

M/M/1/N: Performance Measures (Slide 9)

For example: for $\alpha=0.5$, if want a blocking probability of $< 10^{-6}$, what is the minimum system capacity?

$$\text{For } N = 18, \quad P_B = \frac{\alpha^N (1 - \alpha)}{1 - \alpha^{N+1}} > 10^{-6}$$

While by adjusting $N = 19, P_B < 10^{-6}$