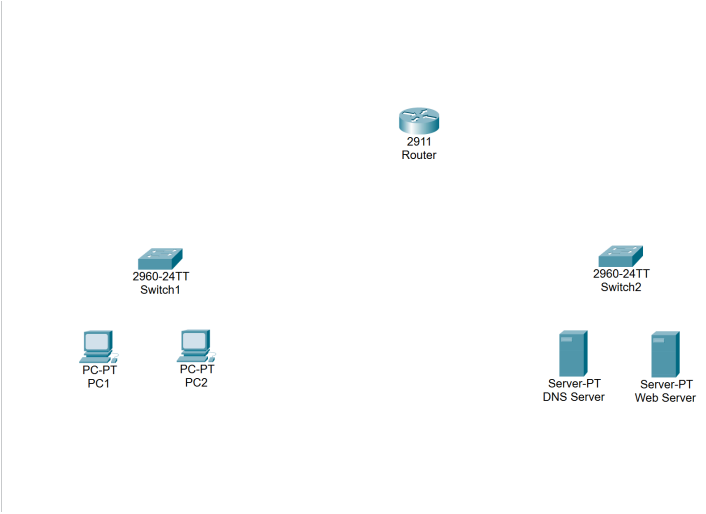
System Architecture Diagram

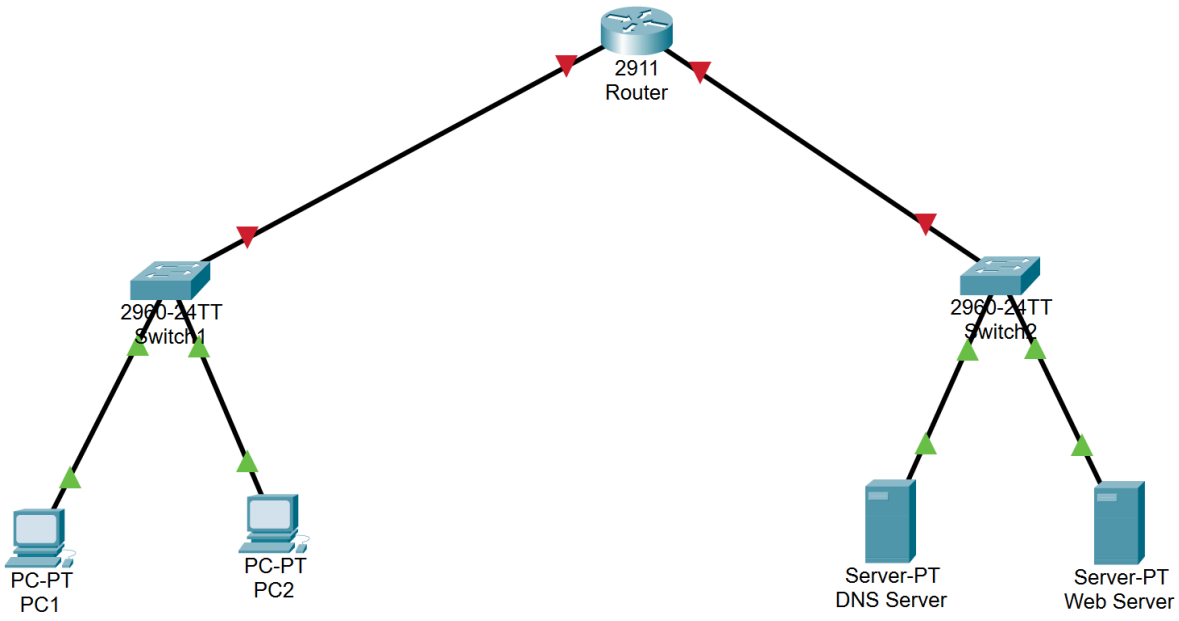
Summary

- **Step 1**
  - Start by identifying core components: router, switches, servers, and end devices.
    - **Router** - Connects multiple networks together and enables communication between them
    - **Switches** - Distribute the network to multiple devices within a Local Area Network (LAN)
    - **Servers** - A Web Server adn a DNS Server hosted in the same network
    - **End Devices** - Workstations, such as laptops or PC's, used by employees or admins
  - Visualization
    - **The router** in the middle connecting everything
    - **Switches** below the router to connect different devices
    - **Servers** and **end devices** below the switches
  - Diagram for Step 1

