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**Subject: Consultation Note on IP based Interconnection**

Dear Sir,

Association of Competitive Telecom Operators (ACTO), would like to thank the Hon'ble Authority for releasing the Consultation Note No 07/2015 dated 27th November 2015 on **IP Based Interconnection**.

The members of ACTO provide high quality Information Communications and Technology services to enterprise and multinational customers in India under International Long Distance (ILD), National Long Distance (NLD), and Internet Service Provider (ISP) licenses. These customers use the services provided by ACTO's members to improve production, manage supply chains and compete in global markets and are critical to the continued growth of India's ICT-based economy for them **as well as in the larger interest of the growth of the sector and to achieve the objectives laid out in NTP-2012 and Digital India, it is important that the interconnection regime should be technology neutral and service agnostic. The current restriction on IP to PSTN poses a major barrier in achieving interconnection of traffic, services and devices.**

While we support the initiative taken by TRAI on IP based inter-connection considering the benefits like:

- Reduction of operational costs by enabling the most direct routing possible, avoiding unnecessary costs from transit carriers and hops.
- Increased quality of voice calls and features through minimizing all unnecessary transcoding and unnecessary hops from transit carriers.
- Full end-to-end cross-network interconnect for new IP multimedia services.

- Flexible commercial models, including traditional bilateral settlement, cascade payment and settlement-free (also known as “bill and keep”) models.
- Creation, management and negotiation of interconnection agreements, ranging from very simple to extremely complex, among multiple operators.

**However this alone may not be helpful in achieving the stated objectives and the meeting the current and future need to technological advancement. The interconnection regime may not be full proof unless the restrictions between IP/PSTN/CUG are also not addressed in this consultation. ACTO has been highlighting the need for a review of overall IP Interconnection conditions since a long time.**

In order to realize the full potential of the convergence of services, network and devices pursuant to clause 3.3 of NTP-2012, the existing restrictions and barriers on linking different PSTN, IP, Virtual Private Network (VPN) and Closed User group (CUG) networks should also be removed to ensure seamless interconnection. In particular, facilitating CUG/VPN-PSTN interconnection and the interconnection of IP and TDM networks is vitally important for the continued growth of the Business Process Outsourcing (BPO) and Enterprise Data Services sectors. Without such interconnection, these sectors must continue to undertake unnecessary investment in duplicating facilities separately on voice and data networks. **Removing the existing restriction between IP and PSTN will go a long way in supporting the objectives of prestigious Digital India Program. Such restrictions are required to be removed in order to ensure wider connectivity both from voice and data perspective.**

We are of the firm view that the matter of IP Interconnection requires a **holistic approach** covering the above issues as well instead of piece meal one. This is not limited to IP to IP interconnection of networks. Instead this should cover the other constituents including traffic, devices etc.

Convergence will enable a much advanced and open IP platform for these important sectors of the Indian economy which will enhance the end-user experience and will efficiently address the growing needs of these businesses by enhancing the benefits of both CUGs and the PSTN. The removal of existing restrictions on CUG-PSTN interconnection is a critical requirement to address these growing business needs. ACTO accordingly requests the TRAI to take the necessary steps to remove these restrictions.

**Summarized points:**

1. We support TRAI's initiative for IP-IP interconnection.
2. Recommendation should also cover all the telecom licenses and not alone Unified License.
3. The IP interconnection should be holistic in nature instead of piece meal approach of restricting the same only to networks. This should be in line with the current need of the industry and entire eco system.
4. The current step is incomplete without fully integrating IP/PSTN/CUG from technology and service perspective.
5. Recommendation for The removal of existing restrictions on CUG/IP/PSTN interconnections as it is important to meet for Government's initiative to spread the BPO industries in the smaller cities.

We hope that our comments (enclosed as Annexure - I) will merit consideration of the Hon'ble Authority.



Thanking you,  
Respectfully submitted

Yours sincerely,  
for **Association of Competitive Telecom Operators**

**Tapan K. Patra**  
**Director**  
9899242273

Encl: As above

## Annexure-I

### **ACTO's comments on TRAI Consultation Note on IP Based Interconnection**

The Association of Competitive Telecommunications Operators (ACTO) is pleased to submit the following comments to the Telecommunications Regulatory Authority of India (TRAI) in response to TRAI consultation note on IP based interconnection consultation paper No. 07/2015 dated 27th November, 2015.

While ACTO welcomes the step for IP –IP based interconnections, We are of the firm view that the matter of IP Interconnection requires a **holistic approach** covering all the issues related to interconnections as well instead of piece meal one to satisfy some specific segments only.. This is not limited to IP to IP interconnection of networks. Instead this should cover the other constituents including traffic, devices etc.

