COMP 2322 Computer Networking

Homework 3

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Questions:

1.

a)

$4 \times 8 = 32\ bits$

The maximum file size sends from Host A to Host B is $\boldsymbol{2^{32} bytes}$

b)

$MSS = 680\ bytes$

$Segment\ data = 2^{32} \div 680 = 6316128$

$Total\ header\ fields = 56\ bytes$

$6316128\ \times 56\ bytes = 353703189\ bytes$

$2^{32} bytes + 353703189\ bytes = 4648670485\ bytes$

$(4648670485\ bytes \times 8) \div (150 \times 10^6) = \boldsymbol{247.93s}$

2.

$$EstimatedRTT_n = \alpha \cdot SampleRTT_n + (1-\alpha) \cdot EstimatedRTT_{n-1}$$
$$= 0.125 \times 105ms + (1 - 0.125) \times 100ms = 100.625ms$$

$$EstimatedRTT_{n+1} = \alpha \cdot SampleRTT_{n+1} + (1-\alpha) \cdot EstimatedRTT_n$$
$$= 0.125 \times 115ms + (1 - 0.125) \times 100.625ms = 102.422ms$$

$$DevRTT_{n+1} = \beta \cdot |SampleRTT_{n+1} - EstimatedRTT_n| + (1-\beta) \cdot DevRTT_n$$
$$= 0.25 \times |115ms - 100.625ms| + (1 - 0.25) \times 4ms = 6.594ms$$

$$TimeoutInterval_{n+1} = EstimatedRTT_{n+1} + 4 \times DevRTT_{n+1}$$
$$= 102.422ms + 4 \times 6.594ms = \boldsymbol{128.797ms}$$