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AGNSI/TRAI/CP-Internet Telephony/2016-17
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**Sub.: Response to TRAI Consultation Paper [No. 13/2016 dated June 22, 2016] on
Internet Telephony (VoIP)**

Dear Sir,

AT&T Global Network Services India Private Limited (AGNSI) is pleased to submit its response to TRAI consultation paper No. 13/2016 dated June 22, 2016 on Internet Telephony (VoIP).

We trust that our submission will merit the kind consideration of the Hon'ble Authority.

Thanking you,

Respectfully submitted,
for **AT&T Global Network Services India Private Limited**


Naveen Tandon
Authorised Signatory

Encl.: As above



**Comments of AT&T India on the Consultation Paper
on Issues related to Internet Telephony (VoIP),
Telecom Regulatory Authority of India,
Consultation Paper No. 13/2016, June 22, 2016**

Part I: Introduction and Summary

AT&T Global Network Services India Private Limited (“AT&T India”) respectfully submits these comments on the Consultation Paper on Internet Telephony, dated June 22, 2016 (“Consultation Paper”). AT&T is licensed to provide National Long Distance (NLD), International Long Distance (ILD), Audio Conferencing and Internet Service Provider (ISP) services in India.

AT&T Inc., through its affiliates, is, an integrated communications company providing mobile, video and data solutions. AT&T operates one of the world’s most advanced backbone networks carrying more than 117.4 petabytes of data traffic on an average business day to nearly every continent and country. With operations throughout the U.S. and in over 60 other countries, AT&T has extensive experience as an incumbent and a new entrant, as a fixed line operator and a wireless operator, in the dynamic areas of converged technologies and services.

AT&T provides Session Interface Protocol (“SIP”) and Internet Protocol (“IP”) based business voice solutions across all customer market segments, addressing customers’ needs for the entire continuum from Small Medium Businesses in the United States to Large Multinational Enterprises globally. Our solutions help companies adapt to shifting demands and to react to change in near real time. More than 3.5 million businesses from the largest multinational corporations to small businesses turn to AT&T. We serve nearly all of the Fortune 1000 and work in all major industries, including financial services, manufacturing, education, healthcare, retail, hospitality and government.

AT&T India is pleased to comment on the issues listed in the Consultation Paper concerning the need for permitting unrestricted telephony to Internet Service Providers (ISPs) to provide Internet Telephony calling services to the public switched telephone network (PSTN) and the public mobile network (PLMN) in India. TRAI has in August 2008 already recommended removing the current restrictions placed under ISP license on Internet Telephony. Additionally it has also proposed amendments to the existing ISP and NLD licenses to remove the current restrictions.¹ However, the DoT did not accepted these recommendations. The conditions, however, which supported the TRAI’s recommendation in 2008 are equally applicable to Internet Telephony as provided in India today. The release of this Consultation underscores the significance and criticality of further liberalizing Internet Telephony in India. Internet Telephony (also referred to

¹ The 18 August 2008 *TRAI Recommendation on Issues Related to Internet Telephony*, including Annexure V and VII proposing amendments under the NLD and Internet License is provided for reference: <http://www.trai.gov.in/WriteReadData/Recommendation/Documents/recom18aug08.pdf>.

herein as VoIP) provides a viable and cost-effective alternative to circuit switched phone service that not only offers significant benefits in terms of lower costs for both residential and business users but also can contribute in critical ways to the Indian economy if allowed to flourish under open competition.

AT&T has had a front row seat observing the transformation of the business voice market. New technologies are providing new ways for end users to communicate and businesses to drive productivity. The technology shift from Time Division Multiplex (“TDM”) to IP based solutions continues, with voice services increasingly becoming an application provided over broadband/data connectivity. The primary drivers for the shift away from TDM voice include better pricing for IP-based solutions, wireless substitution, manufacturers discontinuing TDM based premises equipment, and new innovations in IP cloud and mobile solutions providing feature rich Unified Communications and Collaboration (UC&C) services. Customers today are presented with cost effective collaboration and mobile solutions that can help improve workforce productivity (e.g., nomadic worker), business processes, and even entire business models (e.g., retail store front and contact center integrations). Unlike traditional local and long distance services, unified communications platforms and mobile calling solutions typically include unlimited voice capabilities and are available as unregulated over-the-top offerings (OTT), allowing easier entry by new and non-traditional competitors. Several factors influence the customer decision on which one type of solution is preferred, including such things as capital and expense budgets and the degree of in-house technical expertise.

