

PRACTICE QUESTIONS

Question 0

Operational laws

t (measurement time)	650 seconds
C (#completions)	200 queries
B_{CPU} (busy time)	400 seconds
$B_{slow-disk}$ (busy time)	100 seconds
$B_{fast-disk}$ (busy time)	600 seconds
C_{CPU} (#completions)	22,200 jobs
$C_{slow-disk}$ (#completions)	2,000 jobs
$C_{fast-disk}$ (#completions)	20,000 jobs

- Consider a database server with one CPU and two disks
 - Compute the performance benefit of adding a second CPU.
 - Compute the maximum performance benefit that can be gained by balancing the load of the slow and fast disk by shifting database files from one to the other.
 - Consider the alternative approach of adding a second fast disk. How much can performance be improved this way?

Question 1

An easy one

- A repair man fixes broken televisions. The repair time is exponentially distributed with a mean of 30 minutes. Broken televisions arrive at his repair shop according to a Poisson stream, on average 10 broken televisions per day (8 hours).
 - What is the fraction of time that the repair man has no work to do?
 - How many televisions are, on average, at his repair shop?
 - What is the mean response time (waiting time plus repair time) of a television?