



Consultation Document
on
Proposed updated
Interconnection Rules

23th January 2020

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Introduction

The Communications and Information Technology Commission (CITC) in accordance with the Telecommunications Act issued by Royal Decree No. (M/12) dated 12/03/1422H corresponding to 04/06/2001, Telecom Act Bylaw and CITC ordinance issued by Council of Ministers Decision No. (74) Dated 5/3/1422H corresponding to 28/05/2001, has the objective to regulate the Telecommunications and Information Technology Sector in the Kingdom of Saudi Arabia (KSA).

CITC is empowered by its Statutes to establish the terms and conditions that govern public communications network access in the (KSA), with the objective of encouraging fair competition in all fields of and Information and Communications Technology (ICT).

As part of CITC's regulatory actions, the Commission has approved the Interconnection Rules by Decision No. (333) dated 7/4/1437H with the following purposes:

- ▶ ensure that all Service Providers are treated fairly and in a non-discriminatory manner with respect to the provision of interconnection services.
- ▶ ensure good practice with respect to interconnection services between Service Providers and to promote the provision of high quality services for interconnection through technical and economic efficiency, and thereby to ensure that users can be provided with a satisfactory quality of service.
- ▶ the creation of a favourable atmosphere to promote and encourage fair competition on all telecommunications markets in the Kingdom.
- ▶ the provision of advanced and adequate services at affordable prices.

- ▶ foster increased provision and penetration of high speed broadband services.
- ▶ the prevention of abuses by dominant Service Providers.
- ▶ the provision of detailed reference rules for the interpretation and implementation of any remedies on interconnection and access imposed by the Commission on Dominant Service Providers.

In view of the technological and market developments in ICT ecosystem since the current rules were issued, as well in the light of the international best practice, CITC has concluded that the rules need to be updated and new document issued.

Considerations and purpose of the update include:

- ▶ review the services covered. For example, there is a need to add: (i) capacity-based interconnection, (ii) mobile origination services, (iii) Ethernet leased lines to wholesale line rental & resale for MVNOs;
- ▶ require all service providers to submit a copy of any interconnection agreement they have signed or sign in the future, regardless of whether they are dominant; and
- ▶ include, in the mandatory contents of the RO, the periodical submission and publication of KPIs regarding the performance of the dominant service provider at the time of delivering the services.

With this public consultation, CITC seeks the views of interested parties on the attached proposed documents.



The Consultation process

Respondents are invited to submit their comments to the proposed documents by making use of the template to comment included and must be received by the CITC no later than [5th March 2020] at 3:00PM (KSA time). Any responses that do not comply with these requirements will not be taken into account.

Comments filed in relation to this Consultation may be submitted to:

- ▶ E-mail address:

ICD@citc.gov.sa

- ▶ Hand-delivered (paper and electronic) at the CITC premises, or by mail to:

Communications and Information Technology Commission (CITC)
Prince Turki Ibn Abdulaziz Al Awwal Road and Al Imam Saud Ibn
Abdulaziz Road
P.O. Box 75606
Riyadh 11588
Kingdom of Saudi Arabia

Responses should be properly justified with supporting arguments, information and evidences.

The consultation document and any responses to it are not binding on CITC. The Commission may publish the comments on its website if it deems appropriate and in conformance to its Statutes. In general, CITC does not consider such responses to be confidential.



Template to comment

In order to participate in this consultation process, stakeholders have to provide their comments through the template included below.

Article number	Justified comment

Table 01: Template to comment to the consultation process



Interconnection Rules



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1. Definitions, Purpose and Scope of the Rules

1.1 Definitions

- (1) The terms and expressions defined the Telecommunications Act and its Bylaws shall have the same meaning in these Interconnection Rules, unless specified otherwise.
- (2) The following terms and expressions shall have the meaning assigned to them hereunder:
 - a. "Interconnection Services" shall include services provided between two Service Providers for the interconnection of their telecommunications networks and/or other forms of access allowing them to access particular Users.
 - b. "Interconnection Agreement" means an agreement for the provision of Interconnection Services between two Service Providers.
 - c. "Days" means calendar days, unless stated otherwise.

1.2 Purpose and Scope of the Rules

- (1) The purpose of these Rules is to support the compliance of Interconnection Services in the Kingdom with the objectives of the Telecommunications Act, in particular by ensuring:
 - a. the fair and non-discriminatory treatment of all Service Providers with respect to the provision of Interconnection Services;
 - b. the promotion and encouragement of fair competition on all telecommunications markets in the Kingdom;
 - c. the prevention of abuses by dominant Service Providers; and
 - d. the provision of detailed reference rules for the interpretation and implementation of any remedies on interconnection and access imposed by the Commission on dominant Service Providers.
- (2) These Rules govern Interconnection Services between all Service Providers with interconnection rights or obligations, under any Commission Statute with certain special rules for Dominant Service Providers including, in particular, the preparation and publication of a Reference Offer (RO).

- (3) Unless specified otherwise in any Commission Statute, these Rules shall apply to Interconnection Services described in Annex B.2.
- (4) These Rules shall be without prejudice to any additional interconnection or access obligations of Service Providers under any Commission Statute including, in particular, any Commission Statute concerning access to physical infrastructure and facilities, as this term is defined therein.

2. Rules Applicable to All Service Providers

- (1) Interconnection Services must be provided in a technologically neutral manner. Accordingly, the provisions contained in these Rules apply to all relevant technologies.
- (2) Interconnection Services must ensure, at any time and without limitation, any-to-any communication to the benefit of the end-user. Interconnection Services as wholesale products relate to telecommunication services (voice, data, fixed, mobile, value added services, etc.) provided over communications networks, irrespective of their origin or their routing.
- (3) Every Service Provider, if so requested in writing by another Service Provider or an international service provider operating an international public telecommunications network under its home jurisdiction's rules, must enter into good faith negotiations to conclude an Interconnection Agreement. Service Providers must meet all reasonable requests for Interconnection Services and adhere to non-discrimination between Interconnection Services they provide to their own units and affiliates, and those they provide to others.
- (4) Every Service Provider must offer, and has the right to receive, Interconnection Services under transparent, fair and non-discriminatory terms and conditions, and in a timely fashion.
- (5) Interconnection or other connections for the provision of Interconnection Services shall be permitted at any technically feasible point.
- (6) Interconnection at International Cable Landing Point(s) shall be offered by Service Providers owning International Cable Landing Points upon request and on commercial and fair terms, unless otherwise required under any applicable Commission Statute.
- (7) Any Service Provider operating an international cable landing station shall publish a price list for applicable interconnection services.
- (8) To the extent technically feasible, Interconnection Services shall be provided without elements that have not been requested by the Service Provider concerned.
- (9) Service Providers must resolve any disputes between them relating to Interconnection Services in good faith, and in a timely and fair manner. Where resolution cannot be reached, disputes shall be referred to the Commission for resolution in accordance with its Statutes and the provisions of these Rules

- including, in particular, those concerning the burden of proof by each Service Provider.
- (10) Interconnection interfaces and standards shall be based on recognized national and international standards.
 - (11) All information provided between Service Providers shall be subject to the terms of confidentiality defined in the RO or an Interconnection Agreement. Where the Service Providers concerned have no obligation to publish a RO, they shall not unreasonably refuse or delay the conclusion of a non-disclosure agreement for the exchange of confidential information prior to the conclusion of an Interconnection Agreement.
 - (12) The terms and conditions of Interconnection Services between Service Providers must be set out in an Interconnection Agreement between the Service Providers concerned. Its negotiation and content shall be subject to the Service Providers' commercial freedom as regards any terms and conditions that are not subject to mandatory provisions under these Rules or another Commission Statute.
 - (13) Service Providers may not request the inclusion of any terms or conditions in their Interconnection Agreement that are in violation of these Rules and must accept to remove or adjust with no undue delay any such terms or conditions found in an Interconnection Agreement concluded already prior to the adoption of these Rules.
 - (14) Service Providers must transmit to the Commission a copy of (i) any Interconnection Agreement they conclude after the adoption of these Rules, not later than 10 days from its conclusion and (ii) any still valid Interconnection Agreement they have concluded in the past that is still valid at the date of these Rules' adoption, not later than 20 days from that date. The receipt, by the Commission of any Interconnection Agreement transmitted to it pursuant to this provision shall not imply approval of its terms and conditions by the Commission and shall be without prejudice to the possible exercise, at any point in the future, of the Commission's powers under Art. 43 of the Bylaw.
 - (15) In case the Commission decides, pursuant to Art. 43 of the Bylaw, that an Interconnection Agreement is not compliant with a Commission Statute, the Commission will notify the Service Providers concerned. These must amend their agreement within 30 days after receiving such notification.

3. Rules Applicable to Dominant Service Providers

3.1 Scope of Obligations

- (1) Dominant Service Providers' obligations under these Rules' Sections 3 and 4 shall apply with regard to any markets in which they have been designated as Dominant by the Commission, and the corresponding non-discrimination, transparency, pricing and/or unbundling remedies imposed on them with regard to interconnection obligations in those markets.
- (2) The provisions of these Rules' Sections 3 and 4 shall be without prejudice to any other obligations for Dominant Service Providers set out in any other Commission Statute.

3.2 Non-discrimination

- (1) Dominant Service Providers with a non-discrimination obligation for interconnection services must:
 - a. provide equivalent interconnection services in equivalent circumstances to other Service Providers, also including their own Affiliates or commercial partners, on the same terms and conditions regarding, in particular, information, timescales, price, quality and service level.
 - b. provide Interconnection Services to other Service Providers by means of the same systems and processes, in order to ensure equivalence of access.

