

DOKUMENTASI TUGAS 10



Disusun oleh:

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Semester Genap

Tahun Ajaran 2019/2020

A. Soal:

1. Pull update terbaru
2. Jalankan `async_server.py` pada port 9002, 9003, 9004, 9005 (lihat pada BackendList)
3. Jalankan file `lb.py`, jalankan di port 44444
4. Jalankan browser, akseslah <http://localhost:44444/page.html>
5. Lihatlah di log program, bahwa setiap request akan dilayani oleh backend yang bergantian
6. Lakukan performance test seperti pada tugas 9, bandingkan penggunaan load balancer dengan `async_server` dengan `server_thread_http` pada folder `progjar5`
7. Buatlah tabel hasilnya

B. Jawaban:

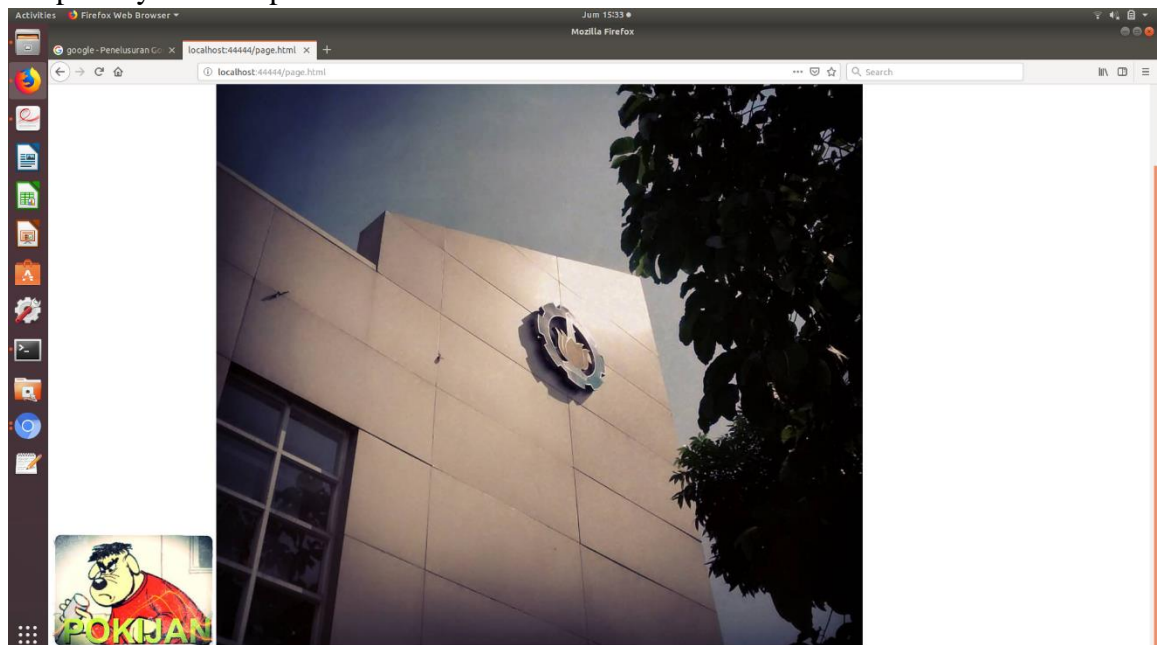
1. Menjalankan file `runserver.sh`:

```
hayu@hayu-Inspiron-7460:~/PROGJAR/Tugas10$ WARNING:root:running on port 9005
WARNING:root:running on port 9002
WARNING:root:running on port 9003
WARNING:root:running on port 9004
```

