

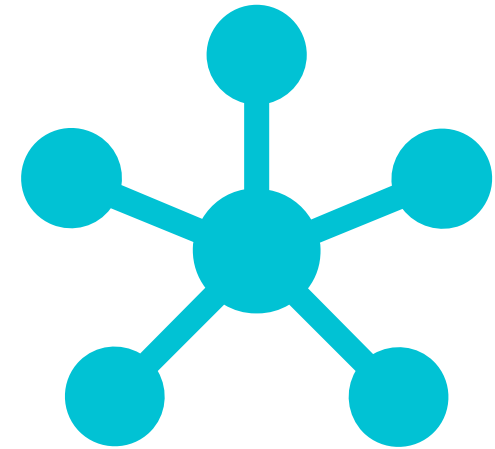
Networking

Ethernet Switching Features



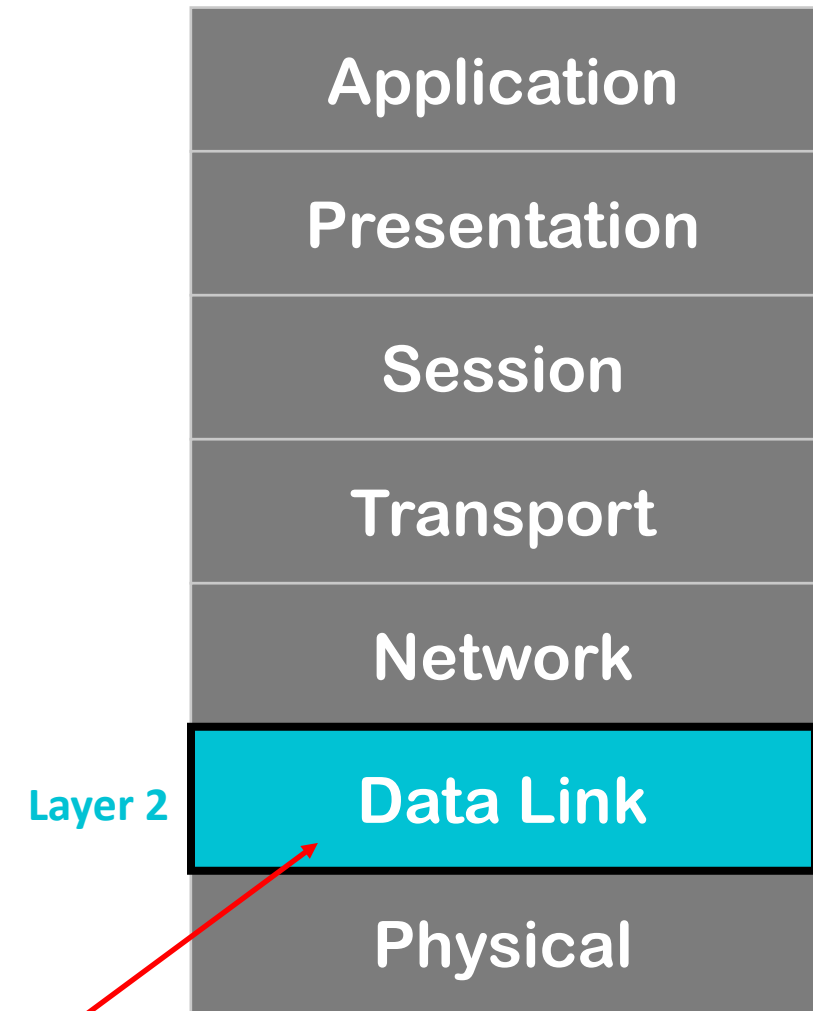
Virtual LAN

- Virtual Local Area Network (VLAN)
 - Segment of a LAN connected via switches
 - Reduce collisions and increase performance
- Data VLAN
 - Configured to only carry user-generated traffic
- Voice VLAN
 - VLAN configured to carry voice traffic



MAC Tables

- MAC Table
 - Located on Layer 2 of the OSI Model
 - Contains MAC addresses
 - MAC addresses of all the devices on the network
- ARP
 - Address Resolution Protocol
 - Protocol that creates the MAC Table
 - Associates an IP address with a MAC address

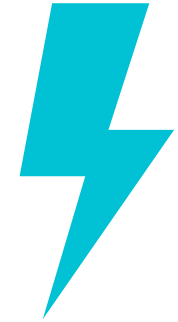


This is all located on switches, which are on Layer 2 of the OSI model



Power over Ethernet

- PoE – Power over Ethernet
 - Delivers electricity over twisted-pair ethernet cables
 - Used for cameras, phones, etc...
 - Standard 802.af
 - Can deliver up to 15.3 watts of electricity
- PoE+
 - Similar to PoE
 - Standard 802.at
 - Can deliver up to 30 watts of electricity



Spanning Tree Protocol

- Spanning Tree Protocol (STP)
 - Link management protocol that provides path redundancy
 - Avoids looping in a network
 - Only one active path between workstations
 - Uses Spanning Tree Algorithm (STA)
 - Creates a topology database
 - Gets rid of redundant links



CSMA/CD and NDP

- CSMA/CD
 - Carrier-Sense Multiple Access with Collision Detection
 - Avoids collisions on a wired network
 - Waits for a collision to clear up before sending data
- NDP – Neighbor Discovery Protocol
 - Operates at the Link Layer
 - Only works with IPv6
 - Nodes on the same link can share their information with other devices on that node (or their “neighbors”)

