Lab 8 Computer Networks

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**AIM**:

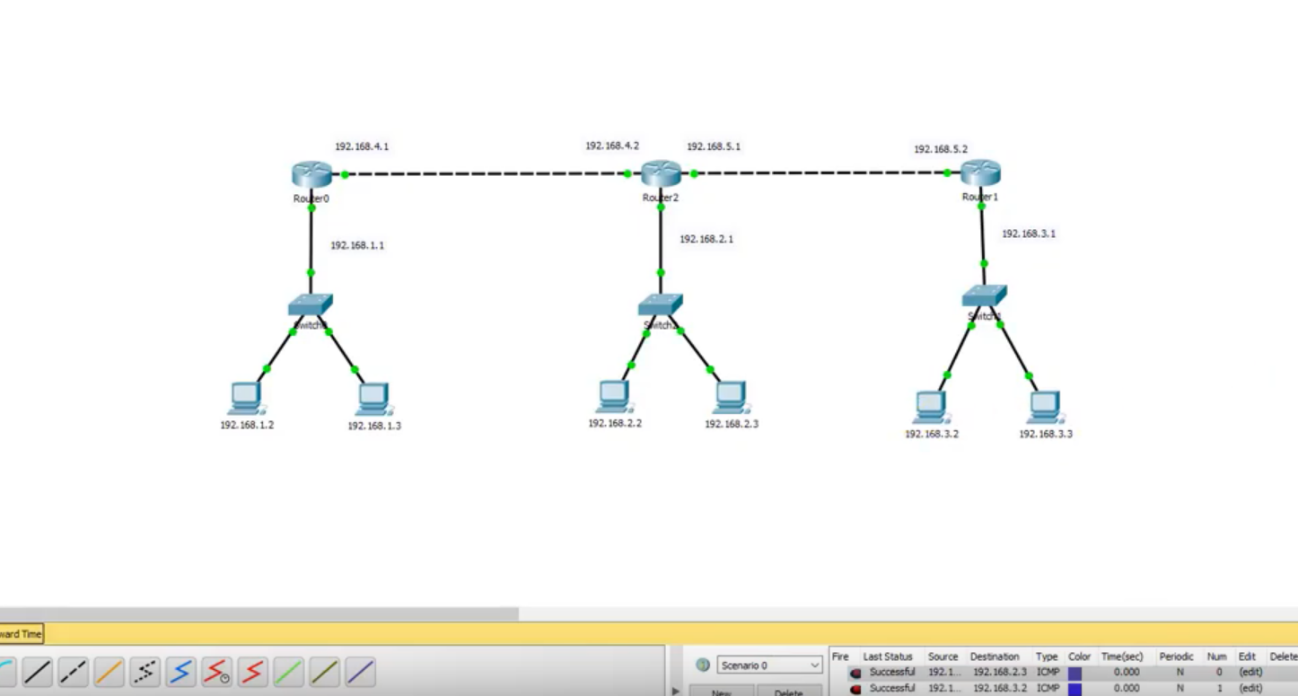
* Apply static routing between the three routers.
* Assigning IP address to the given network using variable length subnet mask (VLSM) and with a class C IP address.

