VLSM

What is VLSM ?

Variable Length Subnet Mask , VLSM is simply subnetting a subnet. VLSM can be thought of as sub-subnetting.

We use VLSM to optimize IP addresses distribution

Why should we use it ?

Assume we have 4 group of users with : 1 , 8, 16, 4 with normal subnets how many unused IP will we have?

Assume 5 groups : 2, 3, 4, 17, 40 !!

How to imagine it !

Remember from last lab that subnets blocks are of fixed size (thanks to the power of 2 !!) see this :

For class C:

1 bit for subnetting **7** bits for hosts : block size of **128**

2 bit for subnetting **6** bits for hosts : block size of **64**

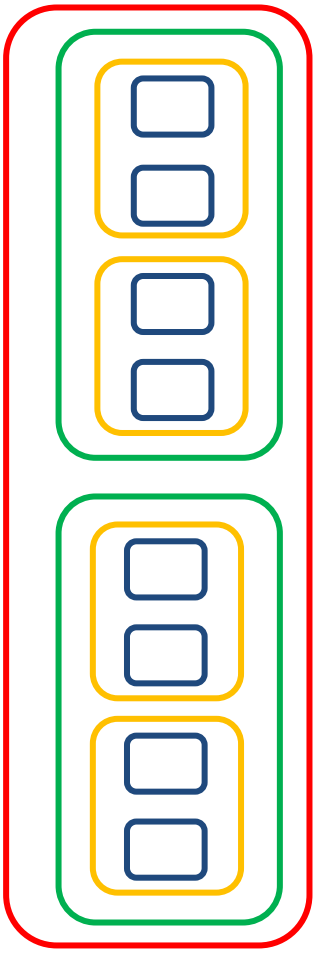
3 bit for subnetting **5** bits for hosts : block size of **32**

4 bit for subnetting **4** bits for hosts : block size of **16**

5 bit for subnetting **3** bits for hosts : block size of **8**

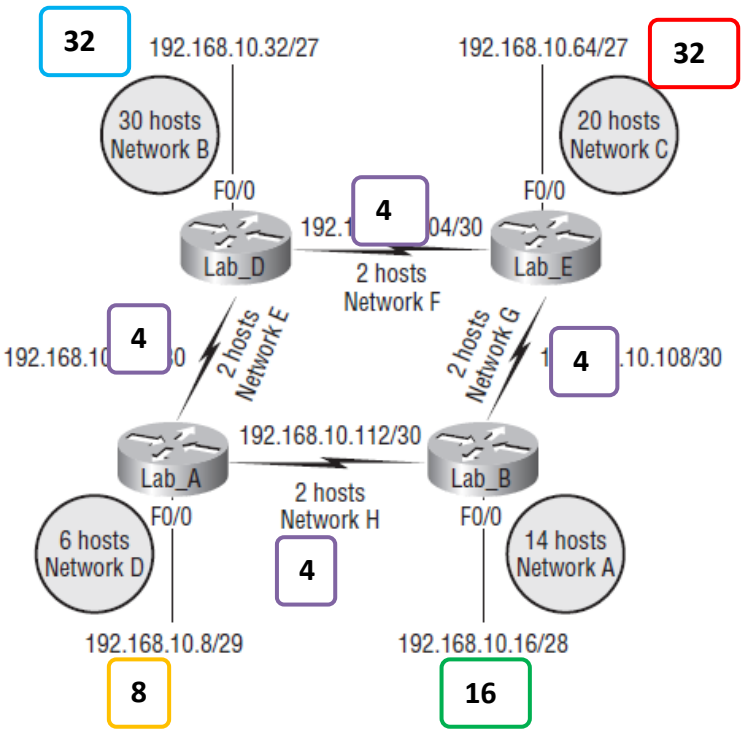
6 bit for subnetting **2** bits for hosts : block size of **4**