Among the key trends in the business VoIP market are:

- Enterprises and Contact Centers are going through technology refresh and transformation (migration and virtualization) as they utilize IP/SIP capabilities to provide new features (e.g., resiliency features that keep in progress calls from dropping), and reduce the number of traditional voice lines and usage of long distance. Customers purchase converged Voice and Data services to improve overall economics.
- There is a growing trend in today’s workforce toward reliance upon mobile devices to perform job functions. The younger generation in particular is entering the workforce with the expectation of a highly mobile environment.
- The market is also evolving to a set of holistic UC&C capabilities that encompass voice, instant messaging & presence, and web/video/audio conferencing capabilities. Contemporary forms of business VoIP can be a seamless UC&C application on their wide area IP networks, featuring integrated voice, instant messaging, email and conferencing capabilities, and that are quickly evolving as full-blown “computer” applications, limited only by the talents of applications developers.
- With the rise of UC&C, voice is much more likely to be assessed as part of a company’s IT and end user strategy instead of being compartmentalized solely as part of a telecom plan.

- There is an increasing acceptance of cloud-based, “as-a-service” models, across a variety of capabilities (application software, voice, infrastructure, etc.), particularly as more applications appear that simplify business processes or drive other improvements to justify return on investment. These solutions typically utilize a hosted platform with multi-tenants for better economics.
- There has been a proliferation of OTT voice providers, influencing user expectations on price/value curves. These OTT providers are often able to serve up voice as an application over an IP network (wireline or mobile) which they themselves do not own or operate.

As the examples suggest, in today’s environment, VoIP is typically one component of an advanced communications application that can converge voice communications seamlessly with additional data or video applications and devices. The TRAI should encourage service provider innovation and implementation of these advanced applications by regulating VoIP with a light-handed approach. Because VoIP can be offered with far more advanced and different service attributes than traditional voice services, the “technology neutrality” principle does not require application of the same regulations to these very different services.

The National Telecom Policy, 2012 (NTP-2012) has also recognized the need to move towards convergence of voice, data and video to the digital form as below:

*“6. Telecommunications is no longer limited to voice. The evolution from analog to digital technology has facilitated the conversion of voice, data and video to the digital form. Increasingly, these are now being rendered through single networks bringing about a convergence in networks, services and also devices. Hence, **it is now imperative to move towards convergence between telecom, broadcast and IT services, networks, platforms, technologies and overcome the existing segregation of licensing, registration and regulatory mechanisms in these areas to enhance affordability, increase access, delivery of multiple services and reduce cost. It will be a key enabler of equitable and inclusive growth.**”*
(Emphasis Supplied)

The NTP-2012 has further identified specific strategies in the area of Licensing, Convergence and Value Added Services as below:

3.1. To orient, review and harmonise the legal, regulatory and licensing framework in a time bound manner to enable seamless delivery of converged services in a technology and service neutral environment. Convergence would cover:

3.1.1. Convergence of services i.e. convergence of voice, data, video, Internet telephony (VoIP), value added services and broadcasting services.

3.1.2. Convergence of networks i.e. convergence of access network, carriage network (NLD/ILD) and broadcast network.

3.1.3. Convergence of devices i.e. telephone, Personal Computer, Television, Radio, set top boxes and other connected devices.

3.15. To enable and enforce the VOIP facility to enhance consumer affordability. (Emphasis Supplied)

Given the revolutionary ability of these new services to bring different features to end users that are impossible with circuit-switched voice, the TRAI should take action consistent with the recommendations of the 2012 National Telecom Policy, and recognize that IP Telephony and traditional voice services are not the same, and accordingly that the principle of “technological neutrality” must not by default mean that due to certain common “voice” features among traditional telecommunications services and Internet Telephony, that the same precise regulations should apply. AT&T India urges the TRAI to consider the right balance between encouraging the development of Internet Telephony services, and ensuring that customers are properly informed and protected. The TRAI accordingly should recognize the different attributes of these services through application of light-handed regulation that maximizes reliance on market forces.

