

## EtherChannel Load-Balancing:

- o Etherchannel load not equally distributed across all the Switches links bundled.
- o EtherChannel or port channel provides load balancing only per frame, not per bit.
- o In port channel values has calculated by hash algorithm, that particular port accepts.
- o In port channel a Switch decides which member link a frame will traverse frame.
- o In Etherchannel or port channel flow uses of particular port cannot be controlled.
- o In port channel hash algorithm cannot be configured or changed to load balance.
- o In port channel only influence the load balance with a frame distribution method.
- o Which fields are considered is dependent on switch platform and configuration.
- o EtherChannel or port channel load balancing can use MAC addresses & IP addresses.
- o By default, Layer 2 packets are distributed on source and destination MAC address.
- o By default, Layer 3 packets are distributed based on source & destination IP address.

Ports in EtherChannel	Distribution across the links
2	50%:50%
3	37,5%:37,5%:25%
4	25%:25%:25%:25%
5	25%:25%:25%:12,5%:12,5%
6	25%:25%:12,5%:12,5%:12,5%:12,5%
7	25%:12,5%:12,5%:12,5%:12,5%:12,5%:12,5%
8	12,5%:12,5%:12,5%:12,5%:12,5%:12,5%:12,5%:12,5%

SW1(config)#port-channel load-balance src-mac
SW2(config)#port-channel load-balance dst-mac
SW1#show etherchannel load-balance

Method	Operation	Hash	Switch Model
src-ip	Source IP address	bits	All Models
dst-ip	Destination IP address	bits	All Models
src-dst-ip	Source and destination IP address	XOR	All Models
src-mac	Source MAC address	bits	All Models
dst-mac	Destination MAC address	bits	All Models
src-dst-mac	Source and destination MAC	XOR	All Models
src-port	Source port number	bits	6500/4500
dst-port	Destination port number	bits	6500/4500
src-dst-port	Source and destination port	XOR	6500/4500

### Link Assigned by Hashing Algorithm:

Active Links	0	1	2	3	4	5	6	7
1	0 1							
2	0	1						
3	00 11	01	10					
4	00	01	10	11				
5	000 101	001 110	010 111	011	100			
6	000 110	001 111	010	011	100	101		
7	000 111	001	010	011	100	101	110	
8	000	001	010	011	100	101	110	111

### Link Bits:

Links	Bits
2	1
3	2
4	2
5	3
6	3
7	3
8	3

Binary	Decimal	Link to Use
000	0	Link-1
001	1	Link-2
010	2	Link-3
011	3	Link-4
100	4	Link-5
101	5	Link-6
110	6	Link-7
111	7	Link-8

### Hashing Algorithm Work:

