

# Response to TRAI Consultation Paper No. 10/2021

## *Regulatory Framework for Promoting Data Economy Through Establishment of Data Centres, Content Delivery Networks, and Interconnect Exchanges in India*

### Chapter 4 Interconnect Exchanges

Q.38: Do you think that presently there is lack of clear regulatory framework/guidelines for establishing/operating Interconnect Exchanges in India?

Yes, there is a need for regulatory framework/guidelines for establishing Interconnect Exchanges in India.

Q.39: What policy measures are required to promote setting up of more Internet Exchange Points (IXPs) in India? What measures are suggested to encourage competition in the IXP market?

There are several measures required to promote IXPs:

1. Creation of a licensing policy and regulatory framework
2. Monthly MIS reporting by licensee to licensor
3. ISP licensing policy may be suitably amended to mandate ISPs/CDNs to connect with at least one IXP.
4. Bilateral peering may be the last option for ISPs/CDNs..
5. Subsidy may be given to IXP in case they host IXP in State owned Data Center.
6. There should not be any charge of AGR for IXP

Q.40: Whether there is a need for separate light-touch licensing framework for operating IXPs in India? If yes, what should be the terms and conditions of suggested framework? Do justify your answer.

Yes, there is a need a for separate light-touch licensing framework for operating IXPs in India. The terms and conditions **may include but not be limited** to the following points:

#### 1. General Conditions

##### a. Condition 1: Ownership of the Licensee Company

- i. The Licensee shall ensure that the total foreign equity in the paid-up capital of the Licensee Company does not, at any time during the entire License period, exceed 49% of the total equity.
- ii. The Licensee shall declare the Indian & Foreign equity structure (both direct and indirect) in the Licensee company and submit a compliance report regarding compliance of FDI norms and security conditions twice a year.
- iii. The licensee also ensures:
  1. Any changes in shareholding shall be subject to all applicable statutory permissions under Laws of India.

- iv. Change in the name of the Licensee Company, as per the provisions of the Indian Companies Act, 1956 2013
  - v. The Licensee shall provide only those services for which authorization has been granted in the License Agreement
  - vi. At the time of obtaining any additional service authorization during the currency of the License, all the eligibility requirements will have to be met by the Licensee
  - vii. The company should be registered with ROC under companies Act 2013.
- b. **Condition 2: Scope of the License**
- i. This License is granted to provide Service(s) on a non-exclusive basis in the Service Area as applicable at LSA level and National level.
  - ii. The Licensee may establish, operate and maintain IXP Networks and services using any technology as per prescribed standards in the service area as per scope of services authorized under this License
  - iii. The Licensee may utilize only those equipment and products which meet the relevant standards set by International standardization bodies, such as, ITU, ETSI, IEEE, ISO, IEC etc., or set by International Fora, such as 3GPP, 3GPP-2, IETF, MEF, WiMAX, Wi-Fi, IPTV, IPv6, etc.
  - iv. The equipment should be as per standards prescribed by MHA/MEITY/DOT
- c. **Condition 3: Duration of License**
- i. This License shall be valid for a period of 20 years from the effective date of this License unless revoked earlier for reasons as specified elsewhere in the Terms and Conditions
- d. **Condition 4: Renewal of License**
- i. The Licensor may renew, if deemed expedient, the period of License by 10 years at one time, upon request of the Licensee, if made during the 19th year of the license period, on the terms specified by the Licensor, subject to extant policy. The decision of the Licensor shall be final and binding in this regard.
  - ii. On renewal, the Licensee may be required to pay a renewal fee as may be notified by the Licensor.
- e. **Condition 5: Modifications in the Terms and Conditions of License**
- i. The Licensor reserves the right to modify at any time the terms and conditions of the License, if in the opinion of the Licensor it is necessary or expedient to do so in public interest or in the interest of the security of the State or for proper conduct of the Telegraphs. The decision of the Licensor shall be final and binding in this regard.
- f. **Condition 6: Restrictions on 'Transfer of License'**
- i. The Licensee shall not, without the prior written consent of the Licensor as described below, either directly or indirectly, assign or transfer this License in any manner whatsoever to a third party or enter into any agreement for sub-License and/or partnership relating to any subject matter of the License to any third party either in whole or in part i.e. no sub-leasing/partnership/third party interest shall be created. For provision of the service by the Licensee, the Licensee may appoint or employ franchisee, agents, distributors and employees.
  - ii. The Licensor shall have the right to direct the Licensee to warn, penalize or terminate the services of the franchisee or agent or distributor servant, after considering any report of conduct or antecedents detrimental to the security of the nation.
- g. **Condition 7: Provision of Service**

