

SWITCH

A switch function at Layer 2 or Datalinklayer. It forward the frame based on physical address (MAC ADDRESS) it simply looks at each frame or data unit and determines from a which device a data unit is intended for and forward it out toward that port based on MAC ADDRESS. It uses Flooding and unicast for communication.It has one broadcast domain by default.

BROADCAST DOMAIN

Broadcast is a type of communication, where the sending device send a data and that copy of data will be delivered to every device in the network segment. Large number of Broadcasts will reduce the available bandwidth of network links for normal traffic because the broadcast traffic is forwarded to all the ports in a network .As the number of devices in the Broadcast Domain increases, Number of Broadcasts also increases and the quality of the network will come down.

COLLISION DOMAIN

Collision will happen in a Network when two devices simultaneously try to send data on the Shared Media, since Shared Media is half-duplex and sending and receiving is not supported at same time. In a "Shared Media" there are no separate channels for sending and receiving the data signals, but only one channel to send and receive the data signals. EX: of shared media Hub, Repeater, Bus topology etc.

MANAGEBLE SWITCHES

These typeof switches have one or more ways, or interfaces, to configure the switch. Common management methods include: a console port or Command Line Interface accessed via telnet or Secure Shell. Changes that one can do from a managed switch Examples of configuration include: enable features such as Configuring IP address to switch, Spanning Tree Protocol, set port speed,create or modify VLANs, etc.

ETHERCHANNEL

Switch treats an Ether Channel as a single interface, thus eliminating the possibility of a switching loop. It not only does port aggregation increase the bandwidth of a link, but it also provides redundancy. If a single port fails, traffic will be redirected to the other port(s). This failover occurs quickly – in the span of milliseconds. A maximum of **8** Fast Ethernet or **8** Gigabit Ethernet ports can be grouped together when forming an Ether Channel.

STP (Spanning Tree Protocol)

When switches are connected in a redundant network will generate layer 2 switching loops. The function of Spanning Tree Protocol (STP) is to prevent Layer 2 switching loop and broadcast storms in a Local Area Network (LAN) by shutting down (or *blocking*) a port. Blocked links can be brought in to service if active links fail. STP is enabled by default on all switches.

BLOCKING STATE

The default state of an STP port when a switch is powered on, and when a port is shut down to eliminate a loop. Ports in a blocking state do not forward frames or learn MAC addresses. It will still listen for BPDUs from other switches, to learn about changes to the switching topology.

LISTENING

A port will progress from a Blocking to a Listening state only if the switch believes that the port will not be shut down to eliminate a loop. The port will listen for BPDU's to participate in the election of a Root Bridge, Root Ports, and Designated Ports. Ports in a listening state will not forward frames or learn MAC addresses.

LEARNING

A port in a listening state will be elected either a Root Port or Designated Port, and placed in a learning state. Ports in a learning state listen for BPDUs, and also begin to learn MAC addresses. However, ports in a learning state will still not forward frames.