EtherChannel Notes and Configuration

In normal case when we add multiple links between two switches for redudantancy,except one link all other links will be blocked by SPanning tree.This is to avoid loops.Etherchannels is a technology that lets you bundle multiple physical links into a single logical link.Its also called link aggregation.Etherchannel will bundle all physical links into a logical link with the combined bandwidth.

For example by combining 4x 100 Mbit we will get a 400 Mbit link.Spanning tree sees this link as one logical link so there are no loops!.

EtherChannel will do load balancing between the links connected.If any of the links connected goes down,It will work with combained bandwidth of the links that are still active. There's a maximum to the number of links you can use: 8 physical interfaces.

Two protocols used in Etherchannel are:
• **PAgP (Cisco proprietary)**
• **LACP (IEEE standard)**

These protocols can dynamically configure an etherchannel. It's also possible to configure a static etherchannel without these protocols doing the negotiation of the link for you. If you are going to create an etherchannel you need to make sure that all ports have the same configuration:
• Duplex has to be the same.
• Speed has to be there same.
• Same native AND allowed VLANs.
• Same switchport mode (access or trunk).

PAgp and LACP will check if the configuration of the interfaces that you use are the same.
If you want to configure PAgP you have a number of options you can choose from, an interface can be configured as:
• On (interface becomes member of the etherchannel but does not negotiate).
• Desirable (interface will actively ask the other side to become an etherchannel).
• Auto (Will not start negociation.interface will wait passively for the other side to ask to become an etherchannel).
• Off (no etherchannel configured on the interface).

Configuration of PagP
Switch(config)#interface fa0/13
Switch(config-if)#channel-group 1 mode desirable
Switch(config)#interface fa0/14
Switch(config-if)#channel-group 1 mode desirable

Switch(config)#interface port-channel 1
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#switchport mode trunk

Note : Here we use desirable mode.You can choose any mode from above list.Result will be different depends on the mode you choosed.Configure this on both switches where we need to

configure EtherChannel.

To view :
Switch#show etherchannel 1 port-channel
Switch#show etherchannel summary
Switch#show interfaces fa0/14 etherchannel

LACP is similar to PAgP. You also have different options to choose from when you configure the interface:
• On (interfaces becomes member of the etherchannel but does not negotiate).
• Active (interface will actively ask the other side to become an etherchannel).
• Passive (interface will wait passively for the other side to ask to become an etherchannel).
• Off (no etherchannel configured on the interface).

LACP Configuration
It's basically the same thing as PAgP but the terminology is different.

Switch(config-if)#interface fa0/13
Switch(config-if)#channel-group 1 mode active
Switch(config-if)#interface f0/14
Switch(config-if)#channel-group 1 mode active

Switch(config)#interface port-channel 1
Switch(config-if)#switchport trunk encapsulation dot1q
Switch(config-if)#switchport mode trunk

Note : Here we use active mode.You can choose any mode from above list
Note : Pagp and LACP configuration has to be done on both switches configuring EtherChannel

To View:
Switch#show etherchannel 1 port-channel

NOTE : The configuration of PAgP and LACP is similar. Keep in mind that PAgP can only be used between Cisco devices while LACP is a IEEE standard, you can use it to form etherchannels between different vendors

Note: We can use the show etherchannel load-balance command to see what the default configuration is. Etherchannel load-balances based on the source MAC address