



# XGS-PON bei BBCS

Brief description of XGS-PON as part of BBCS

swisscom

C1 - Public



# XGS PON – The next generation access technology

With the introduction of XGS-PON in 2020 as a strategic access technology at BBCS, a lot has changed in connection activation. The shared medium within a PON tree means that the ONT used must be connected to the ordered service.

As several orders from different service providers are waiting to be paired with the corresponding ONT of their end customer in a PON tree at the same time, an assignment must be made by means of identification.

To do this, Swisscom use the splash page known from the preorder in a slightly modified form in BBCS. To further simplify pairing for the end customer, BBCS also supports this using the WAN-side MAC address of ONTs.





# Qualification

XGS-PON access qualification



# WSG Service Fulfillment

## WSG SAQ with Fiber

In the SAQ the value "Fiber" is returned in BBType if Fiber Lines are possible (BX and/or XGS-PON)

The fiber technologies that are possible in a building can be seen under "Available Technology" and a plan date if a technology is planned.

However, the concretely available technologies on a specific OTO/utilization unit are only provided with the service qualification.

**Service Availability Qualification Result**

[back](#)

**Request**

ISP 100036 Sunrise Communications AG (R)

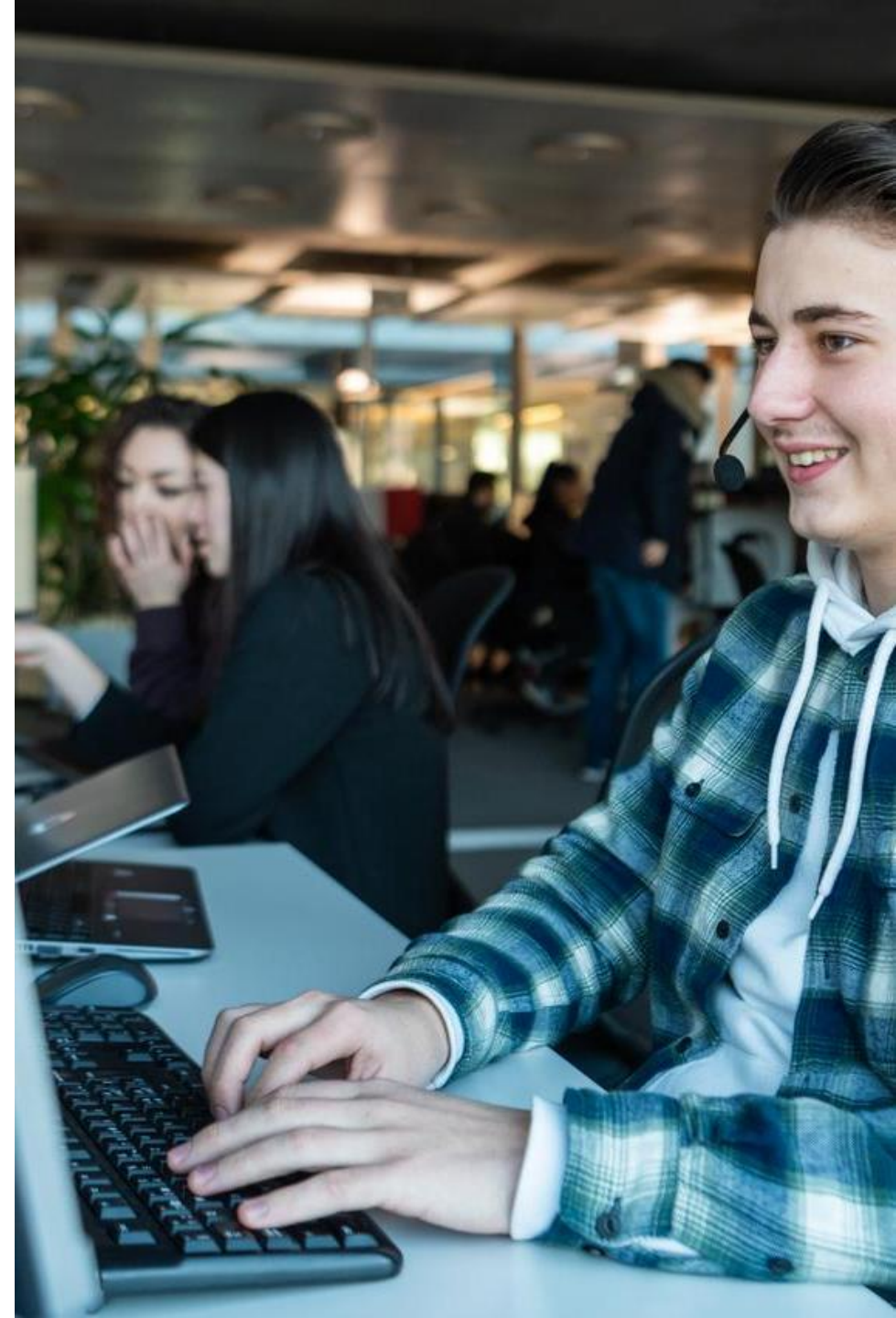
Contr Element BBCS\_F (Fiber)

