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LAB4 Answer Sheets

Instructions: Answer the questions and save this file as

SecID-YourID-Firstname-Lab4-NAT-2022-AnswerSheet.pdf

1. Trace the HTTP messages, and answer the following questions

- a. In which device does the IP address get translated?

Ans: Border Gateway Router

- b. What is the IP address visible to the outside world?

Ans: Source IP: 172.17.0.2

- c. How does the IP address of PC0 and PC1 get translated when PC0 and PC1 send a request to Google? (from which IP to which?)

- **PC0: 192.168.200.101 to 172.16.0.2**
- **PC1: 192.168.200.102 to 172.16.0.2**

2. Go to the CLI of the gateway router and input the following commands:

```
border-gateway> enable
```

```
border-gateway# show ip nat translations
```

- a. Write down the output

| Line# | Pro | Inside Global | Inside Local | Outside Local | Outside Global |
|-------|-----|-----------------|------------------|---------------|----------------|
| 1 | UDP | 172.16.0.2.1032 | 192.168.200.1032 | 172.17.0.2:53 | 172.17.0.2:53 |
| 2 | UDP | 172.16.0.2.1033 | 192.168.200.1033 | 172.17.0.2:53 | 172.17.0.2:53 |
| 3 | TCP | 172.16.0.2.1031 | 192.168.200.1031 | 172.17.0.2:80 | 172.17.0.2:80 |
| 4 | TCP | 172.16.0.2.1032 | 192.168.200.1032 | 172.17.0.2:80 | 172.17.0.2:80 |

- b. Which lines show the DNS requests and which lines show the HTTP requests? And how do you distinguish between them?

Ans: DNS requests appeared at first 2 line and continues with http requests port number DNS use port: 53 and HTTP use port:80

- c. Explain what the following columns mean

- **Inside Global: The private IP address of the private network.**
- **Inside Local: The registered public IP address allocated to host of the private network when it is initiating communication with the outside network.**
- **Outside Local: The registered IP address allocated to the host on the internet.**
- **Outside Global: The local IP address allocated to the host at the public domain.**

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- d. Run the below command on the border-gateway. Screen capture the results and paste the results here.

```
border-gateway# show ip nat statistics
```

```
border-gateway#show ip nat statistics
Total translations: 5 (0 static, 5 dynamic, 5 extended)
Outside Interfaces: Serial0/0
Inside Interfaces: FastEthernet0/0 , FastEthernet0/1
Hits: 188 Misses: 37
Expired translations: 17
Dynamic mappings:
border-gateway#
```

- e. Use the below command to clear the NAT table on the border-gateway. After that, try to show the NAT statistic again. If you do successfully, the “total translations” should be reset to ZERO. Screen capture the results and paste the results here.

```
border-gateway# clear ip nat translation *
```

```
border-gateway# show ip nat statistics
```

```
border-gateway#clear ip nat translation *
border-gateway#show ip nat statistics
Total translations: 0 (0 static, 0 dynamic, 0 extended)
Outside Interfaces: Serial0/0
Inside Interfaces: FastEthernet0/0 , FastEthernet0/1
Hits: 188 Misses: 37
Expired translations: 17
Dynamic mappings:
border-gateway#
```