

MAJOR SEMINAR ON



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Content

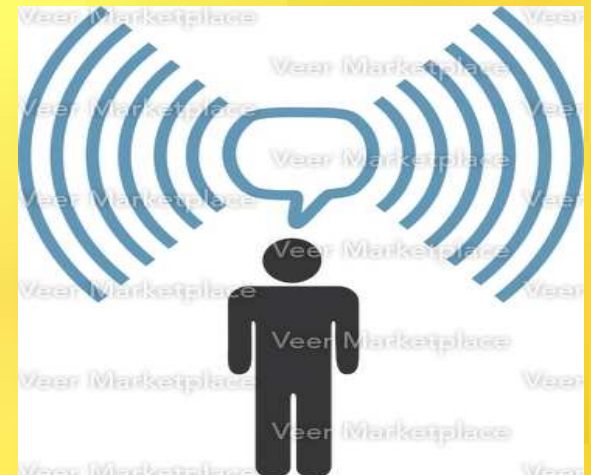


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Wireless Technology

Given a choice, people will demand the freedom to communicate wherever they are, unfettered by the infamous copper wire.



EVOLUTION FROM 0G TO 5G SYSTEM

0G WIRELESS SYSTEM

- ❖ Satellite phones were developed.
- ❖ Available as a commercial service.
- ❖ Part of the public switched telephone network.
- ❖ Part of a closed network such as a police radio or taxi dispatch system.
- ❖ Mobile telephones were usually mounted in cars or trucks.
- ❖ Models are in briefcase style

[ref\[2\]](#)



1G WIRELESS SYSTEM

- Developed in 1980s.
- 1G based on analog system .
- Speed up to 2.4kbps.
- Advance mobile phone system (AMPS) launched by US.
- Allows users to make voice calls in 1 country.
- Services provide with circuit switching

[ref\[2\]](#)



2G WIRELESS SYSTEM

- Fielded in the late 1980s and finished in the late 1990s.
- Based on digital system.
- Speeds up to 64kbps.
- Services such as digital voice & SMS with more clarity.
- Semi Global facility. [ref\[4\]](#)



2.5G WIRELESS SYSTEM

- Provide GPRS Service.
- CDMA Multiplexing.
- Deliver data at high speed during browsing internet.
- Data transmission rates of 144 kbps.
- Higher capacity packetized data.
- 2.5G system use 2G system infrastructure, but it implements a packet-switched network



2.75G EDGE WIRELESS SYSTEM

- Allows for faster downloading.
- Faster than GPRS.
- EDGE is an official ITU ratified 3G technology.
- Allow people to watch streaming video and download mp3 files faster.
- Uploading speed is not so high.

Disadvantages of 2G GSM

- GSM has a fixed maximum cell site range of 35 km, which is imposed by technical limitations
- In less populous areas, the weaker digital signal may not be sufficient to reach a cell tower

Disadvantages of 2G IS-95

- Most technologies are patented and must be licensed from Qualcomm.
- IS-95 covers a smaller portion of the world
- IS-95 phones are generally unable to roam internationally.



3G WIRELESS SYSTEM

- High-speed transmission upto 2mbps.
- Advanced multimedia access .
- Global roaming.
- Enhanced audio and video streaming.
- Video-conferencing support.
- Web and WAP browsing at higher speeds.
- IPTV (TV through the Internet) support.
- Offer greater security than their 2G predecessors.



Standards

- UMTS (UTRAN)
- WCDMA-FDD
- WCDMA-TDD



Disadvantages

- High Bandwidth requirement
- Huge capital [ref\[5\]](#)

