Handout #6 — CS 471

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1 Questions

1. HTTP is known as a stateless protocol. What does this mean?

   - HTTP will execute each request independently. Therefore any past or future requests will not affect the current request.

2. What is the difference between HTTP persistent and non-persistent connections?

   - Persistent connections will still have an open TCP connection when the request after the request has been processed. Non-persistent will terminate the connection after.

3. What are the advantages and disadvantages of persistent and non-persistent connections?

   - **Advantages (non-persistent):**
     - Unknown
   - **Disadvantages (non-persistent):**
     - Requires 2 RTTs (round trip time) per object
     - OS overhead for each TCP connection
     - Browsers often open parallel TCP connections to fetch referenced objects
   - **Advantages (persistent):**
     - Takes only one RTT
     - Multiple objects can be sent over a single connection
   - **Advantages (persistent):**
     - Unknown

4. Describe the basic structure of an HTTP request and response

   - A *start-line* describing the requests to be implemented, or its status of whether its successful or a failure
   - An optional set of *HTTP headers* specifying the request, or describing the body included in the message.
   - A blank line indicating all meta-information for the request has been sent
   - An optional *body* containing data associated with the request (like content of an HTML form), or the document associated with a response. The presence of the body and its size is specified by the starting line and HTTP headers.
   - **NOTE:** more information can be found here

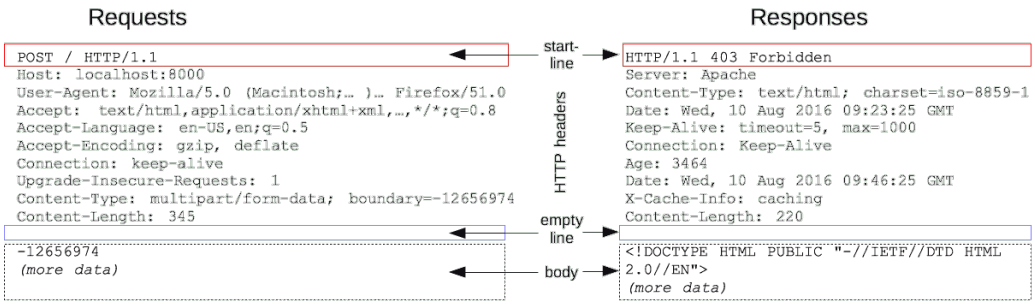


Figure 1: HTTP request

5. What is round trip time (RTT)? How many RTTs does it take to fetch a webpage from a server? Explain.

   - **RTT:** The time (in milliseconds) it takes from the initiating client to issue the request and receive a response.
   - It would take exactly two RTTs; the first GET request and a subsequent response with the webpage

6. What is the difference between the HTTP GET and POST methods

   - The GET request will ask the server for some resource
   - The POST request will provide information needed on a given webpage

7. What HTTP message fields are used for implementing web cookies?

   - Cookies use the "Set-Cookie" header field
   - More information can be found here

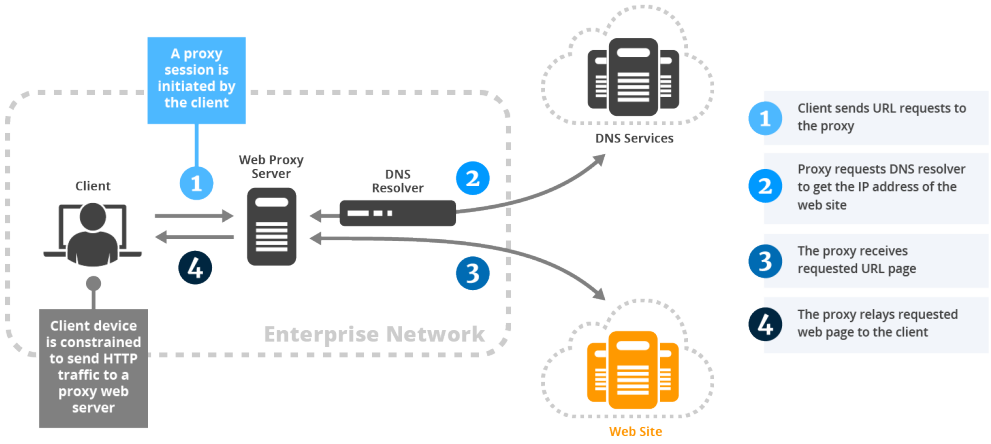
8. How long (in terms of RTTs) would it take to retrieve a webpage containing 10 negligibly small images using persistent and non-persistent connections respectively?

   - Persistent: 20 RTTs (this information is found on a Quizlet set, so it can be debated)
   - Non-persistent: 1 RTTs

9. What are the two key advantages of web proxies?

   - **Web Proxy:** an intermediary application between the client and server
   - Reduces response time for client requests and traffic on access links

10. Explain the sequence of HTTP messages between the web client, web server, and web proxy server, when fetching a webpage. Be sure to mention the relevant fields in all HTTP messages.



   - Client sends request to proxy
   - Proxy will parlay request to the destination
   - The destination server will then give the response to the proxy
   - Proxy will then relay the response to the server
   - I wrote this before reading the diagram in full lol