

No.: 191/TRAI/2022-23/ACTO

Dated: 03rd March, 2023

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Mahanagar Door Sanchar Bhawan,
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Ref: ACTO's Response to TRAI's Consultation Paper dated January 13, 2023 on Telecommunication Infrastructure Sharing, Spectrum Sharing and Spectrum Leasing

Dear Sir,

With reference to the *Consultation Paper on Telecommunication Infrastructure Sharing, Spectrum Sharing and Spectrum Leasing* issued by Hon'ble Authority, the Association of Competitive Telecom Operators (ACTO), is pleased to provide our comments.

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

Encl: As above

Annexure-I

ACTO's comments on TRAI's Consultation Paper on Telecommunication Infrastructure Sharing, Spectrum Sharing and Spectrum Leasing

Summary of our suggestions:

- 1. Licensing condition to allow sharing of passive infrastructure among TSPs/ISPs/Company under registration from DOT.**
- 2. Licensing condition to allow sharing of OWN core and non- core active network elements as technology permits to do so for providing services authorized to it under any other telecom license issued by Licensor. To reiterate TSPs should be allowed to share active infra (Core /Non-core) among its standalone NLD/ILD/ISP licenses.**
- 3. Licensing condition to allow sharing of core and non- core active network elements as technology permits to do so among TSPs/ISPs in B2B mode for providing services authorized to it under any other telecom license issued by Licensor.**
- 4. Sharing of infrastructure should uniform across all licenses to ensure regulatory certainty.**
- 5. Licensing condition to allow to share the bandwidth over optical fibre/ lease line among TSPs/ISPs in B2B mode.**
- 6. Request TRAI for a consolidated recommendation to DOT covering the past recommendation as well to remove all the doubt of DOT may have in order to implement the same.**

ACTO appreciates the Authority for releasing the Consultation Paper on Telecommunication Infrastructure Sharing, Spectrum Sharing and Spectrum Leasing. The importance of infrastructure sharing has been in discussion for the last two decades but still, it's implementation through the license amendments is incomplete as well as confusing in nature.

Since 2006, TRAI has made several recommendations to DOT regarding infrastructure sharing and some such recommendations have been incorporated into the license. However, many such recommendations have not been implemented even as of today. Further, as mentioned in this consultation paper, DOT had in past also sought several clarifications/ references with regards to infrastructure sharing. There have been many to and fro communications between TRAI and DOT but in reality the license conditions with regards to infrastructure sharing is still confusing and not uniform across various licenses/ authorizations under Unified License. The aberration is more so with respect to the ISP license/ ISP Authorization under Unified License.

We would herein like to highlight few important aspects of infrastructure sharing in general and these are:

1. Benefits of infrastructure sharing

Stating the benefits of infrastructure sharing will be repetitive in nature as it has been already detailed in this consultation paper, explained in our earlier responses to TRAI consultation papers in the past as well as elaborated by TRAI in its past recommendations. ITU -T, BERC and even NDCP-2018 emphatically, had given importance to allow infrastructure sharing by removing the regulatory/licensing restrictions. NDCP 2018 had made a provision to facilitate the same as it states:

1.1 *“(f) Encourage and facilitate sharing of active infrastructure by enhancing the scope of Infrastructure Providers (IP) and promoting and incentivizing deployment of common sharable, passive as well as active, infrastructure.”*

Benefit of sharing infrastructure is enormous and it is not only for telecom sector but also other sectors.

2. Response to counter about infrastructure creation and network resiliency

As a counter argument against infrastructure sharing, TRAI has mentioned in Clause No. 2.33 of this Consultation paper as per below:

“...there is a possibility that sufficient infrastructure may not be created and there could be a high level of dependency on shared network elements. Any failure in the shared network elements, particularly the core network elements, could become a single point of failure and may affect services of all TSPs which are involved in sharing. Therefore, it is felt that while permitting sharing of all the network elements across all licenses/ authorizations may be required to keep services affordable and help expedite the roll-out of services, there may be a need for some precautionary provisions to ensure network resilience”

We would like to submit that it is the technological development that allows infrastructure sharing without mixing the traffic in the network by the way of logical partitioning or other means which were not available in old days. The telecom sector had also not opened to the private sectors. Once the network was opened to the private sectors, the required infrastructure has been created very rapidly which is evident from the data on number of connections/ coverage at present compared to the old regime. Every investor looks for return on investment, more specifically in case of infrastructure being it a longer term of investment. Sharing of infrastructure propels ROI and thereby further investment to create infrastructure. On the contrary, regulatory bottleneck on infrastructure sharing works as retarding force towards further infrastructure creation.

