



भारतीय दूरसंचार विनियामक प्राधिकरण
Telecom Regulatory Authority of India



**Recommendations on
the Connectivity to Access Service VNOs
From More Than one NSO**

New Delhi, India

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Chapter I: Introduction and Background

A. Introduction

1.1 In 1990s, worldwide, many countries introduced the first phase of telecom reforms by privatizing their national operators. Until that time, telecommunication services were largely provided by the public sector. In July 1992, the Government of India announced the opening of the sub-sector of value-added services to private investment for eight services, viz. (a) electronic mail, (b) voice mail, (c) data services, (d) audio text services, (e) video text services, (f) video conferencing, (g) radio paging, and (h) cellular mobile telephone service (CMTS). In November 1994, the Government of India issued the first Metro CMTS licenses in the country. This marked the beginning of telecommunication service licensing in India. Since then, many telecommunication services have been brought under licensing regime. A few important milestones in the first phase of the journey of telecommunication service licensing in India are given below:

- (a) In 1995, the Government issued 34 CMTS circle licenses and 6 basic service licenses in the country.
- (b) In 1998, the Government of India opened Internet services sector for private participation.
- (c) In 2000, the Government opened National Long Distance (NLD) Service for private participation.
- (d) In 2002, the Government opened International Long Distance (ILD) services for private participation.
- (e) In 2003, the Government introduced Unified Access Service License (UASL) regime. Under UASL, a licensee could provide both basic service and CMTS.

1.2 In 2013, the Government established the regime of Unified License with the objective of providing a single license for all types of telecommunication services. The Government, through the Guidelines for Grant of Unified Licenses, conveyed, *inter-alia*, that the basic features of Unified License (UL) would be as below:

"...(ii) Applicant can apply for Unified License along with authorisation for any one or more services listed below:

a. Unified License (All Services)

b. Access Service (Service Area-wise) ...

c. Internet Service (Category-A with All India jurisdiction)

d. Internet Service (Category-B with jurisdiction in a Service Area) ...

e. Internet Service (Category-C with jurisdiction in a Secondary Switching Area)

...

f. National Long Distance (NLD) Service

g. International Long Distance (ILD) Service

h. Global Mobile Personal Communication by Satellite (GMPCS) Service

i. Public Mobile Radio Trunking Service (PMRTS)

j. Very Small Aperture Terminal (VSAT) Closed User Group (CUG) Service

k. INSAT MSS-Reporting (MSS-R) Service.

l. Resale of International Private Leased Circuit (IPLC) Service".

1.3 In 2016, the Government established the regime of virtual network operators (VNOs) through Unified License for VNO. A relevant extract of the Guidelines on Grant of Unified License (Virtual Network Operators) dated 31.05.2016¹ is given below:

"3. ... The basic features of UL (VNO) are as follows:

(i) VNOs are treated as extension of NSOs (Network Service Operators) or TSPs and they would not be allowed to install equipment interconnecting with the network of other NSOs.

¹ Source: https://dot.gov.in/sites/default/files/2016_06_06%20VNO-%20AS-I.pdf?download=1

- (ii) Applicant can apply for UL (VNO) along with VNO authorization for any or more services listed below:
- (a) Unified License VNO (All Services)
 - (b) Access Service (Service Area-wise)
 - (c) Internet Service (Category-A with All India jurisdiction)
 - (d) Internet Service (Category-B with jurisdiction in a Service Area)
 - (e) Internet Service (Category C with jurisdiction in an SSA)
 - (f) National Long Distance (NLD) Service
 - (g) International Long Distance (ILD) Service
 - (h) Global Mobile Personal Communication by Satellite (GMPCS) Service
 - (i) Public Mobile Radio Trunking Service (PMRTS) Service
 - (j) Very Small Aperture Terminal (VSAT) Closed User Group (CUG) Service
 - (k) INSAT MSS-Reporting (MSS-R) Service
 - (l) Resale of International Private Leased Circuit (IPLC) Service"

1.4 In 2018, the Government introduced a new authorization namely, Access Service Category 'B' authorization under the Unified License for VNO. The Service Area of the Access Service Category 'B' authorization is "*geographical area of a district of a State/ Union Territory*". The scope of the authorization reads, *inter-alia*, as "*The Licensee may provide wireline access services only*". The DoT also included a provision in the Guidelines for Grant of Unified License (Virtual Network Operators) that "*[i]n case VNO authorization is required for more than 4 Districts in a State/ Union Territory for Access Service Category B, Access Service authorization in respective Circle Service area is to be applied for.*"

B. The DoT's Reference Dated 07.07.2023

1.5 Through a reference dated 07.07.2023 (**Annexure-I**) on the subject- 'Connectivity to Access Service VNOs from more than one NSO', the Department

of Telecommunications (DoT), Ministry of Communications, Government of India sought recommendations of Telecom Regulatory Authority of India (hereinafter, also referred to as "TRAI" or "the Authority") under Section 11(1) (a) of the TRAI Act, 1997 (as amended). The DoT's reference letter dated 07.07.2023 is reproduced below:

"Department of Telecommunications has examined the issue related to Licensing Reforms on various aspects like Procedural Reforms, Reform for Licensing Terms & Conditions, Compliance Reforms for reducing compliance burden on Telecom Service Providers (TSPs) etc. Following issue/ matters amongst them are indicated here to seek recommendation of TRAI:

