

## **BIF RESPONSE TO TRAI CP ON INTERNET TELEPHONY ( VoIP )**

BIF is a not-for-profit technology agnostic and service agnostic body and recognises the need for all types of players from demand and supply side of infrastructure to co-exist in accordance with the terms and conditions of the applicable licensing regime under the overarching requirements of the Indian Telegraph Act, 1885, TRAI Act 1997 and the Information Technology Act, 2000. BIF supports any and all initiatives of TRAI & the Govt of India that shall lead to a healthy growth of the overall ecosystem by laying down clear and transparent conditions that permits harmonious and peaceful co-existence coupled with encouragement for new investments and innovations.

As per the current Regulation, Internet Telephony requires use of the access network of Unified Licensee (UL)/Unified Access Service Licensee (UASL)/ CMTS (Cellular Mobile Telephony Service) Licensee to be able to connect to the PSTN/PLMN networks. In other words to make a Internet Telephony call to the PSTN/PLMN networks or vice versa, access network of a UL/UASP/CMTS is required.

We believe that some of the fundamental issues that are involved in this consultation are as follows.

1. Under the Framework of the Indian Telegraph Act, Internet Telephony which involves calls from VoIP to PSTN/PLMN or vice versa needs to have the involvement of any one of the UL/UASL/CMTS Licensees.
2. As defined itself by TRAI, VoIP is an App and therefore strictly speaking, falls under the purview of ' Content '. It needs to be debated as to whether content and Content based services viz. VoIP can be regulated by TRAI, going forward.
3. One of the call scenarios, other than the ones described in Point No. 1 above is a VoIP-VoIP call.( app to app call ) In this case the calls do not terminate/originate in the physical networks and hence terminating/originating charges are not applicable. However, since it falls under the realm of OTT services, it therefore merits a separate consultation and consideration which is outside the scope of this consultation paper. The Regulator may be kindly requested to take up this subject during the consultation process for OTT services.
4. BIF supports all such initiatives which shall provide fair, transparent & equitable operating conditions, with no regulatory arbitrage and which promotes fair competition amongst all categories and types of service providers. BIF also supports

all initiatives, policies and regulations which encourage new investments and innovations in expanding the broadband ecosystem in the country.

In addition to the principles of licensing regime as per the Indian Telegraph Act, it maybe pertinent to also highlight that National Telecom Policy-2012 (NTP 2012 ) also recognised and stressed the need to move towards convergence of Voice, Data, Video and migration of all traffic to Digital Form, leading to creation of single networks which bring about convergence in Networks, Services & devices. It further states that it is imperative to move towards convergence of Telecom Broadcast & IT services, networks, platforms, technologies & overcome existing segregation of licensing, registration & regulatory mechanisms to be able to provide increased affordability, access and delivery of multiple services at reduced costs. NTP-2012 also states ' To orient, review & harmonise legal, regulatory & licensing framework in a time bound manner to enable seamless delivery of converged services in a technology & service neutral environment.'

BIF is of the view that there should be equitable terms and conditions so that there is level playing field for all players in the sector. Though it is not included in the scope of this consultation, it may not be out of place to mention that while existing licensed operators are subject to regulations and operate within certain limitations, the OTT players are free to operate w/o any regulation. It is hereby requested for a review of the conditions to accord similar treatment to existing operators so that they can also compete with OTTs on equal footing.

All the above points have been considered while responding to the questions in the said Consultation Paper.

**Q1: What should be the additional entry fee, Performance Bank Guarantee (PBG) and Financial Bank Guarantee (FBG) for Internet Service providers if they are also allowed to provide unrestricted Internet Telephony?**

### **BIF RESPONSE**

For the healthy growth of the sector, BIF is in favour of encouraging fair competition amongst all players. Also BIF believes that all policy and rules for the Internet Telephony sector should be in conformity to the Indian Telegraph Act, 1885, TRAI Act 1997 & the Information Technology Act, 2000. However, the Indian Telegraph Act, 1885 remains the overriding law that dictates norms for voice and messaging, irrespective of which technology is used. It has been estimated that to meet the targets, an additional sum of 500,000 crores investment would be required. Pursuant to the significant changes in the licensing framework of the country over the years , new Unified Licences are now being issued. BIF is of the opinion that all rules and

regulations should be evenly applied across all categories of service providers in an equitable manner.