Applications

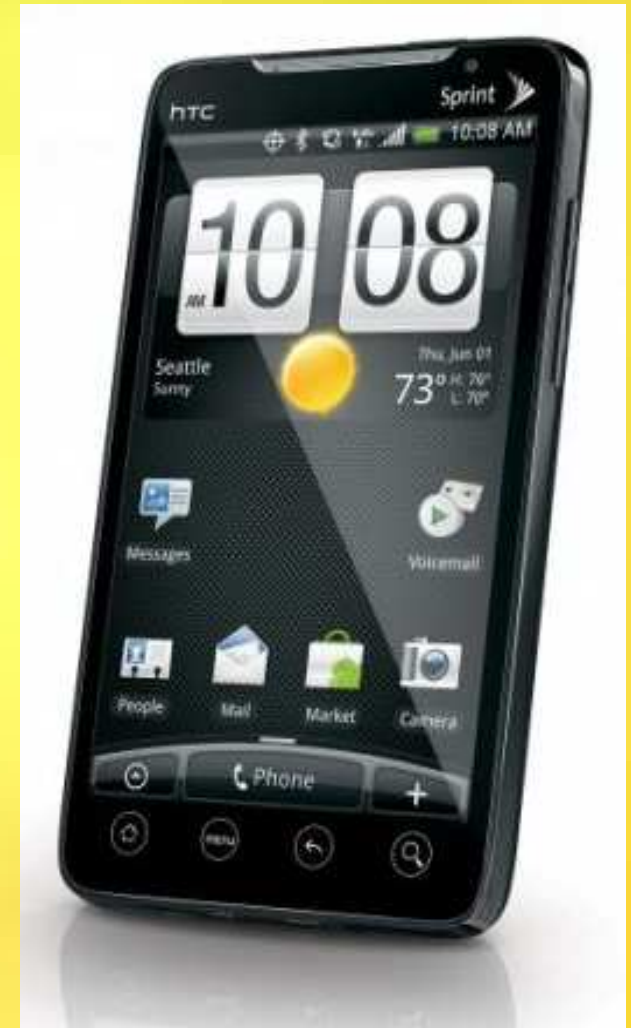
- Mobile TV
- Video on demand
- Video conferencing
- Multiplayer gaming
- Tele-medicine
- Location-based services
- Wireless Advertising





4G WIRELESS SYSTEM

- Expected to emerged around 2010 - 2015
- Watch T.V programs with the clarity as to that of an ordinary T.V
- Provided very smooth global roaming ubiquitously with lower cost
- Deliver 100mbps to a roaming mobile device globally
- 1Gbps to a stationary device
- The larger bandwidth for data sharing are relatively inexpensive
- Ad hoc and multi hop networks



Technology

OFDM

Ultra wide Radio Band

Millimeter Wireless

Smart Antennas



Applications

- Traffic Control
- Disaster Mgmt
- Telemedicine
- Telegeoprocessing
- VoIP for IPV6

Disadvantages

- Yet not available just anywhere
- New technology wich makes it more expensive than 3G





5G WIRELESS SYSTEM

- 5G is a completed wireless communication with almost no limitation somehow people called it REAL wireless world
- 5G wireless system is only theory and not real
- 5G with incredible transmission speed with no limitation for access and zone size.

[ref\[1\]](#)



WHY SHOULD 5G?



For Domestic Purpose

- ❖ 5G cell technologies to hook your phone to your laptop for broadband Internet access
- ❖ Uploading and downloading speed touching peak
- ❖ Offering connectivity just about the world

For Office Purpose

- ❖ Similar to a PDA you can now have your whole office within the phone
- ❖ Phones with gigabytes of memory storage Latest operating systems.
- ❖ Real-time financial information

5G HARDWARE

UWB Networks :-higher bandwidth at low energy levels.

Bandwidth :- 4000 megabits per second, which is 400 times faster than today's wireless networks

Smart antennas :-Switched Beam Antennas, Adaptive Array Antennas

Multiplexing :- CDMA (Code Division Multiple Access)

5G SOFTWARE

- ❖ **5G will be single unified standard of different wireless networks, including wireless LAN technologies (e.g. IEEE 802.11), LAN/WAN/PAN and www , Unified IP and seamless combination of broadband.**
- ❖ **Software Defined Radio, Packet Layer, Implementation of Packets, Encryption, Flexibility, Anti-Virus**

5G FEATURES

A red '5G' logo on a white rectangular background.

- ❖ 5G technology offer high resolution for crazy cell phone user and bi-directional large bandwidth shaping.
- ❖ The advanced billing interfaces of 5G technology makes it more attractive and effective.
- ❖ 5G technology also providing subscriber supervision tools for fast action.
- ❖ The high quality services of 5G technology based on Policy to avoid error.
- ❖ 5G technology is providing large broadcasting of data in Gigabit which supporting almost 65,000 connections.
- ❖ 5G technology offer transporter class gateway with unparalleled consistency.
- ❖ The traffic statistics by 5G technology makes it more accurate.
- ❖ Through remote management offered by 5G technology a user can get better and fast solution.
- ❖ The remote diagnostics also a great feature of 5G technology.
- ❖ The 5G technology is providing up to 25 Mbps connectivity speed.
- ❖ The 5G technology also support virtual private network.
- ❖ The new 5G technology will take all delivery service out of business prospect
- ❖ The uploading and downloading speed of 5G technology touching the peak.