BB Type BX

Street B... ..

|                          |                            |           |         |
|--------------------------|----------------------------|-----------|---------|
| <input type="checkbox"/> | Socket Id                  | B. 101.   |         |
|                          | Cooperation Id             |           |         |
|                          | First Inhouse Installation | -         |         |
|                          | Flat Id                    | 01.02.    |         |
|                          | Flat Memo                  | -         |         |
|                          | Plug Nr                    | 2         |         |
| <b>Fiber</b>             | <input type="checkbox"/>   | Socket Id | B. 101. |
|                          | Cooperation Id             |           |         |
|                          | First Inhouse Installation | -         |         |
|                          | Flat Id                    | 01.02.    |         |

|                          |                             |                |                     |
|--------------------------|-----------------------------|----------------|---------------------|
| <input type="checkbox"/> | Location Id (BEP)           | 64379941       | BEP                 |
|                          | Street                      | St. Johannstr. | Avail               |
|                          | House Nr                    | 16             | Avail               |
|                          | Building                    | -              | In Hc               |
|                          | ZIP                         | 850000         | Max.                |
|                          | City                        | Frauenfeld     | BEP                 |
|                          | <b>Available Technology</b> | <b>BB Type</b> | <b>Planned Date</b> |
|                          |                             | BX             | 05/11/2019          |
|                          |                             | XGS-PON        | 01/11/2019          |





# Ordering

XGS-PON order process



# WSG Service Fulfillment

## WSG XGS PON Use Cases

The following Use Case Matrix shows which use case what "OrderType" and/or "BusinessType" for XGS PON is to be used:

| From \ To             | To BBCS-F BX  | To BBCS-F XGS-PON  | To ALO (P2P)  |
|-----------------------|---|--|---|
| <b>BBCS-F BX</b>      | Order Type : ISP Change<br>Business Type : ---  | Order Type : Create<br>Business Type : TechChange<br>----- OR -----<br>Order Type : Create<br>Business Type : ISP Change<br>(beinhaltet Tech Change)       | ALO Order Type : Create ALO<br>Business Type : ProductChange<br>(ein ISP Change ist im Order möglich)<br>----- OR -----<br>ALO Order Type : Create ALO<br>Business Type : New |
| <b>BBCS-F XGS-PON</b> | Order Type : Create<br>Business Type : TechChange<br>----- OR -----<br>Order Type : Create<br>Business Type : ISP Change (beinhaltet Tech Change)       | Order Type : ISP Change<br>Business Type : ---   | ALO Order Type : Create ALO<br>Business Type : ProductChange<br>(ein ISP Change ist im Order möglich)<br>----- OR -----<br>ALO Order Type : Create ALO<br>Business Type : New |
| <b>ALO (P2P)</b>      | Order Type : Create<br>Business Type : ProductChange<br>----- OR -----<br>Order Type : Create<br>Business Type : ISP Change (beinhaltet Product Change) | Order Type : Create<br>Business Type : ProductChange<br>----- OR -----<br>Order Type : Create<br>Business Type : ISP Change<br>(beinhaltet Product Change) | ALO Order Type : ISP Change ALO<br>Business Type : ISP Change   |
| <b>FBC BX</b>         | Order Type : Create<br>Business Type : New  | Order Type : Create<br>Business Type : New   | ALO Order Type : Create ALO<br>Business Type : New<br>----- OR -----<br>ALO Order Type : Create ALO<br>Business Type : Product Change   |
| <b>FBC XGS-PON</b>    | Order Type : Create<br>Business Type : New  | Order Type : Create<br>Business Type : New   | ALO Order Type : Create ALO<br>Business Type : New<br>----- OR -----<br>ALO Order Type : Create ALO<br>Business Type : Product Change   |
| <b>No Service</b>     | Order Type : Create<br>Business Type : New  | Order Type : Create<br>Business Type : New   | ALO Order Type : Create ALO<br>Business Type : New  |





# WSG Service Fulfillment

## WSG XGS PON Order

When ordering, the connection is prepared for activation after entering the OTO and plug, profile and service mix and the desired termination type. The ISP will receive the NSN and Activation Code. MAC address is optional:

