EtherChannel

CCNA2v7 Module 6 EtherChannel

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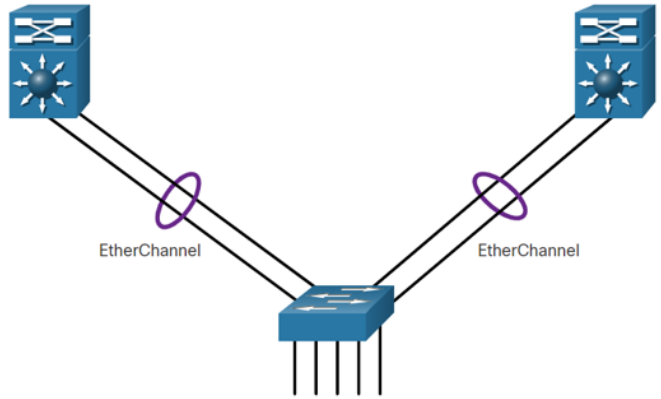
Link Aggregation

EtherChannel: Allows you to combine multiple physical interfaces into one logical interface, which increases performance while maintaining redundancy.

- Provides fault-tolerance, load sharing, increase bandwith and redundancy.
- Also known as Port Aggregation (PAgP), Link Aggregation (LACP), channel bonding, or multi-linking.

Port channel: Logical interface which operates at the speed of the combined physical interfaces.



Advantages

- Configuration consistency throughout the links (same config).
- No need to upgrade the link to have more bandwith.
- Load balancing between links
- Provides redundancy (one physical link failing does not create a change in topology).

Restrictions

- Interface types cannot be mixed (FastEthernet <> GigabitEthernet).
- Up to 8 Ethernet ports (800 Mbps or 8 Gbps). Cisco 2960 up to 6 EtherChannels
- Individual EtherChannel group member port config must be consistent om both sides (L2 ports, if it's a trunk -> same native VLAN)

AutoNegation Protocols

- **Port Aggregation Protocol (PAgP)**:
  - Cisco propietary. PAgP packets sent every 30 seconds.
- **Link Aggregation Control Protocol (LACP)**
  - IEEE specification (802.3ad). Multivendor environments

Configuration Guidelines both ends

- **Same EtherChannel support. Same speed and duplex**.
- **Same VLAN match** (all interfaces to same VLAN or as a trunk) and **Range of VLANs**.

PAgP - LACP Mode Settings

S1	S2	Channel Establishment
On - On	On - On	Yes
On - On	Desirable/Auto - Active/Passive	No
Desirable - Active	Desirable - Active	Yes
Desirable - Active	Auto - Passive	Yes
Auto - Passive	Desirable - Active	Yes
Auto - Passive	Auto - Passive	No

LACP Configuration Example

```
S1(config)# interface range f0/1-2
S1(config-if-range)# channel-group 1 mode active
S1(config-if-range)# port-channel interface Port-channel 1
S1(config-if-range)# interface port-channel 1
S1(config-if)# switchport mode trunk
S1(config-if)# switchport trunk allowed vlan 1,2, 20
S1(config-if)# end
S1# show interfaces port-channel
S1# show etherchannel summary
S1# show etherchannel port-channel
S1# show interfaces etherchannel
```