Computer Networks: Network Topologies

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To perform network topologies like star, bus, and ring using Cisco Packet Tracer, you'll need to understand the basic setup for each topology. Below are steps for simulating these topologies:

1. **Star Topology**

In a star topology, all devices (nodes) are connected to a central device, typically a switch.

Steps:

- Open Cisco Packet Tracer.
- Drag and drop a switch onto the workspace.
- Add PCs or laptops (end devices).
- Connect each PC to the switch using copper straight-through cables.
- Configure IP addresses for each device.
- Ping between the devices to verify connectivity.

Example Setup:

- Drag a **2960 Switch** and four **PCs** from the device section.
- Connect each PC to the switch using the **Copper Straight-Through** cable.
- Assign IP addresses manually to each PC by clicking on the PC, then going to the **Desktop** tab and selecting **IP Configuration**.

Using ping command

To use the `ping` command in Cisco Packet Tracer for testing connectivity between devices (e.g., PCs, routers), follow these steps:

Using Ping from a PC

1. **Set Up IP Addresses**:
    - Ensure that each device in your network has a unique IP address and that the devices are connected through switches, routers, or hubs.
    - To assign IP addresses, click on the PC, go to the **Desktop** tab, and select **IP Configuration**.
2. **Access the Command Prompt**:
    - Click on the PC you want to test.
    - Go to the **Desktop** tab.
    - Select **Command Prompt**.

3. **Use the Ping Command**:
    - In the command prompt, type the following:

      ```
      ping <target_ip_address>
      ```

      Replace `<target_ip_address>` with the IP address of the device you want to ping.

    - Example:

      ```
      ping 192.168.1.2
      ```

4. **View Results**:
    - If the devices are properly connected, you will see a successful response showing the time it took for the packets to reach the destination.
    - If there is an issue, you'll see messages like "Request timed out."

Example Scenario:

1. Connect three PCs with a switch and assign the following IP addresses:
    - **PC1**: 192.168.1.1
    - **PC2**: 192.168.1.2
    - **PC3**: 192.168.1.3
2. Open the **Command Prompt** on **PC1** and type:

   ```
   ping 192.168.1.2
   ```

3. If the connection is successful, you should see a response similar to:

   ```
   Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
   ```

This process will help you verify whether devices in your network are connected properly.