

1) IP 41.0.0.0 for 3110 subnetting

255.0.0.0

1111111.00000000.00000000.00000000

$$2^{11} = 2048 \quad n=12$$

$$2^{12} = 4096$$

$$n=12$$

1111111.11111111110000.00000000

$$256 - 240 = 16$$

$$\text{No. of hosts per subnet} = 2^{12} = 4096$$

2) IP 177.8.0.0 for 1818

$$2^{10} = 1024$$

$$2^{11} = 2048$$

$$n=11$$

255.255.0.0

1111111.1111111.00000000.00000000

on 11 bits

1111111.1111111.1111111.1110000

last changed state

$$(224)_{10}$$

$$256 - 224 = 32$$

$$2^5 = 32$$

3) IP 222.22.2.0 for 6 subnets

Belongs to class C

222.22.2.0

$$2^2 = 4$$

$$2^3 = 8$$

$$n = 3$$

111111.111111.111111.00000000
↓ on 3 bits

111111.111111.111111.11000000

$$256 - 224 = 32$$

$$2^5 = 32 \text{ No. of Hosts / Subnet}$$

VLSM

4) 34.0.0.0

$$2^{17} = 131072$$

$$2^{18} = 262144$$

$$n = 18$$

$$\text{Interval } 256 - 25 = 4$$

$$34 \cdot 4 \cdot 0.0$$

\rightarrow For 70,000 Hosts

$$2^{16} = 65536$$

$$2^{17} = 131072$$

$$n = 17$$

111111111111110 · 000000000000000000

111111111111110 · 0000000000000000

$$(2^{17})_{10}$$

$$256 - 254 = 2$$

$$34 \cdot 4 \cdot 01 \cdot 0 \rightarrow 34 \cdot 5 \cdot 255 \cdot 2$$

$$34 \cdot 6 \cdot 0 \cdot 0$$

For 30,000 Hosts

$$2^{14} = 16384$$

$$2^{15} = 32768$$

$$n = 15$$

111111111111110 · 0000000000000000

11111111111111 · 1000000 · 00000000

$$256 - 128 = 128 \text{ Interval}$$

34.6.0.0 to 34.6.127.

34.6.128@

→ For 1000 Host

$$2^{10} = 1024$$

$$n = 10$$

1111111.111111.100000.00000000

↓

111111.111111.111100.0000000

(2³²)_{ID}

$$256 - 252 = 4$$

34.6.128.0

34.6.131.255

34.6.132.0

2) 135.0.0.0

13000 hosts

$$2^{13} = 8192$$

$$2^{14} = 16384$$

$$n=14$$

1111111. 111111 · 00001000. 00000000

↓ $(192)_{10}$
11111111. 11111111 · 11000000. 00000000

$$256 - 192 = 64$$

$$135 \cdot 0 \cdot 0.00$$

$$135 \cdot 0 \cdot 64 \cdot 0$$

For 3880 Hosts

$$2^9 = 512$$

$$2^{10} = 1024$$

$$2^{13} = 8192$$

$$2^{14} = 16384$$

$$n=14$$

11111111. 11111111 · 11000000. 00000000

$$256 \cdot 19 \cdot 64$$

$$\rightarrow 135 \cdot 0 \cdot 64 \cdot 0$$

$$135 \cdot 0 \cdot 127 \cdot 256$$

$$135 \cdot 0 \cdot 128 \cdot 0$$

$$\times 1^{\text{st}} 6000$$

$$2^{12} = 4096$$

$$2^{13} = 8192$$

$$n = 13$$

$$1111111 \cdot 1111111 \cdot 11111100 \cdot 00000000$$

$$1111111 \cdot 1111111 \cdot 11100000 \cdot 00000000$$

$\underbrace{\quad}_{(22)}$

$$256 - 224 = 32$$

$$135 \cdot 0 \cdot 68 \cdot 0 \dots \cdot 135 \cdot 0 \cdot 99 \cdot 2$$

For 500 nos

$$2^9 = 512$$

$$n = 9$$

$$256 - 25 = 2 \text{ Interval}$$

$$135 \cdot 0 \cdot 100 \cdot 0 \dots \cdot 135 \cdot 0 \cdot 101 \cdot 256$$

$$135 \cdot 0 \cdot 102 \cdot 0$$

3) $200 \cdot 16 \cdot 60$

$$2^5 = 32$$

$$2^6 = 64$$

$$n = 6$$

||||||| · ||||| · ||||| · 0000000

||||||| · (||||) · ||||| · 1000000

$$(192)_10$$

$$256 - 142 = 64 \text{ interval}$$

$200 \cdot 16 \cdot 6 \cdot 0 \dots 200 \cdot 16 \cdot 6 \cdot 63$

$200 \cdot 16 \cdot 6 \cdot 64$

-2 1=or hours 23

$$2^5 = 32$$

$$n = 5$$

||||||| · ||||| · ||||| · 1000000

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