Chapter 2 Review Questions

8. There are no good examples of an application that requires no data loss and timing. If you know of one, send an e-mail to the authors.

9. A protocol uses handshaking if the two communicating entities first exchange control packets before sending data to each other. SMTP uses handshaking at the application layer whereas HTTP does not.

Chapter 2 Problems

Problem 6.

The total amount of time to get the IP address is

\[ RTT_1 + RTT_2 + \cdots + RTT_n. \]

Once the IP address is known, \( RTT_o \) elapses to set up the TCP connection and another \( RTT_o \) elapses to request and receive the small object. The total response time is

\[ 2RTT_o + RTT_1 + RTT_2 + \cdots + RTT_n. \]

Problem 8.

HTTP/1.0: GET, POST, HEAD.
HTTP/1.1: GET, POST, HEAD, OPTIONS, PUT, DELETE, TRACE, CONNECT.

See RFCs for explanations.

Experiments

1. Post to a form:
   a.) Establish telnet connection
   $ telnet thalia.spec.gmu.edu 80
   Trying 129.174.135.24...
   Connected to thalia.spec.gmu.edu.
   Escape character is ‘^]’.
   b) Issue HTTP/1.1 POST command. The Content-Length field indicates that a body is to follow:
POST /~pparis/test.cgi HTTP/1.1
Host: thalia.spec.gmu.edu
Content-Length: 9

name=Bobo
c) Response from server:
HTTP/1.1 200 OK
Date: Mon, 03 Mar 2003 20:41:45 GMT
Server: Apache/1.3.3 (Unix)
Transfer-Encoding: chunked
Content-Type: text/html

a4
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML//EN">
<html>
<head>
<title>ECE 465 Form Example</title>
</head>
<body>
<h1>ECE 465 Form Example</h1>Hello <em>Bobo</em>!
</body>
</html>

2. Password authentication:
a) telnet to server:
$ telnet thalia.spec.gmu.edu 80
Trying 129.174.135.24...
Connected to thalia.spec.gmu.edu.
Escape character is '^]'.
b) send request to server. The Authorization header includes the base-64 encoded string "Aladdin:open sesame" (QWxhZGRpbjpvcGVuIHNlc2FtZQ==)
GET /~pparis/secret/secret.html HTTP/1.1
Host: thalia.spec.gmu.edu
Authorization: Basic QWxhZGRpbjpvcGVuIHNlc2FtZQ==

c) server response:
HTTP/1.1 200 OK
Date: Mon, 03 Mar 2003 20:50:30 GMT
Server: Apache/1.3.3 (Unix)
ETag: "2848ac3-fd-3e4a67fd"
Accept-Ranges: bytes
Content-Length: 253
Content-Type: text/html

<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML//EN">
<html>
<head>
<title>TOP Secret</title>
</head>

<body>
<h1>TOP SECRET</h1>
A very secret file.