

# BROADBAND TO THE PEOPLE

**WiMAX is a disruptive technology, a communications methodology, and an access infrastructure that is redefining broadband connectivity for the India, says Manish Gupta**

**T**he WiMAX ecosystem is based on the IEEE 802.16 standard. The standard has evolved from 802.16a to 802.16d and now to 802.16e. Market can expect the evolution to continue much like any other access technology has in the past, and should continue to meet the end user application demands. The basic foundation of WiMAX includes three things: exclusive focus on IP based data traffic, scheduled MAC, and QoS. WiMAX is intended to provide adequate resilience so that the service provider can offer revenue generating services to enterprise and consumers alike. This is fundamentally different from Wi-Fi, where service level agreements (SLA) cannot be supported due to lack of QoS. WiMAX represents a unique opportunity for communication services in India. With low Internet and broadband penetration, Indian consumer is lagging behind in access to information. Figure 1 highlights the huge gap that India needs to fill to catch up with many countries to come to par in regards to Internet penetration.

## WiMAX Solution

With fewer than 10 million copper lines capable of broadband delivery, India needs a reliable wireless communications solution. The so-

lution needs to offer quick time to market and cost effective (CAPEX & OPEX) value propositions. WiMAX does exactly that. It is quite possible that India may become the largest market for WiMAX. Certain research reports project USD 400 million–USD 500 million to be invested in WiMAX infrastructure in India over the next 3 years. This represents 5–10 percent of the global investment in the same time frame. Multiple operators in India have taken leadership position in lever-

aging WiMAX. BSNL has deployed WiMAX equipment in six cities and four villages across India. VSNL, Bharti, Reliance, Sify and others have announced their plans to test or have already completed tests, and are in various stages of deployment. The adoption of WiMAX in India is a natural next step for service providers in India. VSNL offers commercial services to enterprise customers in over 65 cities using WiMAX solution—based on IEEE 802.16a standard. Other operators have

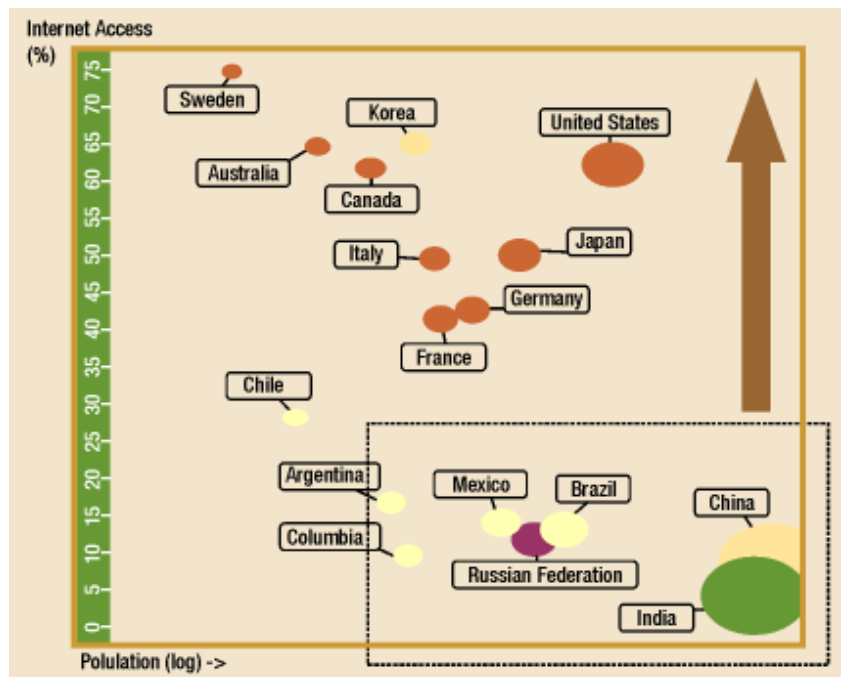


Fig1: Country wise Internet access

similar experience base. Most of the deployments will focus on fixed-line type services, such as Internet access, VPN connectivity, VoIP, and others. Both urban and rural deployments are anticipated in the near future. Majority of initial WiMAX connections will happen in enterprise and government/municipal segments, and soon evolve to residential markets.

