



6 June 2008

**For more information, contact:**  
Chair, Regulatory Working Group  
[rwg-chair@wimaxforum.org](mailto:rwg-chair@wimaxforum.org)

Chairman  
Telecom Regulatory Authority of India

Attention:  
Sh. S. K. Gupta, Advisor (Converged Network)  
Email: [skgupta@traigov.in](mailto:skgupta@traigov.in)

### **TRAI Consultation on issues related to Internet Telephony**

The WiMAX Forum<sup>® 1</sup> welcomes the opportunity to provide its views and comments concerning the issues raised in the TRAI consultation on the above subject of May 2008.

The WiMAX Forum is an industry-led, non-profit corporation formed to promote and certify the compatibility and interoperability of broadband wireless products using the IEEE 802.16 and ETSI HiperMAN wireless MAN specifications. The WiMAX Forum's goal is to accelerate the introduction of these devices into the marketplace. WiMAX Forum Certified<sup>™</sup> products will be fully interoperable and support Metropolitan Broadband Fixed, Nomadic and Mobile Applications. For more information about the WiMAX Forum and its activities, please visit [www.WiMAXForum.org](http://www.WiMAXForum.org).

WiMAX provides the ability to connect people for voice (VoIP), video and data, offering the potential for widespread, affordable connectivity to every region, village and person in India. Use of IP telephony through WiMAX, offers not only the opportunities for the Indian information technology (IT) industry to grow beyond a few cities, but could support e-education, e-health and e-governance through voice, data and videoconference facilities to remote areas

As a broadband wireless access technology, WiMAX is able to carry VoIP either as an operator provided service or as a service provided by third party. In the operator provided case, VoIP is a service that the operator may choose to provide and, in doing this, it will have regard to the overall business model and will impact on other services and the extent to which QoS is managed. If a third party provides VoIP then it will generally not have managed QoS but it could if they have an agreement with the WiMAX provider. Hence, as the Forum understands the Indian situation, a WiMAX service may be considered to be both a private IP network and a public Internet. This appears to make any regulatory distinction artificial and has the potential to adversely restrict the WiMAX operators' business options.

---

<sup>1</sup> "WiMAX Forum<sup>®</sup>" and "WiMAX Forum CERTIFIED<sup>™</sup>" are trademarks of the WiMAX Forum.

***For more information, contact:***  
*Chair, Regulatory Working Group*  
*[rwg-chair@wimaxforum.org](mailto:rwg-chair@wimaxforum.org)*

**The WiMAX Forum respectfully submits the comments in Annex 1 with regard to this consultation.**

Yours sincerely

Tim Hewitt  
WiMAX Forum  
Chair - Regulatory Working Group

## Annex 1

**4.1 Whether Internet service provider should be permitted Internet Telephony services to PSTN/PLMN within India? If yes, what are the regulatory impediments? How such regulatory impediments can be addressed? Please give your suggestions with justifications. (para 3.10)**

Yes. The WiMAX Forum cannot see any reason to restrict Internet Telephony services in India but can see benefits for Indian citizens or services. Internet services provide a means for people to stay connected with their friends and family through e-mail, audio or video chat, and to browse the Internet for job and academic opportunities; the addition of a telephony capability can greatly enhance the utility of these interactions.

**4.2 Whether allowing ISPs to provide Internet Telephony to PSTN/PLMN within country will raise issues of non-level playing field? If so, how can they be addressed within present regulatory regime? Please give your suggestions with justifications. (para 3.11)**

No. The WiMAX Forum strongly recommends a technology and service neutral approach to regulation and this extends to Internet Telephony. This provides a level playing field which supports interconnection between the PSTN and ISPs. The Forum observes that Asian countries such as Singapore, Malaysia and Hong Kong have permitted all forms of Internet Telephony for many years and, in those countries, it is now just an option that service providers of all kinds can consider.

**4.3 ISPs would require interconnection with PSTN/PLMN network for Internet telephony calls to PSTN/PLMN. Kindly suggest Model/ architecture/ Point of Interconnection between ISPs and PSTN/PLMN? (para 3.12)**

WiMAX is capable of delivering mobile broadband Internet access and extending services such as Internet telephony throughout India. WiMAX offers a fast, affordable, convenient solution to India's widespread Internet access needs for high-speed wireless connectivity simply and cost-effectively and it offers the scalability to deliver affordable broadband access across India. Because its wireless infrastructure can be extended to provide portable and mobile device support, WiMAX has additional advantages for developing economies such as that of India, that don't have widespread broadband infrastructure already in place, but also the potential to easily add fully mobile high-speed data connectivity. Voice services may be carried on WiMAX in a

number of ways including via IMS (the WiMAX Forum has a specification for IMS over WiMAX) or other proprietary/semi-proprietary schemes such as systems deployed by Skype.

The WiMAX Forum is not expert in interconnection but recommends that the objective of any interconnection arrangement be to permit efficient and economical interconnection.

