Network communication

Final exercise

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System description:

- files included:
- client.py
- dhcp.py
- dns.py
- http server.py
- whole_run_using_http_tcp.pcapng: is the wireshark capture if user chose 1
- whole run using rudp http.pcapng: is the wireshark capture if user chose 2
- explain video.webm: is the desired video description
- running the program: to run this program we need four files:
 - client.py
 - dhcp.py
 - dns.py
 - http server.py

steps:

- 1. you need to open the terminal from the same path as all of the files are in.
- 2. use "sudo python3 dhcp.py" command on the individual terminal.
- 3. use "sudo python3 dns.py" command on the individual terminal.
- 4. use "sudo python3 http_server.py" command on the individual terminal.
- 5. use "sudo python3 client.py" command on the individual terminal.
- 6. then, on the client terminal you will be asked to choose between TCP or RUDP

- what the program does:

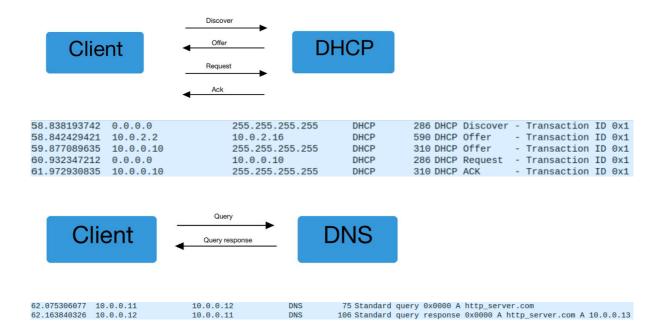
after the user will choose TCP or RUDP the program will execute the next steps:

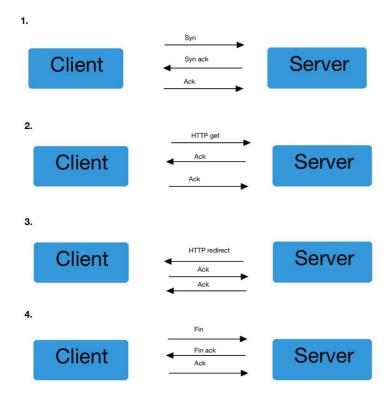
- 1. DHCP server connection to get an IP address for the client to communicate with the DNS and an IP for the DNS server.
- 2. The client sends a query request to the DNS server and then the DNS server responds with the desired HTTP server address.
- 3. The program will create a stable connection between the client and the server based on the user choice, then the client will send a request to the server and then it will respond with "redirect".
- 4. The client sends a DNS query with the new HTTP server address and then the client sends the same get request to the new HTTP server and in response the new server gives the desired data (in our case a creation of a "strong" password).

RUDP

Our RUDP is based on a normal UDP protocol with adjustments of reliability with syn, fin request and ack for each packet.

state diagram:





- how the system handle packet loss:
- at the DHCP level if the client does not get an address it raises an error.
- at the DNS level if the client gets an empty packet it raises an error.
- at the Application level if the user chooses TCP the protocol already handles packet loss, if the user chooses RUDP we would want to raise an error after 5 seconds of no response (we didn't manage to finish this part of timings).
- how does the system handle latency issues?
 we would want to raise an error after 5 seconds of no response (we didn't manage to finish this part of timings).

Questions:

- 1. write at least 4 main differences between TCP protocol and QUIC
- 2. write at least 2 main differences between Cubic and Vegas
- 3. describe BGP protocol, what are the differences between BGP and OSPF and does it work by short paths?
- 4. fill the table based on your project code. describe how the messages will be affected if there is NAT between the user and the server and answer if you will use QUIC protocol.
- 5. describe the differences between ARP protocol and DNS.

Answers:

1.

- TCP is a protocol that uses a reliable connection that ensures data delivery, QUIC is a UDP based protocol that provides a low-latency, encrypted, and reliable connection.
- TCP uses a three-way handshake to get a connection between a client and a server, QUIC using a zero-round-trip connection that allows a client to send data to a server without waiting for the server response. This means that it reduces latency.
- TCP uses slow-start congestion control which makes it work slower sometimes. QUIC uses a congestion control algorithm that works better in modern networks and can quickly adapt to changing network conditions.
- Both TCP and QUIC can provide secure connections. However, QUIC was designed to improve the transport performance for encrypted traffic with faster session setup.

2.

- Cubic assumes that there is a smooth curve function for that reason it works better with polynomial functions. On the other hand vegas randomly sampling points in the range and estimate the value of the function. For that reason

- Vegas works better for high-dimensional integrals and for irregular functions or functions that are difficult to integrate using other methods.
- Cubic is a deterministic method. it will give the same results for the same input data. Vegas is a probabilistic method that can give different results each run because of the random sampling.
- 3. In BGP every router decides what path is best based on what it knows. In OSPF the routers share data to build network topology. OSPF is more used in LAN while BGP in WAN.

BGP does not necessarily work by short paths, there are more factors it takes in mind such as network congestion and peering agreement.

4. *(point of view of the client)

Application	Port Src	Port Des	IP Src	IP Des	MAC Src	MAC Des
DHCP	68	67	0.0.0.0	255.255.255.255	02:42:02:8c:72:a8	ff:ff:ff:ff:ff

Application	Port Src	Port Des	IP Src	IP Des	MAC Src	MAC Des
DNS	5000	53	10.0.0.11	10.0.0.12	02:42:02:8c:72:a8	02:42:02:8c:72:a8

Application	Port Src	Port Des	IP Src	IP Des	MAC Src	MAC Des
TCP	5005	80	10.0.2.15	10.0.2.15	02:42:02:8c:72:a8	02:42:02:8c:72:a8

Application	Port Src	Port Des	IP Src	IP Des	MAC Src	MAC Des
HTTP	5005	80	10.0.2.15	10.0.2.15	02:42:02:8c:72:a8	02:42:02:8c:72:a8

5. ARP(data link layer) and DNS(application layer) work on different layers. ARP protocol purpose is to map IP addresses to MAC addresses in LAN, using dynamic table to store the data for a limited time.

DNS purpose is to map a domain name to an IP address.

wireshark captures:

if user choose TCP:

On rows 3-7 we can notice that there is connection and communication between the client and the DHCP server.

On row 10 there is the DNS query and on row 13 the server response.

On rows 17-37 there is the client-http_server connection (beside rows 25, 27 where there is DNS query and response).

