Lab 2: DNS

Module Leader: Dr. Amal ElNahas
Teaching Assistants: Noran AboDoma
Sarah Akram

DHCP, DNS & HTTP...

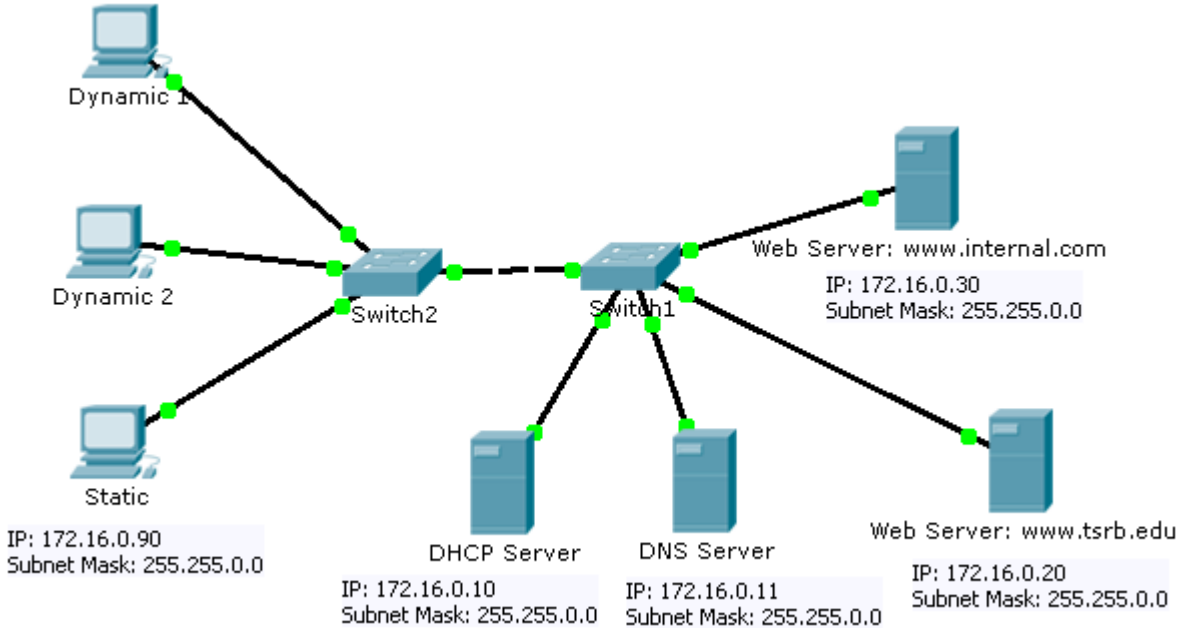
We'll start our lab with three protocols we'll be using for the day…

DHCP: Dynamic Host Configuration Protocol is a framework for automatically passing configuration information to hosts on a TCP/IP network.

DNS: Domain Name System (or Service, or Server) is an internet service that translates domain names into IP addresses.

HTTP: Hypertext Transfer Protocol is the underlying protocol used by the World Wide Web, which defines how messages are formatted and transmitted.

DNS Experiment



Let's create this network and then we'll show you how to configure it step-by-step.

Connect End devices to Switches using straight-through cables. Connect Switch to Switch using Cross-Over cable.

DNS Experiment

1)Switch to Realtime mode.

2)Configure DHCP server:

Global Settings:

Display Name: “DHCP Server”

Gateway: 172.16.0.1

Fast Ethernet:

IP Address: 172.16.0.10

Subnet Mask: 255.255.0.0

HTTP: Set HTTP and HTTPS services to OFF.

DHCP:

Gateway: 172.16.0.1

DNS Server: 172.16.0.11

Start IP Address: 172.16.0.100

DNS: Set the server to OFF.

DNS Experiment

3)Configure DNS Server

Global Settings:

Display Name: “DNS Server”

Gateway: 172.16.0.1

Fast Ethernet:

IP Address: 172.16.0.11

Subnet Mask: 255.255.0.0

DHCP: Set the service to OFF

HTTP: Set HTTP and

HTTPS services to OFF

DNS: Set to ON

Entering the www.tsrb.edu

*Enter Domain Name www.tsrb.edu

*Enter IP Address 172.16.0.20

*Click Add

Entering the www.internal.com

*Enter Domain Name www.internal.com

*Enter IP Address 172.16.0.30

*Click Add

DNS Experiment

4)Configuring the www.tsrb.edu Web Server

Global Settings:

Display Name: “Web Server: www.tsrb.edu”

Gateway: 172.16.0.1

Fast Ethernet:

IP Address: 172.16.0.20

Subnet Mask: 255.255.0.0

DHCP: Set the service to OFF

DNS: Set the Service to OFF

HTTP:

Change the sentence to

<hr> Welcome to Tsrb’s public web page!

DNS Experiment

5)Configuring the www.internal.com Web Server

Global Settings:

Display Name: “Web Server: www.internal.com”

Gateway: 172.16.0.1

Fast Ethernet:

IP Address: 172.16.0.30

Subnet Mask: 255.255.0.0

DHCP: Set the service to OFF

DNS: Set the Service to OFF

HTTP:

Change the sentence to

<hr> This is the corporate internal network!

DNS Experiment

6) Configure two Client computers using DHCP

Global Settings:

Display Name “Dynamic 1” and “Dynamic 2”

Set the Gateway/DNS to DHCP

Fast Ethernet: Set the IP Configuration to DHCP

DNS Experiment

7)Configure One Client computer using Static IP Addressing

Global Settings:

Display Name: “Static”

Set the Gateway/DNS to Static

Gateway: 172.16.0.1

DNS Server 172.16.0.11

Fast Ethernet:

Set the configuration to Static

IP Address: 172.16.0.90

Subnet Mask: 255.255.0.0

DNS Experiment

Now, that the network is configured, let's verify its connectivity

PING (ICMP)

From a client computer use the Desktop > Command prompt to ping the other client computers and the servers

Example: From Dynamic one client: ping 172.16.0.20

Browser (HTTP)

On the client computers use the Desktop > Web Browser, enter the URLs of the Web Servers www.tsrb.edu & www.internal.com.

DNS Experiment

Using the Simulation Mode

Click on Edit Filters > Choose Show All/None and select the following protocols: DHCP, ICMP, HTTP, DNS

Web Browser (HTTP): use Desktop > Web Browser, enter any of the URLs and Click on Auto Capture/Play

DHCP: Click on Reset Simulation

To view DHCP on one of the Dynamic client computers open Desktop Command Prompt and enter “ipconfig /all”

To have the client computer ask for a new IP address enter “ipconfig /renew”

DNS: Enter in the Command Prompt “nslookup” to know the local DNS server.

This was all for today.
Thank you!