3.3 Transparency

3.3.1. Publication of a Reference Offer

- (1) Dominant Service Providers with an obligation to publish standard terms and procedures for Interconnection Services to other Service Providers must do so in a Reference Offer (RO).
- (2) The RO shall include and provide details of a set of standard terms and conditions for Interconnection services to other Telecommunications Network Operators. A RO must be used by a Dominant Service Provider to conclude individual Interconnection Agreements with other Telecommunications Network Operators.
- (3) A Dominant Service Provider may not use terms and conditions, also including prices or charges, that are different from those set out in the RO with regard to the same interconnection services, until and unless these terms and

- conditions are included in the RO and offered to all other Service Providers receiving Interconnection Services.
- (4) A Dominant Service Provider shall prepare a RO within 30 days of being so directed by the Commission and submit it to the Commission for approval. The Commission may request changes to the draft RO, which the Dominant Service Provider must incorporate within 15 days, and re-submit it to the Commission for its approval. If the Dominant Service Provider fails to incorporate in time, the Commission may adopt and publish a decision ordering the Dominant Service Provider to provide Interconnection Services on the terms and conditions requested by the Commission and published in its decision.
 - (5) A Dominant Service Provider must publish its RO on its website within 15 days after approval by the Commission.
 - (6) A Dominant Service Provider shall periodically update its RO to take account of changes to these Rules or other Commission Statutes; services offered; the associated networks, processes and systems; or any other regulatory requirements that may directly impact the terms and conditions of a RO.
 - (7) A Dominant Service Provider shall include in its RO an amendment procedure that describes how changes will be made to its terms and conditions. This amendment procedure must, in particular:
 - a. Specify how other Service Providers will be informed about proposed changes and the timeframe for such changes; and
 - b. Provide for submission to, and prior approval by, the Commission of the details of the proposed amendments.
 - (8) The Commission may, at any time, require changes to a RO pursuant to Commission Statutes.

3.3.2. Content of the RO

- (1) The RO must include a full list of interconnection services the Dominant Service Provider is required to offer, as well as the associated terms and conditions, including tariffs and charges, for each service and component of such service. A description of those services is provided in Annex B.
- (2) The Commission may require Dominant Service Providers to include certain services in their RO other than the ones described in the aforementioned Annex B.

- (3) Annex A includes an illustrative outline of an RO, and a description of the minimum content.

3.4 Pricing Principles and Cost Orientation

- (1) Where Dominant Service Providers are subject to a cost-orientation obligation under any Commission Statute, their charges for Interconnection Services must be subject to the provisions of this subsection 3.4.
- (2) Dominant Service Providers may not pass any cost inefficiencies to other Service Providers through the tariffs or charges for Interconnection Services.
- (3) Charges for Interconnection Services must be free of any costs related to any universal service obligations of the Dominant Service Provider and should take into account any subsidy or other aid granted to that Dominant Service Provider by any governmental or other public authority in the Kingdom.
- (4) A Dominant Service Provider must provide volume discounts where these are applicable or required to ensure compliance with its non-discrimination or cost orientation obligations.
- (5) Any new or amended tariffs, charges or other pricing conditions proposed by Dominant Service Providers for the RO must be approved by the Commission. If so requested by the Commission, Dominant Service Providers must provide the Commission with adequately detailed and documented cost studies supporting the proposed tariffs or charges, or their amendment. Those studies shall be based on causal cost allocation, including proper consideration of joint and common costs and a reasonable cost of capital, according to international best practice and the Commission's determinations.
- (6) In order to assess and approve any tariffs and charges proposed by a Dominant Service Provider, the Commission may adopt and apply a long run incremental cost (LRIC) approach, including proper consideration of joint and common costs, and a reasonable cost of capital, according to international best practice and the Commission's determinations. The Commission may apply or combine alternative approaches, such as relying on the costs that result from accounting separation systems or benchmarking of charges in other countries. If it so deems appropriate, the Commission may determine by decision, based on the above criteria, a Dominant Service Provider's applicable charges for access and interconnection services.

3.5 Unbundling of Services

- (1) Dominant Service Providers may not render the provision of individual Services conditional on their bundling with separate interconnection, access or other services that are not requested by other Service Provider.

3.6 Amendments to Existing Services

- (1) Any material changes in the setup of existing Services of Dominant Service Providers must be agreed with the interconnected Service Provider or within a multilateral working group (see Section 5 below).
- (2) The Dominant Service Provider must allow sufficient time to any Service Providers to make any necessary modifications or adjustments to their systems and networks in response to any planned amendments to Interconnection Services planned by the Dominant Service Provider. Unless otherwise agreed between the parties or allowed under the applicable RO approved by the Commission, this notice period shall be at least 60 days prior to the commencement of the implementation of the relevant amendments by Dominant Service Provider.
- (3) In case of migration of interconnection to more efficient technologies (e.g. from TDM towards IP-technology), the Dominant Service Provider must coordinate such major changes with all Service Providers affected and give them a notice period of at least two (2) years prior to the start of these changes. Coordination shall take place in accordance with Sections 4 and Section 5 of these Rules and shall encompass at least the following aspects:
 - a. Network architecture, number and location of Points of Interconnection (PoIs);
 - b. Technical Interfaces for transport and signaling with unified national implementation based on international standards;
 - c. Billing and accounting;
 - d. Transport, signaling, routing and numbering aspects;
 - e. Quality of service (end-to-end) and Service Level agreements;
 - f. Migration strategy and timelines for changes;
 - g. Termination or obsolescence of existing services.
- (4) Each Service Provider shall bear its own costs incurred through any migration Interconnection Services to new technologies.

4. Conditions for the Provision of Interconnection Services

4.1 Technical Aspects

4.1.1. Physical Form of Interconnection

- (1) The physical form of interconnection is the linking and interworking of the telecommunications networks/systems of Service Providers which permit users to communicate with one another.
- (2) The Point of Interconnection (POI) is the physical or virtual point at which Service Providers connect their systems through interconnection links.
- (3) There are three main forms of physical interconnection where the Point of Interconnection may be located:
 - a. Site of the Service Provider offering interconnection – Collocated Interconnection;
 - b. Site of the requesting Service Provider – Customer Sited Interconnection; and
 - c. A point in between the sites of the Service Providers – In-span Interconnection.
- (4) The RO of a Dominant Service Provider shall include:
 - a. Offers for the three main forms of physical interconnection.
 - b. A list of locations offered for interconnection including maps to enable other Service Providers to make efficient choices on the selection of PoIs for interconnection services. The details of these points offered for interconnection are to be maintained as an annex to a RO. The list and the related information must be updated on a regular basis.
 - c. All relevant technical specifications and standards for each POI including services and numbering provisions. The details must provide all necessary information to allow for technical network planning.
 - d. Procedures for establishing, relocating or removing a POI in a Dominant Service Provider's network. A Dominant Service Provider is obligated to provide other Service Providers with advance notice of any expected

changes and to seek to minimize any adverse effect of any expected changes on Interconnection Services provided.

4.1.2. Switching Network Interconnection

- (1) Efficient interconnection at the switching level is one of the most significant aspects of network interconnection. Switching in this context is meant to be technologically neutral and includes circuit and packet switched technologies.
- (2) The RO shall:
 - a. Address the approach for meeting the switching capacity requirements for interconnection traffic;
 - b. Identify the rules governing the level at which switching point the interconnection will take place, e.g. at International Gateway, Service Node or Local Exchange or, in the case of IP interconnection, at which transport level interconnection will take place;
 - c. Identify interconnection rules for switch diversity.

4.1.3. Network Interconnection Links and Routing

- (1) The Network Interconnection Links connect the networks of Service Providers and facilitate the conveyance of traffic between them. These links are between Points of Interconnection.
- (2) For initial interconnection, a configuration with two separate PoIs in separate buildings and over physically diverse routes shall be regarded as sufficient.
- (3) Routing considerations for Network Interconnection Links shall include:
 - a. Route capacity; and
 - b. Route dimensioning;
 - c. Route diversity.

Route Capacity

- (4) A RO shall identify the rules for minimum and maximum capacities and increments in which capacity may be provisioned.
- (5) For expansion of the route capacity, the number of PoIs must be based on reasonable engineering principles including a justified need to provide network resilience.

- (6) A Dominant Service Provider may require other Service Providers to interconnect at more than one location or to a particular location taking into account the requirements of Section 4.1 of these Rules. Any such requirements must be based on reasonable engineering principles and a justified need to provide network resilience.

Route Dimensioning

- (7) Network Interconnection Links shall be provisioned according to international standards (e.g. maximum Erlang level). A utilization factor shall be established in order to determine when to upgrade links. For a “fully-provisioned” link a maximum utilization factor of 80% shall be used. Should the measured utilization of such a link regularly exceed the maximum utilization factor, then either traffic should be re-routed away from that link or the capacity of the link increased.

Route Diversity

- (8) Route diversity is defined as the communications routing between two points over more than one geographic or physical path with no common points. For interconnection between networks, route diversity is required in order to enhance reliability.
- (9) Interconnection service resilience shall be supported.

Signaling Network Interconnection

- (10) Service Providers must provide signaling interconnection and ensure control information is delivered for processing of session management.
- (11) Service Providers shall use ITU Signaling System Number 7 (SS7) for circuit switched technologies. For IP interconnection, a signaling standard that conforms to international standards may be agreed upon between the Service Providers in accordance with these Rules or may be determined by the Commission.
- (12) Dominant Service Providers shall specify signaling interconnection options and the associated configurations.

