第二章作业

P4. Consider the following string of ASCII characters that were captured by Wireshark when the browser sent an HTTP GET message (i.e., this is the actual content of an HTTP GET message).

The characters *<cr><lf>* are carriage return and line-feed characters (that is, the italized character string *<cr>* in the text below represents the single carriage-return character that was contained at that point in the HTTP header). Answer the following questions, indicating where in the HTTP GET message below you find the answer.

GET /cs453/index.html HTTP/1.1<cr><lf>Host: gai
a.cs.umass.edu<cr><lf>User-Agent: Mozilla/5.0 (
Windows;U; Windows NT 5.1; en-US; rv:1.7.2) Gec
ko/20040804 Netscape/7.2 (ax) <cr><lf>Accept:ex
t/xml, application/xml, application/xhtml+xml, text
/html;q=0.9, text/plain;q=0.8, image/png,/*;q=0.5*
<cr><lf>Accept-Language: en-us, en;q=0.5<cr><lf>Accept-
Encoding: zip, deflate<cr><lf>Accept-Charset: ISO
-8859-1, utf-8;q=0.7,;q=0.7<cr><lf>Keep-Alive: 300<cr>*
<lf>Connection:keep-alive<cr><lf><cr><lf>

  a. What is the URL of the document requested by the browser?
  b. What version of HTTP is the browser running?
  c. Does the browser request a non-persistent or a persistent connection?
  d. What is the IP address of the host on which the browser is running?
  e. What type of browser initiates this message? Why is the browser type needed in an HTTP request message?

P5. The text below shows the reply sent from the server in response to the HTTP GET message in the question above. Answer the following questions, indicating where in the message below you find the answer.

HTTP/1.1 200 OK<cr><lf>Date: Tue, 07 Mar 2008
12:39:45GMT<cr><lf>Server: Apache/2.0.52 (Fedora)
<cr><lf>Last-Modified: Sat, 10 Dec2005 18:27:46
GMT<cr><lf>ETag: "526c3-f22-a88a4c80"<cr><lf>Accept-
Ranges: bytes<cr><lf>Content-Length: 3874<cr><lf>
Keep-Alive: timeout=max=100<cr><lf>Connection:
Keep-Alive<cr><lf>Content-Type: text/html; charset=
ISO-8859-1<cr><lf><cr><lf><!doctype html public "-
//w3c//dtd html 4.0 transitional//en"><lf><html><lf>
<head><lf> <meta http-equiv="Content-Type"
content="text/html; charset=iso-8859-1"><lf> <meta
name="GENERATOR" content="Mozilla/4.79 [en] (Windows NT
5.0; U) Netscape]"><lf> <title>CMPSCI 453 / 591 /
NTU-ST550ASpring 2005 homepage</title><lf></head><lf>

  a. Was the server able to successfully find the document or not? What time was the document reply provided?
  b. When was the document last modified?
  c. How many bytes are there in the document being returned?
  d. What are the first 5 bytes of the document being returned? Did the server agree to a

persistent connection?

第三题:

P7. Suppose within your Web browser you click on a link to obtain a Web page. The IP address for the associated URL is not cached in your local host, so a DNS lookup is necessary to obtain the IP address. Suppose that n DNS servers are visited before your host receives the IP address from DNS; the successive visits incur an RTT of RTT1,. . .,RTTn. Further suppose that the Web page associated with the link contains exactly one object, consisting of a small amount of HTML text. Let RTT_0 denote the RTT between the local host and the server containing the object. Assuming zero transmission time of the object, how much time elapses from when the client clicks on the link until the client receives the object?

P8. Referring to Problem P7, suppose the HTML file references eight very small objects on the same server. Neglecting transmission times, how much time elapses with

    a. Non-persistent HTTP with no parallel TCP connections?

    b. Non-persistent HTTP with the browser configured for 5 parallel connections?

    c. Persistent HTTP?

P7 作为条件，不做，只做 P8

第四题

P11. Consider the scenario introduced in the previous problem. Now suppose that the link is shared by Bob with four other users. Bob uses parallel instances of non-persistent HTTP, and the other four users use non-persistent HTTP without parallel downloads.

    a. Do Bob's parallel connections help him get Web pages more quickly? Why or why not?

    b. If all five users open five parallel instances of non-persistent HTTP, then would Bob's parallel connections still be beneficial? Why or why not?

第五题

. Read the POP3 RFC, RFC 1939. What is the purpose of the UIDL POP3 command?

第六题

Suppose you can access the caches in the local DNS servers of your department. Can you propose a way to roughly determine the Web servers (outside your department) that are most popular among the users in your department? Explain

第七题

假设下图所示网络中的本地域名服务器只提供递归查询服务，其他域名服务器均只提供迭代查询服务；局域网内主机访问 Internet 上各服务器的往返时间(RTT)均为 10ms，忽略其他各种时延。若主机 H 通过超链接 http://www.abc.com/index.html 请求浏览纯文术 Web 页 index.html，则从点击超链接开始到浏览器接收到 index.html 页面为止，所需的最短时间与最长时间分别是多少? web 页面不做缓存。