**Q2: Point of Interconnection for Circuit switched Network for various types of calls is well defined. Should same be continued for Internet Telephony calls or is there a need to change Point of Interconnection for Internet Telephony calls?**

### **BIF RESPONSE**

With the advent of technology, Internet Telephony has now become an important means of voice telephony. Among some of the important aspects of conventional telephony that need to be examined for being applied to Internet Telephony (VoIP to PSTN/PLMN calls) service includes point of interconnection.

Interconnection is the most important aspect of a Telecom Network. It must be borne in mind that in the context of Rural Connectivity & Digital India programs, in Rural/Semi-Urban India, there will be far more incoming calls and less outgoing calls. Any exercise to reduce the call termination charges to zero for incoming calls will lead to dis-incentivisation of the Rural Connectivity and Digital India program and is likely to only enhance the digital divide instead of bridging it. In fact many countries globally, to incentivise the service providers to go to the rural areas, have adopted the cost+termination charges model.

In case of Internet Telephony, subscribers may be anywhere within the country or abroad. When he makes a call and the call is routed on the Public Internet upto one of the IP (IMS) nodes /SIP servers and finally routed to its destination as per the national Routing Plan, the Internet Telephony call is treated as complete. Hence, when call is on the Public Internet , it is not being routed through NLD/ILD , though it may be travelling through access service areas to reach the IP( IMS ) node /SIP server. In such cases, the inter service area call is travelling through Public Internet to reach IP ( IMS ) node/SIP server without the help of the NLDO.

Ever since the introduction of the CPP (Calling Party Pays) regime in India on 24th January, 2003, the CPP regime prevents terminating operator from charging for incoming calls. Hence for terminating operator, IUC is probably the only way to recover costs of these incoming calls. As explained in the Preamble, this is a great incentive for operators to offer this facility for its Rural/Semi-Urban customers who are prone to receiving a larger number of calls than making outgoing calls..

As per the existing TRAI guidelines, Originating operator pays IUC to the terminating operator. The IUC rates should reflect the true or the actual cost of termination which

has been changing dynamically due to technological advancements and other factors. Out of the several elements of the IUC, the access termination charges is the most important. In the context of rural/semi-urban customers, it is absolutely imperative that the cost of access termination for all incoming calls must be covered. This will also incentivise the operators to create infrastructure in the rural areas, where it is needed the most today.

**Q3: Whether accessing of telecom services of the TSP by the subscriber through public Internet (internet access of any other TSP) can be construed as extension of fixed line or mobile services of the TSP? Please provide full justification in support of your answer.**

### **BIF RESPONSE**

It is pertinent to point out that as per TRAI's definition given in 2008, 'Public Internet' is correctly mentioned as an Internet Cloud which is accessed by any ISP/TSP from its Gateway.

The definition of 'Public Internet' as mentioned in this consultation paper is assumed to be subscriber's connection to the Internet through another authorised ISP's Gateway. This appears to be incorrect and probably beset with difficulties. . This definition if adopted, permits subscriber of a TSP/ISP (without access network) to ride on an Internet connection (given by a different ISP) to that TSP/ISP's subscriber.

All VoIP (App)-VoIP (App) calls travel through the physical TSP/ISP network\_as the calling and called parties are subscribers of the PLMN/PSTN network. Though the call packets pass through these networks, unfortunately the current regulation does not allow these packets to be controlled/managed by these networks and hence the issue of compensation to the originating & terminating networks which carry the call, merit a separate consultation and consideration. .

