

WIRELESS ACCESS NETWORK: 3G Vs. WIFI

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ABSTRACT

In this paper main area of networking compares two technologies for delivering broadband wireless Internet access services : "3G" vs. "Wi-Fi". 3G refers to the collection of 3rd generation cellular technologies that are designed to allow cellular operators to offer integrated and high speed data and voice services over cellular network. Wi-Fi refers to the 802.11b wireless Ethernet standard that was designed to support wireless LANs. Although both the technologies are very different from each other they are both intended to provide broadband wireless internet access to portable devices.

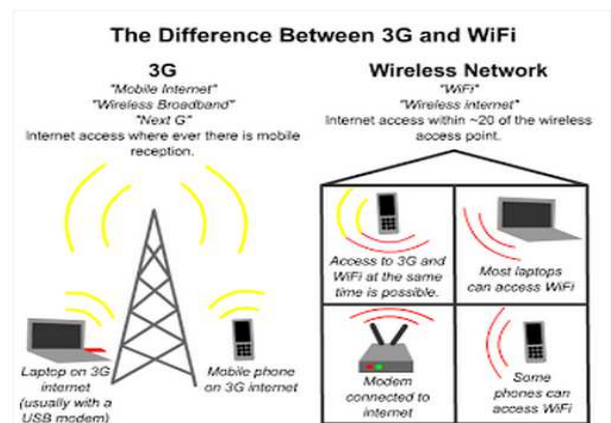
Keywords:

Internet; Wi-Fi; 3G

1. INTRODUCTION

The objective of this article is to evaluate and difference two technologies that are : Third Generation mobile ("3G") and Wi-Fi (wireless fidelity). 3G and Wi-Fi are both wireless access technologies working in different frequencies and access ranges. Wi-Fi can go up to 250 meters and 3G coverage could go beyond kilometers. The speed of Wi-Fi is much higher than the speed of

3G. Since Wi-Fi is used in small range of internet access this makes Wi-Fi much faster than 3G. Since both the internet technologies were same means both were used for accessing internet but they are used for different devices.



3G (Third Generation)

3G mobile phone technology was designed year 2000 to provide mobile phones user access to anything, anywhere, anytime. 3G wireless networks are supposed to have improved voice capacity and are able of supporting more complicated data application with their rich quality of services features. Many 3G technology are in use now and some of them are EDGE (Enhanced data rates for GSM evolution) from (DMA family EV-DO evolution-data optimized) which uses code

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division on multiple access or time division multiple access for multiplexing and results in data rate of 14 m bit/s downlink and 5.8 mbit/s up link speeds. 3G is useful in many area like employees who speed some of their working at home. Acconyains that carry out at client promise.

Wi-Fi (Wireless Fidelity)

Wi-Fi technology was designed year 1991. Wi-fi is a wireless LAN technology which could be used in short range. It is a most common wireless technology used in home, hotspots and corporate internal wireless network. Wi-Fi operates in 2.4 GHz or 5GHz which are unallocated frequency band. Anyone with a Wi-Fi device, such as computer, telephone or personal digital assistant can connect to the internet when in nearest of an access point. Wi-Fi can also be used to make a wireless mesh network. This connectivity mode is useful in consumer electronics and gaming application.

2. CHARACTERISTICS OF 3G vs. Wi-Fi

The goal of the work is to augment 3G network using Wi-Fi in mobile environment. We conduct a joint study of 3G and Wi-Fi network characteristics.

I. TESTBEDS AND METHODOLOGY: We conduct measurement in three geographically separate, outdoor test beds that include effects presents in real vehicular settings, such as noise, fading, interference, occlusion and traffic pattern. We refers to the three test beds as Amherst, Seattle, SFO.

a.) AMHERST : It is located in the college town of

Amherst, MA. It consist of 20 public transit vehicles that are equipped with a computer, an 802.11b radio, a 3G data modem, and a GPs unit.

b.) SCATTLE: It is located in the metropolitan region of Seattle, WA. It consists of one vehicle that is equipped with the exact hardware and software as the vehicles in Amherst. From the single vehicles, about 5GB of data were sent and received were the course of the experiment.

c.) SFO: It is located in a metropolitan region of san Francisco, CA .We presents results from 3 days of data gathered from one vehicles using the same setup as the other two test beds.

II. AVAILABILITY : We see that 3G is available 90% of the time and Wi-Fi is available 12% of the time. The availability of Wi-Fi is an order of magnitude poorer than 3G.

III. PERFORMANCE: The Wi-Fi loss rate performance is also poorer compared to 3G. Therefore leveraging Wi-Fi to augment 3G may in ever performance penalties. A Wi-Fi throughput is also much lower than 3G throughputs.

3. DIFFERENCE BETWEEN 3G vs. Wi-Fi

Specification	3G	WiFi
Standard	WCDMA CDMA2000	IEEE 802.11
Max Speed	2Mbps	54Mbps
Operations	Cell Phone	Individual ISP
License	Yes	No
Coverage Area	Several Kms	~100m
Advantages	Range, Mobility	Speed, Cheap
Disadvantages	Slow, Expensive	Short Range

I. FUNCTIONIN:

3G is a services that is completely provided, for use of 3G, user needs to get in touch with services provides. While Wi-Fi access can be controlled by a Wi-Fi routers placed in a particular range from the access point. Today most malls, cafes, college and streets have Wi-Fi routers for speedy internet access.

II. RANG AND SIGNAL: 3G depends on the mobile services provider , user will receive signal reception on long as user is the network rang. In case of Wi-Fi, user with be able to receive reception as long as you are within the range of the route situated in the hotspots.

III.SPEED :Wi-Fi is faster as compared to 3G.The maximum speed of the 'N' standard of the newest Wi-Fi technology is reported to be 600mbps.The data transfer speed in 3G technology differ according to the kind of devices and also whether it is or in motion or motionless. The maximum speed on 3G Network is measured to be about 2.05 mbps.

IV. COST: The cost of 3G access depends on the plan you have chosen from user service provider. When it is regarding availing Wi-Fi facilities user might have to pay the owners of the hotspots. Wi-Fi at some hotspots is free, while other may charge a certain amount. Some hotspots are even

code free, and users can directly the access password.

4. CONCLUSION

Hence we see that 3G and Wi-Fi are communication technology that provides wireless internet access and services to users. The major difference between Wi-Fi and 3G is the way they connect to the internet. Wi-Fi connects to the internet through a wireless network and has a short range.3G is a type of cellular network and connects to the internet while even there is mobile phones services. This means its range is a lot wider than a wireless network.

5. REFERENCE

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