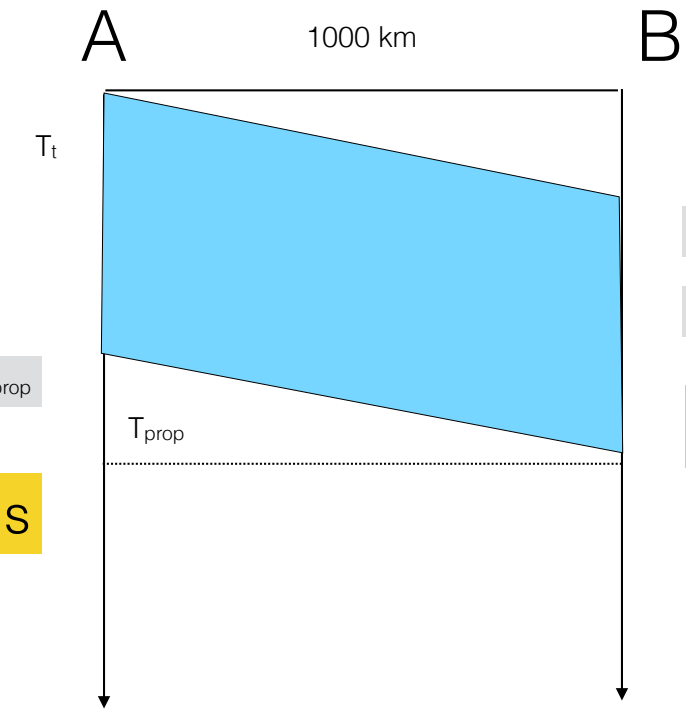
ficha 1

1)



