Section:-2

Routing Protocol:-

It is used to make the communication b/w two different Protocols.

* Static routing
* dynamic routing.

Router-Ports

-> fast ethernet Ports -> Switch laptop.
-> Console port
-> Auxilary port -> configure the network (NCCW)
-> Power Switch.
-> Power cord connection.
-> Serial ports.

CISCO Switch:-

* Switch is a device which is used to connect the multiple system in LAN.

* we have switch like manageble & Unmanageable switch

* In manageable switch we can assign IP Address & & create VLAN we can do operation. & it have console port
-> Plug & Play

* Un manageable switch we cannot assign the ip Address

* Two Types of SWITCHES:-

* Layer-2
Layer-3.

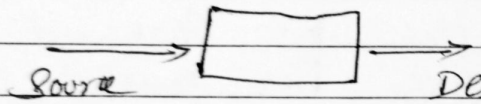
=> Switches which operates Network Layer - 3 then it called as Multilayer Switch -

=> Switches which operates Data Link Layer of OSI Model it was called as Layer-2 Switches -

Layer - 3 - Network Layer

Layer - 2 - Data Link Layer (OSI-Model)

* Switch - forwards the - Ethernet frames - from the Source device to destination Switch -



Switch - Frame

router - packet.

=) If we want to connect on same network multiple devices then it was called Switch

=) We can connect the switches physically & remotely -

* Remotely we can connect through via SSH Telnet -

* Routers & switches consist of IOS operating system -

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Layer-2 Switch:

=> The terms Layer-2 & Layer-3 adopted from the OSI Model.

=> The layer 2 provides the data transfer b/w two devices within a LAN.

=> layer-2 switch works based on the MAC address. It works within the MAC address only.
=> Switching at layer 2 is quite fast as they don't look at the layer-3 portion.

Layer-3 Multilayer Switch (Network Layer)

* It operates on layer three 3 (Network Layer) of OSI Model
* It is also called Multilayer switch
* Can perform the functionality of both layer 2 & Layer 3
* Perform the routing of the data packets using IP.
* Function of layer 3 switch combine some of the layer 2 switch. Some of a Router.

* The main difference layer-2 & layer 3 is the routing function.
* A layer 3 Multilayer switch can do all the jobs that the layer 2 switch does not

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Commands of Routing:

- En - : Enable
  Config - t - Configuring
  ip - routing - Enable routing
  router rip - Configuring router

Firewall:-

* A firewall is a war b/w trusted & Untrusted network used b/w LAN WAN
* firewall is a security device. used to stop the unauthoraized Access.
* The first generation firewall only can do Packet filtering.
* The Next generation firewall (NGFW) - third generation firewall - it also do filtering - The functionalities Application firewall & deep packet inspeton (DPI) Intrution Prevention System (IPS).

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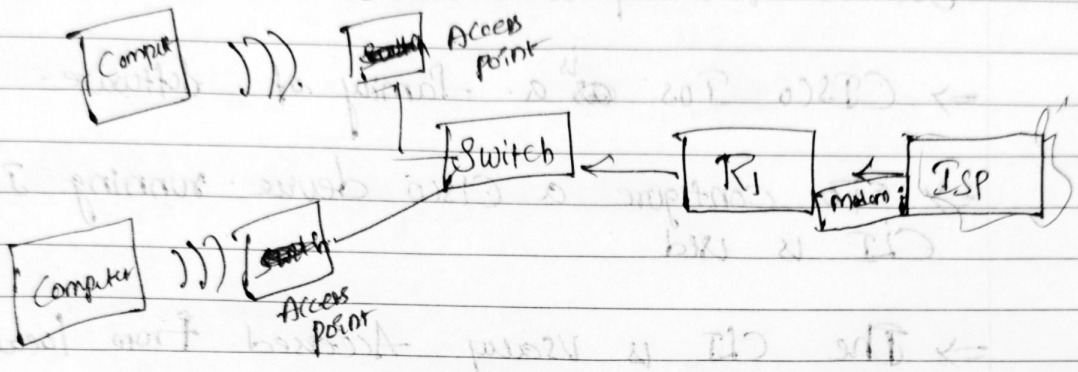
Access Point :-

* Access point is a device that connects the Local Area Network (WLAN).

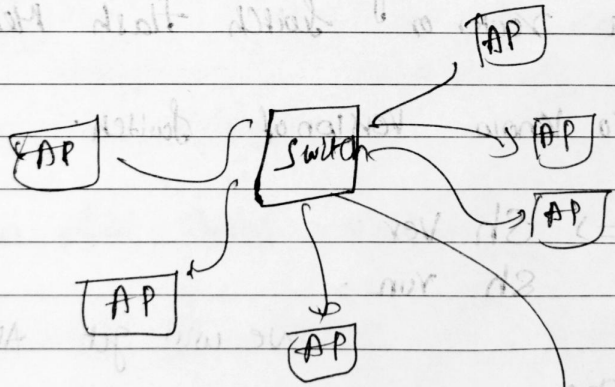
* It is a device is used to connect Multiple wireless devices Each other



=> It converts the wired network into wireless network

WLAN Control

It is used to control the Access Points



By using this WLC. Thus Can control All Access point AP

SECTION-3:-

CISCO operating system:-

(Internetwork operating system)

=> IOS is a operating system used on CISCO Devices such as router & switches.

=> CISCO IOS is a family of software.

=> To configure a cisco device running IOS the CLI is used

=> The CLI is usually Accessed from local or remote devices running Telnet or SSH

* The CLI comes with the predefined number of commands. To configure routing & switching

=> The IOS usually Stored as a system Image with a router or switch flash Memory.

=> To know version of switch.

=> Sh ver
Sh run.

We will get All the information of switch.

NX-OS- operating System:- (More Powerful)

* Cisco nexus series switches are modular or fixed port network switches desined for the data centers.

* All switches in the nexus range run the modular NX-OS firmware / operating system.

* NE-OS is a data center class OS.

* Facebook are using own switch.

Catalyst Switchis-

* It having Catalyst operating System & IOS are avalle
* It was specificaly desined for distrubutinon on core layers in the network.

Modular Switches:-

This Switches supports to Add card that Expansion Modules in as needed. We can add As per our requirments.

* we can Add Extra Module.

fixed Switchi- It consist fixed configuration.

* Layer - 2 Switch - MAC Address

* Layer - 3 → Multi layer Switch - Ip Address.

-> If we want to perform any Switch like a layer - 3

ip routing -