5G TECHNOLOGY

- Unified IP
- Cognitive Radio
- LAN
- WAN
- PAN
- Wi-Fi
- WLAN
- WWW [ref\[6\]](#)



5G APPLICATIONS

- ❖ Wearable device with AI capabilities.
- ❖ Pervasive networks
- ❖ Media Independent Handover
- ❖ Radio Resource Management
- ❖ High altitude stratospheric platform station (HAPS) systems.
- ❖ VoIP-enabled device



5G TELECOM SERVICES DEVELOPING COUNTRIES

- Japan
- Korea
- Africa
- China



5G TELECOM SERVICES DEVELOPING COMPANIES

- NASA
- Apple
- Archos



iPhone 5G

- ❖ It's invisible.
- ❖ Float in mid-air
- ❖ Can be small or larger as you wanted it to be
- ❖ Very advance texting method (telepathy)
- ❖ High resolution face-to-face picture
- ❖ MSRP US\$800



iPod 5G

- Music
- Genius
- FM Radio
- Fitness
- Accessibility
- iTunes



Introducing

ADVANTAGE



- **Data bandwidth** :- 1 gbps or higher
- **Zone issue** :- Globally accessible
- **Services** :- Dynamic information access
- **Cost** :- Beneficial to domestic user available at low cost

Quick Overview

Technology / Features	1G	2G/2.5G	3G	4G	5G
Start/Deployment	1970/ 1984	1980/ 1999	1990/ 2002	2000/ 2010	2010/ 2015
Data Bandwidth	2 kbps	14.4-64 kbps	2 Mbps	200 Mbps to 1 Gbps for low mobility	1 Gbps and higher
Standards	AMPS	2G: TDMA, CDMA, GSM 2.5G: GPRS, EDGE, 1xRTT	WCDMA, CDMA-2000	Single unified standard	Single unified standard
Technology	Analog cellular technology	Digital cellular technology	Broad bandwidth CDMA, IP technology	Unified IP and seamless combination of broadband, LAN/WAN/ PAN and WLAN	Unified IP and seamless combination of broadband, LAN/WAN/PAN /WLAN and www
Service	Mobile telephony (voice)	2G: Digital voice, short messaging 2.5G: Higher capacity packetized data	Integrated high quality audio, video and data	Dynamic information access, wearable devices	Dynamic information access, wearable devices with AI capabilities
Multiplexing	FDMA	TDMA, CDMA	CDMA	CDMA	CDMA
Switching	Circuit	2G: Circuit 2.5G: Circuit for access network & air interface; Packet for core network and data	Packet except circuit for air interface	All packet	All packet
Core Network	PSTN	PSTN	Packet network	Internet	Internet
Handoff	Horizontal	Horizontal	Horizontal	Horizontal and Vertical	Horizontal and Vertical

What After 5G ...??

□The 6G mobile technology is the next generation wireless mobile resources and the 6g technology will surely make a phenomenal changes in mobile technologies.

□The google hot trends has rated the term 6g as the 17th most searched word in the search engines.

□Expand your data center configuration options

□6g technology haven't been fully revealed yet but search phrases like what is 6g mobile technology, 6g technology, 6g mobile, 6g network, 6g wiki, 6g technology ppt are getting more familiar with new mobile technology getting evolved [ref\[6\]\[7\]](#)

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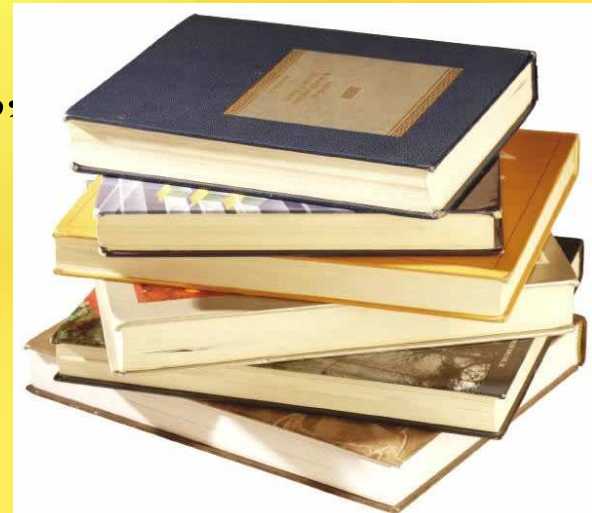


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Queries..??

