

→ Case A : 2 jobs for first computing node & 1 job for second computing node.

Node 1:

$$\text{CPU utilization} : 1 - (p)^n = 1 - (0.6)^2 = 0.64 = 64\%$$

Time to complete

$$\begin{array}{l} \text{2 jobs of 4 sec} \\ \text{time} \end{array} = \frac{4+4}{0.64} = \frac{8}{0.64} = 12.5 \text{ sec}$$

Node 2:

$$\text{CPU utilization for node two} = 1 - 0.6 = 0.4 = 40\% \text{ for 10 sec}$$

$$\text{for 12.5 sec, CPU utilization} = \frac{4}{12.5} = 0.32 = 32\%$$

$$\text{Avg CPU utilization} = \frac{64 + 32}{2} = \frac{96}{2} = 48\%$$

$$\text{Time to complete all 3 jobs} = 12.5 \text{ sec}$$

→ Case B : All 3 jobs on first computing node

$$\text{CPU utilization for node one} = 1 - p^n = 1 - (0.6)^3 = 78.4\%$$

$$\text{CPU utilization for node two} = 0\%$$

$$\text{Avg CPU utilization} = \frac{78.4 + 0}{2} = 39.2\%$$

$$\text{Time to complete 3 jobs} = \frac{12}{0.784} = 15.3 \text{ sec}$$