- 2. Based on the TRAI's recommendations dated 01.05.2015 on "Introduction of Virtual Network Operators", the Department of Telecom issued guidelines/ agreement for Unified License (virtual Network Operator) {Unified License (VNO)} on 31.05.2016.*
- 3. As per these guidelines, there would not be any restriction on the number of VNO licensees per service area. VNOs are allowed to have agreement with more than one NSO for all services other than Access Service and such services, which need numbering and unique identity of the customer.*
- 4. The Department has received representation that Access Service VNOs may also be permitted to take connectivity from more than one NSO in specific conditions. For example:*
 - i. When an Access Service VNO wants to take connectivity from a NSO for wireline services and another NSO for wireless services (Eg. A case when Access Service VNO takes connectivity from a NSO who is providing only wireline services in that area then such VNO has no option for providing wireless services in that area due to existing restrictions.)*
 - ii. Access Service VNOs who intend to provide wireline services only, may require to take connectivity from more than one NSOs. For example, a case, when an Access Service VNO takes connectivity from a NSO for wireline services, but that NSO may not have services in some other areas within the LSA where the VNO wants to provide its services. In such case,*

the VNO may be permitted to take connectivity from more than one NSOs for wireline service."

5. Accordingly, recommendations of TRAI are sought on the following issues:
- i. *Appropriate number of NSOs with whom VNOs having Access Service authorization and providing wire line services can be permitted to take connectivity in an LSA.*
 - ii. *VNOs having Access Service authorization and providing both wireless and wire line services can be permitted to take connectivity from one NSO for wireless services and other NSO for wire line services in a LSA."*
6. *In this regard, TRAI is requested to kindly examine the above issues and submit its recommendations under section 11(1)(a) of TRAI Act, 1997 (as amended)".*

C. The TRAI's Consultation Paper Dated 23.02.2024

1.6 With respect to the afore-mentioned reference received from the DoT, the Authority, on 23.02.2024, issued a Consultation Paper on Connectivity to Access Service VNOs From More Than one NSO (hereinafter also referred to as "the Consultation Paper dated 23.02.2024")². Written comments of stakeholders on the Consultation Paper dated 23.02.2024 were invited from stakeholders by 22.03.2024 and counter-comments by 05.04.2024. The Authority received written comments from nine stakeholders and counter-comments from four stakeholders. The comments and counter-comments received from stakeholders were placed on the TRAI's website³. An online Open House Discussion (OHD) was held on 08.05.2024 with stakeholders. Based on the comments and counter-comments received from stakeholders during the consultation process and further analysis, the Authority has arrived at the present recommendations.

² The TRAI's Consultation Paper dated 23.02.2024 is available at the URL: https://trai.gov.in/sites/default/files/CP_23022024_0.pdf

³ The comments and counter-comments of stakeholders on the Consultation Paper dated 23.02.2024 are available at the URL: <https://trai.gov.in/consultation-paper-connectivity-access-service-vnos-more-one-nso>

1.7 The present recommendations comprise three chapters. Chapter-I provides an introduction and background of the subject. Chapter-II presents an analysis of the issues raised in the Consultation Paper dated 23.02.2024. Chapter-III provides a summary of the recommendations on the subject.

Chapter II: Analysis of Issues

2.1 Through the Consultation Paper dated 23.02.2024, stakeholders' comments were invited on the issues related to the parenting of licensees holding Access Service Authorization under UL (VNO). An analysis of the issues considering the comments received from stakeholders is presented below.

A. Comments of stakeholders on the Consultation Paper dated 23.02.2024

(1) Comments of stakeholders on the Q1

2.2 Through the Consultation Paper dated 23.02.2024, the Authority solicited comments of stakeholders on the following question:

Q1. In your view, what is the maximum number of Network Service Operators (NSOs) from whom a UL (VNO) licensee holding Access Service Authorization should be permitted to take connectivity in a licensed service area (LSA) for providing wireline access service? Kindly provide a detailed response with justification.

2.3 In response to the Q1, many stakeholders opined that Access Service VNOs should be permitted to take connectivity from any number of NSOs for providing wireline access service in a Licensed Service Area (LSA). On the other hand, many other stakeholders provided an opposite view to the above.

2.4 A broad summary of the comments of stakeholders who are of the view that there is no need to put a limit on the maximum number of NSOs from whom an Access Service VNO can take connectivity for providing wireline access service in an LSA is given below:

(a) Most of the wireline access service NSOs do not cover all short distance charging areas (SDCAs) of an LSA. The flexibility of multi-parenting would

enable the Access Service VNOs to roll-out wireline access services across the LSA.

- (b) The quality of telecom service is of utmost importance for all customers. It is critical for enterprise customers. As the quality of service of a particular NSO can fluctuate over time and within the same LSA, VNOs should be given the freedom to select and switch between different NSOs. This flexibility would ensure that VNOs can maintain high service standards for their customers.
- (c) With the flexibility of connectivity with multiple NSOs, the VNOs would get a wider coverage and the ability to serve their customers more efficiently. Such a flexibility would also encourage NSOs to make further investments in building infrastructure as they would have a healthy competition to attract and retain VNOs. Such a competitive atmosphere will stimulate innovations in service offerings, billing practices, service delivery, and overall service quality, ultimately benefiting end customers. The flexibility of connectivity with multiple NSOs will empower consumers with greater choice, reliability, quality, and cost saving in the services they access.
- (d) There is a need to ensure level playing field among various Access service authorizations under Unified License (VNO) as taking connectivity from multiple NSOs on a particular EPABX is allowed to Access Service Category B VNOs but not to Access Service VNOs.