4.1.4. Synchronization

- (1) Synchronization is necessary for interconnected networks. Service Providers shall agree on the technical standards and operational procedures for synchronization.

4.1.5. Interface Standards and Interoperability

Network Interoperability

- (1) Interoperability means the technical features of a group of interconnected systems that ensure end-to-end provision of a given service in a consistent and predictable way.
- (2) Service Providers must agree on the interoperability testing procedures that verify network integrity and interoperability of functionalities and features of interconnection services.

Supplementary Services

- (3) Dominant Service Providers providing supplementary services to their end-users are required to make the necessary technical and operational arrangements with interconnecting Service Providers to support the availability of these supplementary services to the end-users of the interconnecting Service Provider.

4.1.6. Numbers and Addressing Elements

- (1) Dominant Service Providers shall provide details of numbers and addressing elements on their networks. This shall include number ranges allocated by the Commission but not yet activated.

4.1.7. KPIs, SLAs and Penalties

- (1) A RO must include Key Performance Indicators (KPIs) and Service Level Agreements (SLAs) which describes the characteristics of Interconnection Services, the service level obligations and compensation details for failure to meet these obligations.
- (2) The KPIs for all operational processes must be clearly stated in the RO without prejudice to the effects of potential stop-clock events that may happen during the process. The RO must also clearly state stop-clock events and the effect on the computation of time of operational processes. Stop-clock events must refer exclusively to events or delays that are not due to the responsibility of the Dominant Service Provider.
- (3) The Service Level Agreement shall include:
 - a. Service configuration and technical characteristics such as points of interconnection, routing and signaling;

- b. Operational and maintenance conditions and associated performance measures such as order lead time, network availability and service restoration time;
 - c. Quality of Service indicators and grade of service measures. Such indicators shall include, but are not limited to, those specified in the regulations of the Commission on quality of service.
- (4) The RO shall not specify caps to penalties. Penalties shall be either directly paid to access seekers or considered as a service credit in future wholesale invoices by deducting the penalty from the total amount charged for interconnection or access services.
- (5) A Dominant Service Provider shall be responsible for measuring and monitoring the quality of service for Interconnection Services it provides.
- (6) Dominant Service Providers shall provide to the Commission traffic, quality of service measurement, SLAs and any other required KPI data. For the purpose of monitoring the effectiveness of RO and the achieved degree of interconnection, Dominant Service Providers are required to report to the Commission quarterly on an individual basis for each Telecommunications Network Operator and on average for all Telecommunications Network Operators at least the following KPIs:
- a. Average time from order received and accepted until a service is installed and ready to use, disaggregated by service
 - b. Fault rate, disaggregated by service
 - c. Fault repair time, disaggregated by service
 - d. Service availability measured the percentage of time the service is available, disaggregated by service
 - e. Percentage of peak bandwidth utilization of leased lines services and bandwidth capacity services, disaggregated by service
 - f. Percentage of unsuccessful call termination rate in the busy hour, disaggregated by service

4.2 Operational Processes

4.2.1. Provisioning Processes

- (1) The RO of a Dominant Service Provider shall fully specify the provisioning processes for Interconnection Services to be provided to the other Service Providers including but not limited to:
 - a. Network planning;
 - b. Traffic forecasts;
 - c. Ordering of interconnection services and lead times;
 - d. Implementation.

Network Planning

- (2) A Dominant Service Provider shall specify the network planning process in a RO including but not limited to:
 - a. Planning of new interconnection links;
 - b. Removal of interconnection links;
 - c. Interconnection capacity forecasts;
 - d. Transport network interconnection.
- (3) Service Providers are required to exchange forecast information to ensure sufficient capacity is available when needed.
- (4) Service Providers shall agree on the approach for the management of capacity.

Forecasts

- (5) Service Providers requesting or using Interconnection Services shall provide a rolling two-year forecast. The rolling forecast shall be updated every six months.
- (6) The RO of a Dominant Service Provider shall identify the detailed requirements for the provision of traffic forecasts.

Collocation

- (7) Service Providers with existing telecommunications facilities shall allow other Service Providers to collocate their telecommunications transmission systems

at their telecommunications facilities as required for the provision of Interconnection Services under these Rules, where such collocation is economically feasible and no major additional construction work is required.

- (8) The accommodation of equipment required for Interconnection Services at sites at which collocation is already established shall be permitted where technically feasible.

Ordering Procedures

- (9) A RO shall provide detailed procedures for the ordering of interconnection services.
- (10) A Dominant Service Provider shall respond within 10 working days at the latest to a request for interconnection services indicating acceptance or rejection.
- (11) Where the request is not accepted, a written response, indicating the reasons as well as an appropriate alternative proposal, shall be provided to the Service Provider making the request and a copy of the response provided to the Commission.

Lead Times

- (12) A Dominant Service Provider shall identify in its RO or, as the case may be, the expected lead times associated with the ordering of Interconnection Services.

Implementation

- (13) The Implementation process defined in the RO shall cover installation, including construction and any civil works which may be required, testing and commissioning, and shall ensure that the quality of service standards are met.
- (14) Dominant Service Providers shall provide terms and conditions for Service Providers to request access to the facilities required for Interconnection Services in order to install new, or maintain or operate existing, equipment in the Access provider's shared facilities. Works on reserved facilities must be requested at least 2 days before the target date and confirmed by the access provider within 1 day after the reception of such request. Qualified personnel from the Service Providers must be allowed to perform such works autonomously unless there are specific and exceptional security concerns that deem this supervised work necessary.
- (15) Dominant Service Providers shall provide the conditions under which authorized staff working on behalf of the Service Providers is permitted to facilities of the Dominant Service Provider unsupervised to conduct a survey,

install or repair cables or equipment and conduct decongestion, enhancement or perform bypass works on existing infrastructures in the context of Interconnection Services under these Rules. The Dominant Service Provider shall report all details about the works carried out in its reserved facilities within 5 days after their completion and will be responsible for any damage or security breach caused during the installation works.

- (16) For the commissioning and handover of an interconnection or access service, there shall be a formal sign-off by both Service Providers to indicate that the service has been provided to the agreed standards.

4.2.2. Operations and Maintenance Processes

- (1) The RO of a Dominant Service Provider shall specify all the operations and maintenance processes associated with interconnection including but not limited to:
- a. Network management;
 - b. Traffic management;
 - c. Routing management;
 - d. Fault management;
 - e. Operational testing;
 - f. Safety and system protection.

Network Management

- (2) A Dominant Service Provider shall ensure that one or more Network Operation Centers (NOCs) are operational 24/7 for management of the networks used for Interconnection Services.

Traffic Management

- (3) All interconnected Service Providers must have Network Traffic Management (NTM) capabilities for real-time surveillance and control of traffic flow in order to maximize the use of available capacity and maintain quality of service standards.
- (4) The RO of a Dominant Service Provider shall specify procedures for dealing with NTM queries and problems.

- (5) Service Providers shall be responsible for measuring and monitoring both the traffic and the quality of service on all interconnection links in their network. A Service Provider may implement appropriate traffic controls within its own networks to safeguard against problems detected in the interconnected network of another Service Provider. In such case, fault management procedures shall apply.

Routing Management

- (6) Service Providers must manage and jointly plan the routing of outgoing and incoming calls and data traffic in their networks up to the Point of Interconnection.
- (7) The RO of a Dominant Service Provider shall provide the detailed framework for routing management.

Fault Management

- (8) A Dominant Service Provider shall describe in its RO the procedures for fault management and related timeframes including:
- a. Contact details and escalation process for fault reporting;
 - b. Detection of faults;
 - c. Processing of faults.
- (9) All Service Providers are required to provide 24/7 contact points for reporting of faults.
- (10) A Service Provider detecting a possible fault that may affect Interconnection Services shall inform the other interconnected Service Provider immediately. This shall be done irrespective of whether or not the fault is within the detecting Service Provider's network.
- (11) Following a reported fault, Service Providers shall determine who is responsible for the fault and proceed to clear the fault and restore service.
- (12) In the event of a fault, all concerned Service Providers shall share as much information as may be required to resolve the problem and restore service to normal operation.
- (13) Service Providers should develop and operate a fault reporting and tracking system.



Operational Testing

- (14) Operational and maintenance testing shall be undertaken with minimal impact on traffic flow. The scheduling shall be mutually agreed and testing shall preferably take place at the lowest traffic period of the day.

Safety and System Protection

- (15) Service Providers are responsible for the safety and operation of their own systems.
- (16) Service Providers have an obligation to protect the integrity and ensure the safe operation of their interconnected networks and shall adopt measures for providing safety protection to all personnel and users.
- (17) A Dominant Service Provider's RO shall include safety standards and procedures to ensure the safety of the staff of another Service Provider that works at a Dominant Service Provider's site. The range of safety standards shall cover physical safety, electrical safety, electromagnetic radiation and any other aspects required by national law, industry standards or Commission Statutes.

Billing Processes

- (18) The RO of a Dominant Service Provider shall fully describe the billing processes including but not limited to:
 - a. Charging Data Records;
 - b. Charging principles for interconnection services;
 - c. Payment process;
 - d. Billing reconciliation.
- (19) Service Providers offering interconnection services shall have the capability to measure, record and bill the charges for these services.
- (20) In case the billing of a Service depends on the traffic exchanged, billing shall be based on charging data records (CDR) as inputs to the billing system.
- (21) The billing party shall store billing data for a period of at least one year. The data shall be in easily retrievable format if required for recalculation of any due amounts.



