TOPIC 2: SWITCHING CONCEPTS

A. Frame Forwarding
   - Frames encapsulate physical address (Source and Destination MAC Address)
   - A LAN switch maintains a table (MAC Address table) that is referenced when forwarding traffic through the switch. This table is stored in content addressable memory (CAM) which is a special type of memory used in high-speed searching applications
   - There are two terms associated with frames entering and leaving an interface:
     i. **Ingress** - This is used to describe the port where a frame enters the device.
     ii. **Egress** - This is used to describe the port that frames will use when leaving the device.

B. Switching Forwarding Methods
   - Store-and-Forward Switching
   - Cut-Through Switching

C. Collision and Broadcast Domains
   A. Collision Domain
   - ✓ The network segments that share the same bandwidth between devices
   - ✓ When two or more devices within the same collision domain try to communicate at the same time, a collision will occur
   - ✓ Switch port operating in half duplex is one collision domain.
   - ✓ Legacy hub does not have the capability to isolate collision domain.
   - ✓ There are no collision domains when switch ports are operating in full-duplex.

   B. Broadcast domain
   - ✓ A collection of interconnected switches forms a single broadcast domain.
   - ✓ When a device sends a Layer 2 broadcast, the destination MAC address in the frame is set to all binary ones.
   - ✓ Broadcasts are sometimes necessary for initially locating other devices and network services, but they also reduce network efficiency.
   - ✓ Only a network layer device, such as a router, can divide a Layer 2 broadcast domain.

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