

$$T(n) \geq (1-p) T(1) + \frac{p T(1)}{c}$$

-factor out $T(1)$

$$T(n) \geq T(1) \left(1-p + \frac{p}{c} \right)$$

$$\frac{T(n)}{T(1)} \geq \frac{1-p + \frac{p}{c}}{1}$$

$$\lim_{n \rightarrow \infty} \frac{T(n)}{T(1)} \leq \frac{1}{1-p + \frac{p}{c}}$$

$$\frac{T(n)}{T(1)} \leq \frac{1}{1-p}$$