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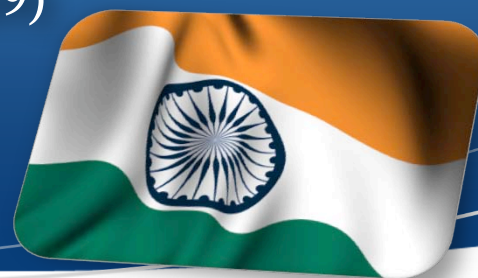
India Broadband Wireless & WiMAX Market Analysis & Forecasts, 2009-2013

3rd Edition (April 2009)



By: Sridhar T. Pai and Adlane Fellah

Executive Summary*

In 2008, Indian telecom continued to grow unmindful of any global economic meltdown or financial crisis. The mobile sector, in fact, broke all its previous records and added a robust 114 million cellular subscribers between January and December 2008. Leading into the New Year the streak continued, driven by new forces such as Reliance and Tata as the duo crossed over from CDMA to GSM, thus adding additional streams of new subscribers. Cellular subscriber additions are likely to push ARPUs further down in one of the lowest ARPU markets in the world, where up to 10 service providers compete for subscribers in some circles, thus raising concerns if the Indian mobile bandwagon may price itself out of sustainability at some point.

In stark contrast, the Indian broadband sector continued to be filled with alternating moods of despair and hope as the government announced and postponed spectrum auctions with remarkable deftness. While the Year of Broadband campaigns remained on the agenda, service providers ended the year with more confusion than a clear BWA/WiMAX/3G strategy regarding where their businesses were headed. The top issue on every service providers' to-do list was: shore up more voice subscribers on 2G today - everything else can wait! And so it did.

About the Team

This report is the result of a special collaboration between two leaders in market research: **Maravedis Inc.** and **Tonse Telecom Pvt. Ltd.** **Tonse** provided an invaluable contribution as a consultancy home-based in the Indian market.

*Full 7-page Executive Summary available to customers only.

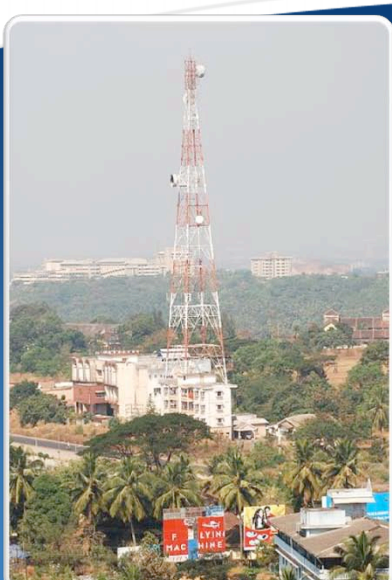
Indian service providers are cautiously aware of the emerging 3G/WiMAX/LTE opportunity and the ensuing possible options to evolve their current network assets. The key is to maximize currently deployed network infrastructure no matter which way they choose to evolve; in most cases growth will be along multiple streams.

In the case of incumbent operators such as MTNL and BSNL, the 3G network rollout has already begun and is in various phases of commercialization. Thanks to pre-allotment of spectrum before the auctions these operators have the privilege of early rollout, which should generate lead advantage. Our understanding is that BSNL has an ambitious national rollout plan for 3G, not limiting itself to up-market high-ARPU urban consumers but clearly looking to deliver grassroots level broadband benefits across the board. This will drive government initiatives, transform rural lives, and benefit education, law and order, and commerce.

Private operators such as Reliance, Bharti Airtel and Tata are clear about the 3G and BWA business case. They possess a wealth of experience managing large-scale networks with extremely high usage volumes at razor thin margins in the 2G world. The plan is to be nimble, adaptive and to acquire spectrum to run the race for 3G/BWA. These operators are extremely confident about delivering profitable businesses out of these new services and are rearing to go.

While there has been some talk about delayed auctions for BWA/WIMAX, potentially leading to a closing of the window for WiMAX and thereby operators having to wait for LTE, we think this is unlikely. The broadband market is far underserved and has already been delayed. There is a sizeable market opportunity now that needs to be met and BWA/WiMAX is capable of doing so. It will take some time before LTE stabilizes and the device economics play out to deliver mass-market volumes. We believe that the 3G/WiMAX streams will be deployed and generate a reasonable user base over the next 5 year period before noticeable LTE deployments begin to make an impact in these emerging markets.

