

Communication Networks Management Lab

Homework#2 Network IP Classical Subnetting

Variable Length Subnet Mask (VLSM)

**A network requires 14 hosts and 10 subnetworks.**

**IP = 192.168.10.0, Class C (N=24 , H=8)**

**Design this network and determine the address ranges**

**14 host -> 24-2 = 14 host …..we need only 4 bits from the host bits.**

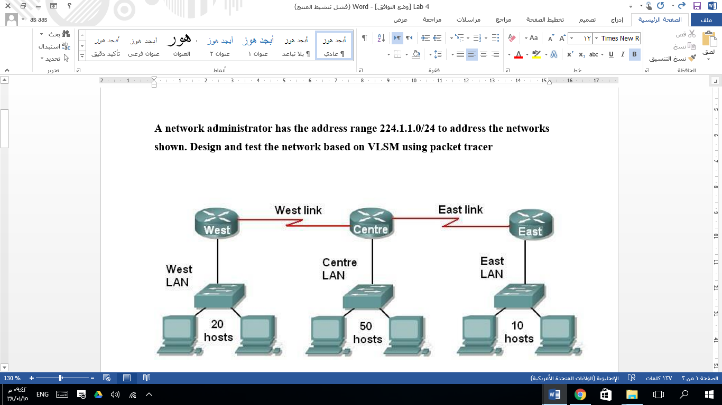
**Remaining bits form the host will be given to the subnetwork**

**4 bits 24-2 = 14 subnetworks**

|  |  |  |  |
| --- | --- | --- | --- |
| **Subnetwork #** | **Subnetwork ID** | **Host Range** | **Broadcast** |
| **0** | **192.168.10.0** | **.1-.14** | **192.168.10.15** |
| **1** | **192.168.10.16** | **.17-.30** | **192.168.10.31** |
| **2** | **192.168.10.32** | **.33-.46** | **192.168.10.47** |
| **3** | **192.168.10.48** | **.49-.62** | **192.168.10.63** |
| **4** | **192.168.10.64** | **.65-.78** | **192.168.10.79** |
| **5** | **192.168.10.80** | **.81-.94** | **192.168.10.95** |
| **6** | **192.168.10.96** | **.97-.110** | **192.168.10.111** |
| **7** | **192.168.10.112** | **.113-.126** | **192.168.10.127** |
| **8** | **192.168.10.128** | **.129-.142** | **192.168.10.143** |
| **9** | **192.168.10.144** | **.145-.158** | **192.168.10.159** |
| **10** | **192.168.10.160** | **.161-.174** | **192.168.10.175** |
| **11** | **192.168.10.176** | **.177-.190** | **192.168.10.191** |
| **12** | **192.168.10.192** | **.193-.206** | **192.168.10.207** |
| **13** | **192.168.10.208** | **.209-.222** | **192.168.10.223** |



**Variable Length Subnet Mask (VLSM)**



* **Determine how many H bits will b needed to satisfy the *largest network.***
* **Pick a subnet for the largest network to use.**
* **Pick the next largest network to work with.**
* **Pick the third largest network to work with.**
* **Determine network numbers for serial links.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Subnet  name | Subnet mask | Network address | Broadcast  address | Host address  range |  |
|  |
| **Centre**  **LAN** | **255.255.255.192** | **224.1.1.0/26** | **.63** | **.1 - .62** |  |
|  |
|  |
| **West LAN** | **255.255.255.224** | **224.1.1.64/27** | **.95** | **.65- .94** |  |
|  |
|  |
| **East LAN** | **255.255.255.240** | **224.1.1.96/28** | **.111** | **.97 - .110** |  |
|  |
|  |
| **West link** | **255.255.255.252** | **224.1.1.112/30** | **.115** | **.113- .114** |  |
|  |
|  |
| **East link** | **255.255.255.252** | **224.1.1.116/30** | **.119** | **.117- .118** |  |
|  |
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