



REVIEW ON ANALYSING THE SCOPE OF 4G CELLULAR WIRELESS GENERATION

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Abstract 4G means **fourth generation**. It is fourth generation of mobile telecommunications technology, succeeding 3G. A 4G system must provide capabilities defined by ITU in IMT Advanced. Potential & current applications include amended mobile web access, IP telephony, gaming services, high-definition mobile TV, video conferencing, 3D television, & cloud computing. Two 4G candidate systems are commercially deployed: Mobile WiMAX standard first used in South Korea in 2007, & first-release Long Term Evolution (LTE) standard. This has however been debated if these first-release versions should be considered to be 4G or not, as discussed in technical definition section below

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1. INTRODUCTION

Wireless communication is transfer of information between two or more points that are not connected by an electrical conductor. Most common wireless technologies use radio. With radio waves distances may be short, such as a few meters for television or as far as thousands or even millions of kilometers for deep-space radio communications. This encompasses various types of fixed, mobile, & portable applications, including two-way radios, cellular telephones,

personal digital assistants (PDAs), & wireless networking.

Meaning of G

Each of Generations has standards that must be met to officially use G terminology. Those standards are set by, you know, those people that set standards. Standards themselves are quite confusing but advertisers sure know how to manipulate them.

1G – A term never widely used until 2G was available. This was first generation of



cell phone technology. Simple phone calls were all this was able to do.

2G – second generation of cell phone transmission. A few more features were added to menu such as simple text messaging.

3G – This generation set standards for most of wireless technology we have come to know. Web browsing, email, video downloading, picture sharing & other Smartphone technology were introduced in third generation. 3G should be capable of handling around 2Mbps.

4G – speed & standards of this technology of wireless needs to be at least 100 Megabits per second & up to 1 Gigabit per second to pass as 4G. This also needs to share network resources to support more simultaneous connections on cell. As this develops, 4G could surpass speed of average wireless broadband home Internet connection.

2. APPLICATIONS OF WIRELESS TECHNOLOGY

Mobile telephones

One of best-known examples of wireless technology is mobile phone, also known as a cellular phone, with more than 4.6 billion mobile cellular subscriptions worldwide as of end of 2010. These wireless phones use radio waves from signal-transmission towers to enable their users to make phone

calls from many locations worldwide. They may be used within range of mobile telephone site used to house equipment required to transmit & receive radio signals from these instruments.

Wireless data communications

Wireless data communications are an essential component of mobile computing. Various available technologies differ in local availability, coverage range & performance, & in some circumstances, users must be able to employ multiple connection types & switch between them. To simplify experience for user, connection manager software may be used, or a mobile VPN deployed to handle multiple connections as a secure, single virtual network. Supporting technologies include:

Wi-Fi is a wireless local area network that enables portable computing devices to connect easily to Internet. Standardized as IEEE 802.11 a,b,g,n, Wi-Fi approaches speeds of some types of wired Ethernet. Wi-Fi has become de facto standard for access in private homes, within offices, & at public hotspots. Some businesses charge customers a monthly fee for service, while others have begun offering it for free in an effort to increase sales of their goods.

Cellular data service offers coverage within a range of 10-15 miles from nearest



cell site. Speeds have increased as technologies have evolved, from earlier technologies such as GSM, CDMA & GPRS, to 3G networks such as W-CDMA, EDGE or CDMA2000.

Mobile Satellite Communications may be used where other wireless connections are unavailable, such as in largely rural areas or remote locations. Satellite communications are especially important for transportation, aviation, maritime & military use.

Wireless Sensor Networks are responsible for sensing noise, interference, & activity in data collection networks. This allows us to detect relevant quantities, monitor & collect data, formulate clear user displays, & to perform decision-making functions.

3 OBJECTIVE OF RESEARCH

The main objective of research is as follow:

1. Highlighting the role of 4G in recent communication Technology
2. Studying existing wireless communication technology
3. Comparison of data transmission speed in case of of 2G,3G,4G Technologies
4. Analyzing the limitation & benefits of 4G.