2.5 A broad summary of the comments of stakeholders who are of the view that any Access Service VNO should not be permitted to be parented to more than one NSO for providing wireline access service in an LSA is given below:

- (a) If VNOs are allowed to have multiple NSOs as parent, it would cause a significant arbitrage in favour of VNOs against NSOs. While NSOs would be competing in the market based on their respective infrastructure, a VNO would be privileged to cherry-pick and club infrastructure from multiple NSOs to provide enhanced services of wider scope and scale to end enterprise customers. This would cause an irreparable loss to the competitive structure of the market and would be counterproductive.

Allowing connections with multiple NSOs would negatively impact investments in network infrastructure as VNOs do not contribute to investments in network infrastructure.

- (b) While it is acknowledged that the restrictions have been relaxed in the case of Access Service Category-B VNOs, it cannot be used as a ground for extending the same relaxations for Access Service VNOs. The relaxations have been granted to Access Service Category-B VNOs because of the much smaller scale at which they operate. The limited area of operations allows the Government as well as the Regulator to track and monitor such arrangements and deal with any non-compliance effectively. In case the same is allowed at the LSA level, the supervision would become extremely difficult.
- (c) It would be impossible to find a use case where one operator is the only wireline access service provider in a remote area, while another wireline access service provider alone is covering another remote area. The overlap in lucrative urban areas is inevitable. If a VNO opts for a new FTTX-based NSO in urban areas and opts for the legacy operator in remote areas, it would be unfair to the legacy technology operator.
- (d) Multi-parenting involves multiple complexities - ranging from operational ones to being at risk of a security breach. Allowing connections with multiple NSOs could introduce regulatory challenges and complexities, requiring strict oversight and monitoring to ensure compliance with interconnection, quality of service, and fair competition regulations.

2.6 One of the stakeholders suggested that in order to ensure fair competition, efficient use of resources, and quality of service for consumers, TRAI should set a limit on the number of NSOs from whom any Access Service VNO can take connectivity; the specific maximum number of NSOs permitted may be determined based on factors such as market dynamics, infrastructure availability, spectrum availability, and regulatory objectives.

(2) Comments of stakeholders on the Q2

2.7 Through the Consultation Paper dated 23.02.2024, the Authority solicited comments of stakeholders on the following question:

Q2. In case your response to the Q1 is a number greater than one, what should be the associated terms and conditions for permitting such connectivity? Kindly provide a detailed response with justification.

2.8 A broad summary of the comments of stakeholders in response to the Q2 is given below:

- (a) The only restriction that needs to be imposed upon Access Service VNOs is that they should ensure that no inter-NSO call flow is facilitated by them, and all inter-NSO call flows should take place via the respective NSO.
- (b) There should be a separate service delivery platform/ EPABX instance for connectivity with each NSO. The traffic originated/ terminated for the specific number series received from a particular NSO should be routed on the trunks with the same NSO.

(3) Comments of stakeholders on the Q3

2.9 Through the Consultation Paper dated 23.02.2024, the Authority solicited comments of stakeholders on the following question:

Q3. Whether a UL (VNO) licensee holding Access Service Authorization in an LSA should be permitted to take connectivity from one NSO for wireless access service and other NSO(s) for wireline access service in the LSA? Kindly provide a detailed response with justification.

2.10 In response to the Q3, many stakeholders opined that an Access Service VNO should be permitted to take connectivity from one NSO for wireless access service and other NSO(s) for wireline access service in an LSA. On the other hand, many other stakeholders provided an opposite view to the above.

2.11 A broad summary of the comments of stakeholders who are of the view that there is a need to permit an Access Service VNO to take connectivity from one NSO for wireless access service and other NSO(s) for wireline access service in an LSA is given below:

- (a) While both wireless and wireline are categorized as access services and are provided under the same authorization, not all UL Access Service authorization holders provide both wireless and wireline access services. Hence, it is imperative that the Access Service VNOs are permitted to take the wireless access connectivity from one NSO and the wireline access connectivity from other NSOs.
- (b) Such a flexibility would enable the VNOs to provide services based on the best quality and commercial terms with both the wireless and wireline operators in a given area.

2.12 A broad summary of the comments of stakeholders who are of the view that there is no need to permit Access Service VNOs to take connectivity from one NSO for wireless access service and other NSO(s) for wireline access service in an LSA is given below:

- (a) The main four NSOs provide both wireline and wireless access services on pan-India basis. Therefore, no instance would arise under which a VNO may need to take wireline and wireless connectivity from different NSOs. If a VNO partners with different NSOs for wireless and wireline access services, the benefits of network convergence will be lost, making the business case more prohibitive.
- (b) The use case of VNOs is primarily built around offering niche services to a well-defined customer base in a particular area. The mixing of technologies from two different NSOs will not go with this niche business case and would rather create confusion within the service offerings. The shared marketing plan of the NSO and VNO would get affected due to the mixing of technologies from two different NSOs.
- (c) Permitting an Access Service VNO to take connectivity from one NSO for wireless access service and another NSO for wireline access service in the

same LSA would prove to be problematic as and when a unified numbering scheme for wireline and wireless services gets implemented.

(4) Comments of stakeholders on the Q4

2.13 Through the Consultation Paper dated 23.02.2024, the Authority solicited comments of stakeholders on the following question:

Q4. In case your response to the Q3 is in the affirmative, what should be the associated terms and conditions for permitting such connectivity? Kindly provide a detailed response with justification.

