**Variable Length Subnet Masking (VLSM)**

172.16.0.0 / 16

2000 Step-1 H = 11

Step-2 N = DH – H = 16 – 11 = 5

Step-3 TN = DN + N = 16 + 5 = 21 CIDR - /21

Step-4 CIDR - /21 255.255.248.0

Step-5 2H = 211 = 2048

Step-6 Range of the Subnet

Compare 255 . 255 . 0 . 0

255. 255 . 248 . 0

256 – 248 = 8

N/W Id : 172.16.0.0

Start IP : 172.16.0.1

End IP : 172.16.7.254

B/C Id : 172.16.7.255

658 Step-1 H = 10

Step-2 N = DH – H = 16 – 10 = 6

Step-3 TN = DN + N = 16 + 6 = 22 CIDR - /22 Step-4 CIDR - /22 255.255.252.0

Step-5 2H = 210 = 1024

Step-6 Range of the Subnet

N/W Id : 172.16.8.0

Start IP : 172.16.8.1

End IP : 172.16.11.254

B/C Id : 172.16.11.255

200 Step-1 H = 8

Step-2 N = DH – H = 16 – 8 = 8

Step-3 TN = DN + N = 16 + 8 = 24 CIDR - /24 Step-4 CIDR - /24 255.255.255.0

Step-5 2H = 28 = 256

Step-6 Range of the Subnet

N/W Id : 172.16.12.0

Start IP : 172.16.12.1

End IP : 172.16.12.254

B/C Id : 172.16.12.255

35 Step-1 H = 6

Step-2 N = DH – H = 16 – 6 = 10

Step-3 TN = DN + N = 16 + 10 = 26 CIDR - /26 Step-4 CIDR - /26 255.255.255.192

Step-5 2H = 26 = 64

Step-6 Range of the Subnet

255.255.255.192

255.255. 0 . 0

256 – 192 = 64

N/W Id : 172.16.13.0

Start IP : 172.16.13.1

End IP : 172.16.13.62

B/C Id : 172.16.13.63

172.16.13.64

172.16.255.255

192.168.10.0

192.168.10.1

192.168.10.2

.

.

.

.

192.168.10.255

192.168.11.0

192.168.11.1

.

.

192.168.11.255

192.168.12.0

172.16.0.0

172.16.0.1

. 256

.

172.16.0.255

172.16.1.0

. 256

172.16.1.255

172.16.0.0 - 172.16.0.255 256

172.16.1.0 - 172.16.1.255 256

172.16.2.0 - 172.16.2.255 256

172.16.3.0 - 172.16.3.255 256

172.16.4 .0 - 172.16.4.255 256

172.16.5.0 - 172.16.5.255 256

172.16.6.0 - 172.16.6.255 256

172.16.7.0 - 172.16.7.255 256

N / W Id: 33.0.0.0/8

Min . host

40000, 3000, 1000, 854, 500

1. Required number of host bits for each subnet.
2. Subnet mask for each subnet.
3. Total number of hosts per subnet.
4. Range of each subnet.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Subnet | 40000 | 3000 | 1000 | 854 | 500 |
| H | 16 | 12 | 10 | 10 | 9 |
| N | 8 | 12 | 14 | 14 | 15 |
| TN | 16 | 20 | 22 | 22 | 23 |
| SM | 255.255.0.0 | 255.255.240.0 | 255.255.252.0 | 255.255.252.0 | 255.255.254.0 |
| H/S | 65536 | 4096 | 1024 | 1024 | 512 |
| Range | 256-255=1 | 256-240=16 | 256-252=4 | 256-252=4 | 256-254=2 |
| N/W id | 33.0.0.0 | 33.1.0.0 | 33.1.16.0 | 33.1.20.0 | 33.1.24.0 |
| Start | 33.0.0.1 | 33.1.0.1 | 33.1.16.1 | 33.1.20.1 | 33.1.24.1 |
| End | 33.0.255.254 | 33.1.15.254 | 33.1.19.254 | 33.1.23.254 | 33.1.25.254 |
| B/C Id | 33.0.255.255 | 33.1.15.255 | 33.1.19.255 | 33.1.23.255 | 33.1.25.255 |

33.1.26.0 33.255.255.255

33.0.0.0 33.0.0.255

33.0.1.0 33.0.1.255

.

.

33.0.255.0 33.0.255.255

33.1.0.0