### Detail Order

Main Virtual Order Internal Order Tracking CPE Info Predecessor Info

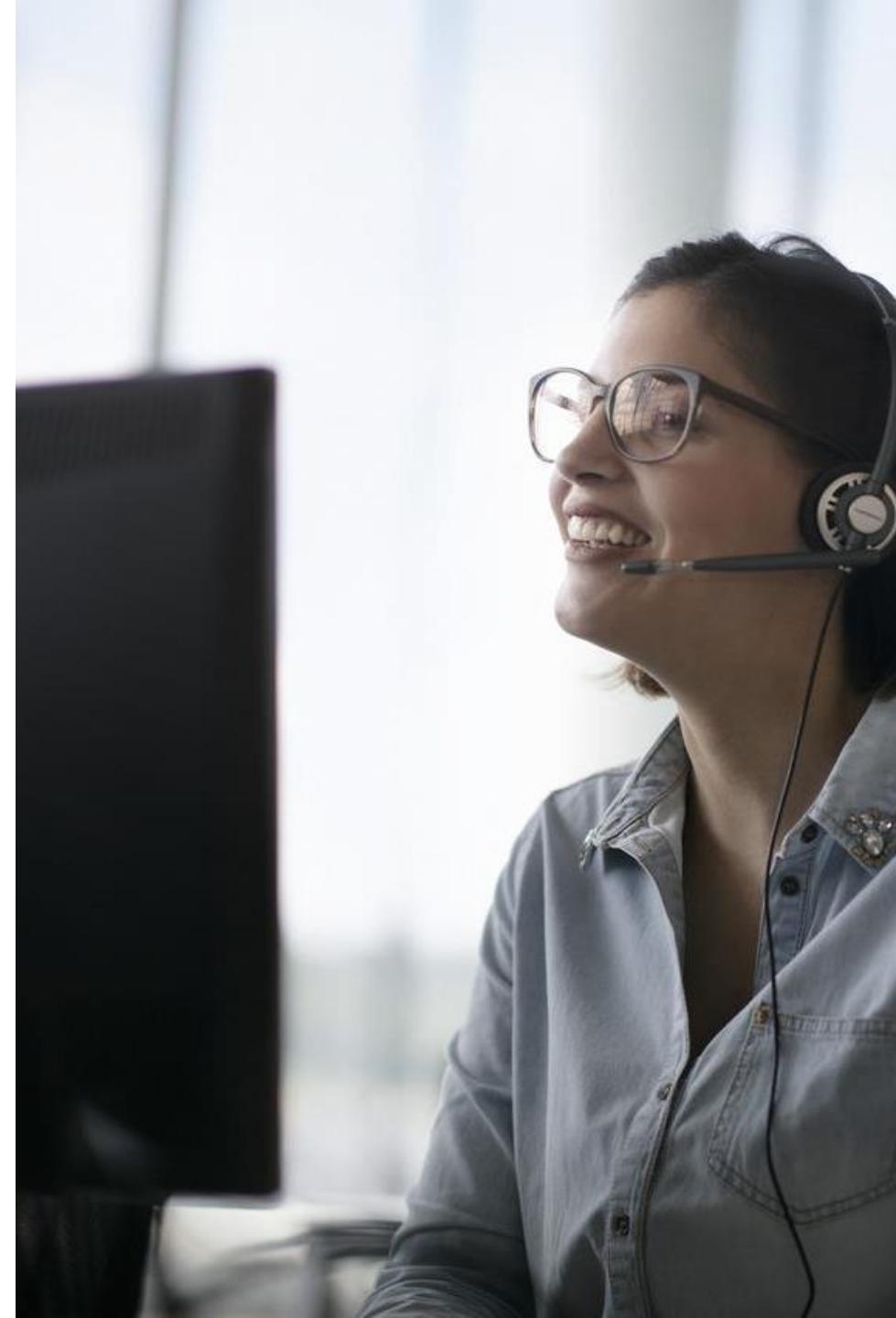
| Order Info      |                      | DN Info                   |                    | Qualified Endpoint        |       |
|-----------------|----------------------|---------------------------|--------------------|---------------------------|-------|
| Order Type      | BBCS_CREATE          | DN / VN / NSN (Requested) | 0106527726         | DN Office                 | 79LIM |
| Order State     | HOLDING              | DN (STNR) / VN / NSN      | 0106527726         | BB Device Location        | LIM   |
| Business Type   | New                  | STNR DDI                  | -                  | Site                      | -     |
| Creation Type   | New                  | Dn Type                   | Netservices number | Site Category             | -     |
| Response        | Ready for Activation |                           |                    | Available Technology Type | -     |
| Sf Exept Prio   | Basic                |                           |                    | DSLAM Name                | -     |
| Activation Code | 513676               |                           |                    | Dslam Type                | -     |
| MAC Address     | 80:41:26:90:8B:7E    |                           |                    | Technology Type           | -     |
|                 |                      |                           |                    | Vectorized                | -     |

ISP / Order Nr Info

If the order is in the order state "Holding" with "Ready for Activation" the end customer can start the activation:

