Wholesale Broadband Access VDSL2

Main Body

Date	~~23/05/2014~~03/03/2015
Our reference	Version ~~10~~ 11

proximus

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1 Glossary

- **Certified Technician**: Any technician employed either by a Beneficiary or by one of Beneficiary's subcontractors, trained and certified by Proximus in order to perform, in place of a Proximus technician, the installation of the WBA VDSL2 without voice lines.
- **Customer Equipment**: Any equipment that belongs to the Beneficiary
- **CPE**: Customer Premises Equipment.
- **IP-DSLAM**: Digital Subscriber Line Access Multiplexer. IP-DSLAMs are located in Proximus Local Exchanges (or Proximus Local Distribution Center) and they are owned and managed by Proximus.
- **LDC**: Proximus Local Distribution Center
- **LEX**: Proximus Local Exchange
- **Network Termination Point (NTP):** The termination point of a loop at the End User premises. The Network Termination Point is a part of the Proximus network.
- **NNI**: Network Node Interface.
- **OAL**: OLO (Ethernet) Access Line. An Access Line is an interface between the Customer Equipment and a Proximus Service Router located in the Service PoP of the Service Area.
- **OLO**: Other Licensed Operator
- **P-bit**: priority bit.
- **ROP**: Remote Optical Platform.
- **Service PoP**: a Service PoP provides access to the Proximus Ethernet network through NNI connection with a Proximus Service Router.
- **Service Router** : Proximus Service Routers are installed in each Service PoP and in the LEX's. A Service Router installed in a LEX provides Ethernet transport to a Service PoP.
- **UNI**: User to Network Interface.
- **VDSL2**: VDSL2 is an access service based VDSL2 (Very high Speed Digital Subscriber Line 2) technology that allows simultaneous transport of data and voice service, using the same local exchange service loop, to be sent over existing facilities.
- **VLAN**: Virtual Local Area Network. Unless specified otherwise, the word "VLAN" equally refers to a shared or to a dedicated VLAN.
- **WBA:** Wholesale Broadband Access.
- **WBA VDSL2:** Unless specified otherwise, the word "WBA VDSL2" equally refers to the two types of service: with shared or with dedicated VLANs.

2 Scope

1. This document provides a description of the Proximus's WBA VDSL2 Service, including the method of connection.

2. This document entails the conditions related to the provision by Proximus to the Beneficiary, of the WBA VDSL2 service, which will enable the Beneficiary to define its own VDSL2 products and to market, distribute and sell under its name and on its behalf its own VDSL2 products towards End-users, using Proximus installed and existing Network infrastructure, pursuant to the technical limitation of this existing infrastructure for offering the service.

3. This offer and its tariffs are only applicable for connecting end-user premises either connected to an IP-DSLAM located in Proximus premises (LEX or LDC) or connected to a ROP equipped with a remote IP-DSLAM module.

4. This document contains the technical, operational and financial conditions, as well as a possible method of connection and the applicable terms and conditions related to such service

5. The provision of the hereunder-described service supposes the following list of prerequisites that will need to be met at all times and in all circumstances:

   - WBA VDSL2 Connection between the network of the Beneficiary and the Proximus network (hereafter the "Network") is established pursuant to the principles set out in this document;
   - A line from the end-user premises to a Proximus IP-DSLAM must be available.
   - The WBA VDSL2 Service is only offered if technically feasible and in accordance with VDSL2 deployment in Proximus network. Proximus will perform a technical feasibility study on the End-user line (line condition, distance etc.) after having received the order of the Beneficiary;

3 Practical Information

6. Further requests for information concerning the present Reference Offer can be made in writing by interested parties at the following Proximus contact point. In particular, in the event of doubt as to the interpretation of the provisions of this Reference Offer, Proximus should be contacted. In the event of doubt, contacting Proximus is without prejudice to any clarification of the reference offer given by the BIPT.

7. In case of disagreement about the interpretation, one of the parties can request the institute for a decision on the specific case. This decision will be taken within a reasonable term and will take into account the legal framework and the valid advice. The possibility for the parties to present the institute a problem in interpretation will not influence the legal means that remain at the parties' disposal in case of a conflict.

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8. The transmission by Proximus of some type of information (e.g. the addresses of Proximus buildings) is subject to the prior signing of a Non-Disclosure Agreement by the requesting party. Furthermore, after prior approval by BIPT, a payment may be due for obtaining certain documents.

9. It is also a right for everyone who has signed a Non-Disclosure Agreement to obtain information via a Proximus website through a secured access. Information on how to access the mentioned website can be obtained at the Proximus contact point mentioned above.

This offer is made by Belgacom N.V./S.A., a Belgian autonomous public enterprise organized under the Law of March 21, 1991, with registered office at B-1030 Brussels, 27 Boulevard du Roi Albert II, VAT BE 0202 239 951 Brussels Register of Legal Entities, exercising its activities under the commercial name Proximus, and referred to as "Proximus" in all the documents that are part of the Reference Offer

4 Description of the WBA VDSL2 service

4.1 General

10. The WBA VDSL2 service will allow the Beneficiary to connect on Proximus network at a Proximus Service PoP and to receive any Ethernet frame from the End User using VDSL2 technology. The transport end-to-end between the End User and the Beneficiary is Ethernet.

11. The offering of service covers:

- The provision by Proximus of one or several OLO Access Lines between the Customer Equipments and the Proximus Service PoPs;
- The provision by Proximus of bandwidth (VLANs) between the IP-DSLAMs in which the Beneficiary wants to connect End Users and the Proximus Service PoPs to which the Customer Equipments are connected; These VLANs can be either shared between several End-users of a Beneficiary in a same LEX or dedicated per separate End-user.
- The provision and the configuration by Proximus of Ethernet Transport between the IP-DSLAMs and the Customer Equipments.
- The provision by Proximus of VDSL2 lines to the End-user.

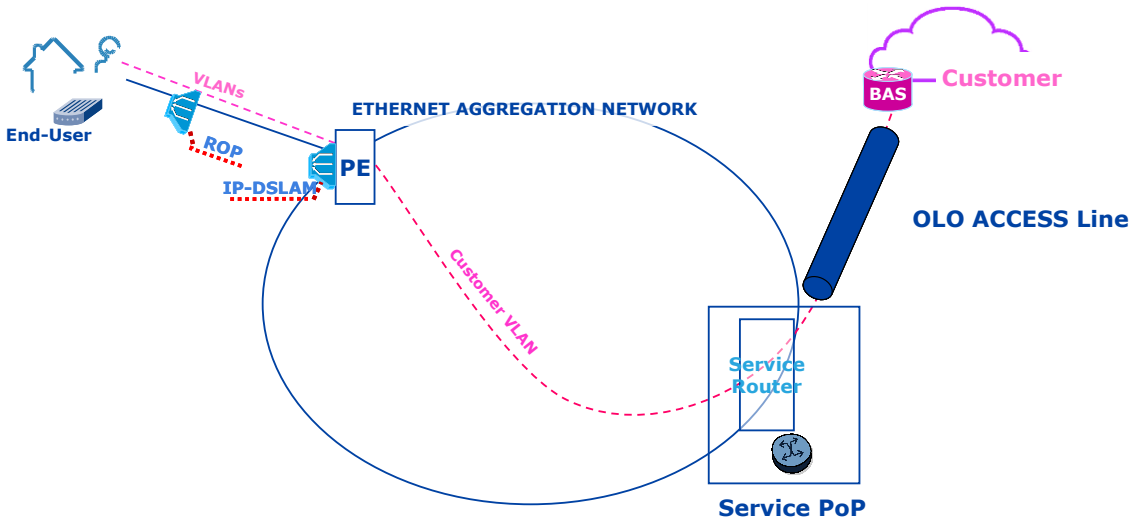


Figure 1: End-to-end overview

12. The WBA VDSL2 service is offered on basis of the equipment delivered by Proximus's supplier at the moment of the equipment's bringing into service in a given site.

13. Proximus will ensure the management of the IP-DSLAMs and their proper configuration.

4.2 OLO Access Line between a Proximus Service PoP and the Customer Equipment

14. The connection between the network of the Beneficiary and the Proximus network is realized through OLO Access Lines (OAL) between the Customer Equipments and the Proximus Service Routers, sited in the Proximus Service PoPs.

