**LAPORAN KONSEP JARINGAN**

**[Praktikum 04] Subnetting**



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**SOAL 1**

Diberikan network dengan IP 100.0.0.0/8 , ada 5 network dengan kebutuhan host 10000, 300, 500, 700, 1500.

* Pilih kebutuhan host yang paling besar dengan hal ini maka host 10000 yang dipilih, Sebab host ini digunakan sebagai patokan :

Host bit (n)

(2n)-2 >= 10000

n terdekat 14, karena (214)-2=16382

* + Sebutkan netmask yg baru

Host bit (n) = 14

Netmask baru = total bit – host bit = 32 – 14 = 18

Jadi, netmask baru yaitu /18 = 255.255.192.0 dengan interval 0.0.<256-192>.0 = 0.0.64.0

* + Berapa network dan host yg dapat terbetuk

Host bit (n) = 14

Banyak host/network:

(2n)-2 = (214)-2=16382

Banyaknya network:

m = netmask baru – netmask class A = 18 – 8 = 10

Jumlah network = 2m= 210= 1024 network

* + Sebutkan 2 network pertama dan 2 network terakhir

**Jika network pertama =100.0.0.0/18**

**Interval = 0.0.64.0**

**Maka 2 Network Pertama:**

* Network 1: 100.0.0.0/18
* Network 2: 100.0.0.0 + 0.0.64.0 = 100.0.64.0/18

**Jika Network Terakhir = 100.255.192.0/18**

**Interval = 0.0.64.0**

**Maka 2 Network Terakhir:**

* Network 1: 100.255.192.0/18
* Network 2: 100.255.192.0 – 0.0.64.0 = 100.255.128.0/18
* Network 3: 100.255.128.0 – 0.0.64.0 = 100.255.64.0/18
  + Sebutkan range host tiap network bersama broadcastnya
* Range host dan Broadcast pada 2 Network Pertama:

|  |  |  |
| --- | --- | --- |
| **Network Address** | **Host Range** | **Broadcast Address** |
| 100.0.0.0 | 100.0.0.1 – 100.0.63.254 | 100.0.63.255 |
| 100.0.64.0 | 100.0.65.0 - 100.0.127.254 | 100.0.127.255 |

* Range host dan Broadcast pada 2 network terakhir:

|  |  |  |
| --- | --- | --- |
| **Network Address** | **Host Range** | **Broadcast Address** |
| 100.255.128.0 | 100.255.128.1-100.255.191.254 | 100.255.191.255 |
| 100.255.192.0 | 100.255.192.1-100.255.255.254 | 100.255.255.255 |

**SOAL 2**

Diberikan network dengan IP 10.0.0.0/8 , ada 5 network dengan kebutuhan host 100, 300, 500, 700, 50.

* Pilih kebutuhan host yang paling besar dengan hal ini maka host 700 yang dipilih, Sebab host ini digunakan sebagai patokan :

Host bit (n)

(2n)-2 >= 700

Maka n terdekat untuk memenuhi pertidaksaman diatas, yaitu

n terdekat 9, Maka (210)-2=1024-2=1022

* + Sebutkan netmask yg baru

Host bit (n) = 10

Netmask baru = total bit – host bit = 32 – 10 = 22

Jadi, netmask baru yaitu /22 = 255.255.252.0 dengan interval 0.0.0<256-252>.0 = 0.0.4.0

* + Berapa network dan host yg dapat terbetuk

Host bit (n) = 10

Banyak host/network:

(2n)-2 = (210)-2=1024-2=1022

Banyaknya network:

m = netmask baru – netmask class A = 22 – 8 =14

Jumlah network = 2m = 214= 16384

* + Sebutkan 5 network pertama dan 5 network terakhir

**Jika network pertama =** 10.0.0.0/8

**Interval =** 0.0.4.0

**Maka 2 Network Pertama:**

* Network 1: 10.0.0.0 + 0.0.4.0 = 10.0.4.0/8
* Network 2: 10.0.4.0 + 0.0.4.0 = 10.0.8.0/8
* Network 3: 10.0.8.0 +0.0.4.0 = 10.0.12.0/8

