Network Configuration I

Assignments:

1. Complete Project 12-3.
2. Complete Project 12-5. The instructions are to setup on an Ubuntu and a Fedora system, but you need to only work on the fedora system.
3. Complete Project 12-6.
4. You are given the network address of 192.168.100.0/24 to subnet and provide the IP addressing for a network. Each LAN in the network requires enough space for, at least, 25 addresses for end devices, the switch and the router.

**You get to Design an IP Addressing Scheme**

**Subnet the 192.168.100.0/24 network into the appropriate number of subnets.**

1. How many bits must be borrowed to support 5 subnets?
2. How many subnets does this create?
3. How many usable hosts does this create **per subnet**?
4. Calculate the binary value for the first five subnets. The first subnet is already shown.

Net 1: 192 . 168 . 100 .  0   0   0   0   0   0   0   0 / \_\_\_

Net 2: 192 . 168 . 100 . \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ / \_\_\_

Net 3: 192 . 168 . 100 . \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ / \_\_\_

Net 4: 192 . 168 . 100 . \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ / \_\_\_

Net 5: 192 . 168 . 100 . \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ / \_\_\_

1. Calculate the binary and decimal value of the new subnet mask.

11111111.11111111.11111111. \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_ \_\_\_

    255 .   255  .   255  . \_\_\_\_\_\_

1. Fill in the Subnet Table, listing the decimal value of all available subnets, the first and last usable host address, and the broadcast address. Repeat until all addresses are listed. **Note:** You *may not* need to use all rows.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Subnet Number** | **Subnet Address** | **First Usable Host Address** | **Last Usable Host Address** | **Broadcast Address** |
| 0 |   |   |   |   |
| **1** |   |   |   |   |
| **2** |   |   |   |   |
| **3** |   |   |   |   |
| **4** |   |   |   |   |
| **5** |   |   |   |   |
| **6** |   |   |   |   |
| **7** |   |   |   |   |
| **8** |   |   |   |   |
| **9** |   |   |   |   |
| **10** |   |   |   |   |

1. [Here](http://sceweb.sce.uhcl.edu/abeysekera/CSCI4634/assignments/2018Fall/lab_layout.pdf) is a [diagram](file:///%5C%5Csceweb%5Cabeysekera%5Cpages%5Ccsci4634%5Cassignments%5Clab_layout.pdf) of how the network is setup in a lab. Write the routing tables for machine 3 in row1, machine 4 in row2 and machine 5 in row3 and for R1, R2 and R3.

Please use the machine number on each row as the host number of the IP address. For all of the computers, assume that the network device is le0.