15. To use the WBA VDSL2 service to connect End-users of a Service Area, the Beneficiary must interconnect with Proximus in at least one Service PoP of this Area. If the Beneficiary wants to be active anywhere in Belgium, he needs at least one interconnection per Area.

16. The list of Proximus Service PoPs is available in Appendix B.

17. The description of the OLO Access Lines, and in particular the exhaustive list of combinations of bandwidth, protection mode and type (Proximus-sited, Customer-sited, or Backhaul) offered by Proximus in the scope of this agreement is described in the Appendix A of this document.

18. The Beneficiary is responsible for

    - the choice of the Service PoPs on which terminate its OALs,
    - their dimensioning,
    - the choice of their protection modes,
    - and the choice of their types.

19. The Beneficiary shall pay to Proximus the installation and rental fees of its Access Lines, as set forth in the Annex "Pricing, Compensations and Billing".

20. For information on the Technical Specifications of the OLO Access Lines, reference is made to Annex 2, section: "OLO Access Line" of the present WBA VDSL2 reference offer.

21. The connection between the Proximus Service Router and the Customer Equipment is subject to successful testing procedure, as set forth in Annex 2, section "Interface of every port at Operator Site : RJ45 requiring CAT 5 twisted pair cabling. Testing the OAL" of the present WBA VDSL2 reference offer.

4.3 Ethernet Transport between the IP-DSLAM and the Customer Equipment

22. This WBA VDSL2 service is offering an Ethernet connectivity between the OLO Access Lines and the End-user VDSL2 lines.

23. Four service qualities are offered for the WBA VDSL2 service, differentiated by the Ethernet p-bit (P):

    - P=0: best effort.
    - P=1: low priority.
    - P=3: medium priority.
    - P=5: highest priority and better performance for jitter and delay sensitive traffic.

24. Shared and dedicated VLANs

- *Shared* VLANs: per service quality and per LEX, the Virtual LANs (VLANs) of the End-user lines of a Beneficiary are aggregated and transported in 1 VLAN to a Service PoP where an Access Line of the Beneficiary is connected. This Service PoP has to be located in the same Service Area as the LEX itself.

  In each LEX where Proximus installed IP-DSLAM's, Proximus will create for the Beneficiary maximum 8 *shared* VLANs - each dedicated to a different service quality, with a maximum of 2 VLANs per service quality - to which the Beneficiary's End Users are connected in order to transport their VDSL2 traffic from the DSLAM to the Customer Equipment and reversely.

- *Dedicated* VLANs: per Beneficiary's end-user, all Virtual LANs (VLANs) are transported transparently in 1 *dedicated* VLAN to a Service PoP where an Access Line of the Beneficiary is connected. This Service PoP has to be located in the same Service Area as the LEX of the Beneficiary's end-user.

25. There are 5 Service Areas for the whole of Belgium, each of them covering 1 geographical area. Per Service Area there are 2 Service PoPs, located in 2 different buildings. The list of Proximus Service Areas, their definition and the address of the related Service PoPs is available in Appendix B of the present document.

26. VLANs will be configured by Proximus, on behalf of the Beneficiary, to transport the VDSL2 traffic of the Beneficiary's End Users from the IP-DSLAMs on which Beneficiary's End Users are connected up to the Customer Equipment and reversely.

4.4 Bandwidth between the Local Exchanges and the Proximus Service PoP to which the Customer Equipment is connected

4.4.1 For shared VLANs

27. The Beneficiary will order bandwidth and more precisely shared VLANs between each LEX in which the Beneficiary wants to connect End Users and where Proximus installed IP-DSLAM's and the Proximus Service PoP(s) to which the Beneficiary is connected. Each OLO may order up to 2 VLANs per service quality per LEX.

28. The bandwidths that can be ordered by the Beneficiary between a LEX and a Proximus Service PoP are summarized in the following table, in function of the service quality chosen by the Beneficiary for the related VLAN.

Offered VLAN Bandwidth (Mbps)	P=0	P=1	P=3	P=5
2	Y	Y	Y	Y
4	Y	Y	Y	Y
6	Y	Y	Y	Y
8	Y	Y	Y	Y
10	Y	Y	Y	Y
12	Y	Y	Y	Y

14	Y	Y	Y	Y
16	Y	Y	Y	Y
18	Y	Y	Y	Y
20	Y	Y	Y	Y
30	Y	Y	Y	Y
40	Y	Y	Y	Y
50	Y	Y	Y	Y
60	Y	Y	Y	Y
70	Y	Y	Y	Y
80	Y	Y	Y	Y
90	Y	Y	Y	Y
100	Y	Y	Y	Y
120	Y	Y	Y	N
140	Y	Y	Y	N
160	Y	Y	Y	N
180	Y	Y	Y	N
200	Y	Y	Y	N
220	Y	Y	Y	N
240	Y	Y	Y	N
260	Y	Y	Y	N
280	Y	Y	Y	N
300	Y	Y	Y	N
320	Y	Y	N	N
340	Y	Y	N	N
360	Y	Y	N	N
380	Y	Y	N	N
400	Y	Y	N	N
420	Y	Y	N	N
440	Y	Y	N	N
460	Y	Y	N	N
480	Y	Y	N	N
500	Y	Y	N	N
600	Y	N	N	N
700	Y	N	N	N
800	Y	N	N	N
900	Y	N	N	N
1gig	Y	N	N	N

29. Higher bandwidths could be possible in the future, if sufficient justification can be submitted by the Beneficiary to Proximus.

4.4.2 For dedicated VLANs

30. There is no pre-provisioning of the dedicated VLANs. Each dedicated VLAN is configured by Proximus at the moment of the implementation of the End-user line. The Beneficiary is responsible for choosing the dedicated VLAN profile and for providing the specifications in the VDSL2 line ordering for each line.

31. The Beneficiary can choose the profiles of each Dedicated VLAN from two Dedicated VLAN profiles pools:

    - The Beneficiary can define an own pool with up to 10 Dedicated VLAN profiles (for its own use);

    - The Beneficiary can choose from a common pool of Dedicated VLAN profiles. These profiles can be used by all OLOs. The specifications of the profiles and the related processes are documented on the Personal Page of Proximus Wholesale's website (in the section Regulated Services– WBA – Documentation on Ordering).

32. Each dedicated VLAN profile has following attributes:
    - Layer 2 (p-bit) or Layer 3 Qos (precedence, DSCP),
    - Maximum Upstream bandwidth per P-bit/precedence, DSCP,
    - Maximum Downstream bandwidth per P-bit/precedence, DSCP.

4.5 Interconnection at LEX level

33. Besides the connection of the Beneficiary on Service PoP level described in section 4.1, 4.2, 4.3 and 4.4, which allows the Beneficiary to use WBA VDSL2 to connect End-users of the whole Service Areas, the Beneficiary may also interconnect with Proximus at LEX level.

34. In case of interconnection of the Beneficiary on a LEX, the Beneficiary may only use WBA VDSL2 to connect end-users connected to this LEX, and transport Ethernet frames from and to end-users of this LEX.

35. In case of interconnection of the Beneficiary on a LEX, Proximus will provide, on behalf of the Beneficiary who will define their dimensioning, types and protection types

    - One or several OLO Access Lines between the Customer Equipments and the ProximusEthernet Service Switch, sited in this LEX,
    - Bandwidth (VLANs) between the IP-DSLAMs of this LEX and the OAL(s) connected to this LEX. These VLANs can be either shared between several End-users of a Beneficiary in this LEX or dedicated per separate End-user.

4.6 Activation of WBA VDSL2 on a specific End-user line

36. Subject to the conditions that the Beneficiary has ordered the necessary infrastructure (OLO Access Line and VLAN(s)[1]), the Beneficiary will be able to offer to End-users services based on VDSL2 technology, using Proximus's installed and existing Network infrastructure, pursuant to the technical limitation of this existing infrastructure for offering VDSL2 technology.

37. Proximus will deliver WBA VDSL2 service to specific End-users according to the Beneficiary's orders transmitted to Proximus. Proximus is able to configure the individual lines of End-users at the IP-DSLAM level on basis of following characteristics:
    - With or without voice service
        - 'With voice" means: data service offered in combination with a Proximus PSTN/ISDN line.[2]
        - "Without voice" means: data service offered without combination with a Proximus PSTN/ISDN line.
        - WBA VDSL2 with ISDN voice service is not supported in case of equivalent ISDN solution configured on a dedicated copper pair.

