

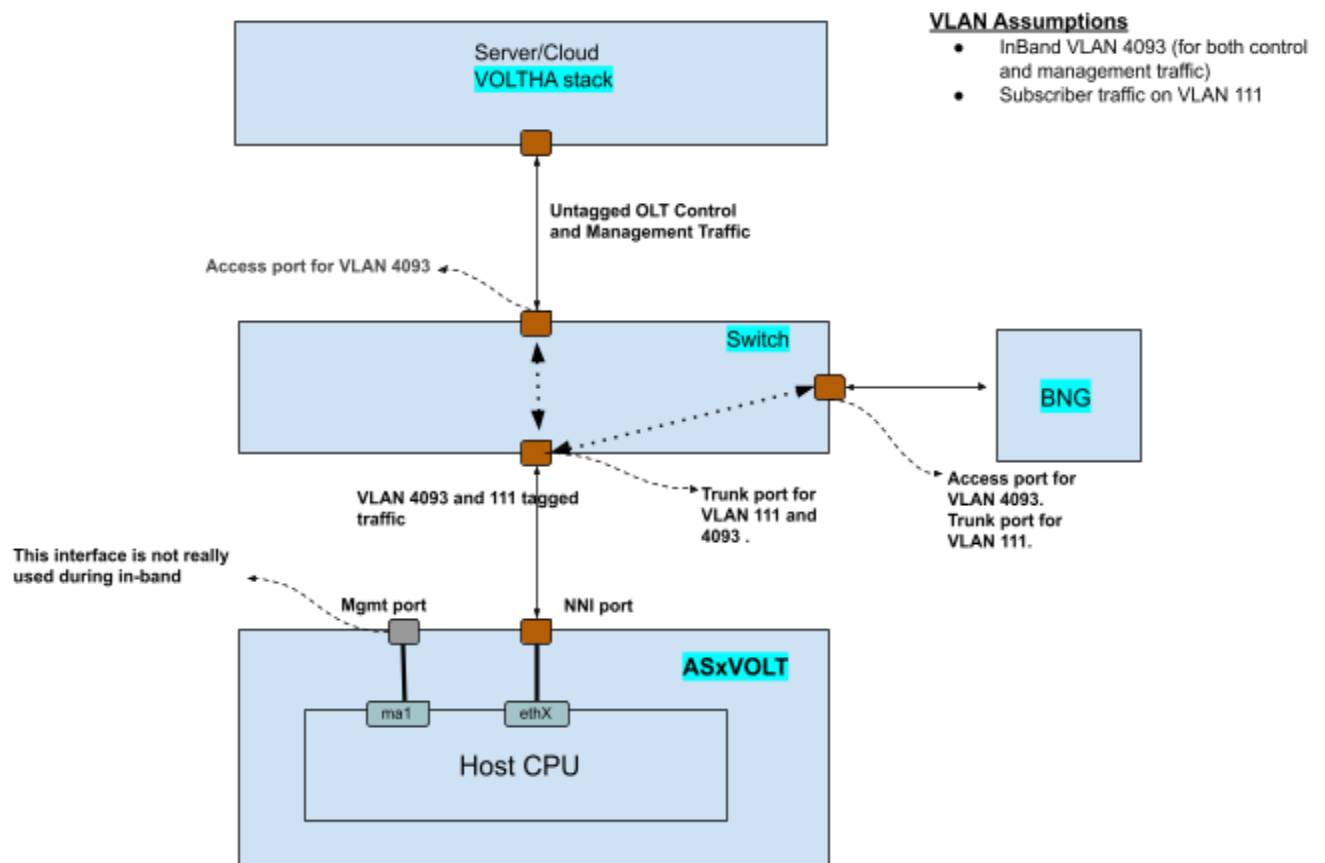
InBand OLT Management - Configuration and Verification

Introduction

This note documents the setup details and steps involved in InBand OLT Management Feature verification.

