

Review Minggu ke-4

1. Under what circumstances is file downloading through P2P much faster than through a centralized client-server approach? Justify your answer using below formula

$$D_{P2P} \geq \max \left\{ \frac{F}{u_s}, \frac{F}{d_{min}}, \frac{NF}{u_s + \sum_{i=1}^N u_i} \right\}$$

2. Assume bittorrent tracker suddenly becomes unavailable. What are its consequences? Can files still be downloaded?
3. CDNs typically adopt one of two different server placement philosophies. Name and briefly describe them.
4. Besides network related considerations such as delay, loss, bandwidth performance, there are other important factors that go into a CDN server selection strategies. What are they?
5. The UDP server described needed only one socket, whereas the TCP server needed two sockets. Why? If the TCP server were to support n simultaneous connections, each from a different client host, how many sockets would the TCP server need?
6. For the client-server application over TCP, why must the server program be executed before the client program? For the client-server application over UDP, why may the client program be executed before the server program?
7. Consider a TCP connection between host A and host B. Suppose that the TCP segments traveling from host A to host B have source port number x and destination port number y . What are the source and destination port numbers for the segments traveling from host B to host A?
8. Suppose that a Web server runs in host C on port 80. Suppose this Web server uses persistent connections, and is currently receiving requests from two different hosts: A and B. Are all of the requests being sent through the same socket at host C? If they are being passed through different sockets, do both of the sockets have port 80? Discuss and explain.
9. Let $\alpha = 0.2$. Suppose for a given TCP connection three acknowledgments have been returned with RTTs: RTT for first ACK=80 msec; RTT for second ACK=60 msec; and RTT for third ACK=100 msec. Determine the value of EstimatedRTT after each of the three acknowledgments.
10. Suppose you have the following two bytes: 00110101 and 01101001. What is the 1s complement of these two bytes?