**Net 1060 Introduction to Networks Lab: # 11.9.3**

**Name: Andrew Koenig**

**Follow the instructions down below for the lab itself. For this lab, all answers need to be in blue font. For the questions right below, answer in complete sentences. Ensure you paste the screen shot of your score page at the bottom of the document. Even if this does not let you see your grade, still take a screen shot of the score page showing congratulations “your name” you have completed the exercise is pasted at the bottom of this document. You will then need to upload both this word document and your packet tracer file to the assignments link within Netacad. Let the instructor know if you have any questions.**

***Lab Analysis Report***

1. Using complete sentences summarize work you completed during the lab.

I configured the ip addresses for a network with subnets inside it

2. Using complete sentences describe what you learned from the lab. Hint; look at the lab objectives listed at the top of the lab section.

I learned how to set up the ip’s and subnets needed on a network

***Problems Encountered***

1. Using complete sentences describe any problem(s) experienced during lab.

No problems

2. Using complete sentences describe how you solved your problem(s).

No problems

3. Using complete sentences explain if you needed any assistance with the lab; then list what you learned from that assistance. No problems

Packet Tracer - VLSM Design and Implementation Practice Topology

You will receive one of three possible topologies.

# Addressing Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Device | Interface | IP Address | Subnet Mask | Default Gateway |
|  | G0/0 | 10.11.48.97 | 255.255.255.240 | N/A |
| Building1 | G0/1 | 10.11.48.65 | 255.255.255.224 | N/A |
|  | S0/0/0 | 10.11.48.121 | 255.255.255.252 | N/A |
|  | G0/0 | 10.11.48.113 | 255.255.255.248 | N/A |
| Building2 | G0/1 | 10.11.48.1 | 255.255.255.192 | N/A |
|  | S0/0/0 | 10.11.48.122 | 255.255.255.252 | N/A |
| ASW1 | VLAN 1 | 10.11.48.98 | 255.255.255.240 | 10.11.48.97 |
| ASW2 | VLAN 1 | 10.11.48.66 | 255.255.255.224 | 10.11.48.65 |
| ASW3 | VLAN 1 | 10.11.48.114 | 255.255.255.248 | 10.11.48.113 |
| ASW4 | VLAN 1 | 10.11.48.2 | 255.255.255.192 | 10.11.48.1 |
| HOSTA | NIC | 10.11.48.110 | 255.255.255.240 | 10.11.48.97 |
| HOSTB | NIC | 10.11.48.94 | 255.255.255.224 | 10.11.48.65 |
| HOSTC | NIC | 10.11.48.118 | 255.255.255.248 | 10.11.48.113 |
| HOSTD | NIC | 10.11.48.62 | 255.255.255.192 | 10.11.48.1 |

# Objectives

**Part 1: Examine the Network Requirements**

**Part 2: Design the VLSM Addressing Scheme**

**Part 3: Assign IP Addresses to Devices and Verify Connectivity**

# Background

In this activity, you are given a /24 network address to use to design a VLSM addressing scheme. Based on a set of requirements, you will assign subnets and addressing, configure devices and verify connectivity.

# Instructions

## Examine the Network Requirements

### Determine the number of subnets needed.

You will subnet the network address 10.11.48.0/24. The network has the following requirements:

* ASW-1 LAN will require  **14**  host IP addresses
* ASW-2 LAN will require  **30**  host IP addresses
* ASW-3 LAN will require  **6**  host IP addresses
* ASW-4 LAN will require  **60**  host IP addresses

#### Question:

How many subnets are needed in the network topology?

Type your answers 5.

-------------------------------------------------------------------------------------------------------------------------------------------------

11111111.11111111.11111111.11111100

128 64 32 16 8 4 2 1

### Determine the subnet mask information for each subnet.

#### Questions:

* + - 1. Which subnet mask will accommodate the number of IP addresses required for  **ASW1 255.255.255.240/28**

How many usable host addresses will this subnet support?

Type 14answers here.

* + - 1. Which subnet mask will accommodate the number of IP addresses required for  **ASW2**

255.255.225.224/29

How many usable host addresses will this subnet support?

Type30

* + - 1. Which subnet mask will accommodate the number of IP addresses required for  **ASW3**

**255.255.255.248/29**

How many usable host addresses will this subnet support?

Type your 6

* + - 1. Which subnet mask will accommodate the number of IP addresses required for  **ASW4**

255.255.255.192.0/26

How many usable host addresses will this subnet support?

Type your 62 here.

* + - 1. Which subnet mask will accommodate the number of IP addresses required for the connection between  **B1**  and  **B2** ?

Type your 255.255.255.252/30 here.

## Design the VLSM Addressing Scheme

### Divide the 10.11.48.0/24 network based on the number of hosts per subnet.

* + - 1. Use the first subnet to accommodate the largest LAN.
      2. Use the second subnet to accommodate the second largest LAN.
      3. Use the third subnet to accommodate the third largestLAN.
      4. Use the fourth subnet to accommodate the fourth largestLAN.
      5. Use the fifth subnet to accommodate the connection between and.

### Document the VLSM subnets.

Complete the **Subnet Table**,listing the subnet descriptions (e.g. [[S1Name]] LAN), number of hosts needed, then network address for the subnet, the first usable host address, and the broadcast address. Repeat until all addresses are listed.

Subnet Table

| Subnet Description | Number of Hosts Needed | Network Address/CIDR | First Usable Host Address | Broadcast Address |
| --- | --- | --- | --- | --- |
| HOSTD LAN | 60 | 10.11.48.0/26 | 10.11.48.1 | 10.11.48.63 |
| HOSTB LAN | 30 | 10.11.48.64/27 | 10.11.48.65 | 10.11.48.95 |
| HOSTA LAN | 14 | 10.11.48.96/28 | 10.11.48.97 | 10.11.48.111 |
| HOSTC LAN | 6 | 10.11.48.112/29 | 10.11.48.113 | 10.11.48.119 |
| WAN LINK | 2 | 10.11.48.120/30 | 10.11.48.121 | 10.11.48.123 |

### Document the addressing scheme.

* + - 1. Assign the first usable IP addresses to  **B1** for the two LAN links and the WAN link.
      2. Assign the first usable IP addresses to  **B2**  for the two LAN links. Assign the last usable IP address for the WAN link.
      3. Assign the second usable IP addresses to the switches.
      4. Assign the last usable IP addresses to the hosts.

## Assign IP Addresses to Devices and Verify Connectivity

Most of the IP addressing is already configured on this network. Implement the following steps to complete the addressing configuration.

### Configure IP addressing on the B1 router LAN interfaces.

### Configure IP addressing on the ASW3 , switch including the default gateway.

### Configure IP addressing on HOSTD , including the default gateway.

### Verify connectivity.

You can only verify connectivity from , , and . However, you should be able to ping every IP address listed in the **Addressing Table**.

End of document

Graphical user interface, text, application

Description automatically generated