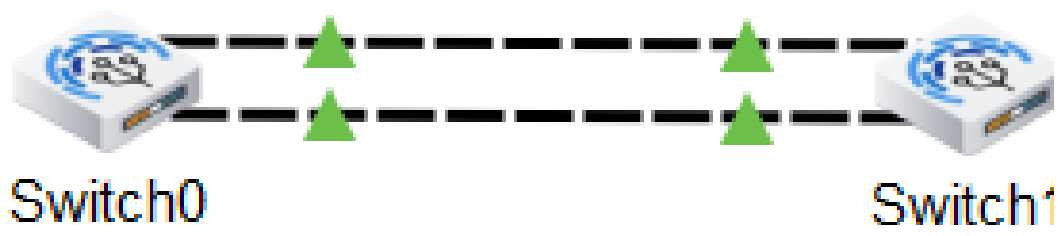
PyNetLabs
Network Automation Specialists

Introduction to Ether-Channels



Several physical connections between switches can be combined into a single logical connection using etherchannel technology.
Spanning Tree often prevents load balancing across duplicate lines, however EtherChannel makes it possible.
According to factors like source or destination MAC addresses or IP addresses, load is balanced.

The global configuration mode is set up for the Etherchannel load-balancing mechanism.

(config)#**port-channel load-balance** *type*

The Port Channel interface is established as a logical interface.
Both the logical and physical interfaces can be configured inside a EtherChannel.

Few things to remember while working with Etherchannels:

- There is no requirement that the interfaces in a channel be physically adjacent to one another or located on the same module.
- The speed and duplex must be same on all ports.
- All ports in the bundle should be enabled.
- Make each port inside bundle a trunk or add them all to the same VLAN. If they are trunks, they must all carry the same VLANs and have the same trunking mode.

- All the ports inside EtherChannel is affected by any configuration changes you make to the Port Channel interface. On the other hand, when you configure a physical interface, just that interface is impacted.
- Assign an IP address to the logical Port Channel interface, not the physical ones.

Configuring an EtherChannel

A Layer 2 EtherChannel is built by simply providing interfaces to a channel group, and the logical interface is generated automatically.

There are different modes which can be utilized to configure EtherChannels. Let's learn a little about them.

- On—The port channels without using any dynamic negotiation. The port on the other side must also be set to On.

The Cisco proprietary Port Aggregation Protocol (PAgP) dynamically negotiates the formation of a channel.
PAgP modes:

- Auto – Reacts to PAgP messages but does not initiate them. The other end must be set to Desirable to observe port channeling.

- Desirable—Port actively connects to the interface at the other end of the link to negotiate the channelling status. If the other side is Auto or Desirable, port channels.

A non-proprietary protocol with the same function is called the Link Aggregation Control Protocol (LACP), IEEE 802.3ad.
LACP offers two modes:

- Active: The port participates in active channelling negotiations with the port at the other end of the link. If the other side is Active or Passive, a channel forms.
- Passive— Reacts to LACP messages but does not transmit them out on its own.

Layer 3 EtherChannel

Basically, you should configure the logical interface for a Layer 3 EtherChannel before adding the physical interfaces to the channel group:

(config)#interface port-channel number
(config-if)#no switchport
(config-if)#ip address address mask

Then, at each port that is part of the EtherChannel, use the following:

(config)#interface {number | range interface – interface}
(config-if)#channel-group number mode {auto | desirable | on}

A Layer 3 EtherChannel is made when the IP address is provided on the Port Channel interface.

Verifying an EtherChannel

Some typical commands for verifying include:

#show running-config interface number
#show interfaces number etherchannel
#show etherchannel number port-channel
#show etherchannel summary

I hope you have found this information on etherchannels to be useful. Please feel free to ask any questions in the comments section.