**Jika Network Terakhir =** 10.255.252.0

**Interval =** 0.0.4.0

**Maka 2 Network Terakhir:** 10.255.252.0/8

* Network 1: 10.255.252.0 + 0.0.4.0 = 11.0.0.0/8
* Network 2: 11.0.0.0 + 0.0.4.0 = 11.0.4.0/8
* Network 3: 11.0.4.0 + 0.0.4.0 = 11.0.8.0/8
  + Sebutkan range host tiap network bersama broadcastnya
* Range host dan Broadcast pada 2 Network Pertama:

|  |  |  |
| --- | --- | --- |
| **Network Address** | **Host Range** | **Broadcast Address** |
| 10.0.0.0 | 10.0.0.1 – 10.0.3.254 | 10.0.3.255 |
| 10.0.4.0 | 10.0.4.1 – 10.0.7.254 | 10.0.7.255 |

* Range host dan Broadcast pada 2 network terakhir:

|  |  |  |
| --- | --- | --- |
| **Network Address** | **Host Range** | **Broadcast Address** |
| 10.255.252.0 | 10.255.252.1 – 10.255.255.254 | 10.255.255.255 |
| 11.0.0.0 | 11.0.0.1 – 11.0.3.254 | 11.0.3.255 |

Pemisah Halaman

SOAL 3

Diberikan network dengan IP 172.30.0.0/16 , ada 5 network dengan kebutuhan host 1000, 300, 500, 700

Kebutuhan host yang dipake **700**

2n-2>= 1000, n = 10

**• Sebutkan netmask yg baru**

Netmask baru = total bit – host bit baru(n) = 32 – 10 = 22

Netmask baru = /22 = 255.255.252.0 11111100.00000000

Interval = 0.0.4.0

• **Berapa network dan host yg dapat terbetuk**

Banyaknya host per network :

2n-2 = 210 -2=1022 host

Banyaknya network :

m = netmask baru – netmask class B = 22 – 16 = 6

2m = 26 = 64 network

• **Sebutkan 5 network pertama dan 5 network terakhir**

|  |  |  |  |
| --- | --- | --- | --- |
| Netmask lama | Netmask baru | Host bit baru | Network Address1 |
| 172.30 | 000000 | 00.00000000 | 172.30.0.0 |
| 172.30 | 000001 | 00.00000000 | 172.30.4.0 |
| 172.30 | 000010 | 00.00000000 | 172.30.8.0 |
| 172.30 | 000011 | 00.00000000 | 172.30.12.0 |
| 172.30 | 000100 | 00.00000000 | 172.30.16.0 |
| 172.30 | 111011 | 00.00000000 | 172.30.236.0 |
| 172.30 | 111100 | 00.00000000 | 172.30.240.0 |
| 172.30 | 111101 | 00.00000000 | 172.30.244.0 |
| 172.30 | 111110 | 00.00000000 | 172.30.248.0 |
| 172.30 | 111111 | 00.00000000 | 172.30.252.0 |

**•Sebutkan range host tiap network bersama broadcastnya**

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 172.30.0.0 | 172.30.0.1 - 172.30.3.254 | 172.30.3.255 |
| 172.30.4.0 | 172.30.4.1 - 172.30.7.254 | 172.30.7.255 |
| 172.30.8.0 | 172.30.8.1 - 172.30.11.254 | 172.30.11.255 |
| 172.30.12.0 | 172.30.12.1 - 172.30.15.254 | 172.30.15.255 |
| 172.30.16.0 | 172.30.16.1 - 172.30.19.254 | 172.30.10.255 |  |
| 172.30.236.0 | 172.30.236.1 - 172.30.239.254 | 172.30.239.255 |  |
| 172.30.240.0 | 172.30.240.1 - 172.30.243.254 | 172.30.243.255 |
| 172.30.244.0 | 172.30.244.1 - 172.30.247.254 | 172.30.247.255 |
| 172.30.248.0 | 172.30.248.1 - 172.30.251.254 | 172.30.251.255 |
| 172.30.252.0 | 172.30.252.1 - 172.255.255.254 | 172.255.255.255 |

**SOAL 4**

Diberikan network dengan IP 200.10.4.0/24 ,  jumlah host yang dibutuhkan maksimum 5