The argument given in clause 2.33 looks to be a creative one but in the reverse direction based on old mindset coupled with presumptive fear of failure. Moreover, there is need to have authentic data either in India or from other countries to support the claim made on the negative aspects of infrastructure sharing.

On the issue of single point failure, sharing of infrastructure does not in itself imply sharing of entire network but in fact will result in sharing some portion of it. By allowing the infrastructure sharing, TSPs/ISPs will have several alternate arrangements between themselves to keep the network up and reduce the network down time while provisioning the service at much faster space than deployment of new one. The current telecom networks are monitored centrally with Network Operation and Control Centre. Moreover, the present telecom network is built with inherent redundancy both at the equipment level as well as protection at the level of physical media be it fiber, radio or else. On the contrary, the removal of the existing regulatory/ license restriction on infrastructure sharing will enhance the resiliency of the network due to the availability of multiple routes among TSPs/ISPs in case of emergency or failure in one route through the available multiple routes/paths to reach to the customer for service delivery.

3. Role of the regulator/licensors towards sharing of infrastructure

The role of regulator/licensor while allowing infrastructure sharing will be like:

- a) To address the national security issue in case any due to sharing of infrastructure
- b) Facilitate infrastructure sharing to widen the service coverage at much faster space across the country.
- c) To leverage for optimum usage of telecom resource for the benefit of end users as well as investor to get the ROI.
- d) To ensure regulatory certainty and uniformity with all other service authorisations under licenses without any discrimination.
- e) To make the policy simple by avoiding any confusion and adoptable with technological development without making frequent changes to it.

4. True ease of doing business lies with cost saving like infrastructure sharing

Over the last several years, Government and TRAI is working for ease of doing business in India. TRAI's recommendations on the last consultation paper on EoDB is awaited. The reduction of unnecessary cost while doing business is a tangible benefit to the TSPs/ISPs. Therefore, allowing infrastructure which are either owned by same TSPs/ISPs or by others will be a significant step towards the true ease of doing business in telecom sector.

In the above context, ACTO's response to the specific questions raised in the consultation paper:

Q.1 Should passive infrastructure sharing be permitted across all telecommunication service licenses/ authorizations? Kindly justify your response.

ACTO's response:

Sharing of passive infrastructure is allowed in few service authorisations under various licenses but it is very limited. Companies having Infrastructure Provider (IP-I) registration only are also permitted to provide dark fibres, Right of Way, duct space, towers on lease/ rent out/ sale basis to TSPs. As mentioned in clause 2.24 of this consultation paper, there is no good reason for not allowing the sharing of passive infrastructure be it owned by the same TSP/ISPs having different service authorisations or with the other TSPs/ISPs.

It is also recommended that the definition of passive elements should be a broad one not just naming it specifically considering the changes in future with respect to names/classes. This will also avoid the confusion. We therefore suggest that there should not be any restriction in service licenses/ authorization for passive infrastructure sharing if it is mutually agreed between the TSPs/ISPs.

Q.2 Should other active infrastructure elements deployed by service providers under various licenses/ authorizations, which are not permitted to be shared at present, be permitted to be shared among licensees of telecommunication services?

AND

Q.4 In case it is decided to permit sharing of any additional active infrastructure elements among licensees,

(a) What precautionary conditions should be put in place to avoid disruption in telecommunication services due to any unforeseen situation? The response may be provided for each active infrastructure element.

(b) Whether there is a need to have a provision for permission from/ intimation to the Licensor before commencement of such sharing? If yes, what provisions and timelines need to be prescribed for each active infrastructure element?

ACTO's response:

Active infrastructure sharing of only few network elements has been permitted and that is also not in all service authorizations. As for example, in UL vide clause 33.2 & 33.3 *"The Licensee may share its own active and passive infrastructure for providing other services authorized to it under any other telecom license issued by Licensor. Sharing of infrastructure related to Wi-Fi equipment such as Wi-Fi router, Access Point etc is allowed. Sharing of backhaul is also permitted."*

The same has not been allowed in case of standalone NLD/ILD/ISP licenses as yet. License condition should be uniform with respect to infrastructure sharing across all service authorizations as far as possible. It should be in generic nature with specific exception if any. Moreover, mentioning name of the equipment or usage of the word etc. in the license condition

tends to more confusion. Technology is changing at very fast space, the name as well as type of equipment is also getting changed with time. As far as technology permits to share with logical partitioning/ without mixing of traffic and subjected to mutual agreement among licensed services providers, sharing of infrastructure should be allowed in generic term across all service authorizations under the license. It will not only avoid unnecessary confusion but be enabling to allow for adaptations and changes pursuant to changes in technology.

