

Consultation paper on issues related to Internet Telephony

We welcome and appreciate the effort of the authority for providing opportunity to put across our comments on the aforesaid subject.

We also appreciate the historical context in which the Internet Telephony has been introduced in India and also the role of the Authority.

Though Internet telephony was introduced in India w.e.f. 1st April 2002 simultaneously with the introduction of competition in the ILD (International Long Distance) services, its usage continues to be unimpressive. It is high time that the very license for Internet Telephony is reviewed in a holistic manner and necessary changes are carried out to ensure better and more affordable services to more and more subscribers built upon introduction of innovative solutions.

March 1999, the NTP was unveiled with the underlying realization that **“Availability of affordable and effective communications for the citizens is at the core of the vision and goal of the telecom policy.”** It contained a specific reference to “Internet Telephony” at para 3.2 that reads as:

“Internet telephony shall not be permitted at this stage. However, Government will continue to monitor the technological innovations and their impact on national development and review this issue at an appropriate time.”

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)

Any regulation should not deter the technology progress, today the VOIP services has matured substantially as a scalable service. Internet telephony services can bring down the cost of infrastructure considerably and hence offer cheap internet telephony services.

With the introduction of convergence of technology, all operators will be able to provide multiple services and, hence, the Government will not be able to guarantee limited competition in any particular service. Moreover, a policy which tries to prevent competition across various telecom services will restrict the innovative and efficient use of technology to offer quality service to customers in a cost-effective manner. Hence, the telecom sector should be opened for free and unrestricted competition, with operators being allowed unrestricted entry in all types of services (telephony, data services, Internet services, Cable TV, etc.).

Recognising this technology convergence, and with a view to facilitating optimum investment in infrastructure, ***the Government should evolve an Integrated Communication Policy (ICP) that comprehensively addresses all communications services including cellular, basic, Internet services, cable television, etc.*** The US Telecom Act 1996 could be used as a benchmark for formulating the new legislation.

The introduction of IP technology into the PSTN marks another step in the evolution of telecommunications networks. India is far short of Broadband penetration especially in small cities / remote and rural areas. Unrestricted Internet Telephony could be one application which can boost the broadband penetration by providing an economical via media for the citizens to call within as well as outside India.

In order to allow the ISPs to interconnect to PSTN/ PLMN within India, the Internet Telephony Clause in the License agreement needs to be amended accordingly. The license condition also has to be amended for service providers to allow E.164 numbering format for addressing their customers.

The license condition should also mandate the ITSP to have their Softswitch infrastructure with-in the service area and should be capable of maintaining all the customer information for traceability.

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)

ISPs providing internet telephony are paying revenue share @ 6% of the Adjusted Gross Revenue (AGR) earned on provision of Internet Telephony Services. In addition to AGR, ISPs are required to set up well-defined 3-tier subscriber grievance redressal mechanism for the Broadband services as mandated by TRAI to ensure QoS. Now, the Question of Level Playing Field is being argued on the basis of Entry Fees and differential AGR for UASL and CMTS.

Regulation of Government on UASL and CMTS should not be a constraints towards the technological developments in the Internet Telephony sector.

Internet Telephony is a not a managed service and works on the best effort basis. There is always a two component to the charges for any Internet telephony service which is the Internet usage charges and the internet telephone usage charges. Considering the above, Internet telephony is only a value added services over the internet usage, we don't think this raises a issue of non-level playing field.

ISPs basically re-sell services provided by UASL/NLD/ILD Operators. It is worth mentioning here that ISPs are largely dependent on the NLD/ILD/UASL for most resources for which they pay for. More than 85% of the ISP revenue goes back to these service providers, primarily the state-owned incumbents. In most part of the world ISPs are under light touch regulation and regulatory levies imposed on them are low, still they have been permitted to provide Unrestricted Internet Telephony.