•Sebutkan netmask yg baru

•Berapa network dan host yg dapat terbetuk

•Sebutkan 5 network pertama dan 5 network terakhir

•Sebutkan range host tiap network bersama broadcastnya

Kebutuhan host maksimum 5

2n-2<= 5,n = 2

1. **Sebutkan netmask yg baru**

Netmask baru = total bit – host bit baru(n) = 32 – 2 = 30

Netmask baru = /30 = 255.255.255.252

Interval = 0.0.0.4

1. **Berapa network dan host yg dapat terbetuk**

Banyaknya host per network :

2n-2 = 2 2-2= 2 host

Banyaknya network :

m=netmask baru – netmask class C = 30 – 24 = 6

2m=26=64 network

1. **Sebutkan 5 network pertama dan 5 network terakhir**

|  |  |  |  |
| --- | --- | --- | --- |
| Netmask lama | Netmask baru | Host bit baru | Network Address1 |
| 200.10.4. | 000000 | 00 | 200.10.4.0 |
| 200.10.4. | 000001 | 00 | 200.10.4.4 |
| 200.10.4. | 000010 | 00 | 200.10.4.8 |
| 200.10.4. | 000011 | 00 | 200.10.4.12 |
| 200.10.4. | 000100 | 00 | 200.10.4.16 |
| 200.10.4. | 111011 | 00 | 200.10.4.236 |
| 200.10.4. | 111100 | 00 | 200.10.4.240 |
| 200.10.4. | 111101 | 00 | 200.10.4.244 |
| 200.10.4. | 111110 | 00 | 200.10.4.248 |
| 200.10.4. | 111111 | 00 | 200.10.4.252 |

1. Sebutkan range host tiap network bersama broadcastnya

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 200.10.4.0 | 200.10.4.0 – 200.10.4.2 | 200.10.4.3 |
| 200.10.4.4 | 200.10.4.5 – 200.10.4.6 | 200.10.4.7 |
| 200.10.4.8 | 200.10.4.9 - 200.10.4.10 | 200.10.4.11 |
| 200.10.4.12 | 200.10.4.13 - 200.10.4.14 | 200.10.4.15 |
| 200.10.4.16 | 200.10.4.17 - 200.10.4.18 | 200.10.4.19 |
| 200.10.4.236 | 200.10.4.237- 200.10.4.238 | 200.10.4.239 |
| 200.10.4.240 | 200.10.4.241- 200.10.4.242 | 200.10.4.243 |
| 200.10.4.244 | 200.10.4.245 - 200.10.4.246 | 200.10.4.247 |
| 200.10.4.248 | 200.10.4.249 – 200.10.4.250 | 200.10.4.251 |
| 200.10.4.252 | 200.10.4.253 – 10.255.255.254 | 200.10.4.255 |

SOAL 5

Diberikan network dengan IP 60.0.0.0/8 , ada  dengan kebutuhan network 2000

Kebutuhan network yang diambil adalah 2000 jadi :

2m >= 2000, m=11

•**Sebutkan netmask yg baru**

netmask baru = netmask Class A + network bit baru(m) = 8+11 = 19

netmask baru = /19 = 255.255.224.0

Interval = 32

•**Berapa network dan host yg dapat terbetuk**

Banyaknya host per network:

n = total bit – netmask baru = 32-19 = 13

2n -2 = 213 – 2 = 8190 host

Banyaknya network:

m = total bit – host bit baru – netmask class A = 32-13-8 = 11

2m = 211 = 2048 network

•Sebutkan 5 network pertama dan terakhir

|  |  |  |  |
| --- | --- | --- | --- |
| Netmask lama | Netmask baru | Host bit baru | Network Address1 |
| 60 | 00000000.000 | 00000.00000000 | 60.0.0.0 |
| 60 | 00000000.001 | 00000.00000000 | 60.0.32.0 |
| 60 | 00000000.010 | 00000.00000000 | 60.0.64.0 |
| 60 | 00000000.011 | 00000.00000000 | 60.0.96.0 |
| 60 | 00000000.100 | 00000.00000000 | 60.0.128.0 |
| 60 | 11111111.011 | 00000.00000000 | 60.255.96.0 |
| 60 | 11111111.100 | 00000.00000000 | 60.255.128.0 |
| 60 | 11111111.101 | 00000.00000000 | 60.255.160.0 |
| 60 | 11111111.110 | 00000.00000000 | 60.255.192.0 |
| 60 | 11111111.111 | 00000.00000000 | 60.255.224.0 |