- i. The Licensee shall be responsible for, and is authorized to own, install, test and commission all the Applicable systems for providing the Service authorized under this License agreement. The Licensee shall intimate to the Licensor well in advance before the proposed date of commencement of any service in any Service Area containing the details of network and required facilities for monitoring of the service installed by the Licensee. Any service, permitted under the scope of this License Agreement, shall be commenced by the Licensee only after prior approval of the Licensor. The approval shall normally be granted within 90 days from the date of receipt of such intimation provided that the Applicable System/Service is broadly compliant to the scope of the License and requisite monitoring facilities are successfully demonstrated by the Licensee.
- h. **Condition 8: Delivery of Service**
  - i. The Licensee shall intimate the Licensor and TRAI of Commencement of Service within 15 days of such commencement
- i. **Condition 9: Requirement to furnish information**
  - i. The Licensee shall furnish to the Licensor/TRAI, on demand in the manner and as per specified timelines such documents, accounts, estimates, returns, reports or other information in accordance with the rules/ orders as may be prescribed or as directed from time to time. The Licensee shall also submit information to TRAI as per any order or direction or regulation issued from time to time under the provisions of TRAI Act, 1997 as amended from time to time.
- j. **Condition 10: Penalty, Suspension, Surrender, Termination/Revocation of License**
  - i. In case of suspension or termination/revocation of the License / authorized service, the Licensor may also impose a financial penalty
  - ii. Licensee may surrender the License or any service authorization under this License, by giving notice of at least 60 Calendar days in advance
  - iii. It shall be the responsibility of the Licensee to maintain the Quality of Service, even during the period when the notice for surrender/revocation of License is pending and if the Quality of Service is not maintained, during the said notice period, it shall be liable to pay damages.
- k. **Condition 11: Actions pursuant to Termination of License**
  - i. On revocation or surrender or cancellation of License/Service Authorization(s) due to reasons whatsoever or expiry of the License, the relevant Bank Guarantee(s) shall be released to the Licensee only after ensuring clearance of all dues, which the Licensee is liable to pay to the Licensor. In case of failure of the Licensee to pay the amounts due to the Licensor, the outstanding amounts shall be realized through encashment of the Bank Guarantees without prejudice to any other action(s) for recovery of the amounts due to the Licensor without any further communication to the Licensee.
- l. **Condition 12: Force-Majeure**
  - i. If at any time, during the continuance of this License, the performance in whole or in part, by either party, of any obligation under this is prevented or delayed, by reason of war, or hostility, acts of the public enemy, civic commotion, sabotage, Act of State or direction from Statutory Authority, explosion, epidemic, quarantine restriction, strikes and lockouts (as are not limited to the establishments and facilities of the Licensee), fire, floods, natural calamities or any act of GOD (hereinafter referred to as EVENT), provided notice of happenings of any such EVENT is given by the affected party to the other, within 21 Calendar days from the date of occurrence thereof, neither party shall,

by reason of such event, be entitled to revoke this Agreement, nor shall either party have any such claims for damages against the other, in respect of such non-performance or delay in performance. Provided Service under the License shall be resumed as soon as practicable, after such EVENT comes to an end or ceases to exist. The decision of the Licensor as to whether the service may be so resumed (and the time frame within which the service may be resumed) or not, shall be final and binding

- ii. However, the Force Majeure events noted above will not in any way cause extension in the period of the License.
- iii. While it will normally not be a ground for non-payment of License Fee, the liability for payment of License fee for such inoperative period(s) due to force majeure clause may, however, be reduced / waived by the Licensor, at its discretion based on circumstances of the EVENT.

m. **Condition 13: Set Off**

- i. In the event any sum of money or claim becomes recoverable from or payable by Licensee to the Licensor either against this License Agreement or otherwise in any manner, such money or claim can be (without restricting any right of set off for counter claim given or employed by law) deducted or adjusted against any amount or sum of money then due or which at any time thereafter may become due to the Licensee under this License Agreement or any other agreement or contract between the Licensor and the Licensee.
- ii. The aforesaid sum of money payable to the Licensee Company shall include any security/ bank guarantee which can be converted into money.
- iii. After exercising the right of set off, the Licensor shall inform the Licensee of the action taken.

