

Basic Performance Indices and Workloads

The enclosed files `apache1.log` and `apache2.log`, are two log-files taken from an Apache web server. In this particular log-file format, the last column accounts for the service time of the request in milliseconds. Milliseconds are also used as the last component in the timestamp string. (See: https://httpd.apache.org/docs/current/mod/mod_log_config.html).

For example :

```
192.168.9.191 - - [15/Sep/2022:16:55:12.375 -200] "GET /heartbeat.php HTTP/1.1" 200 2419 "-" "Mozilla 8.1" 473
```

Refers to a request that was received at [15/Sep/2022:16:55:12.375 -200] and that took 473 ms to be served. The time stamp corresponds to 12.375 ms after 16:55 on 15/Sep/2022.

Using these data and assuming that jobs are served in the order of arrival, one at a time, and not interrupted, compute for both cases:

- Arrival rate and throughput
- Average inter-arrival time
- Busy time
- Utilization
- W
- Average Service Time
- Average Number of Jobs
- Average Response Time
- Probability of having m jobs in the web server (with $m = 0, 1, 2, 3$)
- Probability of having a response time less than τ , (with $\tau = 1\text{ s}, 5\text{ s}, 10\text{ s}$)