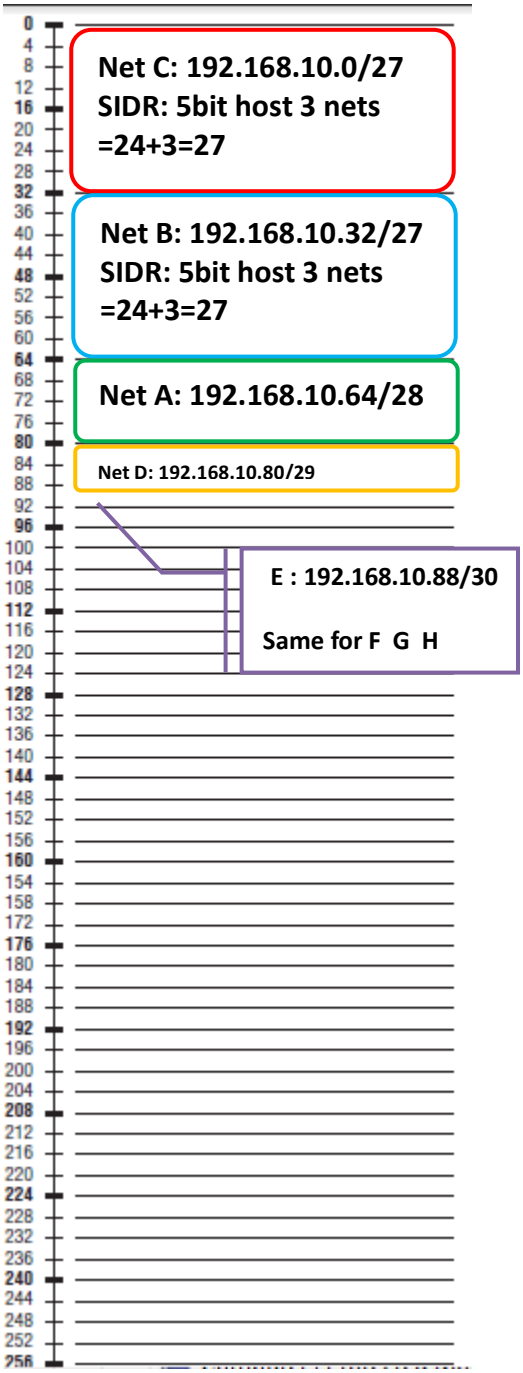
Since we have we have 256 host, we can divide Them to 2 subnets of 128, 128 assume we take One of them and divide it to 2 subnets of size 64, 64 and so on !!



Subnet	Mask	Subnets	Hosts	Block
/26	192	4	62	64
/27	224	8	30	32
/28	240	16	14	16
/29	248	32	6	8
/30	252	64	2	4

Examples (Net-IP : 192.168.10.0)

