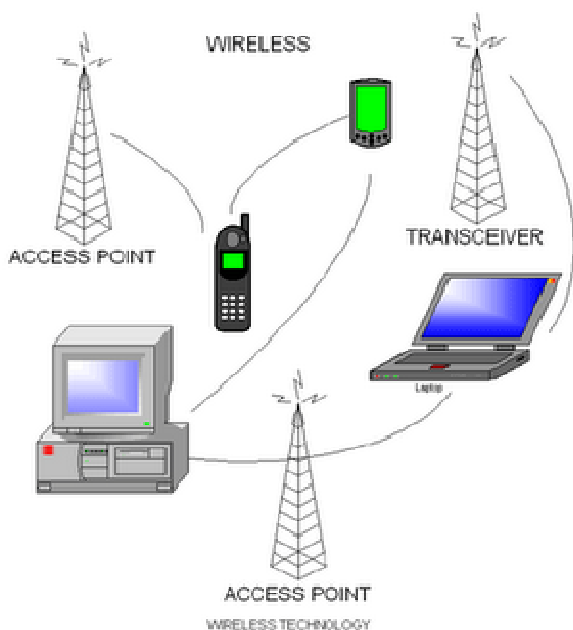
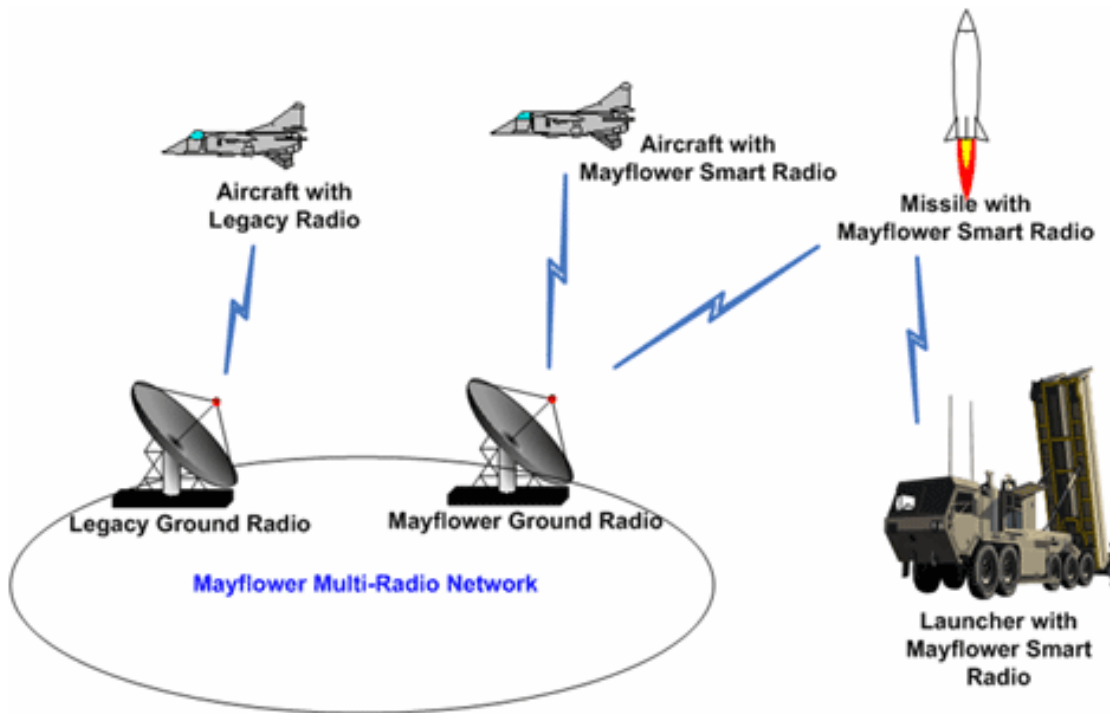


WIRELESS TRANSMISSION



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Wireless Transmission Technology

This document contains evolution of the communication and also discussed further about what is the 3rd generation and 4th generation communication technology and comparison about particular technologies

Evolution:

In 1895 a few years after invention of telephone, Marconi demonstrated the first radio based wireless transmission. The first radio based conversation was used in ships during 1915. The first public mobile telephone system known as Mobile Telephone System (MTS) was introduced in United States in 1946.

