**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ**

**НАВЧАЛЬНО-НАУКОВИЙ КОМПЛЕКС**

**«ІНСТИТУТ ПРИКЛАДНОГО СИСТЕМНОГО АНАЛІЗУ»**

**НАЦІОНАЛЬНОГО ТЕХНІЧНОГО УНІВЕРСИТЕТУ УКРАЇНИ**

**«КИЇВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ»**

**КАФЕДРА МАТЕМАТИЧНИХ МЕТОДІВ СИСТЕМНОГО АНАЛІЗУ**

**Практична робота №2**

**з курсу «Комп'ютерні мережі»**

**Виконав: студент 3 курсу**

**групи КА-74**

**Купченко В.С.**

**Прийняв: Кухарєв С.О.**

**Київ – 2020р.**

**Пакети для відповідей 1-7 та 8-11:  
Запит:**Frame 39: 557 bytes on wire (4456 bits), 557 bytes captured (4456 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9), Dst: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14)

Internet Protocol Version 4, Src: 192.168.43.213, Dst: 128.119.245.12

Transmission Control Protocol, Src Port: 50275, Dst Port: 80, Seq: 1, Ack: 1, Len: 503

Hypertext Transfer Protocol

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

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

Connection: keep-alive\r\n

DNT: 1\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/79.0.3945.130 Safari/537.36\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,\*/\*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n

Accept-Encoding: gzip, deflate\r\n

Accept-Language: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7,uk;q=0.6\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: 43]

**Відповідь:**

Frame 43: 540 bytes on wire (4320 bits), 540 bytes captured (4320 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14), Dst: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9)

Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.43.213

Transmission Control Protocol, Src Port: 80, Dst Port: 50275, Seq: 1, Ack: 504, Len: 486

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Date: Wed, 26 Feb 2020 10:36:50 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: 0.162403000 seconds]

[Request in frame: 39]

[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)

**Повторний запит:**

Frame 79: 668 bytes on wire (5344 bits), 668 bytes captured (5344 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9), Dst: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14)

Internet Protocol Version 4, Src: 192.168.43.213, Dst: 128.119.245.12

Transmission Control Protocol, Src Port: 50373, Dst Port: 80, Seq: 1, Ack: 1, Len: 614

Hypertext Transfer Protocol

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

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

Connection: keep-alive\r\n

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

DNT: 1\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/79.0.3945.130 Safari/537.36\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,\*/\*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n

Accept-Encoding: gzip, deflate\r\n

Accept-Language: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7,uk;q=0.6\r\n

If-None-Match: "80-59f7523c82530"\r\n

If-Modified-Since: Wed, 26 Feb 2020 06:59:03 GMT\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: 81]

**Відповідь:**

Frame 81: 293 bytes on wire (2344 bits), 293 bytes captured (2344 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14), Dst: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9)

Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.43.213

Transmission Control Protocol, Src Port: 80, Dst Port: 50373, Seq: 1, Ack: 615, Len: 239

Hypertext Transfer Protocol

HTTP/1.1 304 Not Modified\r\n

Date: Wed, 26 Feb 2020 10:54:49 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

Connection: Keep-Alive\r\n

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

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

\r\n

[HTTP response 1/1]

[Time since request: 0.181904000 seconds]

[Request in frame: 79]

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

**Контрольні запитання:**

1. **Яку версію протоколу HTTP використовує ваш браузер (1.0 чи 1.1)?   
    1.1 (**GET /wireshark-labs/HTTP-wireshark-file1.html HTTP/1.1\r\n) **Яку версію протоколу використовує сервер?  
    1.1 (**HTTP/1.1 200 OK\r\n**)**
2. **Які мови (якщо вказано) браузер може прийняти від сервера?**

Російська російська, будь’яка російська, америкааньська англійська, будь’яка англійська та українська  
Accept-Language: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7,uk;q=0.6\r\n

1. **Які IP-адреси вашого комп’ютера та цільового веб-сервера?**

Мого компютера: 192.168.43.213

Веб-сервера: 128.119.245.12

1. **Який статусний код сервер повернув у відповіді вашому браузеру?**

200

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

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

1. **Скільки байт контенту повертається сервером?**

128

1. **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

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

Ні

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

Так

1. **Перевірте вміст другого запиту HTTP GET. Чи є в ньому заголовок IF-MODIFIED-SINCE? Якщо так, яке значення йому відповідає?**

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

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

304 Not Modified, ні

**Пакети для відповідей 12-15:**

**Запит:**

Frame 28: 602 bytes on wire (4816 bits), 602 bytes captured (4816 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9), Dst: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14)

Internet Protocol Version 4, Src: 192.168.43.213, Dst: 66.6.101.171

Transmission Control Protocol, Src Port: 51031, Dst Port: 80, Seq: 1, Ack: 1, Len: 548