2.14 A broad summary of the comments of stakeholders in response to the Q4 is given below:

- (a) The telecom network infrastructure obtained from the wireless access service provider should be used only for providing wireless access services. It is technically feasible to ensure that the infrastructure of the wireless access service provider is not integrated with the infrastructure of the wireline access service provider.
- (b) Numbering resources for wireline access service and wireless access service should be used separately. A correct configuration of the billing and other systems for customers of both the services should be ensured.

B. Analysis of the issues raised through the Consultation Paper dated 23.02.2024

(1) Strategy of the NTP-2012 w.r.t. VNOs

2.15 National Telecom Policy-2012⁴ (NTP-2012) envisaged to move towards a Unified License (UL) regime to exploit the benefits of convergence, spectrum liberalization and facilitate delinking of the licensing of networks from the

⁴ Source: https://dot.gov.in/sites/default/files/NTP-06.06.2012-final_0.pdf

delivery of services so as to enable the Telecom Service Providers (TSPs) to optimally and efficiently utilize their networks and spectrum by sharing active and passive infrastructure. NTP-2012 also envisaged to facilitate resale at the service level, both wholesale and retail, for example, by introduction of virtual operators – in tune with the need for promoting robust competition while ensuring due compliance with security and other license-related obligations.

2.16 In the year 2013, the DoT established the regime of Unified License for the provision of telecommunication services in the country. Under this regime, eligible entities may obtain appropriate authorisations⁵ under the Unified License from the Government and provide a range of telecommunication services to their customers. While introducing the regime of Unified License, the DoT decided that this regime may be introduced over two phases with the delinking of licensing for networks from the delivery of services be taken up in a second phase.

(2) TRAI's recommendations on VNO of 2015

2.17 On 07.07.2014, the DoT sent a reference to the Authority seeking its recommendations *"for delinking of licensing of networks from delivery of services by way of virtual network operators etc. including associated issues such as Adjusted Gross Revenue, terms of sharing passive & active infrastructure etc. under Unified Licensing Regime"*.

⁵ In 2013, the DoT, through the Guidelines for Grant of Unified Licenses, conveyed, *inter-alia*, that the basic features of Unified License (UL) would be as below:

"...

(ii) Applicant can apply for Unified License along with authorisation for any one or more services listed below:

- a. Unified License (All Services)*
- b. Access Service (Service Area-wise) ...*
- c. Internet Service (Category-A with All India jurisdiction)*
- d. Internet Service (Category-B with jurisdiction in a Service Area) ...*
- e. Internet Service (Category-C with jurisdiction in a Secondary Switching Area) ...*
- f. National Long Distance (NLD) Service*
- g. International Long Distance (ILD) Service*
- h. Global Mobile Personal Communication by Satellite (GMPCS) Service*
- i. Public Mobile Radio Trunking Service (PMRTS)*
- j. Very Small Aperture Terminal (VSAT) Closed User Group (CUG) Service*
- k. INSAT MSS-Reporting (MSS-R) Service.*
- l. Resale of International Private Leased Circuit (IPLC) Service"*.

2.18 In response, TRAI sent its recommendations on 'Introducing Virtual Network Operators in telecom sector' dated 01.05.2015⁶ (Hereinafter, also referred to as, "the recommendations on VNO of 2015") to the Government. In the recommendations on VNO of 2015, TRAI analyzed various aspects of VNOs. The extracts of the analysis of TRAI in the recommendations on VNO of 2015 in respect of the aspects which are relevant in the present consultation are given below.

2.19 Regarding the need for introduction of VNOs in Indian telecom sector, TRAI made the following observations in the recommendations on VNO of 2015:

"2.11 There are several areas where VNOs can be useful in service provisioning. They can provide localized services in small towns and rural areas using the networks of existing NSOs or by laying last mile connectivity. ..."

"2.20 Hence there is a need to make an enabling provision for the introduction of VNO which can provide telecom services based on mutual agreement with the NSO. VNOs should be seen as a facilitator of services by being a natural extension of the NSO and not as its competitor."

...

"3.16 An examination of the responses given by the TSPs who are opposed to the introduction of VNOs reveals that the comments of these TSPs are basically premised on the assumption that VNOs will be providing mobile access services only and they will be competing with the NSOs for the same service in the same geographical area. However, ..., there are a number of other services which a VNO can provide to the end consumer without being a competitor to its NSO."

...

"3.21 In a vast country like India, there are several areas where NSOs are yet to provide last mile connectivity for want of a viable business case. ... The VNOs may bring innovative business models in providing last mile connectivity through a technology-neutral platform. Therefore, the Authority is of the view

⁶ The recommendations are available at the URL:
https://www.trai.gov.in/sites/default/files/Recommendations_VNO_01_05_2015.pdf

that the VNOs should be viewed as an extension of the NSO for service delivery.”

2.20 In essence, TRAI, in the recommendations on VNO of 2015, noted the concern of telecom service providers that in case VNOs were allowed to provide mobile access services, they would be competing with the NSOs for the same service in the same geographical area. The Authority observed that there are several other services which a VNO can provide to the end consumers without being a competitor to its NSO; for such services, VNOs should be seen as a facilitator of services by being a natural extension of the NSO.

