МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАВЧАЛЬНО-НАУКОВИЙ КОМПЛЕКС
«ІНСТИТУТ ПРИКЛАДНОГО СИСТЕМНОГО АНАЛІЗУ»
НАЦІОНАЛЬНОГО ТЕХНІЧНОГО УНІВЕРСИТЕТУ УКРАЇНИ
«КИЇВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ ІМЕНІ ІГОРЯ СІКОРСЬКОГО»
КАФЕДРА МАТЕМАТИЧНИХ МЕТОДІВ СИСТЕМНОГО АНАЛІЗУ

Практична робота №2
з курсу «Комп'ютерні мережі»

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Київ – 2020 р.

Контрольні запитанні:

Dump 1:

Request:

Frame 167: 490 bytes on wire (3920 bits), 490 bytes captured (3920 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: gaia.cs.umass.edu (128.119.245.12)

Transmission Control Protocol, Src Port: 49719 (49719), Dst Port: http (80), Seq: 1, Ack: 1, Len: 436

Hypertext Transfer Protocol

    GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n

    Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8\r\n

    Accept-Language: ru,en-US;q=0.8,en;q=0.5,uk;q=0.3\r\n

    Upgrade-Insecure-Requests: 1\r\n

    User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

    Accept-Encoding: gzip, deflate\r\n

    Host: gaia.cs.umass.edu\r\n

    Connection: Keep-Alive\r\n

    \r\n

    [Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]

    [HTTP request 1/3]

    [Response in frame: 228]

Answer:

Frame 228: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: gaia.cs.umass.edu (128.119.245.12), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 49719 (49719), Seq: 1, Ack: 437, Len: 486

Hypertext Transfer Protocol

   HTTP/1.1 200 OK\r\n

   Date: Wed, 26 Feb 2020 08:33:07 GMT\r\n

   Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/5.4.16 mod_perl/2.0.11 Perl/v5.16.3\r\n

   Last-Modified: Wed, 26 Feb 2020 06:59:03 GMT\r\n

   ETag: "80-59f7523c82530"\r\n

   Accept-Ranges: bytes\r\n

   Content-Length: 128\r\n

   Keep-Alive: timeout=5, max=100\r\n

   Connection: Keep-Alive\r\n

   Content-Type: text/html; charset=UTF-8\r\n

   \r\n

   [HTTP response 1/3]

   [Time since request: 5.146433000 seconds]

   [Request in frame: 167]

   [Next response in frame: 243]

   [Request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]

   File Data: 128 bytes

Line-based text data: text/html (4 lines)

1. Яку версію протоколу HTTP використовує ваш браузер (1.0 чи 1.1)? Яку версію протоколу використовує сервер?

Браузер використовує HTTP 1.1

Сервер використовує HTTP 1.1

2. Які мови (якщо вказано) браузер може прийняти від сервера?

Російська, англійська (американська), англійська, українська.

Accept-Language: ru,en-US;q=0.8,en;q=0.5,uk;q=0.3

3. Які IP-адреси вашого комп'ютера та цільового веб-сервера?

Комп'ютер 192.168.43.181

Цільовий веб-сервер 128.119.245.12

4. Який статусний код сервер повернув у відповіді вашому браузеру?

200 OK

5. Коли на сервері в останній раз був модифікований файл, який запитується браузером?

Wed, 26 Feb 2020 06:59:03 GMT

6. Скільки байт контенту повертається сервером?

128

7. Переглядаючи нерозібраний байтовий потік пакету, чи бачите ви деякі заголовки в потоці, які не відображаються у вікні деталей пакету? Якщо так, назвіть один з них.

Ні, не бачу.

Dump 2:

Request:

Frame 108: 516 bytes on wire (4128 bits), 516 bytes captured (4128 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: IntelCor_85:dc:ca (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: gaia.cs.umass.edu (128.119.245.12)

Transmission Control Protocol, Src Port: 49824 (49824), Dst Port: http (80), Seq: 1, Ack: 1, Len: 462

Hypertext Transfer Protocol

GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n

Cache-Control: max-age=0\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8\r\n

Accept-Language: ru,en-US;q=0.8,en;q=0.5,uk;q=0.3\r\n

Upgrade-Insecure-Requests: 1\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

Accept-Encoding: gzip, deflate\r\n

Host: gaia.cs.umass.edu\r\n

Connection: Keep-Alive\r\n

\r\n

[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]

[HTTP request 1/1]

[Response in frame: 144]

Answer:

Frame 144: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: IntelCor_85:dc:ca (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: gaia.cs.umass.edu (128.119.245.12), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 49824 (49824), Seq: 1, Ack: 463, Len: 486

