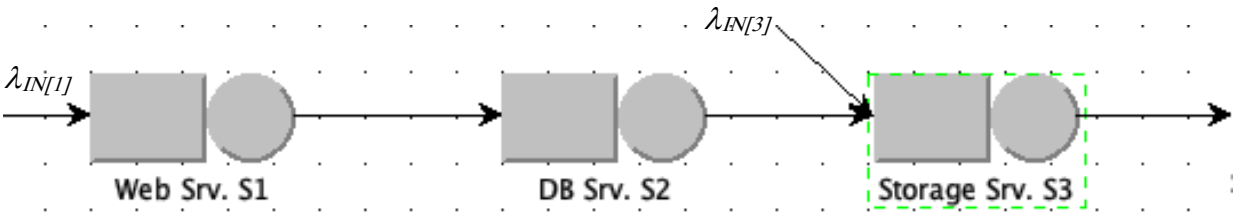
Performance indices of a three server system

A small system supports requests directed to both a three tier application and a file server. The system components are respectively: a web server (average service time $S_1 = 85\ ms$), a DB server (average service time $S_2 = 75\ ms$), and the storage server which can also be accessed individually (average service time $S_3 = 60\ ms$). All jobs arrives according to a Poisson process, with input rates $\lambda_{IN[1]} = 10\ jobs / s$ to the web server, and $\lambda_{IN[3]} = 5\ jobs / s$ to the storage server. The entire system can then be modelled with the following open queuing network:



Compute:

1. The visits and the demands for the three stations
2. The utilization of the three stations
3. The throughput of the system
4. The average number of jobs in the three stations
5. The average system response time