

## What can WiMAX technology offer?

WiMAX technology offers *wireless* data in a related form as compare to **WiFi** but its level and speed allow to build **hybrid and wireless networks**, of any size, anywhere. It is formed to encourage conformance and interoperability of Wireless Metropolitan Area Network. WiMAX offers a consistent technology according to its standard. WiMAX technology open could let product manufacturers make revenues of scale via producing number of *WiMAX* products & components to single IEEE 802.16 standard, this also allow component manufacturers buy low-cost, standards compliant components from rival component providers. This would definitely help existing wireless service providers. WiMAX technology will offer high data speed network connections and in this manner serve as a backhaul for *WiFi LAN (WLAN)* hot spots, where people on the move can access carriers' WiFi services on mobile technology basis, because this technology allows interoperability among different systems. And service providers lacking a mobile network can use a WiMAX technology network at comparatively low price. WiMAX technology possibly will offer a much cheaper, easier to build network infrastructure other than the physical medium of WiFi backhauls that cable, T1 or DSL systems presently offer. Because **WiMAX** is based on IEEE 802.16 Standard and HiperMAN, the IEEE and ETSI have each become accustomed it's standard to take in many of the other's essential characteristics. IEEE 802.16 standard partitioned its MAC (Medium Access Control) layer into sub-layers that hold some different transport equipments and technologies, together with Ethernet, IPv4, IPv6 and other asynchronous transfer mode. This allows traders to use *WiMAX technology* and no matter what technology they support for transmission. WiMAX technology has a wide communication range up to 50 kilometers because principles allows WiMAX network to transfer data at higher rates and because of this move towards use of directional antennas that generates persistent radio signals. **WiMAX** base station provide service to only 500 users at a time not more than that just because to they are sharing bandwidth and this factor may cause lower data rates among. Technically every single station will possibly provide communication an area inside a 10 miles radius. To compare WiFi with WiMAX technology the last has a range of few thousand feet. while WiFi has a range of only a few hundred feet. Moreover **WiMAX network** broadcasts data communication over several broad signal frequency ranges. And this exceptional capacity to work in several ranges allows to communicate above the frequencies that will evade interference with other wireless network applications. Also the flexibility of this system's communication allows providers to employ different frequencies that depend on the speed and range needed for a particular data communication. Amplifying data capacity and bandwidth via dividing broad capacity channels to many narrowband channels, the WiMAX technology attains higher data transmission rates in part by OFDM (Orthogonal Frequency Division Multiplexing). Every channel uses different frequencies that can transmit different pieces of a message at the same time. One of the important advantages of data transmission is that the channels do not overlap, in spite of the fact that the spaces between channels are extremely close. The primary IEEE 802.16 standard uses the 10 to 66 GHz frequency range And it is very suitable because this frequency range shrinks the multi path distortion that arises when transmitting signals that do not follow the line of sight echoed items and finish off out of sink, thus jumbling the inbound communication and reducing bandwidth. In theory **WiMAX network** can offer single channel data rates up to 75 Mbits/s equally on the downlink and uplink. Service providers can use several 802.16 channels for single broadcast to offer bandwidths of up to 350 Mb per second. Third generation mobile network technologies will support around 115 Kbps. The accepted IEEE 802.11b WiFi WLAN technology data rate are limited to 11Mbps, on the other hand newer 802.11a and 802.11g provide up to 54Mbps in favorable conditions but practically all of the them transmit at lesser speed. In the meantime WiMAX network is extremely scalable as it is simple to include broadcast channels to offer extra bandwidth as required. And as far as security is concerned in WiMAX technology it uses PKI (Public Key Infrastructure) authentication, which transmit via digital certificates by identifying parties over trusted authorities. The IEEE 802.16 system encrypts data by using 56 bit DES (Data Encryption Standard) keys. The wireless services are supplied at higher frequencies as the line of sight constraints required the setting up of many antennas to cover up the equivalent area and this increases to a great extent the expenditure of setting up *wireless technology*. The available frequencies for new **wireless standards** such as IEEE 802.16 are higher as some of the other wireless technologies are more sought-after to diminish ranges that have been approved for other use. The WiMAX technology is always supported by the WiMAX Forum which comprises a group of commercial leaders such as AT&T, Cisco, Samsung, Intel, and some other giants. This forum involves many working groups that highly focused on regulatory, marketing, technological characteristics. Moreover the certification working group intends to certify interoperability among WiMAX products from manufacturers internationally.

## About the Author

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