Reliance Communications Limited's Response to the Consultation Paper on Internet Telephony (VoIP)

Executive Summary

A. **ISPs should be mandated to migrate to UL with Access Service Authorization and then seek the Interconnection with the existing PSTN / PLMN service providers OR The ISP license itself should be amended to bring it at par with the UASL / UL with respect to Entry Fee, FBG and PBG etc and a migration path should be prescribed for the existing ISP licensees to upgrade to the amended ISP license.**

B. **The Point of Interconnection, for Internet Telephony calls terminating to PSTN/PLMN should follow the existing Point of Interconnection laid down for circuit switched network.**

C. **The termination charges should be implemented as Bill and Keep (BAK).**

D. **Access to the telecom services of TSPs by the subscriber through public Internet (Internet access of any other TSP) should not be permitted as it would facilitate bypassing of the STD / ISD calling mechanism and tariffs as each and every call would be initiated as a local call.**

E. **The framework for allocation of numbering resource for Internet Telephony services should be same as that was proposed by TRAI in its recommendations on this subject on 18 Aug 2008.**

F. **Number portability should be allowed for Internet Telephony numbers and its framework should be similar to the existing framework for PLMN telephony services.**

G. **Technical solution needs to be worked out to ensure portability between PLMN telephony services and Internet Telephony services if the same is to be implemented.**

H. **Provisioning of facility for being able to dial emergency services should be mandated for IP telephony services that are interconnected to PSTN / PLMN networks.**

I. **TSP providing IP telephony service should be mandated to gather the location information of the subscriber calling emergency services so that emergency calls could be routed based on the location information.**

J. **TRAI should prescribe the QoS technical benchmark for VoIP services in line with its 2002 Regulations for VOIP based ILD services.**

K. **TRAI should also prescribe telephony QoS benchmarks similar to those prescribed for UL licensees, sic, call drops, billing, fault rectification, customer services, call centre / customer service, etc.**

L. **OTT service providers too should be mandated to obtain UL / UL (VNO) with Access Service Authorisation.**

Our specific comments on the issues posed by the Authority are given in the subsequent paragraphs.

Detailed Response

Question 1. 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?

Our Response

For ensuring parity of licenses in terms of entry fee, performance Bank Guarantee (PBG) and Financial Bank Guarantee (FBG) the ISPs licensees who are willing to provide the unrestricted Internet telephony should be mandated to migrate to UL with Access Service Authorisation.

1. Unlike the USAL / UL licensees, the existing ISP licensees are not allowed to provide unrestricted Internet telephony (VoIP Calls to and from PSTN / PLMN network) as the scope of their ISP license doesn't permit interconnection with PSTN / PLMN network. Allowing, the existing ISPs to provide the unrestricted Internet telephony, without subjecting them to the conditions of UASL / UL with Access service Authorisation, will create a non level playing field, vis-a-vis the TSPs, as the ISPs will de facto become the access service providers.

Our Recommendations

2. If at all the Internet Service Providers are to be allowed to provide unrestricted Internet Telephony, then either

   a. **ISPs should be mandated to migrate to UL with Access Service Authorization and then seek the Interconnection with the existing PSTN / PLMN service providers.**

      OR

   b. **The ISP license itself should be amended to bring it at par with the UASL / UL with respect to Entry Fee, FBG and PBG etc and a migration path should be prescribed for the existing ISP licensees to upgrade to the amended ISP license.**

Question 2. 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?

Question 4. Whether present ceiling of transit charge needs to be reviewed? In case it is to be reviewed, please provide cost details and method to calculate transit charge.

Question 5. What should be the termination charge when call is terminating into Internet Telephony network?

Question 6. What should be the termination charge for the calls originating from Internet Telephony Network and terminated into the wire-line or wireless network?

Our Response

The Point of Interconnection for circuit switched network for various types of calls should be mandated to be continued for Point of Interconnection for IP Telephony calls to enable proper accounting and routing as well as provisioning of locational emergency services.

1. Unlike circuit switched network wherein the intelligence for routing of the calls rests in the central exchange, IP has the inherent characteristic that the routing information is part of the IP packet itself. Another important characteristic of IP is that it uses the shortest path between the packet origination point and the packet termination point as its first choice for reaching the destination. On the other hand, it is also required to ensure the provisioning of locational services, especially for emergency services and the compliance to the existing license provisions wherein the inter circle calls can be carried only by an NLDO. Hence, **the Point of**

Interconnection for circuit switched network for various types of calls should be mandated to be continued for Point of Interconnection for IP telephony calls terminating to PSTN/PLMN.

2. **Interconnection in IP Domain.** IP telephony calls can be of three types, as (a) IP device to IP device, (b) IP device to PSTN / PLMN and (c) PLMN / PSTN to IP device. For each type of these calls, while the interconnection is being handled in IP domain, **the Point of Interconnection should be as per the mutual convenience of operators within the ambit of the mandates as per the License.**

3. **Charges in Circuit Switched Domain.** RCOM has always advocated that termination charge, which is a wholesale charge between the operators, should not be the cost recovery mechanism as the same can be and should be through retail level tariffs. Hence, we propose that **Bill and Keep (BAK) should be implemented for all kind of termination.**

Our Recommendations

4. **The Point of Interconnection, for Internet Telephony calls terminating to PSTN/PLMN should follow the existing Point of Interconnection laid down for circuit switched network.**

5. **The Bill and Keep (BAK) should be implemented for all kind of termination.**

Question 3. Whether accessing of telecom services of TSPs 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.

