

# Rolling-out WiMax Networks

India is rapidly emerging as a major 'hot spot' for WiMax and WiFi networks, thanks to growing laptop sales and rising broadband penetration. Leading telecommunication service providers are going in for nationwide roll-outs of WiMax systems, reports **Aradhana**.



**W**HILE 2007 was declared as the 'Year of Broadband' in India, it seems that 2008 will in all probability go down as the 'Year of WiMax.' The Worldwide Interoperability for Microwave Access (WiMax) technology has got a major boost in India this year, with leading telecommunication service providers planning nationwide roll-outs of WiMax.

All the leading telecom companies have unveiled ambitious plans for their WiMax roll-outs. They include state-owned BSNL and MTNL, and private sector giants including Bharti Airtel, Tata Communications, Idea Cellular, Reliance Communications, Aircel, and Sify.

Tata Communications recently rolled out what is billed as one of the world's largest commercial deployments of WiMax; it aims to cover 115 cities by 2009. The company has invested about \$100 million in the project, which will be raised to \$500 million over the next four years as it approaches its target of having 50 million subscribers in India.

Says Prateek Pashine, in-charge of the broadband and retail business at Tata Communications: "We are strongly focusing on WiMax to provide last-mile access to our customers. In fact for us WiMax technology is not experimental, it's oven-hot."

Public sector telecommunications major BSNL has also announced plans for rolling out WiMax technology. According to Kuldeep Goyal, chairman and managing director, BSNL, the company plans to invest \$750 million to provide mobile wireless solutions to its customers.

"We are aiming for 50,000 connections in Maharashtra, Gujarat and Andhra Pradesh in 2008, and 500,000 in each of these states by 2010," he points out. BSNL will roll-out WiMax mostly in urban areas, aiming to serve 70 cities this year. "We had tested 802.16d (a technology standard for fixed WiMax deployments) equipment, but decided, unlike some competitors, to go with 802.16e, which promises mobility, better performance, and is more suited for the retail business."

Ultimately, BSNL plans to provide two million WiMax connections as part of its obligation under government policy to provide nine million broadband connections by 2010. Other leading



**KEEPING IN TOUCH:** WiFi enables telecom firms to provide connectivity to remote areas

**WiMax is the best solution for providing wireless broadband connectivity. The focus today is on fuelling the demand for broadband.**

operators including Bharti Airtel, Idea, Aircel, Reliance, MTNL and Sify are already offering WiMax service in various formats.

Says A Sethuraman, chief marketing officer, Alcatel-Lucent India: "WiMax is the best solution for providing wireless broadband connectivity. The focus of all operators today is on fuelling the demand for broadband."

The market for WiFi (Wireless Fidelity) and WiMax systems in India is certainly promising. According to a study by Tons Telecom, a Bangalore-based telecommunication research, consulting and advisory outfit, the market for WiFi networking

gear and services (excluding laptops, handsets, and chipsets) in India will top \$890 million by 2011-12, at a 36 per cent CAGR (compound annual growth rate) from 2008.

WiFi, which is also being used in rural areas, enables telecom firms to provide connectivity to remote areas, including villages that are not in the traditional telecommunication network.

WiMax is expected to see a slow uptake in India until next year; but by 2011, the technology is expected to rope in over 6.9 million subscribers.

Private operators have their initiatives ready for taking the technology to their customers. Bharti Airtel, which was one of the first operators to invest in the technology, is now conducting pilots for retail deployment.

Says T V Sriram, vice-president, technology, Bharti Airtel: "We have been closely following WiMax technology since early 2003 and started evaluating it the following year for catering to our last-mile connectivity requirements of enterprise customers. We conducted field trials to prove the technology deliverables and subsequently completed commercial deployment in 2007 for fixed WiMax."

Idea Cellular, part of the Aditya Birla group, and one of the leading telecom operators, is also investing in WiMax, primarily focusing on the fixed part.

The other operator actively looking at



**ON AUTO SURF MODE:** International telecom majors like Alcatel-Lucent are promoting WiMax technology in India

WiMax is Reliance Communications, part of the Anil Dhirubhai Ambani group. It is currently implementing a pilot project in select cities across the country. "We are looking at launching permissible services using WiMax technologies," points out a senior Reliance Communications executive. "We feel that WiMax increases possibilities of elimination of huge investments on our networks."

Aircel Business Solutions, part of the Aircel group – which is owned by Maxis, a Malaysian conglomerate – was the first to launch WiMax services in India, in October 2006. It has been providing WiMax services in select locations in Chennai and Bangalore, and plans to cover over 125 cities gradually.