**WiMAX across India**

The government is taking measured steps to enhance the opportunity to leverage WiMAX across India. Recent de-licensing of 50MHz of spectrum in the 5.8GHz band, and promise to release space in the 3.5GHz licensed band are examples of such support measures. The end consumers can anticipate getting broadband access to their homes via fixed subscriber devices on roof tops, or inside the house, as well as in portable settings on their laptops via PC cards, or through internal integrated WiMAX modems. Full

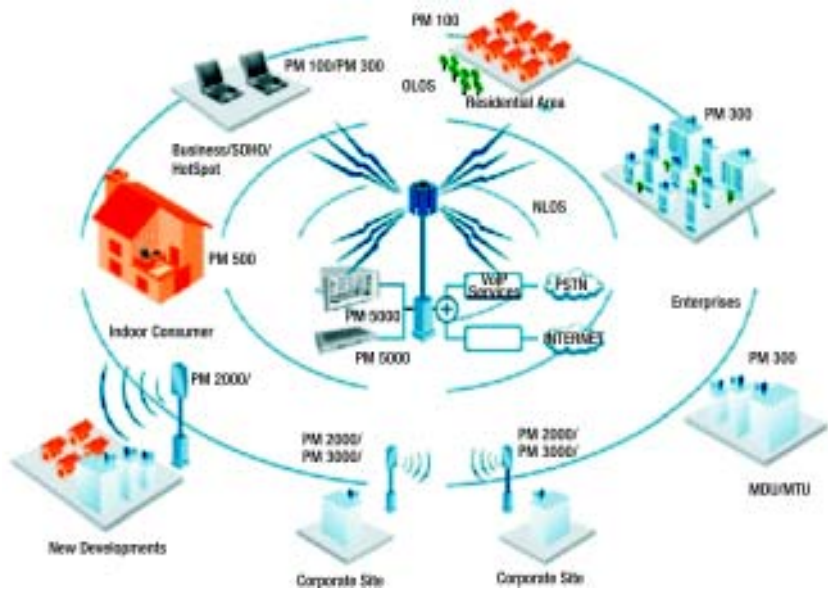


Fig 2: WiMAX Diagram

mobile access on handsets is likely to occur in the 2009 timeframe. Figure 3 clearly shows that most of end user benefiting from WiMAX will be consuming fixed service in the next four years.

**Benefiting from WiMAX**

The major benefits of WiMAX in In-

dia can be summarized as follows:

- Broadband secure connectivity options for the enterprises;
- Competitively priced Internet access for consumers;
- Enhanced efficiency for programs like e-choupal;
- Streamline connectivity for government offices; and
- Ubiquitous high quality VoIP.

The above benefits ultimately result in inclusion of a broader population base into the mainstream communications process and information society of the 21st century, which is essential for India to capture a growing share of the global economy. WiMAX is a disruptive technology, a communications methodology, and an access infrastructure that is redefining broadband connectivity for the Indian marketplace, today.

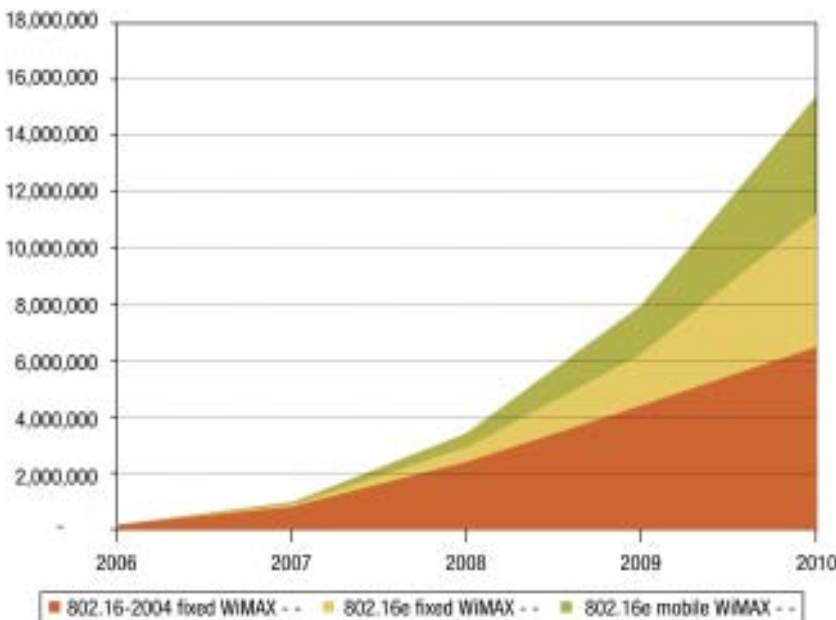


Fig 3: Year wise end user base



**MANISH GUPTA**  
 VP Marketing & Alliances,  
 Aperto Networks  
 Board Member WiMAX  
 Forum  
 Contact author at:  
 mgupta@apertonet.com