- (22) A Dominant Service Provider's RO shall document a formal payment process including the billing and payment periods, invoice format, invoice queries, transmittal of invoice and other payment details such as settlements.
- (23) A Dominant Service Provider's RO shall describe the reconciliation process for billing.
- (24) The reconciliation process shall be undertaken in good faith and interconnecting Service Providers shall work together to reach a satisfactory resolution of billing issues.
- (25) A Dominant Service Provider's RO shall also define procedures for handling unresolved billing issues.

4.3 Management of Interconnection

4.3.1. Services Management

- (1) Dominant Service Providers offering or providing The Services shall designate a Services Manager to deal with other Telecommunications Network Service Providers requiring interconnection services. The role of Interconnection Services Manager shall be to facilitate communication between Service Providers on commercial and technical aspects and the provision of other services to Service Providers.
- (2) Dominant Service Providers shall agree to meeting with other Telecommunications Network Service Providers within 5 days of the meeting being formally requested.

4.3.2. Joint Technical and Operational Committee

- (1) Service Providers shall establish a joint technical and operational committee. The joint technical and operational committee shall facilitate discussion to reach mutually acceptable agreements on technical, operational, planning, billing and other service aspects of Interconnection Services.
- (2) The composition of the joint technical and operational committee shall be agreed upon by the Service Providers and could be reconstituted as and when required.
- (3) The joint technical and operational committee shall meet at regular intervals with an agenda agreed in advance and may cover one or more of the following areas:
 - a. New Points of Interconnection or provision of access;

- b. Analysis of traffic levels;
- c. Service quality;
- d. Capacity requirements;
- e. Fault analysis;
- f. Billing processes;
- g. Network and/or service changes;
- h. Change of technical standards;
- i. Any other technical and operational issues associated with Interconnection Services.

4.3.3. Provision of Information between Service Providers

Network and Facilities Information

- (1) A Dominant Service Provider offering Interconnection Services shall provide relevant information about its network and services to other Service Providers in order to assist these Service Providers in network planning, financial planning and operation of their networks. Such information has to be provided within 15 days after the request has been received.

Planned Network and Facilities Changes

- (2) All Service Providers shall provide reasonable notice to all other Service Providers about any planned network change or upgrade which may be expected to affect the operation of interconnection or access arrangements between the Service Providers. Sufficient time shall be allowed for Service Providers to make necessary changes or adjustments to their systems and networks to ensure continuity of service. The minimum period of advance notification shall be 60 days unless agreed otherwise.

Interconnection Links and Facilities Database

- (3) All Service Providers shall maintain a database of the interconnection links between their networks and those of other Service Providers. This database shall contain all related information such as:
 - a. A unique identifier (common to both Service Providers) of each interconnection link;

- b. The details of the terminating equipment and facilities;
 - c. Information on the transmission path including capacity;
 - d. Traffic routing plan;
 - e. The signaling plan.
- (4) A Dominant Service Provider deploying telecommunications facilities shall maintain detailed and accurate records of such facilities and of available spare capacity to support access by other Service Providers.
- (5) The information contained in this database shall be provided in electronic form to the Commission upon request.

5. Multilateral Working Group

- (1) A multilateral working group for the purpose of facilitating Interconnection Services may be established. All concerned Service Providers shall participate in such a multilateral working group. The working group shall establish terms and procedures. The multilateral working group, if initiated, shall hold periodic meetings at least quarterly. The Commission may participate in such meetings.
- (2) The multilateral working group may establish several sub-groups which may consist of regulatory, operational or technical staff as required to address specific issues as they arise. Such working groups shall aim at establishing industry solutions, standards and procedures, including on issues such as:
 - a. Operations and maintenance processes;
 - b. Management of interconnection and access;
 - c. Technical standards and interfaces;
 - d. Spare capacity;
 - e. Migration issues;
 - f. Introduction of new services.
- (3) Consensus and results achieved in the working group shall be compiled in written form. Service Providers are to implement the agreed results and where appropriate to include them in their Reference Offers and/or Interconnection Agreements and submit the revised documents to the Commission in accordance with the Statutes. Results, outcomes and meeting minutes are to be made available to all members, other Service Providers and the Commission.

6. Dispute Resolution

- (1) Any disputes between two Service Providers on entering into an Interconnection Agreement, a failure to reach such an agreement or its interpretation, or the rights and obligations of one of the parties, may be referred to the Commission by either of the parties according to Chapter 6 of the Bylaw.
- (2) A Dominant Service Provider shall include in its RO a clear procedure for escalating and resolving disputes including notification, meeting and response times, and the time limit for resolution before the dispute is escalated to the next level.
- (3) The dispute resolution procedure of a Dominant Service Provider shall include an escalation process through various levels:
 - a. Level 1: Resolution through negotiation at the Joint Technical and Operational Committee level within 30 days;
 - b. Level 2: Referral of dispute to senior management level of the concerned Service Providers for resolution, by request of one of the Service Providers, if the dispute has not been resolved in Level 1 within 15 days;
 - c. Level 3: Referral to the Commission in line with its Statutes by request of one of the Service Providers, if the dispute has not been resolved in Level 2 within 15 days.
- (4) A Dominant Service Provider's RO may set out a faster timetable for the resolution of disputes or their referral to the Commission.
- (5) If the Parties cannot agree on a consensual resolution by the Commission, either party to the dispute may file an application with the Commission for a mandated resolution. When dealing with such disputes the Commission shall apply, in particular, the relevant provisions of the Telecommunications Bylaw on the procedure to be followed and those of these Rules as regards the substance of the dispute.

Annex A Illustrative Outline for a Reference Offer

The outline for a RO given below is for illustrative purposes only. As long as the present Rules are followed, the structure, format and arrangement of contents may vary.

A.1. Framework Agreement

- a. Preamble, definitions and interpretation
- b. Commencement and duration
- c. Confidentiality and non-disclosure
- d. Intellectual property rights
- e. Legal rights, protections and extent of liabilities
- f. Review, renewal rights and obligations
- g. Terms associated with breach, suspension and termination of the agreement
- h. Provisions for staff safety and systems protection
- i. Disputes and arbitration
- j. Force majeure, waiver and assignment
- k. Authorized representatives and notices
- l. Governing law and jurisdiction

A.2. Service Definition

- a. Service definition and description
- b. Service configuration
- c. Service provisioning
- d. Technical characteristics
- e. Operational conditions

A.3. Technical Aspects

- a. Physical form of interconnection
- b. Switching network interconnection
- c. Network interconnection links and routing
- d. Synchronization
- e. Interface standards and interoperability
- f. Numbering and addressing elements
- g. Technical information for the access to physical facilities
- h. KPIs, SLAs and Penalties

A.4. Operational Processes

- a. Provisioning processes
 - o Network planning
 - o Forecasts
 - o Collocation
 - o Ordering procedures
 - o Lead times
 - o Implementation
- b. Operations and maintenance processes
 - o Network operation
 - o Traffic management
 - o Routing management
 - o Fault management
 - o Safety and system protection
 - o Billing processes

A.5. Management of Interconnection

- a. Services management
- b. Joint technical and operational committee
- c. Provision of information between Service Providers
 - Network and facilities information
 - Planned network and facilities changes
 - Interconnection links and facilities database

A.6. Dispute resolution

A.7. Pricing

- a. Rates
- b. Billing procedures
- c. Terms & conditions

Annex B Interconnection Services

B.1. Overview

The below list of services is not intended to be exhaustive. Further Services may be defined by the Commission at any time as deemed necessary.

- a. Traffic conveyance services
- b. Leased lines services and bandwidth capacity services
- c. Wholesale broadband access services at a fixed location
- d. Pure Resale of Telecommunications Services
- e. Wholesale mobile access services
- f. Collocation
- g. Local Loop Unbundling (LLU)
- h. Sub Loop Unbundling (SLU)
- i. Line Sharing Access Service

B.2. Description

In the following descriptions, Service Provider A is requesting an interconnection service (requesting Service Provider A) and Service Provider B is offering the interconnection service. Any other Service Provider is referred to as Service Provider C.

B.2.1 Traffic conveyance services

B.2.1.1. Wholesale Fixed Call Termination Service

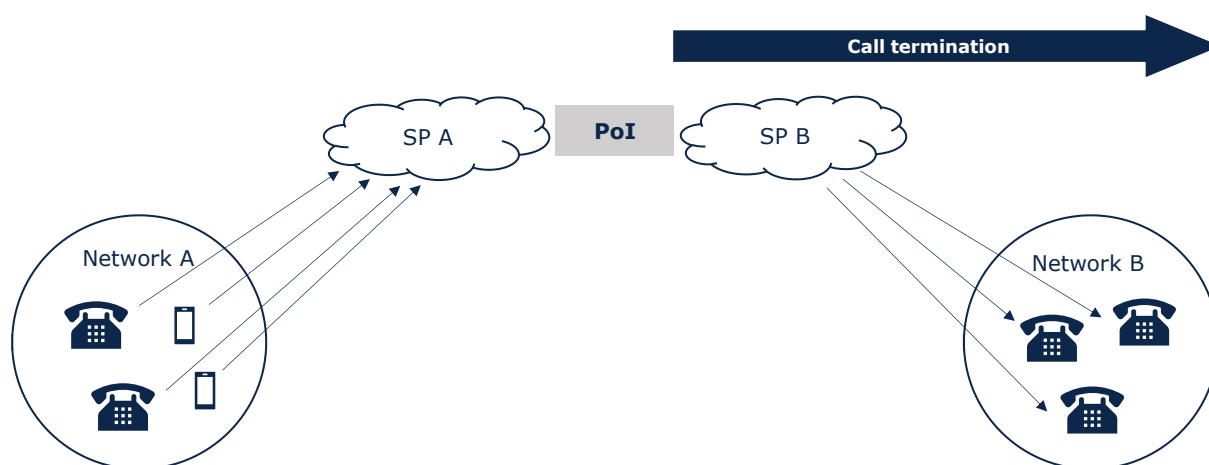
Wholesale fixed call termination service to geographic numbers is a call conveyance service provided by Service Provider B through its network where a voice call handed over by requesting Service Provider A is carried from the Point of Interconnection to a called party's network termination point, the called party being a subscriber of Service Provider B.

