

# **WiMAX**

## **The Personal Broadband Connection**

### **4G Wireless**

**(Abstract)**

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## WiMAX – the new 4G technology

WiMAX (worldwide interoperability for microwave access) is a 4G wireless technology having service capabilities in regulated and unregulated spectrum (though operators and OEM partners are slowly moving away from using WiMAX in unregulated spectrum). WiMAX comes from IP / microwave side similar to its cousin WiFi (which is from IP world) as opposed to HSPA, GPRS and UMTS which are GSM flavors of 2.5G/3G wireless tech. The 4G version in GSM evolution path is LTE (Long Term Evolution) - something which is two years away but gaining traction with the largest mobile operators in the world eg AT&T and Verizon in USA have announced intention to adopt LTE rather than go the WiMAX way. But WiMAX has a first mover advantage in 4G world as it is available with large OEM and vendor support. So many folks around the world are trying this rather than wait out for a full-blown LTE rollout in another 2 years or so.

## 4G technology choices

LTE (Long Term Evolution) is the most prominent threat to WiMAX technology. LTE is the 4G flavor of GSM evolution path and hence more preferable by GSM carriers and some major CDMA vendors around the world. Since GSM is the dominant standard in the world in wireless networks, LTE is seen as a likely winner in 4G space especially among large operators around the world. Mobile WiMAX has had trials in 10Mbps range (over a 10Km distance) but Nokia has done trials of LTE in which it has achieved 100 Mbps data transfer speeds with LTE equipment.

UMB or Ultra Mobile Broadband is the CDMA version of 4G developed by Qualcomm which also promotes the CDMA standard. Verizon Wireless, the giant CDMA operator in United States, shocked the world when it announced an intention to migrate to LTE instead of UMB in the 4G evolution. Verizon may still go the UMB-way; one will see how this plays out. UMB can achieve the same speeds as LTE for wireless broadband access.

HSPA and HSPA+ are improvements over UMTS which is essentially a 3G wireless standard. HSPA offers a stop gap solution before the 4G comes around and is the strategy adopted by GSM carriers to compete with WiMAX or high speed CDMA until the LTE comes around. Eg AT&T Mobility in USA has adopted an HSPA/HSPA+ upgrade path from its current 2.5G-3G GPRS/UMTS offerings.

## WiMAX Deployments

Recently, Reliance Globalcom announced an intention to roll out WiMAX network in 50 countries by year 2012. It is investing \$500 million towards this effort. Some other large installations include Unwired, mobile broadband provider, in Australia which started with a Navini Networks (now Cisco) Mobile WiMAX solution way back in 2003.

Experts predict that high-growth emerging markets offer the biggest opportunity for WiMAX, but equipment and terminals will need to be ultra low-cost to make the service provider business viable, and there's not yet enough product volume in the market to get prices where they need to be.

Although, in developed countries like USA also, there are sporadic deployments of WiMAX networks being done on an experimental basis. In general, in these countries, one expects to see WiMAX deployments by regional or peripheral carriers. In the US, the primary nationwide deployment of a WiMAX network is expected to be done by Sprint in collaboration with ClearWire, via its Xohm service. But the regional carriers are going to beat Sprint on this subject. Eg even before Sprint comes out with its Xohm WiMAX service, TowerStream Corp may beat Sprint in USA on WiMAX deployment schedule with a preliminary launch starting in summer of 2008. Xanadoo (wireless broadband service provider) has already launched service in 20 locations in Texas using a Navini Networks (Cisco) Mobile WiMAX solution in the 2.5 GHz band.

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