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The Chairman
Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
Jawahar Lal Nehru Marg
New Delhi 110 002.

Sub: **Consultation Paper on Licensing Issues Related to Next Generation Networks**

Dear Sir,

At the outset, we congratulate and compliment TRAI for bringing out a comprehensive Consultation Paper on the Licensing, Interconnection and Other Issues involved with the implementation of IP based NGN networks. TRAI has taken many initiatives in this regard during the last 3 years and it is necessary that advance action is taken to resolve technical, interconnection and licensing issues, if any, so that the service providers who want to implement NGN in either Core or Access network do not face any difficulties in this regard.

Though the IP based networks were first developed more than 10 years ago and the technology has considerably evolved over this period, the adoption of NGN networks has been rather slow. The IP technology is primarily being used at present in long distance core networks and its use in the Access network is still very limited. This may be due to the huge investments involved in replacing the existing networks and considerable reduction in cost of the older technologies. In the technology neutral licensing regime, the Licensor or the Regulator should not promote any specific technology and the choice of technology should be left to the service providers based on their business case.

In technology neutral licensing regime, the terms and conditions of the license should be such that any technology could be adopted without any difficulty. New telecom technologies are evolving rapidly and correspondingly the shelf life of the existing telecom technologies is going down. Since telecom licenses are issued for a period of

20 years, it is likely that a number of new technologies may get developed during the entire license period. Therefore, the Licensor/Regulator should ensure that no technology specific provisions are made in the License Agreement.

We have gone through the various issues raised in the consultation paper and are giving below our views in respect of various questions summarized in Chapter V of the Consultation Paper.

5.1.1 In view of emergence of NGN and technological innovation, do you perceive the need for change in present licensing and regulatory framework? If so, elaborate the changes required in existing licensing and regulatory framework? Give your suggestion with justifications. (refer para 4.10.16)

Our Comments: The present telecom licensing regime in India is service specific but technology neutral. The present network of all the telecom service providers in the country is predominantly based on circuit switching technology. The mobile networks in the country are basically 2G/2.5G GSM networks and CDMA 2000 1X which also have data capabilities and can additionally provide high speed data services using overlay data network (EDGE in GSM and EVDO in CDMA). The fixed wire line networks are also providing high speed data services using ADSL technology in the access network by using last mile copper or fibre. On the long distance transmission sector, the infusion of new technologies such as DWDM, MPLS etc. have resulted in increase in the intelligence available in the transport layer which is comparable to an NGN core. Thus existing licenses permit use of IP based technology and do not require changes in the existing license for introduction of such technologies.

Since the capabilities of technologies keep advancing and it may be possible to provide new/converged services using the same technology/platform it will not be correct to allow a service provider using a particular technology to provide all such services which the technology may enable him to do. Otherwise, this will lead to non level playing field amongst the operators who have got different licenses by paying different entry/license fee.

Except NLD/ILD and category "A" ISP licenses, other telecom licenses in India are issued service area (circle) wise. With the development of NGN it is economically possible to deploy very large capacity switches which could cater to more than one service area or the entire region. **The existing provision of the UASL/CMTS/Basic Licenses regarding locating switches in each service area should be re-looked and amended so as to permit the operators having licenses for more than one service area to have a common switch located anywhere in any of the service areas subject to the provision of media gateways in each service area where voice traffic could be exchanged with other licensed networks.**

5.1.2 Is there a need to identify the control points and monitor the market development to ensure smooth migration to NGN? In your opinion what should be the regulator's role in such context? Please give your suggestions with justification. (refer para 4.11.9)

Our Comments: As the NGNs are still not extensively deployed in most of the countries, TRAI may not identify specific control points at this stage. The situation may be closely monitored and if any, specific difficulties arise in adoption of the NGN, TRAI may take suitable steps to remove those difficulties as and when the situation demands. **We believe that a "Light Touch" regulation by the Authority would be beneficial for migration to NGN**.