$L_{ee} = T_t + T_{prop}$

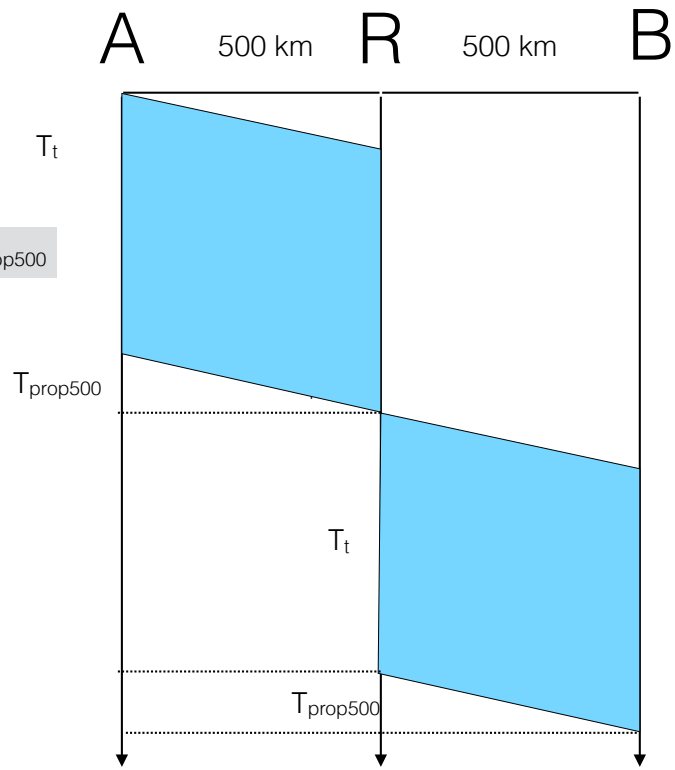
1,005 s

$L_{ee} = T_t + T_{prop500} + T_t + T_{prop500}$

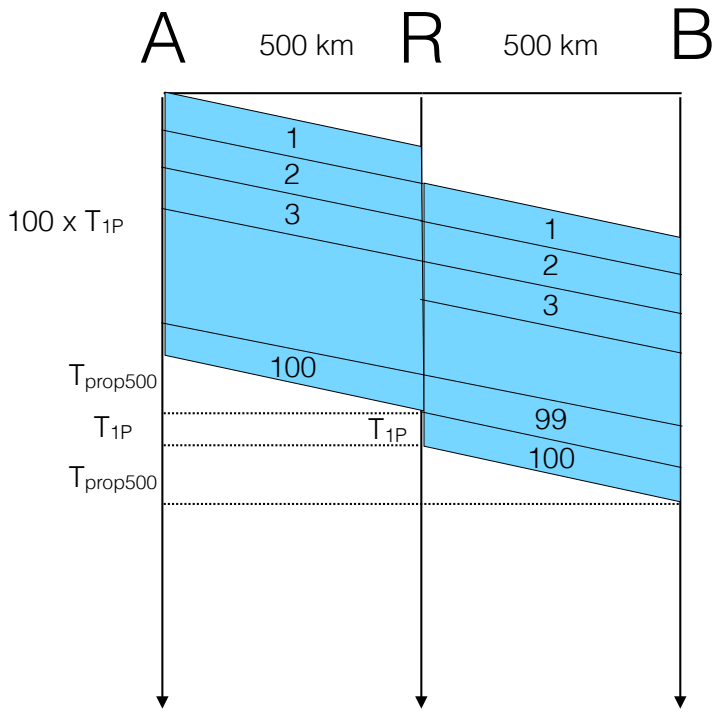
$L_{ee} = 2 \times T_t + T_{prop}$

2,005 s

2)



3)