#### **Benefits of allowing IP based interconnection:**

The Internet Protocol (IP) is the need of the hour with widespread global deployment happening at rapid rate across all service provider weather access or data service provider. With the voice traffic now predominantly moving to IP platform its only matter of time when all operators will only be requiring IP interconnect. The international carrier traffic has jumped many folds in recent years and service providers are progressively migrating their network infrastructure to IP. Though some operator are moving to this IP platform at slightly slower pace, this is resulting in challenges not only form interconnect perspective but also from licensing perspective. It would be pertinent to say that all future technology would be only on IP (4G-LTE , 5G), M2M, Cloud based solution. We see no operator now investing on traditional TDM network and any up-gradation is now only on IP. Most service providers are only expanding their IP network, as this is much more cost effective to transition to new generation IP networks compared to the cost of up-gradation of TDM based network. Having said that the operators in transition may not appreciate a forced migration due to the huge investment made in TDM network may still want to migrate slowly. Thus, there should be facilitating provision and regulatory environment to encourage them to make this transition.

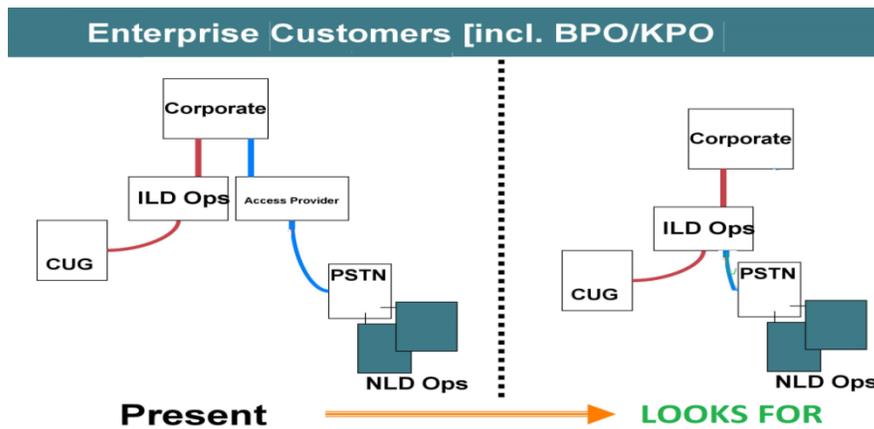
The pure IP to IP have many benefit in terms of faster scalability, flexibility, Capacity and this being the technology of time to come, the License should have facilitating clause and the

requirement should in fact be technology agnostic and not restrictive in nature. This would facilitate innovation and also.

**Current restriction on PSTN connectivity:**

Current license condition restricts the PSTN interconnection for ILD operators vide license clause no. 2.2(b)

*“2.2 (b)ILD service provider can enter into an arrangement for leased lines with the Access Providers/NLD service provider. Further, ILD Service Providers can access the subscribers directly only for provision of international Leased Circuits/Close User Groups (CUGs). Leased circuit is defined as virtual private network (VPN) using circuit or packet switched (IP Protocol) technology apart from point to point non-switched physical connections/transmission bandwidth. **Public network is not to be connected with leased circuits/CUGs.**”*



The above diagram illustrates the current restriction and what we are looking for in the case of enterprise customers like BPO/KPOs.

It may also please be noted here that Access Service Provider license were enhanced to include internet, broadband, unrestricted internet telephony and thereby enabling to offer full bouquet of triple play voice, video and data services.

**Convergence of Services, Network and Devices:**

In order to realize the full potential of the convergence of services, network and devices pursuant to clause 3.3 of NTP-2012, the existing restrictions and barriers on linking different PSTN, IP, Virtual Private Network (VPN) and Closed User group (CUG) networks should be removed to ensure seamless interconnection. In particular, facilitating CUG/VPN-PSTN interconnection and the interconnection of IP and TDM networks is vitally important for the continued growth of the Business Process Outsourcing (BPO) and Enterprise Data Services

sectors. Without such interconnection, these sectors must continue to undertake unnecessary investment in duplicating facilities separately on voice and data networks.

Convergence will enable a much advanced and open IP platform for these important sectors of the Indian economy which will enhance the end-user experience and will efficiently address the growing needs of these businesses by enhancing the benefits of both CUGs and the PSTN. The removal of existing restrictions on CUG-PSTN interconnection is a critical requirement to address these growing business needs. ACTO accordingly requests the TRAI to take the necessary steps to remove these restrictions.

### **Benefits of CUG-PSTN Interconnection:**

In order to compete effectively, BPOs must be able to take full advantage of operational efficiencies and cost optimizations. However, because of the existing restrictions on linking different PSTN, IP, VPN and CUG networks, most international call centers in India today either maintain separate telecommunications systems for their domestic and international call centers or must technically separate a single EPABX or a call manager to address PSTN and IP traffic. These options entail investment in two independent call center infrastructures, and increase maintenance costs. They also cause other inefficiencies such as preventing the use of excess capacity on one system by the other and require expensive and time consuming business processes to accommodate the different systems. Without such interconnection, these sectors must continue to undertake unnecessary investment in duplicating facilities separately on voice and data networks. Removing the existing restriction between IP and PSTN will go a long way in supporting the objectives of prestigious Digital India Programme. These inefficiencies impede the effective integration of BPOs' domestic and international operations, which adversely impacts their competitiveness.