    - With shared or with dedicated VLANs
        - "With shared VLANs":
            - Maximum 4 VLANs per End-user line, each dedicated to a different service quality. The 4 service qualities are:
                - P=0: best effort.
                - P=1: low priority.
                - P=3: medium priority.
                - P=5: highest priority.
            - The VLANs of different Beneficiary's End-user lines are aggregated per service quality and per LEX and transported in 1 shared VLAN to a Service PoP where an Access Line of the Beneficiary is connected.
        - "With dedicated VLANs":
            - Maximum 4 Ethernet service qualities per VDSL2 connection, each service quality being differentiated by the Ethernet p-bit (P). The 4 service qualities are:
                - P=0: best effort.
                - P=1: low priority.
                - P=3: medium priority.
                - P=5: highest priority.
            - All VLANs of a separate Beneficiary's End-user line are transported transparently in 1 dedicated VLAN to a Service PoP where an Access Line of the Beneficiary is connected.

    - Configuration by Proximus of the VDSL2 line profile, according to the rules set forth in section 4.134.13, VDSL2 Deployment Rules and section 4.14 Dynamic Line Management (DLM)~~Dynamic Line Management (DLM)~~:

[1] Only for WBA VDSL2 lines on shared VLANs.

[2] New WBA service can't be ordered in combination with an ISDN service.

Profile	Maximum speed[3] (bps)		Minimum speed[3] (bps)		Description
	Downstream	Upstream	Downstream	Upstream	
LP048	30 M	8 M	14,5 M	640 K	Repair/DLM
LP049	40 M	8 M	14,5 M	640 K	DLM
LP050	50 M	8 M	14,5 M	640 K	DLM
LP051	60 M	8 M	14,5 M	640 K	DLM
LP052	70 M	8 M	14,5 M	640 K	DLM
LP056	30 M	10 M	14,5 M	640 K	Provisioning 30M/DLM
LP057	40 M	10 M	14,5 M	640 K	DLM
LP058	50 M	10 M	14,5 M	640 K	DLM
LP059	60 M	10 M	14,5 M	640 K	DLM
LP060	70 M	10 M	14,5 M	640 K	DLM
LP084	20 M	2 M	10 M	640 k	DLM
LP085	25 M	2 M	10 M	640 k	DLM
LP086	30 M	2 M	10 M	640 k	DLM
LP100	14,5 M	1 M	4,6 M	256 k	DLM
LP101	16,5 M	1 M	4,6 M	256 k	DLM
LP129	25 M	2 M	14,5 M	640 k	DLM
LP130	30 M	2 M	14,5 M	640 k	DLM
LP141	70/50 M	8 M	14,5 M	640 K	Vectoring repair line profile
LP145	70/50 M	10 M	14,5 M	640 K	Vectoring Provisioning Line Profile
LP701	20 M	2 M	14,5 M	640 K	Provisioning 20M
LP702	16,5 M	2 M	10 M	640 K	Provisioning 16,5M
LP703	14,5 M	1 M	10 M	640 K	Repair
LP704	9 M	512 K	4,6 M	256 K	Repair
LP705	30 M	6 M	14,5 M	640 K	Repair/DLM~~Provisioning 30M~~
LP706	25 M	6 M	14,5 M	640 K	Repair
LP707	20 M	6 M	14,5 M	640 K	Repair
LP708	14,5 M	4 M	10 M	640 K	Repair
LP709	50 M	6 M	14,5 M	640 K	DLM ~~for LP705~~
LP710	40 M	6 M	14,5 M	640 K	DLM ~~for LP705~~
LP711	12 M	1 M	4,6 M	256 K	Provisioning 12M

[3] Some speeds in this table are rounded ~~(to 0,1Mbps)~~ for the sake of clarity. The exact maximum~~Exact~~ speeds can be found in the Annex "Technical Specifications".

LP712	12 M	576 K	4,6 M	256 K	Repair
LP713	7 M	576 K	4,6 M	256 K	Repair
LP714	10,1 M	576 K	4,6 M	256 K	Repair
LP715	16,5 M	10 M	10 M	4 M	Provisioning 16,5M/10M
LP716	16,5 M	8 M	10 M	4 M	Repair
LP717	14,5 M	6 M	10 M	4 M	Repair/Provisioning 14,5M/6M
LP718	12 M	4 M	4 M	256 K	Repair
LP719	30 M	2 M	14,5 M	640 K	DLM ~~for LP701~~
LP720	25 M	2 M	14,5 M	640 K	DLM ~~for LP701~~
LP721	25 M	2 M	10 M	640 K	DLM ~~for LP702~~
LP722	20 M	2 M	10 M	640 K	DLM ~~for LP702~~
LP723	70 M	6 M	14,5 M	640 K	DLM ~~for LP705~~
LP724	60 M	6 M	14,5 M	640 K	DLM ~~for LP705~~
LP725	7,5 M	512 K	32 K	32 K	Vectoring Fall-Back line profile
LP730	9,5 M	640 K	4,6 M	256 K	Provisioning 9,5M
LP731	5 M	512 K	256 K	256 K	Repair
LP740	7 M	2.2 M	2.2 M	640 k	Provisioning 7M/2,2M
LP810	70/50 M[4]	6 M	14,5 M	640 K	Vectoring repair ~~Provisioning~~ line profile
LP820	70/50 M	4 M	14,5 M	640 K	Vectoring Repair line profile
LP830	50/30 M	4 M	14,5 M	640 K	Vectoring Repair line profile
LP840	50/30 M	2 M	14,5 M	640 K	Vectoring Repair line profile
LP850	30/22 M	2 M	14,5 M	640 K	Vectoring Repair line profile

38. For VDSL2, the splitter is dependent on the type of telephone line (PSTN or ISDN). Consequently, any cancellation or any conversion on the telephone services may possibly affect the Beneficiary VDSL2 based service and require the installation of new equipment at the End User premises. Such installation will be at the Beneficiary's expenses.

4.7 Use of the distribution pairs

[4] Maximum Net Data Rate: 70 Mbps; Maximum Expected Throughput Rate: 50 Mbps; Minimum Net Data Rate: 14,5 Mbps.

39. The WBA VDSL2 Service will only be delivered by Proximus on the direct pairs of the distribution cables, as defined in the Annex C "Technical Specifications" of BRUO, in the section 6 "Common technical specifications for the equipment to be connected to the loop or subloop", sub-section 6.1. "VDSL2", as described in the addendum of 24/10/2007 "Addendum to BRUO Annex C Technical Specifications regarding VDSL2".

40. The Beneficiary can check the availability of direct pairs for a certain End-user, based on the End-user dial number, its address or its circuit ID, through the use of a web tool, the LLU Inquiry Tool, available on the Beneficiary's personal page on the CWS secured site.

4.8 Internal cabling

41. To order a WBA VDSL2 Service for a specific End-user, the OLO must respect, at the premises of this End-user, the technical specifications regarding internal cabling defined in the Annex C "Technical Specifications" of BRUO, in the section"Common technical specifications for the equipment to be connected to the loop or subloop", sub-section "VDSL2", as described in the addendum of 24/10/2007 "Addendum to BRUO Annex C Technical Specifications regarding VDSL2".

42. If the specifications mentioned in the paragraph above are not fulfilled, one WBA VDSL2 line could disturb the other VDSL2 lines in the same cable bundle.

43. Therefore, the non-respect of the specifications mentioned in the present section 'Internal Cabling', will trigger at Proximus the downgrade of the line towards a repair profile.

4.9 Network Termination Point

44. The Network Termination Point is the first termination point of a loop at the End User premises. The Network Termination Point is a part of the Proximus network.

45. The NTP required for WBA VDSL2 is the model TF2007, equipped with its specific centralized splitter. This splitter protects the transmission of the VDSL2 signal towards the VDSL2 modem.

46. When correctly placed as first introduction point, the TF2007 and its specific full rate splitter are specially designed to respect the internal cabling rules mentioned in Section "Internal Cabling" of the present document.

