Exp No: 04 Configure Dynamic NAT in Cisco Packet Tracer

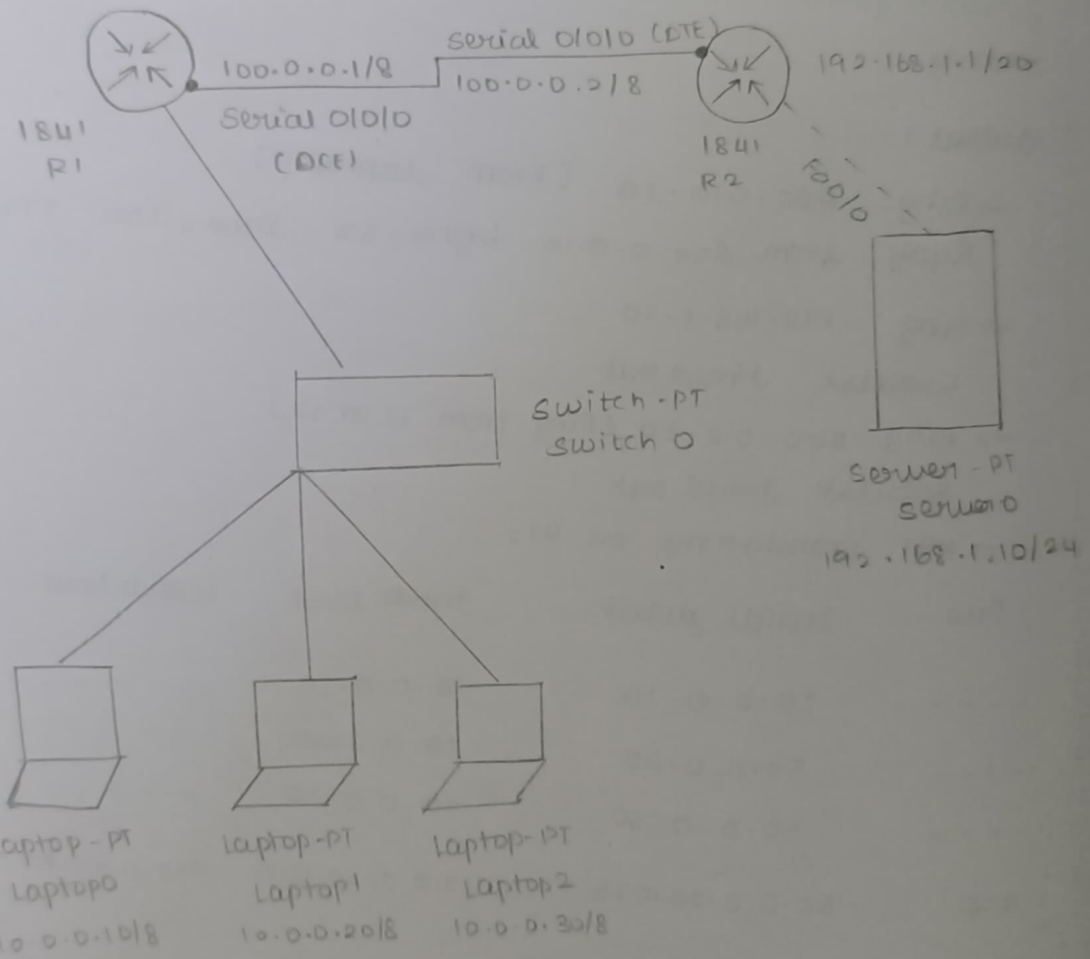
Date: 18/08/25

Aim:

To configure and verify Dynamic NAT on Router 1 and static NAT on Router 2 in Cisco packet tracer, enabling internal hosts to access an external server using a shared pool of public IP addresses.

Procedure:

1. Build the topology
   1. Add 2 routers (R1, R2), 3 laptop and 1 server
   2. Insert WIC-2T modules into both routers to enable serial ports.
   3. connect
      a. Laptops → R1
      b. R1 → R2
      c. R2 → server
2. Assign IP address:
   1. Give IP address to all laptops and server manually in desktop → IP Config
   2. Configure R1 and R2 interfaces with suitable IP address for LAN and serial connections.
3. Configure dynamic NAT on R1:
   1. Create an ACL (Access Control List) to allow only some laptop IPs.
   2. Define a NAT pool with public IPs
   3. Bind ACL with NAT pool
   4. Mark LAN interface as inside and serial interface as outside.


Serial 0/0/0 (DTE)
100.0.0.1/8
100.0.0.2/8
192.168.1.1/20
1841
R1
Serial 0/0/0
(DCE)
1841
R2
Fa0/0
Switch-PT
Switch 0
Server-PT
Server 0
192.168.1.10/24
Laptop-PT
Laptop0
10.0.0.10/8
Laptop-PT
Laptop1
10.0.0.20/8
Laptop-PT
Laptop2
10.0.0.30/8

4. Setup Routing

1. Add static routes so that

a. Internal network can reach the public net

b. Router knows how to reach the server net

5. Testing:

1. From PC0, ping Server's public IP → should succ

2. From PC1, ping Server's public IP → should

3. From PC2, ping Server's public IP → should

4. Check all the PCs share the same public IP but with different port numbers.

6. Verification:

1. On Router check NAT table to see multiple inside local IPs mapped to the same single IP with different ports

2. Verify ACL routers to confirm traffic is being matched.

Output:

→ Ping 200.0.0.10

Pinging 200.0.0.10 with 32 bytes of data

Reply from 200.0.0.10 bytes=32 time=13ms TTL=126

Reply from 200.0.0.10 bytes=32 time=13ms TTL=126

Reply from 200.0.0.10 bytes=32 time=13ms TTL=126

Ping statistics for 200.0.0.10

Packets sent=4, Received=4, lost=0 (0% loss)

Approximate round trip times in milli-seconds

Minimum=12ms, Maximum=14ms, Average=13ms

→ ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data.

Reply from 10.0.0.1 : Destination host unreachable

Reply from 10.0.0.1 : Destination host unreachable

Request timed out.

Ping statistics for 192.168.1.10

Packets Sent = 4, Received = 0, Lost = 4 (100% loss)

→ R2 # show ip nat translations

Pro	Inside global	Inside local	Outside local	Outside global
---	200.0.0.10	192.168.1.10	---	---
tcp	200.0.0.10:80	192.168.1.10:80	50.0.0.1:1025	50.0.0.1:1025
tcp	200.0.0.10:80	192.168.1.10:80	50.0.0.1:1025	60.0.0.2:1025

Result:

Thus the dynamic NAT is successfully configured and verified.