2.21 Regarding the parenting of a VNO by more than one NSO in a service area, TRAI made the following observations in the recommendations on VNO of 2015:

"5.28 The Authority has taken note of the stakeholder's comments regarding market forces to determine this issue of parenting of one VNO by multiple NSOs for delivering various services. Allowing a VNO to have agreement with more than one NSO in a LSA may lead to operational complexities like compliance of various statutory provisions like calculation of Spectrum Usage Charges (SUC) and License Fee (LF). For example: - a VNO 'X' enters into agreement with NSO 'A' which is having administratively assigned access spectrum for getting access to deliver 2G services and also enters into agreement with another NSO 'B' which is holding BWA spectrum for getting access to deliver 4G services. Existing NSOs are paying distinct SUC slabs rates as per the defined licensing conditions for access spectrum bands. Due to these differential SUC slabs the issue of separation of AGR would arise as the VNO may not be able to separate the accounting of revenue generated from various wireless services it provides to the customers.

5.29 However, with the proliferation of broadband in the country, some of the VNOs may provide niche services using this platform. Therefore, if a VNO is restricted to only one NSO, it will be only able to provide its services to consumers only of its parent NSO. Consumers who have subscribed to

broadband services from other operator will not be able to take services from this VNO. Similarly, if a VNO is providing International Calling Cards service, it will have to buy minutes from more than one ILDO so as to provide competitive tariff to its customers.

5.30 In order to facilitate the VNO to provide multiple services, using the networks of multiple NSOs, a solution could be that the VNO be allowed to be parented by more than one NSO for all services other than access services and such services which need numbering and unique identity of the customer. For those services which require unique identity in terms of numbering, lawful interception, spectrum usages etc. the VNO can have parenting with only one NSO for an authorisation. In the proposed framework being recommended by the Authority, the UL (VNO) will seek authorization(s) for various services i.e. Access Service (Basic & Mobile), Internet Service (National, Circle and SSA based), NLD, ILD, GMPCS, PMRTS, etc. in line with the UL. The VNO will be allowed to have agreement with various NSOs based on its authorization for the service area, in which NSOs are operating. For example, if a VNO wants to provide access services, NLD/ ILD services and GMPCS services it can use infrastructure of different NSOs for these services. Such VNO can provide access services using infrastructure of only of one NSO but it cannot use infrastructure of another NSO for the same authorisation (i.e. access services). For GMPCS service, if the VNO can use infrastructure of another NSO it is allowed. For NLD/ ILD services, it can utilise the infrastructure of more than one NSO to cater to the requirements of its customers.

5.31 In view of the above, the Authority recommends that VNOs will be allowed to have agreements with more than one NSO for all services other than access services and such services which need numbering and unique identity of the customers.”

- 2.22 In essence, TRAI, in the recommendations on VNO of 2015, inferred that allowing a VNO to have agreements with more than one NSO in an LSA for certain services may lead to operational complexities like compliance of various statutory provisions like calculation of SUC and LF. It was noted that the

wireless access service NSOs were paying SUC at different slabs; due to differential SUC slabs, a VNO might not be able to separate the accounting of revenue generated from various wireless services it provided to customers. Based on its analysis, TRAI, through the recommendations on VNO of 2015, recommended that VNOs should be allowed to have agreements with more than one NSO for all services other than Access Service and such services which need numbering and unique identity of the customers.

(3) Introduction of the VNO regime in 2016

- 2.23 After considering the TRAI's recommendations on VNO of 2015, the DoT established the regime of Unified License for VNO [UL (VNO)] in May 2016. Through the UL (VNO) regime, the DoT introduced a "service only layer". The UL (VNO) regime is parallel to the Unified License regime for the delivery of services. Under each authorization of UL (VNO), a licensee is permitted to provide telecommunication services like those which are permitted to the Unified License holders. Notably, through the Guidelines on Grant of Unified License (Virtual Network Operators) dated 31.05.2016, the DoT prescribed that *"VNOs will be allowed to have agreements with more than one NSO for all services other than access services and such services which need numbering and unique identity of the customers."*

(4) Partial relaxation of the restrictions on multi-parenting for access services in 2020

- 2.24 Based on the TRAI's recommendations on 'Introduction of UL (VNO) for Access Service authorization for Category B License with Districts of a State as a Service Area' dated 08.09.2017, the DoT partially relaxed the restriction on multi-parenting of UL (VNO) licensees holding Access Service, and Access Service Category 'B' through a notification dated 02.03.2020 as mentioned below:

(a) For Access Service authorization of UL (VNO):

"5.2 For wire line access services through EPABX, the connectivity of different NSOs at different EPABX is allowed, however, the connectivity with more than one NSO at a particular EPABX shall not be permitted. "

(b) For Access Service Category B authorization of UL (VNO):

"5.2 For wire line access services through EPABX, the connectivity of different NSOs at different EPABX is allowed. However, for connectivity with more than one NSO at a particular EPABX the licensee shall ensure non-breachable logical/ virtual partitioning in the EPABX and logical separation of junctions from different NSOs with no inter NSO call flow. Also, the EPABX should not support internet connectivity and NLD/ ILD calls shall be ensured through normal NLD/ ILD network only & shall in no way directly or indirectly cause bypass of licensed National Long Distance Operator (NLDO)/ International Long Distance Operator (ILDO) jurisdiction. Further, licensee shall intimate to its NSO(s) and the Licensor regarding connectivity of more than one NSO at a particular EPABX."

2.25 In light of the above, under the extant licensing framework for UL (VNO), in case a licensee holding Access Service Category 'B' authorization under UL (VNO) in an LSA intends to expand its business to more than four districts of a State/ Union Territory, it needs to apply for Access Service authorization under UL (VNO) in the LSA. However, upon obtaining the Access Service authorization under UL (VNO), it will no longer be permitted to obtain connectivity with more than one NSO at a particular EPABX.