Service Provider B is obliged to terminate such calls irrespective of the point of origination.

Fixed call termination services can be of three types depending on the location of the called party relative to the calling party:

- a. Local call termination: Where the calls are delivered through an interconnection link to the local node serving the end-user;
- b. Single tandem call termination: Where the calls are delivered through an interconnection link to a tandem (or transit) node that has a direct link to the local node serving the end-user;
- c. Double tandem call termination: Where the calls are delivered through an interconnect link to a tandem (or transit) node which does not have a direct link to the local node serving the end-user. In this case the call must be routed over one or more additional tandem nodes before being sent to the local node serving the end-user.

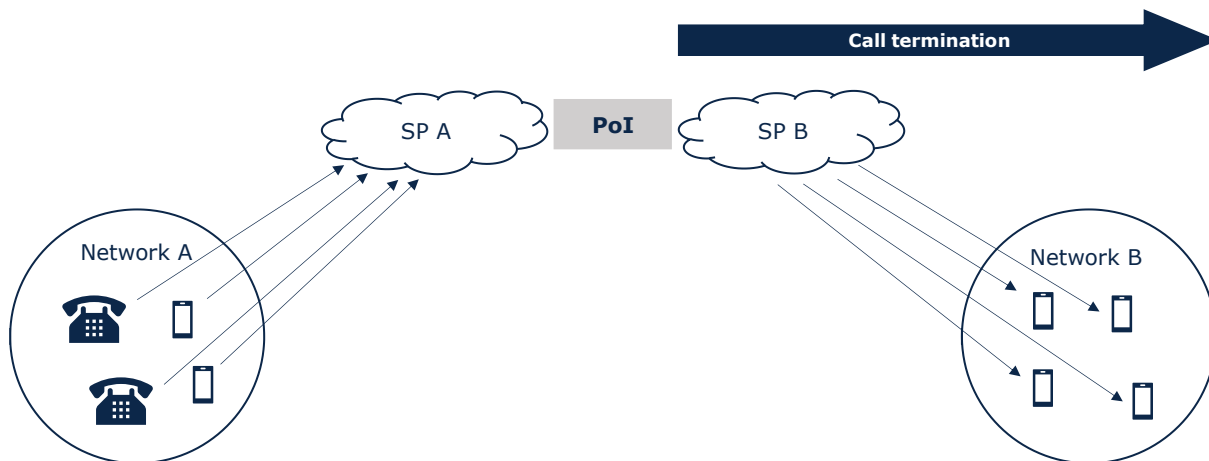
In case the network architecture changes, the above classification of service types may be revised according to the new architecture.



B.2.1.2. Wholesale Mobile Call Termination Service

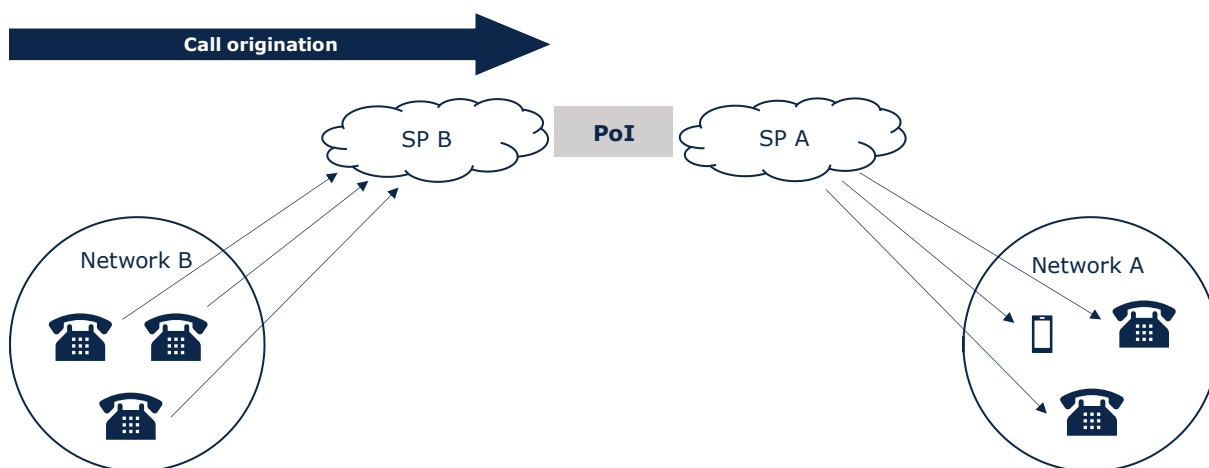
Wholesale mobile call termination service is a call conveyance service provided by mobile Service Provider B through its network where the voice call handed over by requesting Service Provider A is carried from the Point of Interconnection to a called party's network termination point, the called party being a subscriber of Service Provider B.

Mobile Service Provider B is obliged to terminate such calls irrespective of the point of origination.



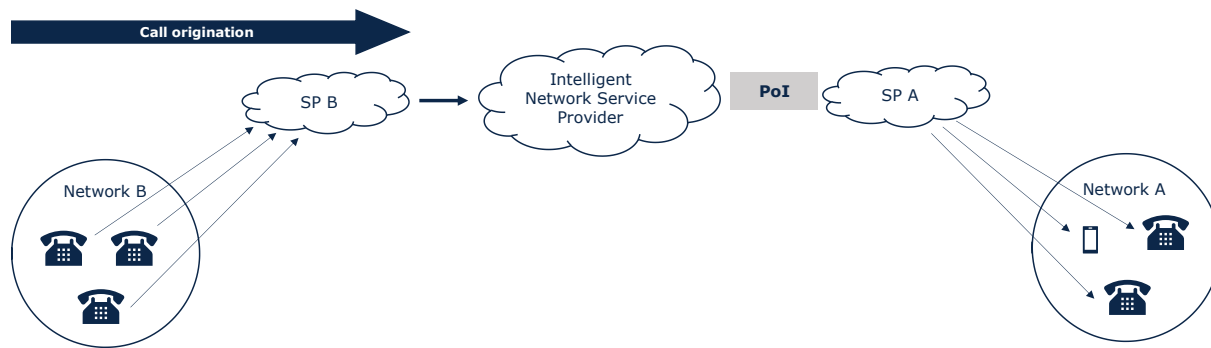
B.2.1.3. Wholesale Fixed Voice Call Origination Service

Wholesale fixed voice call origination service comprises the conveyance of a call from a calling party's network termination point through the infrastructure of Service Provider B to a Point of Interconnection where the call is handed over to requesting Service Provider A for transit and/or termination.



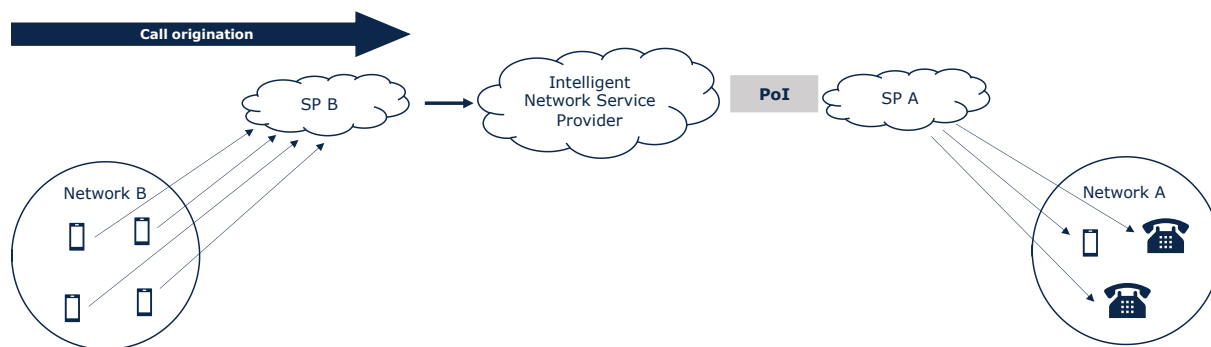
B.2.1.4. Wholesale Fixed Intelligent Call Origination Service

Fixed intelligent call origination comprises the conveyance of a call to an intelligent network service from a calling party's fixed network termination point through the infrastructure of offering Service Provider B to a Point of Interconnection where the call is handed over to requesting Service Provider A for connection to the intelligent network service and termination. These are, for example, calls to freephone or premium rate services (both national and international).