4. SCOPE OF RESEARCH

As mobile network operators prepare to unleash their 4G networks in India, industry experts foresee a future where fast web access becomes pretty affordable. Airtel, for example, is offering 4G data packages at existing 3G rates to help customers migrate. This might not last forever but it is a clear hint company would price its 4G packages reasonably. Given price sensitive nature of Indian market it is only natural other telecom operators would resort to competitive pricing for their LTE packages in near future.

The initial adopters of 4G would be from urban & semi urban regions in India. Most of them already use mid to high end 3G handsets & they would not mind paying a higher tariff for faster data speeds & better network. He thinks a price war in 4G sector is imminent but it would be more of a differentiated price competition among telcos rather than head-on competition. companies might also offer a range of 4G packages at varying speeds & data limits to suit varying user profiles.

REFERENCES

1. *Sergio Benedetto & Ezio Biglieri (1999). Principles of Digital Transmission: With Wireless*



1. *Applications*. Springer. ISBN 0-306-45753-9.
2. C. T. Bhunia, Information Technology Network & Internet, New Age International, 2006, page 26.
3. Lal Chand Godara, "Handbook of antennas in wireless communications", CRC Press, 2002, ISBN 0849301246, ISBN 9780849301247
4. "Just Ahead: A Wider Wireless World", "Wildstrom, S.", BusinessWeek, December 19, 2007, Retrieved February 9, 2011
5. Mobile & Wireless Communications, "Gow G. & Smith R.", Open University Press, 2006
6. Putting Economics above Ideology, "Hazlett, T", Barrons, July 12, 2010
7. Crampton, Peter (October 1998). "Efficiency of FCC Spectrum Auction" (PDF). *Journal of Law & Economics* **41**: 727–736. doi:10.1086/467410.
8. Salmon, Timothy (2004). *Auctioning Public Assets: Analysis & Alternatives* (PDF). Cambridge University Press. ISBN 0-521-83059-1.
9. "FCC Spectrum Auction Data". *FCC Spectrum Auction Data*. Penn State University. Retrieved April 25, 2011.
10. McMillan, John. "Why Auction Spectrum?" (PDF). *Why Auction Spectrum*. Retrieved April 25, 2011.
11. "Moving Toward a Market for Spectrum". *Moving Toward a Market for Spectrum*. Cato Institute.
12. Malik, Om. "700 MHz Explained in 10 Steps". *700 MHz Explained in 10 Steps*. GIGA.com.
13. "Light Fidelity (Li-Fi): Towards All-Optical Networking", D. Tsonev, S. Videv & H. Haas; Institute for Digital Communications, Li-Fi R&D Centre, University of Edinburgh, EH9 3JL, Edinburgh, UK.
14. Rancy, Francois. "Welcome to ITU-R". ITU. Archived from original on May 14, 2011. Retrieved April 27, 2011.
15. Gahran, Amy (March 22, 2011). "FCC warns of looming mobile spectrum crunch". *CNN Tech*. Retrieved April 29, 2011.



16. Zhao, Houlin. *"Globalizing Trend of China's Mobile Internet"*. ITU. Retrieved April 20, 2011.
17. Budde, Paul. *"Broadband: A Platform For Progress"* (PDF). Retrieved May 5, 2011.
18. Onyeije, Uzoma. *"SOLVING CAPACITY CRUNCH Options for Enhancing Data Capacity on Wireless Networks Onyeije"* (PDF). Onyeije Consulting LLC. Archived (PDF) from original on May 21, 2011. Retrieved April 30, 2011.
19. *"Egypt may have turned off Internet one phone call at a time"*. Los Angeles Times. January 29, 2011.
20. Johnson, Bobbie. *"How Egypt Switched Off Internet"*. Archived from original on January 28, 2011. Retrieved January 28, 2011.
21. *"China Lifts Wikipedia Blockage"*. Archived from original on November 23, 2006. Retrieved November 17, 2006.