

Given,

RTT(Round trip time) = 100ms

Transmit time of base html, $T_{html} = 5\text{ms}$

Transmit time of Object A, $T_A = 3\text{ms}$

Transmit time of Object B, $T_B = 2\text{ms}$

Number of Object A, $N_A = 3$

Number of Object B, $N_B = 2$

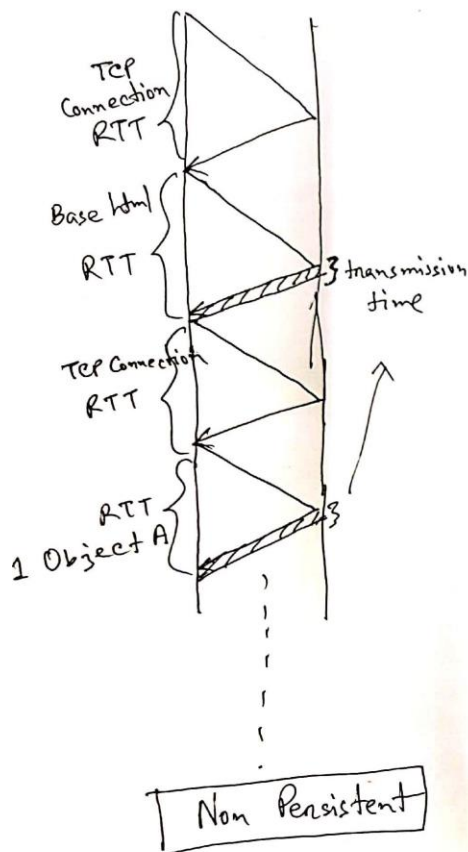
Non Persistent HTTP:

Response time of base html, $R_{html} = 2RTT + T_{html} = 205\text{ ms}$

Response time of Object A, $R_A = (2RTT + T_A) \times N_A = 609\text{ ms}$

Response time of Object B, $R_B = (2RTT + T_B) \times N_B = 404\text{ ms}$

Total response time = $R_{html} + R_A + R_B = 1218\text{ ms}$



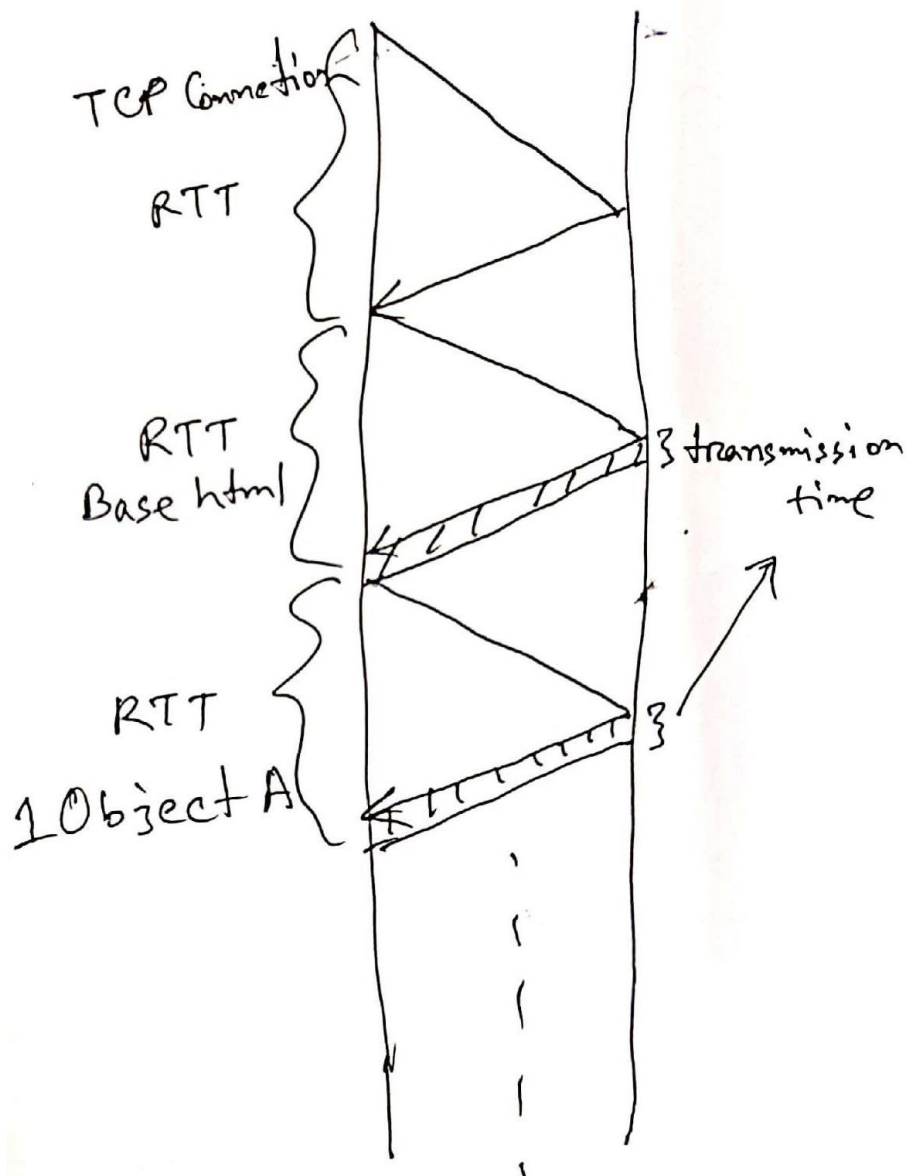
Persistent HTTP without pipelining:

Response time of base html, $R_{html} = 2RTT + T_{html} = 205$ ms

Response time of Object A, $R_A = (RTT + T_A) \times N_A = 309$ ms

Response time of Object B, $R_B = (RTT + T_B) \times N_B = 204$ ms

Total response time = $R_{html} + R_A + R_B = 718$ ms



Persistent w/o Pipelining

Persistent HTTP with pipelining:

Response time of base html, $R_{html} = 2RTT + T_{html} = 205 \text{ ms}$

Response time of Object A and Object B, $R_{AB} = (RTT + T_A \times N_A + T_B \times N_B) = 113 \text{ ms}$

Total response time = $R_{html} + R_{AB} = 318 \text{ ms}$