3 1.690436806	0.0.0.0	255.255.255.255	DHCP	288	DHCP Discover - Transaction ID 0x1
4 1.690946473	10.0.2.2	10.0.2.16	DHCP	592	DHCP Offer - Transaction ID 0x1
5 1.817595991	10.0.0.10	255.255.255.255	DHCP	312	DHCP Offer - Transaction ID 0x1
6 2.849092719	0.0.0.0	10.0.0.10	DHCP	288	DHCP Request - Transaction ID 0x1
7 2.971273299	10.0.0.10	255.255.255.255	DHCP	312	DHCP ACK - Transaction ID 0x1
8 3.051114490	PcsCompu_e4:7d:89		ARP	44	Who has 10.0.2.2? Tell 10.0.2.15
9 3.051407635	RealtekU_12:35:02		ARP	62	10.0.2.2 is at 52:54:00:12:35:02
10 3.075349061	10.0.0.11	10.0.0.12	DNS	84	Standard query 0x0000 A http://http_server.com
11 3.291255472	PcsCompu_e4:7d:89		ARP	44	Who has 10.0.2.2? Tell 10.0.2.15
12 3.291835754	RealtekU_12:35:02		ARP	62	10.0.2.2 is at 52:54:00:12:35:02
13 3,307259146	10.0.0.12	10.0.0.11	DNS	122	Standard query response 0x0000 A http://http_server.com A 0.0.0.0
14 5.212336704	10.0.2.15	172.20.10.1	DNS	102	Standard query 0xb5a0 A connectivity-check.ubuntu.com OPT
15 5.212465570	10.0.2.15	172.20.10.1	DNS	102	Standard query 0xca76 AAAA connectivity-check.ubuntu.com OPT
16 5.241427994	10.0.2.15	0.0.0.0	FTP-DATA	57	0 FTP Data: 1 bytes
17 5.381538052	127.0.0.1	127.0.0.1	TCP	76	1 35636 + 80 [SYN] Seq=0 Win=65495 Len=0 MSS=65495 SACK_PERM TSval=294328113 TSecr
18 5,381562949	127.0.0.1	127.0.0.1	TCP	76	1 80 → 35636 [SYN, ACK] Seq=0 Ack=1 Win=65483 Len=0 MSS=65495 SACK_PERM TSval=2943
19 5.382135636	127.0.0.1	127.0.0.1	TCP	68	1 35636 + 80 [ACK] Seq=1 Ack=1 Win=65536 Len=0 TSval=294328113 TSecr=294328113
20 5.382216051	127.0.0.1	127.0.0.1	HTTP	112	1 GET /example.txt HTTP/1.1
21 5.382224343	127.0.0.1	127.0.0.1	TCP	68	1 80 → 35636 [ACK] Seq=1 Ack=45 Win=65536 Len=0 TSval=294328114 TSecr=294328114
22 5.382661833	127.0.0.1	127.0.0.1	TCP	147	1 80 + 35636 [PSH, ACK] Seq=1 Ack=45 Win=65536 Len=79 TSval=294328115 TSecr=2943281
23 5,382674874	127.0.0.1	127.0.0.1	TCP	68	1 35636 + 80 [ACK] Seq=45 Ack=80 Win=65536 Len=0 TSval=294328115 TSecr=294328115
24 5.382703272	127.0.0.1	127.0.0.1	HTTP	68	1 HTTP/1.1 302 Found
25 5.388928899	10.0.0.11	10.0.0.12	DNS	107	Standard query 0x0000 A http://redirected_http_server.com/example.txt
26 5.431530761	127.0.0.1	127.0.0.1	TCP	68	1 35636 → 80 [ACK] Seq=45 Ack=81 Win=65536 Len=0 TSval=294328163 TSecr=294328115
27 5.551797226	10.0.0.12	10.0.0.11	DNS	168	Standard query response 0x0000 A http://redirected_http_server.com/example.txt A
28 5.574310133	127.0.0.1	127.0.0.1	TCP	68	1 35636 → 80 [FIN, ACK] Seq=45 Ack=81 Win=65536 Len=0 TSval=294328306 TSecr=294328.
29 5.574326561	127.0.0.1	127.0.0.1	TCP	68	1 80 + 35636 [ACK] Seq=81 Ack=46 Win=65536 Len=0 TSval=294328306 TSecr=294328306
30 5.574500465	10.0.2.15	10.0.2.15	TCP	76	2 57256 + 80 [SYN] Seq=0 Win=65495 Len=0 MSS=65495 SACK_PERM TSval=1227761463 TSeci
31 5.574512769	10.0.2.15	10.0.2.15	TCP	76	2 80 → 57256 [SYN, ACK] Seq=0 Ack=1 Win=65483 Len=0 MSS=65495 SACK_PERM TSval=1227
32 5.574522626	10.0.2.15	10.0.2.15	TCP	68	2 57256 + 80 [ACK] Seq=1 Ack=1 Win=65536 Len=0 TSval=1227761463 TSecr=1227761463
33 5.574633903	10.0.2.15	10.0.2.15	HTTP	114	2 GET /example.txt HTTP/1.1
34 5.574641981	10.0.2.15	10.0.2.15	TCP	68	2 80 → 57256 [ACK] Seq=1 Ack=47 Win=65536 Len=0 TSval=1227761464 TSecr=1227761464
35 5.574685289	10.0.2.15	10.0.2.15	TCP	160	2 80 → 57256 [PSH, ACK] Seq=1 Ack=47 Win=65536 Len=92 TSval=1227761464 TSecr=12277
36 5.574696281	10.0.2.15	10.0.2.15	HTTP	68	2 HTTP/1.1 200 OK
37 5.575621913	10.0.2.15	10.0.2.15	TCP	68	2 57256 → 80 [ACK] Seq=47 Ack=93 Win=65536 Len=0 TSval=1227761465 TSecr=1227761464

if user choose RUDP:

On rows 3-7 we can notice that there is connection and communication between the client and the tcp server.

On row 10 there is the DNS query and on row 13 the server response.

On rows 17-42 there is the client-http_server connection (beside 29, 30 where there is DNS query and response).