Hypertext Transfer Protocol

GET /dyn/str\_strip/000000000/00000000/0000000/000000/70000/3000%20/400/73435/73435.strip.gif HTTP/1.1\r\n

Host: www.dilbert.com\r\n

Connection: keep-alive\r\n

DNT: 1\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/79.0.3945.130 Safari/537.36\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,\*/\*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n

Accept-Encoding: gzip, deflate\r\n

Accept-Language: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7,uk;q=0.6\r\n

\r\n

[Full request URI: http://www.dilbert.com/dyn/str\_strip/000000000/00000000/0000000/000000/70000/3000%20/400/73435/73435.strip.gif]

[HTTP request 1/1]

[Response in frame: 35]

**Відповідь:**

Frame 35: 270 bytes on wire (2160 bits), 270 bytes captured (2160 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14), Dst: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9)

Internet Protocol Version 4, Src: 66.6.101.171, Dst: 192.168.43.213

Transmission Control Protocol, Src Port: 80, Dst Port: 51031, Seq: 1, Ack: 549, Len: 216

Hypertext Transfer Protocol

HTTP/1.1 301 Moved Permanently\r\n

Content-Type: text/html\r\n

Content-length: 0\r\n

Connection: Close\r\n

Location: https://dilbert.com/dyn/str\_strip/000000000/00000000/0000000/000000/70000/3000%20/400/73435/73435.strip.gif\r\n

\r\n

[HTTP response 1/1]

[Time since request: 0.211876000 seconds]

[Request in frame: 28]

[Request URI: http://www.dilbert.com/dyn/str\_strip/000000000/00000000/0000000/000000/70000/3000%20/400/73435/73435.strip.gif]

**Повторний запит:**

Frame 143: 609 bytes on wire (4872 bits), 609 bytes captured (4872 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9), Dst: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14)

Internet Protocol Version 4, Src: 192.168.43.213, Dst: 66.6.101.171

Transmission Control Protocol, Src Port: 51035, Dst Port: 80, Seq: 1, Ack: 1, Len: 555

Hypertext Transfer Protocol

GET /dyn/str\_strip/000000000/00000000/0000000/000000/70000/7000%20/300/77356/77356.strip.sunday.gif HTTP/1.1\r\n

Host: www.dilbert.com\r\n

Connection: keep-alive\r\n

DNT: 1\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/79.0.3945.130 Safari/537.36\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,\*/\*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n

Accept-Encoding: gzip, deflate\r\n

Accept-Language: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7,uk;q=0.6\r\n

\r\n

[Full request URI: http://www.dilbert.com/dyn/str\_strip/000000000/00000000/0000000/000000/70000/7000%20/300/77356/77356.strip.sunday.gif]

[HTTP request 1/1]

[Response in frame: 148]

**Відповідь:**

Frame 148: 277 bytes on wire (2216 bits), 277 bytes captured (2216 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14), Dst: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9)

Internet Protocol Version 4, Src: 66.6.101.171, Dst: 192.168.43.213

Transmission Control Protocol, Src Port: 80, Dst Port: 51035, Seq: 1, Ack: 556, Len: 223

Hypertext Transfer Protocol

HTTP/1.1 301 Moved Permanently\r\n

Content-Type: text/html\r\n

Content-length: 0\r\n

Connection: Close\r\n

Location: https://dilbert.com/dyn/str\_strip/000000000/00000000/0000000/000000/70000/7000%20/300/77356/77356.strip.sunday.gif\r\n

\r\n

[HTTP response 1/1]

[Time since request: 0.203387000 seconds]

[Request in frame: 143]

[Request URI: http://www.dilbert.com/dyn/str\_strip/000000000/00000000/0000000/000000/70000/7000%20/300/77356/77356.strip.sunday.gif]

1. **Скільки повідомлень HTTP GET було відправлено вашим браузером?**

1

1. **Скільки пакетів TCP було необхідно для доставки одної відповіді HTTP-сервера?**

14

1. **Який код та опис статусу був у відповіді сервера?**

301 Moved Permanently

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

Так, таким чином починається перший пакет протоколу TCP

**Пакети для відповідей 16-17:**

**Запит:**

Frame 128: 557 bytes on wire (4456 bits), 557 bytes captured (4456 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9), Dst: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14)

Internet Protocol Version 4, Src: 192.168.43.213, Dst: 128.119.245.12

Transmission Control Protocol, Src Port: 51144, Dst Port: 80, Seq: 1, Ack: 1, Len: 503

Hypertext Transfer Protocol

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

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

Connection: keep-alive\r\n

DNT: 1\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/79.0.3945.130 Safari/537.36\r\n

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,\*/\*;q=0.8,application/signed-exchange;v=b3;q=0.9\r\n

