###### Ethernet Private Line (EPL) configuration support on the ONU

Objective:

Ethernet Private Line (EPL) service provides Ethernet Virtual Connections (EVC) between a user network interfaces (UNI).

**Topology in this test case:**

Graphical user interface

Description automatically generated with low confidence

**Procedure:**

uOLT Management Configuration on 5170

***Objective:***

In order for the device that is hosting the uOLT to control/configure the PON service, a management forwarding domain must be created. The uOLT must also be enabled.

***Topology:***

uOLT inserted into 10G port.

***Procedure:***

1. Create classifier and forwarding domain.

classifiers classifier vid\_4090 filter-entry vtag-stack vtags 1 vlan-id 4090

fds fd vs4090 mode vpls

1. Create flow point. Note: The logical port is the port that the uLOT is inserted. VLAN 4090 and tpid 88a8 are required settings.

fps

fp vid\_4090\_port4 fd-name vs4090 logical-port 4 stats-collection on mac-learning enabled

classifier-list vid\_4090 classifier-list-precedence 10 egress-l2-transform push-vid-4090 vlan-stack 1

push-tpid tpid-88a8 push-vid 4090

exit exit exit exit

1. Create a management IP interface.

oc-if:interfaces interface pon\_mgmt\_1 config name pon\_mgmt\_1 cn- if:type ip mtu 1500 admin-status true underlay-binding config fd vs4090

1. Enable the uOLT.

pon-ctrl olts olt OLT\_1 admin-state enabled

management-interface OLT\_MGMT\_IP mac-address 70:b3:d5:52:32:12

exit exit exit

***Expected Results:***

5170\_0016> show pon-ctrl olts olt OLT\_1

+ OLT +

| Parameter | Value |

+ + +

| Name | OLT\_1 |

| Admin State | Enabled |

| MAC Address | 70:B3:D5:52:32:12 |

| Management Interface | OLT\_MGMT\_IP |

| PON Mode | XGS-PON |

| Auto Boot Mode | Disabled |

| Upstream FEC Profile 0 | Enabled |

| Upstream Preamble Profile 0 | 64 |

| Downstream FEC | Enabled |

| Encryption Mode | Disabled |

| Guard Time | 16 |

| NNI MTU | 9600 |

| PON MTU | 9600 |

+ + +

| Operational State | Active |

| Physical Interface | 4 |

| Management TPID | 0x88A8 |

| Management VID | 4090 |

| Firmware Version | A1.1.0 (394899e) |

| Hardware Version | 180713 |

| Model | XGS-PON OLT |

| Serial Number | OLT-70b3d5523212 |

| Number of Configured ONUs | 0 |

| Number of Registered ONUs | 0 |

| Number of Links | 0 |

+ + +

Register ONUs

***Objective:***

The objective of this test is to register and configure connected ONUs.

ONU Registration

***Procedure:***

When an uOLT is active and ONUs are connected, they automatically register with the uOLT and the ONU count is displayed per uOLT.

5170\_PON> show pon-ctrl olts

+ OLTS +

| Name | MAC Address | Oper State | Registered ONUs |

+ + + + +

| OLT\_1 | 70:B3:D5:52:32:12 | Active | 2 |

+ + + + +

ONU Configuration

***Objective:***

The objective of this test is to configure an ONU. The serial number of each connected ONU is required for this step. The user is still required to configure the ONU data link which establishes a channel between ONU and uOLT.

***Procedure:***

1. Enter the serial number of each connected ONU.

pon-ctrl onus onu ONU\_1 OLT\_1 serial-number CIEN00000252 pon-ctrl onus onu ONU\_2 OLT\_1 serial-number CIEN00000333

***Expected Results:***

5170\_PON> show pon-ctrl olts olt OLT\_1 onus

+ ONUS +

| Name | Serial Number | Oper State | ONU-ID | Number of Links |

+ + + + + +

| ONU\_1 | CIEN00000252 | Registered | 2 | 2 |

| ONU\_2 | CIEN00000333 | Registered | 1 | 2 |

+ + + + + +

Enable ONU UNI port

pon-ctrl onus onu ONU\_1 OLT\_1 uni-ports uni-port 1 admin-state enabled pon-ctrl onus onu ONU\_2 OLT\_1 uni-ports uni-port 1 admin-state enabled

5170> show pon-ctrl olts olt OLT1 onus onu onu\_1 uni-ports uni-port 1

+ UNI PORT +

| Parameter | Value |

+ + +

| Name | 1 |

| Admin State | Enabled |

| Max Frame Size | 9216 |

| Configured Speed | Auto |

| Configured Duplex | Auto |

+ + +

| Operational State | Up |

| Operational Speed | 1Gb |

| Operational Duplex | Full |

+ + +

Create SLA Profile

***Objective:***

The objective of this test is to create a SLA profile. The SLA profile controls the bandwidth allocated to an ONU (upstream and downstream).

***Procedure:***

1. Configure upstream and downstream SLA parameters.

pon-ctrl sla-profiles sla-profile SLA\_1 up-fixed-rate 0

up-guaranteed-rate 128

up-guaranteed-max-burst 409600

up-best-effort-rate 10000000

up-best-effort-max-burst 409600

up-priority 1

up-service-limit 128

up-min-grant-period 0

up-max-grant-period 10

down-guaranteed-rate 128

down-guaranteed-max-burst 262144

down-best-effort-rate 10000000

down-best-effort-max-burst 245760

exit exit exit

***Expected Results:***

5170\_PON> show pon-ctrl sla-profiles sla-profile SLA\_1

+ SLA PROFILE +

| Parameter | Value |

+ + +

| Name | SLA\_1 |

| Up Fixed Rate (Kbps) | 0 |

| Up Guaranteed Rate (Kbps) | 128 |

| Up Guaranteed Max Burst (Bytes) | 409600 |

| Up Best Effort Rate (Kbps) | 10000000 |

| Up Best Effort Max Burst (Bytes) | 409600 |

| Up Priority | 1 |

| Up Service Limit (kBytes) | 128 |

| Up Min Grant Period | 0 |

| Up Max Grant Period | 10 |

| Down Guaranteed Rate (Kbps) | 128 |

| Down Guaranteed Max Burst (Bytes) | 262144 |

| Down Best Effort Rate (Kbps) | 10000000 |

| Down Best Effort Max Burst (Bytes) | 245760 |

+ + +

uOLT Data Link Configuration, Networks and PON Connections

***Objective:***

The objective of the following tests is to configure networks, data links and PON connections allowing traffic to flow between connected hosts and the network.

The EPL service can be configured to push a ctag, via the Datalink “add-ctag” attribute, and optional priority, via the Datalink “add-ctag-pcp” attribute, to every frame received on the configured UNI port(s).

***Procedure:***