CSci 156: Internetworking Protocols and Systems

Quiz 1 (Fall 2007)

2:00-2:50am, McF 208, 10/08/2007

Student ID: _____ Name (Last, First): _____

Multiple choices (please select ONLY one answer) (9 points)

1. Which of the following is CORRECT regarding Circuit Switching and Packet Switching?

   A. Circuit Switching is better when users are active mostly of the time;
   B. Circuit Switching is better when incoming data are bursty;
   C. Packet Switching is better for applications that require minimum bandwidth;
   D. NONE OF THE ABOVE.

2. Which of the following layer handles packet routing over the Internet?

   A. Application layer;
   B. Transport layer;
   C. Network layer;
   D. Link layer;

3. Which of the following requires the **most** number of separate TCP connections in order to deliver a webpage and all objects contained in the page?

   A. Persistent HTTP without pipelining;
   B. Persistent HTTP with pipelining;
   C. Non-Persistent HTTP without pipelining;
   D. Non-persistent HTTP with pipelining.

4. Which of the following is TRUE regarding Gnutella?

   A. It allows parallel downloading;
   B. It encourages users to upload files if they want to download a lot other files;
   C. It may not be able to yield a successful query even though the file owner exists in the network;
   D. It is a centralized approach.

5. Which of the following is INCORRECT about “Statistics Multiplexing” in packet switching?

   A. Network bandwidth is shared among difference transmission sources;
   B. Packets from different sources do not follow fixed pattern for transmission;
   C. Packets from different sources follow fixed statistical pattern for transmission;
   D. Each packet uses full channel bandwidth.

6. Which of the following is the result of the “Store-and-forward” feature in Packet Switching?

   A. Processing delay;
   B. Transmission delay;
   C. Queuing delay;
   D. Propagation delay.

7. Which application is most appropriate for UDP protocol?

   A. File transfer; **B. voice over IP;** C. Telnet; D. Web mail.

8. Which approach put more traffic burden on local DNS server?

   A. Recursive query;
   B. Iterated query;
   C. NONE of ABOVE;

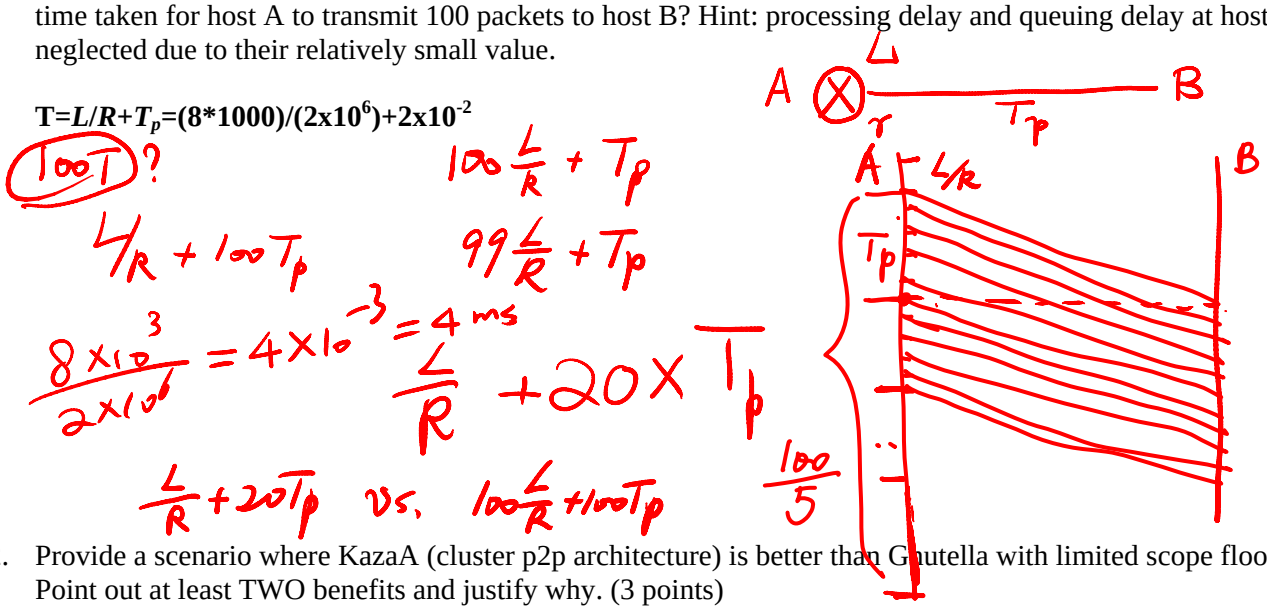
9. Which of the following is NOT the disadvantage of "Centralized P2P Systems"?

   A. Single point of failure;
   B. Bottleneck of traffic at the central server;
   C. Does not always identify the owners of some files;
   D. Copyright maybe an issue for the success of the systems.

Short problems: (6 points)

1. In a given network, a host A wants to send a sequence of packets to another host B. Suppose the packet size L is 1000 bytes and the link speed R is $2x10^6$ bits per second. Suppose the propagation delay T_p is 20ms, what is the time taken for host A to transmit 100 packets to host B? Hint: processing delay and queuing delay at host A is neglected due to their relatively small value.

   $T=L/R+T_p=(8*1000)/(2x10^6)+2x10^{-2}$



2. Provide a scenario where KazaA (cluster p2p architecture) is better than Gnutella with limited scope flooding. Point out at least TWO benefits and justify why. (3 points)

   Suppose there are 303 hosts. With KazaA, we can have 3 superpeers, each communicating with 100 regular peers, thus having a cluster architecture.

   Two benefits:
   (1) much less traffic for finding a peer since most flooding messages are eliminated;
   (2) much higher probability of finding the owner since super-peers can directly communicating with each other.