

Jamenission delays For link 1 :- girl Bandwickh = 10100 x 8 = 202 MS too link 2 :- size = 10100 x 8 = [808 MS] Bandwidth 100 x 100 For link 3 = 8ize = 10100x8 = 404us rink 2 > link 3 7 link 1 - Own bottleneck is link 2. It takes the 100 bytes Total time = ti + tz + t3

= 202 + 10808 + 404

7 40 11 packs 2 no of powers n = 10 here T = \202 + 10x 808 + 404) us 106 The general formula for the given network's delay is: 50 Packets: - Packet size = 100 x 103 + 100 = 100×1000 + 100 Lyphan granger 50 et = 2100 x 8 bitc transmission delays: Te. = 2100 × 8 = 42 ms = 168-43 TH2 = 2100×8 = 84 215 Te3 = 2100 x 8 200 y 101

T = 42 + 50 × 168 + 84 = 85>6-43 T = 8.576m5 / 100 packets: Packet size = 100×103 + 100 (d) = 1100 xB bits Transmission delays: - 27.45 Ten = 1100 x 8 400 x 106 T12 = 1100 x 8 = 88 115 100×106 = 44 MS T13 = 1100 x 8 200 × 106 = 22 + 100 x 88 + 44 = 18.816 ms Hence the lowest time taken is = 8.526 ms for m = 50 packets 3> Bandwidth = 100 Gbys Propagation speed = 2c where c = 3x10 m/s length = 10kms @ Propagation delay: Distance = 10 × 103 = 5x 10 5 = 150 Bx 108 y2

1 mix number of bits sent by PI until first bit reaches Re. No of bits = Bropagation de lay x Bundwidth

= 50 × 10 - × 100 × 109

- 13Mb] 100 @ Bit width = Distance wax bits in that distance = 10×10^3 = [2 mm/b]5 x 10 6 4) PTT = 10 m3

Size of webpage = 1 KB

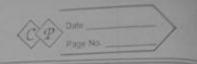
Object size = 100 KB

10 objects 1 let us assume that the file transmission time is 't' seconds for IKB data.
Ly My choice to minimite Calculation, 10 5 m/s (a) HTTP 1.0 (Nor persistent correction) T = 2 (PTT + PTT) + (1x 10x 10a) t Total mequests total sive of

Total maquests Total size of files to be transmitted in KB.

= 2x n x PTT + 1001t

= 270 m/s + 1001 t = 220 m/s + 1001 t = (6.22 + 1001 t) - 3)



(b) HTTP 1.1 (Persistent connection)

T = PTT + 32 PTT + total franspission

T = 10ms + nx10ms + 1001t

= 120ms + 1001t

[T = (0.12 + 1001t)s]

@ HTTP 2.0 (Persistent + Pipelined + datafrances
of 1 x B)

T = PTT (connection) + PTT (webpage) + PTT (objects) + File transmission time

T = (10+10+10) m + 1001 + 10

Anima 250 1 001

1117 1 228 1