**4.4 Please give your comments on any changes that would be required in the existing IUC regime to enable growth of Internet telephony? Give your suggestions with justification to provide affordable services to common masses? (para 3.12)**

India is a land of diverse geographies. Planning and expanding the wired “last-mile” solution is a challenge in rural and remote areas of India. WiMAX gives service providers the ability to bundle in VoIP services and broadband data services with high speed Internet access, enabling voice and broadband data connectivity. Other Asian markets such as Korea and Malaysia are already demonstrating the transformative power of ubiquitous broadband connectivity. Dial-up connection, currently the most prevalent method of Internet access, does not provide the service quality or reliability or capacity for applications like video chat. Reliable Internet service for the masses can spur growth in e-Commerce and increase the number of investors participating in economic activities such as online stock trading. Broadband access can increase the effectiveness of e-Governance initiatives. E-Governance can reduce wait times for service and increase productivity in government offices. Video conferencing tools can help students to study a variety of subjects with educators who may not be able to commute to remote areas. Lecture classes from urban schools and top universities can be broadcast to rural students, and the students could use the broadband facilities of WiMAX for communicating with teachers and with their remote classmates. High-resolution pictures or real-time images of crop diseases can be transmitted to agricultural experts in a different geographic location for immediate expert advice, thus making it possible to contain crop diseases faster and more effectively. Similarly, doctors can use real-time video conferencing to discuss patient symptoms with faraway experts, thus providing faster and better care to their patients.

In view of the above it is necessary to ensure lowest possible user charges for various services and therefore the interconnect user charge (IUC) regime needs to be fair and provide equal and fair treatment for all the interconnecting parities.

**4.5 What should be the numbering scheme for the Internet telephony provider keeping in view the limited E.164 number availability and likely migration towards Next Generation Networks? Please give your suggestions with justifications. (para 3.13)**

The Forum notes that some countries have introduced special number ranges for VoIP but it does not recommend that this is done in India. The reason is that this distinction severely limits the ability of VoIP providers, possibly including WiMAX providers, from competing for customers because they cannot port their existing numbers to the VoIP service. Therefore, standard E.164 numbering will be critical for success of internet mobile telephony. With the Indian telecom network moving from 10 digits to 11 digits, there should be sufficient E.164 numbers.

**4.6 UASL and CMTS operators are allocated number resources and permitted to provide Internet telephony including use of IP devices/Adopters. Whether such devices should be allocated E.164 number resource to receive incoming calls also? If so, whether such number resources should be discretely identifiable across all operators and different than what is allocated to UASL and CMTS to provide fixed and mobile services? Give your suggestions with justifications? (Para 3.4)**

The WiMAX Forum recommends that the same standard numbering system be adopted for internet telephony as well because, in this context, a WiMAX device could be considered to be an IP device or adapter depending on the form factor.

**4.7 If ISPs are allowed to receive Internet telephony calls on IP devices/ Adopters, what numbering resources should they be allocated? (para 3.13)**

As in 4.6 above.

**4.8 Is it desirable to mandate Emergency number dialing facilities to access emergency numbers using internet telephony if ISPs are permitted to provide Internet telephony to PSTN/PLMN within country? If so, Should option of implementing such emergency Number dialing scheme be left to ISPs providing Internet telephony? Please give your suggestions with justifications. (para 3.14)**

The WiMAX Forum observes that emergency number dialing facilities are not mandated for all VoIP and Internet Telephony calls in Singapore, Malaysia, Hong Kong and Australia, although there is at least a general expectation that those with E.164 numbers will provide access; Australia is currently reviewing

its requirements. TRAI could consider whether the requirement to provide such facilities is dependent on the type of VoIP service provided.

**4.9 Is there any concern and limitation to facilitate lawful interception and monitoring while providing Internet telephony within country? What will you suggest for effective monitoring of IP packets while encouraging Internet telephony? Please give your suggestions with justifications.**  
*(para 3.15)*

The current scheme of lawful interception of ISPs is adequate to meet the needs of security agencies. Law enforcement in India should take advantage of the significant body of work in this area in the USA and in ETSI as this will enable better international cooperation for law enforcement as well as increase the availability while lowering the costs through economies of scale. The Forum is finalising a Lawful Interception specification based on North American specifications.

**4.10 Is there a need to regulate and mandate interoperability between IP networks and traditional TDM networks while permitting Internet telephony to PSTN/PLMN within country through ISPs? How standardization gap can be reduced to ensure seamless implementation of future services and applications? Please give your suggestions with justifications.**  
*(para 3.16)*

The WiMAX Forum has no comment other than to note that requiring full interoperability between all IP networks and traditional TDM networks may limit innovation but can provide benefits to users. The TRAI will need to balance these.

**4.11 Is there a need to mandate QoS to ISPs providing Internet telephony to PSTN/PLMN within country? Please give your suggestions with justifications.** *(para 3.17)*

WiMAX offers operators the option of providing VoIP with QoS but this requires the allocation of additional network resources to VoIP and away from other services. QoS and VoIP has often been discussed in countries reviewing this issue and a commonly raised point is the extent to which this is best addressed by provision of clear advice to consumers about the quality of service that can be expected. Consumers have shown in the past their willingness and ability to trade quality for other benefits such as mobility and lower cost calls, and regulatory intervention may unnecessarily restrict options for consumers.

**For more information, contact:**  
*Chair, Regulatory Working Group*  
*[rwg-chair@wimaxforum.org](mailto:rwg-chair@wimaxforum.org)*

The WiMAX Forum suggests that QoS be determined by the market with appropriate consumer safeguards and that the TRAI monitor this as the market develops.