14 3.998448191 18.0.2.15 177,20.10.1 0% 102 Standard query Baselbo AAAA connectivity-check.ubuntu.co 15 3.99896487 18.0.2.15 08.0.0 FFP-DATA 57 0 FFP DEATS 102 Standard query Baselbo AAAA connectivity-check.ubuntu.co 16 4.583896923 18.0.2.15 08.0.0 FFP-DATA 57 0 FFP DEATS 102 STANDARD query Baselbo AAAA connectivity-check.ubuntu.co 17 4.69921348 127.0.0.1 127.0.0.1 100P 47 37675 FB0 Lenes 18 4.679913480 127.0.0.1 127.0.0.1 10P 47 37675 Lenes 19 4.671134990 127.0.0.1 127.0.0.1 10P 47 37675 Lenes 20 4.67125667 127.0.0.1 127.0.0.1 10P 47 88 47675 Lenes 21 4.671256787 127.0.0.1 127.0.0.1 10P 47 88 47675 Lenes 22 4.671256785 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 23 4.671256785 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 24 4.671256785 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 25 4.671256785 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 26 4.671256785 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 27 4.671256785 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 28 4.671256785 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 29 4.671256785 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 20 4.67125679 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 20 4.67125679 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 20 4.67125679 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 20 4.67125679 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 20 4.67125679 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 21 4.67125679 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 22 4.67125679 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 23 4.67125679 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 24 4.67125679 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 25 4.672567999 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 26 4.672567999 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 27 4.672567999 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes 28 4.672567999 127.0.0.1 127.0.0.1 10P 47 37675 - 80 Lenes						
\$ 1,000-0000 12.0 DOP 900 12.0	3 1.851599396	0.0.0.0	255.255.255.255	DHCP	288	DHCP Discover - Transaction ID 0x1
6 5.8000000000000000000000000000000000000	4 1.852044847	10.0.2.2	10.0.2.16	DHCP	592	DHCP Offer - Transaction ID 0x1
7 3.12272528	5 1.971941488	10.0.0.10	255,255,255	DHCP	312	DHCP Offer - Transaction ID 0x1
\$ 1,00007072 Pricinge_Ministry 40 40 40 40 40 40 40 4	6 3.002656894	0.0.0.0	10.0.0.10	DHCP	288	DHCP Request - Transaction ID 0x1
\$ 1,500,500,000 \$1,000,000,000 \$1,000,000,000 \$1,000,000,000 \$1,000,000,000 \$1,000,000,000 \$1,000,000,000 \$1,000,000,000 \$1,000,000,000 \$1,000,000,000 \$1,000,000,000 \$1,000,000,000 \$1,000	7 3.125279520	10.0.0.10	255.255.255.255	DHCP	312	DHCP ACK - Transaction ID 0x1
18 3.22521395 38 8.8.11 28.8.212 205 84 Standard quary \$0.0009 & http://http.garver.com 11 3.50412818 Profession_417528 36.8.213 36.8.213 37.3242324 36.9.213 38.8.213 38.8.213 37.224324 36.9.213 38.8.213 37.224324 36.9.213 38.8.213 37.224324 36.9.213 37.224324 36.9.213 37.224324 36.9.213 37.224324 36.9.213 37.224324 37.224	8 3.195307972	PcsCompu_e4:7d:89		ARP	44	Who has 10.0.2.2? Tell 10.0.2.15
11 3.58(1233) PCCCCCCC ACT 10 ACT 12 ACT 13 AC	9 3.195616371	RealtekU_12:35:02		ARP	62	10.0.2.2 is at 52:54:00:12:35:02
12 3.54497399	10 3.226523196	10.0.0.11	10.0.0.12	ZNO	84	Standard query 0x0000 A http://http_server.com
10 3.48033981 18.8.8.10 18.8.2.11 105 112 Standard Guery response 80089 A http://https.jerver. 10 3.79864457 18.8.2.15 17.78.9.8.1 177.8.9.8.1 105 120 Standard Guery response 80089 A http://tcbs.dubutu.cl 10 4.759644637 18.8.2.15 18.8.2.15 177.8.9.8.1 105 120 Standard Guery response 80089 A http://tcbs.dubutu.cl 10 4.759644637 18.8.2.15 18.8.2.15 177.8.9.8.1 107 47 177.8.9.8.1 107.8.9.8.1 107.8.9.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 177.8.9.8.1 109 47 187.8.9.8.1 109 47 187.8.9.8.1 109 47 187.8.9.8.1 109 47 187.8.9.8.1 109 47 187.8.9.8.1 109 47 187.8.9.8.1 109 47 187.8.9.8.1 109 47 187.8.9.8.1 109 47 187.8.9.8.1 109 47 187.8.8.1 109 47 187.8.8.1 177.8.8.1 177.8.8.1 177.8.8.1 177.8.8.1 177.8.8.1 177.8.8.1 109 47 177.8.8.1 177.8.8.1 177.8.8.1 177.8.8.1 177.8.8.1 109 47 177.8.8.1 177.8.8.1 177.8.8.1 177.8.8.1 109 47 177.8.8.1 109 177.8.8.1 109 47 177.8.8.1 109 177.8.8.1 109 47 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.8.8.1 109 177.	11 3.384181838	PcsCompu_e4:7d:89		ARP	44	Who has 10.0.2.2? Tell 10.0.2.15
14 3.79844231 18.8.2.135 177.28.10.3 055 102 Standard query broidle AAAA connectivity-check.downs.co. 15 3.79884237 18.8.2.135 18.8.	12 3.384873350	RealtekU_12:35:02		ARP	62	10.0.2.2 is at 52:54:00:12:35:02