### History

| #      | User Name              | Order State | DN (STNR) / VN / NSN | Response             | Transaction Date / Time    | BB Type | Speed Profile Nr | Responsible User | Kind Of Problem | Responsible User Comment | Comment | Customer Wish Date | Estimated Due Date / Time Start | Estimated Due Date / Time End |
|--------|------------------------|-------------|----------------------|----------------------|----------------------------|---------|------------------|------------------|-----------------|--------------------------|---------|--------------------|---------------------------------|-------------------------------|
| Detail | Batch                  | HOLDING     | 0106527726           | Ready for Activation | 23. Sep. 2020 09:53:34.801 | XGS-PON | -                | -                | -               | -                        | -       | 23. Sep. 2020      | 23. Sep. 2020 10:00:00          | 23. Sep. 2020 12:00:00        |
| Detail | Batch                  | ENTERED     | 0106527726           | Ready for Activation | 23. Sep. 2020 09:53:18.142 | XGS-PON | -                | -                | -               | -                        | -       | 23. Sep. 2020      | 23. Sep. 2020 10:00:00          | 23. Sep. 2020 12:00:00        |
| Detail | Manfred Schaufelberger | ENTERED     | 0106527726           | -                    | 23. Sep. 2020 09:51:20.469 | XGS-PON | -                | -                | -               | -                        | -       | 23. Sep. 2020      | 23. Sep. 2020 10:00:00          | 23. Sep. 2020 12:00:00        |
| Detail | Manfred Schaufelberger | ENTERED     | 0106527726           | -                    | 23. Sep. 2020 09:50:19.741 | XGS-PON | -                | -                | -               | -                        | -       | 23. Sep. 2020      | 23. Sep. 2020 10:00:00          | 23. Sep. 2020 12:00:00        |





# WSG Service Fulfillment

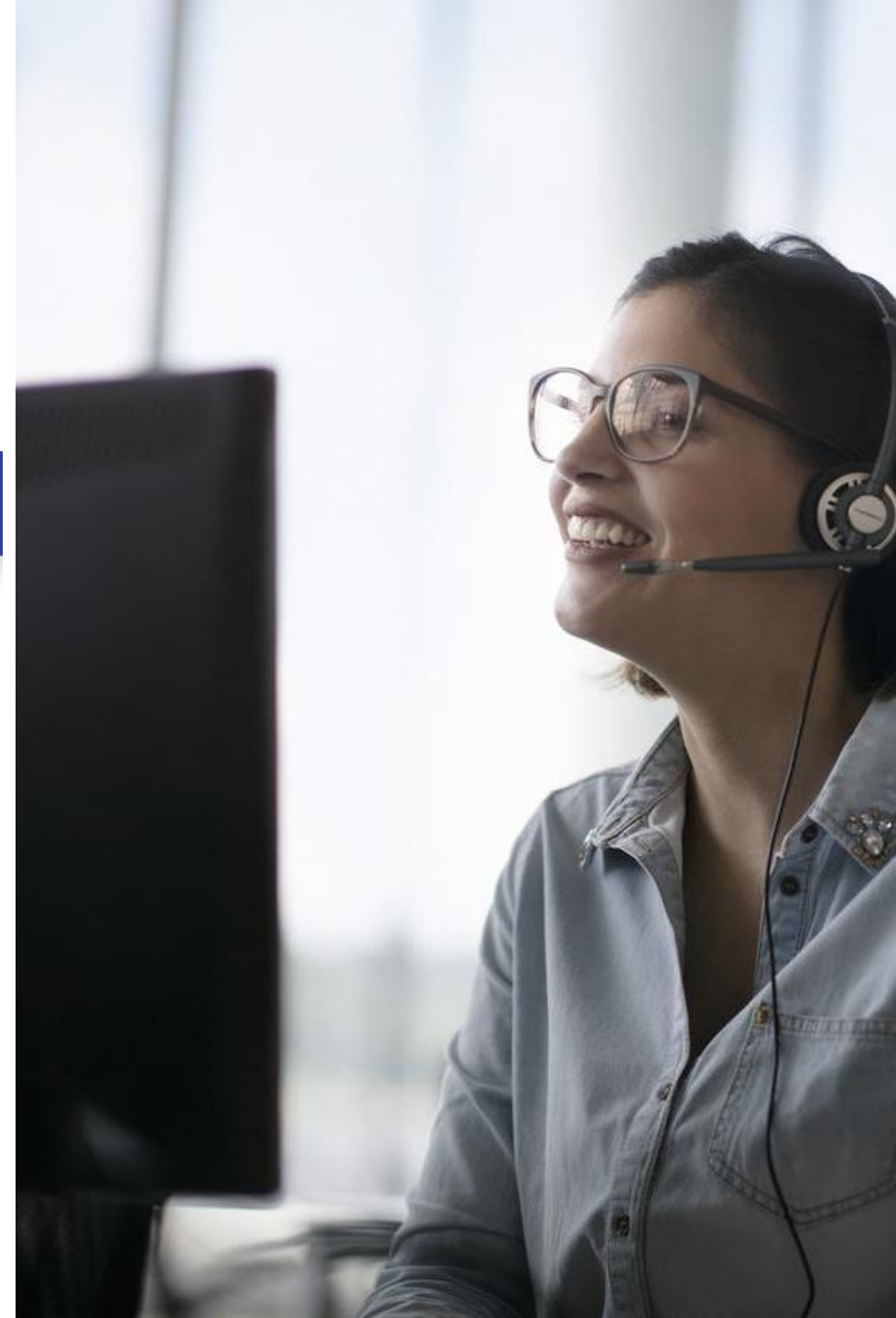
## WSG XGS PON adding the MAC address

The MAC address can be entered when ordering. This type of connection activation is supported for both DHCP and PPP termination. Depending on the manufacturer of the ONT, this may differ for PPP and DHCP:

