

## **Understanding Switches**

**Define, compare and contrast hubs and switches.**

The hub splits Ethernet cables or the network signal, any communication is sent out to all computers connected to the hub using a lot of bandwidth and causing collisions and only one computer can talk at a time. A switch learns which computer is connected to their respective port allowing for communication to happen at the same time unlike hubs.

**On which OSI model layer, do switches reside?**

Resides on layer 2 ; data link layer

**On which OSI model layer do hubs reside?**

The physical layer

**What information does the first half of the MAC address contain?**

The first half is an identifier for the manufacturer of the equipment.

**What information does the last half of the MAC address contain?**

The end is the company's own serial number.

**What access methodology does Ethernet utilize?**

Ethernet uses an access method called CSMA/CD (Carrier Sense Multiple Access/Collision Detection). This is a system where each computer listens to the cable before sending anything through the network. If the network is clear, the computer will transmit.

**Briefly explain the difference between managed and unmanaged switches.**

Managed switches are completely automatic and unmanaged switches can be configured.

**Compare and contrast full and half duplex.**

A full duplex can send and receive messages at the same time. A half duplex can either receive or transmit traffic

**What is a VLAN? Briefly describe its function.**

VLANs are separate LANS on the same switch

**What is QOS? Briefly describe an environment where it would be useful?**

Quality of service allows you to prioritize network packets so that real time communication is not interrupted by file transfers.

**What is the spanning tree protocol? What problem does it prevent?**

It is a network protocol that helps prevent network loops