The need for such light-handed regulation is particularly evident for Internet Telephony services provided to business customers, who raise different economic and safety policy considerations from individual consumers. As described above, the capabilities of these IP-based services can create unprecedented efficiencies for business in India by converging voice, data and video applications to create new services to assist call center operations, remote teleworker applications, and video or IP conferencing. At the same time, Internet Telephony services should not be subject to levels of consumer protection and emergency service access. Provided there is adequate disclosure of the capabilities and limitations of these services, business customers are likely to make informed decisions concerning their purchase and use of Internet Telephony.

AT&T India therefore encourages the TRAI to encourage the deployment of Internet Telephony services to business customers, and the widespread benefits to the Indian economy likely to result from such deployment, by forbearing from the application of traditional public voice regulation to these services with respect to requirements relating to emergency service access and service quality. Thus, in the event that the TRAI adopts mandatory requirements concerning emergency service access and service quality for Internet Telephony services, Internet Telephony services to business customers should be placed in a separate service category and exempted from these requirements. To encourage vibrant competition that will best encourage development of innovative new services for business users, all Internet Telephony providers, including ISPs be eligible to provide services in this category.

In parallel, the TRAI should support the removal of present restrictions on the provision of Internet Telephony Services to (and from) the PSTN and PLMN by ISPs within India.

Currently, only Unified Access Service Providers (UASPs) and Cellular Mobile Service Providers (CMSPs) are permitted to provide these services. Allowing ISPs to offer Internet Telephony Services to (and from) the PSTN and PLMN in parity with UASPs and CMSPs would introduce additional competition that would encourage lower prices and expanded access opportunities and also would allow important new services. The converged voice, data and video capabilities for Internet Telephony, when run efficiently over an IP-enabled platform, can create unprecedented efficiencies especially for call center operations, remote teleworker applications, and video or IP conferencing. This will support the Indian economy by ensuring it remains a competitive location for telecom-dependent industries to operate, and by promoting the manufacture of and investment in Internet Telephony equipment and software. By contrast, the continuation of existing limitations on the provision of Internet Telephony in India will impede both economic growth and consumer benefits. Restrictions to use of Internet Telephony in India is very unusual and complex, and an impediment to conducting business, in comparison to most other countries where the business customer has sites.

To remove the existing barriers, the TRAI not only should remove the restrictions on Internet Telephony included in ISP licenses but also should establish regulations allowing ISPs to provide these services under regulations that promote competition with other voice service providers. In particular, as described below, ISPs require access to both geographic and non-geographic number allocations in standard E.164 format, and the availability of flexible, market-based interconnection arrangements to terminate and receive calls via the PSTN and PLMN.

In Summary:

1. Remove the restriction on ISPs to terminate IP voice calls on the PSTN or PLMN within India.
2. Permit interconnection by ISPs with mobile and fixed line operators. Commercial terms should be settled based on mutual agreement.
3. Apply a sustainable and pro-competitive numbering regime, conforming to general E.164 numbering plans, and any future numbering regime that the national numbering plan may apply.
5. Emergency services not to be mandated and be left to be decided by the ISPs, with the expectation of adequate consumer notification of capabilities and limitations.
6. QoS should not be mandated and should be left for ISPs to use as a means of addressing the market segment needs that they will target.
7. Regulation should not prescribe any end-user or service-provider technology or device-type. This should be left to the determination of users and market forces.

All Internet Telephony providers, including UASPs and CMSPs, should provide Internet Telephony services under competitively neutral regulations relating to interconnection, numbering, emergency service access, and service quality and law enforcement interception.

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?

