



Bitstream

Welcome pack

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Table of contents

1. Introduction - Scope.....	4
2. What is Bitstream?.....	4
2.1 OAL	4
2.2 Ethernet transport.....	4
2.3 End-User line.....	5
2.4 CPE	5
3. What is it expected from you?.....	5
4. Steps and milestones to implement Bitstream.....	6
4.1 Feasibility study (to be done by the operator).....	6
4.1.1 Study the Bitstream offer.....	6
4.1.2 Estimate financial resources	6
4.1.3 Estimate human resources.....	6
4.1.4 Estimate technical resources.....	6
4.2 Preparation of the implementation (Proximus and the operator).....	6
4.2.1 Request Account Manager at Proximus	7
4.2.2 Request access to the e-services.....	7
4.2.3 Follow-up meeting(s).....	7
4.2.4 Develop an ordering system (optional).....	7
4.2.5 Allow Partner Install.....	8
4.2.6 Forecast of End-User lines	8
4.2.7 Develop the Certified Technician (CT) functionalities (optional)	8
4.2.8 Forecast of VDSL2 modems.....	8
4.3 Pre-payment contract or financial guarantee.....	9
4.4 Implementation of your company in Proximus systems	9
4.4.1 Require access to ordering platform	9
4.4.2 Order VDSL2 modems.....	9
4.4.3 DLM option.....	9
4.4.4 Get firmware for Dedicated VLAN (optional).....	9
4.4.5 Order OAL.....	10
4.4.6 Define Dedicated VLAN profiles (optional)	10
4.4.7 Test interaction with the ordering platform.....	10
4.4.8 Order Shared VLAN.....	10



4.4.9 Order End-User lines10

1. Introduction - Scope

This Welcome pack has been written to allow operators to estimate the workload and the impact of implementing the Bitstream xDSL and Bitstream Fiber GPON regulated offers, the main steps needed and their interactions.

Proximus offers a commercial alternative to Bitstream in order to offer Wholesale xDSL and GPON connections: the Carrier Services offer. The latter requires lower workload and knowledge on your side. It is billed via an end-to-end price per line, which makes it easily scalable.

In case the information in this document differs from the Proximus Reference Offer for Bitstream Access, the latter always prevails.

2. What is Bitstream?

Bitstream is a regulated offer that enables you as an operator to offer data access services to your End-Users, using the xDSL copper or Fiber GPON network of Proximus.

The Bitstream offer consists of four building blocks to deliver data access to the End-Users (for more details, see the Bitstream Offer / Main Body).

2.1 OAL

The OAL (OLO Access Line) is the connection between the Proximus network and your network. The network is divided into 5 areas and approximately 600 local networks. There are two PoPs per area and one LEX per local network. The customer must order an OAL in a Proximus Service PoP or a LEX to provide data access to the End-Users of the corresponding area.

2.2 Ethernet transport

Between the LEX where you want to be active and the OAL, data are carried on the Proximus Ethernet network through VLANs. When ordering VLANs, you can choose between four service qualities and two VLAN options (Shared or Dedicated¹ VLAN). With Shared VLAN, the data from the End-Users will be bundled in 4 VLANs (one per service quality). With Dedicated VLAN, a specific VLAN will be created to bundle all the traffic from each specific End-User.

¹ For Bitstream Fiber GPON, conditional to the availability of sufficient resources for network and IT implementation, the development of the Bitstream Fiber GPON "Dedicated VLAN" service in the Proximus network and systems is expected to be possible in the October 2019 release. This timeframe does not contain a commitment of Proximus. The technical specifications of this new service will be detailed out at a later stage.

2.3 End-User line

The End-User line is the link between the DSLAM (situated in the LEX or in a ROP - Remote Optical Platform) for xDSL or the Ethernet service switch to which the OLTs are connected for GPON and the End-User. It uses one of the following technologies (ADSL, Reach Extended ADSL2, ADSL2+, SDSL, VDSL2 or GPON) to provide a fast End-User access on Proximus copper pairs or optical signals.

In xDSL, the access speed depends on the distance and quality of the copper pair between the End-User and the DSLAM or the ROP. In VDSL2, the automatic test called TBF (Test de Bonne Fin) determines the optimal line profile for each End-User. Each technology is available up to a limited distance of the ROPs or the LEX. The customer has to choose and take care of implementing the adequate technology if he wants to reach his End-User.

