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:

- Your Task will be assessed via an online quiz. You must score the required minimum to pass the test. You will be allowed a number of attempts to pass the test at the grade level you attempt. You are encouraged to complete the test at the end of the lab but if you do not, you must complete it before your next lab class.

.

Task 1.

Build the network provided in figure 1 with Cisco Packet Tracer

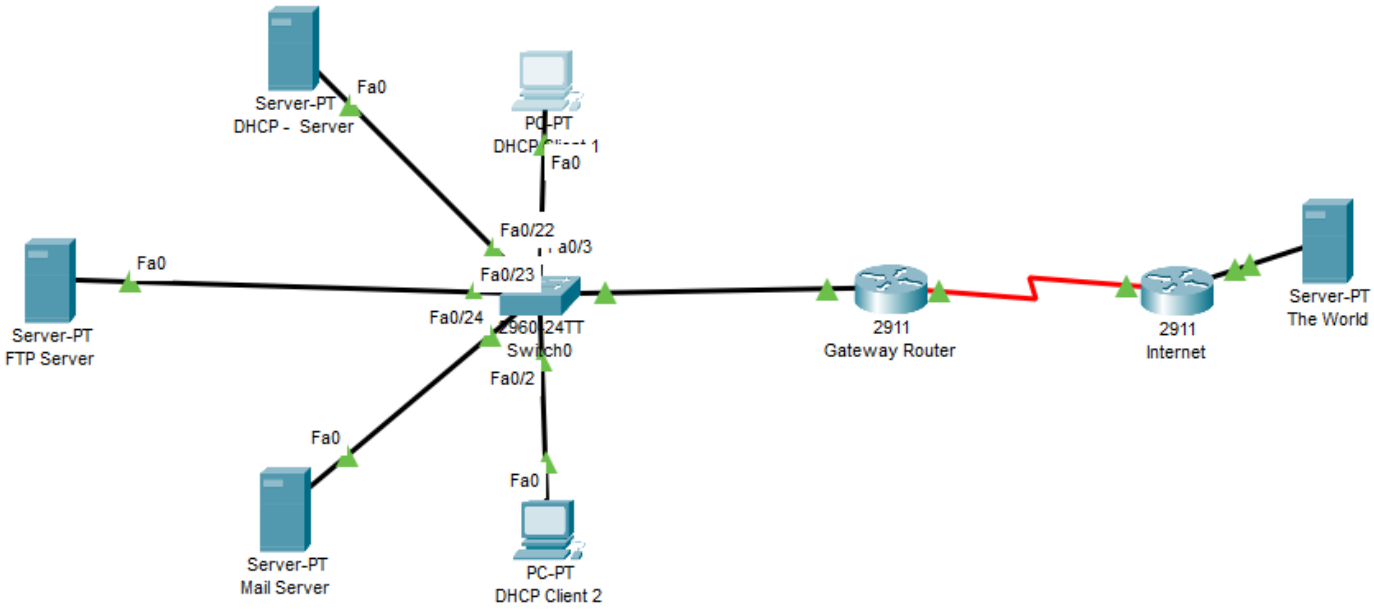


Figure 1

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. Client can not get IP address in the pool

    Show this outcome on the simulation. What happens to the broadcast packets sent by the host seeking an IP address? The broadcast packets for discovering the DHCP server sent by the host are droped by all hosts, including for DHCP server

    b. What are the src and dst port numbers used? Does it make sense?

    source port: 68 (used for client), dest port: 67 (used for server)

    c. What are the src and dst IP addresses?

    Since the IP configuration is not successful, the src IP is 0.0.0.0 and the dest IP is 255.255.255.255

d. Which transport layer protocol is being used? Explain why. UDP, because DHCP uses broadcast traffic so it must be connectionless

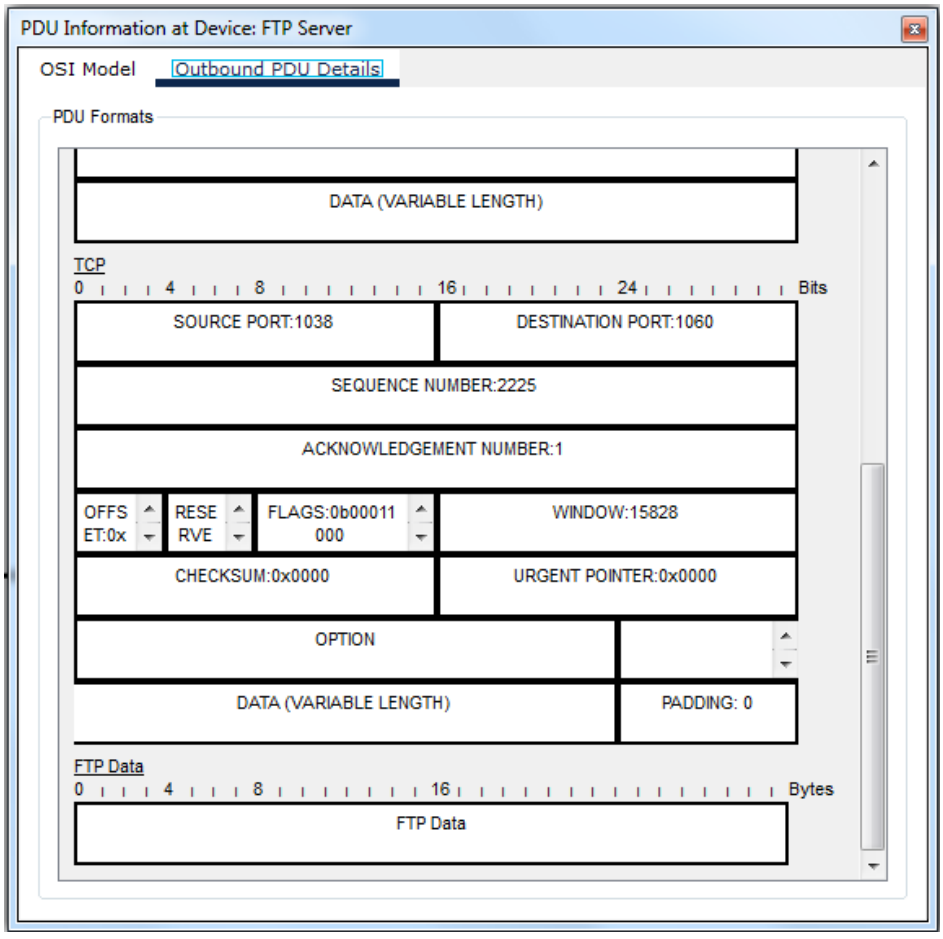
e. If you alter the DHCP pool of addresses to 3 and carry the request from client 3 again what happens? Why? Now the DHCP broadcast discover packet is accepted by only the DHCP sever and the client 3 can get DHCP ip

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 port: 1027, dest port: 21

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



It can be a part of control connection precess of FTP, possibly during the establishment of a connection before the data transfer takes place.

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