Respectfully, an additional entry fee should not be required for ISPs if they are permitted to provide unrestricted Internet Telephony. Under the terms of ISPs' existing Internet License, ISPs are authorized to offer Internet Telephony services. However, the configuration of the Internet Telephony Services which ISPs are permitted to offer are subject to arbitrary restrictions which limit delivery options to customers and disadvantage ISPs seeking to offer Internet Telephony Services. The TRAI should continue to favorably recommend that ISPs be permitted to offer Internet Telephony without limitation under the terms of the existing Internet License. Further, such permissions should not be conditioned on the payment of an additional entry fee because Internet Telephony Services are permissible service offerings under the existing Internet license. An additional entry fee would create an unreasonable financial barrier and have the effect of discouraging market entry and therefore competition. It also disturbs the viability of existing operations.

It may kindly be noted that in January 2006, when Internet services - including unrestricted Internet Telephony - were introduced under the access license, the access service providers were not required to pay an entry fee or additional entry fee. The Consultation discussion immediately before the TRAI is not about adding new services, but rather, is about providing ISPs the essential flexibility to offer existing services without arbitrary restrictions. In view of the above and from simple comparison perspective, there should not be any entry fee charged for permitting unrestricted Internet Telephony.

Additionally, the existing Internet license has a provision for submitting PBGs and FBGs. PBGs are primarily meant to secure roll out obligation as stated under the license. The current Internet license has a roll out obligation which is not specific across each of the services provided under the scope of the existing Internet license. Therefore there is no case for additional PBG. Similar is the case with the FBG.

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?

In lieu of defining the point of Interconnection, AT&T India notes that network technology is evolving as rapidly as VoIP services themselves. Given the evolution and the topography of network service design and function, the TRAI should avoid interjecting overly rigid concepts of traditional interconnection points and instead provide

service providers the flexibility to enter into market-based interconnection arrangements to terminate and receive calls via the PSTN and PLMN.

Further, AT&T India considers that it is not necessary for the TRAI to promulgate regulatory requirements for interoperability between IP networks and traditional TDM networks. The TRAI should instead rely on voluntary compliance and other relevant standards and protocols. Mandatory interoperability standards may impede continued technological development and innovation in these complex and dynamic services and limit their potential benefits. The TRAI accordingly should monitor industry efforts to ensure interoperability but should resist mandatory standards unless that existing market incentives for voluntary compliance prove inadequate in the future.

Q3 - Q7: – Responses Intentionally Omitted.

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?

Yes, The TRAI should support the removal of present restrictions on the provision of Internet Telephony Services to (and from) the PSTN and PLMN by ISPs within India. The converged voice, data and video capabilities for Internet Telephony, will support the Indian economy by ensuring it remains a competitive location for telecom-dependent industries to operate, and by promoting the manufacture of and investment in Internet Telephony equipment and software. By contrast, the continuation of existing limitations on the provision of Internet Telephony in India will impede both economic growth and consumer benefits.

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?

Comments on Q8-Q9:

Respectfully, AT&T India is not confident we understand the intent of Q9. That said, because of the economic and network design efficiency of Internet Telephony, we encourage the flexibility to make or receive Internet calls to or from any number or jurisdiction, irrespective of the interconnection rules and regulations concerning the NDLO and ILDO.

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

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

Comments on Qs10-11

Access to E.164 numbering – both geographic and non-geographic – is another critical issue to the growth of Internet Telephony in India. Both types of E.164 numbers should be available for allocation to all Internet Telephony providers, including ISPs, UASPs and CMSPs. By preserving a reasonable ability to obtain geographic numbers, and by also establishing a non-geographic number range reserved to encourage deployment of a numbering resource specifically for this service, the TRAI will best allow Internet Telephony providers a long-term ability to innovate and increase customer demand.

The availability of geographic numbers is likely to encourage wider usage of Internet Telephony, which in turn will promote efficient, innovative and affordable services. For end users who are more comfortable with a recognisable number range, a geographic number may be desirable, and excessive restrictions on which operators can obtain such numbers would raise an unnecessary barrier to competitive entry. A number of initiatives should be considered to minimize any adverse impacts on geographic numbering resources. For example, the TRAI could set aside initial number blocks for Internet Telephony services in each geographic area with allocation at possibly 1,000.² This approach is competitively and geographically neutral, and is a proportionate response to concerns with number exhaustion. Additional blocks for Internet Telephony would need to be made available to meet demand, even if that triggers code changes in some areas. If demand for new geographic numbers overheats, then at that point the TRAI could consider “conservation” measures, such as allocating numbers for all services in smaller blocks. This would alleviate exhaustion concerns, but might introduce a technical complication for traditional services and should not be introduced until demand for Internet Telephony and impact on the numbering plan is clearer.