2.4 CPE

The VDSL2 technology requires a specific configuration of the CPE (modem). Therefore only CPEs provided by Proximus or CPEs specifically tested for Proximus network will be accepted (more details in the Bitstream offer: Main Body / Modems, and Annex OLO CPE).

For GPON, the access to the high bandwidth at the End-User premises will be at the ONT Ethernet port, which is the Proximus network demarcation point where the Customer or the Customer's End-User will connect its LAN or its Service Box. The Service Box will be provided, installed and connected to the ONT by the Customer, or the Customer's End-User, according to the requirements set forth in Annex 2 "Technical Specifications" of the Bitstream Fiber GPON offer, section "Service Box".

The network interface of the OLO service box must comply with the UNI specifications, i.e. trunked Ethernet interface, no native Ethernet interface.

3. What is it expected from you?

The Bitstream offer enables you to develop your own branded data access offer and to take care of the following End-User aspects (non-exhaustive list):

- Sales & Marketing;
- End-User ordering;
- Billing to End-Users;
- First Line Helpdesk;
- CPE management: procurement, delivery, return, maintenance;
- CPE firmware upgrades (for Bitstream with Dedicated VLAN).

From a technical point of view, you must take care of the following elements (non-exhaustive list):

- Develop a compatible ordering system compliant with the MSO SOAP interface if you want to directly interconnect with the Proximus Pre-Check and Ordering IT Systems;
- OAL ordering and dimensioning;
- VLAN management and dimensioning;
- IP Transit, Radius, IP addresses management (IP address range, dynamic IP addressing);
- Broadband Access Server, transport backbone;
- First line troubleshooting and repair.

A pre-payment or financial guarantee must be provided as well before implementing Bitstream.

4. Steps and milestones to implement Bitstream

This section shows the required steps before delivering Bitstream services to End-Users, the interactions between them and the order that should be followed during the implementation.

4.1 Feasibility study (to be done by the operator)

4.1.1 Study the Bitstream offer

The Bitstream offer is available on www.proximuswholesale.be.

The offer defines the Bitstream products and explains all the requirements to implement it. It is necessary to have an essential understanding of the needed efforts and of all aspects of the Bitstream products.

4.1.2 Estimate financial resources

Proximus will request a pre-payment or financial guarantee to cover the invoices in line with the forecasts provided by the operator.

Bitstream is an offer that requires upfront investments. A certain amount of End-Users is needed before reaching a break-even point.

4.1.3 Estimate human resources

Bitstream is a regulated offer that requires technical and operational knowledge and expertise at your side. You have to make sure that you have the required resources available, among others:

- IT resources: XML or SOAP development, internal billing and customer handling systems.
- Telecom network resources: full understanding of Ethernet network deployment, CPEs and xDSL technologies.
- Operational resources: resources needed for helpdesk, customer care, billing...

4.1.4 Estimate technical resources

Implementation of Bitstream requires technical resources (e.g. compatible Ethernet Backbone...).

More information: Bitstream offer – Annexes “Technical Specifications”.

4.2 Preparation of the implementation (Proximus and the operator)

4.2.1 Request Account Manager at Proximus

The Account Manager will be your contact point for all commercial matters.

An Account Manager can be requested via email at wholesale@proximus.com.

4.2.2 Request access to the e-services

The e-services and the Wholesale personal page are important to get information to implement Bitstream.

You can register for the different tools via a link on the Proximus Wholesale public website:

<http://www.proximuswholesale.be/wholesale/en/jsp/dynamic/registrationform.jsp>.

4.2.3 Follow-up meeting(s)

Up to 2 meetings will be planned with you to follow-up the project, discuss the next steps and answer major questions. These meetings are coordination meetings. If you require more explanations due to a lack of preparation or an insufficient knowledge of the offer, Proximus will charge a fee, as defined in the Bitstream offers – Annex “Pricing, Compensations & Billing”.

Proximus expects that you prepare all your questions on the steps mentioned in this document before the follow-up meeting and send one week on beforehand all the questions and the planning that you intend to follow for the implementation of the Bitstream offer.

4.2.4 Develop an ordering system (optional)

Implementing the MSO SOA-based interface has to be considered to enable you to automate the ordering of Bitstream products by interconnecting directly with the Proximus Feasibility Pre-Check and Ordering systems. You will get a view on Proximus Technicians planning and will be able to fix yourself the appointments for the installations.