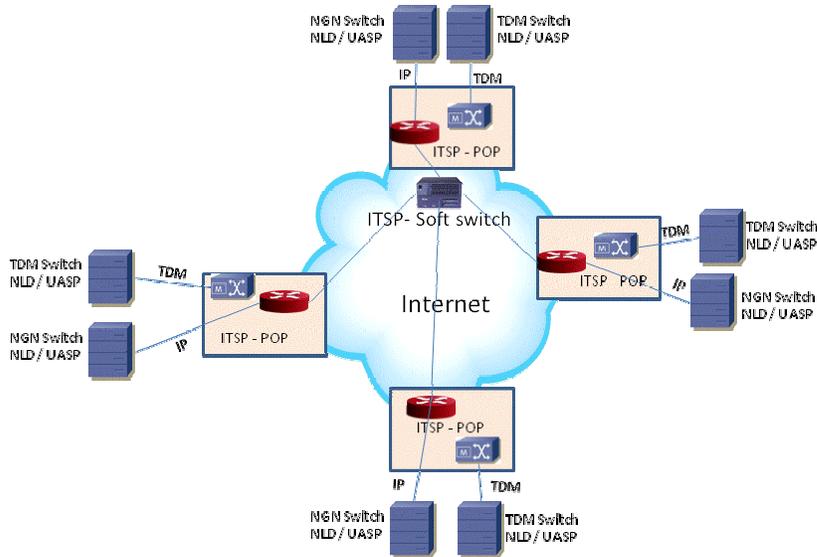
4.3 ISPs would require interconnection with PSTN/PLMN network for Internet telephony calls to PSTN/PLMN. Kindly suggest Model/ architecture/ Point of Interconnection between ISPs and PSTN/PLMN? (para 3.12)

There could be a two tiered approach here for the ITSP's to interconnect with the PSTN/ PLMN network.

1. End to End ITSP infrastructure providers:

These can be the Large ISP's who set up their complete VOIP infrastructure in terms of the Soft switch, Billing systems & Media Gateway interconnections with the UASL service providers.

These ITSP's could have Interconnects with the UASL / NLD operators directly on IP interconnects or by putting up the Media gateways to convert IP to TDM at the Circle level / SDCA level. The ITSP should also be allowed to use the services of a NLD operator for the Intra-circle calls as well as the Inter-circle calls as the need may be. This would ensure that the ITSP is able to invest in Interconnect infrastructure based on the volumes and partner with a NLD operator where the cost setting up the interconnect infrastructure becomes cost prohibitive.



2. Smaller ITSP's (Virtual ITSP):

For Smaller ITSP's who cannot afford to implement the Infrastructure on their own, they should be allowed to lease out a virtual partition with a bigger licensed ITSP provider with all the infrastructure in place. This would ensure there are more number of ITSP's operational inspite of their limited reach and capabilities. Since the leased out infrastructure is again from a licensed ITSP, the security and traceability is ensured.

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)

We welcome the idea of allowing the ISP's to get a UASL license without the Spectrum in order to ensure interconnection with PSTN/ PLMN providers for a nominal addition entry fee. The incumbent UASL providers should be mandated to interconnect to the ITSP within a month of the request to interconnect failing which there should be stringent financial penalties. The incumbent should in no way consider the ITSP as lesser player in allocating the point of interconnects.

We also propose Interconnection of ISP's and Mobile operators to be mandated for the purpose of providing ISP services either on GPRS, Mobile dial-up, as well as future data technologies like 3G, Edge, etc whenever available. This would allow ITSP's to provide cheap IP telephony services on the User mobile and also provide the users the choice of ISP's for the data connectivity.

The UASP & NLD agreements also need to be modified to mandate the interconnection with the ITSP's. Today, the only possible interconnectivity between the Operators is on

SS7 signaling. The UASP & NLD agreements need to be modified to allow direct IP peering wherever technically feasible (some of the PSTN / PLMN operators are moving towards NGN infrastructure where this should be possible) as this would do away with the need of investing on expensive softswitch and expensive media gateway for the ITSP to interconnect with PSTN / PLMN operators.

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)

As per the current Licensing conditions, allocation of E.164 numbers is not permitted to ISPs but as Authority rightly pointed that the success of Internet Telephony is greatly linked with the ease with which a subscriber can dial and receive call. Any non-familiar method will limit the technology advancement.

Dialing an IP address is not a solution, as this will only increase the cost of Internet Telephony. The suggested mechanism of *ITSP's having a 2 digit code including the carrier identification code is acceptable if this can be achieved.*

The other alternatives to manage the E.164 numbers for the IP telephony operators is as follows:

Today we understand that BSNL is the major landline operators and have multiple exchanges at various village levels and any modification to the numbering plan to release the unused numbers would be very difficult. At the same time the new private operators have a more less complex switching network and operate with fewer exchanges per circle & they have much lesser penetration on landline.