We suggest few scenarios for the sharing of active infrastructure:

A. Sharing of own active/passive infrastructure for providing services authorized to it under any other telecom license issued by Licensor

The infrastructure owned by same company having different service authorizations under licenses should be permitted across all licenses be it core or non-core network element. It should be generic in nature and applicable for all licenses. In case of any existing technical difficulty, TSP/ISPs will not be able do so by themselves but there should not be restriction from licensing conditions as it may be possible to remove the current technical difficulty in the near future. Only conditions can put or emphasized which is already stated in the license that of not bypassing any network security conditions as mandated by licensor like monitoring/storing of data etc.

B. Sharing of active/passive infrastructure among TSPs/ISPs

It is the technological development that allows to share the active infrastructure without any interference among sharing partners. In case it is not possible for some core element, but it may be possible in future to remove the difficulty if any. Thus, the licensing conditions should permit subjected to technically feasible and commercially viable. It should be based on mutual agreement between TSPs/ISPs not by regulatory mandate. Regulation/ license condition should allow to do that.

C. Sharing of bandwidth over optical fibre/ lease line among TSPs/ISPs

ACTO believe that there should not be any regulatory/licensing issue to permit the sharing of bandwidth over optical fibre/ lease line among TSPs/ISPs. Although, it is permitted in some cases such as use by the TSP under its own different service licenses but for ISP license there is licensing restriction not to give the excess bandwidth over the optical fibre/ lease line to other TSPs. Sharing of active infrastructure had already been allowed in other licenses like Access service, NLD service, ILD service etc. vide respective license amendments in last couple of years. However, it is pending for ISP license. Current ISP license conditions have some asymmetric restriction like:

1. ISP can take resources like lease line etc. from other TSPs/ISPs.
2. ISP cannot share/give own excess resources like bandwidth/lease line to other TSPs.

UL ISP license condition:

“4.1 The Licensee may establish direct interconnectivity with the network of other Internet Service Providers/Unified Licensee having authorization of Internet Service. The Licensee may obtain leased bandwidth from any other Licensee authorized to provide such bandwidth on lease.”

ISPs are allowed to establish its own transmission link within its service area vide UL ISP license clause 24.1.

“... The licensee may also establish its own transmission links within its service area for carrying traffic originated and terminating by its subscribers.”

The excess bandwidth available with the ISPs by the way of deployment of own transmission links within the service area is also a critical resource in particular with the last mile segment. The ISP license condition need to be modified, so that these critical resources are being utilized to reach to the customer or as a redundant option in case of emergency/failure. At the same time investors to get some more return on investment which may also facilitate for further investment in the sector.

The above clause needs some modification and is suggested as-

*“4.1 The Licensee may establish direct interconnectivity with the network of other Internet Service Providers/Unified Licensee having authorization of Internet Service. The Licensee may obtain leased bandwidth from any other Licensee authorized to provide such bandwidth on lease **and also can provide its excess leased bandwidth to other TSPs/ISPs**”*

In order to make it effective, similarly, slight modification is also required for the following clause in the NLD/ILD licenses:

For NLD license:

“2.2(d) NLD service Licensee shall be required to make own suitable arrangements / agreements for leased lines with the Access Providers for last mile.....”

The proposed language to the above clause requested as:

*“2.2(d) NLD service Licensee shall be required to make own suitable arrangements / agreements for leased lines with the Access Providers/**Internet Service Providers** for last mile....”*

For ILD license:

“2.2(b) ILD service provider can enter into an arrangement for leased lines with the Access Providers/NLD service provider.....”

The proposed language to the above clause requested as:

“2.2(b) ILD service provider can enter into an arrangement for leased lines with the Access Providers/NLD service provider/Internet Service Provider.....”

The modification will help towards optimum usage of the deployed infrastructure and also facilitate to increase of coverage of services while ensuring the return on the capital investment. This type of sharing of infrastructure will address both the concern of demand side as well as supply side. Demand will increase as reduction of cost to customer and supply side will be enhanced due to optimum usage and further investment on ROI.

D. Sharing of Transport Network

The transport network plays an important part in the modern telecommunication network, as the needs of this layer is nearly identical in all TSPs/ISPs there is case for building common transport network. It should be built on Open Access principles and available for sharing to all licensed entities. The advantages include

- Common infrastructure build, thereby saving in fixed and operational costs
- Attract investments thereby leading to better and long term network planning
- Increased focus towards route diversity and node diversity in network build
- Reduction in MTTR in case of fault / fibre cut
- Sharing of expensive active network elements viz. DWDM, OLTE etc.

