

Reference Interconnect Offer

Luxembourg Online SA

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RIO - LOL 2021

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1. Scope and limits of the interconnection Offer

This Reference Interconnect Offer ("RIO") defines the interconnection terms and conditions (including the list of the interconnection services) which LOL will apply to all Operators in order to allow end-users who are connected to the system of an Operator to communicate with end-users who are connected to the telecommunication networks of LOL, or services accessible through LOL's system and vice versa. This RIO focuses on voice services over IP Networks.

Services covered:

- Terminating access service
- Interconnection link service
- Number portability

This RIO defines the minimal interconnection terms and conditions which LOL will grant to other Operators. Nevertheless, LOL reserves the right to provide more beneficial terms and conditions, in accordance with the applicable regulatory framework, including the principle of non-discrimination.

No Operator shall be responsible for the content of calls passed through his own or an interconnected Operator's network. Laws and regulations regarding confidentiality and access by legal authorities to calls on the Operator's and LOL's network will apply.

2. Validity

The effective date of this RIO is valid from the date of definitive publication in compliance with the applicable regulations and, more particularly, in compliance with Regulation 14/177/ILR and this RIO shall remain in force after, unless

- A new RIO is published by LOL, or
- A material change occurs in the laws or regulations, governing telecommunications in Luxembourg.

The content of this RIO may be reviewed and amended in order to comply with applicable rules and regulations. Furthermore, the ILR reserves the right to request or impose on LOL modifications to the offer.

The validity of the present Reference interconnect offer is determined by the decision 14/177/ILR dealing with the procedures related to the publication of a reference offer dated 28 august 2014 and regulation ILR/T21/1 dated 18th of January 2021 (market 1/ 2014) fixing the fix termination tariffs (FTR).

Unless defined otherwise, the terms used in this RIO must be interpreted in accordance with the Law of February 27th, 2011 on Networks and Electronic Communication Services (the "Law") and its implementing regulations.

2.1 Prices

All prices mentioned in this RIO, including those specified in the Appendices attached hereto, are in EURO (€) and exclusive of Value-Added Tax (VAT) or any other legal taxes, which will be added where applicable.

3. Definitions

Call: The establishment of a connection through a telecommunications network and the transmission and the delivery of a signal from the terminal on which this signal was generated to the terminal to which this signal is addressed or to a network platform or any other facility giving an automatic answer in those cases where the connection cannot be established.

Calling Line Identification (CLI): The CLI is the number of the calling user conveyed by each Operator's network for each call, it may also be provided by the network or partly by the calling user.

Calling Line Identification Presentation (CLIP): Supplementary service provided for in ITU-T Recommendation I.251.3.

Calling Line Identification Restriction (CLIR): Supplementary service provided for in ITU-T Recommendation I.251.4.

Capacity of the Interconnection Link: The capacity defined for the Interconnection Link and the corresponding LOL access point to which the Operator wishes to be connected.

LOL : Luxembourg Online SA

LOL Access Point: The physical interface within LOL's System from which the Interconnection Services can be obtained.

ILR: Institut Luxembourgeois de Régulation.

Interconnect Agreement: An agreement between LOL and an Operator, which defines the conditions for the Interconnection.

Interconnection Link: A Link between a LOL Access Point and an Operator Access Point for the provision of Interconnection traffic.

Interconnection Service: Services described in the present Reference Interconnect Offer.

International Public Telecommunication Number: Defined as in ITU-T Recommendation E.164

Link: Set of telecommunications facilities necessary to establish one or more transmission paths between two locations.

National (Significant) Number: Defined as in ITU-T Recommendation E.164.

Number portability: The case where a subscriber retains its originally assigned directory number when changing from one network Operator (donor network; Donor Operator) to another (recipient network; Recipient Operator) and is not related to changing the nature of service nor the location.

Operator: Any legal or natural person exploiting telecommunications networks and/or providing telecommunications services in Luxembourg.

Operator Access Point: The physical interface within the Operator's System at which the Interconnection Services can be obtained.

Parties: LOL and the Operator which an Interconnection Agreement is (being) concluded with.

Point of Interconnection (POI): The physical point on the Interconnection Link where the telecommunications network of LOL and the Operator's System are interconnected. The POI is the boundary between LOL and the Operator domains of responsibility.

Reference Interconnect Offer (RIO) : The present offer for Interconnection Services.

System: All equipment and software which, an Operator uses to provide his telecommunications services.

4. Interconnection Architecture

4.1. Interconnection Sites

LOL has two sites that have been designed for use as Interconnection Access Points grounds of their optimal network integration. These are existing LOL sites, containing relevant IP switching and equipment.

Interconnection point addresses:

- LUXCONNECT : 4, rue A. Graham Bell L-3235 Bettembourg
- BCE : 45 Boulevard Pierre Frieden L-1543 Luxembourg

The Operator can either use both or selects only one Interconnection Access Point at which he wants to interconnect his System.