47. This full rate splitter presents transmission characteristics specific to VDSL2, but is also suitable for ADSL and ADSL2+.

48. The access to the high bandwidth at the End-user will be at the splitter egress of the centralized splitter.

4.10 WBA VDSL2 modem

49. The provision of VDSL2 on an existing End-user line also requires the installation of a modem at the End User side. This modem will be provided and installed by the Beneficiary, or the Beneficiary's End-user, according to the requirements set forth in following paragraph.

50. The modem used by the End User must be in conformity with the applicable standardization and must be interoperable with the Proximus network. The Beneficiary has two options:

- The Beneficiary can use a standard modem (called Proximus CPE) as defined and described in the Annex 2, Technical Specifications (Section 11: Modem). This modem is supported on the Proximus network and may be installed at End User side.
- The Beneficiary can use his own modem (called OLO CPE) that will operate in a similar manner as a standard Proximus CPE. In this case, specific Roles and Responsibilities apply (described in Annex 7: Roles & Responsibilities throughout the OLO CPE lifecycle).

4.10.1 Firmware upgrades

51. The use of a WBA End User line requires that the modem at the End User side is kept up-to-date. Inappropriate firmware versions lead to perturbations on other VDSL2 lines.

52. Proximus regularly performs remote upgrades on all Proximus CPE that are upgradable to bring them to the appropriate firmware version. Nevertheless, some of the modems are not upgradable by the Proximus upgrade platform. **The Beneficiary is responsible to upgrade or replace the non-upgradable modems on request of Proximus 4 months after a request (for Shared VLAN and Dedicated VLAN).** Proximus therefore communicates to the Beneficiary a list of non-upgradable modems, and the possible solutions to upgrade them.

53. Proximus CPE can be non-upgradable for the following reasons:
- The management VLAN is not accessible by Proximus on a WBA Dedicated VLAN product,
- The management VLAN has been de-activated by the OLO,
- There is a bug in the modem firmware,
- A wrong firmware has been installed,
- The OLO has not upgraded the rescue firmware and the operational firmware to the same version,
- Possible other causes.

54. The timeline used by Proximus to communicate all necessary information is the following:

Timing	Process
4 months before deadline	Proximus provides OLO with: - Request to upgrade CPE, - List of the CPE to be upgraded, - Process on how to upgrade the CPE, - New CPE firmware.
Deadline	As from this deadline, Proximus can assign a fall-back line profile on end-user lines with a non-compliant CPE that could impact other end-user lines.

4.10.2 Non-compliant CPE

55. Non-compliant CPE impact other end-users. Therefore, after the upgrade deadline, Proximus reserves the right to **change the service delivered to a fall-back profile** for all the end-users with a non-compliant CPE.

56. A non-compliant CPE is

- Proximus CPE: a CPE with an outdated firmware,
- OLO CPE: a CPE with a firmware that does not comply with the obligations described into the Annex "OLO CPE Roles & Responsibilities" of the WBA VDSL2 reference offer,
- Other cases: all CPE that are not described in the WBA VDSL2 offer.

4.10.3 Connection of a CPE to the network

57. When a **new CPE** is connected to the network, it should be in the **latest version of the appropriate WBA firmware.** The Beneficiary therefore has to upgrade the CPE to the latest firmware version provided by Proximus if needed. The Beneficiary has to make sure that the upgrade occurred correctly before the connection.

4.11 WBA VDSL2 End-user line installation

4.11.1 With shared VLANs

58. The Beneficiary may order the provisioning of a WBA VDSL2 line with shared VLAN according to two installation types: without or with End-user visit.

59. Beneficiary or Beneficiary's End-user is always responsible for the delivery and installation of the full rate splitter on the NTP.

4.11.1.1 Without End-user visit

60. The Beneficiary or the Beneficiary's End-user performs the installation at the end-user premises. Beneficiary or Beneficiary's End-user is responsible for the delivery and installation of the NTP.

61. Notwithstanding the deployment rules set forth in Section 4.13, an installation without End-user visit is only possible if:

    - The End User is connected to direct pairs as described in Section 'Use of the distribution Pairs' of the present document ;
    - The internal cabling requirements defined in Section 'Internal Cabling' of the present document are met;
    - The NTP defined in Section 'Network Termination Point' of the present document is present and correctly connected to the PROXIMUS network.

    The Beneficiary should make sure these conditions are met, e.g. by using the LLU inquiry tool, by questioning its End-user at the order intake or by performing an on-site survey at end-user premises.

62. If during a repair action performed by Proximus on a newly installed WBA VDSL2 line with shared VLAN installed without End-user visit by Proximus, it is found that the trouble covered by the Trouble Ticket was due to the absence of the NTP defined in Section 'Network Termination Point" of the present document 4.9, Proximus will be entitled to invoice its repair intervention following

the tariffs defined in the Annex 5, Pricing, Compensation and Billing of the present WBA VDSL2 reference offer.

63. If during a repair action performed by Proximus on a newly installed WBA VDSL2 without voice line with shared VLAN installed without End-user visit by a certified technician, it is found that the trouble covered by the Trouble Ticket was due to the incorrect installation performed by the certified technician, Proximus will be entitled to invoice its repair intervention following the tariffs defined in the Annex 5, Pricing, Compensations and Billing of the present WBA VDSL2 reference offer.

4.11.1.2 With End-user visit

64. The Beneficiary may also order the provisioning of a WBA VDSL2 line with shared VLAN with End-user visit, in order to let Proximus or a certified technician perform the NTP installation at the end-user premises. Proximus or the certified technician is then responsible for the delivery and installation of the NTP. In case of installation by Proximus, this installation includes the placement[5] of maximum 20 meters cable between the introduction and the NTP.

65. If an activation for WBA VDSL2 line with shared VLAN is ordered with installation by Proximus and without End-user visit, but during the activation process of the line Proximus finds that an End-user visit is required (e.g.: to swap the End User from a return to a direct pair), Proximus will inform the Beneficiary and perform the installation with End-user visit. The installation will then be invoiced following the tariffs of installation with End-user visit defined in the Annex 5, Pricing, Compensations and Billing

66. If no Network Termination Point is present, it will be installed by Proximus or by a certified technician at the moment of the line provisioning. This is automatically the case for:
    - Small Network Adaptations (at no extra cost for the Beneficiary, i.e. this cost is included in the SNA fee). SNA are always performed by Proximus.

67. If during a repair action performed by Proximus on a newly installed WBA VDSL2 without voice line with shared VLAN installed with End-user visit by a certified technician, it is found that the trouble covered by the Trouble Ticket was due to the incorrect installation performed by the certified technician, Proximus will be entitled to invoice its repair intervention following the tariffs defined in the Annex 5, Pricing, Compensations and Billing of the present WBA VDSL2 Reference Offer.

4.11.2 With dedicated VLANs

68. During the provisioning of a WBA VDSL2 line with dedicated VLAN Proximus or the certified technician is responsible for the delivery and installation of the NTP at the end-user premises. In case of installation by Proximus, this installation includes the placement[6] of maximum 20 meters cable between the introduction and the NTP.

69. Beneficiary or Beneficiary's End-user is always responsible for the delivery and installation of the full rate splitter on the NTP.

[5] Only in case no NTP initially present on site, no vertical cable, no drilling work, and placement in existing cable gutter.

[6] Only in case no NTP initially present on site, no vertical cable, no drilling work, and placement in existing cable gutter.

70. If no Network Termination Point is present, it will be installed by Proximus or by a certified technician at the moment of the line provisioning. This is automatically the case for:
    - Small Network Adaptations (at no extra cost for the Beneficiary, i.e. this cost is included in the SNA fee). SNA are always performed by Proximus.

71. If during a repair action performed by Proximus on a newly installed WBA VDSL2 without voice line with dedicated VLAN installed by a certified technician, it is found that the trouble covered by the Trouble Ticket was due to the incorrect installation performed by the certified technician, Proximus will be entitled to invoice its repair intervention following the tariffs defined in the Annex 5, Pricing, Compensations and Billing of the present WBA VDSL2 Reference Offer.

4.12 Small Network Adaptations

72. The Introduction Cable (also referred to as drop wire) is defined as the physical part of an End-user line that connects the Distribution Cable to the End-user Network Termination Point.