•Sebutkan range host tiap network bersama broadcastnya

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 60.0.0.0 | 60.0.0.1 - 60.0.31.254 | 60.0.31.255 |
| 60.0.32.0 | 60.0.31.1 - 60.0.63.254 | 60.0.63.255 |
| 60.0.64.0 | 60.0.64.1 – 60.0.95.254 | 60.0.95.255 |
| 60.0.96.0 | 60.0.96.1 – 60.0.127.254 | 60.0.127.255 |
| 60.0.128.0 | 60.0.128.1 – 60.0.159.254 | 60.0.159.255 |
| 60.255.96.0 | 60.255.96.1-60.255.127.254 | 60.255.127.255 |
| 60.255.128.0 | 60.255.128.1-60.255.160.254 | 60.255.160.255 |
| 60.255.160.0 | 60.255.160.1-60.255.191.254 | 60.255.191.255 |
| 60.255.192.0 | 60.255.192.1-60.255.224.254 | 60.255.224.255 |
| 60.255.224.0 | 60.255.224.1-60.255.255.254 | 60.255.255.255 |

SOAL 6

Diberikan network dengan IP 160.13.0.0/16 , dengan kebutuhan network 70

**•Sebutkan netmask yg baru**

2m≥702m≥70

, maka m = 7

Netmask baru = Netmask kelas B + network bit (m) = 16 + 7 = **/23,**

Netmask baru /23 = 255.255.254.0

Interval = 0.0.2.0

**•Berapa network dan host yg dapat terbetuk**

Banyaknya host per network:

n = total bit – netmask baru = 32 - 23 = 9

2n -2 = 128 – 2 = 126 host

Banyaknya network:

m = host bit baru – netmask class B = 23 - 16 = 7

2m = 27 = 2048 network

**•Sebutkan 5 network pertama dan terakhir**

|  |  |  |  |
| --- | --- | --- | --- |
| Netmask lama | Netmask baru | Host bit baru | Network Address |
| 160.13 | 0000000 | 0.00000000 | 160.13.0.0 |
| 160.13 | 0000001 | 0.00000000 | 160.13.2.0 |
| 160.13 | 0000010 | 0.00000000 | 160.13.4.0 |
| 160.13 | 0000011 | 0.00000000 | 160.13.6.0 |
| 160.13 | 0000100 | 0.00000000 | 160.13.8.0 |
| 160.13 | 1111011 | 0.00000000 | 160.13.246.0 |
| 160.13 | 1111100 | 0.00000000 | 160.13.248.0 |
| 160.13 | 1111101 | 0.00000000 | 160.13.250.0 |
| 160.13 | 1111110 | 0.00000000 | 160.13.252.0 |
| 160.13 | 1111111 | 0.00000000 | 160.13.254.0 |

**•Sebutkan range host tiap network bersama broadcastnya**

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 160.13.0.0 | 160.13.0.1 - 160.13.1.254 | 160.13.1.255 |
| 160.13.2.0 | 160.13.2.1 - 160.13.3.254 | 160.13.3.255 |
| 160.13.4.0 | 160.13.4.1 - 160.13.5.254 | 160.13.5.255 |
| 160.13.6.0 | 160.13.6.1 - 160.13.7.254 | 160.13.7.255 |
| 160.13.8.0 | 160.13.8.1 - 160.13.9.254 | 160.13.9.255 |
| 160.13.246.0 | 160.13.246.1 - 160.13.247.254 | 160.13.247.255 |
| 160.13.248.0 | 160.13.248.1 - 160.13.249.254 | 160.13.249.255 |
| 160.13.250.0 | 160.13.250.1 - 160.13.251.254 | 160.13.251.255 |
| 160.13.252.0 | 160.13.252.1 - 160.13.253.254 | 160.13.253.255 |
| 160.13.254.0 | 160.13.254.1 - 160.13.255.254 | 160.13.255.255 |

SOAL 7 ( SALAAH MENCARI NETMAKSNYA)

Diberikan network dengan IP 120.0.0.0/8 , ada 5 network dengan kebutuhan host 40, 50, 100, 70, 15.

