

Difference between GSM, GPRS, EDGE, 3G, WCDMA, HSDPA and 4G

It's a very basic and non-technical comparison.

GSM

GSM, stands for *Global Systems for Mobile Communications*, is basic standard bearer of 2G technologies. It is mainly used in mobile communication. Short Messaging System (SMS) was introduced into GSM networks along with capability to download content from various service providers. The content could ring tone, logos and picture messages. It can support Voice telephony and data however the data rate is only 9.6Kb/s, that is very low bit rate for date communication.

GPRS

GPRS, stands for *General Packet Radio Service*, is used to give higher data speed over GSM. It is not the replacement of GSM. It is just an extension to the older GSM technology to gain faster speed. Multimedia Messaging System or MMS is the feature of GPRS. It allowed subscribers to send videos, pictures, or sound clips to each other just like text messages. GPRS also provided mobile handset the ability to surf the Internet at dial-up speeds through WAP enabled sites. GPRS offers higher bit rate (Up to 171kb/s) by usage of A packet-linked technology over GSM.

EDGE

EDGE stands for Enhanced Data Rates for GSM Evolution. This technology, also termed as Enhanced GPRS. This is a technology that uses the same equipment as GSM with only a few minor modifications to provide faster data speeds and is often regarded as a stepping stone towards 3G thus it is called 2.5G. EDGE gives the users the inimitable chance to increase the throughput capacity and the data speed at least 3 to 4 times higher to what GPRS offers. EDGE is a digital mobile phone technology but GPRS is a mobile data service. It is a 3G Radio technology and GPRS or General Packet Radio Service is essentially packet oriented.

3G

The introduction of 3G changed a lot of the accepted standards in the mobile phone industry. It allows the use of a greater bandwidth that allows more features to be implemented on it. 3G gives many features like video calls and TV applications because of the speed of 3G which began at 384kbps; well within DSL speeds. Further development on 3G technologies have also created even faster data rate reaching 3.6 and even 7.2Mbps. Existing GSM networks are not compatible with the 3G networks. To keep it, requires a new infrastructure. According to popularity and demand, Telecom Operators place 3G towers in those areas. They have to operate 2 radios in particular areas; one for GSM and one for 3G. Mobile phone Users are also required to switch mobile phones in order to take advantage of the new features of 3G.

WCDMA

3G Networks are based on WCDMA i.e. Wideband Code Division Multiple Access, a mobile technology that improves upon the capabilities of current GSM networks.

HSDPA

HSDPA (High Speed Downlink Packet Access) is what is also known as 3.5G, as it offers no substantial upgrade to the feature set of WCDMA, but improves the speed of data transmission to enhance those services. WCDMA networks provides max 384kbps speed while HSDPA allowed speeds above 384kbps, the most notable of which is 3.6Mbps and 7.2Mbps. HSDPA has lower latency times and Fast Packet Scheduling compared to WCDMA.

4G: technology

The "G" stands for generation. Analog (1G) to digital (2G) transmission followed by multi-media support (3G), spread spectrum transmission and then followed by "real" 4G, which refers to all-Internet Protocol (IP) packet-switched networks giving mobile ultra-broadband (gigabit speed) access.

4G is faster than 3G, because of Orthogonal Frequency-Division Multiplexing (OFDM). It sounds complicated, but it's the same technology used in Wi-Fi, ADSL broadband, digital TV and radio. OFDM is a technique for squeezing more data onto the same amount of radio frequency. It also reduces latency and interference. Data is split up and sent via small chunks of frequency in parallel, therefore increasing the capacity of the network.

5G

Next logical step and the future!