Concepts Used

VLANs

Subnetting and IP Addressing.

Inter-VLAN Routing

Configuring DHCP Server (Router as the DHCP Server).

OSPF

Configuring WLAN (Cisco Access Point).

Vlan  
 **Section I** - Enquiry Area- VLAN 80, Network of 192.168.8.0/24  
 - Parking- VLAN 70, Network of 192.168.7.0/24  
 - Cabin- VLAN 60, Network of 192.168.6.0/24  
 **Section II** - Sales- VLAN 50, Network of 192.168.5.0/24  
 - HR- VLAN 40, Network of 192.168.4.0/24  
 - Finance- VLAN 30, Network of 192.168.3.0/24  
 **Section III** - Admin- VLAN 20, Network of 192.168.2.0/24  
 - IT- VLAN 10, Network of 192.168.1.0/24

**To enable serial cable**

En

Config t

Interface se 0/2/0

No sh

Int gig0/0/0

No sh

Clock rate ?

Clock rate 64000

Do wr

Creating vlans

EN

Config t

Int range fa0/2-3

Switchport mode access

Switchport access vlanXX

Exit

Do wr

Int range fa0/1

Switchport mode trunk

Ex

Do wr

Router Ip address and subnetting

Section I

Interface se 0/1/0

Address 10.10.10.5 255.255.255.252

Exit

Do wr

Interface se 0/1/0

Address 10.10.10.6 255.255.255.252

Exit

Do wr

To all router connection

**Inter Vlan routing**

We create sub interface routing

Setting default gateway

On router 1

gig0/0.80

Encapsulation dot1Q 80 (used to carry traffic for lan)

Ip address 192.168.8.1 255.255.255.0(default gateway 8.1 to access vlan 80)

Ex

gig0/0.70

Encapsulation dot1Q 70

Ip address 192.168.7.1 255.255.255.0(default gateway 8.1 to access vlan 80)

Ex

gig0/0.60

Encapsulation dot1Q 60

Ip address 192.168.6.1 255.255.255.0(default gateway 6.1 to access vlan 60)

Ex

**Router as DHCP server**

To assign ip address dynamically

Dhcp pooling

En

config t

Service dhcp

ip dhcp Reception

network 192.168.8.0 255.255.255.0

Default-router 192.168.1.1

Dns-server 192.168.1.1

ex

OSPF

**Open Shortest Path First**

To advertise the network connected to router

Section 1 router configuration

En

Config t

Router ospf 10

Network 10.10.10.4 255.255.255.252 area 0

Network 10.10.10.8 255.255.255.252 area 0

Network 192.168.8.0 255.255.255.0 area 0

Network 192.168.7.0 255.255.255.0 area 0

Network 192.168.6.0 255.255.255.0 area 0

Do wr

Router as DHCP server

OSPF - Interior Gateway Protocol - designed to use in a single autonomous system. Also a link-state protocol

It learns the routes. Routers learn about the route using Link State Advertisers (LSA). These contain info about

subnet, router and some other network info. All the info is stored in LSDB (Link State Data Base).

Routers first become the neighbors

Then exchange the database information

Reasons for choosing OSPF over RIP:

- Based on hop count matrix ; it supports max 15 hops i.e only 16 routers can be connected.

- does not support VLSM and is classfull routing protocol

- bandwidth utilization is high as it updates every 30 sec

- slow convergence

Configuring RIP

router rip

network [network id of all the routers your router is connected to]