New non-geographic number ranges for Internet Telephony services should also be made available, provided that Internet Telephony services are not constrained only to a non-geographic number range. Non-geographic numbers may create efficiencies that improve the ability of new Internet Telephony providers to obtain and use number resources. For Internet Telephony applications that rely significantly on the service for mobility or long distance and international use, a non-geographic number may be desirable given the independence of the number from concepts of distance or fixed location. The TRAI should establish the non-geographic number range for Internet Telephony with low entry barriers for obtaining number blocks, as this will foster Internet Telephony deployment. The TRAI should, however, bear in mind that, as more and more voice services migrate to IP, artificial segregation of Internet Telephony services behind a

² In the United States, allocation of numbers in blocks of 1,000 has been generally implemented. See, e.g., *FCC Releases Telephone Numbering Resource Utilization Report, Over 61 Million Numbers Saved Through Thousand-Block Pooling*, FCC News, (rel. Dec. 11, 2003) (http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/utilizationjun2003.pdf).

non-geographic number range is unlikely to be sustainable in the long term. As such, the TRAI should not segregate IP Telephony numbers from traditional telephony numbers.

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?

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?

Comments on Qs12-13.

AT&T considers that business and residential customers alike should have access to emergency services, where technically feasible. The TRAI should encourage carriers, device manufacturers, software developers, and OEMs to work cooperatively to support the development of standards-based emergency calling number dialing facilities that include voice delivery, call back address capabilities and dispatchable address capabilities.

AT&T also considers that it is vital to avoid customer confusion with respect to the emergency calling capabilities of their VoIP service. In the case of enterprise customers, until such time as the industry has developed this technical capability, AT&T considers that emergency number dialing facilities should not be mandated for Internet Telephony services to business customers, since those customers are unlikely to require traditional levels of emergency service access for these services. Business customers are able to make informed decisions concerning their purchase and use of Internet Telephony, provided there is adequate disclosure of the capabilities and limitations of these services. In particular, where emergency service access is not available – because, for example, a nomadic use capability precludes the transmission of location information – service providers should be required to make users aware of this and business customers should be free to purchase the service. In the event that the TRAI does wish to go further, it should adopt only minimum standards for Internet Telephony services to business customers that are technologically feasible and necessary to ensure access to emergency services, without foreclosing future developments.

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.

Comments on Q14

The TRAI also should avoid any mandated service quality levels for Internet Telephony services. These services are different services from traditional PSTN/PLMN voice services using a fundamentally different technology as well as different service attributes, with different capabilities and limitations and raising different policy considerations. The quality of voice calls over IP networks or the Internet is frequently

different from the quality of traditional voice services for a range of reasons, and even low quality Internet Telephony may offer sufficient cost advantages over traditional voice services for many users to be willing to make this price-quality trade-off. Mandated service quality levels could also limit the development and usage in India of innovative services converging voice with other data applications and devices. A light-handed regulatory approach to Quality of Service will help promote innovation in a competitive market.

AT&T India therefore believes that service quality is an area in which the TRAI should apply the light-handed regulation followed by many regulators with respect to IP telephony services and should avoid imposing strict requirements. Instead, the TRAI should require Internet Telephony providers to notify users that these services may not provide the same voice quality as traditional services and thus allow users to make an informed decision concerning usage. In particular, the TRAI should not apply service quality requirements to Internet Telephony services to business customers, and should at most require operators to provide these customers with adequate notification on this subject.

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AT&T India would be pleased to provide any additional information that would be helpful to the Authority.

Respectfully submitted,



Naveen Tandon
Authorised Signatory

September 5, 2016