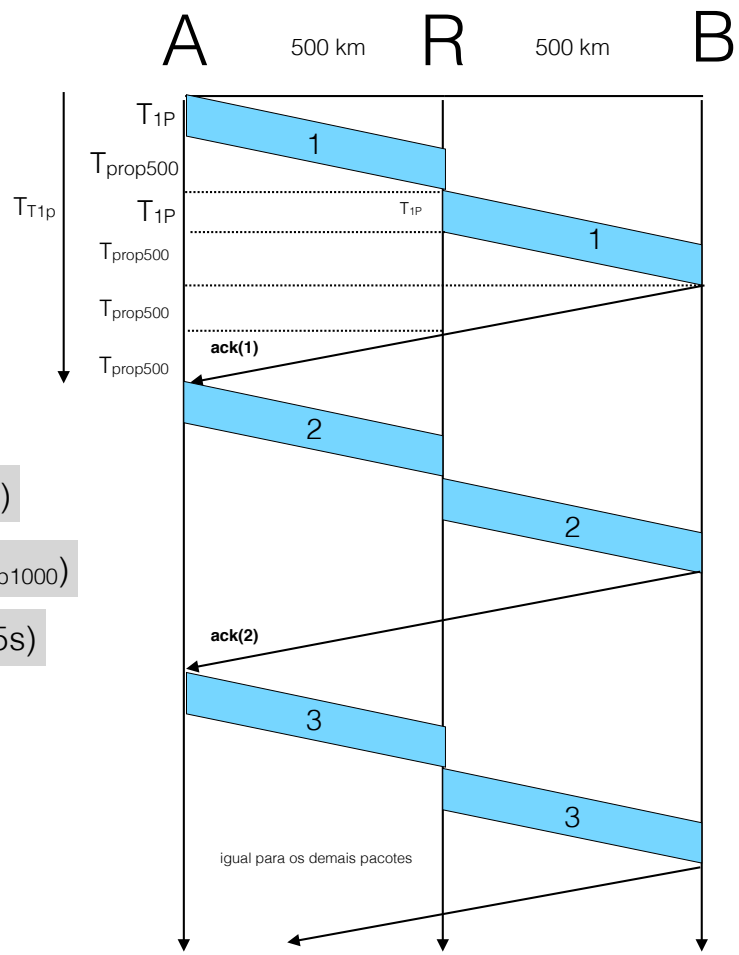


$T_{1P} = 10^{-4}$ bits / 10^6 bits /s = 0.01s

$L_{ee} = 100 \times T_{1P} + T_{prop500} + T_{1P} + T_{prop500}$

$L_{ee} = 101 \times T_{1P} + T_{prop}$

1,015 s



$L = \#pacotes \times T_{T1p}$

$L = 100 \times (2 \times T_{1P} + 4 \times T_{prop500})$

$L = 100 \times (2 \times 0.01\ s + 2 \times T_{prop1000})$

$L = 100 \times (2 \times 0.01s + 2 \times 0.005s)$

$L = 100 \times 0.03 =$ **3 s**

ficha 2

1)