E. Any need for precautionary conditions:

There is no such need or requirement for any precautionary conditions as the sharing of infrastructure will further enhance the network resiliency along with other mutual benefit from this sharing. It should be through mutual agreement among TSPs/ISPs not by mandate. Technology should permit to do so for separation of traffic by partitioning or other means. The licensing conditions are to be in facilitative in nature. Only condition which already exists like no revenue loss and as no breach of security conditions as mentioned in the license.

F. Any need to have provision for permission from/ intimation to the Licensor before commencement of such sharing

The sharing should be permitted on basis of mutual agreements between the concerned parties and there should be no provision requiring intimation to /permission of the Licensor, as the paperwork and intimation/approval process only take up time of all parties and serve no constructive purpose. In fact, there is no such requirement for the existing permissions for infrastructure sharing, a regime which is working smoothly. Therefore, there is no need to incorporate any such provision.

Q.3 If your response to the Q2 is in the negative, which active infrastructure elements should not be permitted to be shared? Further, which active infrastructure elements should be permitted to be shared with which licensees/ authorization holders? kindly provide details for each authorization with detailed justification.

ACTO’s response:

We have no comments here as our response is positive in response to Q no. 2.

Q.5 Whether any other amendment is required to be made in the telecommunication services licenses/ authorizations with respect to the provisions relating to both active and passive infrastructure sharing to bring clarity and remove anomaly? If yes, clause-wise suggestions in the telecommunication services licenses/ authorizations may kindly be made with detailed justification.

ACTO’s response:

With respect to infrastructure sharing, several TRAI recommendations several license amendments have been made pursuant to the prior TRAI recommendations. However, it seems that there is lack of clarity, uniformity and some anomalies relating to these.

In order to make it simple, uniform and to remove as well as to avoid any further confusion, we suggest as follows that the licenses be appropriately be amended. Suggested verbiage for amendment to UL general clause 33,3 is as under:

“The Licensee may share its own active and passive infrastructure for providing other services authorized to it under any other telecom license issued by Licensor.”

The UL general clause 33.1 may be amended, wherein dependency on respective authorization gets eliminated. The UL part 1, general conditions should define the terms and conditions of active and passive infrastructure sharing across all licensee(s) / authorization(s).

Existing	Amendment (as suggested)
33.1 Sharing of active/passive infrastructure shall be governed by the terms and conditions of respective service authorization and amendment/guidelines to be issued by the Licensor from time to time.	33.1 Sharing of active/passive infrastructure shall be governed by the terms and conditions of this license and amendment/guidelines to be issued by the Licensor from time to time.

The above amendment should be made in all licenses/ authorizations.

1. The amendment made in UL general clause no. 33.2. At present the content states-

“Sharing of Active infrastructure amongst Service Providers based on the mutual agreements entered amongst them is permitted. Active infrastructure sharing will be limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system only.”

“Sharing of infrastructure related to Wi-Fi equipment such as Wi-Fi router, Access Point etc. is allowed. Sharing of backhaul is also permitted.”

As the putting the name of the equipments/accessories or the usage of open ended word like etc. in the license condition has created confusion and restricted the scope of the sharing including its adaption and application to future technological changes. Thus the above amendment is required to be modified as:

“Sharing of Active infrastructure amongst Service Providers based on the mutual agreements entered amongst them is permitted subject to technological feasibility”.

For this, we have already given the detailed rationale in our response to the previous questions Q2 & Q4.

We have also suggested for few minor changes along with suggestive wording with respect to sharing of bandwidth/ lease line in the ISP, NLD & ILD licenses in our response to Q2 & Q4.

Q.6 Should there be any obligation on telecom service providers to share infrastructure that has been funded, either partially or fully, by the Government through Universal Service Obligation (USO) Fund or otherwise, with other telecom service providers? Kindly justify your response.

AND

Q.7 In case it is decided to impose some obligations on telecom service providers to share the infrastructure funded by Government with other telecom service providers, is there a need to provide a broad framework for sharing of such infrastructure? If yes, kindly suggest the key aspects of such framework with detailed justification.

ACTO’s response:

USOF may be utilized to create Indian Submarine Cable network for Domestic traffic (figure 3.1 of TRAI CP No 15/2022). This common infrastructure should be available for sharing by all telecom licensees for

- Domestic traffic backhaul through submarine cable build near the India coastline
- International traffic backhaul through submarine cable build near the India coastline
- Separate fibre pairs for domestic and international traffic

Q.8 Any other suggestion to facilitate infrastructure sharing may kindly be made with proper explanation and justification.