B.2.1.5. Wholesale Mobile Intelligent Call Origination Service

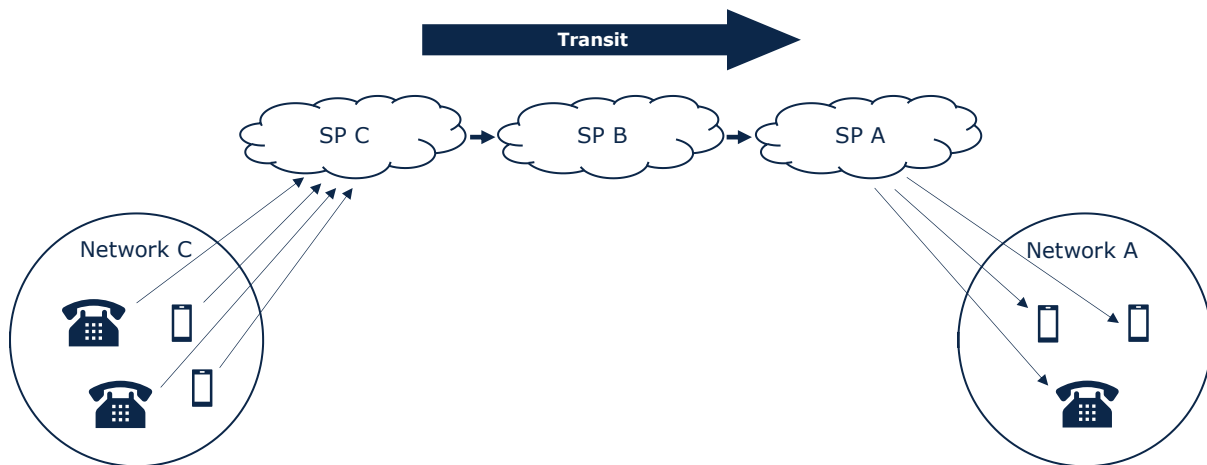
Mobile intelligent call origination comprises the conveyance of a call to an intelligent network service from a calling party's mobile network termination point through the infrastructure of offering Service Provider B to a Point of Interconnection where the call is handed over to requesting Service Provider A for connection to the intelligent network service and termination. These are, for example, calls to freephone or premium rate services (both national and international).



B.2.1.6. Wholesale Transit Interconnection Service

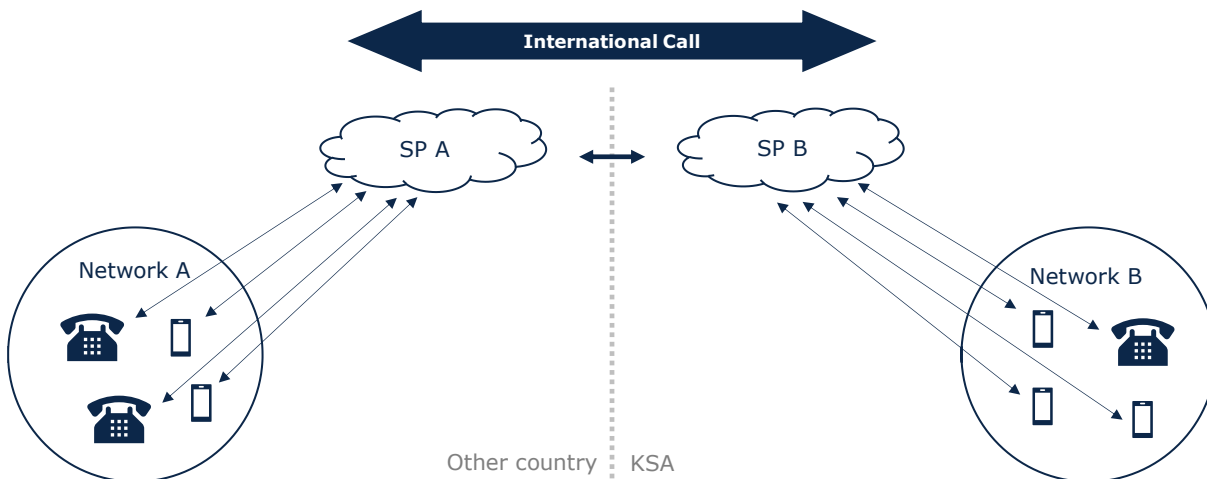
Wholesale transit interconnection service comprises the conveyance of a call originating with requesting Service Provider A through the Point of Interconnection to the network of Service Provider B and then through another Point of Interconnection to the network of Service Provider C. Service Provider B is providing call transit service. For example, Service Provider B may route traffic from one local Service Provider A to another local Service Provider C, or from a local requesting Service Provider A to a long distance or a mobile Service Provider C.

Service Provider B providing the wholesale transit interconnection service is responsible neither for origination nor termination of the call.



B.2.1.7. Wholesale International Voice Call Services

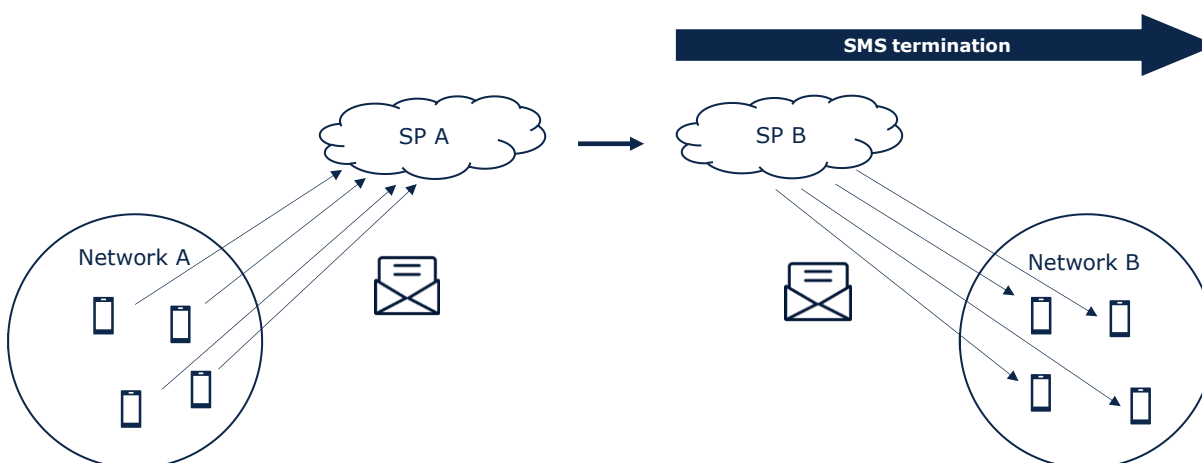
Wholesale international voice call services (international transit service) is the conveyance of outgoing and incoming international calls from/to the network of Service Provider A through the Point of Interconnection with the network of Service Provider B (including International Free Number related calls). Any Service Provider licensed to provide international access services can provide such services to any Service Provider's end-users in combination with voice call transit service, a fixed/mobile voice call termination service and/or international free number service.



B.2.1.8. Short Message Service (SMS) Termination Service

Short message service (SMS) termination service is the conveyance of short messages provided by mobile Service Provider B through its network where an SMS handed over by requesting Service Provider A is carried from the Point of Interconnection to the receiving party's network termination point, the SMS receiving party being a subscriber of Service Provider B.

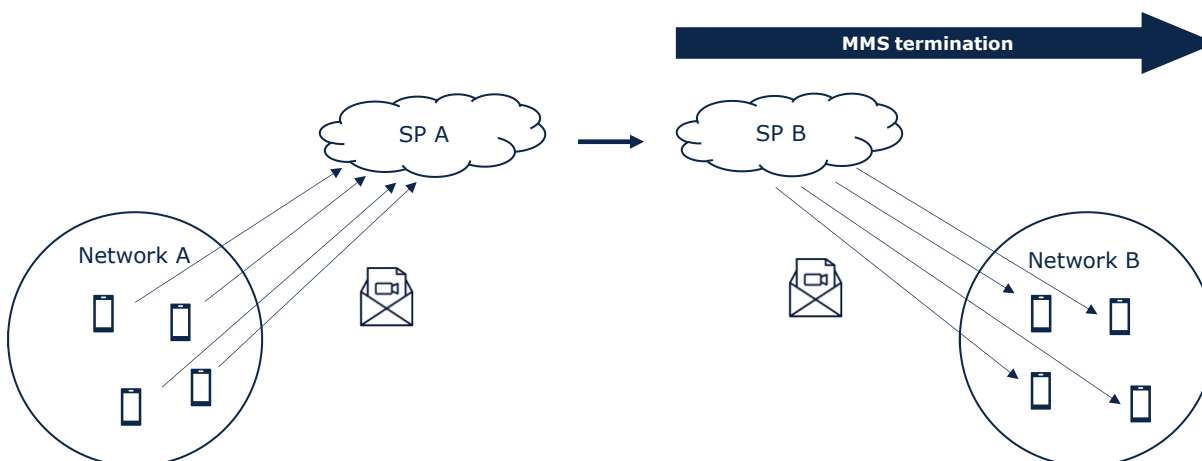
SMS messages may also originate via web-based browser applications.



B.2.1.9. Multimedia Messaging Service (MMS) Termination Service

Multimedia messaging service (MMS) termination service is the conveyance of multimedia messages provided by mobile Service Provider B through its network where an MMS handed over by requesting Service Provider A is carried from the Point of Interconnection to the sent party's network termination point, the MMS receiving party being a subscriber of Service Provider B.

