Vanier College

Computer Science & Technology

Networks 420-421-VA section 00002

Task 1: Create the Network topology in the Logical Workspace

Networking addressing scheme Report

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Network addressing scheme Report

Network ID 192.168.1.0/24 :

We know that there are 8 host bits because according to the CIDR, there are 24 network prefix bits.

There are $2^{8 \text{ host bits}} - 2 = 254$ hosts for this network.

The subnet mask for this network is 255.255.255.0 because we are taking 0 host bits for the network ID for the last octet.

256 - 0 = 256 is the magic number (jump between each subnet).

The network is a Class C network because it takes 3 octets for the network ID.

The range of host addresses available on the network (192.168.1.0/24) is from 192.168.1.1 to 192.168.1.254 because we remove one address at the beginning for the network ID, and we remove the last address for the broadcast address. The network ID is 192.168.1.0, and the broadcast address is 192.168.1.255. Because this is a Class C network, there are 8 bits for host information.

Network ID 200.168.20.0/30:

We know that there are 2 host bits because according to the CIDR, there are 30 network prefix bits.

There are $2^{2 \text{ host bits}} - 2 = 2$ hosts for this network.

The subnet mask for this network is 255.255.255.252 because we are taking 6 host bits for the network ID for the last octet.

256 - 252 = 4 is the magic number (jump between each subnet).

The range of host addresses available for the network (200.168.20.0/30) is between 200.168.20.1 and 200.168.20.2 because we take 200.168.20.0 for the network ID and we take 200.168.20.3 for the broadcast address.

Network ID 177.44.35.0/30:

We know that there are 2 host bits because according to the CIDR, there are 30 network prefix bits.

There are $2^{2 \text{ host bits}} - 2 = 2$ hosts for this network.

The subnet mask for this network is 255.255.255.252 because we are taking 14 host bits for the network ID for the last octet.

256 - 252 = 4 is the magic number (jump between each subnet).

The range of host addresses for the network (177.44.35.0/30) is between 177.44.35.1 and 177.44.35.2. We take 177.44.35.0 for the network ID, and we take 177.44.35.3 for the broadcast address.

Network ID 192.20.20.0/28:

We know that there are 4 host bits because according to the CIDR, there are 28 network prefix bits.

There are $2^{4 \text{ host bits}} - 2 = 14$ hosts for the network.

The subnet mask for this network is 255.255.255.240 because we are taking 4 host bits for the network ID for the last octet.

256 - 240 = 16 is the magic number (jump between each subnet).

The range of host addresses for the network (192.20.20.0/28) is between 192.20.20.1 to 192.20.20.14.

We use the first 4 bits of the last octet for the network ID. This means that 192.20.20.0 is the network ID and 192.20.20.15 is the broadcast address.

Network ID: 150.80.60.0/30

We know that there are 2 host bits because according to the CIDR, there are 30 network prefix bits.

There are $2^{2 \text{ host bits}} - 2 = 2$ hosts for this network.

The subnet mask for this network is 255.255.255.252 because we are taking 14 host bits for the network ID for the last octet.

256 - 252 = 4 is the magic number (jump between each subnet).

The range of host addresses for this network is between 150.80.60.1 and 150.80.60.2. We remove two addresses because 150.80.60.0 is the network ID and 150.80.60.3 is the broadcast address.

Network ID 200.100.30.0/29:

We know that there are 3 host bits because according to the CIDR, there are 29 network prefix bits.

There are $2^{3 \text{ host bits}} - 2 = 6$ hosts for this network/subnet.

The subnet mask for this network is 255.255.255.248 because we are taking 5 host bits for the network ID for the last octet.

256 - 248 = 8 is the magic number (jump between each subnet).

The range of host addresses for this network is between 200.100.30.1 and 200.100.30.6. We remove two addresses because 200.100.30.0 is the network ID, and 200.100.30.7 is the broadcast address.

Snip of the network on packet tracer: