Telecom Regulatory Authority of India

Consultation Paper

on

Review of the Regulatory Framework for Interconnection

30th May, 2019

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Stakeholders are requested to furnish their comments to the Advisor (Broadband and Policy Analysis), TRAI by 27.06.2019. Counter comments, if any, may be sent by 11.07.2019. Comments and Counter Comments would be posted on TRAI's website www.trai.gov.in. The comments and counter-comments in electronic form may be sent by e-mail to div.nsl1@trai.gov.in and ja.nsl1@trai.gov.in. For any clarification/ information, Shri S. K. Singhal, Advisor (BB&PA) may be contacted at Tel./ Fax No. +91-11-23221509.

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Introduction

1.1 The telecommunication services sector in India has undergone a high pace of growth since 1990s. Further, Indian telecommunication market is most competitive in the world and has second largest telephone user base. The growth and development of the telecommunication services sector can be marked by some of the performance indicators like the status of the Wireline and Wireless subscriptions and the tele-density, Minutes of Usage (MoU) per subscriber, data consumption per subscriber etc.. As of 28th February 2019, India had 1.18 billion mobile phone users (wireless users) and 21.72 Million landline users (wireline). The wireline market segment comprises of 1.80 per cent of the total subscriber base, as of February 2019.

1.2 Over the last decade, the Wireline subscriber base has shown decreasing trend and has reduced from 37.73 million in February 2009 to 21.72 million in February 2019. However, the wireless subscriber base has shown a healthy growth and has increased from 376.12 million in February 2009 to 1.18 billion in February 2019.

1.3 The Central Government has notified the National Digital Communication Policy (NDCP) 2018 to ensure harmonious growth of the telecom sector and also to attract additional investment in the sector. Keeping in view the fact that, presently, the tele-density of wireline subscriptions is abysmally low in the country, it provides special emphasis on promoting fixed line communication networks. It has set a goal of fixed line broadband access to 50% of households in India by 2022. As per the present technology trend, the fixed line connection is being provided using optical fiber based FTTx

technology, instead of the copper based network which has become obsolete and very expensive. Using FTTx it is possible to provide voice, video and data over a single connection.

1.4 To facilitate the growth of wireline broadband connections in the country, the Authority has already recommended a number of steps required to be taken by the Government through its recommendations dated 17.04.2015 on "Delivering Broadband Quickly: What do we need to do?" As mentioned in the previous paragraph, the broadband connection provided through FTTx will also provide fixed line telephony. In order to ensure harmonious growth of fixed line it is imperative that a smooth interconnection regime of fixed line network is put in place.

1.5 Interconnection is the lifeline of telecommunication services. The term 'interconnection' refers to the commercial and technical arrangement under which telecom service providers (TSPs) connect their equipment, networks and services to enable their subscribers to have access to the subscribers, services and networks of other TSPs.

1.6 Interconnection is extremely important from a customer viewpoint. Subscribers of telecommunication services cannot communicate with each other or connect with services they require unless necessary interconnection arrangements are in place. The international experience suggests that effective interconnection is the key to success of 'open competition' in telecommunication services. Therefore, availability of effective and expeditious interconnection plays an important role in the growth of the telecommunication services sector.

1.7 Telecommunications networks are intrinsically different from other infrastructure like roads and power because of the network externalities involved. The value of the network to the existing subscribers increases as more subscribers join the network. Interconnection with other networks enhances this value as the number of people a subscriber of this network can call and the range of services it can access increases.

1.8 In India, the regulatory framework for interconnection has been established by Telecom Regulatory Authority of India (hereinafter, referred to as, the Authority or TRAI). The Authority, in the year 1999, through 'The Register of Interconnect Agreements Regulations 1999' mandated all TSPs to register with the Authority any interconnect agreement to which they are parties.

1.9 In the year 2001, the Authority issued a Determination dated 08.01.2001 on Interconnection, through which, it prescribed various points of interconnection between fixed-line networks and mobile networks.

1.10 In the year 2002, the Authority issued the Telecommunication Interconnection (Reference Interconnect Offer) Regulation, 2002. As per this Regulation, a TSP enjoying Significant Market Power (SMP) status is required to submit its proposed RIO (describing, inter-alia, the technical and commercial conditions for interconnection based on the model RIO as annexed to the Regulation) to the Authority for approval and then to publish the approved RIO on its web-site. Such RIO, thereafter, forms the basis of all interconnection agreements to be entered into by/and with the issuer of the RIO. The Telecommunication Interconnection (Reference Interconnection Offer) Regulation, 2002 also contains three Annexures containing (a) Explanatory memorandum to the regulation to explain the reasons

for the issuance of the Regulation; (b) the model RIO; and (c) Guidelines. Guidelines provides for interconnection of circuit switched networks using CCS7 Signalling. These guidelines also provide the levels and points of interconnections for various call scenarios of fixed and wireless networks.

1.11 When the sector regulator mandates a framework for interconnection, it is not only to ensure that the framework is efficient but also to align with the changing circumstances as outdated regulations run the risk of stifling market growth and innovation. Keeping in view the regulatory, market, and technological changes during the last decade in telecommunication sector, and with a view to make more effective, non-discriminatory, fair, and transparent interconnection framework, the Authority issued a Consultation Paper (CP) on "Review of the regulatory framework for interconnection" dated 21.10.2016 to seek comments of the stakeholders.

1.12 After detailed analysis of comments received from stakeholders during the above mentioned consultation process and internal deliberations, the Authority notified "The Telecommunication Interconnection Regulations, 2018 (1 of 2018) dated 01.01.2018". In these regulations, the Authority has dealt with most of the issues raised in the consultation. On the issue of review of level of Interconnection, the Authority opined that before taking any decision there is a need for further deliberations. Relevant paragraphs of explanatory Memorandum to the Telecommunication Interconnection Regulations, 2018 pertaining to this issue are reproduced below for ready reference.

Relevant Paragraphs of explanatory memorandum relating to level of Interconnection:

"(11) Whether there is any need to review the level of interconnection as mentioned in the Guidelines annexed to the RIO Regulations, 2002?

76. In response to the issue of need for review of the levels of interconnection, many stakeholders have stated that there is a need to review the level of interconnection particularly those involving PSTN. On the other hand, the public sector TSPs have argued that the present levels of interconnection should be retained.

77. The Authority examined the views of the stakeholders and observed that certain provisions of the licenses, transit/ carriage charges and numbering system etc. have a significant bearing on the levels of interconnections. The Authority is of the view that there is a need for further deliberations on the matter of levels of interconnection."

1.13 Through the present Consultation Paper (CP), the Authority is undertaking a review of level of Interconnection for fixed line networks. To provide platform for consultation and to seek the comments of the stakeholders, background information and discussions on the issue are given in Chapter- II. Chapter- III lists the summary of issues for consultation. After considering the views/ comments of the stakeholders and its internal analysis, the "The Telecommunication Interconnection Regulations, 2018 (1 of 2018) dated 01.01.2018" may be amended.

Chapter-II

Level of Interconnection

A. Background

2.1 This chapter discusses the prevailing level of interconnection and an analysis of the rapid changes that have taken place in the telecommunications sector, necessitating review of the level of Interconnection. Since the focus of this consultation paper is on improving the growth of fixed line access services, the discussion below is focussed on fixed to fixed point of interconnections.

2.2 As per the license conditions, the licensees shall adhere to the National Fundamental Plans like National Numbering Plan, Signalling Plan, Routing Plan, National Frequency Allocation Plan and any other plan, as applicable to the respective service authorization, issued by Department of Telecommunications and technical standards as prescribed by Licensor from time to time. The National Numbering Plan (NNP)[1] which provides the numbering and dialling schemes for various scenarios of calls was reviewed and issued by DoT in 2003 to cater to multi operator and multi service environment. The Short-Distance Charging Area (SDCA) and Long-Distance Charging Area (LDCA) have been defined in the NNP. It also defines intra SDCA calls as Local Calls. The NNP prescribes SDCA based linked numbering scheme. It provides for prefixes to be used in various call scenarios. Similarly, National Routing Plan provides the routing scheme for Local, National Long-Distance, and International Long-Distance calls.

[1] National Numbering Plan, 2003, http://www.dot.gov.in/sites/default/files/nnp2003.pdf

2.3 For the purpose of charging and call routing the country has been divided into 22 License Service Areas (LSAs), 322 Long Distance Charging Areas (LDCAs) and 2645 Short Distance Charging Area (SDCA). Calls within the SDCAs are treated as local calls and the inter SDCA calls are treated as Long-Distance Calls.

