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CSE1004 TASK SHEET

DESIGNING SUBNETS

1) Given first address of the block:-

$a = 14.24.74.0/24$

prefix = 24

$$N = 2^{32-24} = 2^8 = 256$$

Last address = 14.24.74.255 for this block

↓ Total no. of addresses that the block contains

a) 2 subnets, each with 64 address

here $n_{sub} = 24 + \log_2 \frac{256}{64}$

$= 24 + 2 = 26$

1st subnet block,

first address = 14.24.74.0/26

last address = 14.24.74.63/26

2nd subnet ~~addr~~ block,

first address = 14.24.74.64/26

last address = 14.24.74.127/26

b) two subnets, each with 32 adresses

$$nsub = 24 + \log_2 \frac{256}{32}$$

$$= 24 + 3 = 27$$

3rd subnet block

first address = 14.24.74.128/27

last address = 14.24.74.159/27

4th subnet block,

first address = 14.24.74.160/27

last address = 14.24.74.191/27

c) 3 subnet, each with 16 addresses

5th subnet address,

first address = 14.24.74.192/28

~~last address = 14.24.74.219/28~~

last address = 14.24.74.207/28

$$nsub = 24 + \log_2 \frac{256}{16} = 28$$

6th subnet address

~~first address = 14.24.74.220/28~~

~~last address =~~

first address = 14.24.74.208/28

last address = 14.24.74.223/28

7th subblock,

first address = 14.24.74.224/28

last address = 14.24.74.239/28

d) 4 subnets, each with 4 addresses,

$$n_{sub} = 24 + \log_2 \frac{256}{4}$$

$$= 30$$

8th subblock,

first address = 14.24.74.240/30

last address = 14.24.74.243/30

9th subnet block,

first address = 14.24.74.244/30

last address = 14.24.74.247/30

10th subnet block,

first address = 14.24.74.248/30

last address = 14.24.74.251/30

11th subnet block

first address = 14.24.74.252/30

last address = 14.24.74.255/30

Hence, Total no. of block used = 2x64+2x32+3x16+4x4

= 256

Total no. of address in the block = 256

Available address = 0 (All addresses are utilized)

Subnet Design:-