# CN LAB EXAMINATION REPORT

## Aim

To create and configure a suitable network topology involving both LAN and WAN using Cisco Packet Tracer. The setup includes 10-12 computers, switches, and routers, aiming to simulate the transmission of messages from computers in one network to computers in another network, ensuring proper connectivity and communication across different networksegments.

## Procedure

1. **Topology**

**DesignLAN**

**Configuration**:

1. Designed a network topology with 12 computers connected to 2 switches, ensuring adequate connectivity within the LAN segment.
2. Implemented WAN configuration to connect the two LANs using 2 routers, establishing a broader network structure for communication.

**2. Network Setup in Cisco Packet Tracer Add Devices**:

1. Placed and connected 10 computers in two separate LAN segments:o     **LAN 1**: 5 computers
   o   **LAN 2**: 5 computers
2. Added 2 switches to manage connections within each LAN.
3. Introduced 2 routers to facilitate WAN connectivity.

**Configure IP Addresses**:

1. Assigned unique IP addresses to all computers: o     **LAN 1**: 192.168.1.1 to 192.168.1.6 o     **LAN 2**: 192.168.2.1 to 192.168.2.6
2. Configured router interfaces with appropriate IP addresses:o
   **Router 1** (LAN 1 interface): 192.168.1.254 o **Router 2** (LAN 2 interface): 192.168.2.254 o                **WAN link**:
   - Router 1: 10.0.0.1
   - Router 2: 10.0.0.2

3. Set up routing protocols:

o  Router 1: Configured with RIP.

oRouter 2: Configured with OSPF. **3.**

**Configuration Steps LAN Configuration**:

1. Connected computers to the switches using appropriate network cables (copperstraight-through).
2. Configured unique IP addresses on each computer, ensuring they were within thesame subnet.
3. Connected the switches to ensure communication across devices within the LAN.

**WAN Configuration**:

1. Connected the routers to each other using serial cables to establish the WANconnection.
2. Configured the router interfaces with IP addresses that facilitate communicationacross the WAN.
3. Set up routing:
   o  On Router 1:

   ```
       bash   Copy   code
   enable    configure
   terminal   router   rip
   version   1    network
   192.168.1.0    network
   ```

   10.0.0.0  o On Router 2:

   ```
   bash Copy code enable
   configureterminal router ospf 1
   network 192.168.2.0 0.0.0.255
   area 0
   network 10.0.0.0 0.0.0.255 area 0
   ```

4. **Simulatio**

**nSend a**

**Message**:

1. Utilized Cisco Packet Tracer's simulation mode to monitor network activity.
2. Configured and sent a message from a computer in LAN 1 (e.g., PC_123) to acomputer in LAN 2 (e.g., PC_127).
3. Captured and verified the message transmission, ensuring successful delivery to thedestination computer.

## Result

**Network Topology and Configuration**:

- **LAN Setup**: o **Computers**: 12 computers were successfully placed andconnected. o    **Switches**: 2 switches managed LAN connections.
  - o **IP Configuration**: Unique IP addresses were assigned within the samesubnet for all computers.
- **WAN Setup**: o    **Routers**: 2 routers were configured to connect the twodistinct LANs.
  - o **Router IP Configuration**: Routers were assigned IP addresses to enableconnectivity. o**Routing Protocols**:
    - ▪ RIP was implemented on Router 1.
    - ▪ OSPF was configured on Router 2.

**Message Transmission**:

- A message was successfully sent from a computer in LAN 1 to a computer inLAN 2.
- Simulation mode in Cisco Packet Tracer confirmed that the message was routedcorrectly through the WAN and received at the destination computer.