Question 8. 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?

Question 9. 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?

Our Response

Access to the telecom services of TSPs by the subscriber through public Internet (Internet access of any other TSP) should not be permitted as it would facilitate bypassing of the STD / ISD calling mechanism and tariffs as each and every call would be initiated as a local call.

1. Internet telephony services are just an application over the IP network. Just as the IP networks are characterised by their seamless connectivity over the physical boundaries artificially created by the mankind, so is the reach of services being provisioned over this network.

2. Subscribers can access the services of their parent TSP through the public Internet (Internet access of any other TSP) in the following two ways.

   a. By accessing the NGN of the TSP as has been described in the consultation paper itself.

   b. By accessing their respective handset wherein the subscriber can gets access to his entire contact list and can activate the handset for making calls and send SMSs.

3. It is brought out that both these cases are akin to remote access of the services of the parent TSP. Once a subscriber has remote access to his parent TSPs services he would be in a

position to make local calls / send local SMSs from any location across the globe. Therefore, **access to the telecom services of TSPs by the subscriber through public Internet (Internet access of any other TSP) would facilitate bypassing of the STD / ISD calling mechanism and tariffs as each and every call would be initiated as a local call.**

4. **Breach of Security.** A major pitfall of such an arrangement, wherein the subscriber is able to remotely access and utilise his native TSP's service, is that the service can be used by anti social elements to mask their call origination, especially when using the handset as an interface between the IP telephony and PSTN / PLMN call.

Our Recommendations

5. **Access to the telecom services of TSPs by the subscriber through public Internet (Internet access of any other TSP) should not be permitted as it would facilitate bypassing of the STD / ISD calling mechanism and tariffs as each and every call would be initiated as a local call.**

Question 7. How to ensure that users of International Internet Telephony calls pay applicable International termination charges?

Our Response and Recommendation

All International calls should follow the currently defined routing which requires them to come through the ILDO. However, since BAK is proposed for termination the same should be made applicable in case of International Internet Telephony calls also.

Question 10. What should be the framework for allocation of numbering resource for Internet Telephony services?

Question 11. Whether Number portability should be allowed for Internet Telephony numbers? If yes, what should be the framework?

Our Response

The framework for allocation of numbering resource for Internet Telephony services should be same as that was proposed by TRAI in its recommendations on this subject on 18 Aug 2008.

Yes, Number portability should be allowed for Internet Telephony numbers and its framework should be similar to the existing framework for PLMN telephony services.

1. Extract of the same is reproduced below for ready reference please.

"4.3 Numbering (para 3.13.13)

4.3.1 Allocation of E.164 number resources may be permitted to ISPs also for providing Internet telephony.

4.3.2 TEC to conduct the study to assess Internet Telephony number resource requirement. Based on the study, appropriate number blocks may be earmarked for Internet telephony in newly recommended 11 digit numbering plan.

4.3.3 ISPs providing Internet telephony services shall be allocated number resources from the earmarked Internet Telephony number resources in a block of 1000 numbers or it's multiple.

4.3.4 DOT may prescribe charges for E.164 number allocation to ISPs, if any, considering availability of number resources, ISP's business model etc.

4.3.5 UASPs, BSOs & CMSPs shall also be allocated number resources to provide Internet telephony from the identified blocks earmarked for Internet telephony. No fee shall be charged from UASPs, BSOs & CMSPs for allocation of number resources for Internet telephony service. Additional number resources shall be 64 allocated to access service providers, for Internet telephony, only after they submit proof of utilization of 60% allocated numbers.

4.3.6 DOT shall notify the domain name of the respective ENUM domain while allocating number resources for Internet telephony to ISPs, UASLs, CMTS and BSOs. Based on this information, all NLD facilitating Internet telephony shall update their records within 10 working days."

Our Recommendations

2. **The framework for allocation of numbering resource for Internet Telephony services should be same as that was proposed by TRAI in its recommendations on this subject on 18 Aug 2008.**
3. **Further there should be a clear bifurcation of numbers used for fixed services and mobile services as is done in case of PSTN/PLMN services.**
4. **Number portability should be allowed for Internet Telephony numbers and its framework should be similar to the existing framework for PLMN telephony services. But a technical solution needs to be worked out to ensure portability between PLMN telephony services and Internet Telephony services if the same is to be implemented.**

Question 12. Is it possible to provide location information to the police station when the subscriber is making Internet Telephony call to Emergency number?

Question 13. 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?

Our Response

As brought out in our response to question numbers 2, 4, 5 and 6, it is important that locational information of the subscriber be made available by the internet telephony providers, to facilitate provisioning of emergency services.