2.4 The National Long-Distance (NLD) Authorisation under Unified License has following provisions related to Point of Interconnection:

> *2.2 (a) The NLD Service Licensee shall have the right to carry inter-circle switched bearer telecommunication traffic over its national long distance network. The Licensee may also carry intra-circle switched traffic where such carriage is with mutual agreement with originating access service provider.*
>
> *(b) The Licensee can also, in respect of Basic Service, make mutually agreed arrangements with the concerned Service Providers for picking up, carriage and delivery of the traffic from different legs between Long Distance Charging Center (LDCC) and Short Distance Charging Centers (SDCCs).*
>
> *(c) In the case of Cellular Mobile Telephone Service traffic, the inter-circle traffic shall be handed/taken over at the Point of Presence (POP) situated in LDCA at the location of Level I TAX in originating/terminating service area. For West Bengal, Himachal Pradesh and Jammu & Kashmir such locations shall be Asansol, Shimla & Jammu respectively.*

2.5 The Access Service Authorisation in Unified License has flowing provisions related to Point of Interconnection:

2.2 Licensee may carry intra-circle long distance traffic on its network. However, subject to technical feasibility, the subscriber of the intra-circle long distance calls, shall be given choice to use the network of another Licensee in the same service area, wherever possible. The Licensee may also enter into mutual agreements with other UL Licensee (with authorization for access service)/ other Access service licensee/National Long-Distance Licensee for carrying its intra-Circle Long Distance traffic.

6.1 Inter-Circle traffic from one service area to another shall be routed through the network of NLD licensee or the Unified Licensee having authorization of NLD service.

6.2 It shall be mandatory for the LICENSEE to interconnect to/ provide interconnection to all eligible Telecom Service Providers (eligibility shall be determined as per the service provider's License Agreement and TRAI's determinations/orders/regulations issued from time to time) to ensure that the calls are completed to all destinations. Further, the Licensor may direct the Licensee to implement the process whereby the subscribers could have a free choice to make intercircle/ international long-distance calls through NLD/ ILD Operator.

6.3 International Long-Distance traffic should be routed through network of NLD service providers, to the ILD service provider's gateways for onward transmission to international networks subject to fulfillment of any Guidelines/ Orders/ Directions/ Regulation issued from time to time by LICENSOR/ TRAI. However, the Licensee shall not refuse to interconnect with the ILD Service licensee directly in situations where POP of ILD service licensee and Switches of Licensee's (GMSC/ Transit Switch) are located at the same station of Level-I TAX.

2.6 The different levels and points of interconnections are prescribed in detail in the Guidelines annexed to "The Telecommunication Interconnection (Reference Interconnection Offer) Regulation, 2002". For ready reference, these levels and points of Interconnection are annexed as **Annexure-I** to this Consultation Paper. It categorises the PoIs in four categories based on the type of traffic viz. PSTN to PSTN (outgoing traffic), PSTN to PSTN (incoming traffic), PSTN to PLMN and PLMN to PSTN.

2.7 "The Telecommunication Interconnection Usage Charges Regulation, 2003", as amended from time to time, provides the details of applicable carriage, termination, and access deficit charges. Table II read with Schedule II of this Regulation provides the applicability of the carriage charge for various type of calls and type of traffic.

2.8 In the RIO guidelines, in case of PSTN to PSTN traffic, separate provisions for POI have been made for outgoing and incoming traffic; and also based on the type of call i.e. local call, intra–circle long distance call, inter–circle long distance calls, and international calls. As per these guidelines, while in case of local calls and intra-circle long distance calls, PoI has been mandated at SDCC level, in case of intra-circle long distance calls, the option to have PoI at LDCC level has been provided on mutual agreement basis.

2.9 These POIs at different levels of networks were decided in the beginning of liberalisation of the telecom sector, when predominantly the fixed line networks with well-defined network hierarchy and architecture were deployed by the incumbent operators BSNL/MTNL and mobile networks were deployed by private operators. At that point of time various kind of Interconnect Usage Charges (IUC) used

to vary depending upon the type of call and type of traffic. Over a period, the IUC regulations have got simplified.

2.10 Since then, rapid changes have taken place in the telecommunications sector. These, inter-alia, include unprecedented growth in the wireless telephony sector leading to wireless networks carrying major part of total telephony traffic, convergence of networks and services, sharp decline in local, national, and international long distance tariffs, introduction of Unified Licensing regime, and large scale deployment of IP based packet switched core networks by the operators etc.