**Q4: Whether present ceiling of transit charge needs to be reviewed or it can be continued at the same level? In case it is to be reviewed, please provide cost details and method to calculate transit charge.**

### **BIF RESPONSE**

The Unified License provides for the Licensee to enter into mutual agreements with other Unified Licensees for carrying its Intra-Circle Long distance traffic. Also Unified Licensee with authorisation for National Long Distance (NLD) services provides for the licensee to carry intra-circle switched traffic where such carriage is with mutual consent/agreement with traffic originating access service provider. These clauses in the License agreement provide flexibility to a Telecom Service Provider (TSP) to transit traffic of another TSP within the same service area. Small Internet Telephony

Service Providers may connect to one TSP and this TSP can transit/ carry traffic to the destination TSP.

Internet Telephony Service provider can negotiate transit charge with any TSP who is willing to transit its traffic to other TSPs. As per existing Interconnect User Charge Regulations, transit charge shall not exceed 15 paisa (ceiling) per minute. This cost would need to be reviewed to reflect the true and actual costs. The cost must take into account things like spectrum cost amongst others.

**Q5: What should be the termination charge when call is terminating into Internet telephony network?**

### **BIF RESPONSE**

The Interconnect Usage Charges( IUC ) Framework has been very effective in the past in regulating the interconnection charges and also leaving scope for bringing in new tariff packages and effective competition among Service providers. The same time tested IUC framework can easily be applied to Internet Telephony Calls except that additional termination charges for calls originating/terminating from/into PSTN/PLMN networks as Internet Telephony calls needs to be prescribed/calculated.

Internet Telephony has significant implications for interconnection charging. To have a sustainable charging regime, there maybe need to have uniform charging mechanisms to avoid regulatory asymmetries. This will ensure that similar services are treated similarly irrespective of the technology used to provide these services

One also has to decide on the right metric for VoIP calls. (Based on per minute usage or per MB usage) to ensure a seamless integration with the current IUC regime. Charging VoIP calls on the basis of per minute usage might violate TRAI Tariff Order of Differential Pricing. It must be borne in mind that drastic reduction of IUC rates baselining cost of carrying VoIP call might halt the march of rural connectivity thereby increase the digital divide besides destabilising the industry when the bulk of the calls are still being carried on conventional circuit switched telephony. This scenario is likely to continue in the near future as well.

Cost drivers for Internet Telephony based on a per minute usage cost recovery model has a number of weaknesses in a VoIP world as Call duration has lost its relevance in the VoIP world. As VoIP traffic increases, interconnection charges based on bandwidth used would be a better reflection of the underlying cost drivers and would be more consistent with economic efficiency .Due to changes in technology, there would be a need to review the IUC charges. However, this revised model/approach should encourage efficient competition, encourage new investment in telecom networks particularly in the rural areas, treat technologies & competitors

neutrally, allow innovation, and be consistent with the general trend towards less regulation.

**Q6: What should be the termination charge for the calls originated from Internet Telephony Network and terminated into the wireline and wireless Network?**

**BIF RESPONSE**

Covered in response to Q5 above

**Q7: How to ensure that users of International Internet Telephony calls pay applicable International termination charges?**

**BIF RESPONSE**

When an Internet Telephony subscriber makes/receives an international call, existing interconnect regime manages this scenario without any issues since these calls travel over an International Long Distance Operator (ILDO). In case the Internet Telephony subscriber is located outside the country and chooses to make a call to someone inside the country, the call would travel from the country of origin to the International Gateway over the Public Internet and after that would travel over the PSTN networks, thereby potentially bypassing an ILDO for carrying inbound traffic. This scenario is acceptable to all Internet telephony service providers worldwide. Some service providers actually provide hybrid service allowing their subscribers to use either Wi-Fi or roaming networks to make calls when they are travelling. This is to benefit the consumers and represent the advantages derived from using Internet Telephony.