The screenshot shows the BBCS Access web interface. The top navigation bar includes 'BBCS Access', 'Services', 'Help / Contact', 'Logout', and 'Holger Schori'. The left sidebar contains a menu with 'Place Order' (highlighted), 'Maintain Order', 'Transaction Overview', 'Admin Tasks', 'Documents', 'Reports', and 'Home Page'. The main content area is titled 'Basis Creation' and contains the following fields:

- Customer Wish Date: 05 Jun 2024
- Session Type: [Dropdown menu]
- MAC Address: [Text input field]
- Fulfillment SLA: Basic
- Creation Type: New

Below the fields is an 'Additional Information' section with a plus sign. At the bottom, there are four buttons: 'Back', 'Continue', 'Compulsory Note', and 'Reset'. A black arrow points to the 'MAC Address' field.







# Activation

XGS-PON Activation



## Activation with splash page

The activation with splash page is based on the technology known from the preorder. The end customer connects to the internet box (ONT) with his PC or mobile and is accompanied by the activation on the splash page.



### Self guided activation

The end customer is accompanied by the splash page through its activation and sees the current progress/status.



### Device settings

Depending on the selected device and its settings and limitations, the display of the splash page might be more or less complex.



# WSG Service Fulfillment

## XGS CREATE : Splash page

### XGS-PON Pairing process

After the ONT is connected for the first time in the case of a new connection, the end customer is directed to the splash page after accessing a website <sup>1)</sup>

At this point, the OTO ID, the plug and the activation code (which was communicated when the order was created) must be entered, alternatively OTO-ID, Plug and NSN work as well.

After typing, the activation process starts, and the progress is continuously displayed to the customer.

Activate connection EN ▾

---

This connection has not been activated yet!

Please activate your connection as follows:

Please enter the activation code as well. This consists of either from ten digits (ex. 0123456789), or from six digits (ex. 123456).

Please enter the OTO-ID and the slot number (Plug) of the optical fibre socket to which you have connected your end device.

Activation Code \* ?

Oto Id \* ?

Plug Number \* ?

Confirm

If you have not received an activation code, please contact your service provider to activate your connection. Please have the OTO ID / slot number (plug) ready.

Your connection identification number: AC0.123.123.123



<sup>1)</sup> Note: Only devices approved and whitelisted for XGS-PON by Swisscom can be operated on an BBCS XGS-PON access



## "MAC Based" activation

The FDA assigns the MAC address of the WAN interface to the connection. When the Internet box (ONT) connects to the connection, the stored MAC address initiates the activation of the connection. This works for both DHCP (Vlan ID 10) and PPP (Vlan ID 11) with XGS-PON (DHCP and PPP) and the Preorder (DHCP only).

**The MAC address for PPP or DHCP may differ depending on the ONT manufacturer.**



### **Easy, fast activation**

Activation starts automatically with the assigned "Basic Connectivity" and the end customer does not need to connect a PC or mobile device. This not only saves time, it also simplifies the process considerably for the average enduser.



### **Activation not guides by the network**

The end customer is no longer actively guided through the activation. The ISP must integrate this part with the status messages in the WSG in its onboarding process.



# XGS-PON activation on DHCP termination via splash page (similar to DSL with Preorder)

## Order entering in WSG

In the WSG, the order is entered as usual by selecting termination type DHCP.

The order is waiting in the holding state "Ready for activation".

## Connecting the modem/ONT to the customer access

A modem/ONT configured for DHCP is connected to the access and connects to Swisscom's "Walled Garden".

