

19(C). Layer 3 EtherChannels

Layer 3 EtherChannels between L3 switches give you the advantages of redundancy without redundant routes in your routing table. The load balancing inherent in EtherChannels may be more efficient than that at L3.

Conceptually, creating an L3 EtherChannels is just a combination of 2 steps already learned:

- Create an EtherChannel
- Turn the EtherChannel from an L2 switchport into an L3 routed port

Unfortunately, if you literally follow that order you'll be doing some extra work:

- Creating the EtherChannel will be easy
- When you attempt to issue a "no switchport" on the EtherChannel, ios will complain that the underlying interfaces are L2, making the EtherChannel "not a convertible port"
- When you change the underlying interfaces *and* the EtherChannel to L3, that will seem to work, but you won't realize that ios quietly kicked the underlying interfaces out of the EtherChannel in the process
- You'll be able to add an IP address to the EtherChannel, but the EtherChannel will be down/down
- Troubleshooting with "show etherchannel summary" will show that you have an L3 EtherChannel (code = R) that is down (code = D) and has no ports listed in the table at the end of the command output.
- You'll end up reapplying the command "channel-group <number> mode on" or similar to the underlying Ethernet interfaces in order to make everything work.

Truthfully, I highly recommend the above exercise in order to remind yourself how to troubleshoot EtherChannels after you've worked on other things for 16 chapters. However, the simpler configuration changes the underlying links to L3 before combining them into an EtherChannel and looks more like this:

```
1 S1(config)# interface range Fa0/23 - 24
2 S1(config-if-range)# no switchport
3 S1(config-if-range)# channel-group 1 mode on
4 S1(config-if-range)# interface Port-Channel 1
5 S1(config-if)# ip address 10.12.0.1 255.255.255.252
```