Assignment 5

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**P15. What is the difference between MAIL FROM: in SMTP and From: in the  
mail message itself?**

Ans MAIL FROM: A message from the SMTP client that identifies the sender of the mail message to the SMTP server.

FROM: On the mail message itself is NOT an SMTP message, but rather is just a line in the body of the mail message.

**P20. 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**

Ans I can just take a snapshot of the caches in the local DNS servers, then look at the most frequently accessed Web server. because more users will frequently send DNS requests for a Web server if they are more interested in it. As a result, that Web site will show up more frequently in DNS caches.

**P26. Suppose Bob joins a BitTorrent torrent, but he does not want to upload any  
data to any other peers (so called free-riding).**  
**a. Bob claims that he can receive a complete copy of the file that is shared by the swarm. Is Bob’s claim possible? Why or why not?**

Ans his first assertion may be true. If enough peers remain in the swarm for a sufficient amount of time. Bob can always obtain data through optimistic un-choking by other peers.

**b. Bob further claims that he can further make his “free-riding” more efficient by using a collection of multiple computers (with distinct IP addresses) in the computer lab in his department. How can he do that?**

Ans His second claim is also true. He can launch a client on every host, allow each client to "free-ride," and then compile the chunks gathered from each host into a single file. He may even create a small scheduling application to instruct the various hosts to request different portions of the file.

**P28. Install and compile the Python programs TCPClient and UDPClient on one host and TCPServer and UDPServer on another host.  
a. Suppose you run TCPClient before you run TCPServer. What happens?  
Why?**

Ans If we run TCPClient first, we will get a timeout error. The client request for a connection and it takes too long because no server accepts it.

**b. Suppose you run UDPClient before you run UDPServer. What happens?  
Why?**

Ans If we run UDPClient first, it can run normally because UDPClient doesn’t need to request for connection, it just sends a message to the destination. UDPServer doesn’t need to accept or listen to a connection from the client.

**c. What happens if you use different port numbers for the client and server  
sides?**

Ans If you use different port numbers, then the client will attempt to establish a TCP connection with the wrong process or a non-existent process. Errors will occur.