Layer 2 vs layer 3 Ethernet Switches

Claus

Layer 2:

- Layer 2 is the data Link
- Data packets are encoded and Decoded into bits
- Two sublayers:
    - Media Access Control (MAC) controls access to data and permissions to transmitting it
    - LLC (Logic Link Control)
        - Flow control
        - Error checking and handling

Takes “raw” bits from the physical layer and packages them into frames, then transferring these frames from one computer to another. This is done with error checking, so after sending a frame it waits for reply, before sending another frame.

Andreas

Layer 3 Network: is responsible for addressing, and routing of IP, ICMP, ARP, RIP, IGRP and routers.

- Layer 3 provides switching and routing technologies.
- Creates Logic Paths
    - a.k.a. Virtual Circuits
    - Transmits Data From Node to Node
- Routing and Forwarding are functions of this layer
- Addressing & Internet Working
- Error Handling & Congestion Control
- Packet Sequencing

Layer 3 devices restrict broadcast traffic such as ARP and DHCP broadcasts to the local network, reducing overall traffic levels by allowing admin to divide networks into smaller parts and restrict broadcasts to only the sub-network.

Frands: Layer 3 switch Pros and Cons

Advantages

- Intelligent packet forwarding
- Linking different subnets
- Learn the routes between networks
- Enhanced security controls
- Traffic prioritization

Issues

- High processing power consumption
- Higher Prices
- Complex management on larger networks