in IPv6, but traded with significantly bigger packet header.

Open Transport Protocol (OTA) layer The mobile and wireless networks differ from wired networks regarding the transport layer. In all TCP versions the assumption is that lost segments are due to network congestion, while in wireless networks losses may occur due to higher bit error ratio in the radio interface. Therefore, TCP modifications and adaptation are proposed for the mobile and wireless networks, which retransmit the lost or damaged TCP segments over the wireless link only.

Application layer Regarding the applications, the ultimate request from the 5G mobile terminal is to provide intelligent QoS management over variety of networks. Today, in mobile phones the users manually select the wireless interface for particular Internet service without having the possibility to use QoS history to select the best wireless connection for a given service. The 5G phone shall provide possibility for service quality testing and storage of measurement information in information databases in the mobile terminal.

BASIC COMPARISON BETWEEN 1G &5G

1G	5G
It works on analog signals	It is based on virtual private network
It supports data band width in kbps	It support data band width up to 1GB
It is based on basic mobility	It is based on IPv6
It has no security and Poor carrier aggregation	It has very high security and Multiple carrier aggregation
Band width per frequency channel of 1G is up to 30Khz	Band width per frequency channel of 5G is up to 28Ghz

CONCLUSION-

The 5G mobile phone is designed as an open platform on different layers, from physical layer up to the application. The network layer is divided into two sub-layers to provide all-IP connectivity in environment with plenty of wireless/mobile technologies as well as network and/or service providers. Open Transport Layer is proposed with aim to allow usage of wireless specific implementations of transport protocols. Networking technologies play an important role in the 5G systems . The Hyper-Cellular architecture splits coverage of signaling and data to meet the evolution of mobile networks.

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