The first generation (1G) of cellular system was designed in late 1960s and deployed in early 1980s. The first commercial analog system in the United States known as Advanced Mobile Phone System (AMPS) went operational in 1982 with only voice transmission.

The disadvantages of Analog systems were overcome by second (2G) generation of cellular systems which represent data digitally. The first commercial deployment of 2G system called GSM was made in 1992. In 1993 as other 2G system also known as CDMA one (IS-95) was standardized and commercially deployed in South Korea and Hongkong in 1995, followed by United States in 1996.

Upgrade to 2G systems offering higher data speeds called 2.5G systems was developed. GSM has two such technologies called High Speed Circuit Switched Data (HSCSD) and General Packet Radio Service (GPRS). Similarly in CDMA an extension of IS-95 known as IS-95B or CDMA Two was developed.

To meet the future bandwidth hungry services 3G cellular systems was standardized in 2000. The different 3G standards evolved include EDGE, CDMA2000 and WCDMA.

It is envisioned that future of mobile communication will be towards an integrated system which will produce a common packet switched possibly IP-based system. This might be called the 4G of cellular networks which targets the market of 2010 and beyond.

Mobile generation	Period	New Features
1G	70's to 80's	Wireless phones (cellular) are introduced, primarily for voice only.
2G	90's to 2000	Increased performance achieved by allowing multiple users on a single channel.
2.5G	2001 - 2004	Enhanced multimedia and streaming video are now possible with web browsing
3G	2004 - 2005	Enhanced multimedia and streaming video capabilities are increased. Universal access and portability across different device types (Telephones, PDA's, etc.)
4G	2006+	Speeds reach up to 40 Mbps. Enhanced multimedia, streaming video, Access and portability are increased still further. World-wide roaming.

In here I'm going to further deep about 3G and 4G technologies and future predictions and experiments.

3G Technology:

International Telecommunications Unit (ITU): IMT-2000 consists of five radio interfaces W-CDMA, CDMA 2000, CDMA 2001, TD-CDMA / TD-SCDMA, UWC-136

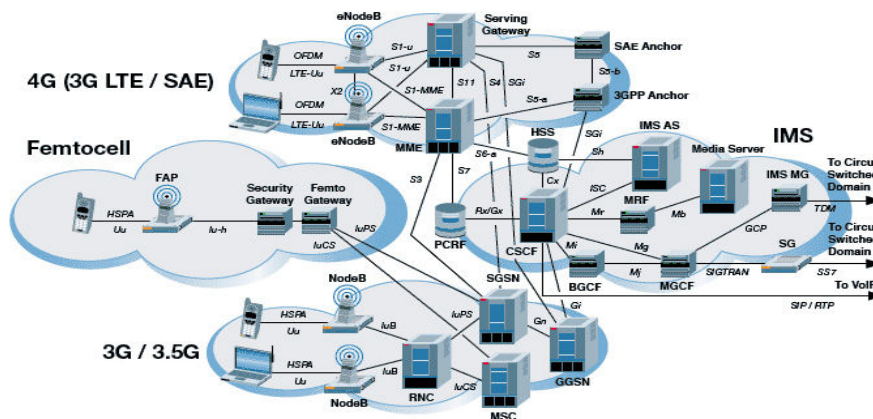
3G is a generic term covering a range of future wireless network technologies, including WCDMA, CDMA2000, UMTS and EDGE. 3G combines high-speed mobile access with Internet Protocol (IP) based services. 3G technology support download speed is 2.5Mbps. This doesn't just mean fast mobile connection to the World Wide Web - by liberating us from slow connections, cumbersome equipment and immovable access points, 3G will enable new ways to communicate, access information, conduct business and learn.