n. **Condition 14: Way Leave**

- i. The Licensee Company shall get expedited Right of Way (ROW) permission at free of cost. In exercise of the provisions of the Section 19 B of the Indian Telegraph Act, 1885, the Central Government, vide Notification dated 24.5.1999, has conferred the powers upon the duly authorized Licensee(s), licensed under Section 4 of the said Act, to seek way-leave from any person including public authority, in connection with providing the services, as per details mentioned in the said Notification. However, non-availability of the ROW or delay in getting permission / clearance from any agency shall not be construed or taken as a reason for non-fulfillment of the Roll-out obligations, if any and shall not be taken a valid excuse for not carrying any obligations imposed by the terms of this License or conditions of spectrum allotment

o. **Condition 15: Dispute Settlement**

- i. All disputes relating to this License will be subject to jurisdiction of Telecom Disputes Settlement and Appellate Tribunal (TDSAT) as per provisions of TRAI Act, 1997 as amended from time to time. Dispute in any matter outside the domain of TDSAT will lie in the jurisdiction of competent Courts in NCT of Delhi only

p. **Condition 16: Other Conditions**

- i. The Licensee shall be bound by the terms and conditions of this License Agreement as well as instructions as are issued by the Licensor and by such orders/directions/regulations of TRAI as per provisions of the TRAI Act, 1997 as amended from time to time.

- ii. The Licensee shall also be bound by the prevailing instructions / directions / orders issued in respect of a service by the Licensor/ TRAI, if the same service is also being provided by the Licensee to its subscribers.
- iii. The statutory provisions and the rules made under Indian Telegraph Act 1885 or Indian Wireless Telegraphy Act, 1933 or Information Technology Act, 2000 or ,TRAI Act 1997 and the rules and regulations there under shall govern the provision of service under this license agreement. Any order passed under these statutes shall be binding on the licensee.

## **2. Commercial Conditions**

### **a. Condition 17: Tariffs**

- i. The Licensee will charge the tariffs for the Service as per the Tariff orders / regulations / directions/decisions issued by TRAI from time to time. The Licensee shall also fulfill requirements regarding publication of tariffs, notifications and provision of information as directed by TRAI through its orders / regulations / directions issued from time to time as per the provisions of TRAI Act, 1997 as amended from time to time

## **3. Financial Conditions**

### **a. Condition 18: Fees payable**

- i. Entry fee: The total amount of Entry fee shall be subject to a maximum of Rs. **1 Crore** (Rupees One crore only).
- ii. No annual licence fees may be taken

### **b. Condition 19: Preparation of Accounts.**

- i. The Licensee will draw, keep and furnish independent accounts for each service and service area and shall fully comply with any order, direction or regulation as may be issued by TRAI and rules/instructions/directions as are issued by the Licensor from time to time

## **4. Technical Conditions**

### **a. Condition 20: Technical Condition**

- i. The LICENSEE shall provide the details of the technology, proposed to be deployed for operation of the service, to the Licensor. For providing the Service the Licensee shall utilize any type of equipment and product that meet TEC standards, wherever made mandatory by the Licensor from time to time. In the absence of mandatory TEC standard, the Licensee may utilize only those equipment and products which meet the relevant standards set by International standardization bodies, such as, ITU, ETSI, IEEE, ISO, IEC etc.; or set by International Fora, such as 3GPP, 3GPP-2, IETF, MEF, WiMAX, Wi-Fi, IPTV, IPv6, etc. as recognized by TEC and subject to modifications/adaptation, if any, as may be prescribed by TEC from time to time.

### **b. Condition 21: Compliance to Directions/Instructions**

- i. The licensee shall adhere to the prevailing directions/ instructions and shall also abide by further directions / instructions as may be issued by LICENSOR from time to time in respect of
  1. Preferential Market Access for procurement of indigenous manufactured products,
  2. Mandatory testing of equipment and Requirements on IPv6 implementation

### **c. Condition 22: The Applicable system**

- i. In the process of operating the Services, the Licensee shall be responsible for:-
  1. the proper upkeep and maintenance of the equipment;