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Date: Wed, 26 Feb 2020 08:56:59 GMT\r\n

Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/5.4.16 mod_perl/2.0.11 Perl/v5.16.3\r\n

Last-Modified: Wed, 26 Feb 2020 06:59:03 GMT\r\n

ETag: "80-59f7523c82530"\r\n

Accept-Ranges: bytes\r\n

Content-Length: 128\r\n

Keep-Alive: timeout=5, max=100\r\n

Connection: Keep-Alive\r\n

Content-Type: text/html; charset=UTF-8\r\n

\r\n

[HTTP response 1/1]

[Time since request: 0.655805000 seconds]

[Request in frame: 108]

[Request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file1.html]

File Data: 128 bytes

Line-based text data: text/html (4 lines)

Request 2:

Frame 160: 328 bytes on wire (2624 bits), 328 bytes captured (2624 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: IntelCor_85:dc:ca (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: gaia.cs.umass.edu (128.119.245.12)

Transmission Control Protocol, Src Port: 49828 (49828), Dst Port: http (80), Seq: 1, Ack: 1, Len: 274

Hypertext Transfer Protocol

GET /favicon.ico HTTP/1.1\r\n

Accept: */*\r\n

Accept-Encoding: gzip, deflate\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

Host: gaia.cs.umass.edu\r\n

DNT: 1\r\n

Connection: Keep-Alive\r\n

\r\n

[Full request URI: http://gaia.cs.umass.edu/favicon.ico]

[HTTP request 1/1]

[Response in frame: 164]

Answer 2:

Frame 164: 389 bytes on wire (3112 bits), 389 bytes captured (3112 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: IntelCor_85:dc:ca (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: gaia.cs.umass.edu (128.119.245.12), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 49828 (49828), Seq: 1, Ack: 275, Len: 335

Hypertext Transfer Protocol

HTTP/1.1 302 Found\r\n

Content-Type: text/html; charset=UTF-8\r\n

Content-Length: 163\r\n

Location: http://filter.ncnd.vodafone.ua/nf\r\n

Cache-Control: no-cache\r\n

Connection: Close\r\n

\r\n

[HTTP response 1/1]

[Time since request: 0.267227000 seconds]

[Request in frame: 160]

[Request URI: http://gaia.cs.umass.edu/favicon.ico]

File Data: 163 bytes

Line-based text data: text/html (1 lines)

Request 3:

Frame 174: 325 bytes on wire (2600 bits), 325 bytes captured (2600 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: IntelCor_85:dc:ca (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: vfua.ncnd.mobi (63.33.21.154)

Transmission Control Protocol, Src Port: 49829 (49829), Dst Port: http (80), Seq: 1, Ack: 1, Len: 271

Hypertext Transfer Protocol

GET /nf HTTP/1.1\r\n

Accept: */*\r\n

Accept-Encoding: gzip, deflate\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

Host: filter.ncnd.vodafone.ua\r\n

DNT: 1\r\n

Connection: Keep-Alive\r\n

\r\n

[Full request URI: http://filter.ncnd.vodafone.ua/nf]

[HTTP request 1/1]

[Response in frame: 205]

Answer 3:

Frame 205: 431 bytes on wire (3448 bits), 431 bytes captured (3448 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: IntelCor_85:dc:ca (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: vfua.ncnd.mobi (63.33.21.154), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 49829 (49829), Seq: 1, Ack: 272, Len: 377

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Server: nginx\r\n

Date: Wed, 26 Feb 2020 08:57:00 GMT\r\n

Content-Type: text/html\r\n

Content-Length: 154\r\n

Connection: keep-alive\r\n

Cache-Control: no-cache, no-store, must-revalidate\r\n

Pragma: no-cache\r\n

Expires: 0\r\n

\r\n

[HTTP response 1/1]

[Time since request: 0.100600000 seconds]

[Request in frame: 174]

[Request URI: http://filter.ncnd.vodafone.ua/nf]

File Data: 154 bytes

Line-based text data: text/html (1 lines)

8. Перевірте вміст першого запиту HTTP GET від вашого браузера до сервера. Чи є в ньому заголовок IF-MODIFIED-SINCE?

Hi.

9. Перевірте вміст першої відповіді сервера. Чи повернув сервер вміст файлу безпосередньо у відповіді?

Так.

10. Перевірте вміст другого запиту HTTP GET. Чи є в ньому заголовок IF-MODIFIEDSINCE? Якщо так, яке значення йому відповідає?

Hi.

11. Який код та опис статусу другої відповіді сервера? Чи повернув сервер вміст файлу безпосередньо у відповіді?