•Sebutkan netmask yg baru

•Berapa network dan host yg dapat terbetuk

•Sebutkan 5 network pertama dan terakhir

•Sebutkan range host tiap network bersama broadcastnya

Kebutuhan host yang dibutuhkan 100

2n-2>= 100,n = 5

1. **Sebutkan netmask yg baru**

Netmask baru = total bit – host bit baru(n) = 32 – 5 = 27

Netmask baru = /27 = 255.255.255.224

Interval = 0.0.0.32

1. **Berapa network dan host yg dapat terbetuk**

Banyaknya host per network :

2n-2 = 25-2= 126 host

Banyaknya network :

m=netmask baru – netmask class A = 27 – 8 = 6

2m=26=256 network

1. **Sebutkan 5 network pertama dan 5 network terakhir**

|  |  |  |  |
| --- | --- | --- | --- |
| Netmask lama | Netmask baru | Host bit baru | Network Address1 |
| 120 | 00000000.00000000.000 | 00000 | 120.0.0.0 |
| 120 | 00000000.00000000.001 | 00000 | 120.0.0.32 |
| 120 | 00000000.00000000.010 | 00000 | 120.0.0.64 |
| 120 | 00000000.00000000.011 | 00000 | 120.0.0.96 |
| 120 | 00000000.00000000.100 | 00000 | 120.0.0.128 |
| 120 | 11111111.11111111.011 | 00000 | 120.255.255.96 |
| 120 | 11111111.11111111.100 | 00000 | 120.255.255.128 |
| 120 | 11111111.11111111.101 | 00000 | 120.255.255.160 |
| 120 | 11111111.11111111.110 | 00000 | 120.255.255.192 |
| 120 | 11111111.11111111.111 | 00000 | 120.255.255.224 |

1. Sebutkan range host tiap network bersama broadcastnya

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 120.0.0.0 | 120.0.0.0 – 120.0.0.30 | 120.0.0.31 |
| 120.0.0.32 | 120.0.0.33 – 120.0.0.62 | 120.0.0.63 |
| 120.0.0.64 | 120.0.0.65 - 120.0.0.94 | 120.0.0.95 |
| 120.0.0.96 | 120.0.0.97 - 120.0.0.126 | 120.0.0.127 |
| 120.0.0.128 | 120.0.0.129 - 120.0.0.158 | 120.0.0.159 |
| 120.255.255.96 | 120.255.255.97 - 120.255.255.126 | 120.255.255.127 |
| 120.255.255.128 | 120.255.255.129 - 120.255.255.158 | 120.255.255.159 |
| 120.255.255.160 | 120.255.255.161 - 120.255.255.190 | 120.255.255.191 |
| 120.255.255.192 | 120.255.255.193 – 120.255.255.222 | 120.255.255.223 |
| 120.255.255.224 | 120.255.255.225 – 120.255.255.254 | 120.255.255.255 |

SOAL 8

Diberikan network dengan IP 200.40.35.0/24 , ada 5 network dengan kebutuhan host 12

•**Sebutkan netmask yg baru**

2n – 2 >= 12 ; n = 4

Netmask baru = total bit – n = 32 – 4 = 28

Netmask baru = /28 = 255.255.255.240

Interval = 0.0.0.16

**•Berapa network dan host yg dapat terbetuk**

2n – 2 = 24 – 2 = 14 host/network

m = 28 – 24 = 4 network

**•Sebutkan 5 network pertama dan terakhir**

|  |  |  |  |
| --- | --- | --- | --- |
| Netmask lama | Netmask baru | Host bit baru | Network Address |
| 200.40.35 | 0000 | 0000 | 200.40.35.0 |
| 200.40.35 | 0001 | 0000 | 200.40.35.16 |
| 200.40.35 | 0010 | 0000 | 200.40.35.32 |
| 200.40.35 | 0011 | 0000 | 200.40.35.48 |
| 200.40.35 | 0100 | 0000 | 200.40.35.64 |
| 200.40.35 | 1011 | 0000 | 200.40.35.176 |
| 200.40.35 | 1100 | 0000 | 200.40.35.192 |
| 200.40.35 | 1101 | 0000 | 200.40.35.208 |
| 200.40.35 | 1110 | 0000 | 200.40.35.224 |
| 200.40.35 | 1111 | 0000 | 200.40.35.240 |

