Samiha Zaman

21201322

Sec - 22

4) i) Network: 3.255.192.0/19.

Subnet mask: 255.255.224.0

Host bits = 32 - 19 = 13

Maxm number of subnets = 2^{13} = 8192

ii) Block size of /19 = 256 - 224 = 32

~~Network~~ Networks increment by 32 in the 3rd octet.

Subnet ranges

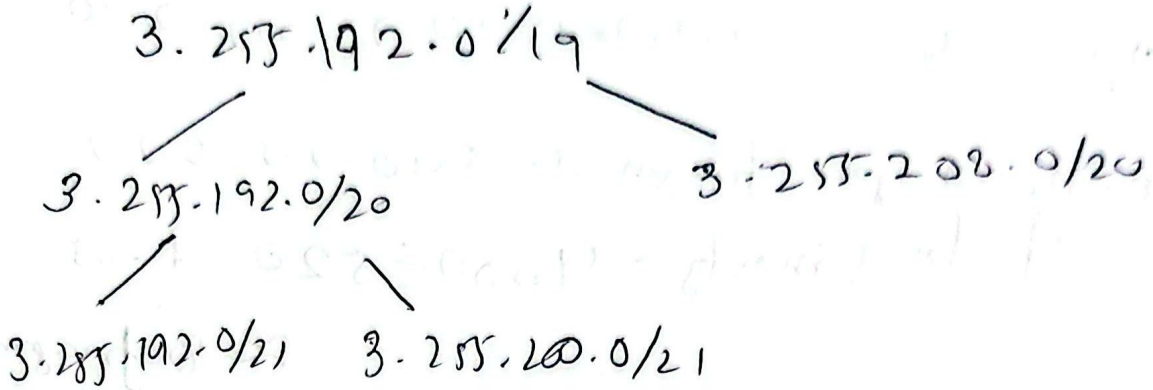
1 — 3.255.192.0/19

2 — 3.255.224.0/19

3 — 3.256.0.0 -> invalid.

∴ only 2 /19 blocks exist within class A range

1)



2)

f2 lans

192.168.8.0/24.

192.168.9.0/24

192.168.10.0/24

192.168.11.0/24.

8 - 00001000

9 - 00001001

10 -> 00001010

11 -> 00001011

common bits -> first 6 bits

∴ ip route 192.168.8.0 255.255.252.0 <next-hop>

ii) ip route 0.0.0.0 0.0.0.0 50 200

3) i) Payload per fragment = 540 - 20 = 520

No of fragments = 4080 ÷ 520 = 7.85

≈ 8 fragments

ii) 3 × 52 = 180

180/8 = 195 = offset

iii) MF = 1

4) source = router's mac

destination mac -> FF:FF:FF:FF:FF:FF (broadcast)

The contents of DHCP offer ip address, subnet mask, default gateway, DNS server, lease time and DHCP server identifier. The mobile's reply sends as DHCP request accepting the offer and the server responds with DHCP ACK.

5) Dipu sends packet to R2 where R2 replaces ~~Src~~ source private IP with public IP and source port with unique port. The NAT table stores mapping. and the reply returns using port mapping. Here multiple users share one public IP.

b

6) The link state routers form adjacencies. R3 has neighbors only on South and the LSP packets are sent only to known neighbours which prevents unnecessary flooding. Here efficient bandwidth usage is ensured.

7) i) MAC -> ~~AA:03:345~~

AA:03:45:66

ii) 2000:0000:0000:0000

C.

9) Here LSP uses full topology which ensures faster convergence. Also there is no hop count limit and there is more accurate path selection.

10) TTL exists as mac-ip mappings can change which prevents stale entries. The ARP is not forwarded as ARP is layer 2 broadcast and the routers block broadcasts.

11) The IPv6 extra information uses extention headers and they are placed after main header. The fixed 40 byte header remains unchanged. Here only the payload length field updates.