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3G Vs WiMax: Which is Best?

In an interaction with CXOtoday, Yatish Pathak, founder and CEO of Soma Networks compares two competing technologies, 3G and WiMax and elaborates on relative benefits of both.

Which is economical and advantageous between the Wi-Max and 3G ?

Both 3G and WiMAX have their own value proposition and benefits, and so also the usage and application. 3G has evolved from the voice-centric telecom world, and is primarily meant for mobility; so it is ideally suited for mobile Internet, and specifically works well on mobile phones as 3G networks support both voice and data. WiMAX, on the other hand, was initially developed for fixed broadband wireless access and is optimized for broadband data services.

CAPEX and OPEX benefits with WiMAX-

WiMax offers simpler all-IP architecture resulting in lower network costs both CAPEX and OPEX, and with spectral efficiency resulting in higher throughput, and speeds around 10 times of those of 3G, WiMAX is an ideal solution to provide cost effective wireless alternative to DSL where there is no wired connectivity, hence very vital from a market penetration perspective.

WiMax Architecuture

The WiMAX architecture was designed from the ground up to support strong QoS, lower latency, and better security, making it an excellent platform to run VoIP, which is so important to reach voice and data connectivity to remote locations in an emerging market like India. Unlike 3G, where the upload and download speeds are fixed, in the case of Wimax they are scalable, providing flexibility to optimize bandwidth usage, and when you further layer it with burstable bandwidth on demand, users don t have to worry about occasional high usage surges

Demerits of 3G Technology

3G limits the type of applications, it can work well on smaller real estate displays, and requires that content is optimized to make efficient use of lower bandwidth, while WiMAX with its greater data rate throughput can serve the new generation applications like IPTV, Video & Voice multicasting, that require higher bandwidth.

Recent technology advancement in WiMAX

WiMAX, as a technology, is the tip of the iceberg, what is critical is what you don't see, and those are the things that matter to deliver the right wireless broadband experience. Using technology gear to extend access wirelessly using WiMAX equipment is just one part, but what s more important is the end-to-end optimization on the network, over the air, and on the device, to deliver a virtual DSL experience.

WiMAX is not compatible with existing phones, at least not in India, but there will soon be phones that support WiMAX, just as there are phones that support WiFi. It is the same with 3G, in order to experience 3G you need a 3G phone, it won t run on a 2G phone. It is the service penetration that drives the device market. On the other hand, the market may see WiMAX embedded PCs sooner than 3G embedded PCs, because that s the market where WiMAX has a clear edge.

WiMax Forum has already launched its Global Roaming Program that lets operators and vendors easily obtain information required to establish WiMax roaming services.

Challenges faced for WiMAX adoption

The road to WiMAX roaming is tougher than it was for GSM because the cellular networks there was no comparable alternative to roaming. There is also challenenge while roaming as the data demands are largely for search/information access, email access and services such as travel, hotels, banking, etc., which are not bandwidth intensive. But that could change once home TV, video calling and other data intensive applications become a part of roaming lifestyle.

Why are telecom operators evasive towards Wi-Max? For instance telecom majors such as MTNL, Airtel bet on 3G rather than WiMax.

On the contrary, service providers are looking at both technologies. Even the ITU (International Telecommunication Union) has accepted WiMAX into International Mobile Telecommunications-2000 (IMT-2000), which is the global standard for 3G/4G wireless communications in the designated spectrum.

3G allows a specific advantage to the mobile operators to decongest their voice networks since it supports both voice and data. Many operators have made huge investments in 3G already and much of the capacity is underutilized, so it is natural that their initial focus is to squeeze blood out of the 3G rock before they openly pledge their support to another competing technology.

Why has Wi-Max not met its expectation in the last three years? What went wrong, what about the future?

The slow rate of adoption of WiMAX is primarily due to the pace and scale of deployments, which do not offer the numbers to beat down the CPE prices, which in turn affects the business case of the WiMAX operator. The first reason for this is spectrum standardization and allocation process of each country; in many countries it is necessary to vacate the spectrum to make it available for WiMAX. In some cases, as in India, time taken to conduct tests to check interference with satellite transmission, can stall the mass deployment process due to uncertainties involved.

The second reason is the pace of certification of WiMAX equipment, which is critical for an ecosystem with multivendor products that can interoperate. These are typical teething troubles of an industry that is maturing. This

year, particularly, may suffer the impact of recessionary trends across the globe that may stagger the growth potential. But in general the outlook is very positive as the user acceptability is quite high where service is available, particularly in underserved areas that are starved of Internet connectivity due to shortage of wired infrastructure.

What are the other limitations of Wi-Max and does 4G beat Wi-Max as a better technology?

It is too early to say because the ITU has not completed its 4G specifications yet (4G is known as IMT Advanced in the ITU-R), however, comparing WiMAX with 4G is not appropriate; in a country like India, WiMAX is a solution for broadband reach rather than mobility, while LTE is a mobility solution.

Both LTE and WiMAX are based on OFDMA and MIMO technologies and both are all IP networks with QOS and security. While LTE will take time to roll out, with deployments reaching mass adoption by 2012, WiMax is available today and is a reality now, and we will see more networks rolled-out at an accelerated pace over the next two years.