**•Sebutkan range host tiap network bersama broadcastnya**

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 200.40.35.0 | 200.40.35.1 - 200.40.35.14 | 200.40.35.15 |
| 200.40.35.16 | 200.40.35.17 - 200.40.35.30 | 200.40.35.31 |
| 200.40.35.32 | 200.40.35.33 - 200.40.35.46 | 200.40.35.47 |
| 200.40.35.48 | 200.40.35.49 - 200.40.35.62 | 200.40.35.63 |
| 200.40.35.64 | 200.40.35.65 - 200.40.35.78 | 200.40.35.79 |
| 200.40.35.176 | 200.40.35.177 - 200.40.35.190 | 200.40.35.191 |
| 200.40.35.192 | 200.40.35.193 - 200.40.35.206 | 200.40.35.207 |
| 200.40.35.208 | 200.40.35.209 - 200.40.35.222 | 200.40.35.223 |
| 200.40.35.224 | 200.40.35.225 - 200.40.35.238 | 200.40.35.239 |
| 200.40.35.240 | 200.40.35.241 - 200.40.35.254 | 200.40.35.255 |

SOAL 9

Diberikan network dengan IP 160.130.0.0/16 ,  dengan kebutuhan network 30

•**Sebutkan netmask yg baru**

2m >= 30 , maka m = 5

Netmask baru = Netmask kelas B + network bit (m) = 16 + 5 = **/21,**

Netmask baru /21 = 255.255.248.0

Interval = 0.0.<256-248>.0 = 0.0.8.0

**•Berapa network dan host yg dapat terbetuk**

Jumlah  host/network : n = total bit – netmask baru = 32-21 = 11

  2n -2 = 211 – 2 = 2046 host

Jumlah network :

m = total host - host bit baru – netmask class B

m = 32-11- 16 = 5

sehingga 25 = 32

**•Sebutkan 5 network pertama dan terakhir**

|  |  |
| --- | --- |
| 5 Network Pertama | 5 Network Terakhir |
| 160.130.0.0 | 160.130.216.0 |
| 160.130.8.0 | 160.130.224.0 |
| 160.130.16.0 | 160.130.232.0 |
| 160.130.24.0 | 160.130.240.0 |
| 160.130.32.0 | 160.130.248.0 |

**•Sebutkan range host tiap network bersama broadcastnya**

|  |  |  |
| --- | --- | --- |
| Network | Range Host | Broadcast |
| 160.130.0.0 | 160.130.0.1 - 160.130.7.254 | 160.130.7.255 |
| 160.130.8.0 | 160.130.8.1 - 160.130.15.254 | 160.130.15.255 |
| 160.130.16.0 | 160.130.16.1 - 160.130.23.254 | 160.130.23.255 |
| 160.130.24.0 | 160.130.24.1 - 160.130.31.254 | 160.130.31.255 |
| 160.130.32.0 | 160.130.32.1 - 160.130.39.254 | 160.130.39.255 |
|  |  |  |
| 160.130.216.0 | 160.130.216.1 - 160.130.223.254 | 160.130.223.255 |
| 160.130.224.0 | 160.130.224.1 - 160.130.231.254 | 160.130.231.255 |
| 160.130.232.0 | 160.130.232.1 - 160.130.239.254 | 160.130.239.255 |
| 160.130.240.0 | 160.130.240.1 - 160.130.247.254 | 160.130.247.255 |
| 160.130.248.0 | 160.130.248.1 - 160.130.248.254 | 160.130.248.255 |

SOAL 10

Diberikan network dengan IP 110.0.0.0/8 , ada 5 network dengan kebutuhan host 40, 70, 50, 30, 15.