#Pacotes = 1000000 / 500 = 2000

T_{1P} =500 x 8 bits / 1000000 bits/s

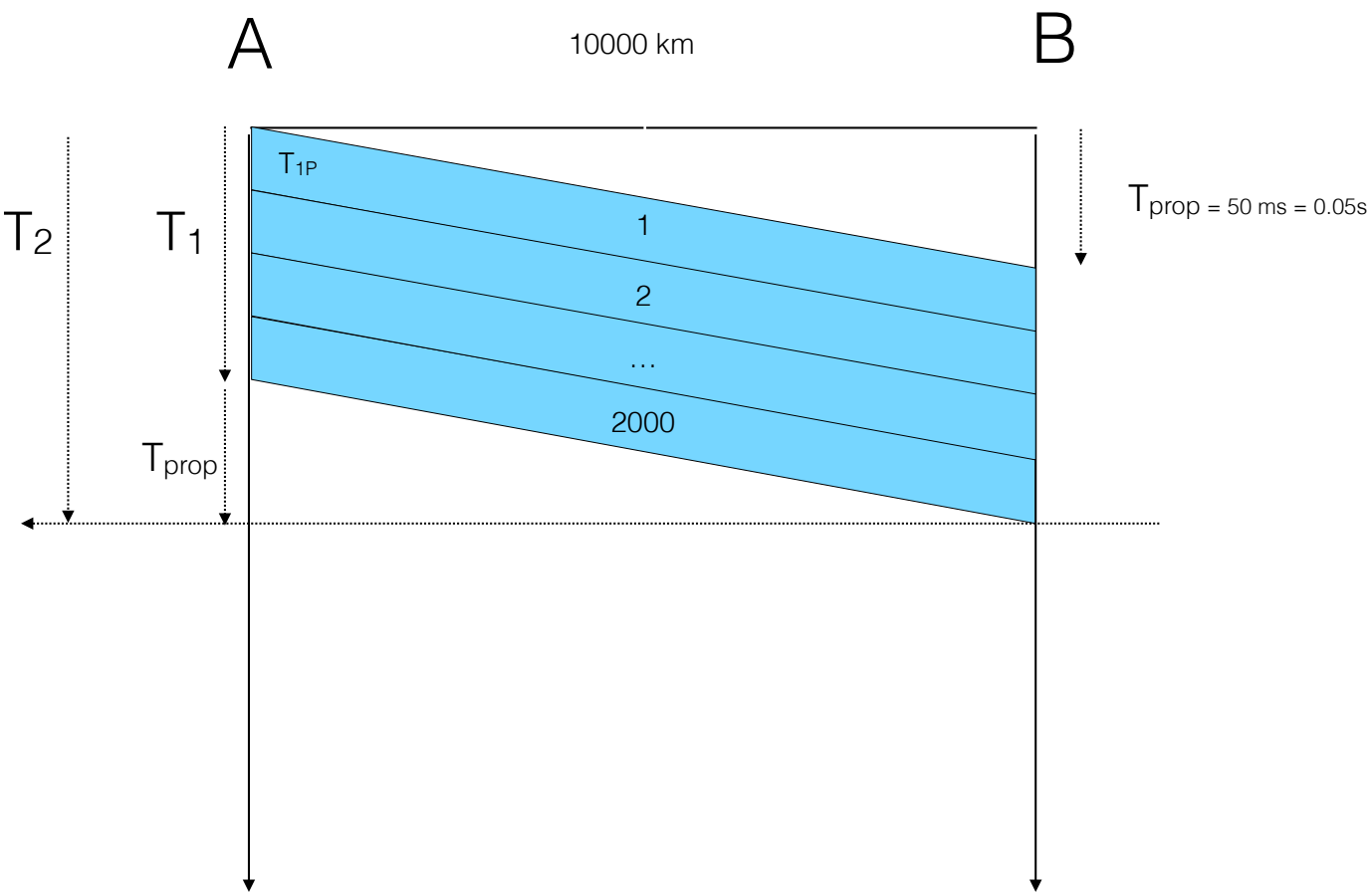
$U = T_1 / T_2$

$U = T_1 / (T_1 + T_{prop})$

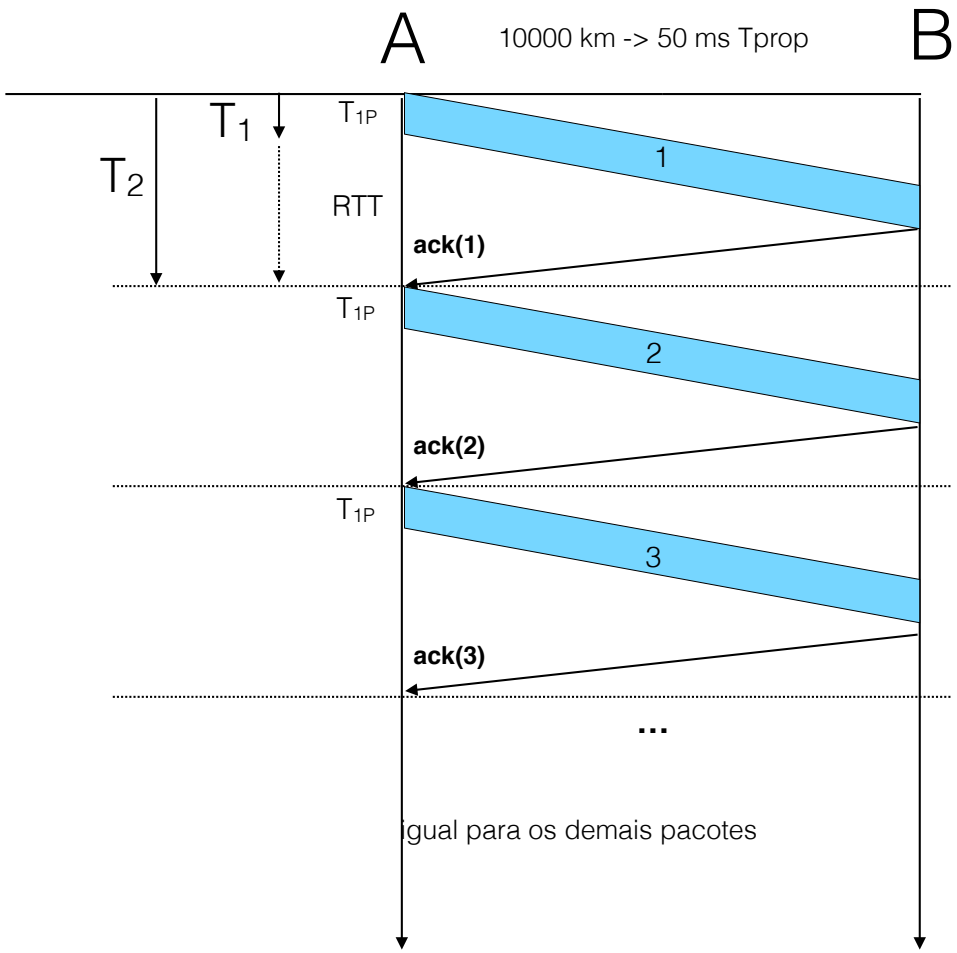
$U = 2000 \times T_{1P} / (2000 \times T_{1P} + T_{prop})$