Advantage

- Enabling the service providers to provide high speed internet facilities.
- You can call you friend and have a video call facility.
- With 3G technology it is possible to access any site on the Internet by using your phone as a modem for your computer or laptop and mail the important documents

Disadvantage

- The technology is hard to fix and if broken it could cost a lot of money to get fixed.
- Very Costly



4G Technology

When talking about 4G, question comes to our mind is what is 4G Technology. 4G is short for Fourth (4th) Generation Technology. 4G Technology is basically the extension in the 3G technology with more bandwidth and services offers in the 3G. But at this time nobody exactly knows the true 4G definition. Some people say that 4G technology is the future technologies that are mostly in their maturity period. The expectation for the 4G technology is basically the high quality audio/video streaming over end to end Internet Protocol. If the Internet Protocol (IP) multimedia sub-system movement achieves what it going to do, nothing of this possibly will matter. And also 4G technology support peak download speeds of at least 100 Mbps.

4G technology offers high data rates that will generate new trend for the market and prospects for established as well as for new telecommunication businesses. 4G networks, when tied together with mobile phones with in-built higher resolution digital cameras and also High definition capabilities will facilitate video blogs.

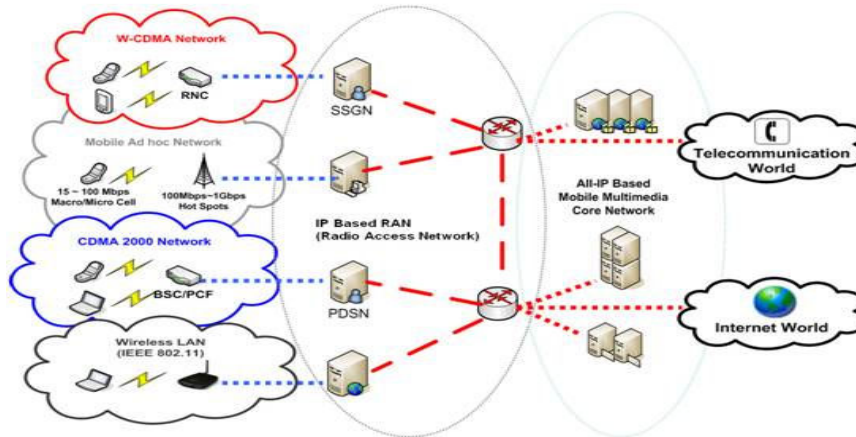
Advantage of 4G technology

- The 3G technology also appeared to emit less harmful radio waves
- Higher bandwidth
- Better response time. 10 times better then 3G
- Works at 2.6GHz frequency which means better coverage even though it uses the same tower where the receiver and transmitter for 3G are.

- Less time to build 4G because it use the same tower and fiber cables as 3Gs - they only have to upgrade the towers with 4G components.

Disadvantage

- New technology which makes it more expansive than 3G
- Very Costly



3G vs. 4G

Technology	3G	4G
Frequency band	1.8 - 2.5GHz	2 - 8GHz
Bandwidth	5-20MHz	5-20MHz
Data rate	Up to 2Mbps	100Mbps moving - 1Gbps stationary
Access	W-CDMA	VSF-OFCDM and VSF-CDMA
FEC	Turbo-codes	Concatenated codes
Switching	Circuit/Packet	Packet

As 4G seems to have taken a step closer to reality, I decided to do some research and find out what advantages 4G may offer over 3G. The specifications for 4G are not standardized yet but the following 3G vs. 4G table gives an idea of what 4G is likely to provide.

By product of the Radio Transmission In future

Already found and studying how to generate current by using above radio signals. There are so many radio waves in our environment so using that waves we can generate current and in future we can get power using waves and also without wire. In here use power transformer technology. Develop to that technology for generate current.

Can get more about that:

<http://singularityhub.com/2009/06/30/the-wireless-future-of-energy-transfer/>

My Idea:

I thought in future we can use light wave for communication. Just like optical fiber system.it will remove particular cable. Transmit open environment just like radio wave. Is it so, we can increase our communication speed and make reduce cost for cable. Sometime world may be colorful due to this technology...! Because of so many light wave exchange thought the environment. I supposed immediately resolve that problem and our communication will develop more...

But I heard about infrared technology.it used particular technology. Now I think what is the reason of It was not succeed.I think light wave is collapse with barrier. So it is not suitable for communication throught long distance. As well as if we use that technology for communication receiver and sender should heave in sight together.

So inventors may turned toward fiber optic technology. The fiber optic technology is other diferent way.in here I didn't think about that.

Thank you...!