73. In case no suitable Introduction Cable is available for the provisioning of a WBA VDSL2 line, the following solutions, called Small Network Adaptations, will be applicable:
    - Realization of a new introduction in the building of the Beneficiary's End-user
    - Renewal of the introduction in the building of the Beneficiary's End-user
    - Splicing additional pairs in the existing introduction splice of the building of the Beneficiary's End-user
    - Moving existing introduction from an existing Distribution Cable to another existing Distribution Cable.

74. These solutions will only be available upon specific request of the Beneficiary and providing that the Proximus standard conditions for access are fulfilled. This requires that a free duct or an open trench is available on the private domain. If a free duct or an open trench is not available on the private domain, Proximus can be asked to also perform this part of the work on condition that the Beneficiary agrees to pay the price for that part of the work performed by Proximus. This price will be determined on a case-by-case basis.

75. The certified technicians will never perform Small Network Adaptations.

76. Proximus will only perform the Small Network Adaptations if the splicing is done in front of the premises of that specific End-user. Proximus will provide an Introduction Cable with a standard length of 20 meters to provide connection between the Distribution cable and the Network Termination Point. In case an introduction with a length more than 20 meters has to be provided, Proximus will charge the Beneficiary the relevant price for the extra work. On the private domain, duct and trench must be provided by the Beneficiary.

77. In case no more free pairs are available in the Distribution Cable, the request for WBA VDSL2 without voice will be rejected. The construction or trenching of new distribution cabling, new street cabinets or new feeder cabling is outside the scope of the present offer.

4.13 VDSL2 deployment rules

78. The VDSL2 Line Profiles defined in section 'Activation of WBA VDSL2 on a specific end-user line' of the present document will be provisioned by Proximus on an End-user line according to the following deployment rules:

Att_{Loop} [dB]	$Length_{Loop}$ [m]	Line Profile name
<0,4	<400	LP 056~~705~~
<0,7	<700	LP701
<1	<1.000	LP702
<1,4	<1.400	LP711
<1,6	<1.600	LP730
<0,6	<600	LP715[7]
<0,6	<600	LP717[8]
<1	<1.000	LP740

Where:

- Att_{Loop} = the loop attenuation at 800 Hz between the ROP and the end-user premises,
- $Length_{Loop}$ = the loop length between the ROP and the end-user premises,
- The conditions on loop attenuation and loop length must be fulfilled simultaneously to assign a specific Line Profile on an End-user line.

79. Those conditions are applicable both for "with Voice" and "without Voice" WBA VDSL2 lines.

80. Those values are only deployment rules and not a performance guarantee. The values are subject to evolution and could be reviewed.

4.14 Dynamic Line Management (DLM)

81. DLM (Dynamic Line Management) is a process allowing part of the VDSL2 lines to benefit from higher bit rates for downstream than expected according to the provisioning rules based on loop length and attenuation, without increasing significantly the risk for transmissions errors or instabilities. To implement this technique, Proximus developed tools and processes which carry automatically and periodically several series of measures (e.g. : measure of spectrum of the lines) on installed VDSL2 lines and determine, line per line and based on algorithms, if they can be upgraded towards higher downstream ~~line~~ profiles. With this process, certain lines with high possibilities can be boosted to a VDSL2 downstream Line Profile with higher downstream bandwidth (see section 'Activation of WBA VDSL2 on a specific end-user line' of the present document). DLM on upstream has been implemented differently: DLM can decrease the highest possible upstream speed provisioned (e.g. 10 Mbps in legacy zone 1) if needed towards a lower upstream speeds (e.g. 6 Mbps in legacy zone 1).

[7] The profile LP715 (and the related profiles LP716, LP717, LP718) enable OLOs to offer a WBA service with higher upstream. These profiles will only be provisioned if the OLO made a specific request to order the "WBA VDSL2 high Upstream" product. The details on ordering are available in the "WBA VDSL2 XML content description" document, on the OLO personal page.

[8] The profile LP717 (and the related profiles LP718 & LP740) enables OLOs to offer a WBA service with symmetric profiles. These profiles will only be provisioned if the OLO made a specific request to order the "WBA VDSL2 symmetric" product. The details on ordering are available in the "WBA VDSL2 XML content description" document, on the OLO personal page.

82. This technique does not modify any of the current VDSL2 provisioning rules, which remain unchanged. It only aims at improving the reachable downstream speeds and decreases the upstream speeds if needed, once the lines are already installed, and if they fulfil specific technical requirements.

83. There is no guarantee that the new improved downstream speed once awarded by the DLM process on a VDSL2 line will always remain: if the line spectrum would change, in case for example of cross talk or interferences impacting neighbouring lines, the DLM process could decide to bring the line back to its initial downstream line ~~profile~~speed. The DLM process will however never downgrade the lines downstream speed ~~on a profile~~ lower than the downstream speed of the corresponding provisioning profile. There is also no guarantee that the highest possible upstream speed as provisioned will always remain. The DLM process will however never downgrade the upstream speed below a predefined value as documented in the corresponding lowest DLM line profile.

84. The DLM is not a technology guaranteed in time: the DLM functionality may be de-activated in the future in case it would be impacting the VDSL2 network deployment as planned by Proximus.

4.15 Vectoring

85. The vectoring is a technology implemented to guarantee higher speeds on VDSL2 lines. The principle of vectoring is to cancel the cross-talk (FEXT) between different VDSL2 lines present in the same copper bundle by injecting an anti-signal on each crosstalk-impaired VDSL2 line of the bundle. With no interference, each vectored VDSL2 line can then operate at higher-speed, as if it were the only line in the bundle.

86. To the opposite of DLM, for which there is no guarantee that the improved speed once awarded by the DLM process on a specific VDSL2 line will always remain, the vectored lines will - once vectored – keep their new higher bitrate, based on a continuous real-time process of measurement, processing and correction.

87. Vectoring line profile will be activated for the lines equipped with a modem with a vector-compliant firmware and with length below 400m and attenuation at 800 Hz below 0, 4 dB. The lines equipped with a modem with a vector-friendly firmware will keep their active line profile while lines equipped with a modem with a non-vector-friendly firmware will keep the fall-back profile/mode (see section 'Special conditions in connection with Repair' of the Annex 3 – Planning & Operations of the present WBA VDSL2 offer).

88. This technique does not modify any of the current VDSL2 provisioning rules, which remain unchanged. It only aims at improving the downstream speeds, once the lines are installed, and if they fulfil specific technical requirements.

89. DLM & Vectoring effects will not be combined, meaning that DLM remains possible on vectoring eligible lines equipped with a vector-friendly modem.

4.16 Termination of the voice subscription with WBA VDSL2 with voice

90. In case of a WBA on VDSL2 with voice service where both Proximus and the Beneficiary provide services to an End-user, it can occur that the End-user cancels his voice subscription for that WBA VDSL2 with voice service. In that case, independent of the reason for termination of the voice subscription, Proximus will ensure that the service on the high bandwidth remains into service.

91. In case of a WBA on VDSL2 with voice (ISDN) service where both Proximus and the Beneficiary provide services to an End-User, Proximus may deactivate the (ISDN) voice service in order to replace it by an equivalent ISDN solution configured on a separate copper pair. In that case, Proximus will ensure that the service on the high bandwidth remains into service and that the WBA VDSL2 configuration in Proximus network remains unchanged (same copper pair and same line card position).

92. Proximus will inform the Beneficiary that the WBA on VDSL2 with voice service has been converted to a WBA on VDSL2 without voice service, for which the Beneficiary will be charged the monthly rental fee for WBA VDSL2 on a non-active loop instead of WBA VDSL2 on an active loop. For the change to WBA on VDSL2 without voice, a conversion fee as specified in Annex 5 'Pricing, Compensations and Billing' of the present WBA VDSL2 reference offer is applicable.

5 Operational Processes

93. The provisioning and repair processes for the OAL, the VLAN and the End-user lines are detailed in the Annex 3' Planning and Operations' of the present WBA VDSL2 reference offer.

6 Pricing and Billing

94. Principle: all Standard Fees as described in Annex 5 “Pricing, Compensations and Billing” of the present WBA VDSL2 reference offer, will be invoiced to and are to be paid by the Beneficiary whenever relevant.

