Switching Concepts

📕 CCNA2v7 Module 2 Switching Concepts
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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 Adress

Port Table

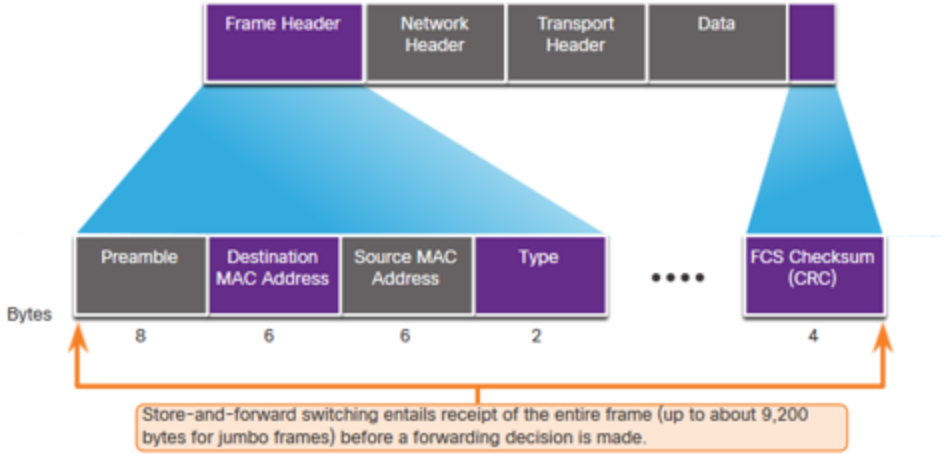
Destination Addresses	Port
EE	1
AA	2
BA	3
EA	4
AC	5
AB	6

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**
    - If the destination MAC is in the MAC address table it is forwarded out the specified port.
    - If a destination MAC is not in the table, it is flooded out all interfaces except the one it was received.

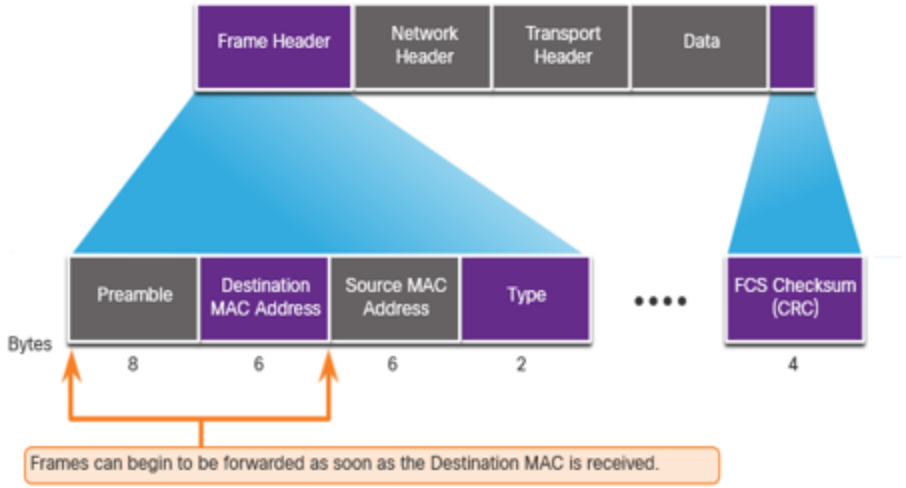
Switch Forwarding Methods: Store-and-Forward

- **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**

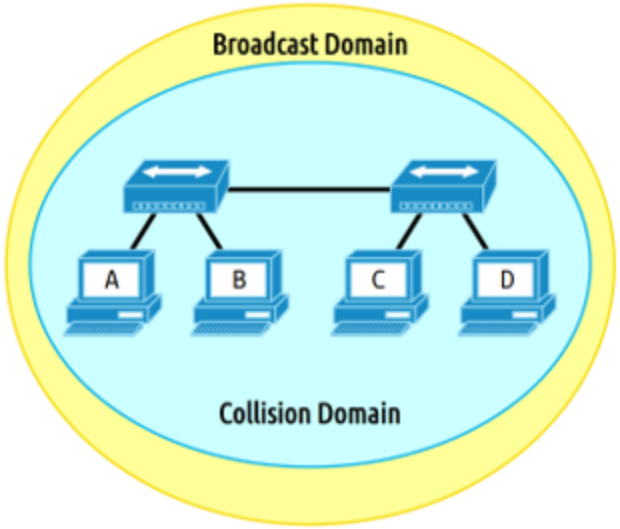


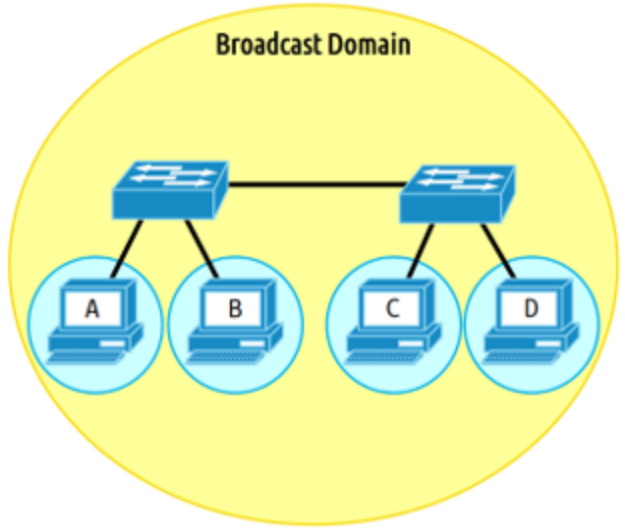
Broadcast domain

- 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