- VLAN ID 10 is needed for DHCP

## Activation of the access via splash page

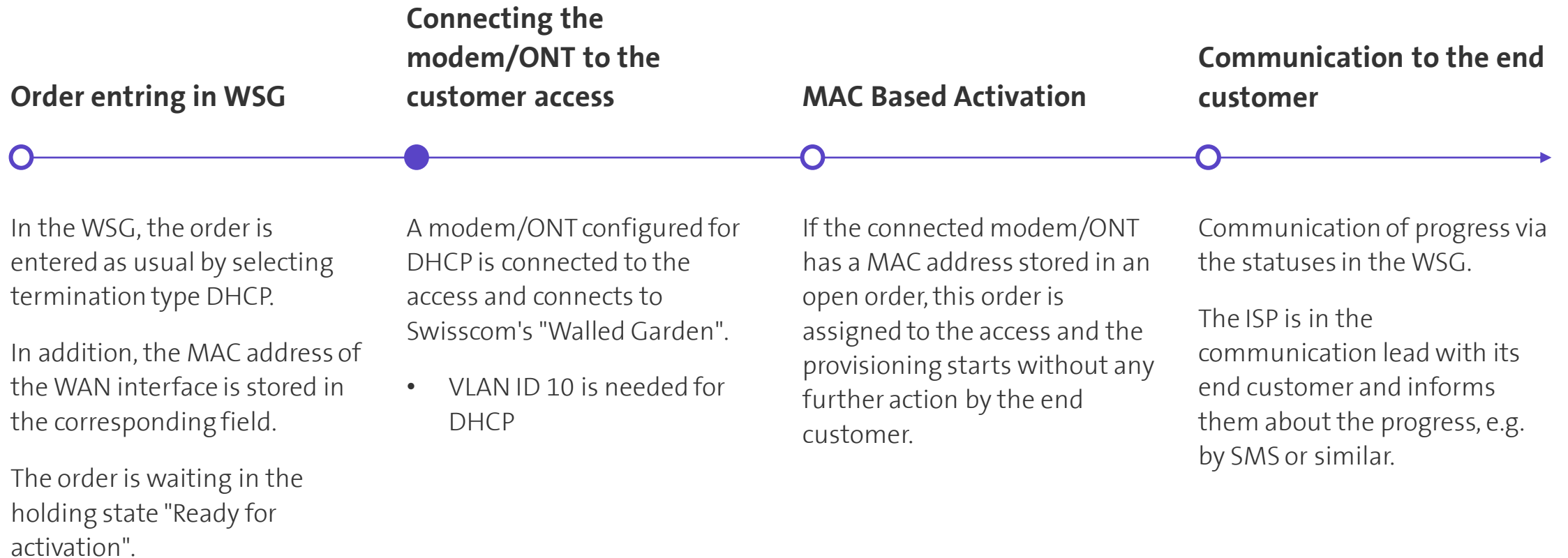
When a web site via a device (PC, tablet, mobile,..) is opened, the redirect is initiated to the splash page. Credentials needed:

- Activation Code (6 digits or NSN)
- OTO and Plug Number

Customer is guided through rest of activation on the splash page.