(5) Examination of the issue of multi-parenting of Access Service VNOs for providing wireline access service in an LSA

2.26 While examining the issue of multi-parenting of VNOs for providing wireline access service in an LSA, the Authority took note of the following aspects:

(a) The NTP-2012 envisaged delinking of the licensing of networks from the delivery of services to the end users with an aim to enhance the quality

of service, optimize investments and help address the issue of the digital divide. It also envisaged facilitating resale at the service level, and thereby, to fulfil the need for robust competition at the consumer end.

- (b) The task of bridging the digital divide in the country is a work-in-progress. The rural tele density was only 59.65% as against the urban tele density of 133.46% in India as on 30.06.2024.
- (c) While mobile telephony and mobile broadband service have made a spectacular growth in the country, the growth of wireline telephone service and wireline broadband service has not met expectations. The wireline telephone density was only 2.5% whereas the wireline broadband density was only 3% in the country as on 30.06.2024. The growth of wireline access service is mainly plagued by sub-optimal investments by the service providers in building the last mile connectivity.

2.27 The Authority is of the view that for the provision of wireline access service to the end consumers in the country, a VNO can act as a facilitator of services by being a natural extension of the NSO. While the NSOs can bring the core network, long-haul network, and middle mile connectivity, the VNOs can bridge the gap of the last mile connectivity. The VNOs can also provide a superior experience to enterprise customers and niche customer groups through an enhanced service delivery. Such an arrangement would also help the NSOs to optimally and efficiently utilize their networks.

2.28 The Authority also took note of the assertion of a few stakeholders that most of the wireline access service NSOs do not cover all short distance charging areas (SDCAs) of an LSA. In this regard, the Authority examined the wireline coverage of access service providers in the country. The following table depicts the number of SDCAs in which telecom service providers were providing wireline access service services as on 31.12.2022⁷.

⁷ Source: Information provided by the DoT

| Total No. of SDCAs in the country | Number of SDCAs in which the TSPs were providing wireline access services | | | | | | | | | |
|---|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| | TSP- 1 | TSP- 2 | TSP- 3 | TSP- 4 | TSP- 5 | TSP- 6 | TSP- 7 | TSP- 8 | TSP- 9 | TSP- 10 |
| 2645 | 957 | 52 | 210 | 02 | 151 | 02 | 955 | 82 | 2564 | 932 |

- 2.29 The Authority notes that the optical fiber cables/ copper lines laid by the wireline access service providers in their networks suffer from intermittent breakdowns, owing to numerous developments works etc. going on in the area. As a result, both the availability and quality of wireline access service gets adversely impacted sporadically. The Authority also notes the contention of a few stakeholders that the quality of wireline access service of a particular NSO can fluctuate over time and within the same LSA.
- 2.30 Considering - (a) gaps in the coverage of wireline access service in various LSAs and (b) QoS issues arising out of the intermittent breakdowns in the wireline access media due to developmental works etc. in the area, the Authority is of the view that it would be appropriate to permit the Access Service VNOs to take connectivity from more than one NSO in an LSA for providing wireline access service. The Authority is also of the view that in order to encourage competition in wireline access service segment, there should be no cap on the number of NSOs from whom any access service VNO can take connectivity for providing wireline access service in an LSA.
- 2.31 The Authority also examined the issue of connectivity of a VNO from more than one NSO at the same EPABX for providing wireline access service. The Authority notes that, based on the TRAI's recommendations on 'Introduction of UL (VNO) for Access Service authorization for category B license with Districts of a State as a Service Area' dated 08.09.2017, the DoT relaxed the restriction on multi-

parenting of Access Service Category 'B' VNO at a particular EPABX through a notification dated 02.03.2020 as mentioned below:

"5.2 For wire line access services through EPABX, the connectivity of different NSOs at different EPABX is allowed. However, for connectivity with more than one NSO at a particular EPABX the licensee shall ensure non-breachable logical/ virtual partitioning in the EPABX and logical separation of junctions from different NSOs with no inter NSO call flow. Also, the EPABX should not support internet connectivity and NLD/ ILD calls shall be ensured through normal NLD/ ILD network only & shall in no way directly or indirectly cause bypass of licensed National Long Distance Operator (NLDO)/ International Long Distance Operator (ILDO) jurisdiction. Further, licensee shall intimate to its NSO(s) and the Licensor regarding connectivity of more than one NSO at a particular EPABX."

2.32 The Authority is of the view that the connectivity with more than one NSO at a particular EPABX should be permitted to Access Service VNOs subject to the condition that they fulfill the condition imposed on Access Service Category 'B' VNO related to ensuring non-breachable logical/ virtual partitioning in the EPABX and logical separation of junctions from different NSOs with no inter NSO call flow. The Authority is of the opinion that the permission to connect with more than one NSO at a particular EPABX would bring resilience in the service offerings of Access Service VNOs to enterprise customers etc. who make use of EPABXs. Further, the provision of non-breachable logical/ virtual partitioning in the EPABX and logical separation of junctions from different NSOs with no inter NSO call flow would ensure that Access Service VNOs do not cause any bypass to NLD and ILD traffic.

2.33 The Authority notes that the internet service is one of services permitted to be provided under Access Service VNO authorisation. In this regard, the Authority notes that clause 8.3 of Chapter-IX (Internet Service Authorization) under Unified License, provides that *"for nodes of Licensee having upstream bandwidth from multiple service providers, the Licensee may be mandated to install LIM/ LIS at these nodes, as per the requirement of security agencies. In*

such cases, upstream service providers may not be required to monitor this bandwidth.”