302 Found.

Так.

Dump 3:

Request:

Frame 11: 468 bytes on wire (3744 bits), 468 bytes captured (3744 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: dev.ucoz.net (193.109.246.67)

Transmission Control Protocol, Src Port: 52071 (52071), Dst Port: http (80), Seq: 1, Ack: 1, Len: 414

Hypertext Transfer Protocol

GET /foto/edin_inform.jpg HTTP/1.1\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8\r\n

Accept-Language: ru,en-US;q=0.8,en;q=0.5,uk;q=0.3\r\n

Upgrade-Insecure-Requests: 1\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

Accept-Encoding: gzip, deflate\r\n

Host: tinkova.ucoz.ru\r\n

Connection: Keep-Alive\r\n

\r\n

[Full request URI: http://tinkova.ucoz.ru/foto/edin_inform.jpg]

[HTTP request 1/1]

[Response in frame: 597]

Answer:

Frame 597: 1296 bytes on wire (10368 bits), 1296 bytes captured (10368 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: dev.ucoz.net (193.109.246.67), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 52071 (52071), Seq: 409169, Ack: 415, Len: 1242

[294 Reassembled TCP Segments (410410 bytes): #18(368), #20(1400), #22(1400), #23(1400), #25(1400), #27(1400), #28(1400), #30(1400), #31(1400), #33(1400), #45(1400), #47(1400), #49(1400), #51(1400), #53(1400), #55(1400), #60(1400), #62(1400]

Hypertext Transfer Protocol

   HTTP/1.1 200 OK\r\n

   Server: nginx/1.8.0\r\n

   Date: Thu, 05 Mar 2020 12:52:40 GMT\r\n

   Content-Type: image/jpeg\r\n

   Content-Length: 410042\r\n

   Last-Modified: Wed, 12 Dec 2012 13:27:37 GMT\r\n

   Connection: keep-alive\r\n

   Keep-Alive: timeout=15\r\n

   ETag: "50c88649-641ba"\r\n

   Expires: Wed, 25 Mar 2020 12:52:40 GMT\r\n

   Cache-Control: max-age=1728000\r\n

   X-Frame-Options: SAMEORIGIN\r\n

   Accept-Ranges: bytes\r\n

   \r\n

   [HTTP response 1/1]

   [Time since request: 1.576707000 seconds]

   [Request in frame: 11]

   [Request URI: http://tinkova.ucoz.ru/foto/edin_inform.jpg]

   File Data: 410042 bytes

JPEG File Interchange Format

12. Скільки повідомлень HTTP GET було відправлено вашим браузером?

1.

13. Скільки пакетів TCP було необхідно для доставки однієї відповіді HTTP-сервера?

294.

14. Який код та опис статусу був у відповіді сервера?

200 OK.

15. Чи зустрічаються у даних пакетів-продовжень протоколу TCP стрічки з кодом та описом статусу відповіді, або ж якісь заголовки протоколу HTTP?

Так.

Dump 4:

Request 1:

Frame 53: 490 bytes on wire (3920 bits), 490 bytes captured (3920 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: gaia.cs.umass.edu (128.119.245.12)

Transmission Control Protocol, Src Port: 52165 (52165), Dst Port: http (80), Seq: 1, Ack: 1, Len: 436

Hypertext Transfer Protocol

   GET /wireshark-labs/HTTP-wireshark-file4.html HTTP/1.1\r\n

   Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8\r\n

   Accept-Language: ru,en-US;q=0.8,en;q=0.5,uk;q=0.3\r\n

   Upgrade-Insecure-Requests: 1\r\n

   User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

   Accept-Encoding: gzip, deflate\r\n

Host: gaia.cs.umass.edu\r\n

Connection: Keep-Alive\r\n

\r\n

[Full request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html]

[HTTP request 1/2]

[Response in frame: 63]

[Next request in frame: 69]

Answer 1:

Frame 63: 1127 bytes on wire (9016 bits), 1127 bytes captured (9016 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: gaia.cs.umass.edu (128.119.245.12), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 52165 (52165), Seq: 1, Ack: 437, Len: 1073

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Date: Thu, 05 Mar 2020 13:07:54 GMT\r\n

Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/5.4.16 mod_perl/2.0.11 Perl/v5.16.3\r\n

Last-Modified: Thu, 05 Mar 2020 06:59:02 GMT\r\n

ETag: "2ca-5a0161273ace2"\r\n

Accept-Ranges: bytes\r\n

Content-Length: 714\r\n

Keep-Alive: timeout=5, max=100\r\n

Connection: Keep-Alive\r\n

Content-Type: text/html; charset=UTF-8\r\n

\r\n

[HTTP response 1/2]