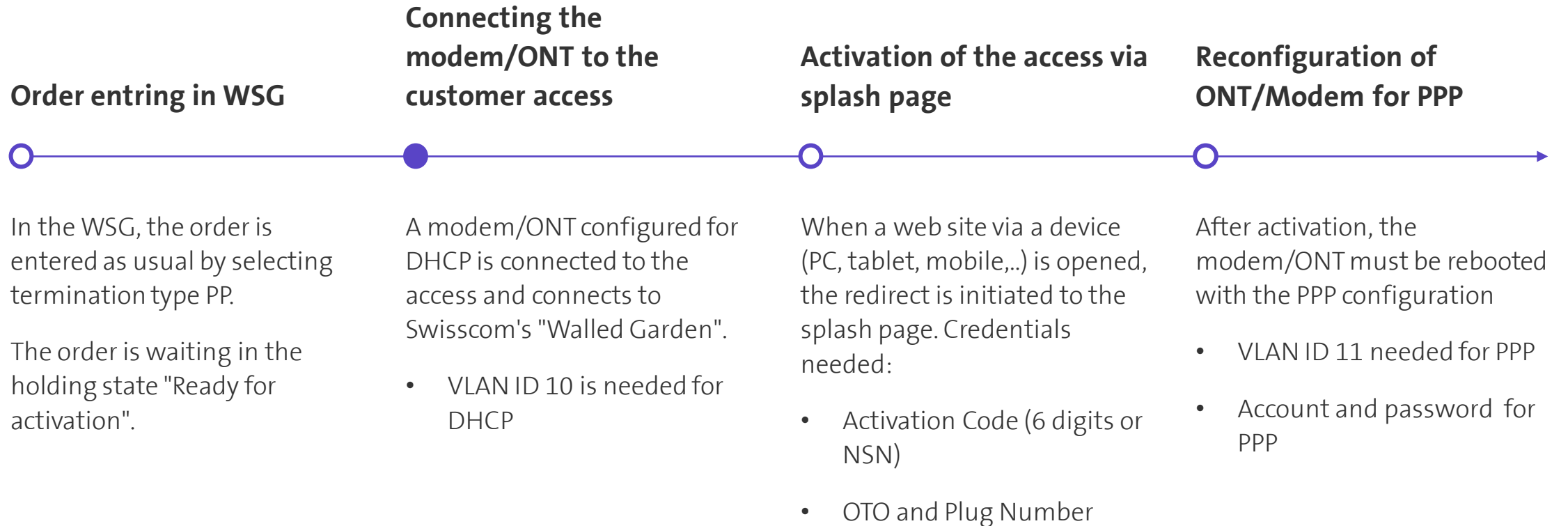


# XGS-PON activation on DHCP termination via MAC Based Provisioning (similar to DSL with Preorder)



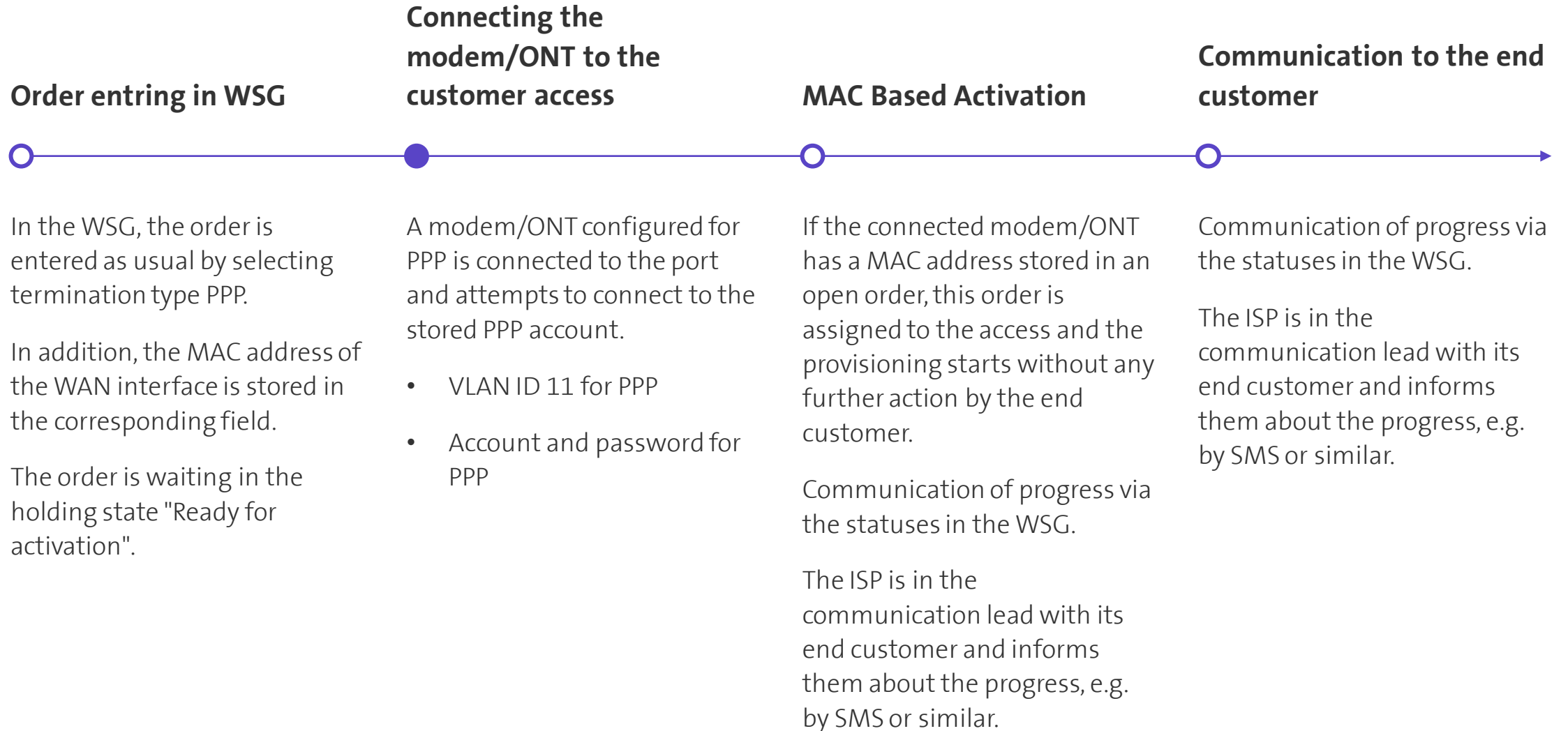


# XGS-PON activation on PPP termination via splash page (similar to DSL with Preorder)





# XGS-PON activation on PPP termination via MAC Based Provisioning (similar to DSL with Preorder)







# ONT Change

Replacing the ONT on an existing XGS-PON access



# ONT change with XGS-PON

## Splash page

- End customer connects the new ONT with DHCP configuration on the OTO and connects its internet access device (PC, tablet, mobile,..) with the ONT
- When a website is first accessed (http traffic), the browser is redirected to Swisscom's splash page
- On the appearing website, the end customer must enter OTO and plug number, as well as the 10-digit activation code (NSN)
- Splash page guides the end customer by activating the new ONT
- Additional for PPP: Reconfiguration of the ONT to PPP afterwards

- New unpaired ONT, OTO and plug number, as well as the NSN (10-digit activation code) are required.