15 3.99999957 18.8.2.15 172.70.78.1 106 102 Steeler query broadic a connectivity-check.uburts.co. 16 4.9999999 18.8.2.15 8.8.8.8 PROBLEM 57 8.7999999 18.8.2.15 8.8.8.8 PROBLEM 57 8.7999999 18.8.2.15 127.8.1 127.8.1 100° 47 177999-8 18.8.2.15 127.8.1 127.8.1 100° 47 177999-8 18.8.2.15 127.8.1 100° 47 177999-8 18.8.2.15 127.8.1 100° 47 177999-8 18.8.2.15 127.8.1 100° 47 17799-8 18.8.2.15 127.8.1 100° 47 17799-8 18.8.2.15 127.8.1 100° 47 17799-8 18.8.2.15 127.8.1 100° 47 17799-8 18.8.2.15 127.8.1 100° 47 17799-8 18.8.2.15 127.8.1 100° 47 17799-8 18.8.2.15 127.8.1 100° 47 17799-8 18.8.2.15 127.8.1 100° 47 17799-8 18.8.2.15 100° 47 17799-8 18.8.2 127.8.1 100° 47 17799-8 18.8.2 127.8.2 127.8.1 100° 47 17799-8 18.8.2 127.8.2 127.8.2 127.8.2 110° 47 17799-8 18.8.2 12799-8 18	13 3.406939083	10.0.0.12	10.0.0.11	ZNO	122	Standard query response 0x0000 A http://http_server.com A 0.0.0.0
16 4.503099021 18.0.2.15 0.8.0.8 PFP-0401A 37 0 PFP 0401 Liyyees 17 4.49921444 127.0.8.1 127.0.8.1 127.0.8.1 10P 47 13757 - 40 (mod.) 18 4.49921449 127.0.8.1 127.0.8.1 127.0.8.1 10P 43 13755 - 40 (mod.) 20 4.671236977 127.0.8.1 127.0.8.1 10P 47 13755 - 40 (mod.) 21 4.71396781 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47375 Lends 22 4.67146795 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47375 Lends 23 4.67146795 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47375 Lends 24 4.67146715 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47375 Lends 25 4.67124616 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47575 Lends 26 4.67124616 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47575 Lends 27 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47575 Lends 28 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47575 Lends 29 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47575 Lends 20 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47 0 - 47575 Lends 20 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47575 Lends 20 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47575 Lends 20 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47575 Lends 20 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47575 Lends 21 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47575 Lends 22 4.67124619 127.0.8.1 127.0.8.1 10P 47 0 - 47575 Lends 23 4.67124619 127.0.8.1 10R.0.1 10P 47 0 - 47575 Lends 24 4.67124619 127.0.8.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 25 4.67124619 18.0.1 10R.0.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 26 4.67124619 18.0.1 10R.0.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 27 4.67124619 18.0.1 10R.0.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 28 4.6712479 18.0.1 10R.0.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 29 4.6712479 18.0.1 10R.0.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 20 4.6712479 18.0.1 10R.0.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 20 4.6712479 18.0.1 10R.0.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 20 4.6712479 18.0.1 10R.0.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 20 4.6712479 18.0.1 10R.0.1 10R.0.1 10P 47 0 - 477 0 - 47575 Lends 20 4.6712479 18.0.1 10R.0.1 10R.0.1 10R.0.1 10	14 3.998848191	10.0.2.15	172.20.10.1	DNS	102	Standard query 0xe000 AAAA connectivity-check.ubuntu.com OPT
17 4.409721M8 127.8.6.1 127.8.6.1 127.8.6.1 109 47 37075 e80 Lem3 18 4.5095460 127.8.6.1 127.8.6.1 127.8.6.1 109 47 37075 Lem3 19157 Lem3 18 4.5095460 127.8.6.1 127.8.6.1 109 47 37075 Lem3 19157 Lem	15 3.998969457	10.0.2.15	172.20.10.1	DNS	102	Standard query 0x042c A connectivity-check.ubuntu.com OPT
18 4.67613488 127.8.6.1 127.8.6.1 127.8.6.1 127.8.6.1 1009 47 33757 settless 19 4.97134987 127.8.6.1 127.8.6.1 127.8.6.1 109 47 33757 settless 20 4.67134987 127.8.6.1 127.8.6.1 127.8.6.1 109 47 88 137675 settless 21 4.67134978 127.8.6.1 127.8.6.1 109 47 88 2.77875 sets 22 4.67149785 127.8.6.1 127.8.6.1 109 47 33757 settless 23 4.67149785 127.8.6.1 127.8.6.1 109 47 33757 settless 24 4.7713408 127.8.6.1 127.8.6.1 109 47 33757 settless 25 4.67134098 127.8.6.1 127.8.6.1 109 47 33757 settless 26 4.67234098 127.8.6.1 127.8.6.1 109 47 33757 settless 27 4.67234098 127.8.6.1 127.8.6.1 109 47 33757 settless 28 4.77134098 127.8.6.1 127.8.6.1 109 47 33757 settless 29 4.67234098 127.8.6.1 127.8.6.1 109 47 33757 settless 20 4.67234099 127.8.6.1 127.8.6.1 109 47 33757 settless 20 4.67234099 127.8.6.1 127.8.6.1 109 47 33757 settless 21 4.67234099 128.8.6.1 128.8.6.1 109 47 37657 settless 22 4.67234099 128.8.6.1 128.8.6.1 109 47 37657 settless 23 4.67234099 128.8.6.1 128.8.6.1 109 47 39684 settless 24 4.67234099 128.8.1 128.8.1 128.8.1 109 47 59684 settless 25 4.67234099 128.8.1 128.8.1 128.8.1 128.8.1 109 47 59684 settless 25 4.67234099 128.8.1 128 128 128 128 128 128 128 128 128 12	16 4.538890023	10.0.2.15	0.0.0.0	FTP-DATA	57	0 FTP Data: 1 bytes