1. Keeping in view the drawback of the VoIP many countries have adopted specific regulations for Emergency calling through VoIP. For example, FCC has imposed obligations upon the VoIP providers to meet the following emergency service calling requirement (911 in case of USA). However, these obligations are not applicable on those VoIP service providers that do not fully interconnect with the PSTN.
   a. Obtain a customer's physical location prior to service activation, and provide one or more easy ways for customers to update the location they have registered with the provider if it changes.
   b. Transmit all 911 calls, as well as a callback number and the caller's registered physical location, to the appropriate emergency services call center or local emergency authority.
   c. Take appropriate action to ensure customers have a clear understanding of the limitations, if any, of their 911 service. They must distribute labels warning customers if 911 service may be limited or not available and instruct them to place the labels on or near equipment used with VoIP service.

d. Obtain affirmative acknowledgement from all customers that they are aware of and understand the limitations of their 911 service.

e. Ensure that a 911 call is routed to the appropriate PSAP in areas where emergency service providers are not capable of receiving or processing the location information or call back numbers not automatically transmitted with 911 calls.

2. Similar to the USA's regulator FCC, Canadian Regulator CRTC has also imposed obligations on the VoIP service providers regarding the emergency service provisioning. The CRTC has directed all the Canadian carriers offering fixed local VoIP services, where the end user has assigned an NPA-XXX native to any of the local exchanges within the region to provide emergency services to their subscribers. For non native and nomadic service providers CRTC has directed them to provide the emergency services which are functionally comparable to basic emergency services. CRTC has also directed the VoIP providers to notify their customers in case of any limitations that may exist with respect to emergency services before the commencement of their services.

3. Ofcom, the independent Regulator of UK, has mandated the emergency calling services for the VoIP service providers who can either make calls to PSTN or make and receive calls to / from PSTN. To mandate this, Ofcom modified the General Condition 4 which governs the Emergency Call Service provisioning by an operator.

4. **Possible Technical Solutions.** IP Telephony being a paradigm shift for voice service would require innovative solutions for enabling provisioning of emergency services. Some of the suggestions are as given below.

   a. One way to identify the subscriber location is either by calling the User Agent's (UA) outbound proxy or by the UA itself. The outbound proxy can determine the location of the subscriber simply by sending a DHCP (Dynamic Host Configuration Protocol) INFOM query with the MAC address retrieved from the packet it received. Though, it is required for the service provider to store the MAC addresses of the UE.

   b. Also, given the ability of modern apps to be able to get the pin pointed location of the users' device, the possibility of mandated integration of the same with the IP Telephony app can be explored.

   c. In many countries, availability of location of the subscriber is mandated and accordingly, the users' handsets do not provide the facility of switching off the location tracking service. A similar option can be explored for enabling emergency services in India as well.

Our Recommendations

5. In view of the foregoing, following are recommended,

   a. **Provisioning of facility for being able to dial emergency services should be mandated for IP telephony services that are interconnected to PSTN / PLMN networks.**

   b. **TSP providing IP telephony service should be mandated to gather the location information of the subscriber calling emergency services so that emergency calls could be routed based on the location information.** The process can be automated by the TSPs through usage of Apps as well.

Question 14. 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.

Our Response

Yes, there is a need to prescribe QoS parameters for Internet telephony at present.

Parameters such as end-to-end delay, packet loss, jitter, DTMF tone transparency, billing, fault rectification, customer services, call centre etc can be prescribed for the same. Additionally, parameters for telephony as prescribed for the UL licensees too should be applicable to Internet telephony providers.

1. In 2002, with the objective to lay down the QoS benchmarks for VOIP ILD services, TRAI had issued its Regulations on Quality of Service for VoIP based International Long Distance Service, 2002 (as amended from time to time). Vide these regulations TRAI has defined the end-to-end service quality parameters based on MOS value or R value alongwith other parameters e.g. end-to-end delay, packet loss, jitter, DTMF tone transparency etc.
2. Apart from prescribing the technical parameters' benchmark, TRAI should also prescribe the QoS regulations related to billing, fault rectification, customer services, call centre / customer service, etc.

Our Recommendations

3. **TRAI should prescribe the QoS technical benchmark for VoIP services in line with its 2002 Regulations for VOIP based ILD services.**
4. **TRAI should also prescribe telephony QoS benchmarks similar to those prescribed for UL licensees, sic, call drops, billing, fault rectification, customer services, call centre / customer service, etc.**

Question 15. Any other issue related to the matter of Consultation.

Our Response

1. OTT players are providing communication services in the form of internet telephony. These services are required to be regulated due to the following reasons.
    a. **Security Implications of Non-Monitoring of their Services.** OTT communications provide a means of communicating through voice and messaging services without any concern for the interception or monitoring of the calls / messaging service as the services are mostly provided ex-India where the LEAs have limited / restricted access.
    b. **Ensuring a Level Playing Field Amongst Operators Providing Same Service.** Now that the Authority is looking at the regulatory and financial aspects of 'Internet Telephony' it is bounden on the Authority to ensure a level playing field for the providers of similar services, i.e. Same Service Same Rules.

Our Recommendations

2. It is recommended that **OTT service providers too should be mandated to obtain UL / UL (VNO) with Access Service Authorisation.**