

Solution to Exercise 2

Soumis par CCNA

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Dernière mise à jour : 06-06-2008

- Subnet 172.160.0.0/18

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Step 1 : IP class

172.160.0.0/18 (classless) --> 172.160.0.0/16 (B- class)

-

Step 2 : host part

27
26
25
24
23
22
21
20

1
1
0

0
0
0
0
0

--> $2^7 + 2^6 = 128 + 64 = 192$

-

Step 3 : number of subnets

$22 - 2 = 2$ subnets available

-

Step 4 : number of hosts per subnet

214-2 = 16382 hosts per subnet

-
Step 5 : block size

Block size = 256-192= 64

-
Step 6 : subnet mask

Subnet mask = 255.255.192.0

-
Step 7 : subnets and their characteristics

N°

NetID

IP range

Broadcast

1
172.160.64.0
64.1-->127.254
172.160.127.255

2
172.160.128.0
128.1-->191.254
172.160.191.255

- Subnet 172.160.0.0/20

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Step 1 : IP class

172.160.0.0/20 (classless) --> 172.160.0.0/16 (B- class)

-
Step 2 : host part

27
26
25
24
23
22
21
20

1
1
1

1

0
0
0
0

$$\text{--> } 2^7+2^6+2^5+2^4 = 128+64+32+16 = 240$$

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Step 3 : number of subnets

$$2^4 - 2 = 14 \text{ subnets available}$$

-
Step 4 : number of hosts per subnet

$$2^{12} - 2 = 4094 \text{ hosts per subnet}$$

-
Step 5 : block size

$$\text{Block size} = 256 - 240 = 16$$

-
Step 6 : subnet mask

$$\text{Subnet mask} = 255.255.255.240$$

-
Step 7 : subnets and their characteristics

N°

NetID

IP range

Broadcast

1
172.160.16.0
16.1-->31.254
172.160.31.255

2
172.160.32.0
32.1-->63.254
172.160.63.255

14
172.160.224.0

224.1-->239.254

172.160.239.255

- Subnet 172.160.0.0/21

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Step 1 : IP class

172.160.0.0/21 (classless) --> 172.160.0.0/16 (B- class)

-
Step 2 : host part

27
26
25
24
23
22
21
20

1
1
1

1

1

0
0
0

$$\rightarrow 2^7+2^6+2^5+2^4+2^3 = 128+64 = 248$$

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Step 3 : number of subnets

$$2^5 - 2 = 30 \text{ subnets available}$$

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Step 4 : number of hosts per subnet

$$2^{11} - 2 = 2046 \text{ hosts per subnet}$$

-
Step 5 : block size

$$\text{Block size} = 256 - 248 = 8$$

-
Step 6 : subnet mask

$$\text{Subnet mask} = 255.255.248.0$$

-
Step 7 : subnets and their characteristics

N°

NetID

IP range

Broadcast

1
172.160.8.0
8.1-->15.254
172.160.15.255

2
172.160.16.0
16.1-->23.254
172.160.23.255

30
172.160.240.0
240.1-->247.254
172.160.247.255

- Subnet 172.160.0.0/26

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Step 1 : IP class

172.160.0.0/26 (classless) --> 172.160.0.0/16 (B- class)

Step 2 : host part

27
26
25
24
23
22
21
20

1
1
0

0
0
0
0
0

$$\text{--> } 27+26 = 128+64 = 192$$

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Step 3 : number of subnets

$$2^{10}-2 = 1022 \text{ subnets available}$$

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Step 4 : number of hosts per subnet

$$2^6-2 = 62 \text{ hosts per subnet}$$

-
Step 5 : block size

$$\text{Block size} = 256-192 = 64$$

-
Step 6 : subnet mask

$$\text{Subnet mask} = 255.255.255.192$$

-
Step 7 : subnets and their characteristics

N°

NetID

IP range

Broadcast

1
172.160.0.64
65-->126
172.160.0.127

2
172.160.0.128
129-->190
172.160.0.191

1021
?
?
?

1022
?
?
?