**PLANING OF THE NETWORK**

|  |  |  |
| --- | --- | --- |
| **FLOORS** | **DEPARTMENT NAME** | **NUMBER OF HOST** |
| 1 | Commercial Department | 40 |
| 2 | Sales Department | 27 |
| 3 | Supply Chain Department | 70 |
| 4 | Finance Department | 76 |
| 5 | Purchasing Department | 90 |
| 6 | Legal and External communication Department | 20 |
| 7 | HR Department | 60 |
| 8 | IT Department | 50 |
|  |  | **Total Host: 456** |

A total number of host is 456 and we need the different network for each department. So, we need to subnetting according to the host requirement because In real world mostly subnetting is based on host, and according to the total number of host, **“CLASS-A”** is best for the network and network IP is **“91.0.0.0”.** According to the different number of host requirement for each department So, the **Network IP, Subnet Mask, and Broad Cast IP** is different for each department. **“We use variable length subnetting for the network to prevent the IP from wastage”**

**FOR COMMERCIAL DEPARTMENT(SUBNET-1):**

**91.0.0.0/26----------------------91.0.0.63/26**

**Network IP: 91.0.0.0/26**

**Subnet Mask: 255.255.255.192**

**Broad Cast IP: 91.0.0.63/26**

**(In Commercial Department, A number of IP are 64 but we used 40. So, 24 host IP can more add in this department)**

**FOR SALES DEPARTMENT(SUBNET-2):**

**91.0.0.64/29----------------------91.0.0.94/29**

**Network IP: 91.0.0.64/29**

**Subnet Mask: 255.255.255.224**

**Broad Cast IP: 91.0.0.94/29**

**(In Sales Department, A number of IP are 30 and we used 27 host IP, so, 3 IP can more add in this department)**

**FOR SUPPLY CHAIN DEPARTMENT(SUBNET-3):**

**91.0.0.95/25-------------------------91.0.0.222/25**

**Network IP: 91.0.0.95/25**

**Subnet Mask: 255.255.255.128**

**Broad Cast IP: 91.0.0.222/25**

**(In Supply Chain Department, A number of IP are 128 but we used 70 host IP, So, 58 host can more add in this department)**

**FOR FINANCE DEPARTMENT(SUBNET-4)**

**91.0.0.223/25----------------------91.0.1.42/25**

**Network IP: 91.0.0.223/25**

**Subnet Mask: 255.255.255.128**

**Broad Cast IP: 91.0.1.42/25**

**(In Finance Department, A number of IP are 128 but we used 76 host IP, So, 52 hosts can more add in this department)**

**FOR PURCHASING DEPARTMENT(SUBNET-5)**

**91.0.1.43/25----------------------91.0.1.170/25**

**Network IP: 91.0.1.43/25**

**Subnet Mask: 255.255.255.128**

**Broad Cast IP: 91.0.1.170/25**

**(In Purchasing Department, A number of IP are 128 but we used 90 host IP, So, 38 hosts can more add in this department)**

**FOR LEGAL AND EXTERNAL COMMUNICATION DEPARTMENT(LECD)(SUBNET-6)**

**91.0.1.171/27----------------------91.0.1.202/27**

**Network IP: 91.0.1.171/25**

**Subnet Mask: 255.255.255.224**

**Broad Cast IP: 91.0.1.202/25**

**(In Legal and External communication Department, A number of IP are 30 but we used 20 host IP, So, 10 hosts can more add in this department)**

**FOR HR DEPARTMENT(SUBNET-7)**

**91.0.1.203/26----------------------91.0.2.7/26**

**Network IP: 91.0.1.203/26**

**Subnet Mask: 255.255.255.192**

**Broad Cast IP: 91.0.2.7/26**

**(In HR Department, A number of IP are 64 but we used 60 host IP, So, 4 hosts can more add in this department)**

**FOR IT DEPARTMENT(SUBNET-8)**

**91.0.2.8/26----------------------91.0.2.71/26**

**Network IP: 91.0.2.8/26**

**Subnet Mask: 255.255.255.192**

**Broad Cast IP: 91.0.2.71/26**

**(In IT Department, A number of IP are 64 but we used 50 host IP, So, 14 host can more add in this department)**

**FOR MAIN ROUTERS (SUBNET-9):**

**91.0.2.72/252------------------------71.0.2.75/252**

**Network IP: 91.0.2.72/252**

**Subnet Mask: 255.255.255.252**

**Broad Cast IP: 91.0.75/252**

**(Each Router connect four subnets, And in Between routers there should be a new subnet, therefore, (Subnet-09) is the subnet between the two routers.)**

**TOPOLOGY WE USED:**

As you see in packet tracer file we use star topology, in which router is the main part of the network, so, we should very take care of the two routers.