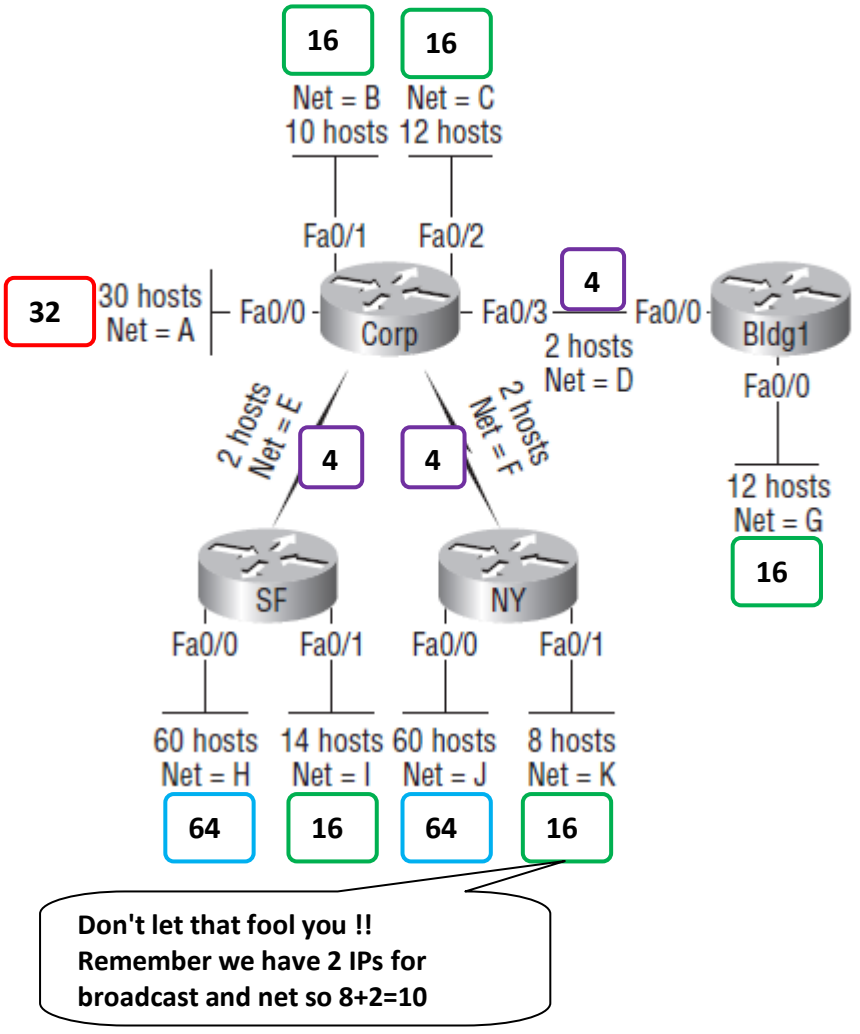




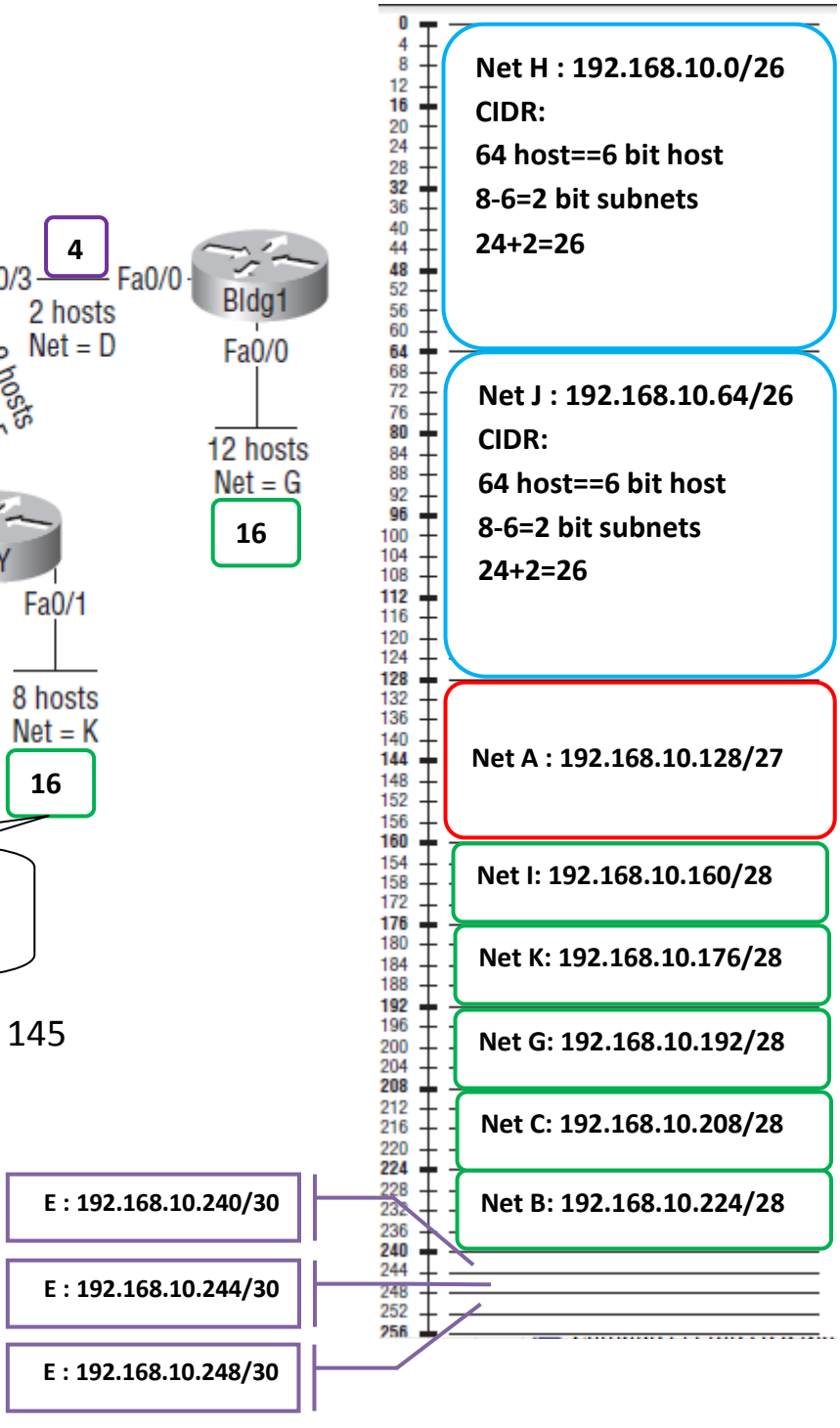
1: Convert to blocks

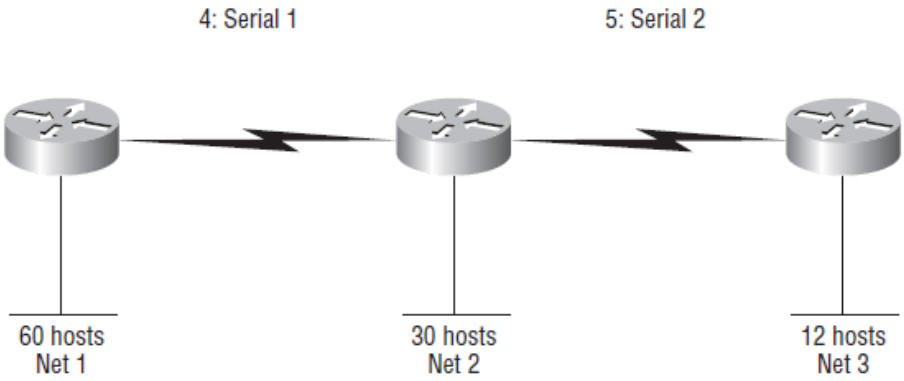
2: check if sum is less than 256 (for class C)

