Soluzione Esame 22-06-2020

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LA TUA MATRICOLA: 879236

x	y	z	u	v	w
8	7	9	2	3	6

Si calcolino i seguenti dati come segue:

R	= **x** Mbps	= $8.0\ \frac{\text{Mbit}}{\text{s}} = 8.00 \times 10^6\ \frac{\text{bit}}{\text{s}}$
L	= 1,**y** kB	= $1.7\ \text{kB} = 1.36 \times 10^4\ \text{bit}$
D	= 3 * **z** km	= $24\ \text{km} = 2.40 \times 10^4\ \text{m}$
P	= 0,**u** ms	= $0.2\ \text{ms}$
F_1	= 4 * **v** kB	= $12\ \text{kB} = 9.60 \times 10^4\ \text{bit}$
F_2	= 6 * **w** kB	= $36\ \text{kB} = 2.88 \times 10^5\ \text{bit}$

1) $d_{syn} = d_{prop} = 4.8000 \times 10^{-3}\ \text{s}$

2) $d_{trasm} = \frac{L}{R} = \frac{1.36 \times 10^4\ \text{bit}}{8.00 \times 10^6\ \frac{\text{bit}}{\text{s}}} = 1.7000 \times 10^{-3}\ \text{s}$

3) $d_{dati} = d_{prop} + d_{trasm} = 4.80 \times 10^{-3}\ \text{s} + 1.70 \times 10^{-3}\ \text{s} = 6.5000 \times 10^{-3}\ \text{s}$

Paccheti per F_1

4) $N_{pacchetti1} = \frac{F}{L} = \frac{9.60 \times 10^4\ \text{bit}}{1.36 \times 10^4\ \text{bit}} = 8$

Paccheti per F_2

5) $N_{pacchetti2} = \frac{F}{L} = \frac{2.88 \times 10^5\ \text{bit}}{1.36 \times 10^4\ \text{bit}} = 22$

$N_{tot} = 2 \cdot (8 + 22) = 60$

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a) non persistente, non parallela

6) $d_{tot} = 4 \cdot 3 \cdot d_{syn} + N_{tot} \cdot (d_{syn} + d_{dati}) = 12 \cdot 4.80 \times 10^{-3}\ \text{s} + 60 \cdot (4.80 \times 10^{-3}\ \text{s} + 6.50 \times 10^{-3}\ \text{s}) = 7.3560 \times 10^{-1}\ \text{s}$

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b) persistente, non parallela

7) $d_{tot} = 3 \cdot d_{syn} + (60 \cdot (d_{syn} + d_{dati})) = 6.9240 \times 10^{-1}\ \text{s}$

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c) non persistente, parallela

8) $d_{trasm-p} = \frac{L}{\frac{R}{2}} = 3.4000 \times 10^{-3}\ \text{s}$

9) $d_{dati-p} = d_{prop} + \frac{L}{\frac{R}{2}} = 4.80 \times 10^{-3}\ \text{s} + 2 \cdot \frac{1.36 \times 10^4\ \text{bit}}{8.00 \times 10^6\ \frac{\text{bit}}{\text{s}}} = 8.2000 \times 10^{-3}\ \text{s}$

10) $d_{par1} = 3 \cdot d_{syn} + N_1 \cdot (d_{syn} + d_{dati}) = 3 \cdot 4.80 \times 10^{-3}\ \text{s} + 8 \cdot (4.80 \times 10^{-3}\ \text{s} + 8.20 \times 10^{-3}\ \text{s}) = 1.1840 \times 10^{-1}\ \text{s}$

11) $d_{par2} = 3 \cdot d_{syn} + N_2 \cdot (d_{syn} + d_{dati}) = 3 \cdot 4.80 \times 10^{-3}\ \text{s} + 22 \cdot (4.80 \times 10^{-3}\ \text{s} + 8.20 \times 10^{-3}\ \text{s}) = 3.0040 \times 10^{-1}\ \text{s}$

12) $d_{tot} = d_{par1} + d_{par2} = 4.1880 \times 10^{-1}\ \text{s}$

Throughput

$F_{tot} = 2 \cdot F_1 + 2 \cdot F_2 = 7.6800 \times 10^2\ \text{kbit}$

13) $T_a = \frac{F_{tot}}{d_{tot-a}} = 1.0440 \times 10^0\ \frac{\text{Mbit}}{\text{s}}$

14) $T_b = \frac{F_{tot}}{d_{tot-b}} = 1.1092 \times 10^0\ \frac{\text{Mbit}}{\text{s}}$

15) $T_c = \frac{F_{tot}}{d_{tot-c}} = 1.8338 \times 10^0\ \frac{\text{Mbit}}{\text{s}}$

$T_a < T_b < T_c$