•Sebutkan netmask yg baru

•Berapa network dan host yg dapat terbetuk

•Sebutkan 5 network pertama dan terakhir

•Sebutkan range host tiap network bersama broadcastnya

Kebutuhan host yang dibutuhkan 70

2n-2>= 70,n = 5

1. **Sebutkan netmask yg baru**

Netmask baru = total bit – host bit baru(n) = 32 – 5 = 27

Netmask baru = /27 = 255.255.255.224

Interval = 0.0.0.32

**f. Berapa network dan host yg dapat terbetuk**

Banyaknya host per network :

2n-2 = 2 5-2= 126 host

Banyaknya network :

m=netmask baru – netmask class A = 27 – 8 = 6

2m=26=256 network

**g.Sebutkan 5 network pertama dan 5 network terakhir**

|  |  |  |  |
| --- | --- | --- | --- |
| Netmask lama | Netmask baru | Host bit baru | Network Address1 |
| 110 | 00000000.00000000.000 | 00000 | 110.0.0.0 |
| 110 | 00000000.00000000.001 | 00000 | 110.0.0.32 |
| 110 | 00000000.00000000.010 | 00000 | 110.0.0.64 |
| 110 | 00000000.00000000.011 | 00000 | 110.0.0.96 |
| 110 | 00000000.00000000.100 | 00000 | 110.0.0.128 |
| 110 | 11111111.11111111.011 | 00000 | 110.255.255.96 |
| 110 | 11111111.11111111.100 | 00000 | 110.255.255.12 |
| 110 | 11111111.11111111.101 | 00000 | 110.255.255.160 |
| 110 | 11111111.11111111.110 | 00000 | 110.255.255.192 |
| 110 | 11111111.11111111.111 | 00000 | 110.255.255.224 |

H. Sebutkan range host tiap network bersama broadcastnya

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 110.0.0.0 | 110.0.0.0 – 110.0.0.30 | 110.0.0.31 |
| 110.0.0.32 | 110.0.0.33 – 110.0.0.62 | 110.0.0.63 |
| 110.0.0.64 | 110.0.0.65 - 110.0.0.94 | 110.0.0.95 |
| 110.0.0.96 | 110.0.0.97 - 110.0.0.126 | 110.0.0.127 |
| 110.0.0.128 | 110.0.0.129 - 110.0.0.158 | 110.0.0.159 |
| 110.255.255.96 | 110.255.255.97 - 110.255.255.126 | 110.255.255.127 |
| 110.255.255.128 | 110.255.255.129 - 110.255.255.158 | 110.255.255.159 |
| 110.255.255.160 | 110.255.255.161 - 110.255.255.190 | 110.255.255.191 |
| 110.255.255.192 | 110.255.255.193 – 110.255.255.222 | 110.255.255.223 |
| 110.255.255.224 | 110.255.255.225 – 110.255.255.254 | 110.255.255.255 |

SOAL 11 ( mecari info kebenaran)

Diberikan  IP address  110.112.33.125/8 , ada 5 network dengan kebutuhan host 40, 70, 50, 30, 15.

a. Sebutkan netmask yg baru

Host bit(n) = (2^n) - 2 >= 70

N = 7, (2^7) – 2 = 126

Netmask baru = total bit – host bit = 32 – 7 = 25

Netmask baru = /25 = 255.255.255.128

110.112.33.125

11111111.11111111.11111111.

b. Berapa network dan host yg dapat terbetuk

Host bit(n) = 7

Jumlah host = 2^n – 2 = 2^7 – 2 = 126

Network bit(m) = netmask baru – netmask kelas A = 25 – 8 = 17

Jumlah network = 2 ^ m = 2^17 = 128

c. Sebutkan 5 network pertama dan terakhir

Netmask = 255.255.255.128

Interval = 0.0.0.<256-128> = 0.0.0.128

Network pertama:

Network 1 = 110.112.33.125/25

Network 2 = 110.112.33.125 + 0.0.0.128 = 110.112.33.253/25

Network 3 = 110.112.33.125 + 0.0.0.128 = 110.112.34.125/25

Network 4 = 110.112.34.125 + 0.0.0.128 = 110.112.34.253/25

Network 5 = 110.112.34.253 + 0.0.0.128 = 110.112.35.125/25

Network Terkahir:

Network 1 = 110.255.255.253

Network 2 = 110.255.255.253 - 0.0.0.128 = 110.255.255.125/25

Network 3 = 110.255.255.125+ 0.0.0.128 = 110.255.254.253/25

Network 4 = 110.255.254.253 + 0.0.0.128 = 110.255.254.125/25

Network 5 = 110.255.254.125 + 0.0.0.128 = 110.255.253.253/25

•Sebutkan range host tiap network bersama broadcastnya

SOAL 12

•Jika diberikan alamat host 11.43.243.89/20.