[Time since request: 0.378171000 seconds]

[Request in frame: 53]

[Next request in frame: 69]

[Next response in frame: 83]

[Request URI: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html]

File Data: 714 bytes

Line-based text data: text/html (17 lines)

Request 2:

Frame 69: 491 bytes on wire (3928 bits), 491 bytes captured (3928 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: gaia.cs.umass.edu (128.119.245.12)

Transmission Control Protocol, Src Port: 52165 (52165), Dst Port: http (80), Seq: 437, Ack: 1074, Len: 437

Hypertext Transfer Protocol

GET /pearson.png HTTP/1.1\r\n

Referer: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html\r\n

Accept: image/png,image/svg+xml,image/*;q=0.8,*/*;q=0.5\r\n

Accept-Language: ru,en-US;q=0.8,en;q=0.5,uk;q=0.3\r\n

Accept-Encoding: gzip, deflate\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

Host: gaia.cs.umass.edu\r\n

Connection: Keep-Alive\r\n

\r\n

[Full request URI: http://gaia.cs.umass.edu/pearson.png]

[HTTP request 2/2]

[Prev request in frame: 53]

[Response in frame: 83]

Answer 2:

Frame 83: 865 bytes on wire (6920 bits), 865 bytes captured (6920 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: gaia.cs.umass.edu (128.119.245.12), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 52165 (52165), Seq: 3874, Ack: 874, Len: 811

[3 Reassembled TCP Segments (3611 bytes): #80(1400), #82(1400), #83(811)]

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Date: Thu, 05 Mar 2020 13:07:54 GMT\r\n

Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/5.4.16 mod_perl/2.0.11 Perl/v5.16.3\r\n

Last-Modified: Sat, 06 Aug 2016 10:08:14 GMT\r\n

ETag: "cc3-539645c7f1ee7"\r\n

Accept-Ranges: bytes\r\n

Content-Length: 3267\r\n

Keep-Alive: timeout=5, max=99\r\n

Connection: Keep-Alive\r\n

Content-Type: image/png\r\n

\r\n

[HTTP response 2/2]

[Time since request: 0.158048000 seconds]

[Prev request in frame: 53]

[Prev response in frame: 63]

[Request in frame: 69]

[Request URI: http://gaia.cs.umass.edu/pearson.png]

File Data: 3267 bytes

Portable Network Graphics

Request 3:

Frame 87: 505 bytes on wire (4040 bits), 505 bytes captured (4040 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: gaia.cs.umass.edu (128.119.245.12)

Transmission Control Protocol, Src Port: 52167 (52167), Dst Port: http (80), Seq: 1, Ack: 1, Len: 451

Hypertext Transfer Protocol

GET /~kurose/cover_5th_ed.jpg HTTP/1.1\r\n

Referer: http://gaia.cs.umass.edu/wireshark-labs/HTTP-wireshark-file4.html\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

Accept: image/png,image/svg+xml,image/*;q=0.8,*/*;q=0.5\r\n

Accept-Language: ru,en-US;q=0.8,en;q=0.5,uk;q=0.3\r\n

Accept-Encoding: gzip, deflate\r\n

Host: manic.cs.umass.edu\r\n

Connection: Keep-Alive\r\n

\r\n

[Full request URI: http://manic.cs.umass.edu/~kurose/cover_5th_ed.jpg]

[HTTP request 1/1]

[Response in frame: 203]

Answer 3:

Frame 97: 389 bytes on wire (3112 bits), 389 bytes captured (3112 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: gaia.cs.umass.edu (128.119.245.12), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 52170 (52170), Seq: 1, Ack: 275, Len: 335

Hypertext Transfer Protocol

  HTTP/1.1 302 Found\r\n

  Content-Type: text/html; charset=UTF-8\r\n

  Content-Length: 163\r\n

  Location: http://filter.ncnd.vodafone.ua/nf\r\n

  Cache-Control: no-cache\r\n

  Connection: Close\r\n

  \r\n

  [HTTP response 1/1]

  [Time since request: 0.240166000 seconds]

  [Request in frame: 94]

[Request URI: http://gaia.cs.umass.edu/favicon.ico]

File Data: 163 bytes

Line-based text data: text/html (1 lines)

Request 4:

Frame 94: 328 bytes on wire (2624 bits), 328 bytes captured (2624 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: gaia.cs.umass.edu (128.119.245.12)

Transmission Control Protocol, Src Port: 52170 (52170), Dst Port: http (80), Seq: 1, Ack: 1, Len: 274

