OPINION

Sterlite Tech

LTE vs WiMax: Will it outdo the other?

The future of the mobile broadband market is shaping up right before our eyes, with both the Long Term Evolution (LTE) and Worldwide Interoperability for Microwave Access (WiMAX) technologies promising to deliver the internet to your mobile phone at speeds that might give your home broadband connection a case of “bandwidth envy.”

4G seems to be the logical successor to 3G. While the third generation of cell phones sought to fi x the problems of 2G such as weaker signals in less populated areas as well as patchy networks in urban areas, the 4G technology is all set to mark distinctly improved transmission rate that will allow for cell phones to become much more detailed. The line between a PDA and a cell phone will further be blurred, as applications on cell phones will get even more complicated. Voice quality will be much more improved, and less erratic with signal strength.

The battle of wireless technologies

Today, WiMax is competing with many other wireless technologies for the tightest grip on the next generation of wireless networks. All of the technologies deal with the same inverse relationship between mobility and speed. The greater the mobility, the less the speed, and vice versa. On this scale, WiMax is at what would be considered an equilibrium.

UMTS is a technology that provides a downlink with data transmission of 14.4 Mbps, and has a circuit optimized for voice and video traffic. It can be considered in direct competition with WiMax, and has taken a strong hold on communication technologies in Europe. France and Finland especially have made strong investments in this technology, and have blocked frequency allocation requests made by WiMax. UMTS is more mobile than WiMAX, but sacrifi ces speed to do so. LTE is a form of broadband optimised for wide area mobile voice communications. Like WiMAX, LTE uses diff erent technology than previous cell phone systems, and therefore cannot share current cellular spectrums. The MIMO process is also deployed to increase speed and data capacity.

Decoding LTE and Wi-Max

Both are 4G technologies designed to move data rather than voice. Both are IP networks based on OFDM (Orthogonal Frequency Division Multiplexing) technology. WiMax, promotes the conformance and interoperability of the IEEE 802.16 standard, depending on the spectrum allotted for WiMax deployments and how the network is configured. This can mean a WiMax network is cheaper to build and offers peak wireless data speeds of up to 60 Mbps on the downstream and 25 Mbps for sending data upstream.

On the other hand, LTE includes substantial changes to both sides of the mobile network – both the radio access network and the core network. But while it will require significant capital investment, LTE is expected to unlock new revenue streams and provide better competitive positioning by allowing mobile network operators to offer broadband services and a better quality of service in a way that greatly improves the efficient use of network resources.

This means, LTE can ferry data to you at download speeds of 100 Mbps and support upload speeds of 50 Mbps. That means you can download about two 5-minute MP3 fi les every second. Think about that.

Sure, it would only take WiMAX about seven minutes to download a single 5-minute MP3 file, which is still fast, but it’s nowhere near the the oretical scale of LTE.

The Indian scenario LTE is shaping the future of next generation technology in India, and as per the industry report India is the first country to launch LTE commercially in 2012 and leapfrogging ahead of European countries.

LTE is the technology around which the broadband wireless and mobile networks will evolve in the next 4-5 years. It is mostly in LTE that the current R&D is focused on - from developing products on LTE technology to enhancing the technology itself. India has a vast base of telecom professionals who have been working on 2G and 3G and are now moving onto 4G areas.

Evolution of LTE technologies

LTE is the fastest mounting next

generation mobile technology and the industry is heavily committed to commercially launch this technology. As per industry reports, LTE subscribers are expected to reach 380 million in more than 80 plus networks by 2015 worldwide.

LTE evolution in India will deliver users the maximum benefits of faster data speeds and new services by creating a new radio access technology that is optimised for IP based traffic and offer network operators a simple upgrade path from 3G networks.

LTE will compress more bits of data into the same amount of spectrum as 3G and HSPA networks, translating into increased data speeds and increased capacity. LTE will be used for mobile, fi xed and portable wireless broadband access, and will offer a number of benefi ts to operators, aimed at increasing capacity, reducing network complexity & thus lowering deployment and operational costs. It will enable operators to meet the growing demand for mobile data solutions, making it possible for richer services to be delivered to consumers more cost effectively.

The suitability of WiMax

As a technology, WiMAX offers symmetrical broadband rates, low latency levels and supports advanced quality of service (QoS) mechanisms for applications, such as VoIP, video streaming and video conferencing.

Integrating with old technologies such as Wi- Fi, and using upgraded technology, a faster, more secure, and wider wireless network is becoming very affordable for many people.

WiMAX is currently being used in Australia, Austria, Brazil, Croatia, Columbia, Ireland, Finland, France, Georgia, Slovakia, the UK, and the United States.

WiMAX promises to bring 40 Mbps transfers up to a radius of three to ten kilometers. Mobile WiMAX plans to achieve 15 Mbps of up to three kilometers (Gartner Research). However, a serious problem faced by WiMAX broadband wireless has been radio interference. This interference between cell-sites is known as cell-to-cell suppression, and has been known since the early developments of this technology. Cell-sites need to be “tuned”, which is time consuming and can cost from one to three thousand dollars per tuning.

What does the future hold?

Not only in India, but globally, LTE is being adopted by the telecom operators. In the U.S, recently Sprint announced that they would not produce WiMAX handsets beyond the end of 2012. On the othe hand, WiMAX is a success in Pakistan. But India is a different market. The services offered by LTE networks will come at a much lower cost than say a WiMax network, as the home LTE device has built in Wi-Fi, and a computer can plug directly into it via an Ethernet connection. While many more communication service providers will come on LTE platform and trigger the price war, the telecom industry keenly monitor the debate between competing broadband internet technologies WiMAX and LTE.