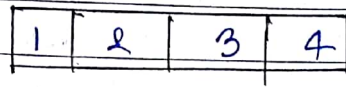
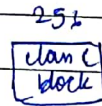


Supernetting



$$4 \times 256 = 1024$$



.....



n no. of blocks

* We have to minimize the size of routing table.

* If addresses are contiguous, we just need the starting address and no. of hosts in routing table buffer.

Ex -

192.156.201.0

16

201.15

} 4 bytes
+ 4 bits
only

But for non-contiguous $\rightarrow 16 \times 4 \text{ bytes} !$

Rules

1. The no. of blocks to create the supernet must be a power of 2.
2. Block must be contiguous (otherwise size of routing table will increase).
3. The third byte (C of A.B.C.D) must be evenly divisible by $N=2^n$ so that the address space is divisible by some power of 2. (Each interval is N and $N=2^n$)

Q. A company needs 600 addresses. Which of the following no. of class C blocks can be used to form the supernet for the company?

- Page _____
- x i) 198.47.32.0 198.47.33.0 198.47.34.0
 - x ii) 198.47.32.0 198.47.42.0 198.47.52.0 198.47.62.0
 - x iii) 198.47.31.0 198.47.32.0 198.47.33.0 198.47.34.0
 - ✓ iv) 198.47.32.0 198.47.33.0 198.47.34.0 198.47.35.0

- i) N is not power of 2
- ii) Not contiguous
- iii) In the starting address, C is not evenly divisible by N.
- iv) All is well!

Supernet mask

	Net ID	Host ID	
Default mask	AU 1's	AU 0's	
	Net ID	SID	H-ID
Subnet mask	AU 1's	AU 1's	AU 0's
	Net ID	Host ID	
Supernet mask	AU 1's	AU 0's	

↳ not fixed
 ↳ No. of 1's is decreased than default mask as no. of networks is decreased by merging.

Q. 16 class C blocks are combined to form the supernetwork. What is the supernet mask?

Default mask = 11111111 11111111 11111111 00000000

Subnet mask:

11111111 11111111 11100000 00000000
 └──────────┘ └──────────┘
 Net ID Host ID

255.255.240.0

16 blocks are to be combined. So that should reduce the net ID by 4 bits from the RHS.

Q.1 A supernet has a first address of 205.16.32.0 and a supernet mask of 255.255.248.0. A router receives 3 packets with the following destination addresses:

a) 205.16.37.44

b) 205.16.42.56

c) 205.17.83.76

Which packet belongs to the supernet?

Q.2 A supernet has a first address of 205.16.32.0 and a supernet mask 255.255.248.0. How many blocks are in this supernet and what is the range of addresses?

1. Supernet mask: 11111111 11111111 1111000 00000000
 $\Rightarrow 2^3 = 8 \text{ blocks}$

205.16.32.0
 205.16.33.0
 ⋮
 205.16.39.0

only 205.16.37.44 lies in the range.

2. 8 blocks

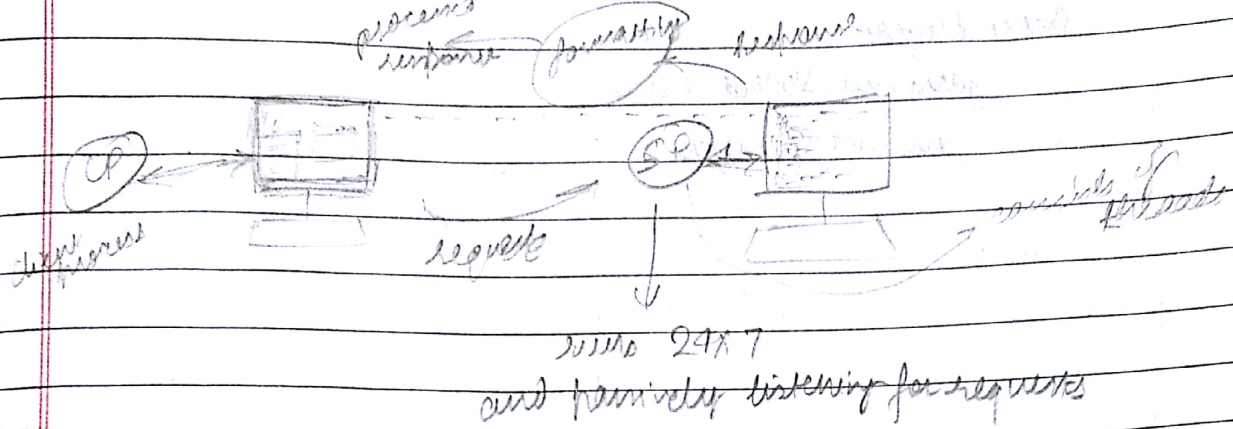
first block 205.16.32.0 to 205.16.32.255

last block 205.16.39.0 to 205.16.39.255

Socket Programming

Client-server communication model

- Point-to-point dedicated connection → TCP



Times
Active Open

Times

Passive Open

only responds to request & doesn't initiate connection itself.

SP

Parent server

Child servers

threads that cater to individual requests.

Program to access the IP address of the local m/c.

```
import java.net.*;
```

```
class IPAddressTest {
```

```
    public static void main (String args []) throws UnknownHostException
```

```
    { InetAddress test = InetAddress.getLocalHost();
```

```
      System.out.println("IP address of the machine is : " + test);
```

```
      InetAddress test1 = InetAddress.getByName("yahoo.com");
```

```
      System.out.println("IP address of yahoo.com is : " + test1);
```

internet address

3

3

c6-16/192.168.1.92

yahoo.com/98.139.180.120