SWINBURNE UNIVERSITY OF TECHNOLOGY

TNE20003 – Internet and Cybersecurity for Engineering Applications

Portfolio Task – Lab 5 Credit Task

Aims:

- To observe and investigate the functionality of the TCP and UDP protocols at the transport layer.
- Observe NAT at work and understand the translation process

Preparation:

- View "Transport Layer Services" & "NAT & DHCP"

Due Date:

- All tasks in this lab are to be completed and demonstrated to your Lab instructor preferably during or at the end of the current lab, but if you do not complete the tasks you may demonstrate it at the beginning of your next lab class.

Task 1.

Build the network provided in figure 1 with Cisco Packet Tracer

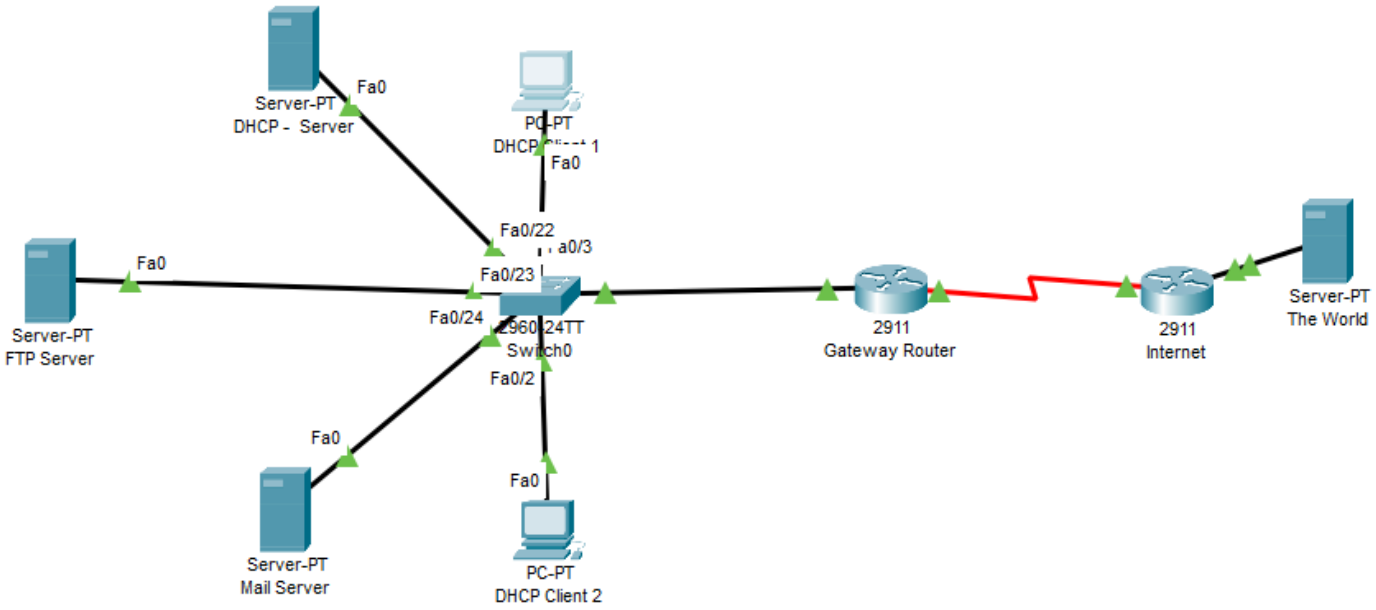


Figure 1

Use the network you built and tested in the Pass task for lab 5 to answer the following questions.

Task 2.