- 2.34 Keeping the above provision of the Unified License in view, the Authority is of the opinion that it would be appropriate to impose a condition that the Access Service VNO may be mandated to install LIM/ LIS at its nodes having upstream Internet bandwidth from multiple service providers, as per the requirement of security agencies.
- 2.35 Considering the comments of stakeholders in the consultation process and its further analysis, **the Authority recommends that –**
- (a) **There should be no cap on the number of Network Service Operator (NSOs) from whom an Access Service Virtual Network Operator (VNO) can take connectivity for providing wireline access service in a Licensed Service Area (LSA).**
 - (b) **For wireline connectivity of any Access Service VNO with more than one NSO at a particular Electronic Private Branch Automatic Exchange (EPABX), the Access Service VNO shall ensure non-breachable logical/ virtual partitioning in the EPABX and logical separation of junctions from different NSOs with no inter-NSO call flow. The EPABX shall not support Internet connectivity. National Long Distance (NLD) and International Long Distance (ILD) calls shall be sent through the normal NLD/ ILD networks only, and shall in no way directly or indirectly cause a bypass to the jurisdiction of authorised National Long Distance Operators (NLDOs)/ International Long Distance Operators (ILDOS). The Access Service VNO shall duly inform its NSO(s) and the Central Government regarding connectivity of more than one NSO at a particular EPABX.**
 - (c) **In case the Access Service VNO obtains upstream Internet bandwidth from more than one NSO at any node(s) of its**

network, it may be mandated to install LIM/ LIS at such nodes, as per the requirement of security agencies.

(6) Examination of the issue related to connectivity from one NSO for wireless access service and other NSOs for wireline access service in an LSA

- 2.36 The Authority notes that many access service providers such as Tata Teleservices, Quadrant, V-con, and APSFL provide only the wireline access service and not the wireless access service in the country. If any Access Service VNO takes connectivity for providing wireline access service in an LSA from such access service providers, it would not be able to simultaneously provide wireless access services in the LSA until it is permitted to parent to another NSO, which provides wireless access service in the LSA.
- 2.37 In this regard, the Authority notes that the issue⁸ of calculation of spectrum usage charge (SUC) applicable on the Access Service VNOs would not arise under a situation where the Access Service VNO is permitted to parent to only one NSO for providing wireless access service in the LSA.
- 2.38 Considering the above, the Authority is of the view that in case the Access Service VNOs are permitted to take connectivity from one NSO for wireless access service and other NSOs for wireline access service in an LSA, it would enable the Access Service VNOs, which have taken connectivity from the Access Service NSOs offering wireline access service only, to also offer wireless access service after obtaining connectivity from an Access Service NSO offering wireless access service in the LSA. This flexibility should be given in addition to the extant regime under which an Access Service VNO, intending to provide both wireline and wireless access services in an LSA, is permitted to take

⁸ TRAI, in the recommendations on VNO of 2015, noted that the NSOs offering wireless access service were paying spectrum usage charge (SUC) at different slabs; due to differential SUC slabs, a VNO might not be able to separate the accounting of revenue generated from various wireless services it provided to customers.

connectivity for both wireline and wireless access services from the same NSO in the LSA. If such a flexibility is given, an Access Service VNO, which intends to provide both wireline and wireless access services in an LSA, can do the following:

(a) It can take connectivity for both wireline and wireless access service from the same NSO in the LSA. It can also take connectivity from other NSO(s) in the LSA for wireline access service as recommended in para 2.35 above.

Or,

(b) It can take connectivity from one NSO in the LSA for wireless access service and other NSO(s) in the LSA for wireline access service.

2.39 The Authority is of the view that introduction of such a flexibility would enable Access Service VNOs to provide better service offerings to telecom consumers in the country.

2.40 The Authority also notes the inputs of a few stakeholders that any telecom network infrastructure, numbering resources, IP addresses obtained from wireless access service should be used exclusively for providing wireless access service; in no case such telecommunication network resources, and infrastructure should be integrated with the telecommunication network resources and infrastructure obtained from wireline access service NSOs.

2.41 Considering the comments of stakeholders and its further analysis, **the Authority recommends that-**

(c) An Access Service VNO, intending to provide both wireless and wireline access services in an LSA, should be permitted to take connectivity from one NSO for wireless access service and other NSO(s) for wireline access service in the LSA. This flexibility should be given in addition to the extant regime under which an Access Service VNO, intending to provide both wireline and wireless access services in an LSA, is permitted to take

connectivity for both wireline and wireless access services from the same NSO in the LSA.

- (d) Access Service VNOs should ensure that- (i) the network resources and infrastructure taken from an NSO for providing wireless access service and (ii) the network resources and infrastructure taken from NSO(s) for providing wireline access service are not integrated in any manner.**

2.42 The following chapter lists a summary of recommendations.

Chapter III: Summary of Recommendations

3.1 The Authority recommends that-

- (a) There should be no cap on the number of Network Service Operator (NSOs) from whom an Access Service Virtual Network Operator (VNO) can take connectivity for providing wireline access service in a Licensed Service Area (LSA).
- (b) For wireline connectivity of any Access Service VNO with more than one NSO at a particular Electronic Private Branch Automatic Exchange (EPABX), the Access Service VNO shall ensure non-breachable logical/ virtual partitioning in the EPABX and logical separation of junctions from different NSOs with no inter-NSO call flow. The EPABX shall not support Internet connectivity. National Long Distance (NLD) and International Long Distance (ILD) calls shall be sent through the normal NLD/ ILD networks only, and shall in no way directly or indirectly cause a bypass to the jurisdiction of authorised National Long Distance Operators (NLDOs)/ International Long Distance Operators (ILDOS). The Access Service VNO shall duly inform its NSO(s) and the Central Government regarding connectivity of more than one NSO at a particular EPABX.
- (c) In case the Access Service VNO obtains upstream Internet bandwidth from more than one NSO at any node(s) of its network, it may be mandated to install LIM/ LIS at such nodes, as per the requirement of security agencies.

