

## Packet Tracer Lab

### Working with the Application Layer: DHCP, DNS, and HTTP

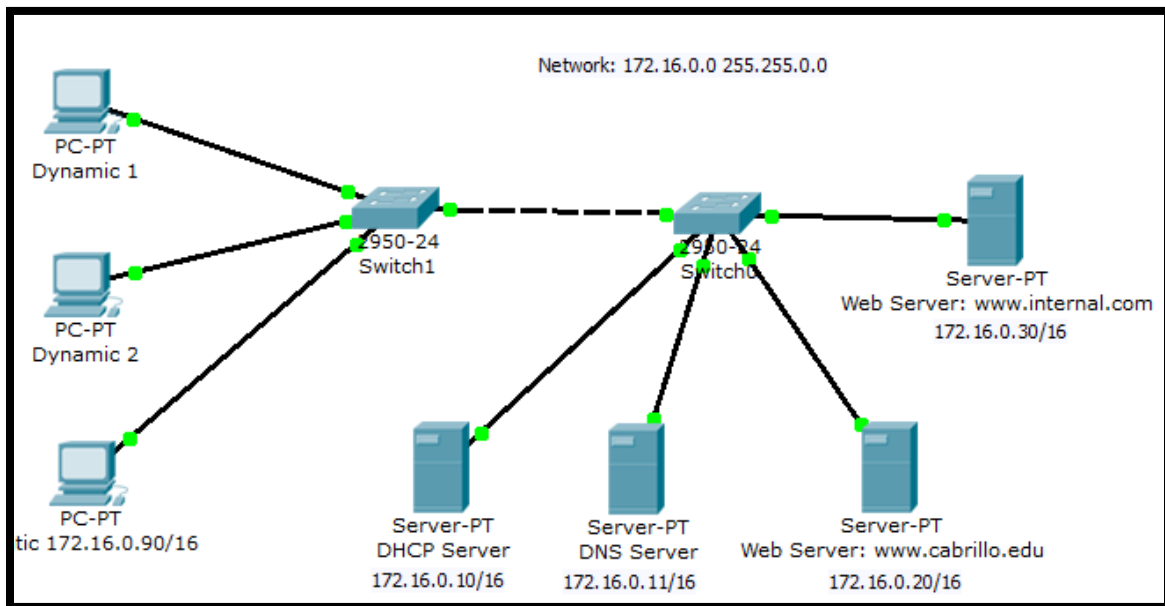


Figure 1: This is an example of what your final topology should look like.

### Experiment Procedure:

1. Start Packet Tracer using **Realtime** mode.

#### 2. **Configuring the DHCP Server**

Add a server.

##### **Global Settings of DHCP server:**

- Change the Display Name to **“DHCP Server”**
- Set the Gateway to **172.16.0.1**

FastEthernet:

- Set the IP address to **172.16.0.10**
- Set the Subnet Mask to **255.255.0.0**

HTTP:

- Set HTTP Service and HTTPS Service to **Off**

DHCP:

- Set the Default Gateway to **172.16.0.1**
- Set the DNS Server to **172.16.0.11**
- Set the Start IP Address to **172.16.0.100**

DNS:

- Set the Service to **Off**

## 2. Configuring the DNS Server

Add a server.

Global Settings:

- Change the Display Name to “**DNS Server**”
- Set the Gateway to **172.16.0.1**

FastEthernet:

- Set the IP address to **172.16.0.11**
- Set the Subnet Mask to **255.255.0.0**

HTTP:

- Set HTTP Service and HTTPS Service to **Off**

DHCP:

- Set the Service to **Off**

DNS:

- Entering the www.tsrb.edu Domain Name
  - Enter for the Domain Name **www.tsrb.edu**
  - Enter for IP Address **172.16.0.20**
  - Click **Add**
- Entering the www.internal.com Domain Name
  - Enter for the Domain Name **www.internal.com**
  - Enter for IP Address **172.16.0.30**
  - Click **Add**

## 3. Configuring the www.tsrb.edu Web Server

Add a server.

Global Settings:

- Change the Display Name to “**Web Server: www.tsrb.edu**”
- Set the Gateway to **172.16.0.1**

FastEthernet:

- Set the IP address to **172.16.0.20**
- Set the Subnet Mask to **255.255.0.0**

DHCP:

- Set the Service to **Off**

DNS:

- Set the Service to **Off**

HTTP

- Change the sentence, “<hr>Welcome to Packet Tracer 5.0, the best thing since..... Packet Tracer 4.0.” to “<hr> Welcome to Tsrb's public web page!” You may add other information as well.

## 4. Configuring the www.internal.com Web Server

Add a server.

Global Settings:

- Change the Display Name to “**Web Server: www.internal.com**”
- Set the Gateway to **172.16.0.1**

FastEthernet:

- Set the IP address to **172.16.0.30**
- Set the Subnet Mask to **255.255.0.0**

DHCP:

- Set the Service to **Off**

DNS:

- Set the Service to **Off**

HTTP

- Change the sentence, “<hr>Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open to “<hr> This is the corporate internal network!” You may add other information as well.

#### 5. Configure Two Client Computers using DHCP

Add two client computers.