95. The Beneficiary will receive a monthly invoice containing the fees (recurring and non-recurring) for that period. Invoices related to any relevant fees are to be paid within the foreseen deadlines as set out in the Annex 5 “Pricing, Compensations & Billing” of the present WBA VDSL2 reference offer.

7 Usage of a unique reference for transfers of without PSTN or ISDN Proximus services

96. In case a Beneficiary sends a request to take over a BRUO/BROBA/WBA VDSL2 service "without PSTN or ISDN Proximus services" from another Beneficiary or a Proximus xDSL without voice service, there will be an issue in the identification of the copper pair on addresses with for example more than one pair in service.

97. For a request from a BROBA/BRUO/WBA VDSL2 without PSTN or ISDN Proximus service or from a Proximus xDSL without voice service, the Beneficiary will include the circuit ID of the service communicated to the prior Beneficiary as identification of the service to be transferred.

98. The circuit ID that has been communicated by Proximus at the provisioning of a new BRUO/BROBA/WBA VDSL2 service or of a new Proximus xDSL without voice service is a unique reference that will identify both the service and the copper pair.

99. The Beneficiary communicates, for all services without PSTN or ISDN Proximus services, the circuit ID provided by Proximus. This should be done by including this reference on the bills and contracts that are sent to the End-user for the service based on BRUO/BROBA/WBA VDSL2. By that, in case of transfer, the circuit ID can be exchanged between a Beneficiary and the End-user, just like is done with the dial number in the case of a with voice product. As a consequence the Circuit ID can be included systematically in the orders and this will avoid further problems in this case.

100. The Proximus xDSL without voice service is identified by a circuit-id which can be found on the invoice.

Appendix A: Description of the OLO Access Line

101. The OLO Access Line is a point-to-point, high-speed data transfer service, offering a speed of 10Mb, 100 Mb or 1Gb (depending of the different versions defined further in this document) , between your site and the Proximus Ethernet network.

102. The OLO Access Line is based on Proximus's fibre optic infrastructure. This is a comprehensive service which includes the network infrastructure, the transmission equipment and proactive management by Proximus.

103. OLO Access Line is available throughout Belgium. Nevertheless, for each request, Proximus will carry out a preliminary feasibility study to determine the infrastructure works that are required (works in the public and/or private domain, installation of fibre optic cables, entry points into buildings, etc.).

104. The terms, conditions and requirements set out in this section determine the general framework between Proximus and the Beneficiary on OLO Access Line Service in the framework of the provision of a connection between a Proximus Service Router, located in a Proximus Service PoP,

and the Customer Equipment, in the framework of this service. This Service will be referred to hereafter as “OLO Access Line”.

105. For the provision of OLO Access Line, the Beneficiary will subscribe a one (1) year contract, under which the OLO Access Line is made available to the Beneficiary for a fixed term of one year. At the end of this period, the contract will be tacitly renewed for an indefinite duration and can be terminated at any time with a notice of at least one calendar month. If the Beneficiary wishes to terminate the contract during the initial one-year term, the Beneficiary will pay to Proximus a termination fee equal to the total of the rental fees until the end of such term.

106. The OLO may order **Customer-Sited OLO Access Lines**, in case the line terminates in the Beneficiary premises, outside any Proximus colocation, **Proximus-Sited OLO Access Lines**, in case the line terminates in its colocation in the building as the Service PoP, or **Backhaul OLO Access Lines**, in case the line terminates in its colocation in another building than the Service PoP.

1. Customer-Sited OLO Access Line

a. Description

107. Customer-Sited OLO Access Line is a connection system that is provided in its entirety by Proximus between the Beneficiary Connection point at the Beneficiary premises, and a Proximus Service Router.

108. Proximus will install the necessary transmission equipment at the premises of the Beneficiary.

109. The Customer-Sited OLO Access Line Service consists of one (1) or more Gigabit Ethernet (GbE) systems.

110. The 1 GbE Systems provided under this Service Plan do not have Diversity of routing.

111. The Beneficiary Connection point is located at the Beneficiary's premises.

b. Implementation

112. The implementation of Customer-Sited OLO Access Line Service will be in accordance with the Technical Specifications provided in Annex 2 "Technical Specifications" – section "OLO Access Line".

c. General Conditions

113. A Customer-Sited OLO Access Line Service can be ordered by the Beneficiary between a specified Proximus Service PoP (Connection Point) and the specified Beneficiary's premises.

114. The Beneficiary shall provide and maintain, at its expense, the cabling from the Point of Connection in the Beneficiary Premises to the Customer Equipment including any cross connections that are required.

115. All Proximus transmission equipment shall comply with the appropriate Proximus Technical Specifications provided in Annex 2 "Technical Specifications" – section "OLO Access Line".

d. Specific Conditions

116. Proximus will identify each 1GbE Customer-Sited OLO Access Line provided pursuant to the conditions of this Section through attributing them a codification number.

2. Proximus-Sited OLO Access Line

a. Preliminary

117. A Proximus-Sited OLO Access Line Service can be brought into service with regard to a specified site, and the Beneficiary can be entitled to install the equipment required to this effect in the Proximus building concerned, if and only if the Beneficiary has prior to this time signed an appropriate Colocation Agreement with regard to the site concerned.

118. The Proximus-Sited OLO Access Line Service can only be used for all connection purposes with Proximus Ethernet data network.

119. For the sake of clarity, it is noted that OLO Access Lines covered by this document are 1 GbE OLO Access Lines.

b. Description

120. Proximus-Sited OLO Access Line is a connection system that is provided in its entirety by Proximus between a Proximus Service Router and the Beneficiary Connection point sited in its colocation in the same building.

121. A "Proximus-Sited OLO Access Line Service" is a connection service where Proximus offers the possibility to a Beneficiary to provide the entire OLO Access Line including the Beneficiary transmission equipment that is installed in a Proximus technical building. The Beneficiary will install its cable infrastructure at least up to an introduction duct designated by Proximus in the immediate vicinity of the Proximus Service PoP (building) in which any Proximus Service Router is located.

122. The Beneficiary Point of Connection for this type of OLO Access Line is located in the Proximus premises on the indoor cable connecting the Beneficiary's transmission equipment to the Proximus DDF, at the place where that cable enters the collocation room.

123. In the event that Proximus is caused to replace the collocation room in which the transmission equipment of the Beneficiary is to be installed, then both Parties will cooperate to find a mutually acceptable solution.

124. The Beneficiary shall install equipment in its colocation area and following the rules set out in the colocation agreement.

c. General Conditions

125. All Beneficiary transmission equipment shall comply with the Technical Specifications provided in Annex 2 "Technical Specifications"– section "OLO Access Line".

126. The Beneficiary shall provide to its employees full information regarding the content of the rules to be respected regarding Proximus-Sited OLO Access Lines.

d. Procedures

127. The Beneficiary is responsible for determining the number of Proximus-Sited OLO Access Line Service that the Beneficiary requires. In this respect, Proximus does not make a representation that it will at all times be in a position to provide the full capacity ordered by the Beneficiary. In particular, it is not excluded that, taking into account possible evolutions in the future, Proximus may be confronted with a high number of requests for the installation of additional collocation spaces in different buildings that would not allow Proximus to respect all relevant timers. In these cases, Proximus will have to inform the market.

3. Backhaul OLO Access Line

a. Preliminary

128. A Backhaul OLO Access Line Service can be brought into service with regard to a specified site, and the Beneficiary can be entitled to install the equipment required to this effect in the Proximus building concerned, if and only if the Beneficiary has prior to this time signed an appropriate Colocation Agreement with regard to the site concerned.

129. Backhaul OLO Access Line Service can only be used for all connection purposes with Proximus Ethernet data network.

130. For the sake of clarity, it is noted that OLO Access Lines covered by this document are 1 GbE OLO Access Lines.
131. 1 GbE Systems provided under this Service Plan do not have Diversity of routing.

b. Description

132. Backhaul OLO Access Line is a connection system that is provided in its entirety by Proximus between a Proximus Service Router and the Beneficiary Connection point, sited in its colocation in another building than the one hosting the Proximus Service Router

133. A "Backhaul OLO Access Line Service" is a connection service where Proximus offers the possibility to a Beneficiary to provide the entire OLO Access Line including the Beneficiary transmission equipment that is installed in a Proximus technical building. The Beneficiary will install its cable infrastructure at least up to an introduction duct designated by Proximus in the immediate vicinity of the LEX (building) in which the Beneficiary colocation is located.