ACTO’s response:

The sharing of Security Monitoring/ Gateway infrastructure under standalone license was permitted as per the following license clause, subject to mutual agreement between the licensees. Provision of such a clause is very cost effective, avoided duplicacy of infrastructure deployment, and also helped licensee, especially small operators, to rollout the services in a very time bound manner. But this is not allowed under UL license, therefore, it requires huge cost to be incurred and also affects the operations of rollout of services.

Relevant clauses under respective standalone license:

ILD:

"2.2 (d) The ILD Licensees who wish to provide only Layer 2 and Layer 3 VPN services, the following security monitoring conditions shall be applicable in place of security monitoring conditions applicable for ILD licensees provided the licensee obtains connectivity/bandwidth from other access service licensees/NLD licensees/ILD licensees/international gateway of ISPs

*Necessary arrangements for enabling security monitoring shall be made available by the licensee including its maintenance as and when required by the designated security agencies. The cost of monitoring equipment shall be borne by the licensee. **Sharing of monitoring capabilities with existing licensees, from whom Bandwidth/connectivity has been taken, shall be permitted on mutually agreed arrangement. Surveillance and monitoring of traffic relating to existing layer 2 and layer 3 VPN licensees who obtain NLD/ILD license shall continue as per the current procedure at the international gateway of ILDO from whom Layer 1 service or international private line circuits have been leased.** Existing and future licensees of layer 2 and layer 3 VPN services shall be treated at par with regard to all the terms and conditions of the license."*

NLD:

2.2 (e) The NLD Licensees who wish to provide only Layer 2 and Layer 3 VPN services, the following security monitoring conditions shall be applicable in place of security monitoring conditions applicable for NLD licensees provided the licensee obtains connectivity/bandwidth from other access service licensees/NLD licensees/ILD licensees/international gateway of ISPs.

*Necessary arrangements for enabling security monitoring shall be made available by the licensee including its maintenance as and when required by the designated security agencies. The cost of monitoring equipment shall be borne by the licensee. **Sharing of monitoring capabilities with existing licensees, from whom Bandwidth/connectivity has been taken, shall be permitted on mutually agreed arrangement. Surveillance and monitoring of traffic relating to existing layer 2 and layer 3 VPN licensees who obtain NLD/ILD licence shall continue as per the current procedure at the international gateway of ILDO from whom Layer 1 service or international private line circuits have been leased.** Existing and future licensees of layer 2 and layer 3 VPN services shall be treated at par with regard to all the terms and conditions of the licence.*

It is evident that the sharing of LIM capabilities as allowed under the aforesaid ILD license meets the security monitoring requirement of DoT by either using its own or other licensee's monitoring capability.

We kindly request you that sharing of monitoring equipments under all authorizations shall also be allowed under UL license, which may help in saving cost, avoid duplication of infrastructure and expedite roll-out of services.

Q.9 What measures could be taken to encourage roaming arrangements among telecom service providers in remote and far-flung areas? What could be the associated regulatory concerns and what steps could be taken to address such concerns? Kindly provide details on each of the suggested measures with justification.

ACTO's response:

No Comments

Q.10 What could be the other ways to ease out the hardship faced by the subscribers in remote and far-flung areas due to connectivity issues of the home network provider? Kindly provide detailed response with justification.

ACTO's response:

The major reason for the hardship faced by the subscribers in remote and far-flung areas is also very poor penetration of fixed-line broadband might be as:

1. Due to supply side constraints like non-availability of service/resources.
2. The demand side constraints like affordability.

The known probable factors for supply side constraints could be:

1. Issues related to RoW (Right of Way)
2. Restricted access to building complexes and societies
3. Higher cost of installation and maintenance of fixed-line network infrastructure

However, there are some existing regulatory/licensing restrictions which indirectly puts the supply side constraint in addition to above in order to promote fixed line broad band penetration by simply removing these existing licensing restrictions, it will rapidly enhance the supply side as well as make it more affordable by the increasing the competition. Thereby, it will address both the constraints of supply side and demand side at the same time.

The details of the licensing restrictions in ISP/NLD/ILD licenses are already given in our response to the question no. 2 &4 under the heading "Sharing of bandwidth over optical fibre/ lease line among TSPs/ISPs in B2B mode".

In order to make it effective, we also request TRAI to recommend for the minor amendment in both NLD/ILD license to add ISP along with the Access Service Providers/NLD Service Providers in the license condition.

Q.11 to Q.21

ACTO's response

We have no comment on the question number from Q 11 to Q21