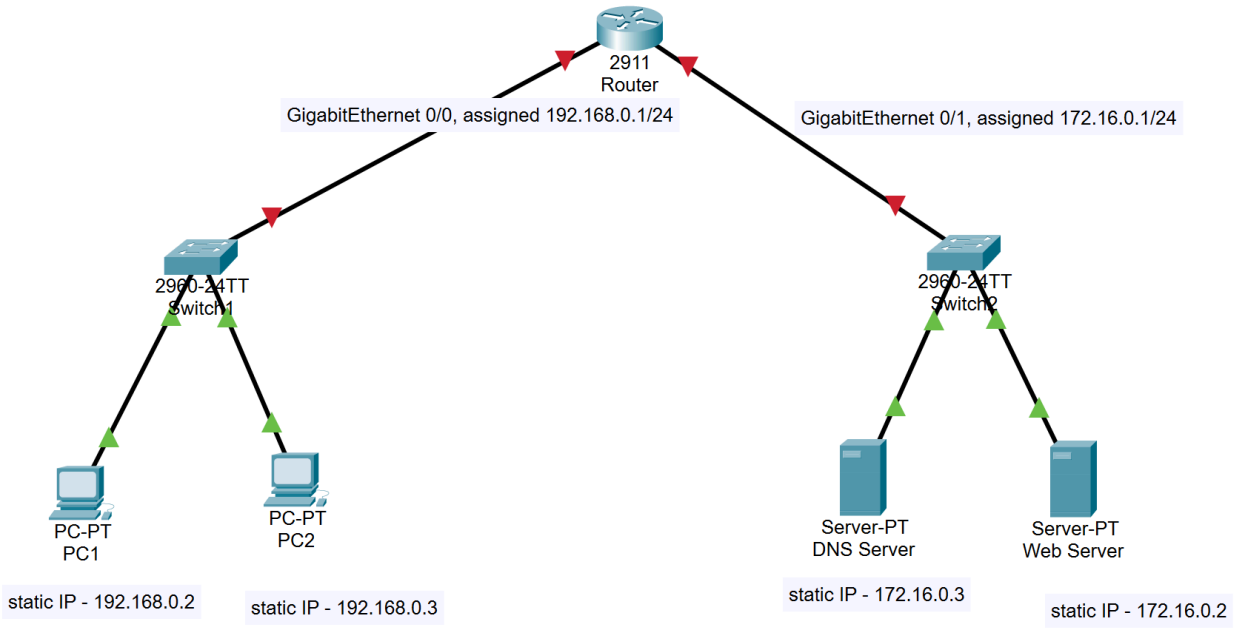


- **Step 2**
  - **Representing the Data Flow** /// Connecting the devices by linking the router to switches, and switches to the devices.
    - **Router to Internet**: The router connects the internal network to the external internet.
    - **Router to Switches**: Connect the router to the two switches, one for the employee network (Workstations) and one for the server network (Web and DNS Servers).
    - **Switches to Devices**: Workstations connect to **Switch 1**; Servers connect to **Switch 2**.

- The **Router** allows the two LANs to communicate with each other (e.g., employees can access the Web and DNS servers).
- Diagram for Step 2



- **Step 3**
  - Assigning IP addresses to each device to facilitate communication.
    - **Router**: Assign IP addresses for each interface connecting to the two LANs (e.g., `192.168.0.1` for LAN 1, `172.16.0.1` for LAN 2).
    - **Devices**: Assign IP addresses to the **end devices** and **servers** within their subnet (e.g., `192.168.0.2` for Workstation1, `172.16.0.2` for Web Server).
  - **Important**: Use **subnet masks** to ensure each subnet is well-defined (e.g., `255.255.255.0` or `/24`).
  - Diagram for Step 3



- **Step 4**
  - Adding data flow paths to show how data moves between components /// Testing the Network
    - **Workstations** can access the **Web Server** and **DNS Server** by sending requests through **Switch 1** → **Router** → **Switch 2**.
    - Both LANs can access the **internet** via the **Router**.
  - Diagram for Step 4