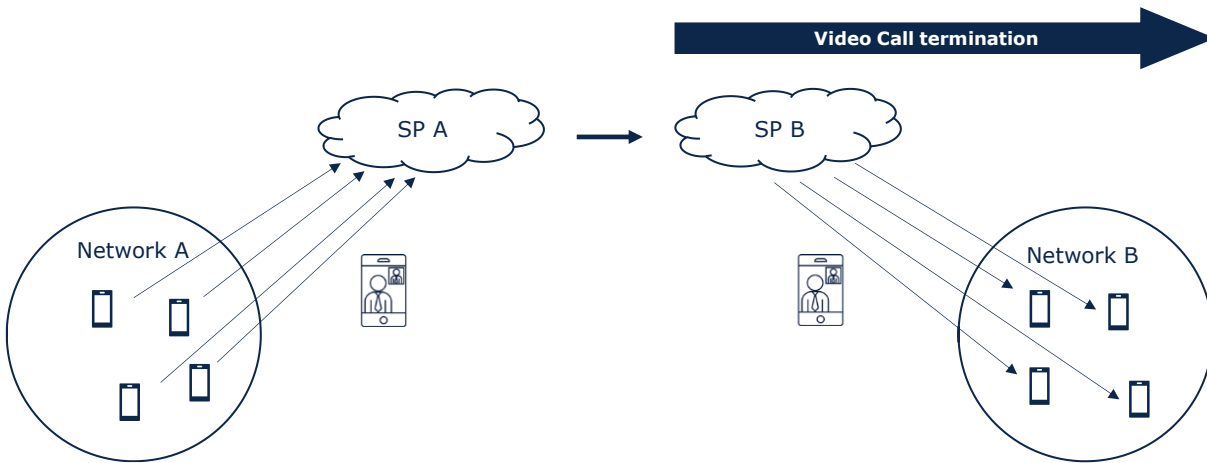
MMS may also originate via web-based browser applications.



B.2.1.10. Video Call Termination Service

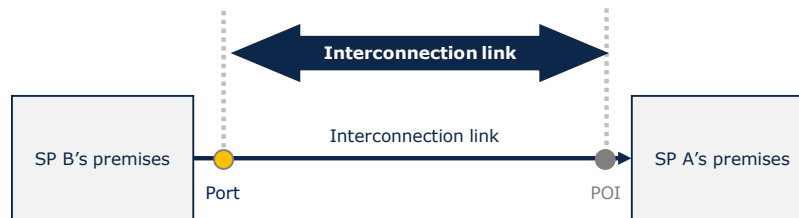
Video call termination service is the conveyance of a video call provided by mobile Service Provider B through its network where a video call handed over by requesting Service

Provider A is carried from the Point of Interconnection to the called party's network termination point, the called party being a subscriber of Service Provider A.



B.2.1.11. Interconnection Link Service

Interconnection link service is a transmission link connecting one licensed requesting Service Provider A's interconnection node and another licensed Service Provider B's interconnection node passing through a Point of Interconnection. The interconnection link service serves to support the provision of the different interconnection services. Service Provider A may use transmission links provided by itself, and/or Service Provider B and/or Service Provider C to interconnect with Service Provider B.



B.2.1.12. Ancillary Services

a) Calls to Emergency Services

Calls to Emergency Services comprises the conveyance of telephone calls from a Point of Interconnection with the Service Provider A's network, across the Service Provider B's network and delivered to an emergency call handling center.

b) Calls to Directory Enquiry Services

Calls to Directory Enquiry Services is comprises the conveyance of telephone calls from a Point of Interconnection with the Service Provider A's network, across the Service Provider B's network and delivered to a directory enquiry center.

c) **Supplementary Services**

Supplementary Services are network-based services that may be offered by Service Providers and shall be supported by interconnecting Service Providers. Examples of such features for which interoperability between Service Providers may be required are:

- Call Waiting
- Service Provider Call Centre
- Call Transfer
- Connected Line Identification Presentation
- Connected Line Identification Restriction
- Calling Line Identification Presentation
- Calling Line Identification Restriction
- Closed User Group
- Conference Calling
- Direct-Dialing-In (DDI)
- Call Diversion Services
- Line Hunting
- Three-Party Service
- User-to-User Signaling
- Multiple Subscriber Number
- Call Hold
- Advice of Charge
- Multi-level Precedence and Preemption
- Priority
- Malicious Call Identification
- Malicious Call Tracing

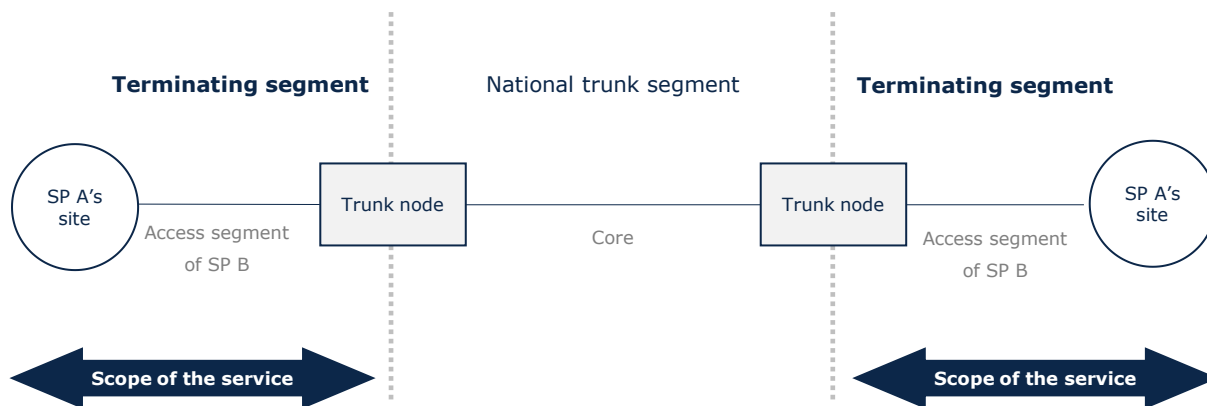


- Outgoing Call Barring
- Reverse Charging
- Ring-back when free
- E-164 Number Portability
- In-band Audio Tones and Announcements to the user
- Dual-tone Multi-frequency Signaling (DTMF)
- Sub-addressing

B.2.2 Leased lines services and bandwidth capacity services

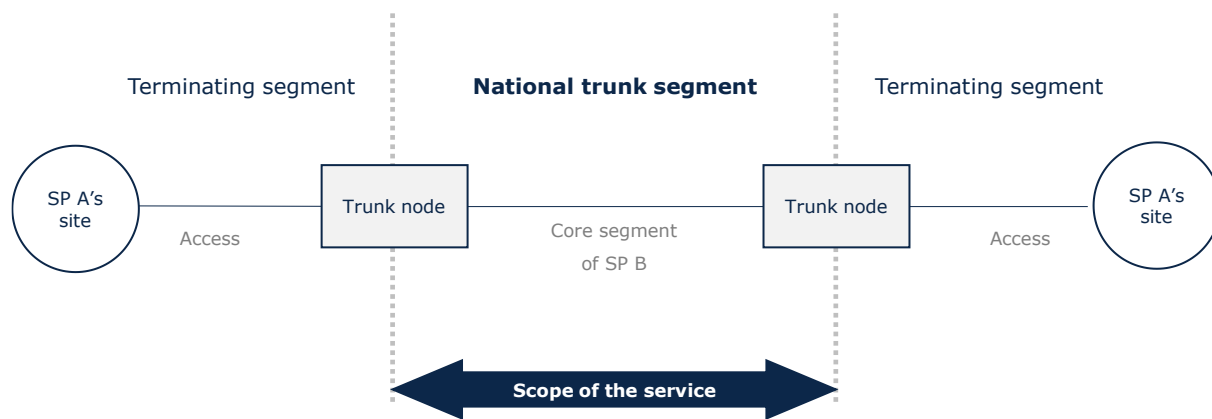
B.2.2.1. Wholesale National Terminating Segments of Leased Lines Service

Wholesale Terminating Segments of Leased Lines Service comprises the provision by the Service Provider B of a fixed capacity transmission (e.g. by the means of technologies such as Ethernet, MPLS, DWDM) facility joining a customer site to a trunk node, for onward connection to the Service Provider A's point of access, either directly or via a Wholesale Trunk Segment of a Leased Line. A Trunk Node is a location on the Service Provider B's network designated for the purpose of connecting a leased line access segment with Wholesale Trunk Segments of Leased Lines.



B.2.2.2. Wholesale National Trunk Segments of Leased Lines Service

Wholesale Trunk Segments of Leased Lines Service comprises the provision by the Service Provider A of a fixed capacity transmission (e.g. by the means of technologies such as Ethernet, MPLS, DWDM) facility between a point of access with the Service Provider A at a designated Trunk Node and another Trunk Node, for onward connection to a leased line access segment.



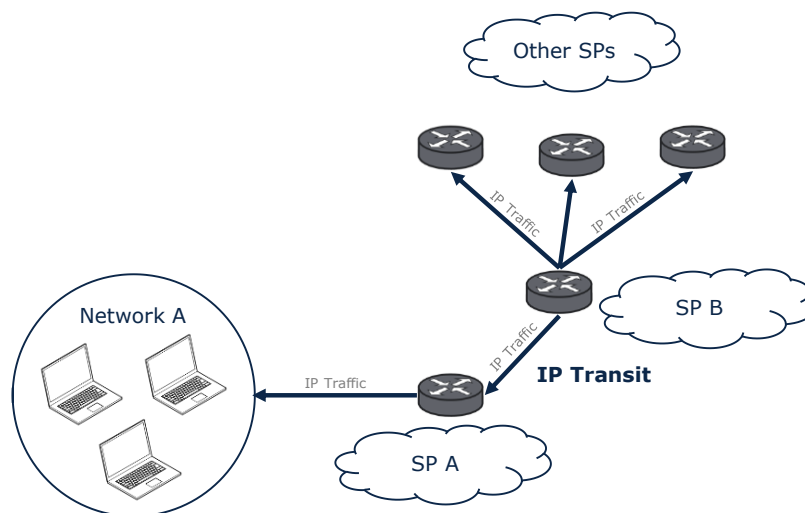
B.2.2.3. Wholesale International Transmission Capacity Service

Wholesale International Transmission Capacity Service is a service where the Service Provider B provides international transmission capacity by means of submarine cables, terrestrial, or satellite links to the requesting Service Provider A.

