**Router Configuration**

**Router – network layer device**

**Configuration using IP addresses**

**Functions**

1. **Routing – google map**
2. **Connect 2 different networks**

**Every organization has their own router**

**One more more**

**Interface- connection**

**192.168.10.12**

**255.255.255.0**

**192.168.10.0 ---network number**

**192.168.10.1--- first IP address**

**192.168.10.13**

**255.255.255.0**

**192.168.10.0---network number**

**192.168.10.00000001**

**192.168.10.1**

**Assigned to Default gateway**

**10.10.10.10**

**255.0.0.0**

**10.0.0.0---network number**

**10.0.0.1---first IP address**

**Default gateway**

**Interface between 2 routers is a separate network**

**Network number**

**assume**

**11.0.0.0**

**Left router 11.0.0.1 ---left to right**

**Right router 11.0.0.2 ----right to left**

**Routing**

**We must teach router, and it will learn routing**

1. **Static routing**
2. **dynamic routing – routing protocols**

|  |  |
| --- | --- |
| **Static routing** | **Dynamic routing** |
| **Manually configured** | **Router will automatically learn** |
| **Route is fixed** | **Route can be changed** |
| **Simple , small sized networks** | **Complex and larger networks** |
| **Easy to configure** | **challenging** |

**TTL- packet is given a timer**

**Timer is over you will get request time out**

**Subnetting-**

**Larger network is divided into smaller networks**

1. **better management of the network**
2. **bandwidth is utilized**
3. **security policies subnet wise**

**10.0.0.0 /8**

**Requirement is 5 subnets**

**Every subnet will get a network number**

**2^n >= your requirement**

**2^n>=5**

**n=1**

**2>=5 no**

**n=2**

**4>=5 no**

**n=3**

**8>=5 yes**

**n=3 -----**

**10.0.0.0 /8**

**00001010.00000000.0.0**

**10.0.0.0 /11**

**00001010. 0 0 0 00000.0.0**

**10.0.0.0/11**

**00001010. 0 0 1 00000.0.0**

**10.32.0.0/11**

**00001010. 0 1 0 00000.0.0**

**10.64.0.0/11**

**00001010. 0 1 1 00000.0.0**

**10.96.0.0/11**

**00001010. 1 0 0 00000.0.0**

**10.128.0.0/11**

**00001010. 1 0 1 00000.0.0**

**10.160.0.0/11**

**00001010. 1 1 0 00000.0.0**

**10.192.0.0/11**

**00001010. 1 1 1 00000.0.0**

**10.224.0.0/11**