19 4,67114990 127.0.0.1 127.0.0.1 127.0.0.1 100 47 37635 + 60 Lents 1 20 4,67124967 127.0.0.1 127.0.0.1 127.0.0.1 100 47 60 - 37675 Lents 1 21 4,671246781 127.0.0.1 127.0.0.1 100 47 60 - 37675 Lents 1 22 4,671246783 127.0.0.1 127.0.0.1 100 47 13767 + 80 Lents 1 23 4,67126426 127.0.0.1 127.0.0.1 127.0.0.1 100 47 13767 + 80 Lents 1 24 4,67124626 127.0.0.1 127.0.0.1 127.0.0.1 100 47 13767 + 80 Lents 1 25 4,67224626 127.0.0.1 127.0.0.1 127.0.0.1 100 47 13767 + 80 Lents 1 26 4,67224626 127.0.0.1 127.0.0.1 127.0.0.1 100 47 13767 + 80 Lents 1 26 4,67224626 127.0.0.1 127.0.0.1 127.0.0.1 100 47 100 + 17672 Lents 1 27 4,6724626 127.0.0.1 127.0.0.1 127.0.0.1 100 47 13767 + 80 Lents 1 28 4,67224629 127.0.0.1 127.0.0.1 127.0.0.1 100 47 3767 + 80 Lents 1 29 4,78525213 10.0.1 127.0.0.1 127.0.0.1 100 47 3767 + 80 Lents 1 20 4,78525213 10.0.0.1 127.0.0.1 127.0.0.1 100 47 3767 + 80 Lents 1 20 4,78525213 10.0.0.1 127.0.0.1 127.0.0.1 100 47 3767 + 80 Lents 1 29 4,78525213 10.0.0.1 127.0.0.1 127.0.0.1 100 47 3767 + 80 Lents 1 20 4,78525213 10.0.0.1 100 47 3767 + 80 Lents 1 20 4,87226220 10.0.0.1 100 47 3767 + 80 Lents 1 21 4,87246200 10.0.0.1 100 47 3767 + 80 Lents 1 22 4,87246200 10.0.0.1 100 47 39646 Lents 1 23 4,87246200 10.0.0.1 100 47 39646 Lents 1 24 4,87246200 10.0.1 100 47 39646 Lents 1 25 4,87246200 10.0.1 100 47 39646 Lents 1 26 4,87246200 10.0.1 100 47 39646 Lents 1 27 4,87246200 10.0.1 100 47 39646 Lents 1 28 4,87246200 10.0.1 100 47 39646 Lents 1 29 4,87246200 10.0.1 100 47 39646 Lents 1 20 4,87246200 100 47 39646 Len	17 4.669921348	127.0.0.1	127.0.0.1	UDP	47	37675 → 80 Len=3
20 4.071200077 127.0.0.1 127.0.0.1 127.0.0.1 1000 86 37075 + 80 Lenn42 11 4.0713072851 127.0.0.1 127.0.0.1 127.0.0.1 1000 47 88 + 37075 Lenn5 12 4.071407285 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.071407285 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.071407285 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.07140848 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.071408485 127.0.0.1 127.0.0.1 1000 47 88 + 37075 Lenn5 12 4.071408495 127.0.0.1 127.0.0.1 1000 47 88 + 37075 Lenn5 12 4.071408495 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.071408495 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.071408498 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.071408499 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.071408499 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.071408499 127.0.0.1 127.0.0.1 1000 47 37075 + 80 Lenn5 12 4.071408499 127.0.0.1 127.0.0.1 1000 47 5705 + 80 Lenn5 12 4.071408499 127.0.0.1 127.0.0.1 1000 47 57064 + 80 Lenn5 12 4.071408499 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 127.0.0.1 127.0.0.1 1000 47 59064 + 80 Lenn5 12 4.071410979 127.0.0.1 127.0.0.1 127.0.0.1 127.0.0.1 1	18 4.670514940	127.0.0.1	127.0.0.1	UDP	52	80 → 37675 Len=8
21 4.671986781 127.0.0.1 127.0.0.1 127.0.0.1 10P 47 37675 emm3 22 4.671687822 127.0.0.1 127.0.0.1 10P 47 37675 emm3 23 4.671687832 127.0.0.1 127.0.0.1 10P 47 37675 emm3 24 4.671869832 127.0.0.1 127.0.0.1 10P 47 37675 emm3 25 4.671284898 127.0.0.1 127.0.0.1 10P 47 37675 emm3 26 4.671284898 127.0.0.1 127.0.0.1 10P 47 37675 emm3 27 4.67284879 127.0.0.1 127.0.0.1 10P 47 37675 emm3 27 4.67284879 127.0.0.1 127.0.0.1 10P 47 37675 emm3 28 4.671284898 127.0.0.1 127.0.0.1 10P 47 37675 emm3 29 4.763593319 10.0.0.1 127.0.0.1 127.0.0.1 10P 47 37675 emm3 29 4.763593319 10.0.0.11 10.0.0.0.1 10.0.0 47 37675 emm3 29 4.763593319 10.0.0.11 10.0.0.0.1 10.0.0.0 47 37675 emm3 29 4.763593319 10.0.0.11 10.0.0.0.1 10.0.0.0 47 5766 emm3 29 4.763593319 10.0.0.11 10.0.0.0.1 10.0.0.0 47 5766 emm3 29 4.763593319 10.0.0.11 10.0.0.0.1 10.0.0.0 47 5766 emm3 20 4.763593319 10.0.0.11 10.0.0.0.1 10.0.0.0 47 5766 emm3 20 4.763593319 10.0.0.11 10.0.0.0.1 10.0.0.0 47 5766 emm3 20 4.69149899 10.0.0.12 10.0.0.1 10.0.0 47 5966 emm3 20 4.763593319 10.0.0.12 10.0.0.1 10.0.0 47 5966 emm3 20 4.69149999 10.0.0.12 10.0.0.1 10.0.0 47 5966 emm3 20 4.69149999 10.0.0.15 10.0.2.15 10.0.2.15 10P 47 5966 emm3 20 4.69149999 10.0.2.15 10.0.2.15 10.0.2.15 10P 47 5966 emm3 20 4.6914999 10.0.2.15 10.0.2.15 10.0.2.15 10P 47 5966 emm3 20 4.6914999 10.0.2.15 10.0.2.15 10.0.2.15 10P 47 5966 emm3 20 4.6914999 10.0.2.15 10.0.2.15 10.0.2.15 10P 47 5966 emm3 20 4.6914999 10.0.2.15 10.0.2.15 10P 47 5966 emm3 20 4.6914999 10.0.2.15 10.0.2.15 10P 47 5966 emm3 20 4.6914999 10P 47 5966 emm3 20 4.69149999 10P 47 5966 emm3 20 4.69149999 10P 47 5966 emm3 20 4.69149999 10P 47 5966 emm3 20 4.691	19 4.671134990	127.0.0.1	127.0.0.1	UDP	47	37675 → 80 Len=3
