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Internetworking

CMPT 307N 112

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Lab 12A – Investigating NAT

**Q1**. There are three entries in the NAT Table

**Q2**. Inbound Source: 10.2.0.4 Inbound Destination: 64.100.200.1

Outbound Source: 10.2.0.4 Outbound Destination: 64.100.200.1

No difference, as the packet has not reached the Router yet; where NAT occurs.

**Q3**. Inbound Source: 10.2.0.4 Inbound Destination: 64.100.200.1

Outbound Source: 64.100.100.3 Outbound Destination: 64.100.200.1

There is now a difference in the source address but not the destination address. This makes sense because the source address is set to change in accordance with NAT, however the destination the packet wishes to go to should remain unchanged, as it did.

**Q4**. Inbound Source: 64.100.100.3 Inbound Destination: 64.100.200.1

Outbound Source: 64.100.100.3 Outbound Destination: 172.16.0.3

Now the outbound destination has changed, but the source has not, which makes sense. This is because the outbound destination (aka the destination which would be this/R4’s network) is changed to reflect whatever NAT IP changes are set to make.

**Q5**. R2’s Translation table now includes 2 additional entries:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Pro** | **Inside Global** | **Inside Local** | **Outside Local** | **Outside Global** |
| UDP | 64.100.100.2:1025 | 10.10.10.2:1025 | 64.100.8.8:53 | 64.100.8.8:53 |
| TCP | 64.100.100.3:1025 | 10.2.0.4:1025 | 64.100.200.1:80 | 64.100.200.1:80 |

This is due to the packet I sent on its own network to R4’s network, and shows the changes that occur through the NAT at work.

**Q6**. Network Address Translation allows for hosts who cannot communicate over the internet by normal means (IP Address not unique, globally recognized, or valid) to now converse with others by utilizing temporary “changing” of source and destination addresses. Various reasons/advancements as to why NAT would be used include: originally being the solution to the IP Address shortage IPv4 had to offer, security purposes, a means for a business to organize its department/assets’ communication on the web (divide specific NAT IP Addresses into sections),

**Q7**. New Commands:

Show ip nat translations – Displays the translation table and entries of the router.

ip nat inside source static *local-ip1* *outside-ip1* – establishes the corresponding inside and outside addresses

(config mode) ip nat *inside/outside* – declares which interface is part of the NAT (inside/outside)