2. maintaining the criteria of performance;
  3. maintaining the Quality of Service
- d. **Condition 23: Engineering Details**
- i. The Licensee shall furnish to the Licensor or its authorized representative(s), in such manner and at such times as may be required, complete technical details with all calculations for engineering, planning and dimensioning of the system/network, concerned relevant literature, drawings, and installation materials regarding the applicable system.
  - ii. Licensee shall supply all tools, test instruments and other accessories to the testing party of Licensor and /or TEC for conducting tests at any time during the currency of the License.
- e. **Condition 24: Network Interconnection**
- i. Interconnection amongst the networks of Licensees shall take place where specifically provided for in the Service Authorization
  - ii. The provision of any equipment and its installation for the purpose of Interconnection shall be subject to mutual agreement of the concerned parties and shall conform to TRAI's regulations and orders.
- f. **Condition 25: Interface**
- i. The Licensee shall operate and maintain the licensed Network conforming to Quality of Service standards to be mutually agreed with Licensor.
  - ii. The network resources including the cost of upgrading/ modifying interconnecting networks to meet the service requirements of the LICENSEE will be mutually negotiated with other TSPs keeping in view the orders and regulations issued by the TRAI from time to time.
- g. **Condition 26: Quality of Service**
- i. The LICENSEE shall ensure the Quality of Service (QoS) as may be prescribed by the Licensor or TRAI. The LICENSEE shall operate and maintain the licensed Network conforming to Quality of Service standards subject to such other directions as Licensor / TRAI may give from time to time. The LICENSEE shall adhere to such QoS standard and provide timely information as required therein. Failure on part of LICENSEE to adhere to the Quality of Service stipulations by TRAI/Licensor is liable to be treated as breach of terms and conditions of License.
  - ii. The licensee shall be responsible for:
    1. Maintaining the performance and quality of service standards.
    2. Maintaining the MTTR (Mean Time to restore) within the specified limits of the quality of service.
    3. The LICENSEE will keep a record of number of faults and rectification reports in respect of the service, which will be produced before the Licensor/ TRAI as and when and in whatever form desired.
- 5. Operating Conditions:**
- a. **Condition 27: Peer Registration & Provision of Service**
- i. The LICENSEE shall not in any manner discriminate between peers and provide service on the same commercial principle and shall be required to maintain a transparent, open to inspection, waiting list. The LICENSEE shall clearly define the scope of Service to the peer(s) at the time of entering into contract with such peer(s).

- ii. The LICENSEE shall widely publicize provision of service and shall not refuse registration of demand in the service areas in which the Licensee has commenced services.
  - iii. All complaints of peers in this regard will be addressed / handled as per the orders or regulations or directions issued by the Licensor or TRAI from time to time.
  - iv. Any dispute, with regard to the provision of Service shall be a matter only between the aggrieved party and the Licensee, who shall duly notify this to all before providing the Service. And in no case, the Licensor shall bear any liability or responsibility in the matter. The LICENSEE shall keep the Licensor indemnified for all claims, cost, charges or damages in the matter
- b. [Condition 28: Obligations imposed on the Licensee](#)
- i. The provisions of the Indian Telegraph Act 1885, the Indian Wireless Telegraphy Act 1933, and the Telecom Regulatory Authority of India Act, 1997, Information Technology Act, 2000 as amended from time to time or any other relevant Act shall govern this License.
- c. [Condition 29: Right to inspect](#)
- i. The Licensor or its authorized representative shall have right to access and inspect sites used for extending the Service and in particular but not limited to leased lines, junction, terminating interfaces, hardware/software, memories of semiconductor, magnetic and optical varieties, wired or wireless equipment, distribution frames.
- d. [Condition 30: Location of Network Elements](#)
- i. The Licensee on request shall provide to the Licensor location details of all network elements including switching centres, transmission centres, along with routing details, network operation & control/ management Centre, equipment details, network topology, Base Stations, end to end connectivity, Cable routes and capacity along with GIS mapping and any other detail as may be required by Licensor from time to time. Any network resource including the band width/ leased line/ VPN either owned or taken on lease/ hire shall be treated as part of the Licensee Network.
- e. [Condition 31: Confidentiality of information](#)
- i. The Licensee shall not employ bulk encryption equipment in its network. Licensor or officers specially designated for the purpose may evaluate any encryption equipment connected to the Licensee's network. However, the Licensee shall have the responsibility to ensure protection of privacy of communication and to ensure that unauthorized interception does not take place.
- f. [Condition 32: Prohibition of certain Activities by the Licensee](#)
- i. Carriage of objectionable, obscene, unauthorized or any other content, messages or communications infringing copyright and intellectual property right etc., in any form, in the network is not permitted as per established laws of the country. Once specific instances of such infringement are reported to the Licensee by the enforcement agencies/Licensor, the Licensee shall take necessary measures to prevent carriage of such messages in its network immediately.

## **6. Security Conditions**

- a. [Condition 33: Security Conditions](#)