1. Alter the DHCP pool of addresses to 2 instead of 100.

    a. Add another DHCP Client 3 and describe what happens when this client tries to get an IP address. Failed, it would take the APIPA address

    Show this outcome on the simulation. What happens to the broadcast packets sent by the host seeking an IP address? It will send back to switch and then send to the routers but the routers will not send back to DHCP Client 3

    b. What are the src and dst port numbers used? Does it make sense? src: 68, dst: 67. Yes, the DHCP port for the client is 68 while the server is 67

    c. What are the src and dst IP addresses? src IP: 0.0.0.0, dst IP: 255.255.255.255

DHCP and RIPv1. Because we request an DHCP to the DHCP server, and the server will return to the client via the router.

d. Which transport layer protocol is being used? Explain why.

e. If you alter the DHCP pool of addresses to 3 and carry the request from client 3 again what happens? Why?

The response from Gateway Router will send back to Switch and then to DHCP Client 3. Since we have configured the max users as 3, so it will allows for DHCP Client 3 to allocate the IP of the DHCP server

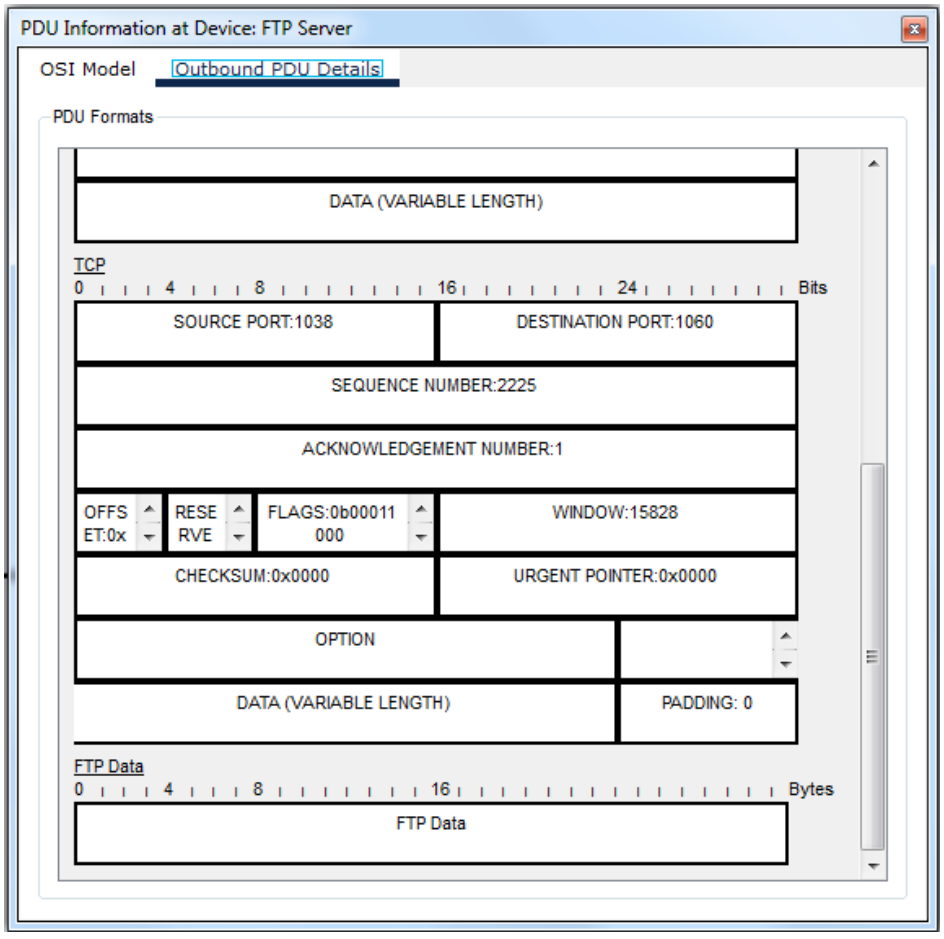
2. Let's investigate the **FTP** server a little bit more.

a. Log into the **ftp** server with username **Dragan** and password **Fire** as in the Pass task.

b. Analyse the packet when you type "**dir**" to see what files are available for copying. What are the src and dst ports used? src: 1025, dst: 21

c. Which part of the ftp process does this output represent? See picture below:

From FTP -> Switch0



~~~~~ End of Lab ~~~~~