

# Soluzione Esame 12-01-2021

mercoledì 3 giugno 2020 17:37

LA TUA MATRICOLA: 879236

X	Y	Z	U	V	W
8	7	9	2	3	6

$$R = 6 + y \text{ Mbps} = 13.0 \frac{\text{Mbit}}{\text{s}} = 1.30 \times 10^7 \frac{\text{bit}}{\text{s}}$$

$$L = 1, z \text{ kB} = 1.9 \text{ kB} = 1.52 \times 10^4 \text{ bit}$$

$$D = 4 * u \text{ km} = 8 \text{ km} = 8.00 \times 10^3 \text{ m}$$

$$P = 0, x \text{ ms} = 0.8 \text{ ms}$$

$$F_1 = 3 * w \text{ kB} = 18 \text{ kB} = 1.44 \times 10^5 \text{ bit}$$

$$F_2 = 5 * v \text{ kB} = 15 \text{ kB} = 1.20 \times 10^5 \text{ bit}$$

$$1) d_{syn} = d_{prop} = 6.4000 \times 10^{-3} \text{ s}$$

$$2) d_{trasm} = \frac{L}{R} = \frac{1.52 \times 10^4 \text{ bit}}{1.30 \times 10^7 \frac{\text{bit}}{\text{s}}} = 1.1692 \times 10^{-3} \text{ s}$$

$$3) d_{dati} = d_{prop} + d_{trasm} = 6.40 \times 10^{-3} \text{ s} + 1.17 \times 10^{-3} \text{ s} = 7.5692 \times 10^{-3} \text{ s}$$

Pacchetti per  $F_1$

$$4) N_{pacchetti1} = \frac{F}{L} = \frac{1.44 \times 10^5 \text{ bit}}{1.52 \times 10^4 \text{ bit}} = 10$$

Pacchetti per  $F_2$

$$5) N_{pacchetti2} = \frac{F}{L} = \frac{1.20 \times 10^5 \text{ bit}}{1.52 \times 10^4 \text{ bit}} = 8$$

$$N_{tot} = 2 \cdot (10 + 8) = 36$$

a) non persistente, non parallela

$$6) d_{tot} = 4 \cdot 3 \cdot d_{syn} + N_{tot} \cdot (d_{syn} + d_{dati}) = 12 \cdot 6.40 \times 10^{-3} \text{ s} + 36 \cdot (6.40 \times 10^{-3} \text{ s} + 7.57 \times 10^{-3} \text{ s}) = 5.7969 \times 10^{-1} \text{ s}$$

b) persistente, non parallela

$$7) d_{tot} = 3 \cdot d_{syn} + (N_{tot} \cdot (d_{syn} + d_{dati})) = 5.2209 \times 10^{-1} \text{ s}$$

c) non persistente, parallela

$$8) d_{trasm-p} = \frac{L}{\frac{R}{2}} = 2.3385 \times 10^{-3} \text{ s}$$

$$9) d_{dati-p} = d_{prop} + \frac{L}{\frac{R}{2}} = 6.40 \times 10^{-3} \text{ s} + 2 \cdot \frac{1.52 \times 10^4 \text{ bit}}{1.30 \times 10^7 \frac{\text{bit}}{\text{s}}} = 8.7385 \times 10^{-3} \text{ s}$$

$$10) d_{par1} = 3 \cdot d_{syn} + N_1 \cdot (d_{syn} + d_{dati}) = 3 \cdot 6.40 \times 10^{-3} \text{ s} + 10 \cdot (6.40 \times 10^{-3} \text{ s} + 8.74 \times 10^{-3} \text{ s}) = 1.7058 \times 10^{-1} \text{ s}$$

$$11) d_{par2} = 3 \cdot d_{syn} + N_2 \cdot (d_{syn} + d_{dati}) = 3 \cdot 6.40 \times 10^{-3} \text{ s} + 8 \cdot (6.40 \times 10^{-3} \text{ s} + 8.74 \times 10^{-3} \text{ s}) = 1.4031 \times 10^{-1} \text{ s}$$

$$12) d_{tot} = d_{par1} + d_{par2} = 3.1089 \times 10^{-1} \text{ s}$$

Throughput

$$F_{tot} = 2 \cdot F_1 + 2 \cdot F_2 = 5.2800 \times 10^2 \text{ kbit}$$

$$13) T_a = \frac{F_{tot}}{d_{tot-a}} = 9.1083 \times 10^{-1} \frac{\text{Mbit}}{\text{s}}$$

$$14) T_b = \frac{F_{tot}}{d_{tot-b}} = 1.0113 \times 10^0 \frac{\text{Mbit}}{\text{s}}$$

$$15) T_c = \frac{F_{tot}}{d_{tot-c}} = 1.6983 \times 10^0 \frac{\text{Mbit}}{\text{s}}$$

$$T_a < T_b < T_c$$