

Hands On 09

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Atores ($N = 10\,000$)

$$\begin{aligned}R_{\text{len}} &= 16 + 160 = 176 \\ \text{bfr} &= \left\lfloor \frac{2048}{176} \right\rfloor = \lfloor 11.636 \rfloor = 11 \\ w &= 2048 - 11 \cdot 176 = 2048 - 1936 = 112 \text{ B} \\ B &= \left\lceil \frac{10\,000}{11} \right\rceil = \lceil 909.09 \rceil = 910 \\ S &= 910 \cdot 2048 = 1\,863\,680 \text{ B } (\approx 1.78 \text{ MB})\end{aligned}$$

Clientes ($N = 100\,000$)

$$\begin{aligned}R_{\text{len}} &= 11 + 160 + 200 + 16 + 12 + 1 = 400 \\ \text{bfr} &= \left\lfloor \frac{2048}{400} \right\rfloor = 5 \\ w &= 2048 - 5 \cdot 400 = 48 \text{ B} \\ B &= \left\lceil \frac{100\,000}{5} \right\rceil = 20\,000 \\ S &= 20\,000 \cdot 2048 = 40\,960\,000 \text{ B } (\approx 39.1 \text{ MB})\end{aligned}$$

Filmes ($N = 2\,000\,000$)

$$\begin{aligned}R_{\text{len}} &= 16 + 160 + 80 = 256 \\ \text{bfr} &= \left\lfloor \frac{2048}{256} \right\rfloor = 8, \quad w = 2048 - 8 \cdot 256 = 0 \text{ B} \\ B &= \frac{2\,000\,000}{8} = 250\,000 \\ S &= 250\,000 \cdot 2048 = 512\,000\,000 \text{ B } (\approx 488.3 \text{ MB})\end{aligned}$$

Funcionários ($N = 3\,500$)

$$\begin{aligned}R_{\text{len}} &= 11 + 160 + 11 = 182 \\ \text{bfr} &= \left\lfloor \frac{2048}{182} \right\rfloor = \lfloor 11.25 \rfloor = 11 \\ w &= 2048 - 11 \cdot 182 = 46 \text{ B} \\ B &= \left\lceil \frac{3\,500}{11} \right\rceil = \lceil 318.18 \rceil = 319 \\ S &= 319 \cdot 2048 = 653\,312 \text{ B } (\approx 0.62 \text{ MB})\end{aligned}$$

Mídias ($N = 10\,000\,000$)

$$R_{\text{len}} = 24 + 8 + 24 + 16 = 72$$

$$\text{bfr} = \left\lfloor \frac{2048}{72} \right\rfloor = \lfloor 28.44 \rfloor = 28$$

$$w = 2048 - 28 \cdot 72 = 32 \text{ B}$$

$$B = \left\lceil \frac{10\,000\,000}{28} \right\rceil = \lceil 357\,142.857 \rceil = 357\,143$$

$$S = 357\,143 \cdot 2048 = 731\,428\,864 \text{ B } (\approx 697.7 \text{ MB})$$

Aluguel ($N = 20\,000\,000$)

$$R_{\text{len}} = 12 + 10 + 24 + 11 + 24 + 11 = 92$$

$$\text{bfr} = \left\lfloor \frac{2048}{92} \right\rfloor = \lfloor 22.26 \rfloor = 22$$

$$w = 2048 - 22 \cdot 92 = 24 \text{ B}$$

$$B = \left\lceil \frac{20\,000\,000}{22} \right\rceil = \lceil 909\,090.909 \rceil = 909\,091$$

$$S = 909\,091 \cdot 2048 = 1\,861\,818\,368 \text{ B } (\approx 1.73 \text{ GB})$$

Pagamentos ($N = 50\,000\,000$)

$$R_{\text{len}} = 48 + 12 + 24 + 11 + 24 + 12 = 131$$

$$\text{bfr} = \left\lfloor \frac{2048}{131} \right\rfloor = \lfloor 15.64 \rfloor = 15$$

$$w = 2048 - 15 \cdot 131 = 83 \text{ B}$$

$$B = \left\lceil \frac{50\,000\,000}{15} \right\rceil = \lceil 3\,333\,333.\bar{3} \rceil = 3\,333\,334$$

$$S = 3\,333\,334 \cdot 2048 = 6\,826\,668\,032 \text{ B } (\approx 6.36 \text{ GB})$$

AtoresEmFilmes ($N = 1\,000\,000$)

$$R_{\text{len}} = 16 + 16 = 32$$

$$\text{bfr} = \left\lfloor \frac{2048}{32} \right\rfloor = 64, \quad w = 2048 - 64 \cdot 32 = 0 \text{ B}$$

$$B = \frac{1\,000\,000}{64} = 15\,625$$

$$S = 15\,625 \cdot 2048 = 32\,000\,000 \text{ B } (\approx 30.5 \text{ MB})$$

Total do Conjunto

$$S_{\text{total}} = 1\,863\,680 + 40\,960\,000 + 512\,000\,000 + 653\,312 + 731\,428\,864 + 1\,861\,818\,368 + 6\,826\,668\,032 + 32\,000\,000$$

$$S_{\text{total}} \approx 9,32 \text{ GiB}$$