5.1.3 (i) In an NGN environment where the content provider and the carrier (Telecom Service provider) could be either same (On deck) or two different entities (Off deck), who should be responsible for ensuring content regulations? Should content provider (In off deck scenario) be made fully responsible for infringement of intellectual property right violation of advertisement code, program code or any other provisions as existing, in respect to his content? How such provision can be effectively implemented? Give your suggestions with justification.

(ii) In case of off deck content provision, Should responsibility of telecom service provider be limited to prevent the flow of content notified as violation of various provision of IPR, program code, advertisement code etc to encourage flow of more content on the network? Give your suggestion with justification. (refer para 4.12.7)

Our Comments: In case of off deck content provision and also any voice, data or video communication by any subscriber over the network of a telecom operator, the responsibility of the telecom service provider should be limited to identify the source of the content generation and to stopping the flow of content notified as in violation of any law of the country such as IPR, program code, advertisement code etc. The content provider shall be responsible to ensure compliance on various aspects like type of content, non-infringement of copyright, intellectual property rights etc. Such a provision has already been made in the latest amendment to the IT Act.

In case of on-deck content provision, it will be the responsibility of the telecom service provider to ensure that no law of the land is infringed.

5.1.4 In order to support subscribers' end-to-end SLA requirements across the networks, is there a need to well define different types of SLA at point of interconnect (POI) among operators in NGN environment? What parameters must be considered for defining such SLA? Please give your suggestions with justifications. (refer para 4.13.3)

Our Comments: In our view, since the end to end Quality of Service (QOS) for any call connected over multiple networks is to be ensured, it is necessary that the minimum QOS parameters to be met by each network at the point of interconnect must be defined and laid down by the Licensor/Regulator. It will be unfair to allow different SLAs between operators at the POI as this may adversely affect the end to end QOS of voice and non voice data services.

The interface specifications for POIs between different technologies should be specified by the TEC so that no problems are experienced for interconnection of NGN with existing PSTN/Cellular Mobile Technologies. The TEC should also lay down the various parameters which should be specified for the standard SLA. Some of these parameters could be Latency, Jitter, Packet Loss, Bit Error Rate, Call Completion Rate, Minimum Bandwidth etc.

5.1.5 (i) Do you agree that there is a need to define common point of interconnection to facilitate interconnection in NGN environment both technically and economically? Give your suggestions with justifications.

(ii) Do you agree that interconnection of all service providers/ entities through Interconnect exchange will be desirable to facilitate peering of IP traffic in NGN environment? If yes, should all service providers be mandated to get connected (at least with least defined capacity) to Interconnect exchange? Please give your comments with justifications. (refer para 4.14.11)

Our Comments: With 12-14 service providers licensed in each service area for providing Access Services and with the number of NLDOs/ILDOs requiring interconnection with each network, it will be definitely advantageous to have a common point of interconnection in the form of an interconnect exchange. The advent of NGN would now see an unprecedented growth of Telecom and Applications developers. Interconnection is one of the most serious problems that is emerging with the increase in number of operators in open market environment. With the increase in number of operators for providing different services/applications, the number of interconnect links between them will increase in manifold and will become unmanageable.   Such an interconnect exchange will be successful in achieving its intended objectives if it is made mandatory for all telecom service providers in the service area to interconnect

their networks to this exchange. However, the service providers should be free to have direct interconnection with any network depending upon the traffic between the two networks, besides interconnection to the interconnect exchange. In such a scenario, interconnect exchange could serve as an alternate route for any overflow of traffic due to congestion/failure of the direct interconnection route.

The INTERCONNECT EXCHANGE cum INTER-CARRIER BILLING CLEARING HOUSE with a centralized architecture will be a step towards creation of a modern and efficient telecommunications infrastructure. It will also facilitate telecom reforms like Number Portability, Carrier selection, Centralised Lawful Interception & monitoring and settlement of inter-carrier billing.