Setup

The setup would look like this. Note the ports would be a trunk/access port based on VLAN and also the entity consuming the traffic.



IP Address assignment to OLT

The OLT will now initiate a DHCP request for an IP address, unlike the static configuration before. It is preferable that the DHCP server on ONF's network always assigns the same IP address to the OLT. The IP address should be linked to the OLT's mac address in the DHCP server configuration.

The OLT's IP address should not only be reachable to VOLTHA, but across the ONF Lab network for Jenkins scripts to remote login and collect OLT logs.

Changes in ONOS netcfg

Apart from the cross connect configuration that already exists today to trunk subscriber vlan traffic, we need more configuration at ONOS to handle IN-BAND vlan on the switch. On a cisco-like switch this would be pretty easy, but we need to explore how to do such a configuration on ONOS controlled leaf switches. Specifically, few ports for in-band vlan would act as trunk and others as access ports.

Trellis supports access and trunk vlans natively.

So following the ports in the example above, assume the port connecting to the OLT is 1, and the one connecting to the BNG is 48, and the one connecting to VOLTHA is 20.

So for the in-band vlan 4093, the port config in `netcfg` would look like this

```
{
  "ports" : {
    "of:0000000000000001/20" : {
      "interfaces" : [{
        "name" : "voltha-intf",
        "vlan-untagged": 4093
      }]
    },
    "of:0000000000000001/48" : {
      "interfaces" : [{
        "name" : "bng-intf",
        "vlan-untagged": 4093
      }]
    },
    "of:0000000000000001/1" : {
      "interfaces" : [{
        "name" : "olt-intf",
        "vlan-tagged": [4093]
      }]
    }
  }
}
```

For the subscriber vlans like 111 in the example, we should continue to use the [vlan-crossconnect feature](#) to add or remove vlans on the two ports (1 and 48) instead of using port/interface configuration. This is because vlan-crossconnect configuration is more dynamic in actual use in production as subscribers come and go, whereas the in-band vlan is a static one-time configuration. This dynamicity is better supported in the vlan-crossconnect feature compared to the port/interface configuration. While the latter can also be dynamic it is poorly tested right now and not even documented.

Changes/recommendations to test scripts

Few important things to consider for the test scripts are below. Will update as we discover more.

- In-band mode should be a configurable parameter in Jenkins scripts. Not all OLTs may be functioning in in-band mode.
- OLT Deb package is now baked into the in-band ONL. So test scripts should not copy or try to install any other debian package when OLT is functioning in in-band mode.
- Do not use subscriber tags in tests that collide with in-band vlan (4093).
- 10.111.0.3 is the in-band IP assigned to OLT whose mac address is b8:6a:97:07:1b:4b

Impacts to VOLTHA

None

Setting up in-band DHCP server

Assumptions:

- ens6f0 is the interface hosting the in-band DHCP server
- 4093 is the in-band DHCP network vlan
- 10.111.0.254/24 is the network in which DHCP addresses are assigned to OLT and VOLTHA openolt adapter is also able to communicate with OLT on the same network.
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Steps

```
sudo vconfig add ens6f0 4093
sudo ifconfig ens6f0.4093 up
sudo ip netns list
sudo ip netns add in-band
```

```
sudo ip netns list
sudo ip link set ens6f0.4093 netns in-band
```

Now inside the namespace

Note: 10.111.0.3 is the in-band IP assigned to OLT whose mac address is b8:6a:97:07:1b:4b

```
sudo ip netns exec in-band bash
ifconfig ens6f0.4093 10.111.0.254/24 up
```

```
dnsmasq --strict-order --bind-interfaces --except-interface=lo --no-ping
--interface=ens6f0.4093 --quiet-dhcp --quiet-dhcp6 --quiet-ra
--listen-address=10.111.0.254 --dhcp-no-override --dhcp-authoritative --dhcp-range
10.111.0.2,10.111.0.5 --dhcp-host b8:6a:97:07:1b:4b,10.111.0.3,infinite
```