VLAN (VIRTUAL LAN)

- To manage or restrict the user over switch, we create VLAN.

1. VLAN is a logical group of network devices that appears to be on the same LAN.
2. Configured if they are attached to the same physical connection even if they are located on a number of different LAN Segments.
3. It can logically segment LAN into different broadcast domain.

- Criterion to setup the VLAN on switch:

You need to consider using VLAN's in any of the following situations:

- If you have more than 200 devices on LAN.
- Groups of users need to be on the same broadcast domain because they are using the same application.
- To reduce the cost of the network.

By default, you will find 5 VLAN's on a switch.

Rest is 1000 VLAN and with total count of 1005 VLAN.

- To Configure VLAN on a switch.

Switch#show vlan

Switch(config)#vlan 2

Switch(config)#name HR

Switch(config)#do write

Switch(config)#vlan 3

Switch(config)#name marketing

Switch(config)#do write

Switch(config)#vlan 4

Switch(config)#name Production

Switch(config)#do write

Switch(config)#exit

- Now configure the interface as per VLAN requirement.

Switch(config)#int range fa 0/1–6

Switch(config)#switchport mode access

Switch(config)#switchport access vlan 2

Switch(config)#do write

Switch(config)#exit

Switch(config)#interface range fa 0/7–12

Switch(config)#switchport mode access

Switch(config)#switchport access vlan 3

Switch(config)#do write

Switch(config)#exit

Switch(config)#interface range fa 0/13–20

Switch(config)#switchport mode access

Switch(config)#switchport access vlan 4

Switch(config)#do write

Switch(config)#exit

- SWITCH PORT HAS DIFFERENT MODES FOR VLAN.

1) ACCESS MODE: It can share or receive one vlan information over the switch to other switch

2) TRUNK MODE: It can share or receive multiple vlan information or communication over the switch to other switch.

- leave a port for the trunking process.

- config# interface fastethernet 0/24

switchport mode trunk

exit

create the trunk port on other switch as well.

INTER-VLAN COMMUNICATION

To make communication between different VLAN's we use inter-vlan communication. With the help of router.

configure router

router(config)#int fa 0/0

router(config)#no shutdown

router(config)#exit

For vlan 2

router(config)#int fa 0/0.2

router(config)#encapsulation dot1q 2

router(config)#ip add 192.168.1.1 255.255.255.0

router(config)#do write

router(config)#exit

For vlan 3

router(config)#int fa 0/0.3

router(config)#encapsulation dot1q 3

router(config)#ip add 192.168.2.1 255.255.255.0

router(config)#do write

router(config)#exit

In switch go for trunk port

switch(config)#int fa 0/22

switch(config)#switchport mode trunk

switch(config)#switchport trunk allowed vlan except 3

switch(config)#do write

switch(config)#exit

- VLAN TYPES

1) STATIC VLAN- manually assign the vlan's on any switch.

2) DYNAMIC VLAN- it is the case of using special software to create dynamic vlan.

VTP – VLAN TRUNKING PROTOCOL

It is used to provide VLAN information over the switching network.

- Modes of VTP :-

1) server 2) client 3) transparent

- To configure server on a switch

```
switch(config)#vlan 2
switch(config)# name production
switch(config)#vlan 3
switch(config)# name HR
switch(config)#vlan 4
switch(config)#name marketing
switch(config)#do write
switch(config)#exit
```

- Now, VTP mode on switch – 1st switch

```
switch(config)#vtp mode server
switch(config)#vtp domain cisco
switch(config)#vtp password appin
switch(config)#do write
switch(config)#exit
```

ON 2nd SWITCH

```
switch(config)#vtp mode client
switch(config)#vtp domain cisco
switch(config)#vtp password appin
switch(config)#do write
switch(config)#exit
```

ON THIRD SWITCH

switch(config)#vtp mode transparent

switch(config)#vtp domain cisco

switch(config)#vtp password appin

switch(config)#do write

NOW CREATE THE TRUNK BETWEEN ALL SWITCHES

ON FIRST SWITCH

- switch(config)#int fa 0/1

switch(config)#switchport mode trunk

switch(config)#do write

On second switch which is client

switch(config)#int fa 0/2

switch(config)#switchport mode trunk

switch(config)#do write

On third and fourth switch also configure the same. And also vtp mode client in fourth switch.

- COMMAND TO VIEW VTP MODE STATUS

- #show vtp status