The SOA-based interface will be SID inspired. The interface will contain a number of SOA services supporting the different actions the customer can perform during the Ordering and Provisioning Processes.

Alternatively a GUI interface will be provided by Proximus.

Every interested customer will be able to request an access to the MSO GUI via the appropriate procedures. Access to functionalities is granted according to user profiles, as for current Proximus tools already accessible by the customers.

Both interfaces will allow in general the same functionalities:

- Ordering Process
 - o Pre-Checks
 - Location Check
 - Active Installation Check
 - Change of the detailed address
 - Network Feasibility Check

- Ordering
 - Submit a Customer Order
 - Upgrade the installation method
 - Negotiate and Book the appointment date and timeslot(s)
 - Cancel
- Provisioning Process
 - Amend Due Date / End-User Contact / Technical Remark / Product
 - Cancel
- Receive the messages to follow-up the Ordering and Provisioning Processes

Information: Bitstream offer – Annex “Planning and Operations”, Personal page (“Operational documentation”).

4.2.5 **Allow Partner Install**

As part of the installation method, the customer can choose a Partner technician to perform the installation.

Partner Technician indicates that the technician who will execute the Manual work order(s) is actually a technician from one of the Proximus installation partners.

4.2.6 **Forecast of End-User lines**

You need to provide an estimation of the amount of End-Users that you want to connect with the Bitstream products. This estimation is necessary for the financial guarantee and the dimensioning of the IT systems. It will help you to dimension VLANs and OALs as well.

4.2.7 **Develop the Certified Technician (CT) functionalities² (optional)**

The CT process enables you to train and use your own technicians to perform some kinds of installations of End-User lines.

Reference: personal page / Operational documentation.

4.2.8 **Forecast of VDSL2 modems**

If you want to order Proximus CPEs, you need to provide rolling forecasts for the need of modems.

² Not applicable for Bitstream Fiber GPON

4.3 Pre-payment contract or financial guarantee

A pre-payment or financial guarantee is required before implementing your company in Proximus systems and before ordering any Bitstream service (OAL, Shared VLAN, End-User line, modem). It will be based on the forecasts of End-User lines and modems provided by you.

Reference: *Bitstream Offer – Annex “Prepayment Terms and Conditions”*.

4.4 Implementation of your company in Proximus systems

The main contacts during the implementation of your company are the Account Manager and the Service Manager.

4.4.1 Require access to ordering platform

The interaction between the operator’s ordering system and Proximus platform needs to be configured on beforehand to use the MSO SOAP interface.

4.4.2 Order VDSL2 modems

Take care that the average time for the delivery of the modems is 8 weeks from the order date.

Reference: *order form on the Wholesale Personal Page*.

4.4.3 DLM option³

You can choose the default DLM (Dynamic Line Management) option for all the VDSL2 End-User lines (opt-in or opt-out).

Reference: *Bitstream xDSL Main Body / Section DLM*.

4.4.4 Get firmware for Dedicated VLAN (optional)

A specific firmware must be uploaded into the modem if you want to use the Dedicated VLAN option.

Reference: *Annex “Technical Specifications” (Section Modems)*.

³ Not applicable for Bitstream Fiber GPON.

4.4.5 **Order OAL**

You need to order an OAL. This step must be completed before any order of VLANs can occur. There are two kinds of OAL: Proximus-sited and Customer-sited OALs.

Reference: Annex "Planning & Operations".

4.4.6 **Define Dedicated VLAN profiles (optional)**

A common pool of Dedicated VLAN profiles is available to all operators. Should you want to offer own Dedicated VLAN profiles, you can define your own pool of profiles. The definition of these profiles is release dependant (in general, there are 3 releases per year at Proximus, around February, June and October).

Reference: Bitstream offer, Appendix A of the Main Body and Annex "Planning & Operations".

4.4.7 **Test interaction with the ordering platform**

The interaction between your ordering system and the Proximus platform needs to be tested and validated before End-User lines orders can occur.

4.4.8 **Order Shared VLAN**

Ordering Shared VLANs is the last step that has to be completed before being able to order End-User lines.

Reference: Annex "Planning & Operations".

4.4.9 **Order End-User lines**

Reference: Annex "Planning & Operations".

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