Addendum to Bitstream Fiber GPON

# Introduction of the XGS-PON technology

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# 1 Purpose of the addendum

Besides the xDSL and GPON access technologies already available today, Proximus will introduce a new technology in the access network, i.e. XGS-PON. This new technology will allow multigigabit speeds on the PON network.

In this context the current Bitstream Fiber GPON reference offer will be renamed into Bitstream Fiber PON and will cover both technologies, GPON and XGS-PON.

The present addendum describes the impact of offering this new XGS-PON technology on the Proximus regulated offers (cf. section "Scope" below).

# 2 Glossary

- **Fiber XGS-PON**: the Proximus Fiber XGS-PON solution is an ITU-T G.9807.x based 10 Gigabit Passive Optical Network solution.
- **XGS-PON**: 10 Gigabit-capable Symmetric Passive Optical Network.

# 3 Scope of this addendum

This addendum is only applicable to the Ethernet transport Shared and Single VLAN of the Bitstream Fiber GPON reference offer, which will be renamed into Bitstream Fiber PON reference offer.

For the sake of completeness, the Bitstream Fiber GPON Dedicated VLAN service is not impacted by the present addendum.

# 4 Planning

The present addendum has been communicated to the BIPT in order to become effective in the course of the third quarter of 2022 – as of September at the earliest ([1]). As from then, an OLO will be able to order the new XGS-PON service as described in this addendum.

In a first phase, the XGS-PON technology and the related muligigabit profile will only be available in 5 cities: Antwerpen, Brussels (19 communes), Gent, Liège and Namur.

A launch across the complete PON network is foreseen in the course of 2023 ([1]).

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[1] Proximus might postpone this launch in order to guarantee the quality of the deliverables. The exact date will be communicated as soon as it is known by Proximus.

# 5 Description of the new XGS-PON technology

The figure below provides an overview of the different actions and upgrades that need to be done in order to enable the XGS-PON technology in the network and make multigigabit speeds available for End-Users:
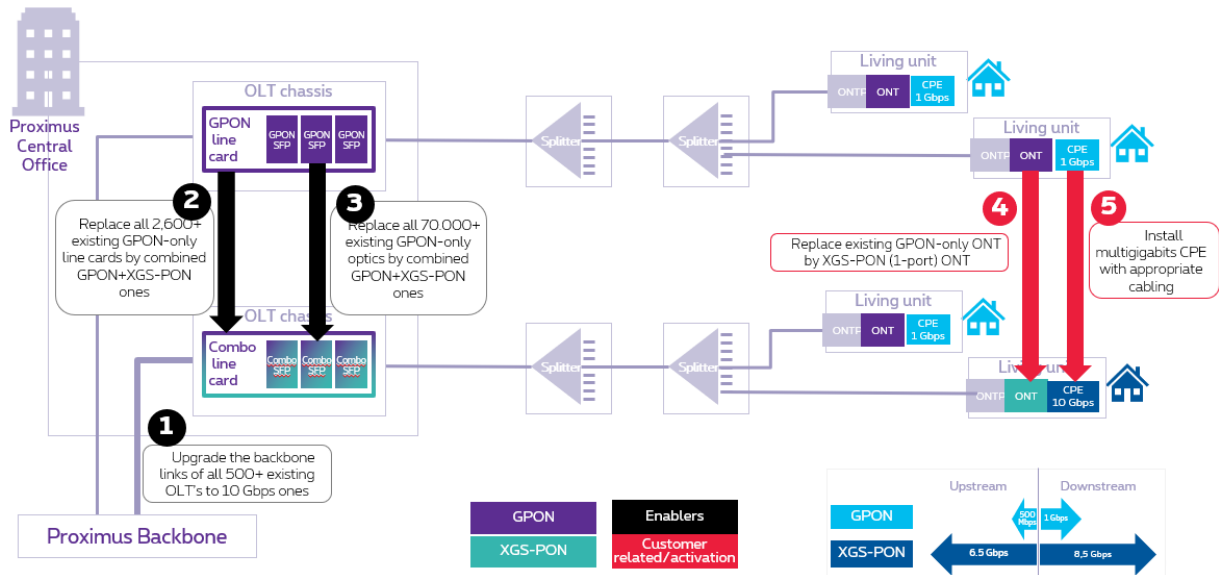


Three main actions need to be executed in the Proximus Central Office:

1) Upgrade of the backbone links of all existing OLTs to 10 Gbps links.
2) Replacement of all existing GPON-only line cards in the OLT chassis to combo cards supporting both GPON and XGS-PON.
3) Replacement of all existing GPON-only optics to optics supporting both GPON and XGS-PON.

At End-User side, 2 main actions need to be executed:

4) Replacement of the existing GPON-only ONT with a 1-port XGS-PON ONT. Note that the 1-port XGS-PON ONT will also support the current already existing profiles on the GPON network.
5) Installation of a multigigabits CPE with appropriate cabling (OLO responsibility). The XGS-PON ONT is part of the Proximus network (as is today the case for the GPON ONT). OLOs can install the CPE (router) of their own choice. As mentioned in the Annex 2, Chapter 9 of the Bitstream Fiber PON offer, the network interface of the OLO Service Box must comply with the UNI specifications, i.e. trunked Ethernet interface, no native Ethernet interface.