## MAC based

- ISP registers new WAN MAC address on the connection in the WSG ("ONT Change" in WSG)  
*Note: The WAN-side MAC address of the PPP and DHCP configuration may differ.*
- End customer connects the new ONT with DHCP or PPP configuration to the OTO socket
- ONT change will be initiated automatically
- ISP informs end customer of progress and completion

- WAN MAC address of the new ONT must be assigned to the access. This is done using the new procedure "ONT Change" in the WSG.

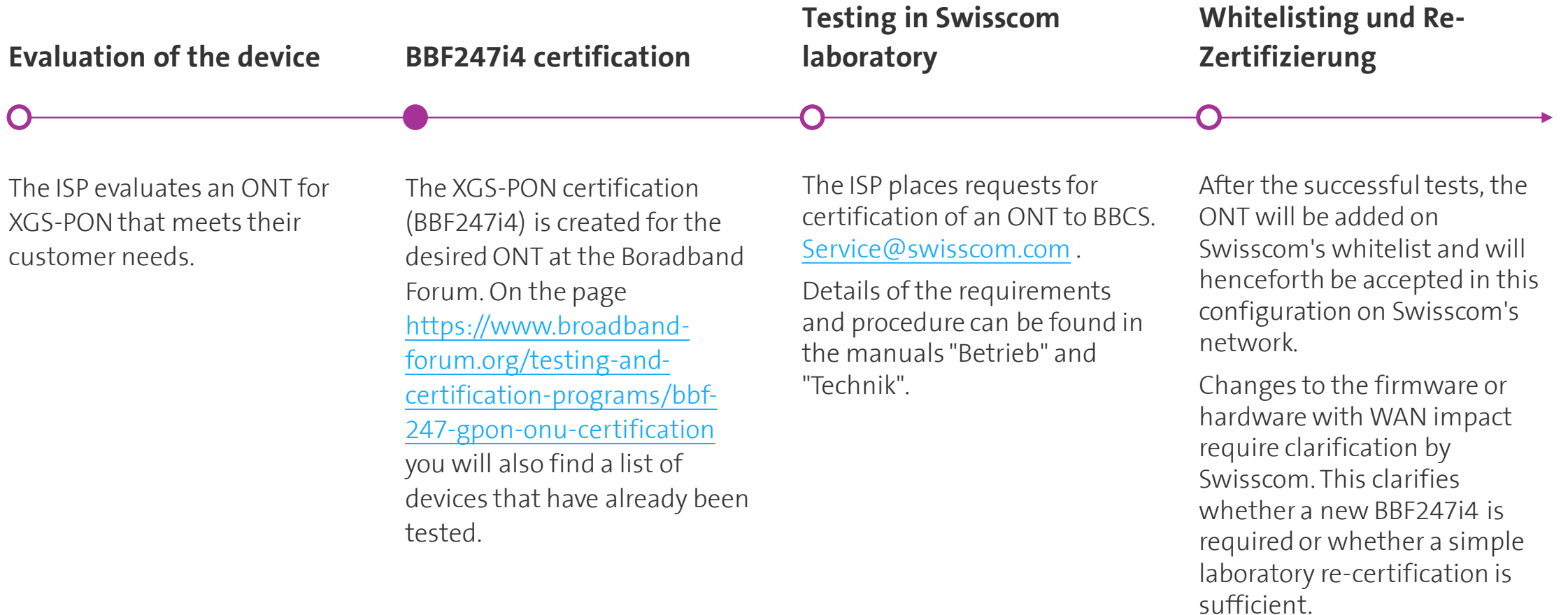


# ONT Certification

Process for certification and whitelisting an ONT



# Process for certification and whitelisting an ONT for XGS-PON





# Overview

# BBCS Access Activations

Supported BBCS Access Activation Processes



## Overview: BBCS Access Activation Processes

### BBCS Copper

| BBCS activation process                                 | Termination |      |
|---|-------------|------|
|   | PPP         | DHCP |
| DN oder NSN   | ✓           | ✓    |
| Preorder (on address) by activation code on Splash Page | ☑           | ✓    |
| Preorder (on address) by MAC based prov.                | ☑           | ✓    |

### BBCS Fiber

| BBCS activation process          | Termination |      |
|----------------------------------|-------------|------|
|                                  | PPP         | DHCP |
| Only OTO-ID                      |             |      |
| BX (Create)                      | ✓           | ✓    |
| XGS                              | n.a.        | n.a. |
| Akt-ID by Splash Page and OTO-ID |             |      |
| BX (Preorder)                    | ☑           | ✓    |
| XGS (Create)                     | ☑           | ✓    |
| MAC based prov. and OTO-ID       |             |      |
| BX                               | n.a.        | n.a. |
| XGS (Create)                     | ✓           | ✓    |

☑ The BBCS can be activated via splash page or MAC-based provisioning if the CPE/router is configured to DHCP. The CPE/router must then be reconfigured to PPP.