VASAVI COLLEGE OF ENGINEERING
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(Affiliated to Osmania University)
Hyderabad - 500 031.

DEPARTMENT OF : __ECE__

NAME OF THE LABORATORY : __CN__

Name __D. Dinesh kumar__ Roll No. __1602-21-735-074__ Page No. _____

VLSM Design and Implementation

Aim: Given a /24 network address to use a design a VLSM addressing scheme. Based on the requirements, to assign subnets and addressing, configure devices and verify connectivity.

Appar. Tools! PC loaded with Cisco packet tracer

Procedure!

→ Determine the number of subnets need for the following network. 172.81.103.0/24

SW01 Lan requires 27 host IP addresses

SW02 lan requires 25 host IP addresses

SW03 lan requires 14 host IP addresses.

SW04 lan requires 8 host IP addresses.

→ Determine the subnet mask for each subnet.

→ Assign the first usable IP addresses to Remote site 1 for the two LAN links and the WAN link.

SW1 — 27 hosts + 2

   subnet consists of 32 hosts.
   i.e. 5 bits

172.31.108.0 — Network address
172.31.103.1 — sw1 address, g0/0 gateway
:
:
172.31.103.30 — User-1 address.
172.31.103.31 — Broadcast address.

   Subnet Mask:
      255.255.255.224

SW2 — 25 + 2 hosts:
   subnet consists of 32 hosts. i.e. 5 bit

172.31.103.32 — Network address
172.31.103.33 — sw2 address, g0/1 gateway
:
:
:
172.31.103.62 — User 2 address
172.31.103.63 — Broadcast address

   Subnet Mask: 255.255.255.224

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- Assign the first usable IP addresses to Remote Site 2 for the two LAN links. Assign the last usable IP address for the WAN link.

→ Assign the second usable IP addresses to the switches

→ Assign the last usable IP addresses to the hosts.

→ Configure IP addressing on the Remote-Site1 router LAN Interfaces.

→ Configure IP addressing on the SW3, switch including the default gateway.

→ Configure IP addressing on user 4 including the default gateway.

→ Verify connectivity.

Code!

RemoteSite 1 :

SW8: 14 hosts + 2.

subnets consists of 16 hosts.

i.e. 4 bits.

172.31.103.64 - Network address

172.31.103.65 - SW8 address, Remote Site 2 g0/0 gateway

⋮

172.31.103.78 - User-8 address

172.31.103.79 - Broadcast address

Subnet mask: 255.255.255.240

SW4: 8 hosts + 2

Subnets consists of 16 hosts.

i.e. 4 bits.

172.31.103.80 - Network address

172.31.103.81 - SW4 address, g0/1 gateway

⋮

172.31.103.94 - User 4 address

172.31.103.95 - Broadcast address

Subnet mask: 255.255.255.240.

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```
Remote-Sitel > enable
Remote-Sitel # config t
Remote-Sitel (config) # interface g0/0
Remote-Sitel (config-if) # ip address 172.31.103.1
                                        255.255.255.224
Remote-Sitel (config-if) # no shutdown
Remote-Sitel (config-if) # exit
Remote-Sitel (config) # interface g0/1
Remote-Sitel (config-if) # ip address 172.31.103.33
                                        255.255.255.224
Remote-Sitel (config-if) # no shutdown
Remote-Sitel (config-if) # exit
Remote-Sitel (config) # exit

Switch-S1

SW3 > enable
SW3 # config t
SW3 (config) # interface vlan1
```

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SW3 (config-if)# ip-address 172.31.103.66
                        255.255.255.240

SW3 (config-if) # no shutdown

SW3 (config-if) # ip default-gateway 172.31.103.65

SW3 (config) # exit

User-4 (PC):

IPV4 address: 172.31.103.94

Subnet Mask: 255.255.255.240

Default gateway: 172.31.103.81

Result:

The subnets were created using VLSM and assigned ip addresses to the router, switch, PC and their connectivity was tested.