22 4.671697285 127,0.0.1 127,0.0.1 1009 47 37673 48 Lenc3 23 4.67169582 127,0.0.1 127,0.0.1 1009 123 80 + 37675 Lenc77 24 4.67216406 127,0.0.1 127,0.0.1 1009 47 37673 - 48 Lenc3 25 4.67216406 127,0.0.1 127,0.0.1 1009 47 37673 - 48 Lenc3 26 4.67216406 127,0.0.1 127,0.0.1 1009 47 37673 - 48 Lenc3 27 4.67286479 127,0.0.1 127,0.0.1 1009 47 37673 - 48 Lenc3 27 4.67286479 127,0.0.1 127,0.0.1 1009 47 37673 - 48 Lenc3 28 4.67314090 127,0.0.1 127,0.0.1 1009 47 37673 - 48 Lenc3 28 4.67314090 127,0.0.1 127,0.0.1 1009 47 37673 - 48 Lenc3 29 4.76236479 18.0.0.1 18.0.0.11 18.0.0.12 1009 47 37673 - 48 Lenc3 20 4.76236479 18.0.0.1 18.0.0.11 18.0.0.12 1009 47 37673 - 48 Lenc3 20 4.76236479 18.0.0.1 18.0.0.11 18.0.0.12 1009 47 37674 - 48 Lenc3 20 4.76236479 18.0.0.1 18.0.0.11 18.0.0.12 1009 47 37674 - 48 Lenc3 20 4.76236479 18.0.0.1 18.0.0.11 18.0.0.12 1009 47 59664 - 48 Lenc3 21 4.76236479 18.0.0.1 18.0.2.15 18.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7623679 18.0.2.15 18.0.2.15 10.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7623679 18.0.2.15 10.0.2.15 10.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7623679 18.0.2.15 10.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7623679 10.0.2.15 10.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7623679 10.0.2.15 10.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7625679 100.0.2.15 100.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7625679 100.0.2.15 100.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7625679 100.0.2.15 100.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7625679 100.0.2.15 100.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7625679 100.0.2.15 100.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7625679 100.0.2.15 100.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7625679 100.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7625679 1100.0.2.15 100.0.2.15 1009 47 59664 - 48 Lenc3 21 4.7625679 1100.0.2.15 1000 47 59664 - 48 Lenc3 21 4.7625679 1100000000000000000000000000000000000	20 4.671296987	127.0.0.1	127.0.0.1	UDP	86	37675 → 80 Len=4Z
23 4.671809582 127.8.0.1 127.8.0.1 127.8.0.1 10P 123 80 8 37675 Len=79 24 4.572184108 127.8.0.1 127.8.0.1 10P 47 37675 480 Len=2 25 4.672184108 127.8.0.1 127.8.0.1 10P 47 37675 480 Len=3 26 4.672184109 127.8.0.1 127.8.0.1 10P 47 37675 480 Len=3 27 4.672184179 127.8.0.1 127.8.0.1 10P 47 37675 480 Len=3 28 4.6731814190 127.8.0.1 127.8.0.1 10P 47 37675 480 Len=3 29 4.78533319 18.8.0.11 18.8.0.11 18.8.0.12 10S 187 Standard query response 8x8000 A http://redirected_http_serve 30 4.78533319 18.8.0.11 18.8.0.12 18.8.0.11 10S 188 Standard query response 8x8000 A http://redirected_http_serve 30 4.78533319 18.8.0.15 18.8.0.15 10P 47 59046 480 Len=3 31 4.895197386 18.8.0.15 18.8.2.15 18.8.2.15 10P 47 59046 480 Len=3 32 4.895197386 18.8.7.15 18.8.2.15 10P 47 59046 480 Len=3 33 4.895197386 18.8.7.15 18.8.2.15 10P 47 59046 480 Len=3 34 4.895197386 18.8.7.15 18.8.2.15 10P 47 59046 480 Len=3 35 4.895197386 18.8.7.15 18.8.2.15 10P 47 59046 480 Len=3 36 4.895197486 18.8.2.15 18.8.2.15 10P 47 59046 480 Len=3 37 4.89519914 18.8.2.15 18.8.2.15 10P 47 59046 480 Len=3 38 4.895197491 18.8.2.15 18.8.2.15 10P 47 59046 480 Len=3 39 4.895197491 18.8.2.15 18.8.2.15 10P 47 59046 480 Len=3 40 4.895197491 18.8.2.15 18.8.2.15 10P 47 59046 480 Len=3 40 4.895197491 18.8.2.15 18.8.2.15 10P 47 59046 480 Len=3 40 4.895197491 18.8.2.15 18.8.2.15 10P 47 59046 480 Len=3 40 4.895197491 18.8.2.15 18.8.2.15 10P 47 59046 Len=8	21 4.671396781	127.0.0.1	127.0.0.1	UDP	47	80 → 37675 Len=3
24 4.672161415 127.8.0.1 127.8.0.1 127.8.0.1 10P 47 37675 488 Len=3 25 4.672364498 127.8.0.1 127.8.0.1 127.8.0.1 10P 47 37675 488 Len=3 26 4.672364495 127.8.0.1 127.8.0.1 10P 47 37675 488 Len=3 27 4.672864479 127.8.0.1 127.8.0.1 10P 52 88.47575 Len=8 28 4.67136496 127.8.0.1 127.8.0.1 10P 47 37675 488 Len=3 29 4.78233319 18.8.0.11 18.8.0.12 18.8.0.11 10S 168 Standard query excesse A http://redirected_http_serve 30 4.872280139 18.8.0.12 18.8.0.12 18.8.0.11 10S 168 Standard query response 8x8000 A http://redirected_http_serve 31 4.89494989 18.8.2.15 18.8.2.15 10P 47 59046 488 Len=3 32 4.895143397 18.8.2.15 18.8.2.15 10P 47 59046 488 Len=3 33 4.895197356 18.8.2.15 18.8.2.15 10P 47 59046 488 Len=3 34 4.895197369 18.8.2.15 18.8.2.15 10P 47 59046 488 Len=3 35 4.89524398 18.8.2.15 18.8.2.15 10P 47 59046 488 Len=3 36 4.895274499 18.8.2.15 18.8.2.15 10P 47 59046 888 Len=3 37 4.89529914 18.8.2.15 18.8.2.15 10P 47 59046 88 Len=3 38 4.89524398 18.8.2.15 18.8.2.15 10P 47 59046 88 Len=3 39 4.89524398 18.8.2.15 18.8.2.15 10P 47 59046 88 Len=3 30 4.895274499 18.8.2.15 18.8.2.15 10P 47 59046 88 Len=3 30 4.895274499 18.8.2.15 18.8.2.15 10P 47 59046 88 Len=3 30 4.895274499 18.8.2.15 18.8.2.15 10P 47 59046 Len=8 30 4.89524398 18.8.2.15 18.8.2.15 10P 47 59046 Len=8 30 4.89524398 18.8.2.15 18.8.2.15 10P 47 59046 Len=3 30 4.89524393 18.8.2.15 10.8.2.15 10P 47 59046 Len=3 30 4.89542372 18.8.2.15 18.8.2.15 10P 47 59046 Len=3 30 4.89542372 18.8.2.15 10.8.2.15 10P 47 59046 Len=3 30 4.89542372 18.8.2.15 18.8.2.15 10P 47 59046 Len=3 30 4.89542372 18.8.2.15 18.8.2.15 10P 47 59046 Len=3	22 4.671607205	127.0.0.1	127.0.0.1	UDP	47	37675 → 88 Len=3
25 4.67284498 127.8.0.1 127.8.0.1 127.8.0.1 10P 47 37675 tem3 26 4.672844979 127.8.0.1 127.8.0.1 127.8.0.1 10P 47 37675 tem3 27 4.672844979 127.8.0.1 127.8.0.1 10P 47 37675 tem3 28 4.672844979 127.8.0.1 127.8.0.1 10P 47 37675 tem2 28 4.67384498 127.8.0.1 10P 47 37675 tem2 28 4.78338319 18.8.0.11 18.8.0.12 18.8.0.11 10S 168 Standard query excesse Arberty/redirected_http_terve_d_ltd_sterve_d_lt	23 4.671809582	127.0.0.1	127.0.0.1	UDP	123	80 → 37675 Len=79