134. The Beneficiary Point of Connection for this type of OLO Access Line is located in the Proximus premises on the indoor cable connecting the Beneficiary's transmission equipment to the Proximus DDF, at the place where that cable enters the collocation room.

135. In the event that Proximus is caused to replace the collocation room in which the transmission equipment of the Beneficiary is to be installed, then both Parties will cooperate to find a mutually acceptable solution.

136. The Beneficiary shall install equipment in its colocation area and following the rules set out in the colocation agreement.

c. General Conditions

137. All Beneficiary transmission equipment shall comply with the Technical Specifications provided in Annex 2 "Technical Specifications"– section "OLO Access Line".

138. The Beneficiary shall provide to its employees full information regarding the content of the rules to be respected regarding Backhaul OLO Access Lines.

d. Specific Conditions

139. Proximus will identify each 1GbE Backhaul OLO Access Line provided pursuant to the conditions of this Section through attributing them a codification number.

e. Procedures

140. The Beneficiary is responsible for determining the number of Backhaul OLO Access Line Service that the Beneficiary requires. In this respect, Proximus does not make a representation that it will at all times be in a position to provide the full capacity ordered by the Beneficiary. In particular, it is not excluded that, taking into account possible evolutions in the future, Proximus may be confronted with a high number of requests for the installation of additional collocation spaces in different buildings that would not allow Proximus to respect all relevant timers. In these cases, Proximus will have to inform the market.

4.Product Options

The Proximus-sited and Customer-sited implementations generate following "product options", and offering different levels of redundancy.

Options	Protection
1 GE PROXIMUS-sited	-
1 GE Customer-sited	-
10 Mbit/s Customer-sited	-
100 Mbit/s Customer-sited	-
1+1 GE PROXIMUS- and Customer-sited	Port + fibre + card in PROXIMUS Service Pop
1 GE Backhaul	-

a. 1 GE / PROXIMUS sited

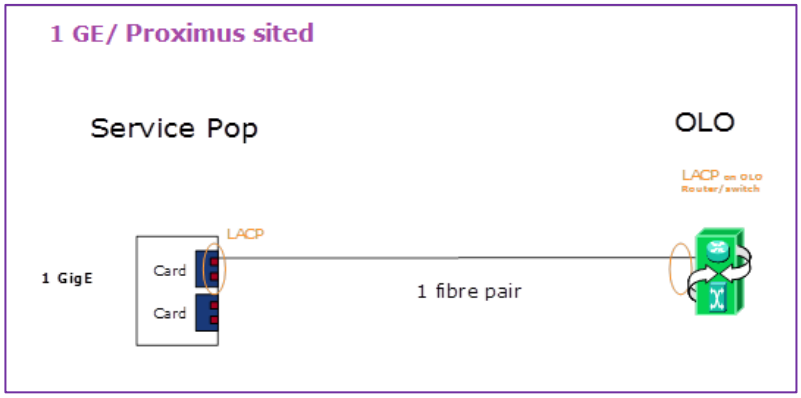


Figure 2: Design of the OLO Access Line 1GE Proximus-sited

b. 1GE/100Mbps/10Mbps Customer sited

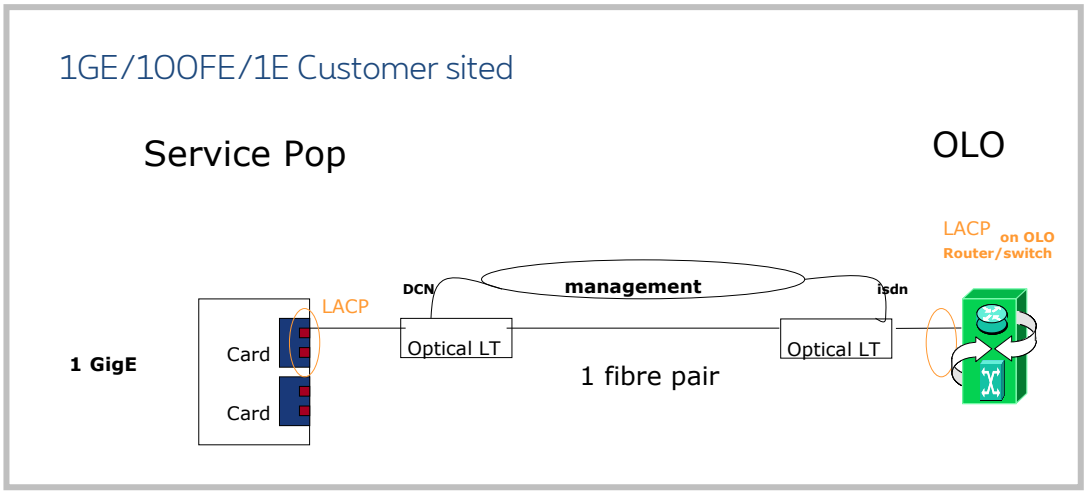


Figure 3: Design of the OLO Access Line 1GE/100Mbps/10Mbps Customer-sited

c. 1+1 GE / Proximus + Customer sited

The PROXIMUS link is working / The OLO fibre pair is stand-by.