[Para No. 2.35]

3.2 The Authority recommends that-

- (a) An Access Service VNO, intending to provide both wireless and wireline access services in an LSA, should be permitted to take connectivity from one NSO for wireless access service and other NSO(s) for wireline access service in the LSA. This flexibility

should be given in addition to the extant regime under which an Access Service VNO, intending to provide both wireline and wireless access services in an LSA, is permitted to take connectivity for both wireline and wireless access services from the same NSO in the LSA.

- (b) Access Service VNOs should ensure that- (i) the network resources and infrastructure taken from an NSO for providing wireless access service and (ii) the network resources and infrastructure taken from NSO(s) for providing wireline access service are not integrated in any manner.**

[Para No. 2.41]

The DoT's Reference Dated 07.07.2023

F No. 20-405/2013 AS-I (Vol.-V)(Pt.10)
Ministry of Communications
Department of Telecommunications
(Access Service Wing)
20, Ashoka Road, Sanchar Bhawan, New Delhi

Dated the 7th July 2023

Subject: Seeking recommendations of TRAI on issue of connectivity to Access Service VNOs from more than one NSO -reg.

Department of Telecommunications has examined the issues related to Licensing Reforms on various aspects like Procedural Reforms, Reform for Licensing Terms & Conditions, Compliance Reforms for reducing compliance burden on Telecom Service Providers (TSPs) etc. Following issues/matters amongst them are indicated here to seek recommendations of TRAI:

2. Based on the TRAI's recommendations dated 01.05.2015 on "Introduction of Virtual Network Operators", Department issued guidelines/agreement for Unified License (virtual Network Operator) {UL(VNO)} on 31.05.2016.

3. As per these guidelines, there would not be any restriction on the number of VNO licensees per service area. VNOs are allowed to have agreement with more than one NSO for all services other than Access Service and such services, which need numbering and unique identity of the customer.

4. Department has received representation that Access Service VNOs may also be permitted to take connectivity from more than one NSO in specific conditions. For example:

- i. When an Access Service VNO wants to take connectivity from a NSO for wireline services and another NSO for wireless services (Eg. A case when Access Service VNO takes connectivity from a NSO who is providing only wireline services in that area then such VNO has no option for providing wireless services in that area due to existing restrictions.)
- ii. Access Service VNOs who intends to provide wireline services only, may require to take connectivity from more than one NSOs. For example, a case, when an Access Service VNO takes connectivity from a NSO for wireline services, but that NSO may not have services in some other areas within the LSA where the VNO wants to provide its services. In such case, the VNO may be permitted to take connectivity from more than one NSOs for wireline line service.

5. Accordingly, recommendations of TRAI are sought on following issues:

- i. Appropriate number of NSOs with whom VNOs having Access Service

authorization and providing wire line services can be permitted to take connectivity in a LSA.

- ii. VNOs having Access Service authorization and providing both wireless and wire line services can be permitted to take connectivity from one NSO for wireless services and other NSO for wire line services in a LSA.
6. In this regard, TRAI is requested to kindly examine above issues and submit its recommendations under Section 11 (1) (a) of TRAI Act, 1997 (as amended).
 7. This has the approval of competent authority.



(S. K. Singhal) 8/7/23

Deputy Director General (AS)

Phone: 23036918

To

The Secretary
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
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Acronyms

| Acronym | Description |
|----------------|---|
| AGR | Adjusted Gross Revenue |
| AGR | Adjusted Gross Revenue |
| BWA | Broadband Wireless Access |
| CMTS | Cellular Mobile Telephone Service |
| CUG | Closed User Group |
| CP | Consultation Paper |
| DoT | Department of Telecommunications |
| DEL | Direct Exchange Line |
| DID | Direct Inward Dialing |
| EPABX | Electronic Private Automatic Branch Exchange |
| FTTX | Fiber to the x |
| GMPCS | Global Mobile Personal Communication by Satellite |
| ILD | International Long Distance |
| ILDO | International Long Distance Operator |
| IPLC | International Private Leased Circuit |
| ISD | International Subscriber Dialing |
| LF | License Fee |
| LIM | Lawful Interception Monitoring |
| LIS | Lawful Interception System |
| LSA | Licensed Service Area |
| NDCP 2018 | National Digital Communications Policy 2018 |

| Acronym | Description |
|----------------|--|
| NLD | National Long Distance |
| NTP-2012 | National Telecom Policy-2012 |
| NSO | Network Service Operator |
| OHD | Open House Discussion |
| PMRTS | Public Mobile Radio Trunking Service |
| SSA | Secondary Switching Area |
| SDO | Service Delivery Operator |
| SDCAs | short distance charging areas |
| SUC | Spectrum Usage Charges |
| STD | Subscriber Trunk Dialing |
| TEC | Telecom Engineering Center |
| TRAI | Telecom Regulatory Authority of India |
| TRAI | Telecom Regulatory Authority of India |
| TSP | Telecom Service Provider |
| UASL | Unified Access Service License |
| UL | Unified License |
| UL (VNO) | Unified License (Virtual Network Operator) |