Computer Networks Lab, Assignment 8

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1 NAT Measurement Scenario

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1. What is the IP address of the client that sends the HTTP GET request in the nat-inside-wireshark-trace1-1.pcapng trace? What is the source port number of the TCP segment in this datagram containing the HTTP GET request? What is the destination IP address of this HTTP GET request? What is the destination port number of the TCP segment in this datagram containing the HTTP GET request?

IP address of the client that sends the HTTP GET request: 192.168.10.11

Source port number (TCP segment): 53924

Destination IP address: 138.76.29.8

Destination port number: 80

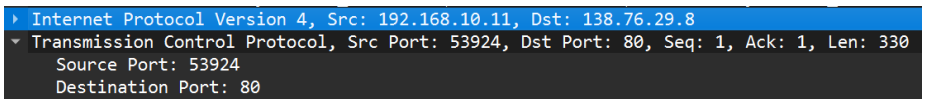

Figure 1: Q1: Ports and IPs

2. At what time is the corresponding HTTP 200 OK message from the web server forwarded by the NAT router to the client on the router's LAN side?

0.030672101 seconds

3. What are the source and destination IP addresses and TCP source and destination ports on the IP datagram carrying this HTTP 200 OK message?

Source IP: 138.76.29.8
Destination IP: 192.168.10.11
TCP source port number: 80
TCP destination port number: 53924

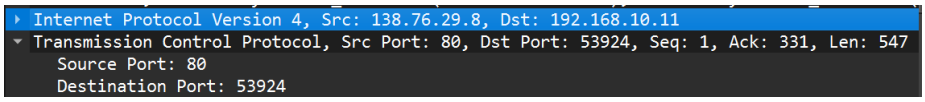

Figure 2: Q3: Ports and IPs

4. At what time does this HTTP GET message appear in the nat-outside-wireshark-trace1-1.pcapng trace file?

At 0.027356291 second

5. What are the source and destination IP addresses and TCP source and destination port numbers on the IP datagram carrying this HTTP GET (as recorded in the nat-outside-wireshark-trace1-1.pcapng trace file)?

Source IP address: 10.0.1.254
Destination IP address: 138.76.29.8
TCP source port: 53924
TCP destination port: 80

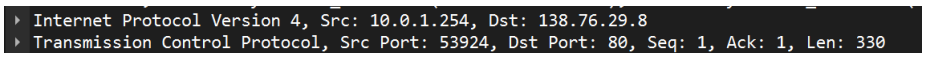

Figure 3: Q5: Ports and IPs

6. Which of these four fields are different from

your answer to question 1 above?

Source IP address address is different.

7.Are any fields in the HTTP GET message changed?

TTL, Header Checksum and Interface ID values are changed.

8. Which of the following fields in the IP datagram carrying the HTTP GET are changed from the datagram received on the local area network (inside) to the corresponding datagram forwarded on the Internet side (outside) of the NAT router: Version, Header Length, Flags, Checksum?

Checksum value is changed. 0x1bea - 0xda9f

9. At what time does this message appear in the nat-outside-wireshark-trace1-1.pcapng trace file?

At 0.030625966 seconds

10. What are the source and destination IP addresses and TCP source and destination port numbers on the IP datagram carrying this HTTP reply ("200 OK") message (as recorded in the nat-outside-wireshark-trace1-1.pcapng trace file)?

Source IP: 138.76.29.8
Destination IP: 10.0.1.254
TCP source port number: 80
TCP destination port number: 53924

11. What are the source and destination IP addresses and TCP source and destination port

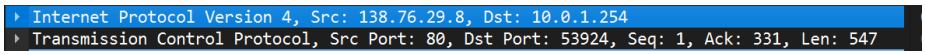

Figure 4: Q10: Ports and IPs

numbers on the IP datagram carrying the HTTP reply ("200 OK") that is forwarded from the router to the destination host in the right of Figure 1?

Source IP: 138.76.29.8
Destination IP: 192.168.10.11
Source Port: 80
Destination Port: 53924

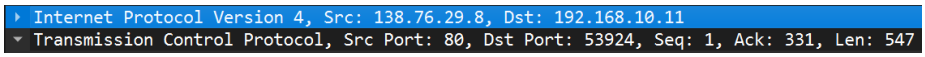

Figure 5: Q11: Ports and IPs