Enterprises in other sectors are similarly seeking higher levels of employee collaboration and productivity and are investing in unified communication solutions to help achieve this objective. However, because of the restrictions on linking different PSTN, IP, VPN and CUG networks, every customer site with IP telephony requires separate voice gateways & PSTN lines, which results in increased installation and maintenance cost. Other limitations resulting from these restrictions that similarly impede their business operations are that conference participants from CUG and PSTN cannot be on the same conference bridge, soft-phone users cannot call the India PSTN from their laptops; a CUG call cannot be forwarded to a local PSTN number; and customers must maintain separate voice mail systems for their CUG and PSTN

phones. The removal of existing restrictions on linking different PSTN, IP, VPN and CUG networks would better allow the communications and technology services provided by ACTO's member companies to facilitate these enterprises to achieve their business objectives and thus assist the continued growth of India's economy.

**Seamless interconnection is need of the hour:**

With the technological development, seamless interconnection be it Circuit-IP, IP-IP or CUG – PSTN etc are essential to provide innovative services to the customers by making more it affordable by the way of avoiding duplicity of infrastructure. Regulatory restriction should not be the reason for impeding the growth of the sector and deprive the technological benefit to the end users/customers.

In India, BPO sector is under stiff competition from other countries like Philippines, Indonesia. Being this sector is cost sensitive, it looks option to move other countries due to cost benefit. Our Hon'ble Minister of Communication has stated many times to spread BPO sector in smaller cities. In order to achieve that goal, regulators /policy makers in telecom have an important role to review the bottlenecks for the growth of BPO sector. By removing the regulatory restriction of PSTN connectivity for ILDOs, it will firstly enhance competition among TSPs and secondly more affordable by using technology innovation to use the existing infrastructure to provide data and voice service to BPO sector will make it possible for the growth of BPO sector and to spread the BPO sector in smaller cities in India.

**TRAI should recommend to Remove the Existing Restriction:**

ACTO respectfully submits that the interconnection regime should be service agnostic and technology neutral, allowing the provision of any telecom service on non-exclusive basis, anytime, anywhere, using any technology within the license area. The interconnection regime should recognize and provide flexibility to embrace future evolving technologies like Cloud Computing, and Machine to Machine (M2M) which represent tremendous opportunities, especially as their roll-out becomes more widespread, as noted in NTP-2012.

However, the TRAI's Recommendations on Guidelines for Unified License/Class License and Migration of Existing Licenses dated 16<sup>th</sup> April 2012 (para 5.1(d)) appear to qualify the proposed technology-neutral approach with restrictions on PSTN interconnection with CUGs.

*“5.1 (d) “Unified Licensee is permitted to provide leased circuit within its license area. Interconnection with PSTN/PLMN/Internet Telephony Network is not permitted with leased circuits/CUGs”. (Emphasis Supplied)”*

The concerns highlighted appear to originate from TRAI’s recommendations dated 16<sup>th</sup> April 2012 as below:

*“2.32 Regarding restriction on the interconnectivity between public network / PSTN and leased circuits /CUGs, the Authority is of the opinion that in view of the security requirements and to prevent the possibility of carriage of international traffic through leased circuits, the present restrictions proposed in the guidelines are required.”*

As noted above, ACTO is concerned that the continuation of this restriction would impact the transition towards achieving the convergence objectives and the resulting user benefits as set forth in the National Telecom Policy 2012, as follows:

*“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.”*

*“3.3. To move towards Unified Licence regime in order to exploit the attendant benefits of convergence,.....This new licensing regime will address the requirements of level playing field, rollout obligations, policy on merger & acquisition, **non-discriminatory interconnection including interconnection at IP level etc. while ensuring adequate competition.**”(Emphasis Supplied).*

*“3.15. To enable and enforce the VOIP facility to enhance consumer affordability.”*

In order to achieve these objectives, the TRAI should allow seamless interconnection among the various network services.

ACTO also notes that the TRAI has recommended unrestricted Internet telephony under the Unified License without any restriction. ACTO submits that similar to unrestricted Internet telephony, CUG-PSTN interconnection is equally vital and important to allow consumers and businesses in India to obtain optimal benefits of the convergence of ICT services. The

interconnection regime and the ensuing charges will ensure proper payment to the underlying carriers. Additionally, the security issues arising from such interconnection may be addressed by placing suitable compliance requirements on the service providers similar to the approach taken in permitting unrestricted internet telephony. Further steps that may be taken to address security issues include the conducting of a security audit prior to service implementation to fix any potential vulnerabilities, and the deployment of firewall, intrusion detection and/or prevention system equipment (IDS / IPS) in addition to the encrypted underlying network that will carry voice traffic. Indeed, since security concerns have been addressed in recommending the use of Internet telephony for the mass market, it is difficult to understand why there has been no similar recommendation to allow CUG/VPN-PSTN interconnection with its attendant benefits to critical business users and their customers.

ACTO accordingly requests that along with the amendment for IP –IP interconnection, the existing restrictions on linking different PSTN, IP, Virtual Private Network (VPN) and Closed User group (CUG) networks should be removed to ensure seamless interconnection in line with the objectives of NTP-2012. This step would will provide important benefits to BPOs and other enterprises in India and stimulate the further growth of this very important economic sector.

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