TNE20003 – Internet and Cybersecurity for Engineering Applications

Portfolio Task – Lab 5 Distinction Task

Aims:

- Explain & understand NAT at deeper level

Preparation:

- View "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
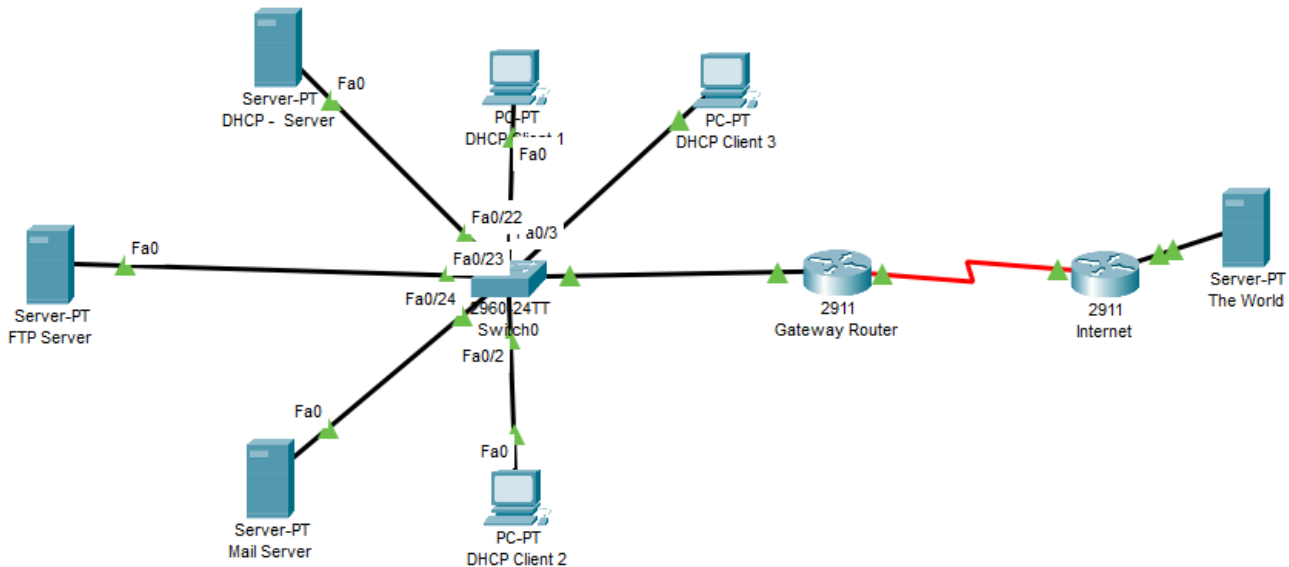

Figure 1

To attempt the D task you must have completed the P and C tasks. Use the network you built and tested in the Credit task for lab 5 to test and answer the following questions.

Task 2.

1. You have implemented NAT successfully in the Pass task.

    a. Now generate some traffic by pinging from DHCP Client 3 to **The World** server located at 136.186.100.2. What happens?

    successfull ping with 4 entries in the ip nat tran table

    b. Are there any address translations on the **Gateway** Router# prompt? Explain

    4 entries in the ip nat table of gateway router because we test the connectivty from the private device (inside) to public device (outside)

    c. Ping **The World** server located at 136.186.100.2 from the **ftp** server. What happens?

    it can not ping the world server

d. How far does the ping from the **ftp** server propagate through the network?

> the ftp server can reach the interface on gateway router pointing to the internet router

e. Were there any translations on the Gateway router? Explain why/why not.

> No, because the ftp server can not reach the outside

f. Change the IP address of DHCP Client 3 to a static address of 192.168.1.80. Ping **The World** server located at 136.186.100.2 from this **PC**. What happens?

g. Part of your output should be as shown in the picture below:

```
Router# sh ip nat tran
Pro  Inside global      Inside local       Outside local      Outside global
icmp 200.8.8.1:5        192.168.1.80:5     136.186.100.2:5    136.186.100.2:5
```

h. What does the **:5** represent?   It represents the port number

i. Now ping from DHCP Client 2 and see the translations. What do you see?   similar ouput

j. What does inside local mean?   It means the private ip address that the administrator can modify

k. Change the IP address of DHCP Client 3 to a static address of 192.168.1.180. Ping **The World** server located at 136.186.100.2 from this **PC**. What happens?   it can not ping the world server

l. Were there any translations on the **Gateway** router? Explain why/why not.

> no, because the ping is not successful. We assigned the static ip for client 3 out of the range the ACL ip permit range. Refer the wildcard mask: permit: 192.168.1.64 - .127

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