Experiment -3

Date: 23/07/2025

Configure Static NAT in Cisco Packet Tracer

AIM:

To configure Static NAT (Network Address Translation) in Cisco Packet Tracer and test its functionality using multiple hosts and routers.

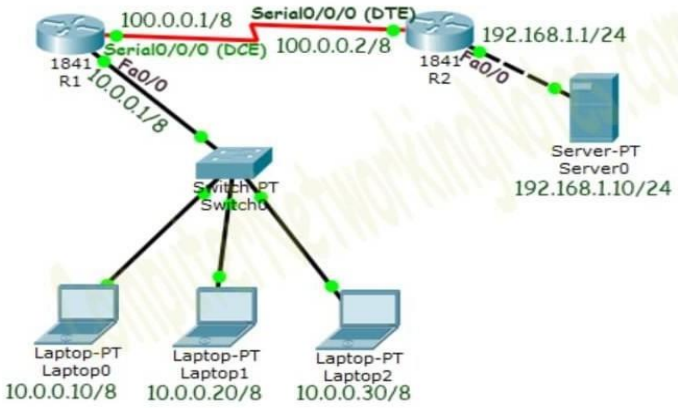
PROCEDURE:

1. Understand the four NAT addressing terms: Inside Local, Inside Global, Outside Local, and Outside Global.
2. Create the network topology with three laptops, two routers (R1 and R2), and one server as per the IP configuration table.
3. Assign IP addresses to all devices (Laptop0, Laptop1, Laptop2, Server0) using the Desktop → IP Configuration option.
4. Configure R1 Router:
   - Set hostname to R1.
   - Configure FastEthernet0/0 with IP: 10.0.0.1 255.0.0.0.
   - Configure Serial0/0/0 with IP: 100.0.0.1 255.0.0.0, clock rate 64000, bandwidth 64.
   - Use 'no shutdown' on both interfaces to activate them.
5. Check for DCE/DTE using 'show controllers serial 0/0/0'. Configure clock rate and bandwidth only if it's DCE.
6. Configure R2 Router:
   - Set hostname to R2.
   - Configure FastEthernet0/0 with IP: 192.168.1.1 255.255.255.0.
   - Configure Serial0/0/0 with IP: 100.0.0.2 255.0.0.0.
   - Use 'no shutdown' to activate interfaces.
7. Configure Static NAT on R1:
   - Map inside local to global using: ip nat inside source static 10.0.0.10 50.0.0.10
   - Define Fa0/0 as inside: interface Fa0/0 → ip nat inside
   - Define Serial0/0/0 as outside: interface Serial0/0/0 → ip nat outside
8. Configure Static NAT on R2:
   - Map inside local to global using: ip nat inside source static 192.168.1.10 200.0.0.10
   - Define Fa0/0 as inside and Serial0/0/0 as outside as done in R1.
9. Configure static routing:
   - On R1: ip route 200.0.0.0 255.255.255.0 100.0.0.2
   - On R2: ip route 50.0.0.0 255.0.0.0 100.0.0.1
10. Test NAT configuration:
    - From Laptop0: Run ipconfig → ping 200.0.0.10 → ping 192.168.1.10
    - Only 200.0.0.10 should respond (due to NAT configuration).
    - Open web browser on Laptop0 → access 200.0.0.10 → it should load.

- Repeat the same on Laptop1 → it should fail because NAT is not configured for 10.0.0.20.

11. Verify translation:
    - Use 'show ip nat translation' on routers to confirm mapping.
    - NAT hides original IP addresses, routers only see translated IPs.

OUTPUT:



RESULT:

Static NAT was configured successfully in Cisco Packet Tracer. NAT translated the inside local IP address to an inside global IP address, allowing external communication with a server on a different network.