**Q8: Should an Internet telephony subscriber be able to initiate or receive calls from outside the SDCA, or service area, or the country through the public Internet thus providing limited or full mobility to such subscriber?**

**BIF RESPONSE**

Internet Telephony subscriber as per license uses the Public Internet to make a call from his Internet Telephony terminal which traverses over the Public Internet to SIP Gateway/IMS node of the licensee. So, a subscriber of SDCA 1 could actually be sitting in SDCA2 and still make/receive Internet Telephony calls since the last mile would traverse over the Public Internet.

When an Internet Telephony subscriber makes a Long Distance call from his LSA/SDCA to another LSA/SDCA, existing interconnect regime manages this scenario without any issues.

**Q9: Should the last mile for an Internet telephony subscriber be the public Internet irrespective of where the subscriber is currently located as long as the PSTN leg abides by all the interconnection rules and regulations concerning NLDO and ILDO?**

**BIF RESPONSE**

Let us examine the three call scenarios.

In case of VoIP -PSTN call, the last mile (leg) of the call will travel on the public network ( PSTN/PLMN ). In case of PSTN-VoIP call, the last leg of the call can be either on the Public Internet or on the PSTN/PLMN .The VoIP-VoIP call uses the public Internet

So, it is assumed that in only one of the above cases, the last mile is likely to be on the public Internet. However, the interpretation of the Public Internet should be as per the definition of the Public Internet given by TRAI in its 2008 recommendations.

**Q10: What should be the framework for allocation of numbering resource for Internet Telephony services?**

**BIF RESPONSE**

Relevant Clause of the Unified Licence w.r.t Numbering of Internet Telephony reads as follows:

Clause 2.5: IP Address assigned to a subscriber for Internet Telephony shall conform to IP addressing scheme of the Internet Assigned Numbers Authority (IANA) only. Translation of E.164 number or assignment of a private number to the IP address and vice versa by the licensee for this purpose shall be as per directions/instructions issued by the Licensor.

It may be noted that Internet Telephony can be offered without allocation of number of resources from E.164 numbering plan. However, it is not possible to call an Internet Telephony subscriber from an existing PSTN/PLMN network without allocation of a number which can be recognised by traditional fixed and mobile telecom network. This shall greatly restrict scope and popularity of Internet Telephony service

In India, unlike in the west, numbering blocks are separately allocated for fixed line which is SDCA based and for Mobile which is unique at the country level. One option for the suggested framework could be that the TSP use same number of resources and have similar restrictions for Internet Telephony service w.r.t mobility as it is for normal voice services. This will be consumer friendly as he can be reached or make calls with the same identity irrespective of whether he is making Internet Telephony

calls or normal call using the same number. However, it will be possible when there is same termination charge for Internet Telephony calls.

Another way is to allocate separate numbering series for Internet Telephony services and all spare codes which are not being used can be allocated for Internet Telephony calls. At present, these numbers cannot be used for mobile services. If these numbers are allocated to mobility, it could run into a conflict with local fixed line numbers. If we add '0' while dialling from Internet Telephony calls to or from Fixed or Mobile numbers, it will not have any conflict and this numbering resource which is otherwise idle can be used for Internet Telephony service.

**Q11: Whether Number portability should be allowed for Internet Telephony numbers ? If yes, what should be the framework?**

### **BIF RESPONSE**

Number Portability is usually used to enhance competition. As VoIP is a new domain and needs extensive consultations by itself, so the framework for Number Portability should be decided through a separate and exhaustive process of consultation.

**Q12: Is it possible to provide location information to the police station when the subscriber is making Internet Telephony call to Emergency number? If yes, how?**

### **BIF RESPONSE**

When subscriber calls from fixed line, the call goes to the nearest police/fire station which has been mapped to the corresponding location. For mobile customers, the TSPs provide information of the home SDCA along with the CLI of the calling party and the call is routed by the Service Provider (for Emergency access viz. BSNL/MTNL) to the nearest Police Station in that very SDCA.

