

192.168.5.0/24 → network [class C]

Subnetting using VLSM

LAN-2 → 64 hosts

$$2^7 = 128 - 2 = 126 \text{ hosts}$$

$$2^6 = 64$$

$$64 - 2 = 62 \text{ X}$$

Network Broadcast address,

7 host bits.

.0p0000000.

192.168.5.0 → N

FW → 192.168.5.1 (PC2)

192.168.5.127 → B

LU → 192.168.5.126 (RL

→ G0/1)

LAN-1

N → 192.168.5.128

45 hosts

$$2^6 - 2 = 62$$

6 host bits

.10|0000000

~~.00|0000000~~
~~11~~
~~11~~

B → 192.168.5.191

FW → 192.168.5.129 (PC1)

LU → 192.168.5.190 (R1 → G0/0)

LAN-3

14 hosts

$$2^4 - 2 = 14$$

N → 192.168.5.192

B → 192.168.5.207

FW → 192.168.5.193 (PC3)

LU → 192.168.5.206 (R2 → G0/0)

7 host bits

.1100|0000

/28

LAN-4

9 hosts

N → 192.168.5.208

110|0000

B → 192.168.5.223

$$2^4 - 2 = 14$$

/28

FU \rightarrow 192.168.5.209 (PC4)

LU \rightarrow 192.168.5.222 (R2 \rightarrow G0/1)

P2P Network

N \rightarrow 192.168.5.224

/30

$$2^2 = 4 - 2 = 2$$

.11100000

B \rightarrow 192.168.5.227

FU \rightarrow 192.168.5.225 (R1 \rightarrow G0/0/0)

LU \rightarrow 192.168.5.226 (R2 \rightarrow G0/0/0)

Subnet masks \rightarrow /25 \rightarrow

255.255.255.128

/26 \rightarrow 255.255.255.192

/28 \rightarrow 255.255.255.240

/30 \rightarrow 255.255.255.252

Pings:

PC1 \rightarrow PC2

PC1 \rightarrow PC3

PC1 \rightarrow PC4

PC2 \rightarrow PC1

PC1 \rightarrow PC2

Opt \rightarrow 192.168.5.1

Src \rightarrow 192.168.5.129 (255.255.255.192)

[No need to configure the route]

PC3 \rightarrow PC4 & PC4 \rightarrow PC3

No need for any static configuration
∴ Directly connected to the same router

Connect unknown LANs to the routers & switches
will take care of PC's

unknown
LAN address, subnet mask of LAN: (last hop/next hop)

for R2 LAN 3 & LAN 4 unknown

for LAN 3

ip route 192.168.5.192 255.255.255.240
192.168.5.226

for LAN 4

ip route 192.168.5.208 255.255.255.240
192.168.5.226

R2 doesn't know LAN 1 & LAN 2

for R2

LAN 1:

ip route 192.168.5.128 255.255.255.192
192.168.5.225

LAN 2:

ip route 192.168.5.0 255.255.255.128
192.168.5.225

Note: Give the PC configurations properly

IP address
subnet mask for that IP address
& Default gateway.