4.2. System Alteration

If LOL wishes to make a system alteration, it shall give the connected Operators and the ILR no less than 6 months written notice prior to the date of the anticipated system alteration. The notice shall specify the technical details of the system alteration and the date of the anticipated system alteration. Following such notification LOL shall supply to the connected Operators such information as the connected Operator may reasonably request including, to the extent reasonably practicable, the potential impact on the service provided by the connected Operator to the End Users.

4.3. Standards

Where relevant for interconnection with LOL, the following hierarchy of standards and procedures will apply:

- Any legal requirements
- IETF RFCs
- ITU-T Recommendations
- ETSI Standards
- Any other international standards

The signaling system will be based on :

- SIP Protocol
The IP Interconnection Link Service consists in the physical linking between an LOL Access Point and an Interconnect Operator Access Point.
The capacity or bandwidth has to be defined between the parties prior to the installation. Recurrent tariffication is a function of the capacity / bandwidth.

5. The terminating access service

The terminating access service conveys a call handed over from the Operator's System, at a LOL Access Point for termination on any national number of LOL network. Tariffs may be different for different categories of services identified by different number ranges.

The tariffs applied by LOL for the provision of the terminating access service are indicated in Annex 1. Only calls that have been setup successfully and answered will be charged. The charging time starts with the answering signal and ends with the first clear signal generated either by the calling or the called party.

Whenever CLI is transferred to the telecommunications network of LOL, LOL will not communicate such CLI to an end-user if such CLI is marked as CLIR unless the call is directed to an emergency number.

6. Interconnection Link Service

The interconnection link service consists in the physical linking between a LOL Access Point and an Operator Access Point.

The Operator must interconnect to a LOL Point of Interconnection defined in paragraph 4.1 (LOL-sited Interconnection). The charges per interconnect site are defined in Annex 2.

6.1. Interconnection Link and Co-Location

For LOL-sited interconnection, LOL can provide a custom offer for an Interconnection Link Service or the Operator will supply and operate an Interconnection Link in its entirety.

LOL will provide access to the Operator at its site for the installation and maintenance of the Operator's transmission equipment located at this site. LOL will supply a suitable location for the Operator's transmission equipment used in direct relation with interconnect services, electric power and safekeeping.

In its request for LOL-sited interconnection, the Operator will describe his needs regarding the installation of his transmission equipment on the premises of LOL. Whenever LOL determines that LOL-sited interconnection is not reasonably feasible, it will inform the Operator and the ILR of the reasons of such unfeasibility within 15 days of receiving the request. LOL will comply, should the ILR find that LOL-sited interconnection is reasonably feasible. In case of non-feasibility of LOL-sited interconnection, LOL will cooperate with the Operator in order to find an appropriate alternative solution.

For the provision of the co-location facilities, the conditions and prices are subject to a separate offer.

6.2. Interconnection Capacity

The Operator is responsible for the dimensioning of the Interconnection Links capacity required for the conveyance of its own traffic. An Operator's own traffic consists in the traffic for which the Operator is billed by LOL.

7. Number Portability (NP)

7.1. Scope

Number portability (NP) is applicable under the conditions defined by the ILR.

The Recipient Operator transmits the electronic file containing the requested data to LOL by means of an electronic messaging system. The transmission of the electronic files can be operated between 07.00 and 18.00 hours from Monday to Friday, except legal and public holidays. LOL will acknowledge receipt of the transmission file by means of the same electronic messaging system.

NP will be activated by LOL from Monday to Friday from 8.00 to 18.00 hours except legal and public holidays in Luxembourg. This time schedule may be extended to 7.00 to 19.00 hours on Monday to Friday and 8.00 to 17.00 hours on Saturday with the supplementary costs to be paid by the Recipient Operator.

7.2. Tariffs and Billing

Tariffs of number portability will be those defined in Annex 3.

Billing procedures will be as described in the Porting Agreement between the Parties.

8. Quality of service of LOL's Interconnection Services

As far as the terminating access service is concerned, LOL undertakes to ensure for its own System a network failure rate, which does not exceed 1, 5% as a national 3 months average, for failures which are exclusively due to its System.

Network failure rate is the ratio between the number of calls handed over by an Operator to be terminated on LOL's Network and failed due to insufficiencies in LOL Network and the total amount of calls handed over by that Operator to be terminated on LOL's network (excluding, in particular, failures due to end-user behavior and failure of terminal equipment).

In the event of disturbance of the conveyance of traffic within its System, LOL may be constrained to implement the classical measures of traffic regulation (limiting channels, etc.) in order to limit its effect on the quality of the service provided to its customers as well as to the Interconnected Operators.

The target figures given above for network failure rate do not include failures that are caused by the mentioned Measures of traffic regulation.

The Operator and the ILR shall be informed if the above-mentioned measures for traffic regulation have to be applied and how long they may last.