$U = 8/(8+0.05)$

$U = 99.4\%$



2)



$U = 2000 \times T_1 / (2000 \times T_2)$

$U = T_1 / T_2$

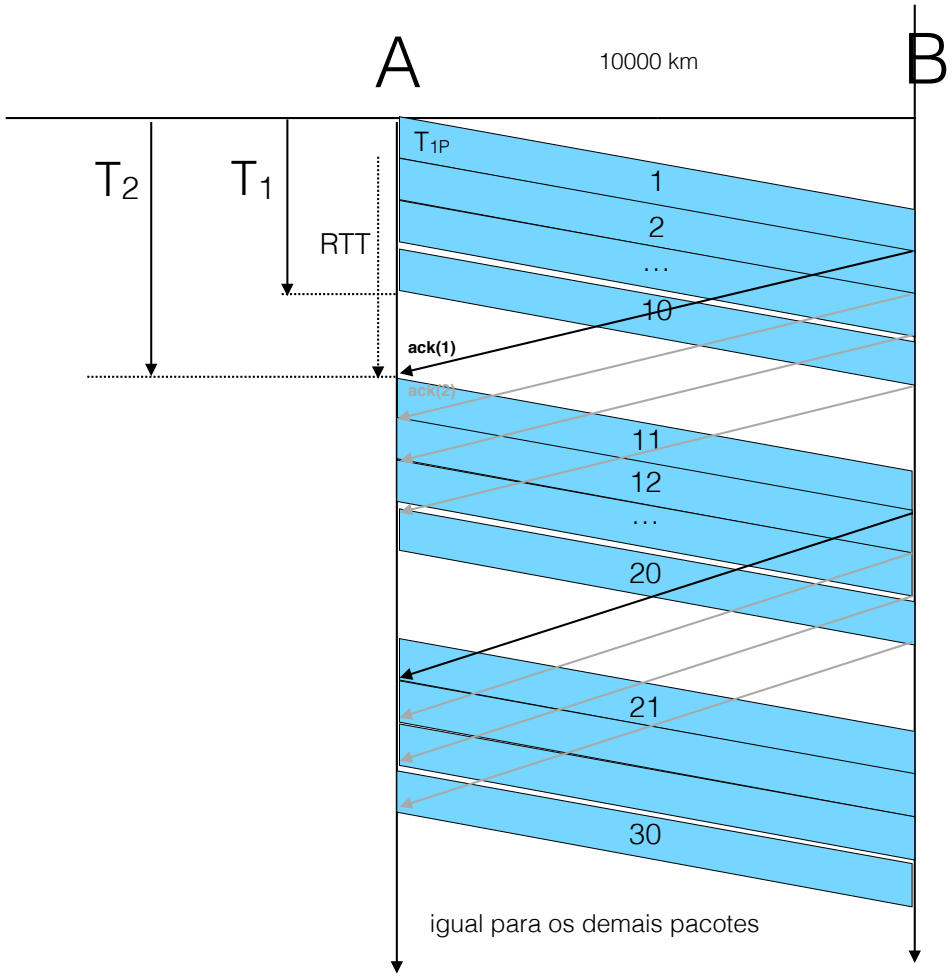
$U = T_1 / (T_1 + RTT)$

$U = T_{1P}/(T_{1P} + RTT)$

$U = 0.004/(0.004+0.1)$

$U = 3.85\%$

3)



$U = 200 \times T_1 / (200 \times T_2)$

$U = T_1 / T_2$

$T_1 = 10 \times T_{1P}$

$T_2 = T_{1P} + RTT$

$U = 10 \times T_{1P} / (T_{1P} + RTT)$

$U = 0.04 / (0.004+0.1)$

$U = 38.5\%$