Lab Exercise 2: HTTP & Socket Programming

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Exercise 3: Using Wireshark to understand basic HTTP request/response messages

Question 1: What is the status code and phrase returned from the server to the client browser?
Status Code: 200
Response Phrase: OK

Question 2: When was the HTML file that the browser is retrieving last modified at the server? Does the response also contain a DATE header? How are these two fields different?

Last-Modified: Tue, 23 Sep 2003 05:29:00 GMT
Yes it contains a date header. The two fields are different. Date is when the message was sent/originated and last-modified is the date the requested object was last modified.

Question 3: Is the connection established between the browser and the server persistent or non-persistent? How can you infer this?

The connection established is persistent and this is inferred by the HTTP version. HTTP/1.1 is being used which is a persistent connection whereas HTTP/1.0 is non-persistent.

Question 4: How many bytes of content are being returned to the browser?

73 bytes of content.

Question 5: What is the data contained inside the HTTP response packet?

Text/html data: Congratulations. You've downloaded the file lab2-1.html!

Exercise 4: Using Wireshark to understand the HTTP CONDITIONAL GET/response interaction

Question 1: Inspect the contents of the first HTTP GET request from the browser to the server. Do you see an "IF-MODIFIED-SINCE" line in the HTTP GET?

No.

Question 2: Does the response indicate the last time that the requested file was modified?

Yes, Tue, 23 Sep 2003 05:35:00 GMT

Question 3: Now inspect the contents of the second HTTP GET request from the browser to the server. Do you see an "IF-MODIFIED-SINCE:" and "IF-NONE-MATCH" lines in the HTTP GET? If so, what information is contained in these header lines?

Yes.
If-Modified-Since: Tue, 23 Sep 2003 05:35:00 GMT
If-None-Match: "1bfef-173-8f4ae900"

Question 4: What is the HTTP status code and phrase returned from the server in response to this second HTTP GET? Did the server explicitly return the contents of the file? Explain.

Status Code: 304
Response Phrase: Not Modified.

No the server did not return the contents of the file. This is due to the conditional GET request. The server will only return content if it has been last modified after a given date. If it hasn't been modified it only returns a 304 status.

Question 5: What is the value of the Etag field in the 2nd response message and how it is used? Has this value changed since the 1st response message was received?

ETag: "1bfef-173-8f4ae900"\r\n

The ETag field is an identifier for a specific version of a resource. It allows caches to be more efficient and saves bandwidth as a web server does not need to send a full response if the content has not changed. If the content has changed, ETags are useful to help prevent simultaneous updates of a resource from overwriting each other. If the resource has changed a new value ETag must be generated and is useful for tracking purposes.

No, the value did not change.