HW2

Haorui Zhang

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CS 455

* 1. False
  2. True
  3. False
  4. False
  5. False
  6. Application layer: DNS and HTTP
  7. Transport layer: TCP and UDP
  8. gaia.cs.umass.edu/cs453/index.html
  9. 1.1
  10. Persistent
  11. No IP can be found
  12. Mozilla. Different browsers require different files for same content. HTTP record this to get correct files for users’ browser.

1. Amount of time to get the IP address is: RTT1 + RTT2 + RTT3 + …..+RTTn

Total Time: RTT0 (create connection) + RTT1 + RTT3 + …. + RTTn + RTT0 ( request and receive object) = 2RTT0+RTT1+RTT2+RTT3+…. + RTTn

* 1. 2RTT0 + RTT1 + RTT3 +…. RTTn + 8\*2\*RTT0 = 18RTT0 + RTT1 + RTT3 +…. RTTn
  2. 2RTT0 + RTT1 + RTT3 +…. RTTn + 2\*2RTT0 (Needs two requests and receive process) = 6RTT0 + RTT1 + RTT3 +…. RTTn
  3. 2RTT0 + RTT1 + RTT3 +…. RTTn + RTT0 = 3RTT0 + RTT1 + RTT3 +…. RTTn
  4. Diagram

     Description automatically generated
  5. Time to transmit: L/R

= 0.056s

= 16 request/sec \* 0.056sec/request = 0.896sec

0.896) = 0.53sec

53sec + 3sec = 3.53sec

* 1. 60% of requests goes to cache, which has 0 response time

Also reduce the access delay: (0.056)/(1-.4\*0.896) = 0.087

Total response time: .4 \* (3+0.087) = 1.2348s

Parallel downloads via parallel instances of non-persistent HTTP:

10 parallel connections, each has 15bits/sec transmit rate.

Total Delay = Dp (propagation delay) + Dt (Transmission delay)

(200/150 + Dp + 200/150 + Dp + 200/150+Dp + 100000

/150 + Dp) + (200/15 + Dp + 200/15 + Dp + 200/15 + Dp + 100000/15+Dp) = 7377 + 8\*Dp

For persistent HTTP:

Total Delay = Dp (propagation delay) + Dt (Transmission delay)

(200/150 + Dp + 200/150 + Dp + 200/150+Dp + 100000

/150 + Dp) + 10\*(200/150 + Dp + 100000/150+Dp) = 7351 + 24\*Dp

There are no significant difference between two. Therefore, no gains.

* 1. N(videos)\*N(audios) =
  2. N(videos) + N(audios) = 2N