IP Networks Mini-Project

Group: Zero Zombie Network
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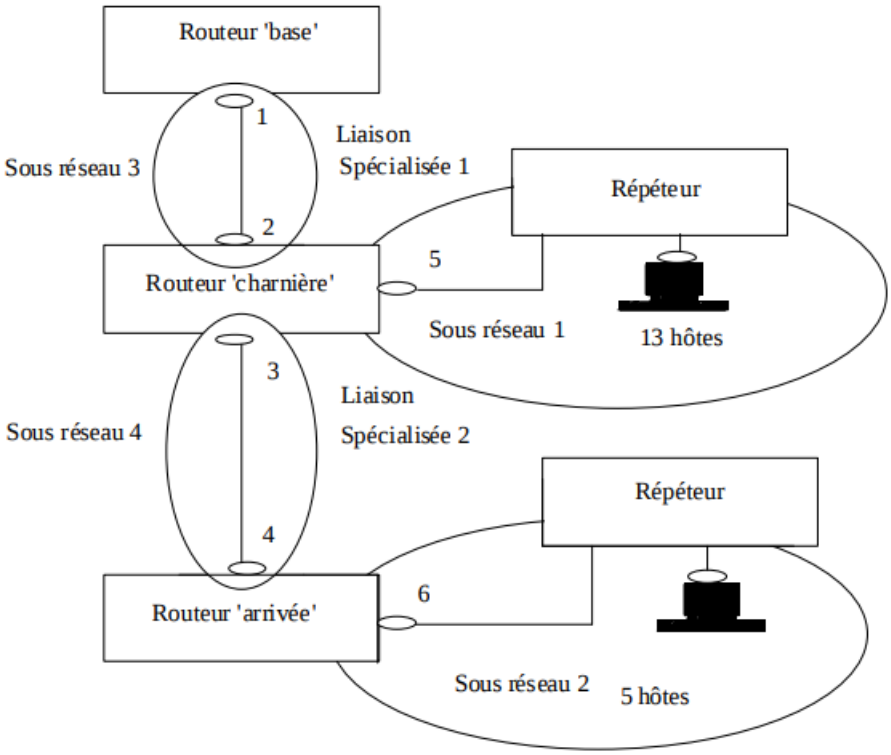
Network Deployment



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1 Exercise 1: Choice of addresses

1.1 Question 1

- For subnetwork 1 we have 16 ports : 13 hosts, 1 router and 2 ports for subnetwork adress and broadcast adress.
  For subnetwork 2 we have 8 ports : 5 hosts, 1 router and 2 ports for subnetwork adress and broadcast adress.
  For subnetwork 3 we have 4 ports.
  For subnetwork 4 we have 4 ports.
  So totally we have 32 ports.
- The starting adress is 193.137.1.0. and we have 32 ports so range is 193.137.1.0-31. And the subnetwork adress is 193.137.1.0/27.

1.2 Question 2

- We have 4 ports for the subnetwork 3 so we need only 2 bits hence adress is 193.137.1.0/30.

1.3 Question 3

- The first adress is our subnetwork adress (193.137.1.0) and the largest adress is our broadcast adress (193.137.1.3).
  So we will assign 193.137.1.1 to the end of 1(Base router) and the 193.137.1.2 to the end of 2(hinge router).

1.4 Question 4

- As subnetwork 3 we have 4 ports in the subnetwork 4 so the next adresses will be 193.137.1.4-7. And the network adress will be 193.137.1.4/30

1.5 Question 5

- As subnetwork 3 the smallest one is our subnetwork adress (193.137.1.4) and the largest is our broadcast adress (193.137.1.7).
  So we will assign 193.137.1.5 to the end of 3 (port of the router "hinge") and the 193.137.1.6 to the end of 4 (port of the router "arrival").

1.6 Question 6

So our new subnet address is 193.137.1.8. As next step it is not possible to put 16 addressed subnet 1 at 193.137.1.8 that's why subnet 2 start at 193.137.1.8 then subnet 1 will sequentially follow it at 193.137.1.16.
The network address of the subnet 1 => 193.137.1.16/28
The network address of the subnet 2 =>11 193.137.1.8/29

1.7 Question 7

- The network address for subnet 1 is 193.137.1.16/28.
- Then we will assign to the port of the hinge router address 193.137.1.17 which is the (first existing) address of the subnet.

1.8 Question 8

- The network address for subnet 2 is 193.137.1.8/29.
- Then we will assign to the port of the incoming router address 193.137.1.9 which is the address of the subnet.

2 Exercise 2: Building routing tables

2.1 Question 1

Destination : the destination subnet(or address) to which a packet of data is sent over a network.
Network mask : is a 32-bit mask used to divide an IP address into subnets and specify the network's available hosts.
Next hop : or gateway, is the address of the next station to which the packet is to be sent on the way to its final destination

2.2 Question 2

The routing table of the `"base"` router:

Destination	Network mask	Next hop	Type
193.137.1.8	/29	193.137.1.2	remote
193.137.1.16	/28	193.137.1.2	remote
193.137.1.2	/32	-	local
0.0.0.0	/0	default	remote

2.3 Question 3

The routing table of the `"hinge"` router:

Destination	Network mask	Next hop	Type
193.137.1.8	/29	193.137.1.6	remote
193.137.1.16	/28	-	local
193.137.1.1	/32	-	local
193.137.1.6	/32	-	local
0.0.0.0	/0	193.137.1.1	remote

2.4 Question 4

The routing table of the `"arrival"` router:

Destination	Network mask	Next hop	Type
193.137.1.8	/29	-	local
193.137.1.16	/28	193.137.1.5	remote
193.137.1.5	/32	-	local
0.0.0.0	/0	193.137.1.5	remote

2.5 Question 5

- Yes . The previous addressing plan is satisfactory. Because all subnets are now connected in the whole network.
- 1 additional entry are required to access.