2.11 Till recently, in the legacy PSTN network of BSNL, each of the LSA was provided with at least one Level – 1 TAX exchange. The Level – 1 TAX was further connected with Level – II TAX to route the calls to the various LDCAs of the LSA. The Level – II TAX of a specific LDCA were connected with various Local/ Tandem Switches installed in various SDCAs of that LDCA. The Level – I TAX of the LSA was connected with Level – I TAX of other LSAs for routing calls from / to other LSAs. Also Gateway Level – I TAXs are connected with ILDO for routing International Calls of one or more LSAs. The Local switches in a SDCA or adjacent SDCAs were connected to each other directly for local- calls and inter SDCA calls of adjacent SDCAs. For fixed to fixed local calls and NLDO to fixed calls, the prevailing regime provides interconnection at the level of SDCA.

2.12 With the advancement in technology, the TDM based circuit switched networks are being replaced with IP based packet switched core networks. In case of IP based packet switched core networks, a single

soft switch along with the required number of Access[2]/Line Media Gateway (LMG) and Trunk Media Gateway[3] (TMG) can replace large number of standalone TDM based switches. In fact, one soft switch may be sufficient to cater to the requirement of one or more than one LSAs. As large number of LMGs and TMGs can be parented to a single Soft Switch, the requirement of large number of standalone TDM switches is avoided.

2.13 Further, deployment of IP-based networks and new Unified licensing regime enables operators to provide all types of services under a single license and from the same switch. This has been enabled by amending the Unified License clause 4.5 under Chapter VIII vide amendment order dated 23rd June 2017.

B. Fixed line network Interconnection

2.14 As on 28th February 2019, out of total telecom subscriber base of 1205.40 million, there were 1183.68 million wireless subscribers and only 21.72 million wireline subscribers. Hence, in terms of subscribers, size of PSTN network is less than 2% of the total network size. For fixed line networks, the existing interconnection regime mandates establishment of POIs at SDCA level for fixed line local calls and at level II TAX level for intra-circle mobile calls.

2.15 As mentioned earlier, for the purpose of routing of calls, the country has been divided into 22 LSAs, 322 LDCAs/ SSAs and 2645 SDCA. Accordingly, for entry of a new fixed line operator at all India level, more than 2645 POIs need to establish for local calls only with each

[2] An access media gateway serves as the bridge between a circuit-based voice switch and a packet-based IP or ATM access network. An AMG takes care of the PSTN-to-packet-network transition at the local-loop level and is connected to the local exchange or an access node.

[3] A trunk media gateway (TMG) serves as the bridge between a circuit-based trunk switch and a packet-based IP or ATM backbone network. It takes care of the PSTN-to-packet-network transition at the trunk level and is connected to the local or trunk exchange.

competing fixed line operator, while for entry of a new mobile operator at all India level, less than 350 POIs are enough for interconnection with a competing operator. This could act as huge entry barrier for new fixed line service providers. It is pertinent to mention here that such large number of POIs established by any fixed line operator would handle an insignificant percentage of total telephony traffic. It appears to be resulting in inefficient utilization of resources.

2.16 This highly decentralized type of interconnection may not be in the interest of service providers also as it may be increasing the cost of operations. The overall approach of the regulations must be one that gives greater operational flexibility to operators.

2.17 Keeping in view the fact that in the contemporary packet switched networks the core networks architecture has evolved from hub and spoke model to ring based, simplification of interconnection regime for fixed line networks may help in growth of fixed line broadband connections and protecting the interests of the service providers and consumers.

2.18 One option for simplifying the interconnection framework for fixed line networks could be to provide the flexibility to interconnecting operators of establishing POIs at SDCC/ Level II TAX (SSA)/ Level I TAX (LSA) levels as per their mutual agreements. In case of disagreement, a fallback option is specified in the regulations. This could be Level II TAX or Level I TAX. It may help in reducing the entry barriers for new fixed line operators. It may also do the balancing between cost of establishing and maintaining a POI near to the terminating location versus payment of carriage fee to the fixed line operator. Extending these flexibilities, the compliance of the national fundamental plans and integrity of the networks can still be ensured.

This may reduce the requirement of establishing and maintaining number of POIs.

2.19 In view of the above, comments of stakeholders are solicited on the following issues:

Q.1 Whether the flexibility be provided to interconnecting operators for interconnecting PSTN to PSTN networks at SDCC/ Level II TAX (SSA)/ Level I TAX (LSA) levels as per their mutual agreements? If no, then justify your comments with reasons.

Q.2 In case of no mutual agreement between the operators, what should be the level of interconnection for interconnecting PSTN to PSTN networks be mandated in the Regulations.

Q3. Any other issue you would like to bring to the attention of the Authority.

Chapter III

Summary of Issues for Consultation

3.1 The views of stakeholders are sought on following issues. It may please be noted that answers/ comments to the issues given below should be supported with justification.