Subnet Mask = 1111111.11111111.11110000 = 255.255.240.0

•Sebutkan network addressnya

11.43.240.0/24

•Sebutkan berapa host dan network maksimum yang bisa dibentuk

Host = 2(n) – 2

= 212 – 2 = 4094 HOST (sek2, ini 12 dari mana?)

Network = 220-8 = 4096

•Sebutkan range host dan alamat broadcastnya pada network tersebut

Range host = 11.43.240.1 – 11.43.255.254

Broadcast = 11.43.255.255

SOAL13

Jika diberikan alamat host 130.113.213.89/21.

•Sebutkan network addressnya

Untuk mencari network address, bisa melalui netmask yang tersedia dan diubah menjadi bilangan biner

130.113.213.89 = 1000 0010.0111 0001.1101 0101.0101 1001

/21 = 1111 1111.1111 1111.1111 1000.0000 0000

----------------------------------------------------------------------------------------------&

Network Address = 1000 0010.0111 0001.1101 0000.0000 0000 = 130.113.208.0/24

•Sebutkan berapa host dan network maksimum yang bisa dibentuk

Jika tidak ada kebutuhan host yang ditentukan, maka gunakan netmask saja

2n – 2 = 232-n – 2 = 232 – 21 – 2 = 211 – 2 = 2046 host / network

Untuk menentukan network maksimum, gunakan m

2m = 2netmask – kelas = 221 – 16 = 25 = 32 network

•Sebutkan range host dan alamat broadcastnya pada network tersebut

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 130.113.208.0 | 130.113.208.1 - 130.113.255.254 | 130.113.255.255 |

SOAL 14

Jika diberikan alamat host 200.78.135.34/28

•Sebutkan network addressnya

Untuk mencari network address, bisa melalui netmask yang tersedia dan diubah menjadi bilangan biner

200.78.135.34 = 1100 1000.0100 1110.1000 0111.0010 0010

/28 = 1111 1111.1111 1111.1111 1111.1111 0000

----------------------------------------------------------------------------------------------&

Network Address = 1100 1000.0100 1110.1000 0111.0010 0000 = 200.78.135.32/28

•Sebutkan berapa host dan network maksimum yang bisa dibentuk

 Jml host = 2y-2 = 24-2 = 16

Network Max = 2y= 212=4096

•Sebutkan range host dan alamat broadcastnya pada network tersebut

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 200.78.135.32 | 200.78.135.33 - 200.78.255.254 | 200.78.255.255 |

SOAL 15

Jika diberikan alamat host 89.143.250.189/18.

•Sebutkan network addressnya

Untuk mencari network address, bisa melalui netmask yang tersedia dan diubah menjadi bilangan biner

89.143.250.189 = 0101 1001.1000 1111.1111 1010.1011 1101

/18 = 1111 1111.1111 1111.1100 0000.0000 0000

----------------------------------------------------------------------------------------------&

Network Address = 0101 1001.1000 1111.1100 0000.0000 0000 = 89.143.192.0/18

•Sebutkan berapa host dan network maksimum yang bisa dibentuk

 Jml host = 2y-2 = 214-2 = 16384 – 2 = 16382

Network Max = 2y=22=4

•Sebutkan range host dan alamat broadcastnya pada network tersebut

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 89.143.192.0 | 89.143.192.1 - 89.143.255.254 | 89.143.255.255 |

SOAL 16

Jika diberikan alamat host 130.243.250.167/28.

•Sebutkan network addressnya

 130.243.250.167 = 10000010.11110011.11111010.10100111

/28 = 11111111.11111111.11111111.11110000

----------------------------------------------------- &

Network Address: 10000010.11110011.11111010.10100000 = 130.243.250.160

•Sebutkan berapa host dan network maksimum yang bisa dibentuk

 Jml host = 2y-2 = 24-2=16

Network Max = 2y=212=4096

•Sebutkan range host dan alamat broadcastnya pada network tersebut

|  |  |  |
| --- | --- | --- |
| Network Address | Host Range | Broadcast Address |
| 130.243.250.167 | 130.243.250.168-130.243.255.254 | 2130.243.255.255 |