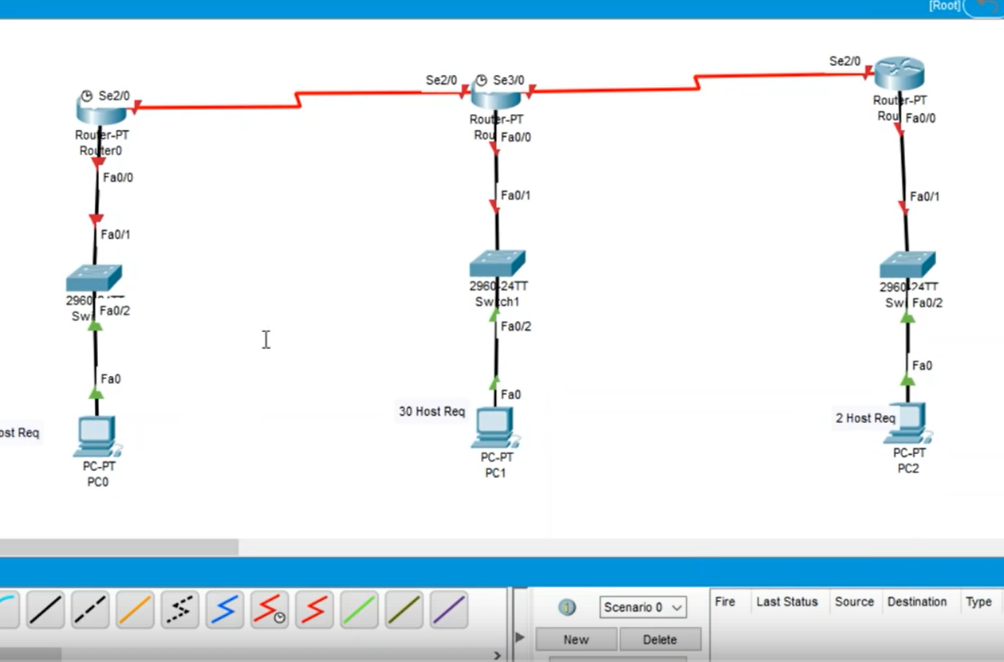
**PROCEDURE AND DOCUMENTATION:**

* **Static routing is the most secure way of routing. It reduces overhead from network resources.**
* **In this type of routing we manually add routes in routing table. It is useful where numbers of route are limited. Like other routing methods static routing also has its pros and cons.**
* Assign IP address to all the PCs one by one.
* Repeat same process for other PCs and assign IP address.
* Double click Router0 and click CLI and press Enter key to access the command prompt of Router0.
* Two interfaces FastEthernet0/0 and Serial0/0/0 of Router0 are used in this topology. By default interfaces on router are remain administratively down during the start up.
* We need to configure IP address and other parameters on interfaces before we could actually use them for routing. Interface mode is used to assign IP address and other parameters. Interface mode can be accessed from global configuration mode. Following commands are used to access the global configuration mode.
* Router>enable
* Router#configure terminal
* Enter configuration commands, one per line. End with CNTL/Z.
* Router(config)#
* From global configuration mode we can enter in interface mode. From there we can configure the interface. Following commands will assign IP address on FastEthernet0/0.
* Router(config)#interface fastEthernet 0/0
* Router(config-if)#ip address (write ip address here) 255.0.0.0
* Router(config-if)#no shutdown
* Router(config-if)#exit
* Router(config)#
* Now we have necessary information let’s assign IP address to serial interface.
* Router#configure terminal
* Enter configuration commands, one per line. End with CNTL/Z.
* Router(config)#interface serial 0/0/0
* Router(config-if)#ip address (ip address here) (subnet mask here)
* Router(config-if)#clock rate 64000
* Router(config-if)#bandwidth 64
* Router(config-if)#no shutdown
* Router(config-if)#exit
* Router(config)#
* We will use same commands to assign IP addresses on interfaces of remaining routers. We need to provided clock rate and bandwidth only on DCE side of serial interface. Following command will assign IP addresses on interface of Router1.
* For Router 1:
* Router>enable
* Router#configure terminal
* Enter configuration commands, one per line. End with CNTL/Z.
* Router(config)#interface serial 0/0/0
* Router(config-if)#ip address (ip address here) (subnet mask here)
* Router(config-if)#no shutdown
* Router(config-if)#exit
* Router(config)#interface serial 0/0/1
* Router(config-if)#ip address (ip address here) (subnet mask here)
* Router(config-if)#clock rate 64000
* Router(config-if)#bandwidth 64
* Router(config-if)#no shutdown
* Router(config-if)#exit
* Similarly do for Router 2 and Router 3 as well (same procedure as done for Router 1)
* Commands to configure the static route.
* Router(config)# ip route destination\_network\_# [subnet\_mask] interface\_to\_exit [administrative\_distance] [permanent]
* By default when a packet arrives in interface, router checks destination filed in packet and compare it with routing table.
* If it finds a match for destination network then it will forward that packet from related interface. If it does not find a match in routing table then it will discard that packet.
* This is the default behaviour of router. We do not need to configure directly connected networks.
* Run following command from global configuration mode in routers.
* Example:
* Router(config)#ip route 10.0.0.0 255.0.0.0 192.168.0.253
* Router(config)#ip route 20.0.0.0 255.0.0.0 192.168.0.250
* Similarly do for the other Routers 2 and 3.

**SNAPSHOTS:**

**STATIC ROUTING BETWEEN THREE ROUTERS**

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