$$T(n) \begin{cases} 1 & n \leq 1 \\ 4T\left(\frac{n}{2}\right) + n \end{cases}$$

LIV	INPUT	CONTRIBUTO	RAMI	TOT
0	n	n	1	$n \cdot 1$
1	$\frac{n}{2}$	$\frac{n}{2}$	4	$\frac{4}{2}n$
2	$\frac{n}{2^2}$	$\frac{n}{2^2}$	4^2	$\left(\frac{4}{2}\right)^2 n$
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
i	$\frac{n}{2^i}$	$\frac{n}{2^i}$	4^i	$\left(\frac{4}{2}\right)^i n$

$$h \Rightarrow \left| \frac{n}{2^h} = 1 \right| \Rightarrow \left| h = \log_2 n \right|$$

COMPLESSITÀ TOTALE

$$n \sum_{i=0}^{h} \left(\frac{4}{2}\right)^i n \leq \sum_{i=0}^{\infty} \left(\frac{4}{2}\right)^i \quad (< 1)$$

$$= \frac{1}{\frac{3}{2}} = \frac{2}{3}n = \textcircled{H}\, n$$