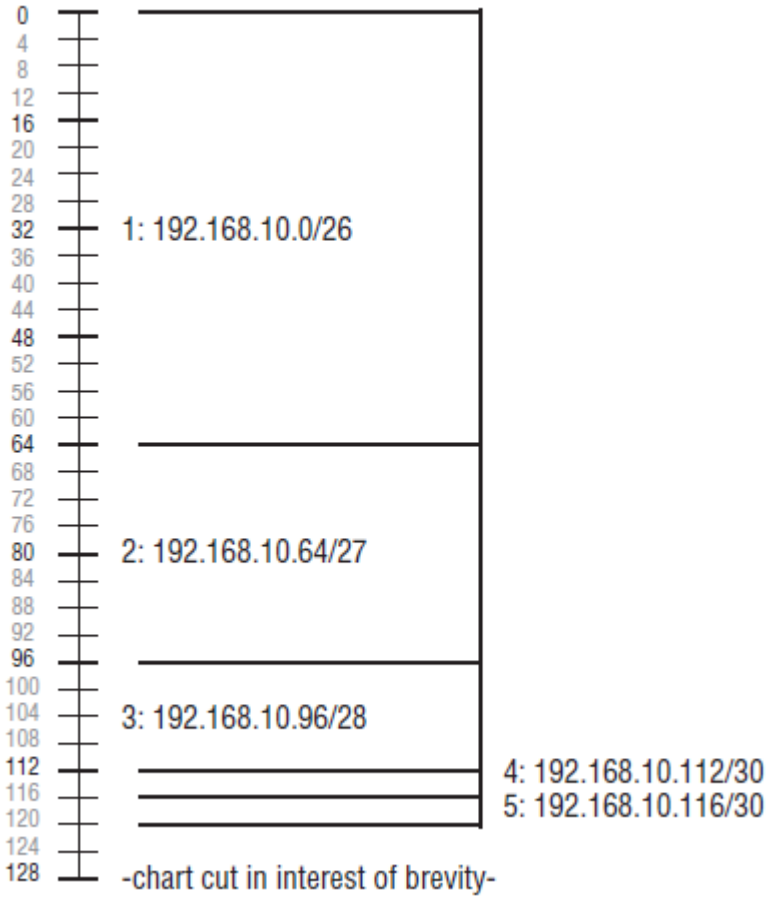
3: recommended : start with the bigger one



Solution at book page 145



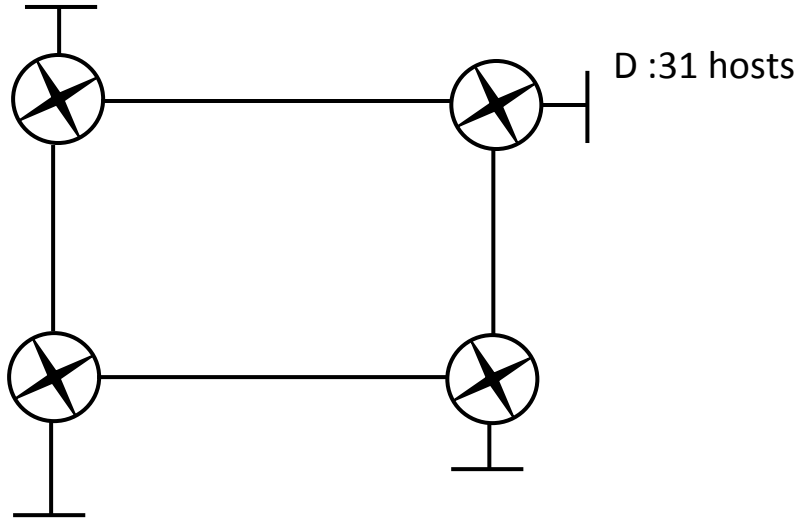

4: Serial 1
5: Serial 2
60 hosts
Net 1
30 hosts
Net 2
12 hosts
Net 3


0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
84
88
92
96
100
104
108
112
116
120
124
128
1: 192.168.10.0/26
2: 192.168.10.64/27
3: 192.168.10.96/28
4: 192.168.10.112/30
5: 192.168.10.116/30
-chart cut in interest of brevity-

For report :

Main network 192.168.10.0

A: 60 hosts



B : 15 hosts C : 6 hosts

Main network 192.168.10.0 >>> ;-)