Q.1 Whether the flexibility be provided to interconnecting operators for interconnecting PSTN to PSTN networks at SDCC/ Level II TAX (SSA)/ Level I TAX (LSA) levels as per their mutual agreements? If no, then justify your comments with reasons.

Q.2 In case of no mutual agreement between the operators, what should be the level of interconnection for interconnecting PSTN to PSTN networks be mandated in the Regulations.

Q3. Any other issue you would like to bring to the attention of the Authority.

List of Acronyms

Sl. No.	Acronym	Expansion
1	BSNL	Bharat Sanchar Nigam Limited
2	CDR	Call Detail Record
3	CMTS	Cellular Mobile Telephone Service
4	CP	Consultation Paper
5	DoT	Department of Telecom
6	ILD/ ILDO	International Long Distance/ International Long Distance Operator
7	IP	Internet Protocol
8	ITU	International Telecommunication Union
9	IUC	Interconnection Usage Charge
10	LDCA	Long Distance Charging Area
11	LDCC	Long Distance Charging Centre
12	LSA	Licensed Service Area
13	NGN	Next Generation Network
14	NLD/ NLDO	National Long Distance/ National Long Distance Operator
15	NTP	National Telecom Policy
16	PLMN	Public Land Mobile Network
17	POI	Point of Interconnection
18	PSTN	Public Switched Telephone Network
19	SDCA	Short Distance Charging Area
20	SDCC	Short Distance Charging Centre
21	TAX	Trunk Automatic Exchange
22	TDM	Time Division Multiplexing
23	TEC	Telecommunication Engineering Centre
24	TMG	Trunk Media Gateway
25	TRAI	Telecom Regulatory Authority of India
26	TSP	Telecom Service Provider
27	UAS	Unified Access Service
28	UL	Unified License

Annexure I

Levels of Interconnection – as given in RIO Guidelines dated 12.07.2002

Table 1: PSTN to PSTN (outgoing traffic)

Type of Call	POI	Remarks
Local	At SDCC Tandem or Local Exchange level situated in the same SDCA as per mutual agreement	BSO – BSO
Intra-circle long distance (Note 2)	(i) Terminating SDCC / LDCC (ii) Originating SDCC / LDCC, if BSO has no POI at the terminating end	BSO- BSO (Far-end) BSO-BSO (Near-end)
Inter-Circle	BSO to hand over originating traffic at the SDCC in the same SDCA in which it has originated or by mutual agreement as per licence terms and conditions at the LDCC of originating LDCA.	BSO to NLDO (Near-end)
International	BSO to hand over originating traffic at the SDCC in the same SDCA in which it has originated or by mutual agreement as per licence terms and conditions at the LDCC of originating LDCA. NLDO to hand over international traffic at the Gateway Switch of ILDO To the gateway switch of the ILDO in case the ILD Gateway Switch and the	BSO to NLDO (Near-end) NLDO to ILDO BSO to ILDO (Near-end) for traffic of same SDCA

	BSO's Tandem/Transit Switch are located at the same station of level I TAX.	

Table 2: PSTN – PSTN (incoming traffic)

Type of Call	POI	Remarks
Local	Same as Table 1	
Intra-Circle Long distance	Same as Table 1	
Inter Circle	NLDO to hand over terminating traffic by mutual agreement as per licence terms and conditions in the destination LDCA at SDCC or at LDCC POI.	NLDO to BSO
International	Level I TAX where the ILDO Gateway Switch is located. NLDO to hand over International traffic to the BSO at the terminating SDCC or by mutual agreement as per licence terms and conditions at terminating LDCC. Terminating local network at tandem/transit in case the ILD Gateway Switch and the Access Provider's Tandem/ Transit Switch are located at the same station of level I TAX.	ILDO to NLDO NLDO to BSO ILDO to BSO(for traffic terminating in same SDCA)

Note 1 New National Long Distance Operator(s) can make necessary interconnection arrangements with other NLDOs, to ensure delivery of calls at places where POP is yet to be established as per their network rollout obligations.

