ASRR

Febrero 2020. ISE

1- | | | | |
|---|---|---|---|
| 1- V | 6- V | 11- V | 16- F |
| 2- V | 7- F | 12- V | 17- F |
| 3- F | 8- F | 13- V | 18- F |
| 4- F | 9- V | 14- F | 19- F |
| 5- V | 10- V | 15- V | 20- F |

2- $\rho_{CPU} = 0'35\rho_m$ $\rho_{DD\_m} = 0'65\rho_m$

$\rho_m = \frac{1}{125}\rho_0$

$\rho_0 = \rho_{CPU} + \rho_{DD\_0} \Rightarrow \rho_{DD\_0} = \rho_0 - \rho_{CPU} = \rho_0 - \rho_m + \rho_{DD\_m} = \rho_0 - \frac{1}{125}\rho_0 + \frac{0'65}{125}\rho_0 = \frac{48}{25}\rho_0 \Rightarrow f = \frac{48}{25}\,U$

3- $T = 24\,h$

$A_0 = 15000$ pet

$U_{CPU} = 0'64$

$D_{DD} = 1'5\,s$

$Q_{DD} = 0'09$ pet

$R_{DD} = 0'15\,s$

a) Relación utilidad-demanda: $U_{DD} = X_0 \cdot D_{DD} = 0'26 < 1$

$\Rightarrow$ Sup. que equil. flujo

$X_0 = \lambda_0 = \frac{A_0}{T} = 0'1736$ pet/s

Como $U_{CPU} = 0'64 < 1 \Rightarrow$ No está saturado

Cuello de botella CPU $\Rightarrow U_{CPU} = X_0 D_{CPU} \Rightarrow D_{CPU} = \frac{U_{CPU}}{X_0} = 3'68\,s$

Luego $X_0^{max} = \frac{1}{D_{CPU}} = 0'27$ pet/s $= 23456$ pet/día > 15000 pet/día

b) $V_{DD} = \frac{C_{DD}}{C_0} = \frac{X_{DD}}{X_0} = \frac{U_{DD}}{R_{DD} \cdot X_0} = \frac{Q_{DD} + V_{DD}}{R_{DD} \cdot X_0} = 13'41\,U$

4- a) $SPECCA) = \sqrt[4]{\frac{1200}{300} \cdot \frac{2100}{900} \cdot \frac{3600}{600} \cdot \frac{1200}{600}} = \sqrt[4]{4 \cdot 2'62 \cdot 5'14 \cdot 2} = 3'23$

$SPECCB) = \sqrt[4]{4'8 \cdot 2 \cdot 3'27 \cdot 1'2} = 2'4229$

$SPECCA) > SPECCB) \Rightarrow$ Máquina A más rápida

b) $d_1 = 80$, $d_2 = -300$, $d_3 = -400$, $d_4 = -100$

$\bar{d} = -262'5 \Rightarrow H_0: \bar{d}_{real} = 0$ y $s = \sqrt{\frac{\sum (d_i - \bar{d})^2}{4-1}} = 213'6 \Rightarrow s/\sqrt{n} = 3/2 = 106'8$

$t_{exp} = \frac{\bar{d}}{s/\sqrt{n}} = -2'458$. Con conf 95% $\Rightarrow$ sign 0'05 y $df = 3$ $\Rightarrow 2'35$

$t_{exp} \notin [-2'35, 2'35]$

Luego rechazamos $H_0 \Rightarrow$ Afecta

Con menor conf $\Rightarrow$ No

5- a) Calculamos $t_{exa} = \frac{45000}{90 MIPS \cdot 10^6} = 0'5$ ms $\Rightarrow 0'001 = \frac{0'5 \cdot 10^{-3}}{T}$

$T = 0'5$ s

b) 6 min $\Rightarrow$ 10 req/hora $\Rightarrow$ 240 req/día $\Rightarrow$ 240 · 1KB = 240 KB/fich.