Assignment 2

Covered Topics:-
Application Layer Protocol: HTTP

Problem 1

A client is trying to retrieve a webpage which consists of a base file and 4 JPEG images from server S1. The propagation delay is 100ms. Calculate the total delay in case of:

a) HTTP Persistent Connection
b) HTTP Non- Persistent Connection

Note: The base HTML file is an object that references the other objects in the page with the objects' URLs

Problem 2

Consider a network path between a browser and server. If the propagation delay between the client and the server is 150msec, and assume the response time in case non-persistent HTTP connections is 6.001 sec. solve the following

a) Find number of objects in the requested file
b) Assume persistent HTTP connections, what is the response time?

Problem 3

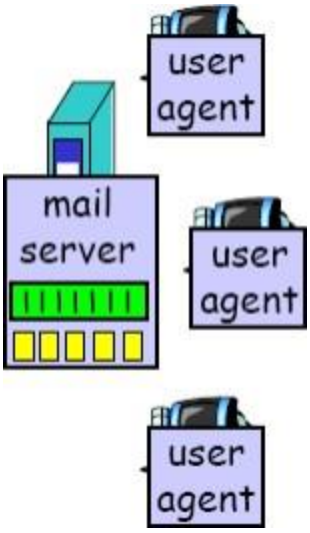
Consider end user A requesting a web page consists of a base file and 10 objects from server S and server K that are on different networks. If 4 of the 10 objects reside on server K, the total network delay between A and S is 100msec, the total network delay between A and K is 200msec. Calculate the total response time in case of persistent connection.

Problem 4

End user A is requesting a web page consists of 3 objects from Server S using HTTP 1.1 protocol. The propagation delay is 400ms and the transmission delay of each object is 100ms. (The transmission delay of the http request and response is neglected) Calculate the total response time of Server?

Problem 5

The figure shows a mail server with three user agents. Answer the following questions



a) The user agent can be a program that can be installed on the computer, or a web based interface that can be accessed using a normal web browser. What is the difference between the two?
b) What is the protocol name that the user agent uses to retrieve messages from the mail server?
c) What is the protocol name that the mail server uses to send the messages to the other mail servers?