

CS305 Homework2

1.

The MAIL FROM: in SMTP is a part of the protocol, it is one of the SMTP commands, and the following should be the address of the email of the sender.

The From: in mail message is a part of the message, which indicates the sender of the message.

2.

SMTP uses a line containing only a period to mark the end of a message body.

HTTP uses "Content-length" to indicate the length of a message, which also shows where the message will end.

No, because the SMTP uses 7-bit ASCII to represent the message while HTTP only uses bit data to represent it, so it cannot be the same as SMTP.

3.

Periodically look into the caches of the local DNS server, the more frequent the record of a Web server appears in the cache, the more popular the Web server is. Because the more popular a Web server is, the more users will frequently query for its information from the local DNS server, the record will appear more as a result.

4.

Client server distribution

N/u	300Kbps	700Kbps	2Mbps
10	7680	7680	7680
100	51200	51200	51200
1000	512000	512000	512000

P2P distribution:

N/u	300Kbps	700Kbps	2Mbps
10	7680	7680	7680
100	25904	15616	7680
1000	47559	21525	7680

5.

a. N^2

b. $2N$

6.

a. The client will try to make a TCP connection with the server, but the server is offline, so the TCP connection cannot be made.

b. The client will send the UDP content to the server normally, since no connection need to be prepared before sending contents.

c. If the port is not the same, the process of the client could not find the correct process in the server to communicate with, so that the connection will not work normally.

7.

source port is y and detination port is x.

8.

Because the UDP is not connection-oriented, the speed of comminucation will be faster and the sending process is easier than using TCP, and the application developer may consider the loss of contents is not so important compared to the timeliness. The application developer, for example, is the stream media and the game producer, who consider the speed is more important than loss.

9.

$01010011 + 01100110 = 10111001$

$10111001 + 01110100 = 100101101$, then we should wrap the most significant 1.

$00101101 + 00000001 = 00101110$

Then all the bit to its reverse bit , then we get 11010001, which is the result.

Because using the 1's complement, the detector will add the four bit string together, then check if all the bit of the result is all 1, if the result is not all 1, then some errors must occur during the transmission.

All 1 bit error will be detected, but 2-bit error can be undetected, because it is possible that changing two bit to make the result still be all 1.