**Screenshots:**
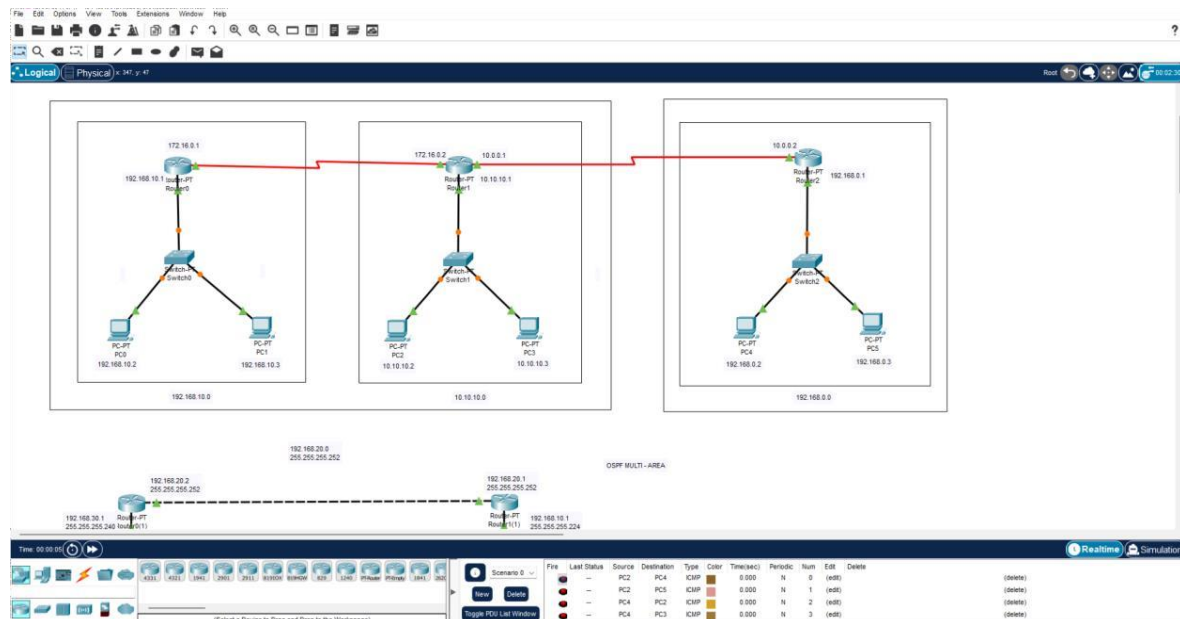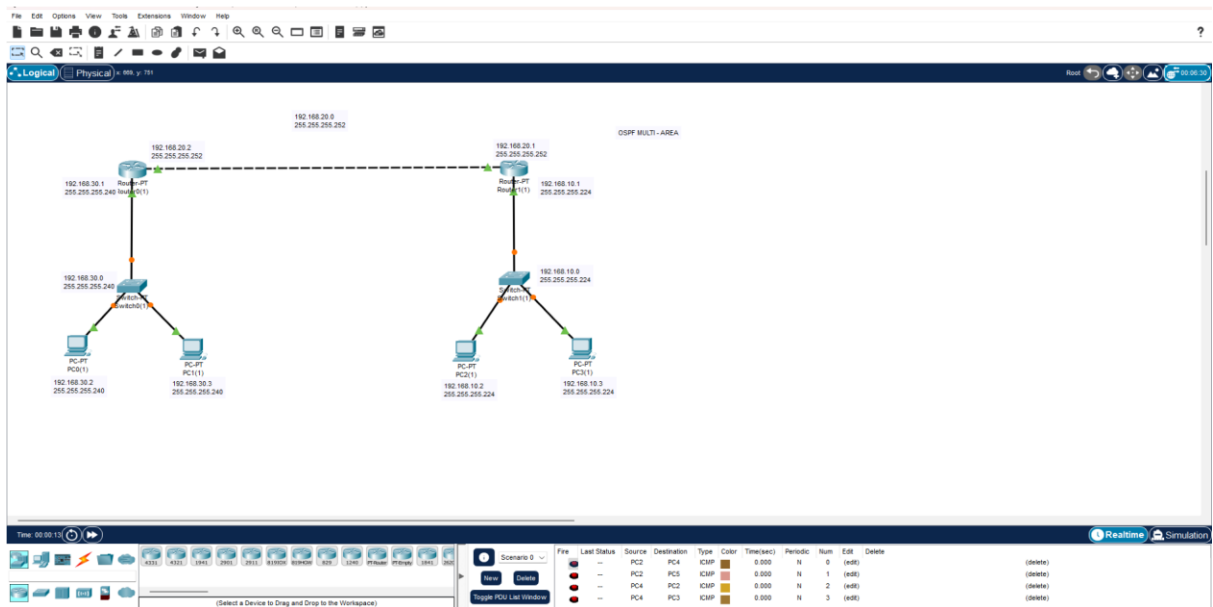
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