Note 2. Intra-Circle Traffic may also be handed over to an NLDO by mutual consent

Table 3 : Traffic from PLMN to PSTN

Licensed Area	POI	Remarks
A. Metros		
1. Local Call	Transit Exchange (Tandem) Local Exchange by mutual agreement	To BSO
2. Inter-circle call	Designated Level I TAX located in the Metro.	
3. International Call	Designated Level I TAX of NLDO (or) Gateway Switch of ILDO if ILDO Gateway Switch and GMSC are located at the same station of Level I TAX (Metro).	Designated by NLDO / ILDO
B. Circles		
1. Intra - Circle Call	Level I TAX for both transit to other LDCAs/termination in the LDCA in which it is located. Level II TAX for traffic terminating in the destination LDCA, at the request of interconnection seeker. POI below TAX level may also be provided with mutual agreement for terminating traffic.	To BSO
2. Inter - circle Call	The traffic can be handed over at the designated Gateway Level I TAX of NLDO through any one of its Gateway MSC. CMTS provider cans also handover traffic to NLDOs at	To NLDO NLDO to BSO

	the POP situated in the LDCA at the location of the Gateway MSC or MSC in a Circle. The NLDO shall handover terminating traffic in the destination LDCA at the SDCC or by mutual agreement as per licence terms and conditions at LDCC POI	
3. International Call	The traffic can be handed over at the designated Gateway Level I TAX of NLDO through any one of its Gateway MSC. CMTS provider cans also handover traffic to NLDOs at the POP situated in the LDCA at the location of the Gateway MSC or MSC in a Circle. To the Gateway Switch of the ILDO if ILDO's Gateway Switch and the GMSC are located at the same station of level I TAX.	To NLDO To ILDO

Note 1 New National Long Distance Operator(s) can make necessary interconnection arrangements with other NLDOs, to ensure delivery of calls at places where POP is yet to be established as per their network rollout obligations.

Table 4: Traffic from PSTN to PLMN

Licensed Area	POI	Remarks
A. Metros		
1. Local Call	Transit Exchange (Tandem) Local Exchange (by mutual agreement)	To CMTS provider
2. Inter-circle call	BSOs shall handover the call at the designated TAX of NLDO in the originating Metro. The traffic can be handed over at any one of the GMSC through a designated Level I TAX of NLDO. NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro/Circle.	BSO to NLDO NLDO to CMTS provider
3. International Call (Out-going)	BSOs shall handover the call at the designated TAX of NLDO in the originating Metro To the gateway switch of the ILDO in case the ILD Gateway Switch and the Access Provider's Tandem/Transit Switch are located at the same station of level I TAX (Metro)	BSO to ILDO BSO to ILDO (Near-end for traffic of same SDCA)
(In-coming)	The ILDO to handover at the Gateway MSC of the Cellular Operator if this Gateway MSC and the Gateway Switch of the ILDO are	ILDO to CMTS provider

	located at the same location of Level I Tax (Metro). The traffic can be handed over at any one of the GMSC through a designated Level I TAX of NLDO. NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro/Circle.	NLDO to CMTS provider
B. Circles		
1. Intra - Circle Call	Level I Tax or Level II Tax of the originating LDCA. If no POI is available at Level II TAX then at GMSC of the CMTS provider subject to mutual agreement.	BSO to CMTS provider
2. Inter - circle Call	BSO to hand over originating traffic at the SDCC in the same SDCA in which it has originated or by mutual agreement as per licence terms and conditions at the LDCC of originating LDCA. The traffic can be handed over at any one of the GMSC through a designated Level I TAX of NDLO. NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro/Circle.	BSO to NLDO NLDO to CMTS provider
3. International Call	BSO to hand over originating traffic at the	BSO to NLDO

(Out-going)	SDCC in the same SDCA in which it has originated or by mutual agreement as per licence terms and conditions at the LDCC of originating LDCA.	
	NLDO to hand over International calls to the ILDO at the Gateway Switch	NLDO to ILDO
	To the gateway switch of the ILDO in case the ILD Gateway Switch and the Access Provider's Tandem/Transit Switch are located at the same station of level I TAX.	BSO to ILDO (Near-end for traffic of same SDCA)
(In-coming)	ILDO to hand over incoming International traffic to NLDO at the Gateway Switch of ILDO	ILDO to NLDO
	The traffic can be handed over at any one of the GMSC through over at any one of the GMSC through a designated Level I TAX of NLDO	NLDO to CMTS provider
	NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro/Circle.	
	The ILDO to handover at the Gateway MSC of the Cellular Operator if this Gateway MSC and the Gateway Switch of the ILDO are	ILDO to CMTS provider

	located at the same location of Level I TAX.	

Note 1 New National Long Distance Operator(s) can make necessary interconnection arrangements with other NLDOs, to ensure delivery of calls at places where POP is yet to be established as per their network rollout obligations.

Note 2 Different level I TAXs can be designated for terminating calls from different circles, in case a circle has more than one Level I TAX.