- i. The LICENSEE shall provide necessary facilities depending upon the specific situation at the relevant time to the Government to counteract espionage, subversive act, sabotage or any other unlawful activity
  - ii. The LICENSEE shall make available on demand to the person authorized by the Licensor, full access to the switching centers, transmission centers, routers and other network elements including equipment installed in subscriber premises etc. for technical scrutiny and for inspection, which can be visual inspection or an operational inspection.
  - iii. The LICENSEE shall be completely and totally responsible for security of their networks. The LICENSEE shall have organizational policy on security and security management of their networks including Network forensics, Network Hardening, Network penetration test, Risk assessment. Actions to fix problems and to prevent such problems from recurring should be part of the policy. The LICENSEE shall submit its policy to Licensor within 90 calendar days from the date of issue of the License/each service authorization.
  - iv. In furtherance of organizational security policy, the LICENSEE shall audit its network or get the network audited from security point of view once in a financial year from a network audit and certification agency The LICENSEE is free to engage the service of any agency for this purpose, which is certified to carry out the audit as per relevant ISO standards. Presently ISO 15408 and ISO 27001 standards are applicable.
  - v. The LICENSEE shall induct only those network elements into its telecom network, which have been got tested as per relevant contemporary Indian or International Security Standards e.g. IT and IT related elements against ISO/IEC 15408 standards, for Information Security Management System against ISO 27000 series Standards, Telecom and Telecom related elements against 3GPP security standards, 3GPP2 security standards etc. The certification shall be got done only from authorized and certified agencies/ labs in India or as may be specified by the Licensor. The copies of test results and test certificates shall be kept by the LICENSEE for a period of 10 years from the date of procurement of equipment.
- b. [Condition 34: Application of the Indian Telegraph Act](#)
- i. The Licensee shall adopt all means and facilitate in every manner the application of the Indian Telegraph Act, 1885 and Indian Wireless Telegraphy Act, 1933 as modified or replaced from time to time. The Service shall be provided in accordance with the provisions of Indian Telegraph Rules as modified and amended from time to time.
  - ii. As per the provision of Section 5 of Indian Telegraph Act, the Licensee will provide necessary facilities to the designated authorities of Central/State Government as conveyed by the Licensor from time to time for interception of the messages passing through its network.

Q.41: [What business models are suitable for IXPs in India? Please elaborate and provide detailed justifications for your answer.](#)

IXPs are operated broadly under the following five categories globally:

- Managed by Nonprofit Entity.
- Managed by Research Networks or Universities.



- Managed by Data Center/ co-location providers.
- Commercial Entity.
- Managed by government bodies.

### **Proposed Business Model for India:**

IXP may be operated under the Independent Business model. Such an IX must be :

- Carrier Neutral
- Generate revenue by charging for the ports
- Avenue to earn additional revenue by selling VAS

Licenses can be in 2 categories: LSA level and National level license

There should be only two categories of license - National and State level. District level (category C) is not required in IXP as the scale of operations or impact of an IX is expected to be minimum at a regional level.

Q.42: Whether TSPs/ISPs should be mandated to interconnect at IXPs that exist in an LSA? Do justify your response.

Yes, TSPs/ISPs should be mandated to interconnect at least one IXP in an LSA. Peering with IXPs is expected to reduce the connectivity charges and reduce the latency which ensure a quality broadband to end consumer. IXPs also develop an internet ecosystem promoting development of various internet related activities thereby increasing digital economy.

Q.43: Is there a need for setting up IXP in every state in India? What support Govt. can provide to encourage setting up new IXPs in the states/Tier-2 locations where no IXPs exist presently?

Yes, there is a need for setting up an IXP in every state in India. IXP should be as close to the broadband customer as possible. Therefore, IXP should be available to very close the presence of ISPs, CDNs and other content generating organisations

Government should facilitate the following:

1. Subsidise the data center cost in case IXP is collocated with government data center

Q.44: Whether leased line costs to connect an existing or new IXP is a barrier for ISPs? If yes, what is the suggested way out? What are other limitations for ISPs to connect to IXPs? What are the suggestions to overcome them?

Yes, it is a barrier and the costs for leased lines are very expensive. Government should mandate State owned Data Centres to provide subsidised fees for smaller ISPs.

Bigger ISPs may be mandated to peer with smaller ISPs and also carry the traffic to IXPs.

In the future, this won't be a barrier as leased lines will be switched to cloud-based connections.

Q.45: Is the high cost of AS number allocation an impediment for small ISPs to connect to IX? If yes, what is the suggested way out?

AS Number allocation is free of cost by Indian Registry for Internet Names and Numbers, IRINN (a unit of NIXI). Only IPv4/IPv6 resources are charged. In fact, the cost for IPv4/IPv6 resources is one of the most reasonable across the globe. IRINN already provides 30% discount for smaller ISPs.

Q.46: What other policy measures are suggested to encourage investment for establishing more number of IXPs? Any other issue relevant with IXP growth may be mentioned.

1. As stated earlier, Government support is required in data centre location, operation and maintenance.
2. Not for profit IXP shouldn't be charged for NLD License cost in case of interstate connection of IXs.
3. Public DNS may be free of cost to IXPs and ISPs.
4. All the Landing stations may be interconnected.