This service also comprises the access to the facilities of the Service Provider B (e.g. cable landing stations, satellite terrestrial stations) to co-locate the Service Provider A's equipment.

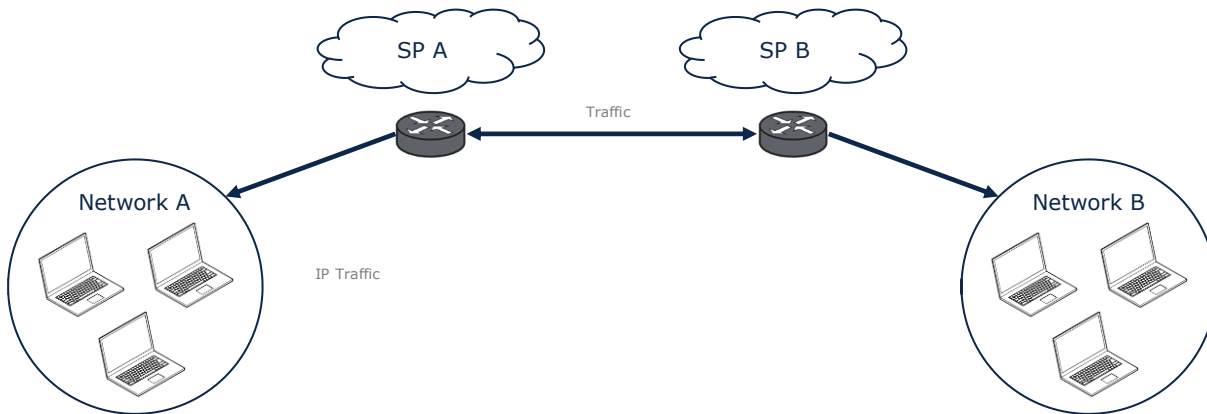
B.2.2.4. IP Transit Service

IP transit is a metered data service where Service Provider B provides national and/or international bandwidth for IP traffic to all destinations in its routing table or identifies a default route with the intention to provide global internet connectivity (e.g. Internet traffic) to requesting Service Provider A.



B.2.2.5. Private Peering Service

Private peering is a service where two separate autonomous systems interconnect for the purpose of exchanging traffic between the users of each network. Private peering is implemented by a physical interconnection of the networks, using an interconnection link service including an exchange of routing information through the Border Gateway Protocol (BGP).



B.2.2.6. Capacity Services in the Landing Station

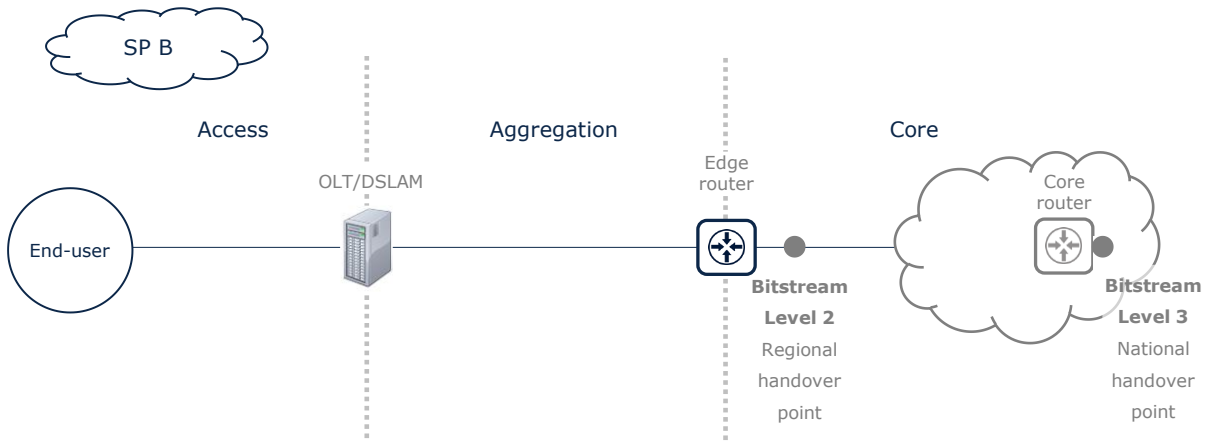
By the means of Capacity Services in the Landing Station, Service Provider A should be able to access international capacity collocating its active equipment in Service Provider B's landing station. The capacity services may be provided using any suitable technology (e.g. Ethernet, MPLS, DWDM).

B.2.3 Wholesale broadband access services at a fixed location

B.2.3.1. Wholesale Bitstream Access Service

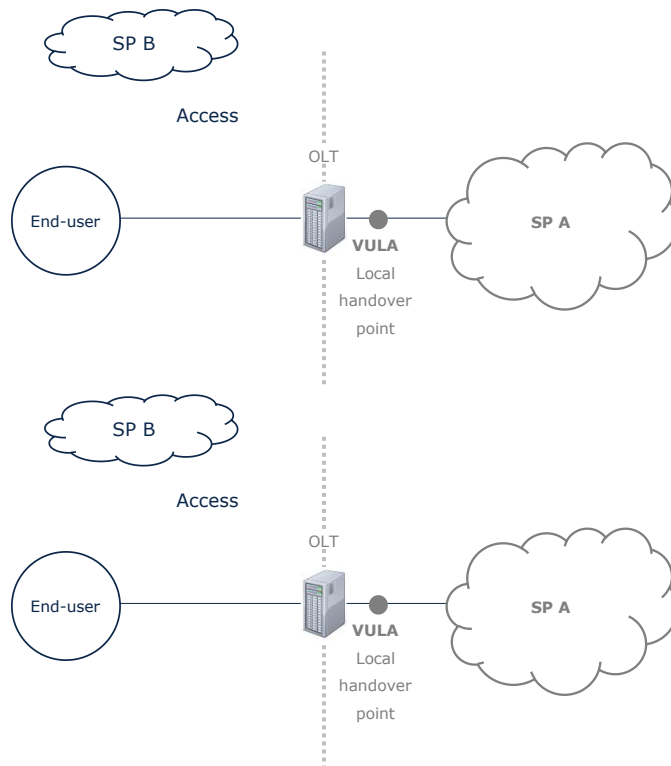
Wholesale bitstream access service comprises the conveyance of IP messages (packets) from a customer's broadband line (including xDSL and fiber-based infrastructures), across the Service Provider B's network to a point of interconnection with the requesting Service Provider A.

The interface at the point of interconnection can use a Layer 2 technology and Layer 3 IP.



B.2.3.2. Virtual Unbundled Local Access (VULA) Service

Virtual Unbundled Local Access (VULA) is a service by which requesting Service Provider A uses a virtual connection provided by Service Provider B, to provide services to subscribers connected to Service Provider B's next generation access network. VULA service is a form of wholesale bitstream access service in which the interconnection occurs locally at the Optical Line Termination (OLT) location. Thus, virtual unbundling should allow a similar level of flexibility in retail product design as physical unbundling.



B.2.4 Pure Resale of Telecommunications Services

Pure resale is a service where Service Provider A purchases a product from Service Provider B, and, without adding its own network elements, sells it to the end user under its own brand and with its own price plan.

B.2.5 Wholesale mobile access services

B.2.5.1. MVNO Hosting Service

A mobile virtual network operator (MVNO) hosting service is a service that allows the Service Provider A, without spectrum assignment or a radio access network, to lease mobile network capacity from the Service Provider B and use this capacity to offer its own mobile services to end-users. Such services comprise the origination and termination of voice services, SMS, MMS and video calls; as well as data services, among others.

MVNO players can take different business forms (e.g. Full MVNO, Light MVNO), depending on their commitment to owning and managing the operational components of the value chain. Alternatively, there is also room for MVNE (mobile virtual network enabler), companies that provides network infrastructure and related services, such as business support systems, administration and operations support systems to MVNO.

B.2.5.2. Wholesale National Roaming Service

Wholesale national roaming service is a service where the Service Provider A's subscribers may be hosted using the facilities and/or services of a second mobile Service Provider B's mobile telecommunications network where these subscribers are out of range of their own mobile telecommunications network coverage. This service also comprises other forms of RAN sharing, such as Multi-Operator Radio Access Network (MORAN) and Multi Operator Core Network (MOCN).

B.2.6 Collocation

Collocation is a service where a Service Provider B makes available space, power and air conditioning in one of its nodes, satellite terrestrial stations or landing stations to Service Provider A for the installation of telecommunications equipment. Service Provider A has 24-hour by 7-day access to the collocation space or room, operate and maintain its own telecommunications equipment. This service also encompasses the cross-connection between the equipment of the same premises.

B.2.7 Local Loop Unbundling (LLU)

Local Loop Unbundling is a service where a Service Provider B leases to a Service Provider A copper pairs. Service Provider A takes full control of the copper pairs from the main distribution frame (MDF) to the subscriber and can provide both voice and data services over all frequencies supported by the copper pairs.

B.2.8 Sub Loop Unbundling (SLU)

Sub Loop Unbundling is the partial unbundling of the local loop by a Service Provider A at a physical point between the MDF and the termination point at the subscriber's premises. Service Provider A can connect at various physical access points in the sub-loop (e.g. street cabinet).

B.2.9 Line Sharing Access Service

Line sharing access is a service where a Service Provider A uses only the non-voice frequency spectrum of the copper pairs provided by a Service Provider B to provide data services. Service Provider B offering the wholesale service continues to provide circuit switched voice telephony service, while requesting Service Provider A delivers services over the same local loop, using the higher part of the frequency spectrum. No aggregation of data streams is provided by Service Provider B.