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NPS LAB EXPERIMENT-11

Step 1: Setting Up Devices

1. Open Cisco Packet Tracer and drag the following devices onto the workspace:
    - 3 PCs (PC0, PC1, PC2)
    - 2 switches (Switch0 and Switch1)
    - 1 server (Server0)
    - 1 router (Router0)

Step 2: Configure PCs

1. Click on each PC (PC0, PC1, PC2), go to the Desktop tab, and select IP Configuration.
2. Assign IP addresses manually, or set to DHCP if using a DHCP server.
    - Example configuration:
        - PC0: IP - 192.168.1.2, Subnet Mask - 255.255.255.0
        - PC1: IP - 192.168.1.3, Subnet Mask - 255.255.255.0
        - PC2: IP - 192.168.1.4, Subnet Mask - 255.255.255.0
    - Set the default gateway to 192.168.1.1 (matching the router's IP).

Step 3: Configure the Router (Router0)

1. Click on the router, go to Config or CLI mode.
2. Configure IP addresses for the router's interfaces:
    - GigabitEthernet0/0/0 (connected to Switch0): IP - 192.168.1.1
    - GigabitEthernet0/0/1 (connected to Switch1): IP - 192.168.2.1
3. In CLI, enable each interface with `no shutdown`.

Step 4: Configure Server0

1. Click on Server0 and go to the Desktop tab, then IP Configuration.
2. Assign an IP address for Server0:
    - IP - 192.168.2.2, Subnet Mask - 255.255.255.0
    - Default Gateway - 192.168.2.1 (router's interface IP on this network)

Step 5: Configure DHCP Server on Server0

1. Click on Server0, go to Services > DHCP.
2. Enable DHCP service and configure a DHCP pool:
    - Pool Name: Network1
    - Default Gateway: 192.168.1.1
    - DNS Server: 192.168.2.2
    - IP Address Range: Start - 192.168.1.2, End - 192.168.1.254
3. Save the configuration.

Step 6: Configure DNS Server on Server0

1. In Server0, go to Services > DNS.
2. Enable DNS service and add DNS records:
    - Example: www.example.com pointing to 192.168.2.2 (Server0's IP)
3. Save the DNS configuration.

Step 7: Configure FTP and HTTP Services on Server0

1. FTP Service:
    - Go to Services > FTP on Server0.
    - Enable FTP service and add a user with a username and password.
2. HTTP Service:
    - Go to Services > HTTP on Server0.
    - Enable HTTP service and optionally modify the default webpage content for testing.

Step 8: Configure Syslog Service on Server0

1. Go to Services > Syslog on Server0.
2. Enable Syslog service to log messages from network devices (e.g., router, switches).

Step 9: Optional - Configure Static Routing on Router0

1. If more networks are added, configure static routes to reach them:
    - In Router0 CLI: use `ip route 192.168.2.0 255.255.255.0 <next hop IP>` as needed.

Step 10: Test Network Connectivity

1. Test DHCP:
    - On each PC (PC0, PC1, PC2), set IP configuration to DHCP and verify they receive IP addresses from the specified range.
2. Test DNS Resolution:
    - On any PC, open Command Prompt and run `ping www.example.com` to verify DNS resolution.
3. Test FTP and HTTP Access:
    - On any PC, open the Web Browser and navigate to `http://192.168.2.2` for HTTP testing.
    - Use `ftp 192.168.2.2` in Command Prompt to test FTP access.
4. Check Syslog Logs:
    - Verify that any system logs from the router or switches appear on Server0 under the Syslog tab.

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