With the setting up of the interconnect exchange, the rules of the interconnection between various service providers will also need to be reviewed. The present concept of interconnection seeker/provider will get changed and all service providers will have to interconnect with the interconnect exchange at their own cost. While the responsibility of delivering the traffic at the interconnect exchange will be that of the originating network/service provider, the responsibility of further carriage of traffic from the interconnect exchange to its gateway switch will be that of the terminating network service provider. The cost of this carriage from the interconnect exchange to the terminating network should be merged with the termination charge and IUC revised suitably.

5.1.6 The present licensing conditions require installation of all switches within the licensing area. Do you feel that such restrictions may not facilitate best economical network model and may impact migration to NGN? If yes, what changes in licensing condition do you suggest? Please give your suggestions with justifications. (refer para 4.15.6)

Our Comments: As already mentioned under 5.1.1, the present restrictions to locate the switches in each licensed service area should be done away with and the existing UASL/CMTS/Basic service licenses suitably amended.

5.1.7 Whether there is a need to define any timeframe in which service providers migrating to NGN networks will be mandated to provide compatible interface for interconnection with TDM networks? If so, what should be the maximum time limit of such mandate to provide compatible interface for interconnection with traditional TDM networks? If no, what should be the method of interconnection to ensure compatibility? Please give your suggestions with justifications. (refer para 4.16.4)

<u>Our Comments</u>: We believe no time line need be defined at this stage as it is uncertain how long the existing TDM switches will continue to exist. Moreover, in technology neutral environment there is no bar to install new TDM switches. Therefore, the service providers should provide compatible interface for interconnection with TDM networks for their entire license period.

5.1.8 Do you consider country specific standardization will be necessary to ensure inter operability in NGN environment in view of many optional fields in existing standards? If so, is there a need to prescribe mandatory Interface approval to ensure the interoperability in NGN? If no, then what should be done to ensure interoperability? Please give your suggestions with justifications. (refer para 4.17.3)

<u>Our Comments</u>: In our view a country specific standardization will be helpful in early adoption of NGN in India. TEC may specify a country specific NGN standard and interfaces for interconnection between different technologies networks. It should be mandatory to deploy equipments which have the type approval of the TEC so as to avoid any subsequent problems in interconnection of NGN equipment with existing switches. A committee may be formed under the aegis of TEC to work out country specific NGN standards and develop interface approval mechanism for NGN equipments to ensure inter-operability.

5.1.9 Whether emergency number dialing be mandated from devices (Fixed, nomadic, and mobile) connected on IP platform in India? If so, is there a need to mandate location details of such devices by service providers? Please support your suggestions with suitable justification. (refer para 4.18.9)

<u>Our Comments</u>: The provision for emergency number dialing is already part of the terms and conditions of the existing UASL/CMTS/Basic Service Licenses. This may be continued, however, methodologies of such implementation be left to the service providers. And suitable solution to any specific problem arising for providing emergency number dialing in case of IP based networks should be found by the TEC.

5.1.10 Whether use of re-authentication for identification verification be mandated across the networks? In your opinion, will this help to reduce vulnerabilities such as identity theft, man in the middle, and IP spoofing? (refer para 4.19.2)

<u>Our Comments:</u> This is network security related issue and may be decided in consultation with various Security Agencies, it is not a licensing related issue. The authentication of calling party may be mandated, however, its implementation should be left to individual service provider.

5.1.11 Is IPv6 an essential feature of IP transport for the migration to NGN? If so, what should be the timeframe for migration from IPv4 to IPv6? Please support your suggestions with suitable justification. (refer para 4.20.6)

<u>Our Comments:</u> As mentioned in the Consultation Paper migration to IPv6 is not an essential feature of IP transport for the migration to NGN. The time frame to migrate from IPv4 to IPv6 should be decided subsequently as the need arises. However, whenever migration to IPv6 takes place, suitable provision will have to be made for inter working of IPv4 and IPv6 enabled networks in the interim period.

We hope the TRAI will find the above inputs useful in making appropriate recommendations to the DoT on licensing and other related issues. We request the authority to make required changes in RIO, Interconnection and IUC Regulations.

Thanking you,

Yours truly,
for **Loop Telecom Private Limited**

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