Our suggestion here is, we can look at converting the carrier identification code for these operators to two digit carrier identification code and release some of the unused re-farmed carrier identification code to the VOIP operators. The VOIP code can be of 3 digits instead of the suggested 2 digits (similar to the present Mobile operator codes) and can be re-constructed from the Carrier identification codes released from re-farming.

In the above method, while the available numbers for the VOIP subscribers for each VOIP operator codes would come down to 3 to 5 digits but would accommodate more VOIP operators and more serious operators can have multiple VOIP operator codes based on the usage. We would also suggest that there should be a fixed fee for allotting each VOIP operator code in order to ensure non-serious VOIP operators are kept out and also put measures for the VOIP operators to justify the cause for asking additional VOIP codes. **Process of allocating additional codes should be simplified with time line.**

E-NUM numbering, while will not work as an alternative to the E.164 number crunch, it can alternatively help VOIP services if E-NUM is floated as a independent service provision (like Unified messaging services) and all existing operators (including mobile, land line & ITSP) are mandated to interconnect to the E-num operator. This would ensure additional services like VOIP and other unified solution can be provided using an existing PSTN (E.164) number. This works to the advantage of ITSP service penetration.

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)

If the UASL / CMTS is providing VOIP services on the Managed IP connectivity with dedicated connectivity to their NGN switches then this should come under the UASL / CMTS license and the E.164 numbering can be used as per the Fixed Land line plan. If Internet is being used for the transport then this should be under the ITSP license only and all the numbering plan has to be as suggested under the question 4.5

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 explained under the question 4.5

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)

Emergency number dialing is a very important factor for any communication device, as it is more consumers oriented.

In order to make this interconnection easier, there has to be a guide lines from the licensor to the Emergency services, the other option is for the licensor to mandate the existing UASL operators who have already built the infrastructure for emergency services to allow the Internet telephony operators to use these services at the interconnects in addition to routing the PSTN calls. So we suggest two different interconnects. IUC regime can be amended for the separate port charges for Emergency numbers.

Coming to the credibility of the geographic location of the caller, Mobility on Internet telephony is still a far way off as we do not have any penetration of hotspots in the country. Even if the hotspots were to be developed, the problem here would be no different than the today's problem to the mobile as the mobile source number again does not provide the authenticity of geographical location of the caller.

The best way to implement the emergency calling is to have similar processes in terms of subscriber verification as it is present in Broadband or telephone service provision today and with a caveat that the emergency services would not be reliable if used from any other location other than the one registered with the service provider.

The ITSP softswitch can ensure the geographical routing of the emergency service numbers based on the information about the customer stored in the softswitch as this knows who the user is and where he is supposed to be located. ITSP's should be mandated that they stick to the geographical location / numbering plan while provisioning the services (Services like non geographical E.164 numbers like that of Vonage should not be allowed)

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)

VOIP as a technology is not having any limitation for Lawful interception as compared to TDM Using a Session Border controller. We can have all the IP media While providing lawful interception is very important considering the security of the Nation, this would mean a high CAPEX to the ITSP. In order to meet both the expectation, the ITSP's has to be mandated to provide the Lawful interception but the smaller ITSP's should be allowed to tie up with the larger ITSP's for the soft switch as well as the Lawful Interception systems (Complete VOIP backend infrastructure)

To ensure easy decoding of the voice by the Lawful interception system the ITSP's should be allowed to use only ITU / IEEE recommended standard protocols and codecs for providing the ITSP services. Proprietary protocols and codecs should not be permitted for the ITSP's.

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)

There are already ITU recommended standards for NGN interconnects. Any standard way agreeable for the two parties interconnecting should be allowed. It is very much possible to have two different methods of interconnections to two different operators or points of interconnect. SS7 interconnects with media gateway may be mandated for interconnecting to TDM switches.

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)

QOS for ITSP's has to be mandated in India to protect the consumers. For the ITSP the QOS criteria has to be relaxed as less than toll quality voice should be acceptable for internet telephony services. The recommended QOS standard would be to keep the delay and jitter same but packet loss can be increased to 0.5% and the R factor to 75 (near to MOS score of 3.5).

The basic internet bandwidth required at the customer end of 35 kbps per call has to be the pre-requisite and the bandwidth utilization at the customer end has to be less than 70% of the subscribed bandwidth by the customer while the above is measured.