Hypertext Transfer Protocol

GET /favicon.ico HTTP/1.1\r\n

Accept: */*\r\n

Accept-Encoding: gzip, deflate\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

Host: gaia.cs.umass.edu\r\n

DNT: 1\r\n

Connection: Keep-Alive\r\n

\r\n

[Full request URI: http://gaia.cs.umass.edu/favicon.ico]

[HTTP request 1/1]

[Response in frame: 97]

Answer 4:

Frame 148: 431 bytes on wire (3448 bits), 431 bytes captured (3448 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: vfua.ncnd.mobi (34.246.241.150), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 52172 (52172), Seq: 1, Ack: 272, Len: 377

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Server: nginx\r\n

Date: Thu, 05 Mar 2020 13:07:55 GMT\r\n

Content-Type: text/html\r\n

Content-Length: 154\r\n

Connection: keep-alive\r\n

Cache-Control: no-cache, no-store, must-revalidate\r\n

Pragma: no-cache\r\n

Expires: 0\r\n

\r\n

[HTTP response 1/1]

[Time since request: 0.069910000 seconds]

[Request in frame: 118]

[Request URI: http://filter.ncnd.vodafone.ua/nf]

File Data: 154 bytes

Line-based text data: text/html (1 lines)

Request 5:

Frame 118: 325 bytes on wire (2600 bits), 325 bytes captured (2600 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca), Dst: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7)

Internet Protocol Version 4, Src: DESKTOP-A2T98FT (192.168.43.181), Dst: vfua.ncnd.mobi (34.246.241.150)

Transmission Control Protocol, Src Port: 52172 (52172), Dst Port: http (80), Seq: 1, Ack: 1, Len: 271

Hypertext Transfer Protocol

GET /nf HTTP/1.1\r\n

Accept: */*\r\n

Accept-Encoding: gzip, deflate\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/70.0.3538.102 Safari/537.36 Edge/18.18362\r\n

Host: filter.ncnd.vodafone.ua\r\n

DNT: 1\r\n

Connection: Keep-Alive\r\n

\r\n

[Full request URI: http://filter.ncnd.vodafone.ua/nf]

[HTTP request 1/1]

[Response in frame: 148]

Answer 5:

Frame 203: 572 bytes on wire (4576 bits), 572 bytes captured (4576 bits) on interface \Device\NPF_{757FB211-E844-42C4-AB8F-4EBE3EEE88C0}, id 0

Ethernet II, Src: c6:93:d9:94:d3:d7 (c6:93:d9:94:d3:d7), Dst: DESKTOP-A2T98FT (98:3b:8f:85:dc:ca)

Internet Protocol Version 4, Src: gaia.cs.umass.edu (128.119.245.12), Dst: DESKTOP-A2T98FT (192.168.43.181)

Transmission Control Protocol, Src Port: http (80), Dst Port: 52167 (52167), Seq: 100801, Ack: 452, Len: 518

[73 Reassembled TCP Segments (101318 bytes): #98(1400), #99(1400), #100(1400), #101(1400), #102(1400), #103(1400), #104(1400), #105(1400), #106(1400), #107(1400), #123(1400), #124(1400), #125(1400), #126(1400), #127(1400), #129(1400), #131(]

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Date: Thu, 05 Mar 2020 13:07:55 GMT\r\n

Server: Apache/2.4.6 (CentOS) OpenSSL/1.0.2k-fips PHP/5.4.16 mod_perl/2.0.11 Perl/v5.16.3\r\n

Last-Modified: Tue, 15 Sep 2009 18:23:27 GMT\r\n

ETag: "18a68-473a1e0e6e5c0"\r\n

Accept-Ranges: bytes\r\n

Content-Length: 100968\r\n

Keep-Alive: timeout=5, max=100\r\n

Connection: Keep-Alive\r\n

Content-Type: image/jpeg\r\n

\r\n

[HTTP response 1/1]

[Time since request: 0.713949000 seconds]

[Request in frame: 87]

[Request URI: http://manic.cs.umass.edu/~kurose/cover_5th_ed.jpg]

File Data: 100968 bytes

JPEG File Interchange Format

16. Скільки запитів HTTP GET було відправлено вашим браузером? Якими були цільові IP-адреси запитів?

5 запитів.

128.119.245.12 (4 шт.)

34.246.241.150

17. Чи можете ви встановити, чи були ресурси отримані паралельно чи послідовно? Яким чином?

Послідовно.

За часом надходження відповідей та адресами.

Висновок: я виконав 4 запити та провів аналіз деталей роботи протоколу HTTP.