LOL shall respect the quality conditions as they are defined in the applicable legal regulation and in accordance with the quality LOL provides for its retail clients.

9. Procedure for Reaching an Interconnection Agreement

Interconnection agreements shall be negotiated and reached according to the general modalities for interconnection as determined by the ILR.

LOL may demand the delivery of a bank guarantee on first demand of a Luxembourg based bank of 10.000,- € in favor of LOL for the provisioning of the interconnect service.

LOL may also without prejudice to previous arrangements demand payment in advance.

Requests for interconnection services shall be made in writing to the following address:

Luxembourg Online S.A.

Network Team

14 Avenue du X Septembre

L-2550 Luxembourg

Tél: +352 452564-1

Email: network@online.lu

10. Annexes

All prices mentioned here after are given exclusive of VAT or any other legal taxes, which will be added where applicable.

Annex 1: Tariffs applicable to the terminating access service

Terminating access service to LOL geographic numbers

Charge per minute €ct
0.138

Tariffs only apply to the termination of voice calls originating within the EEA (European Economic Area), provided that the calling number can be identified as belonging to a numbering plan of one of the countries of the EEA.

The tariffs for Terminating Access Services will be adapted in compliance with the Delegated Act “supplementing Directive (EU) 2018/1972 of the European Parliament and of the Council by setting a single maximum Union-wide voice termination rate and a single maximum Union-wide fixed voice termination rate” as soon as this regulation enters into force in 2021.

Terminating Access service to LOL network for calls originating outside Luxembourg

As of 1st February 2018, LOL will apply, based upon the country of the calling party number, a surcharge for the termination in its network according to the following rules:

- 1) Termination of Calls with A-Number belonging to any of the Country Codes included in Table 1: LOL will not apply any surcharge
- 2) Termination of calls with A-Number belonging to any of the Country Codes included in Table 2: LOL will apply a surcharge of **5€cts/min**
- 3) Termination of calls with A-Number not belonging to any of the Country Codes included in Table 1 or Table 2, with no A-Number (no CLI), with incorrect A-Number (either in format or content), invalid A-Number, modified or manipulated A-number: LOL will apply a surcharge of **12€cts/min**.

These surcharges will be applied in addition to the national termination rate specified above.

Table 1

Country	Country Code
Alaska	+1907
Australia	+61
Austria	+43
Belgium	+32
Bulgaria	+359
Canada	+1
China	+86
Croatia	+385
Cyprus	+357
Czech Rep	+420
Denmark	+45
Estonia	+372
Finland	+358
France	+33
French Guiana	+594

Germany	+49
Greece	+30
Guadeloupe	+590
Hawaii	+1808
Hungary	+36
Iceland	+354
India	+91
Ireland	+353
Italy	+39
Latvia	+371
Liechtenstein	+423
Lithuania	+370
Malta	+356
Martinique	+596
Mayotte	+262
Mexico	+52
Netherlands	+31
Norway	+47
Poland	+48
Portugal	+351
Puerto Rico	+1787 / +1939
Réunion	+262262
Romania	+40
Slovakia	+421
Slovenia	+386
Spain	+34
Sweden	+46
UK	+44
USA	+1

Table 1: No surcharges will be applied for the termination of voice calls originating in these countries.

Table 2

Country	Country Code
Bangladesh	+880
Bermuda	+1441
Brazil	+55
Brunei	+673
Colombia	+57
Costa Rica	+506
Dominican Rep	+1809 / +1829 / +1849
Egypt	+20
Gibraltar	+350
Hong Kong	+852
Indonesia	+62
Japan	+81

Korea South	+82
Kuwait	+965
Laos	+856
Malaysia	+60
Mexico	+52
New Zealand	+64
Pakistan	+92
Singapore	+65
South Africa	+27
Switzerland	+41
Taiwan	+886
Thailand	+66
Vietnam	+84
Virgin Islands	+1340

Table 2 : A surcharge of 5 €cts/min will be applied for the termination of voice calls originating in these countries.

Annex 2: Tariffs applicable to the interconnection link service

One-off charge per Operator (covering installation and testing):

8149. - €

Monthly fee per 30 channels / Ethernet System (IP Interconnection) based on bandwidth requirements enabling the simultaneous of 30 calls (based on the G.711 codecs):

142.75. - €

Monthly charge per used Interconnect Site (covering billing, maintenance and service quality control):

210. - €

For the provision of co-location facilities, when required, the conditions and prices are subject to a separate offer.

Annex 3: Tariffs for Number Portability (NP)

Standard tariffs applicable to Number Portability

Activation fee for number portability per number activation:

14, 38. - €

Additional conveyance fee per minute for inconsistent or erroneous codes if the volume of inconsistent or erroneous codes exceeds the percentage of 1% of the total calls to ported numbers:

0, 63. - € ct