Meanwhile, for those operators who seized the day with whatever slim bands were available in 3.3GHz, there is some light at the end of the tunnel. Reliance and Tata Communications, who launched their BWA/WiMAX services in multiple locations, showed what could be done with innovation and radio optimization, combined with passive infrastructure sharing and aggressive marketing in a market where latent demand stifled expansion and traditional wire-line data was just not delivering. The entire 3.3GHz experience reaffirmed that the fundamental business case for fixed wireless in India is real and immediate.



Maravedis and Tonse Telecom will release a Spectrum Supplement after the spectrum allocations are completed later this year.

Key Findings Include:

- The Indian BWA/WiMAX subscriber count added in the last year is well above 250,000.
- About 10,000 BWA/WiMAX base station sectors were deployed in 2008 alone.
- BWA/WiMAX ARPU for SMEs (small-to-medium-sized-enterprises) is in the range of Rs 2500 – Rs 5000 (US$50 to US$100)
- USB modem prices quoted to service providers in RFP responses were as low as US$35 - US$50 for even small volume shipments such as 150,000-200,000.
- Effective charges applied by service providers to subscribers for stand alone CPEs ranged from free to US$200, depending on tariff plans.
- Service provider approaches to BWA/WIMAX are mixed:
  - BSNL, the incumbent with a clear lead time (likely one year) on pre-allocated pan-Indian 2.5GHz is likely to be the big driver of WiMAX.
  - Operators such as Reliance and Tata have demonstrated what can be done by using slim 3.3GHz bands, and established the case for fixed WiMAX in India.
  - Operators such as Bharti Airtel have taken a demand-driven approach where they have extended coverage based on enterprise need/availability of fiber/DSL and feasibility of BWA/WiMAX.
- We estimate that WiMAX subscribers will reach 13.5 million by the end of 2013.
- By 2013, the non-WiMAX BWA subscriber count will be down to sub-million.

Concluding Remarks & Recommendations

- Among challenges to the operator community and to the industry in general, the earliest launch of the BWA/WiMAX spectrum auction – with a clear transparent allocation – process, is of paramount importance.
- Many operators are likely (at least initially) to use 3G spectrum for enhancing voice delivery and to improve 2G performance.
- The hottest application in India is still Internet access. Data services are still not meeting basic user needs, with large sections of DSL users complaining of sporadic performance and marked unpredictability of data over copper lines.
- SME and SOHO/home users continue to remain underserved, but promise the highest levels of growth rates in terms of bandwidth consumed.

The application areas for WiMAX and 3G continue to be open; there is room for both technologies in a severely under-served narrowband market such as India. Industry-friendly regulation, affordable and adequate spectrum, and easy availability of low-cost devices are key enablers of this migration from narrow-band voice to the broadband data market. Operators are ready and consumers and businesses are willing. We expect the floodgates to open once these enablers come together post-auctions/spectrum allocations. That is when building the Indian digital economy will begin.

About the Authors

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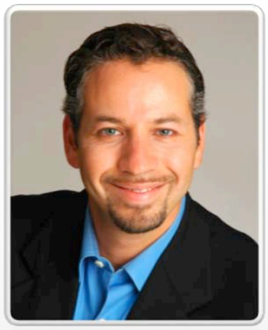
Sridhar has spent over 13 years in th e global telecom industry and most recently was director of marketing at IntelliNet Technologies Inc., a leading signaling infrastructure developer. Prior to that, Sridhar was head of VoIP business at Network Solutions. He also was part of the original team that incubated the soft-switch product at Xybridge Technologies Inc (later acquired by Zhone Technologies). Sridhar started his career with Motorola ISG group, which covers Singapore and India. His functional expertise has been technology research, product marketing and marketing communications for the telecom industry.



Adlane Fellah
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Adlane has worked over 9 years in the telecom industry, including 3 years as Marketing Manager for the BWA Clearburst product line at Harris Corporation, in charge of all point-to-multipoint market intelligence. He has extensive experience with both the tactical dimension of sales support and the strategic vision and analysis to feed product development. He also has an extensive knowledge of regulatory affairs as well as financial modeling, through his tenure as senior consultant with the telecom-consulting firm Lemay-Yates Associates Inc. Mr. Fellah holds a Master of Business Administration from the University of British Columbia.

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Maravedis is a leading objective, third party research, analyst & consulting firm focusing on Broadband Wireless technologies including WiMAX, 802.20, TD-CDMA and Wireless Local Loop Systems. Maravedis' mission is to be the most trusted bridge between the world of fixed-mobile convergence, real world deployments and sound business models.

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