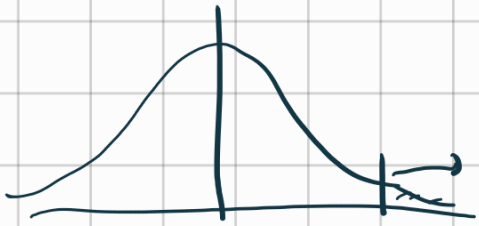
AAD 2024-11-11

Medidas de desempenho

- CPU
- Memória
- I/O



phoronix

ECC memory

(potencial pergunta teste teórico)

Tempos de execução

prog1	0.1	0.2
prog2	100	100
⋮		
progN	20	20

$\frac{t_1 + t_2 + \dots + t_n}{n}$

~~Média aritmética~~ (má com tempos muito diferentes)

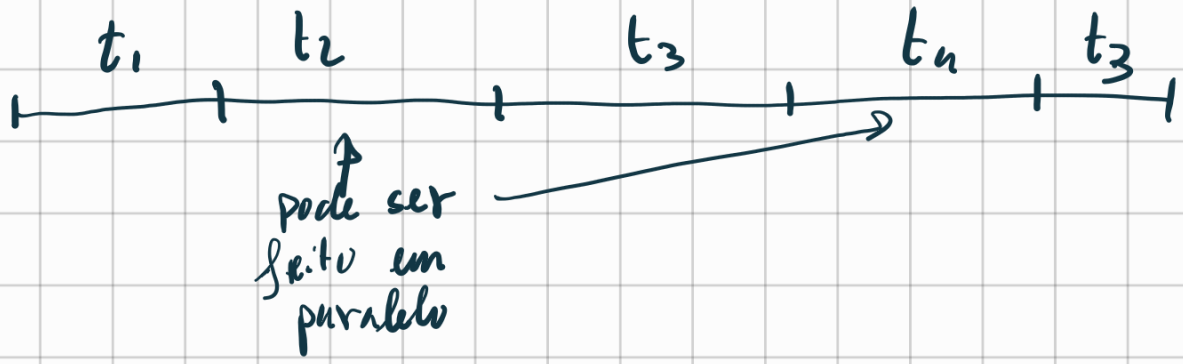
$\frac{120.1}{3} \simeq 40$

$\frac{120.2}{3} \simeq 40$

média geométrica

$\sqrt[n]{t_1 \cdot t_2 \cdot \dots \cdot t_n}$ ✓

Amdahl's law



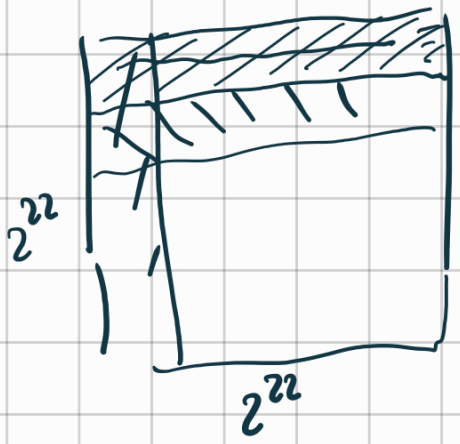
1 thread $T = t_1 + t_2 + t_3 + t_4 + t_5$

N threads $T = t_1 + \frac{t_2}{N} + t_3 + \frac{t_4}{N} + t_5$

∞ threads $T = t_1 + t_2 + t_3$

Aceleração máxima $= \frac{t_{sequencial} + t_{polmicalmente\ par.}}{t_{sequencial}}$

Exemplo



```
sum = 0;
for (i = 0; i < n; i++)
    sum += a[i];
```

```
sum0 = sum1 = 0
for (i = 0; i < n; i += 2) {
    sum0 += a[i+0];
    sum1 += a[i+1];
}
```

load a[0]
add
load a[1]
add
load a[2]
add

```
idx = 0;
for (i = 0; i < n; i++)
    idx = a[idx];
```

```
for (i = 0; i < n; i++)
    a[i] = (i < n-1) ? i+1 : 0;
```