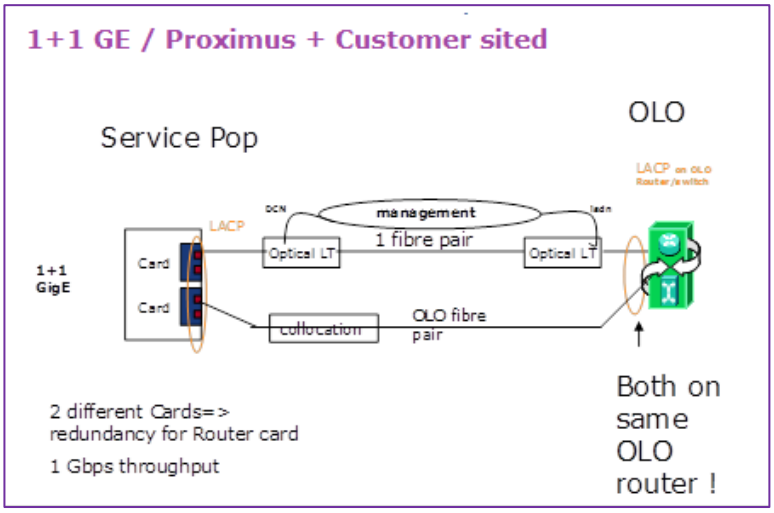


Figure 4: Design of the OLO Access Line 1+1 GE Proximus- & Customer-sited

d. 1 GE Backhaul

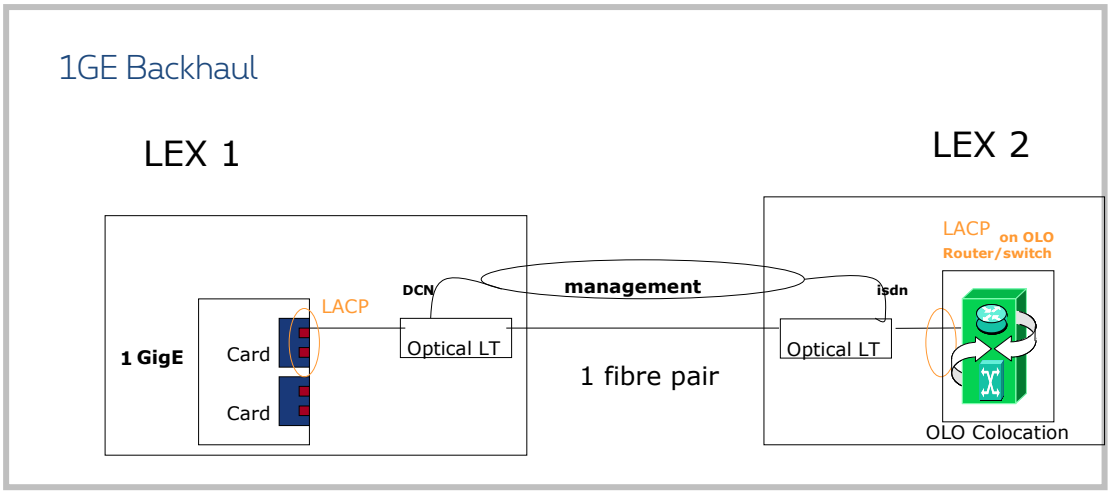
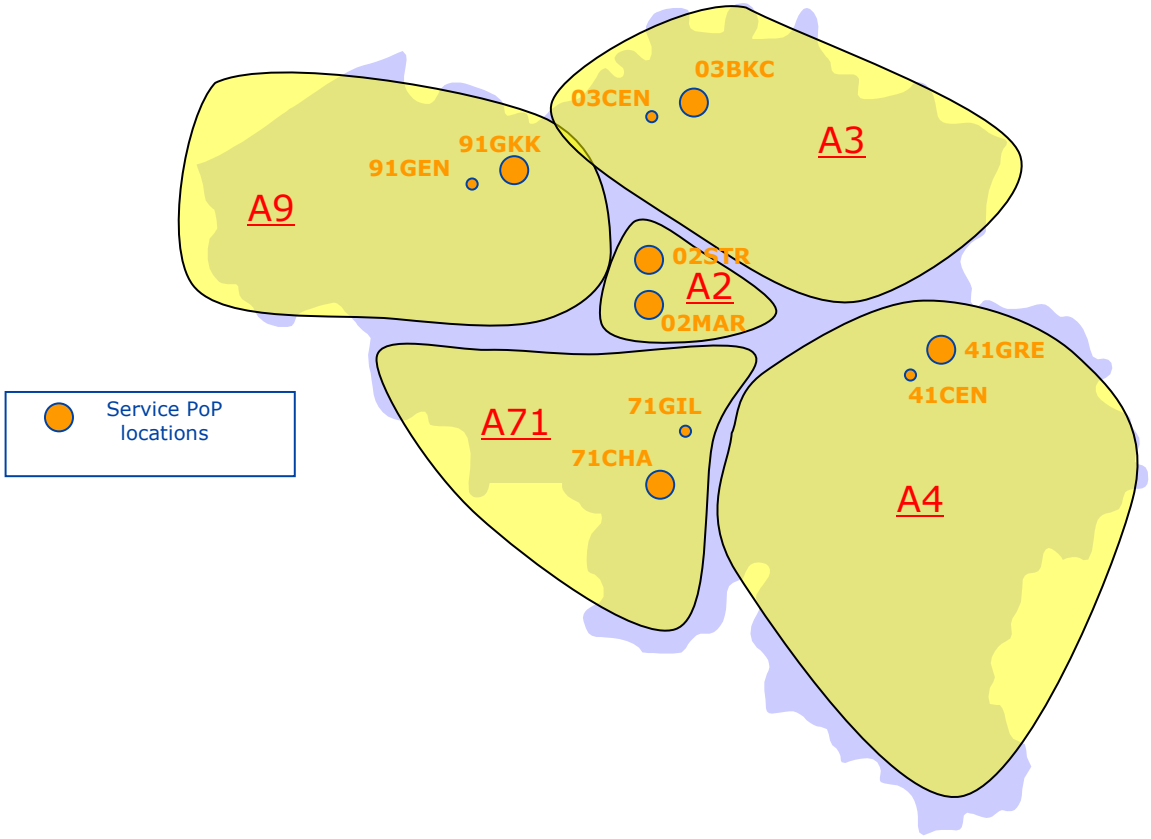


Figure 5: Design of the OLO Access Line 1 GE Backhaul

Appendix B: List of Service Areas and Service PoPs

a. Overview

5 Service Areas and 10 Service PoPs



b. Definition of the Service Areas

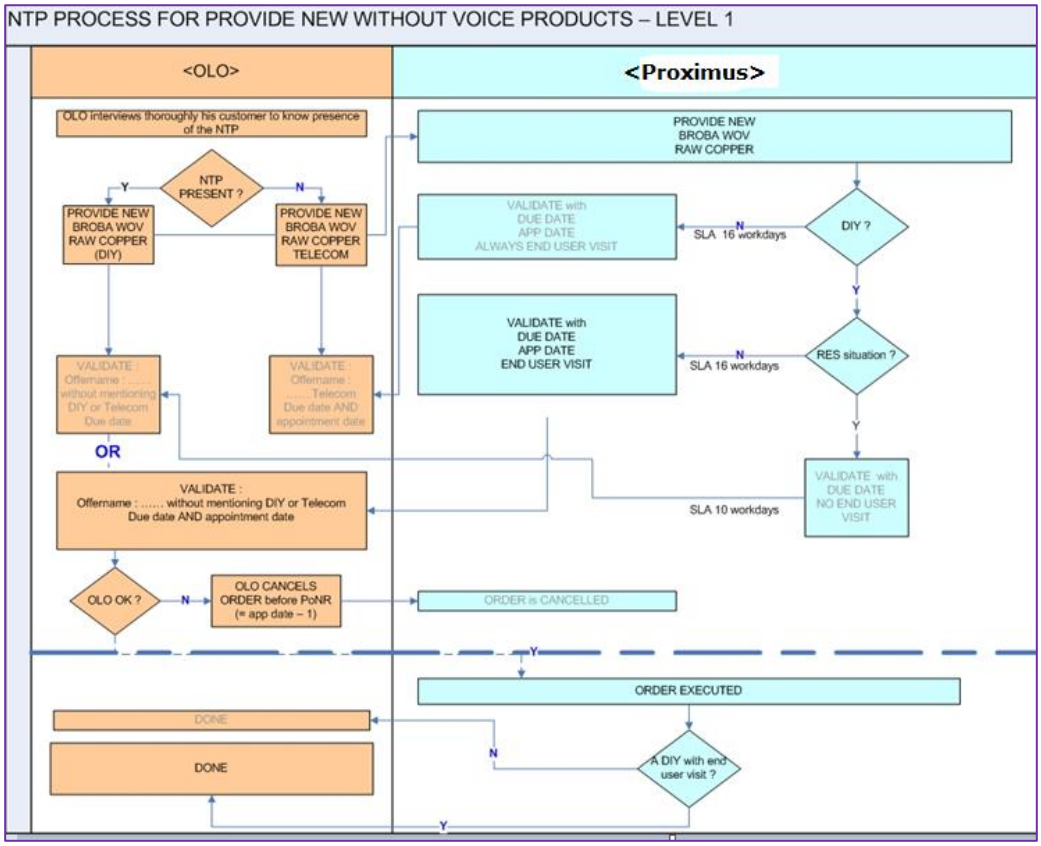
Service Area	Included Telephone Zones
A3:	03, 011, 012, 013, 014, 015, 016, 089
A2:	02
A4:	019, 04, 061, 063, 080, 081, 082, 083, 084, 085, 087
A71:	010, 060, 064, 065, 067, 068, 069, 071
A9:	050, 051, 052, 053, 054, 055, 056, 057, 058, 059, 09

(*): For the sake of clarity, it is confirmed that the zone codes indicated above in the context of the present offer are limited to the numbers which identify fixed network termination points. In particular, 09 and 04 are respectively limited to the number series 092, 093 and 042, 043. As far as the code 080 is concerned, the numbers starting with 0800 are excluded.

c. List of Service PoPs

Area		City	Address	NCOW
A9	91GKK	Gent - Keizer Karel	Keizer Karelstraat 1	9265
A9	91GEN	Gent - Centrum	Sint Niklaasstraat 27	9223
A3	03CEN	Antwerpen - Centrum	Lange Nieuwstraat 106	3224
A3	03BKC	Antwerpen - Berchem	Karel Coggestraat 2	3227
A2	02MAR	Brussels - Marais	Rue du Marais - Broekstraat 72-74	2220
A2	02STR	Brussels - Paille	Rue Lebeau - Lebeaustraat 2	2513
A71	71GIL	Charleroi - Gilly	Sentier de la Limite 80	7141
A71	71CHA	Charleroi - Centre	Rue de la science 2	7127
A4	41CEN	Liège - Centre	Rue de l'université 30	4223
A4	41GRE	Liège - Grétry	Rue d'Harscamp 17	4349

Appendix C: NTP Process for Provide New WBA without voice



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