

WiMAX

WiMAX stands for Worldwide Interoperability for Microwave Access, and is based on the IEEE 802.16 standard. It is a technology that provides greater range than the currently popular Wi-Fi connectivity. WiMAX is distinct from Wi-Fi and 3G technologies in that it provides greater range than Wi-Fi, as well as greater speed compared to 3G wireless technology. The WiMAX standard was first developed in 2001 and has been improved and revised over the past decade, today being a strong option for wireless connectivity.

In theory, WiMAX is capable of reaching distances spanning up to 30 miles, but in practice, it is most likely that WiMAX will operate within the range of 5-10 miles. WiMAX is capable of transferring data at rates of up to 10Mbps. Because of its transfer rates, this makes WiMAX suitable for performing many of the tasks that are typically within the realm of Wi-Fi. Many industry analysts are considering the use of WiMAX for “last mile” connectivity. In its implementation, WiMAX connectivity can be provided through fixed cell towers or else through mobile broadcasting stations, which are more limited in their range. WiMAX uses both licensed and unlicensed spectrum to deliver Internet connectivity. Deployment of WiMAX is accomplished both through fixed stations as well as mobile hot spot coverage. Expected revenues for WiMAX service should come from providing connection services to residential areas, businesses, and governments.

Because of its range, which will likely mean fewer broadcasting stations, WiMAX has a cost advantage over Wi-Fi technology. One other advantage that WiMAX has over Wi-Fi is that more licensed spectrum space has been made available to it over the spectrum space that has been allotted to it. The cost for consumers to add WiMAX connectivity to their devices is

approximately \$100 per device, which should be affordable for many people. Wi-Fi has an advantage over WiMAX, however, being an incumbent and already having been widely adopted by many consumers. However, given that there is limited spectrum space available for Wi-Fi, it is expected that Wi-Fi may eventually max out on its airspace, opening the way for WiMAX as a stronger contender in this arena.

In comparison to 3G cellular technology, WiMAX lacks in range, but makes up for it in speed and cost. Notably, WiMAX more closely resembles Wi-Fi than 3G, as WiMAX and Wi-Fi are one-to-many communication mediums, while 3G demonstrates many-to-many communication. Economically speaking, WiMAX has lower capital expenditures, as well as lower operating expenditures, which should lend itself to having lower costs compared to 3G. Additionally, WiMAX has been built from the ground up using IP technology, which enables it to work natively with many Internet applications, as well as to provide voice services through VOIP services such as Skype. WiMAX also provides better performance, with a better spectral efficiency than that of 3G and on par with 4G technology, the expected successor to 3G. 3G networks, on the other hand, have an advantage in having existing infrastructure and existing business relationships, and the technology increasing in bandwidth speed. Like Wi-Fi, 3G is a widely adopted technology, but this is no guarantee that it can maintain its ground against the challenge posed by WiMAX.

It is recommended that WiMAX as a technology should be pursued and investigated for further use. Although it may not replace Wi-Fi or 3G technology, WiMAX may serve well as a complement to the existing infrastructure that has been set in place. However, it would make more sense for WiMAX to serve as a complement for Wi-Fi as opposed to being a complement for 3G. WiMAX may provide infrastructure to help extend the reach of Wi-Fi, which would

enable consumers to continue to use their existing Wi-Fi devices without the need for an additional WiMAX receiver. Cellular network operators may also want to consider WiMAX as a complement to their existing 3G networks. WiMAX could be used to help offset the bandwidth load on 3G networks. It is unlikely that WiMAX will take over the wireless industry as the technology alone cannot meet all consumer demands. Most likely, WiMAX will work best in conjunction with WiFi and 3G.

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