Matthew Austin

Concepts of Telecommunication

Dr. Yang

October 2017

Homework #2

CIS 340: Concepts of Telecommunications and Networking Instructor: Yi Yang

Due: before class begins (9:30am) on October 12th, 2017 (Thursday)

Total: 100 points.

1. **Page 173**

P3 (15 points)

Application Layer Protocols: DNS and HTTP / Transport Layer Protocols: UDP for DNS; TCP for HTTP.

P7 (15 points)

The total time to get the IP address is RTT1 + RTT2 + L + RTT0. When the IP is found, RTT0 elapses to set the TCP connection and another RTT0 elapses to request and receive a small object. Thus The total response time is RTT0 + RTT1 + RTT2 + L + RTTn 2

P8 (15 points)

It is a long request and response for RTT. Its 2 RTT for TCP connections and sending the file. Its up to 9 separate connections for 1 HTML file and 8 objects.

For non-persistent HTTP with no parallel, total response time is: (2 \* RTT) \* 8 this is due to the connection closing each time a file is loaded.

Due to non-persistent with 5 parallel connections having 5 connections there are only two rounds. Thus (2 \* RTT) \* 2 is the total response time. Persistent HTTP keeps the same tcp connection constantly going and loads files repeatedly. Thus (2 \* RTT) + (RTT \* 8) is the total response time

1. Page 289

P1 (24 points) –

Source port numbers Destination port numbers

1. A to S 1467 -------- 23
2. B to S 1513 -------- 23
3. S to A 23 -------- 1467
4. S to B 23 -------- 1513
5. Yes, There are not any relationships between port numbers on different hosts.
6. No, a port number univocally identifies a process

P2 (16 points) – Assume the IP addresses of the host A, B, and C are a, b, c, respectively (Note that a, b, c are distinct.)

1. To host A: Source port = 80
   1. source IP address = b
   2. destination port = 26145
   3. destination IP address = a
2. To host C: left process: Source port = 80
   1. source IP address = b
   2. destination. port = 7532
   3. destination IP address = c
3. To host C: right process: Source port = 80
   1. source IP address = b
   2. dest. port = 26145
   3. destination IP address = c

P5 (15 points)

It does not seem that receiver would be able to confirm that no bit errors occurred.But, it will verify if the checksum and its 1s complement equal to the value that was originally sent. 0 or 1 could be swapped somewhere in the checksum, other than that there will not be any bit errors detected if the addition sent by the sender and checksum received by the receiver match.