esame 10 giugno 2022

matricola = 450678

t	x	y	z	u	v	w
2	4	5	6	7	8	4

Dati:

$R = 16.0 \dfrac{\text{Mbit}}{\text{s}} = 1.60 \times 10^7 \dfrac{\text{bit}}{\text{s}}$

$L = 1.8\ \text{kB} = 1.44 \times 10^4\ \text{bit}$

$D = 9\ \text{km} = 9.00 \times 10^3\ \text{m}$

$P = 0.6\ \text{ms}$

$F_1 = 20\ \text{kB} = 1.60 \times 10^5\ \text{bit}$

Svolgimento:

1) $d_{syn} = d_{prop} = 5.4000 \times 10^{-3}\ \text{s}$

2) $d_{trasm} = \dfrac{L}{R} = \dfrac{1.44 \times 10^4\ \text{bit}}{1.60 \times 10^7\ \frac{\text{bit}}{\text{s}}} = 9.0000 \times 10^{-4}\ \text{s}$

3) $d_{dati} = d_{prop} + d_{trasm} = 5.40 \times 10^{-3}\ \text{s} + 9.00 \times 10^{-4}\ \text{s} = 6.3000 \times 10^{-3}\ \text{s}$

Paccheti per F_1

4) $N_{pacchetti1} = \dfrac{F}{L} = \dfrac{1.60 \times 10^5\ \text{bit}}{1.44 \times 10^4\ \text{bit}} = 12$ inviamo 6 file

$N_{tot} = 6 \cdot 12 = 72$

non persistente, non parallela

5) $d_{tot} = 6 \cdot 3 \cdot d_{syn} + N_{tot} \cdot (d_{syn} + d_{dati}) = 18 \cdot 5.40 \times 10^{-3}\ \text{s} + 72 \cdot (5.40 \times 10^{-3}\ \text{s} + 6.30 \times 10^{-3}\ \text{s}) = 9.3960 \times 10^{-1}\ \text{s}$

3 way handshake + invio pacchetti per ognuno dei 6 file

persistente, non parallela

6) $d_{tot} = 3 \cdot d_{syn} + (72 \cdot (d_{syn} + d_{dati})) = 8.5860 \times 10^{-1}\ \text{s}$

singolo 3 way handshake + invio di tutti i pacchetti

non persistente, parallela

7) $d_{trasm-p} = \dfrac{L}{\frac{R}{3}} = 2.7000 \times 10^{-3}\ \text{s}$ 3 connessioni parallele = R/3

8) $d_{dati-p} = d_{prop} + \dfrac{L}{\frac{R}{3}} = 5.40 \times 10^{-3}\ \text{s} + 3 \cdot \dfrac{1.44 \times 10^4\ \text{bit}}{1.60 \times 10^7\ \frac{\text{bit}}{\text{s}}} = 8.1000 \times 10^{-3}\ \text{s}$

9) $d_{par1} = 3 \cdot d_{syn} + N_1 \cdot (d_{syn} + d_{dati}) = 3 \cdot 5.40 \times 10^{-3}\ \text{s} + 12 \cdot (5.40 \times 10^{-3}\ \text{s} + 8.10 \times 10^{-3}\ \text{s}) = 1.7820 \times 10^{-1}\ \text{s}$

10) $d_{tot} = d_{par1} \cdot 2.0 = 1.7820 \times 10^{-1}\ \text{s} \cdot 2.0 = 3.5640 \times 10^{-1}\ \text{s}$

non persistente, parallela

7) $d_{trasm-p} = \frac{L}{\frac{R}{3}} = 2.7000 \times 10^{-3}$ s 3 connessioni parallele = R/3

8) $d_{dati-p} = d_{prop} + \frac{L}{\frac{R}{3}} = 5.40 \times 10^{-3}$ s $+ 3 \cdot \frac{1.44 \times 10^{4} \text{ bit}}{1.60 \times 10^{7} \frac{\text{bit}}{\text{s}}} = 8.1000 \times 10^{-3}$ s

9) $d_{par1} = 3 \cdot d_{syn} + N_1 \cdot (d_{syn} + d_{dati}) = 3 \cdot 5.40 \times 10^{-3}$ s $+ 12 \cdot (5.40 \times 10^{-3}$ s $+ 8.10 \times 10^{-3}$ s$) = 1.7820 \times 10^{-1}$ s

10) $d_{tot} = d_{par1} \cdot 2.0 = 1.7820 \times 10^{-1}$ s $\cdot 2.0 = 3.5640 \times 10^{-1}$ s

3 connessioni parallele significa manda 3 dei 6 file per volta.
In totale saranno quindi necessario 2 invii