Accept-Encoding: gzip, deflate\r\n

Accept-Language: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7,uk;q=0.6\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: 134]

[Next request in frame: 136]

**Відповідь:**

Frame 134: 1127 bytes on wire (9016 bits), 1127 bytes captured (9016 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14), Dst: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9)

Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.43.213

Transmission Control Protocol, Src Port: 80, Dst Port: 51144, Seq: 1, Ack: 504, Len: 1073

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Date: Wed, 26 Feb 2020 12:40:07 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: "2ca-59f7523c6dd0e"\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: 0.197688000 seconds]

[Request in frame: 128]

[Next request in frame: 136]

[Next response in frame: 142]

[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)

**Повторний запит:**

Frame 136: 489 bytes on wire (3912 bits), 489 bytes captured (3912 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9), Dst: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14)

Internet Protocol Version 4, Src: 192.168.43.213, Dst: 128.119.245.12

Transmission Control Protocol, Src Port: 51144, Dst Port: 80, Seq: 504, Ack: 1074, Len: 435

Hypertext Transfer Protocol

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

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

Connection: keep-alive\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/79.0.3945.130 Safari/537.36\r\n

DNT: 1\r\n

Accept: image/webp,image/apng,image/\*,\*/\*;q=0.8\r\n

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

Accept-Encoding: gzip, deflate\r\n

Accept-Language: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7,uk;q=0.6\r\n

\r\n

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

[HTTP request 2/2]

[Prev request in frame: 128]

[Response in frame: 142]

**Відповідь:**

Frame 142: 865 bytes on wire (6920 bits), 865 bytes captured (6920 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14), Dst: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9)

Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.43.213

Transmission Control Protocol, Src Port: 80, Dst Port: 51144, Seq: 3874, Ack: 939, Len: 811

[3 Reassembled TCP Segments (3611 bytes): #139(1400), #140(1400), #142(811)]

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Date: Wed, 26 Feb 2020 12:40:07 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: 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: 0.182855000 seconds]

[Prev request in frame: 128]

[Prev response in frame: 134]

[Request in frame: 136]

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

File Data: 3267 bytes

Portable Network Graphics

**Ще один запит:**

Frame 149: 503 bytes on wire (4024 bits), 503 bytes captured (4024 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9), Dst: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14)

Internet Protocol Version 4, Src: 192.168.43.213, Dst: 128.119.245.12

Transmission Control Protocol, Src Port: 51147, Dst Port: 80, Seq: 1, Ack: 1, Len: 449

Hypertext Transfer Protocol

GET /~kurose/cover\_5th\_ed.jpg HTTP/1.1\r\n

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

Connection: keep-alive\r\n

User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/79.0.3945.130 Safari/537.36\r\n

DNT: 1\r\n

Accept: image/webp,image/apng,image/\*,\*/\*;q=0.8\r\n

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

Accept-Encoding: gzip, deflate\r\n

Accept-Language: ru-RU,ru;q=0.9,en-US;q=0.8,en;q=0.7,uk;q=0.6\r\n

\r\n

[Full request URI: http://manic.cs.umass.edu/~kurose/cover\_5th\_ed.jpg]

[HTTP request 1/1]

[Response in frame: 276]

**Відповідь:**

Frame 276: 572 bytes on wire (4576 bits), 572 bytes captured (4576 bits) on interface \Device\NPF\_{02DF4F74-5D72-4C21-BA18-F120F10D4FED}, id 0

Ethernet II, Src: 66:c2:de:fb:31:14 (66:c2:de:fb:31:14), Dst: CyberTAN\_c2:ea:a9 (60:14:b3:c2:ea:a9)

Internet Protocol Version 4, Src: 128.119.245.12, Dst: 192.168.43.213

Transmission Control Protocol, Src Port: 80, Dst Port: 51147, Seq: 100801, Ack: 450, Len: 518

[73 Reassembled TCP Segments (101318 bytes): #153(1400), #154(1400), #156(1400), #157(1400), #159(1400), #160(1400), #162(1400), #163(1400), #165(1400), #166(1400), #168(1400), #169(1400), #170(1400), #171(1400), #173(1400), #174(1400), #17]

Hypertext Transfer Protocol

HTTP/1.1 200 OK\r\n

Date: Wed, 26 Feb 2020 12:40:08 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: 0.961934000 seconds]

[Request in frame: 149]

[Request URI: http://manic.cs.umass.edu/~kurose/cover\_5th\_ed.jpg]

File Data: 100968 bytes

JPEG File Interchange Format

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

3 запити

128.119.245.12

128.119.245.12

128.119.245.12

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

Послідовно, за часом надходження відповідей та адресами.

**Висновок:** виконуючи цю роботу, я навчився перехоплювати та аналізувати протоколи HTTP.