**Q13: In case it is not possible to provide Emergency services through Internet Telephony, whether informing limitation of Internet Telephony calls in advance to the consumers will be sufficient?**

### **BIF RESPONSE**

To serve the requirements of transparent provision of service and its limitations thereof, it is desired that the Internet Telephony Service Provider shall inform their subscribers that Internet Telephony Service will not support Emergency Number Calling. In India for mobile customers, the TSPs provide information of the home SDCA along with the CLI of the calling party and the call is routed by the Service

Provider ( for Emergency access viz. BSNL/MTNL ) to the nearest Police Station in that very SDCA.

**Q14: Is there a need to prescribe QoS parameters for Internet telephony at present? If yes, what parameter has to be prescribed? Please give your suggestions with justifications.**

### **BIF RESPONSE**

Quality of Speech in any voice communication service is an important consideration. Since we are accustomed to PSTN/PLMN voice quality, we expect similar good voice quality from Internet Telephony for individual customers also irrespective of technology used to provide such services. Though Internet Telephony standards today do not prescribe minimum Internet access speed for good Quality of Service, it is a given that Broadband connection will be required to provide good speech quality. ITU-T recommendation G.114 (5) defines maximum one-way latency as 150ms for good speech quality.

In many countries, all ISPs are required to match the QoS parameters as defined for PSTN/PLMN voice quality.

However, for enterprise level Internet telephony, we recommend ' light touch regulation' as most of the SLAs are mutually decided between the service provider and the customer.

**Q15: Any other issue related to the matter of Consultation.**

### **BIF RESPONSE**

An approach for Calculation of IUC rates has been proposed.

An IUC rate calculated by TRAI uses the modified model of Long Run Incremental Cost (LRIC) instead of Fully Allocated Cost (FAC) Model. In fact the LRIC model has overlooked many different types of costs viz. spectrum costs, etc. While calculating the IUC rates, it must be borne in mind that there is a significant amount of circuit switching which still exists in the network and is likely to be there for a sufficient period into the future as well. It should also be borne in mind that though there will be Packet Switching based networks, there is a finite cost for the same and cannot be attributed to be zero.

Also, what must be factored into the costs should be the fact that in Rural/Semi Urban Areas, there will be far more incoming calls and less outgoing calls. Any exercise to reduce the call termination charges to zero for incoming calls will lead to dis-incentivisation of the Rural Connect and Digital India program and is likely to only enhance the digital divide instead of bridging it. In fact in many countries

internationally, the service providers are incentivised to go to the rural areas, by adopting the cost+ termination charges model. It is therefore believed that a Hybrid LRIC model would be more suitable and apt for India. In a country like India unlike in the developed world, we have a situation where large parts of the rural & remote areas are still unconnected. Also it is indeed a fact that more than 50% of all BTS's are pure 2G BTS.( with the balance comprising of a mix of 3G & 4G).

Keeping in mind India's unique situation, it is recommended that a Hybrid LRIC model be adopted which uses a mix of the 'Top down' with a 'Bottoms Up' approach where all the regulatory overheads and spectrum costs can be merged to arrive at a fair and transparent cost based IUC rate, shall be the most appropriate one.

The spectrum costs must include both current & future cost of spectrum bands that the Govt is planning to auction. Total Cost of all spectrum in all bands at TRAI defined reserve prices is Rs. 10,65,000 Lakh Crores. Cost of acquisition of 900 & 1800 Mhz bands (used in the 2015 calculation) is just 25-30% of the overall cost.

Another factor that must be taken into account is the review of Carriage Charges paid to NLDO by the Access Service provider (Clause 20 -Page10- of 12th Amendment). In view of the impending technological changes including full migration to IP in the Core network, carriage cost structures are also likely to change. Though as per TRAI's own admission, the review is to be undertaken and concluded in FY 17-18, the same may also be reviewed now and implemented subsequently.