Global Settings:

- Change the Display Names to “**Dynamic 1**” and to “**Dynamic 2**” respectively
- Set the Gateway/DNS to **DHCP**

FastEthernet:

- Set the IP Configuration to **DHCP**

#### 6. Configure One Client Computers using Static IP Addressing

Add two client computers.

Global Settings:

- Change the Display Name to “**Static**”
- Set the Gateway/DNS to **Static**
  - Set Gateway to **172.16.0.1**
  - Set the DNS Server to **172.16.0.11**

FastEthernet:

- Be sure the configuration is set to **Static**
- Set the IP address to **172.16.0.90**
- Set the Subnet Mask to **255.255.0.0**

#### 7. Adding switches

- Add two switches.
- Connect the servers to one switch using a straight-through cable.
- Connect the client computers to the other switch using a straight-through cable.
- Interconnect the two switches using a crossover cable.

#### 8. Verify connectivity

- Ping (ICMP)

- From a client computer use the Desktop Command prompt to ping the other client computers and the servers.
- Example: From the Dynamic 1 client, C> **ping 172.16.0.20**
- The first one or two pings may fail, but you should receive a reply on the later pings. This is due to the ping timing out while the ARP process takes place (later).
- Web Browser (HTTP)
  - On the client computers use the Desktop Web Browser, enter the URLs of the Web Servers `www.tsrb.edu` and `www.internal.com`.
  - You should see the web pages that you created on these servers.

## 9. Using Simulation Mode

Click on Simulation.

Note: To reset a simulation, click on “Reset Simulation”

Click on Edit Filters

- Choose **Show All/None** so that all the boxes (protocols) are unchecked.
- Select (check) the following protocols: **DHCP, ICMP, HTTP, DNS.**

### Check the Web Browser (HTTP)

- On the client computers use the Desktop Web Browser, enter the URLs of the Web Servers `www.tsrb.edu` or `www.internal.com`.
- Click on **Auto Capture/Play** (automatically forwards the packets) or **Capture Forward** (must keep clicking to advance the packets)

### Check the DHCP

- Reset the simulation by clicking on “Reset Simulation”
- To view DHCP, on one of the “Dynamic “client computers using DHCP go to the Desktop Command prompt.
- To have the client computer ask for new IP address and other information from the DHCP server, enter the command: C> **ipconfig /renew**

## Questions (put the answer in your report)

1. Repeat the experiment by putting router between the switch and the DNS and Web server as shown in figure 2.
2. Explain the job of DNS server.
3. Explain the job of the router in figure 2.

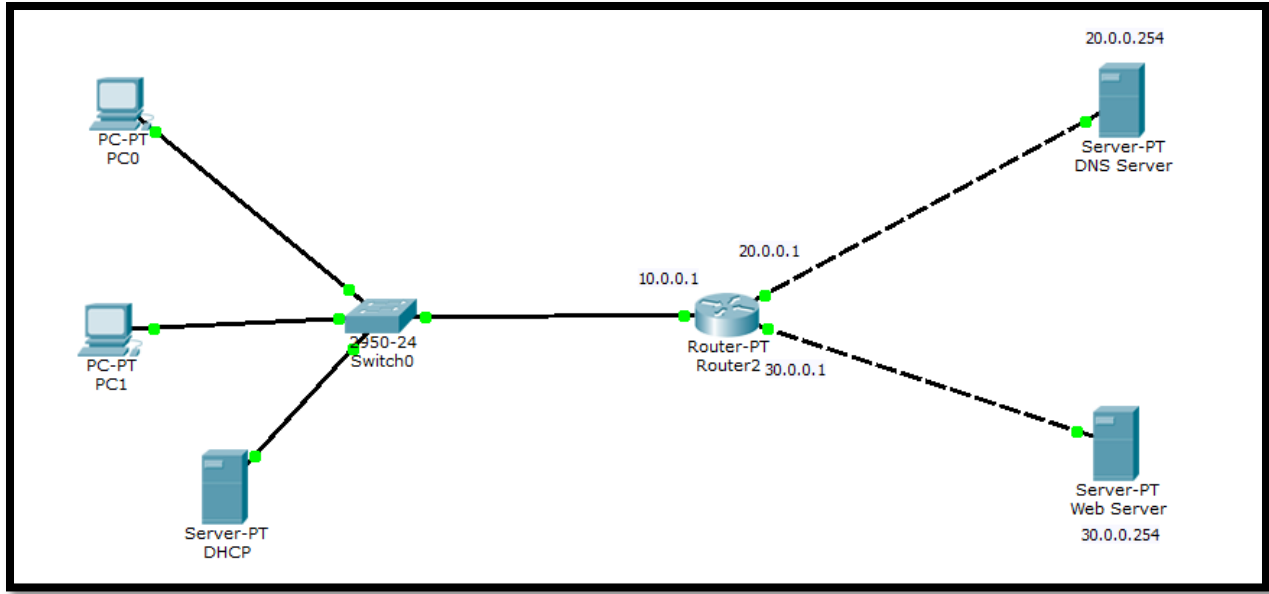


Figure 2

4.