# 6 Profiles

One XGS-PON multigigabit profile will be added to the existing profile portfolio. An overview of all profiles on Shared and Single VLAN that will be available as of the launch targeted in the third quarter of 2022 can be found in the table below:

| Access Type | Speed (down/up) |
|---|---|
| Type 0 | 50/10 Mbps |
| Type 1 | 150/50 Mbps |
| Type 2 | 500/100 Mbps |
| Type 3 | 1/0,5 Gbps |
| Type 4 (XGS-PON profile) | 8,5/1,5 Gbps[2] |

[2] As the product is still in development and testing with very high speeds did not start yet, the maximum down- and upstream speeds of the new Type 4 profile at launch date might differ from the maximum speeds as shown in the table. Note that in general all PON speed profiles are always up to, without guarantee that the max speed is reached at all times.

# 7 Operational Impact

## 7.1 Ordering and provisioning process

Although engineering design and evaluation of ordering and provisioning impacts are not entirely finished yet, Proximus can already today reasonably take the sound assumption that the ordering and provisioning process for XGS-PON will be applicable in the WSO provisioning chain (WSL-MCOM-NPS) in the course of the third quarter of 2022[1].

Order of the new XGS-PON profile

The present update does not have any significant impact on the ordering process, nor on the communication flows during the ordering and provisioning of the new XGS-PON profile. The particularities will be documented with the high level and detailed IT protocols that will be communicated later.

The purpose is indeed to enable all functionalities available for the ordering and provisioning of the Bitstream Fiber GPON service for the Bitstream Fiber XGS-PON service (with Shared or Single VLAN).

However, the launch targeted in the course of the third quarter of 2022 and limited to the above-mentioned 5 cities (i.e., the first phase) will be based on a MVP (Minimum Viable Product) approach so that some of the GPON operational functionalities will not be available for XGS-PON as from this date.

More specifically, it is expected that the Partner Technician type as well as the Partner Splicing functionality will only be possible for XGS-PON orders as from the launch across the complete PON network foreseen in the course of 2023 (i.e., the second phase). In any case, these functionalities will be available as soon as the Proximus subcontractors have the skills and necessary hardware to execute XGS-PON orders.

It is also possible that in the first phase, multiple work orders are reported in the "Report Work Orders" notification, i.e. one work order for the splicing tasks and another work order for the installation and configuration of the XGS-PON ONT (with specific job codes). In this case, available timeslots will have to be requested per work order and appointment booking will have to be performed for both work orders. An additional delay (at least during the first phase) is expected for the service delivery.

## 7.2 Swap GPON ONT to XGS-PON ONT

In case a GPON ONT is already installed and the OLO requires an XGS-PON ONT for a service above 1 Gigabit, Proximus will swap the GPON ONT with an XGS-PON ONT. In this case as well, an additional delay (at least during the first phase) is expected for the service delivery.

It is not foreseen to swap an XGS-PON with a GPON ONT because the XGS-PON ONT can also support Shared and Single VLAN PON products up to 1 Gb/s.

## 7.3 Fault reporting and repair process

Although engineering design and evaluation of repair impacts are not entirely finished yet, Proximus can already today reasonably take the assumption that the introduction of the new XGS-PON technology will have no impact, neither on the fault reporting, nor on the communication flows during fault reporting. However, it is expected that the introduction of this new technology adds complexity to the repair process. In this regard, it will notably be important to ensure that the electrical connectivity after the ONT is of carrier grade quality to guarantee flawless high speed multi-Gbps throughputs (OLO responsibility).

# 8  Pricing

The tables below show the Monthly Rental fee (access) and the fix Transport fee applicable for the new Type 4 profile. This addendum has no impact on the pricing of the already existing profiles.

The monthly rental fee for the UNI rate limiting Type 4 will be:

| Access Type | Monthly Rental (access) |
|---|---|
| Type 4 | €44,00 |

The fix transport fee applicable to the XGS-PON End-User line will be:

| Fix Transport fee | Type 4 |
|---|---|
| Speeds Mbps (Down / Up) | 8500/1500 |
| Transport fee (PO, per End-User line) | €10,00 |

# 9 Impact on the regulated offers

## 9.1 Adaptation on Fiber GPON documents

Due to the multiple sections impacted by this addendum in the Bitstream Fiber GPON offer, it was opted to add the updated documents in attachment. The updates are shown in "Track Changes" mode.

These adaptations refer to the version 4 of the Bitstream Fiber GPON reference offer, (version 4 – updated with FTTH rental fees (cf. BIPT decision dd. 09/03/2021)), approved by the BIPT on 21/05/2021.

The updated documents are listed below:

- Main Body
- Annex 1: General Terms &Conditions
- Annex 2: Technical Specifications
- Annex 3: Planning & Operations
- Annex 4: Basic SLA
- Annex 4A: ISLA
- Annex 5: Pricing, Compensations & Billing
- Annex 6: Prepayment Terms & Conditions

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