






Switching Concepts

Switching in Networking

Ports Types:

-  Ingress: entering the interface
-  Egress: exiting the interface

Forwarding frames:

-  Ingress Interface
- Destination MAC address  Egress
- Using its MAC Address Table 
Ingress Source MAC Address





Port Table





Destination Addresses	Port
EE	1
AA	2
BA	3
EA	4
AC	5
AB	6

The Switch Learn and Forward Method

1 Learn – Examines Source Address

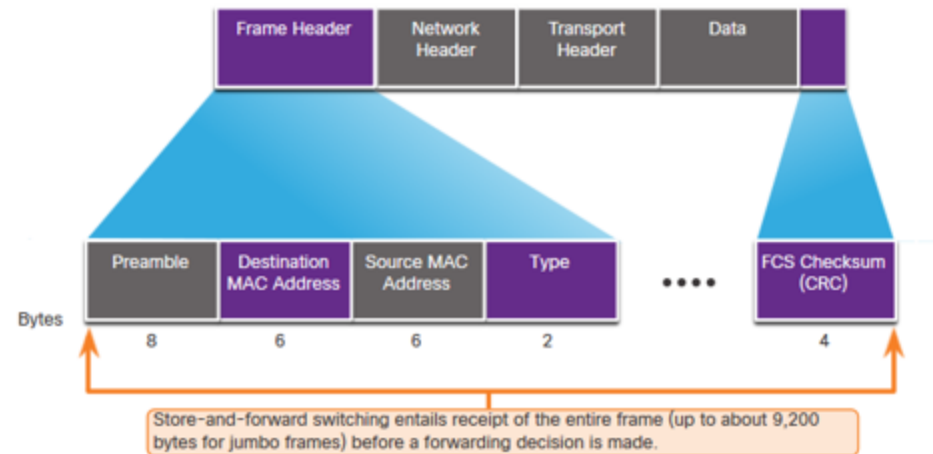
-  Adds the source MAC if not in table
-  Resets the time out setting back to 5 minutes if source is in the table

2 Forward – Examines Destination Address

-  Destination MAC in MAC address table?  forward out the specified port
-  Destination MAC is not in the table?  flooded out all interfaces except the one it was received.

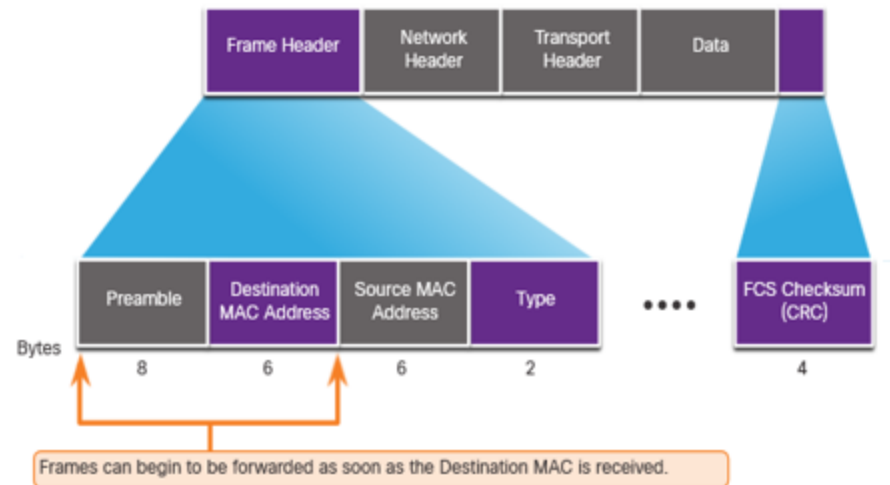
Switch Forwarding Methods: Store-and-Forward

- **Error checking:** Check FCS for CRC errors. Bad frames discarded
- **Buffering:** Buffer frame while it checks FCS.



Switch Forwarding Methods: Cut-Through

- ✂ **Cut-through:** Forwards frame after Destination MAC.
- **Fragment Free:** At least 64 bytes. Eliminates runts.
- ⚠ **Does not check FCS** ➡ It can propagate errors

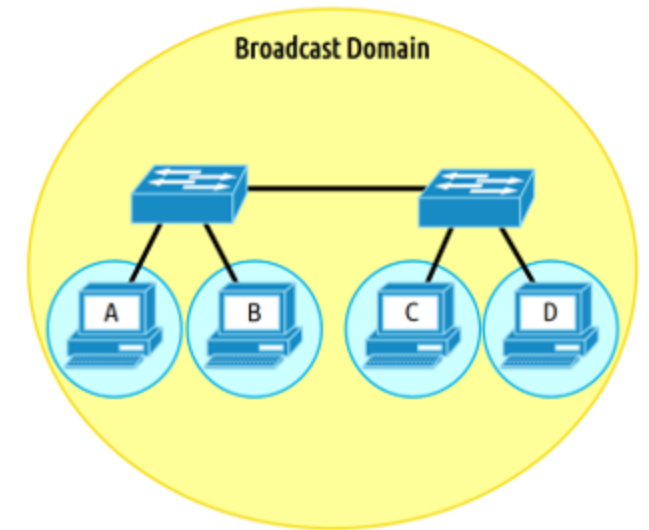
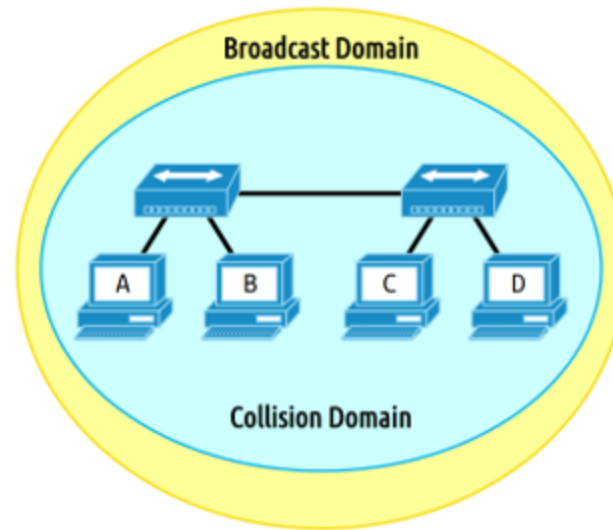


Broadcast domain

- Router: ●
- Switch: ●
- Hub: ●

Collision domain

- Router: ●
- Switch: ●
- Hub: ●



Alleviated Network Congestion

- MAC Address Table
- Full-duplex
- Fast Port Speeds
- Fast Internal Switching
- Large Frame Buffers
- High Port Density