26 4.67269845 127.8.0.1 127.8.0.1 10P 47 37675 480 Len=3 27 4.672884279 127.8.0.1 127.8.0.1 10P 52 88 437675 Len=4 28 4.672884279 127.8.0.1 127.8.0.1 10P 47 337575 480 Len=3 28 4.783333319 18.8.0.11 18.8.0.12 10S 187 Standard query Response Residence A http://redirected_http_serve 38 4.87282839 18.8.0.12 18.8.0.11 10S 188 Standard query response Residence A http://redirected_http_serve 31 4.884948389 18.8.2.15 18.8.2.15 10.8.2.15 10P 47 59846 88 Len=3 32 4.895343397 18.8.2.15 18.8.2.15 10.8.2.15 10P 52 88 459845 Len=8 33 4.895343397 18.8.2.15 18.8.2.15 10R.2.15 10P 47 59846 480 Len=3 34 4.895343389 18.8.2.15 18.8.2.15 10R.2.15 10P 47 59846 480 Len=3 34 4.89534388 18.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 35 4.89534388 18.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 36 4.895273459 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 37 4.895349841 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 38 4.895349841 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 48 4.895349841 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 48 4.895349841 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 48 4.895349841 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 48 4.895349841 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 49 4.895349841 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 40 4.895349772 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 40 4.895349772 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 40 4.895349772 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 40 4.895349772 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 40 4.895349772 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 41 4.85584511 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 42 4.85584511 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 43 4.85584511 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 44 4.85584511 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 45 4.85584511 1R.8.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3 46 4.85584511 1R.8.2.15 10R.2.15 10R.2.15 10R.2.15 10P 47 59846 Len=3	24 4.672162416	127.0.0.1	127.0.0.1	UDP	47	37675 → 80 Len=3
27 4.671284279 127.8.6.1 127.8.6.1 127.8.6.1 UCP 52 88 + 37875 Lene 8 28 4.671282489 127.8.6.1 127.8.6.1 127.8.6.1 UCP 47 37675 + 80 Lene 3 29 4.762333319 18.8.0.11 18.8.6.12 UCP 47 Sandard query response Reviews A http://redirected_http_serve_1 30 4.671282489 18.8.2.15 18.8.2.15 UCP 47 59046 + 80 Lene 3 31 4.8934373 18.8.2.15 18.8.2.15 UCP 47 59046 + 80 Lene 3 32 4.89343738 18.8.2.15 18.8.2.15 UCP 47 59046 + 80 Lene 3 33 4.89343738 18.8.2.15 18.8.2.15 UCP 47 59046 + 80 Lene 3 4.49343738 18.8.2.15 UCP 47 59046 + 80 Lene 3 4.49343738 18.8.2.15 UCP 47 59046 - 80 Lene 3 4.49343738 18.8.2.15 UCP 47 59046 - 80 Lene 3 4.4934389 18.8.2.15 UCP 47 59046 Lene 3 4.4934	25 4.672384898	127.0.0.1	127.0.0.1	UDP	47	80 → 37675 Len=3
28 4.6713124090 127.8.0.1 127.8.0.1 10P 47 37675 488 Lenn3 29 4.785353319 18.8.0.11 18.8.0.12 10K5 187 Standard query 8x8098 A http://redirected_http_serve 30 4.871280139 18.8.0.12 18.8.0.11 10K5 188 Standard query 8x8098 A http://redirected_ft 31 4.884404899 18.0.7.15 18.8.2.15 10P 47 59046 488 Lenn3 32 4.885143397 18.8.2.15 18.0.2.15 10P 52 88 459045 Lenn3 33 4.895173186 18.0.2.15 10.0.2.15 10P 47 59046 48 Lenn3 34 4.895129300 18.0.2.15 10.0.2.15 10P 47 59046 48 Lenn3 35 4.88524388 18.0.2.15 10.0.2.15 10P 47 88 459045 Lenn3 36 4.895174599 18.0.2.15 10.0.2.15 10P 47 59046 48 Lenn3 37 4.88524518 18.0.2.15 10.0.2.15 10P 47 59046 48 Lenn3 38 4.88524511 18.0.2.15 10.0.2.15 10P 47 59046 48 Lenn3 40 4.89527813 10.0.2.15 10.0.2.15 10P 47 59046 48 Lenn3 41 4.8958041 18.0.2.15 10.0.2.15 10P 47 59046 Lenn3 42 4.89520813 10.0.2.15 10.0.2.15 10P 47 59046 Lenn3 43 4.89520813 10.0.2.15 10.0.2.15 10P 47 59046 Lenn3 44 4.895804217 10.0.2.15 10.0.2.15 10P 47 59046 Lenn3 45 4.89520813 10.0.2.15 10.0.2.15 10P 47 59046 Lenn3 46 4.89520813 10.0.2.15 10.0.2.15 10P 47 59046 Lenn3 47 4.89580421 10.0.2.15 10.0.2.15 10P 47 59046 Lenn3 48 4.895804217 10.0.2.15 10.0.2.15 10P 47 59046 Lenn3 49 4.89580421 10.0.2.15 10.0.2.15 10P 47 59046 Lenn3 40 4.895804211 10.0.2.15 10.0.2.15 10P 47 59046 Lenn3	26 4.672630345	127.0.0.1	127.0.0.1	UDP	47	37675 → 80 Len=3
29 4.78533319 18.8.0.11 18.8.0.12 0NS 187 Standard query 8x0009 A http://redirected_http_serve_1 38 4.672280139 18.0.0.12 18.0.0.11 0NS 168 Standard query response 8x0009 A http://redirected_http_serve_1 31 4.89404009 18.0.7.15 18.0.7.15 UP 47 59046 Hell Lenn3 32 4.89513337 18.0.7.15 18.0.7.15 UP 52 88 45046 Lenn3 44 4.89513336 18.0.7.15 18.0.7.15 UP 88 50046 Hell Lenn3 45 4.89513338 18.0.7.15 18.0.7.15 UP 88 50046 Hell Lenn3 46 4.895134398 18.0.7.15 18.0.7.15 UP 47 89046 Hell Lenn3 47 4.895134398 18.0.7.15 UP 47 89046 Hell Lenn3 48 4.895134398 18.0.7.15 UP 47 59046 Hell Lenn3 49 4.895134398 18.0.7.15 UP 47 59046 Hell Lenn3 40 4.895134398 18.0.7.15 UP 47 59046 Hell Lenn3 40 4.89513439 18.0.7.15 UP 47 59046 Hell Lenn3 40 4.89513439 18.0.7.15 UP 47 59046 Hell Lenn3 40 4.89513439 18.0.7.15 UP 47 59046 Hell Lenn3 40 4.8951343 18.0.7.15 UP 47 59046 Hell Lenn3 40 4.89513431 18.0.7.15 18.0.7.15 UP 47 59046 Hell Lenn3 40 4.89513431 18.0.7.15 18.0.7.15 UP 47 59046 Hell Lenn3 41 4.895864311 18.0.7.15 18.0.7.15 UP 47 59046 Hell Lenn3 42 4.895864311 18.0.7.15 18.0.7.15 UP 47 59046 Hell Lenn3 43 4.895864311 18.0.7.15 18.0.7.15 UP 47 59046 Hell Lenn3 44 4.895864311 18.0.7.15 18.0.7.15 UP 47 59046 Hell Lenn3	27 4.672894879	127.0.0.1	127.0.0.1	UDP	52	80 → 37675 Len=8
10 4.87220139 10.0.0.12 10.0.0.11 DNS 168 Standard query response 0x00000 A http://redirected_1	28 4.673182490	127.0.0.1	127.0.0.1	UDP	47	37675 → 80 Len=3
11 4.894040999 10.0.7.15 1	29 4.703533319	10.0.0.11	10.0.0.12	DNS	107	Standard query 0x0000 A http://redirected_http_server.com/example.txt
32 4.895343397 18.8.2.15 18.8.2.15 UDP 52 88 + 59945 Len=3 33 4.895349380 18.8.2.15 18.8.2.15 UDP 47 59846 + 80 Len=3 34 4.895229980 18.8.2.15 18.8.2.15 UDP 47 88 59846 + 80 Len=4 35 4.895249398 18.8.2.15 18.8.2.15 UDP 47 88 + 59945 Len=3 36 4.895274599 18.8.2.15 18.8.2.15 UDP 47 59846 + 80 Len=3 37 4.89529814 18.8.2.15 18.8.2.15 UDP 47 59846 Len=3 48 4.89529814 18.8.2.15 UDP 47 59846 Len=9 49 4.89528931 18.8.2.15 UDP 47 59946 Len=3 40 4.89528931 18.8.2.15 UDP 47 59946 Len=3 40 4.89528931 18.8.2.15 18.8.2.15 UDP 47 59946 Len=3 40 4.89528931 18.8.2.15 18.8.2.15 UDP 47 59946 Len=3 40 4.895542372 18.8.2.15 18.8.2.15 UDP 47 59946 Len=3 40 4.895542372 18.8.2.15 18.8.2.15 UDP 52 88 + 59946 Len=3	30 4.872280189	10.0.0.12	10.0.0.11	ZNO	168	Standard query response 0x0000 A http://redirected_http_server.com/exam
13 4.8951971356 10.0.2.15	31 4.894984989	10.0.2.15	10.0.2.15	UDP	47	59846 → 88 Len=3
34 4.895295900 10.0.2.15 10.0.2.15 UCP 88 50046 + 80 Lenn44 35 4.895245308 10.0.2.15 10.0.2.15 UCP 47 50046 + 80 Lenn2 36 4.895274539 10.0.2.15 10.0.2.15 UCP 47 50046 + 80 Lenn2 37 4.895270114 10.0.2.15 10.0.2.15 UCP 134 80 + 50046 Lenn2 38 4.895400541 10.0.2.15 10.0.2.15 UCP 47 50046 + 80 Lenn2 39 4.895500733 10.0.2.15 10.0.2.15 UCP 47 80 + 50046 Lenn2 40 4.895642172 10.0.2.15 10.0.2.15 UCP 47 50046 + 80 Lenn3 41 4.89564511 10.0.2.15 10.0.2.15 UCP 52 80 + 50045 Lenn2	32 4.895143397	10.0.2.15	10.0.2.15	UDP	52	88 → 59846 Len=8
35 4.895248398 18.8.7.15 18.8.2.15 UCP 47 88 + 599445 Len=3 36 4.895274459 10.8.2.15 10.8.2.15 UCP 47 599446 88 Len=3 37 4.89529914 18.8.2.15 10.8.2.15 UCP 114 88 + 59945 Len=9 38 4.89529913 18.8.2.15 UCP 47 599446 88 Len=3 39 4.89529913 18.8.2.15 UCP 47 599446 Len=3 40 4.89594272 18.8.2.15 UCP 47 59946 Len=3 41 4.855842172 18.8.2.15 18.8.2.15 UCP 52 88 + 559445 Len=3 41 4.85584211 18.8.2.15 18.8.2.15 UCP 52 88 + 559445 Len=8	33 4.895197336	10.0.2.15	10.0.2.15	UDP	47	59046 + 80 Len=3
36 4.895275459 18.8.2.15 18.8.2.15 UCP 47 50946 + 88 Len=3 37 4.89529914 18.8.2.15 18.8.2.15 UCP 134 88 + 55946 Len=98 38 4.8955999541 18.8.2.15 18.8.2.15 UCP 47 59946 + 88 Len=3 39 4.89594272 18.8.2.15 18.8.2.15 UCP 47 59946 Len=8 40 4.89594272 18.8.2.15 18.8.2.15 UCP 47 59946 Len=8 41 4.895964511 18.8.2.15 18.8.2.15 UCP 52 88 + 59945 Len=8	34 4.895229500	10.0.2.15	10.0.2.15	UDP	88	59846 → 80 Len=44
37 4.895298314 10.0.2.15 10.0.2.15 UDP 134 80 ± 59946 Lenning 38 4.855498541 10.0.2.15 10.0.2.15 UDP 47 59946 Lenning 39 4.85520783 10.0.2.15 10.0.2.15 UDP 47 80 ± 59946 Lenning 40 4.85542772 10.0.2.15 10.0.2.15 UDP 47 59946 Lenning 41 4.855645311 10.0.2.15 10.0.2.15 UDP 52 80 ± 59946 Lenning	35 4.895243898	10.0.2.15	10.0.2.15	UDP	47	80 → 59046 Len=3
38 4.855498541 18.8.2.15 18.8.2.15 UDP 47 55946 48 Len=3 39 4.85520783 18.8.2.15 18.8.2.15 UDP 47 88 + 55946 Len=3 40 4.85542772 18.8.2.15 18.8.2.15 UDP 47 57946 Len=3 41 4.85564511 18.8.2.15 18.8.2.15 UDP 52 88 + 55946 Len=8	36 4.895275459	10.0.2.15	10.0.2.15	UDP	47	59046 + 80 Len=3
39 4.895528783 18.8.2.15 18.8.2.15 UDP 47 88 + 59845 Len=3 40 4.895542772 18.8.2.15 18.8.2.15 UDP 47 59846 + 88 Len=3 41 4.895564511 18.8.2.15 18.8.2.15 UDP 52 88 + 55845 Len=8	37 4.895298314	10.0.2.15	10.0.2.15	UDP	134	88 - 59846 Len=98
40 4.855642372 10.0.2.15 10.0.2.15 UDP 47 57046 + 80 Lenn 3 41 4.85564511 10.0.2.15 10.0.2.15 UDP 52 80 + 55045 Lenn 8	38 4.895498541	10.0.2.15	10.0.2.15	UDP	47	59046 → 80 Len=3
41 4.89564511 10.0.2.15 10.0.2.15 UDP 52 80 + 59945 Len=8	39 4.895528783	10.0.2.15	10.0.2.15	UDP	47	80 → 59846 Len=3
	40 4.895642372	10.0.2.15	10.0.2.15	UDP	47	59846 + 88 Len=3
42 4.85568407 10.0.2.15 10.0.2.15 UCP 47 59846 + 00 Len=3	41 4.895664511	10.0.2.15	10.0.2.15	UDP	52	80 → 59045 Len=8
	42 4.895689407	10.0.2.15	10.0.2.15	UDP	47	59046 → 80 Len=3

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