Configuring Port Breakout and Merge

Introduction

Part of the 100GE and 40GE optical interfaces on Pica8 switch can be used as a single interface or split into four independent interfaces. The 40GE interface can be split into four 10 Gigabit Ethernet sub-interfaces. The 100GE interface can be split into four 25 Gigabit Ethernet sub-interfaces or split into four 10 Gigabit Ethernet sub-interfaces. By default, the 100G interface will be split into 4 x 25GE sub-interfaces. With the port breakout function, one port can connect to various types of interfaces on the peer devices.

After a single interface is split into four sub-interfaces, the 10GE optical sub-interface or the 25GE optical sub-interface supports the same configurations and features as other non-breakout optical interface except that the interface is named in a different way. If the port name of the 100GE and 40GE optical interfaces is xe-1/1/n before port breakout; however, after port breakout the port names of the four sub-interfaces are xe-1/1/n.1, xe-1/1/n.2, xe-1/1 /n.3 and xe- 1/1/n.4.

You can use **set interface gigabit-ethernet** <*port-name*> **breakout true** command to split the 40GE and 100GE ports into four sub-interfaces. The 40GE interfaces can be split into 4 x 10GE sub-interfaces, and the 100GE interfaces can be split into 4 x 25GE or 4 x 10GE sub-interfaces. When you don't want to split the port, use **set interface gigabit-ethernet** <*port-name*> **breakout false** command to merge the four sub-interfaces into one interface.

After the interface is split, you need to use a breakout cable to connect to the device at the other end. For example, as shown in the following figure, a 40GE interface must use a breakout cable to connect to the device at the other end after being split into 4 x 10GE sub-interfaces. If the connected peer interface is also a split 40GE interface, the interfaces on both ends can be plugged into the same type of 40GE optical module and connected by one optical fiber instead of using a breakout cable.

Figure 1. The breakout cable

Configuring Port Breakout and Port Merge

We can configure port breakout for the 40GE or 100GE interfaces of the switch, the procedures are described as below.

Step1   Split the port as required.

   set interface gigabit-ethernet *<port-name>* **breakout true**

NOTE:

- When you don't want to split the port, use **set interface gigabit-ethernet** *<port-name>* **breakout false** command to merge the four sub-interfaces into one interface.
- You need to restart or reboot the system to make the setting take effect when performing port breakout or port merge operation.
- When performing the port merge operation, before restarting the system, you need to manually delete the configurations of the unavailable interfaces, to make sure that the configuration file can be loaded normally when the system boots up.
- The 100GE interface can be split into 4 x 25G or 4 x 10G Ethernet sub-interfaces. By default, the 100G interface is split into 4 x 25G Ethernet sub-interfaces. If you want to split into 4 x 10G Ethernet sub-interfaces, you need to configure the four sub-interfaces rate to 10G through the command line after port breakout. Note: The rate of the four sub-interfaces is required to be consistent.

Step2   Restart PICOS to make the setting take effect.

```
admin@XorPlus:~$ sudo systemctl restart picos
```

Step3   Verify the configuration.

For example, we have configured to split the 40GE port xe-1/1/25 into 4 x 10GE ports.

After system startup, run **run show interface brief** command to view the interface information.   After system startup, run **run show interface brief** command to view the interface information.

```
admin@XorPlus# set interface gigabit-ethernet xe-1/1/25 breakout true
admin@XorPlus# commit
Commit OK.
Save done.
Interface breakout setting has been changed, please reboot the system for changes to take effect!
Make sure to delete all the configurations associated with the unavailable interfaces, otherwise loading
startup configuration will fail.
admin@XorPlus# exit
admin@XorPlus:~$ sudo systemctl restart picos
admin@Xorplus> configure
admin@XorPlus# run show interface brief
Interface   Management  Status  Flow Control  Duplex  Speed    Description
----------  ----------  ------  ------------  ------  -------  -----------------------------
......
xe-1/1/25.1 Enabled     Down    Disabled      Full    Auto
xe-1/1/25.2 Enabled     Down    Disabled      Full    Auto
xe-1/1/25.3 Enabled     Up      Disabled      Full    40Gb/s
xe-1/1/25.4 Enabled     Up      Disabled      Full    40Gb/s
......
```