Sify, a leading provider of broadband services, offers solutions on 802.16d-based WiMax radios, and is actively looking at rolling out the service in major cities. "As of now, base station radios are expensive,"

**We feel that WiMax increases possibilities of elimination of huge investments on our networks.**

notes P K Saji, vice-president, technology, Sify. "It would make sense for all operators to deploy at high potential areas. For rural areas, it would be used as a backhaul technology."

According to Sriram of Bharti Airtel, the key factors needed for WiMax to be

successful include equipment availability, CPE (customer premises equipment) kits (including indoor, portable, and nomadic) at right price points, economies of scale, performance, service capabilities and support. Of course, sufficient quantum of spectrum is critical for realising the retail business model. "India is an under-served market for broadband and hence WiMax will play a key role for improving broadband penetration in the country," he adds.

Tarvinder Singh, head of marketing and product management (networks and enterprise), Motorola India, notes that the success of WiMax will strongly depend on two factors. One is the adoption of standard WiMax band (the 3.3-3.8 GHz European WiMax band). It will be the strongest global WiMax band, which most countries – including India – are likely to adopt.

Secondly, it is important for WiMax to support mobility, he adds. "On top of this,

the cost of CPEs and availability of dual mode CPEs will play an important role in WiMax uptake," notes Singh. Though WiMax is meant primarily as a data service, industry analysts admit that the killer application for WiMax will be voice. Though the CPEs available currently in the market only provide data services, experts admit that it is only a matter of adding a voice chip to it.

Says Ramdev Sharma, chief technology officer, Huawei India: "WiMax emanates from the data network technology domain. Voice over Internet Protocol (VoIP) is one of the many applications of WiMax, unlike the conventional 2G networks, that support TDM (time-division multiplexing) voice." According to him, voice remains a major revenue stream for telecom operators. However, as research studies predict, this trend might reverse in the next few years when voice may be offered as a freebie in a multimedia service package.

The WiFi market is also doing well. According to an analyst, though the WiFi market is in its infancy in India, hotspot deployments are on the rise and seem to be driven by the demands of a growing mobile community and workforce. Several operators have set up WiFi hotspots.



**SETTING UP HOTSPOTS:** Telecommunication majors are busy setting up hotspots around the country

BSNL is currently in the process of setting up 300 hotspots across the country in libraries, hotels, hospitals etc. There are almost 700 WiFi hotspots across India at present, including at airports, fast-food joints and coffee shops.

The telecommunication industry is

currently awaiting allocation of spectrum that will allow companies to launch high-end services that will spur demand for their services. With the industry abuzz with activity, the market for WiMax and WiFi appears set on the path of high growth. 🌱

## WHAT IS WIMAX?

THE Worldwide Interoperability for Microwave Access (WiMax) threatens to do to conventional broadband internet – delivered through cables or accessed at WiFi hotspots – what cell phones did to landline phones.

WiMax ensures access to wireless data – and also voice, for that matter – over long distances. The WiMax protocol has been designed to cover different methods of data transmission, including Voice over Internet Protocol (VoIP).

WiMax appeared in the tech landscape in 2001, when the WiMax Forum was formed to promote the technology. The forum defined WiMax as a standards-based technology enabling delivery of last-mile wireless broadband access as an alternative to cable and DSL (digital subscriber line).

The technology is based on the 802.16 standard of the IEEE (Institute of

Electrical and Electronics Engineers, Inc), which is the world's leading professional association for the advancement of technology.

The IEEE has sets standards to define devices that transmit data across distances. The smallest-scale network is a personal area network (PAN), and the Bluetooth is a device that best symbolises this. PAN – which is IEEE 802.15 – connects devices up to 33-ft radius.

Next is local area network (LAN), which is IEEE 802.11; basically WiFi devices that connect up to about 300-ft radius. Metropolitan Area Network (MAN) is WiMax service that covers areas the size of a metropolis to be connected by devices (with a 30-mile radius).

WiMax is IEEE 802.16 (or 802.16d – for task group d, which developed it). IEEE 802.16d refers to fixed WiMax,

while 802.16e refers to mobile WiMax. WiMax technology helps developing countries to leap-frog technologies and offers the latest in telecommunication services to consumers living in remote areas, and not having access to conventional copper networks.

Service providers can also offer advanced broadband services including mobile internet, mobile TV and video gaming through WiMax networks.

WiMax got a boost recently after the International Telecommunication Union, the global telecommunication regulator, included it in the IMT-2000 (International Mobile Telecommunications-2000) set of standards for third generation wireless technology, along with UMTS (universal mobile telecommunications system) and CDMA2000 (code division multiple access), a 2.5/3G technology.