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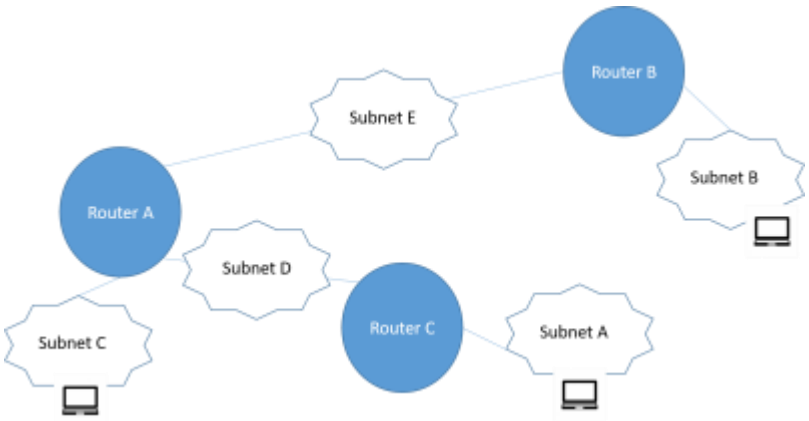

1. Dividing the available IP address spaces into subnetwork to make the network work

Subnet A: 192.168.32.0/27

- A ska man kunna ansluta minst 20 datorer (dvs. behöver reserveras 20 + 2 adresser)

Subnet B: 192.168.32.128/25

- B ska man kunna ansluta minst 100 datorer (dvs. behöver reserveras 100 + 2 adresser)

Subnet C: 192.168.32.64/26

- C ska man kunna ansluta minst 62 datorer (dvs. behöver reserveras 62 + 2 adresser)

Subnet D: 192.168.32.32/30

Subnet E: 192.168.32.36/30

Subnet A: 192.168.32.0/27

Address:	192.168.32.0	11000000.10101000.00100000.00000000
Netmask:	255.255.255.224	11111111.11111111.11111111.11100000
Wildcard:	0.0.0.31	00000000.00000000.00000000.00011111
Network Address:	192.168.32.0 / 27	11000000.10101000.00100000.00000000
Broadcast Address:	192.168.32.31	11000000.10101000.00100000.00011111
First host:	192.168.32.1	11000000.10101000.00100000.00000001
Last host:	192.168.32.30	11000000.10101000.00100000.00011110
Total host count:	30	

Subnet B: 192.168.32.128/25

Address:	192.168.32.128	11000000.10101000.00100000.10000000
Netmask:	255.255.255.128	11111111.11111111.11111111.10000000
Wildcard:	0.0.0.127	00000000.00000000.00000000.01111111
Network Address:	192.168.32.128 / 25	11000000.10101000.00100000.10000000
Broadcast Address:	192.168.32.255	11000000.10101000.00100000.11111111
First host:	192.168.32.129	11000000.10101000.00100000.10000001
Last host:	192.168.32.254	11000000.10101000.00100000.11111110
Total host count:	126	

Subnet C: 192.168.32.64/26

Address:	192.168.32.64	11000000.10101000.00100000.01000000
Netmask:	255.255.255.192	11111111.11111111.11111111.11000000
Wildcard:	0.0.0.63	00000000.00000000.00000000.00111111
Network Address:	192.168.32.64 / 26	11000000.10101000.00100000.01000000
Broadcast Address:	192.168.32.127	11000000.10101000.00100000.01111111
First host:	192.168.32.65	11000000.10101000.00100000.01000001
Last host:	192.168.32.126	11000000.10101000.00100000.01111110
Total host count:	62	

Subnet D: 192.168.32.32/30

Address:	192.168.32.32	11000000.10101000.00100000.00100000
Netmask:	255.255.255.252	11111111.11111111.11111111.11111100
Wildcard:	0.0.0.3	00000000.00000000.00000000.00000011
Network Address:	192.168.32.32 / 30	11000000.10101000.00100000.00100000
Broadcast Address:	192.168.32.35	11000000.10101000.00100000.00100011
First host:	192.168.32.33	11000000.10101000.00100000.00100001
Last host:	192.168.32.34	11000000.10101000.00100000.00100010

Total host count:	2	

Subnet E: 192.168.32.36/30

Address:	192.168.32.36	11000000.10101000.00100000.00100100
Netmask:	255.255.255.252	11111111.11111111.11111111.11111100
Wildcard:	0.0.0.3	00000000.00000000.00000000.00000011
Network Address:	192.168.32.36 / 30	11000000.10101000.00100000.00100100
Broadcast Address:	192.168.32.39	11000000.10101000.00100000.00100111
First host:	192.168.32.37	11000000.10101000.00100000.00100101
Last host:	192.168.32.38	11000000.10101000.00100000.00100110
Total host count:	2	

2. How to configure route selection tables on all routers so that all subnetworks get to each other.

You will need to edit the routing table of each device. This simulation appears to only support static routes.

In the real world, you could use static routes but you would more likely accomplish this with dynamic routing protocols such as EIGRP or OSPF.

The `Edit routing table` command allows access to enter in static routes.

Assume the following:

- You are editing the routing table of **Router A** and you intend to reach **Subnet A**
- Subnet A is 192.168.32.0/27
- Router A and Router C are directly connected by the subnet 192.168.32.32/30
- Router B and Router C are directly connected by the subnet 192.168.32.128/25
- Router A has an interface with the address 192.168.32.33/30

- Router A has an interface with the address 192.168.32.33/37
- Router B has an interface with the address 192.168.32.33/38
- Router C has an interface with the address 192.168.32.34/30
- Router C has an interface with the address 192.168.32.1/27

You would enter the following route into Router A's routing table:

Network Destination: 192.168.32.0

Netmask: /27

Next hop: 192.168.32.34

Interface: 192.168.32.33

You would enter the following route into Router C's routing table:

Network Destination: 192.168.32.64

Netmask: /26

Next hop: 192.168.32.33

Interface: 192.168.32.34

You would enter the following route into Router B's routing table:

Network Destination: 192.168.32.128

Netmask: /25

Next hop: 192.168.32.37

Interface: 192.168.32.38

3. Describtion of the differences between IPv4 and Ipv6

IPv4 (*Internet Protocol Version* 4): It know as was the first version of IP that is widely used to connect devices to the Internet. It's very relevant to the infrastructure of the web.

IPv6 (Internet Protocol Version 6): Besides it is a newer version of Internet Protocol (IP), it also gives a much larger address pool comparing to IPv4a. Its fits the world's IP addressing requirements now and in also in the future.

Apart of IPv6 advantages →

- There would be no more Network Address Translation.
- Auto-configuration and easier administration.
- Prevent the collisions of private address.
- Facilitateed, more efficacious routing.

The main difference between IPv6 and IPv4 is the number of IP addresses.

TCP and UDP:

They are mainly used to send data over either a local network or the Internet.

TCP stands for (Transmission Control Protocol) and it is know as the most used protocol on the Internet. A guaranteed delivery is related to the usage of TCP protocol, since it assures that all transferred packets stays in the correct order when it reachs its destination.

UDP stads for (User Datagram Protocol): It a commonly used protocol on the Internet.

It is less used to send essential data. It is less reliable or unreliable it is reactless on packet losses (packet loss is less serious than packet delay).s

TCP connection seems to be more than reliable and oriented than UDP.

UDP can be called a connectionless protocol whereas TCP can be discribes as connection-oriented protocol.