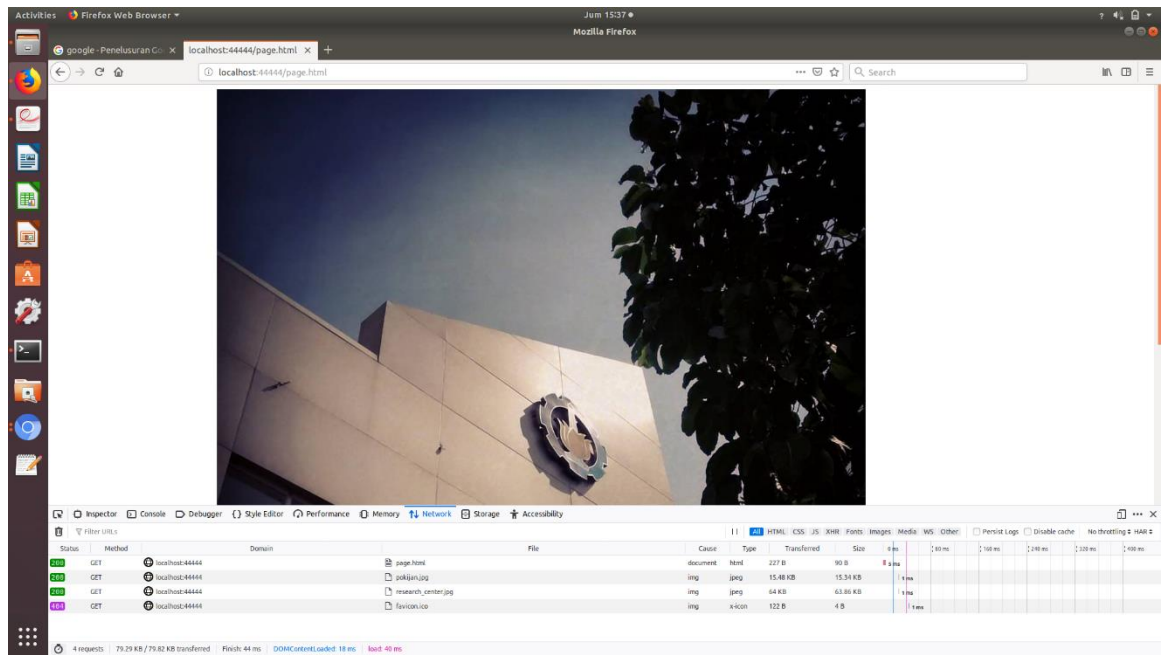
2. Menjalankan file `lb.py`:

```
hayu@hayu-Inspiron-7460:~/PROGJAR/Tugas10$ python3 lb.py
WARNING:root:load balancer running on port 44444
```

3. Membuka browser dan jalankan <http://localhost:44444/page.html>, maka tampilannya akan seperti ini:



4. Setiap request dilayani oleh backend yang berbeda, seperti ini:



5. Respon dari file lb.py, seperi ini:

```

hayu@hayu-Inspiron-7460:~/PROGJAR/Tugas10$ python3 lb.py
WARNING:root:load balancer running on port 44444
WARNING:root:connection from ('127.0.0.1', 32844)
WARNING:root:koneksi dari ('127.0.0.1', 32844) diteruskan ke ('127.0.0.1', 9002)
WARNING:root:connection from ('127.0.0.1', 32848)
WARNING:root:connection from ('127.0.0.1', 39918)
WARNING:root:koneksi dari ('127.0.0.1', 32848) diteruskan ke ('127.0.0.1', 9003)
WARNING:root:connection from ('127.0.0.1', 57288)
WARNING:root:connection from ('127.0.0.1', 32856)
WARNING:root:koneksi dari ('127.0.0.1', 32856) diteruskan ke ('127.0.0.1', 9004)
WARNING:root:connection from ('127.0.0.1', 57518)
WARNING:root:connection from ('127.0.0.1', 32862)
WARNING:root:koneksi dari ('127.0.0.1', 32862) diteruskan ke ('127.0.0.1', 9005)
WARNING:root:connection from ('127.0.0.1', 54682)
WARNING:root:connection from ('127.0.0.1', 32868)
WARNING:root:koneksi dari ('127.0.0.1', 32868) diteruskan ke ('127.0.0.1', 9002)
WARNING:root:connection from ('127.0.0.1', 39938)
WARNING:root:connection from ('127.0.0.1', 32874)
WARNING:root:koneksi dari ('127.0.0.1', 32874) diteruskan ke ('127.0.0.1', 9003)
WARNING:root:connection from ('127.0.0.1', 57312)
WARNING:root:connection from ('127.0.0.1', 32880)
WARNING:root:koneksi dari ('127.0.0.1', 32880) diteruskan ke ('127.0.0.1', 9004)
WARNING:root:connection from ('127.0.0.1', 57542)
WARNING:root:connection from ('127.0.0.1', 32886)
WARNING:root:koneksi dari ('127.0.0.1', 32886) diteruskan ke ('127.0.0.1', 9005)
WARNING:root:connection from ('127.0.0.1', 54706)
WARNING:root:connection from ('127.0.0.1', 32892)
WARNING:root:koneksi dari ('127.0.0.1', 32892) diteruskan ke ('127.0.0.1', 9002)
WARNING:root:connection from ('127.0.0.1', 39962)
WARNING:root:connection from ('127.0.0.1', 32898)
WARNING:root:koneksi dari ('127.0.0.1', 32898) diteruskan ke ('127.0.0.1', 9003)
WARNING:root:connection from ('127.0.0.1', 57336)

```

6. Hasil dari Performance Test

- Server Asynchronus dan Load Balancer

No.	Concurrency Level	Time Taken for Tests (seconds)	Completed Request	Failed Request	Total Transferred (bytes)	Request per Second (#/sec)	Time per Request (ms)	Transfer Rate (Kbytes/sec)
1.	1	0.461	1000	0	122000	2170.13	0.461	258.55
2.	5	0.260	1000	0	122000	3853.52	1.298	459.11

3.	10	0.261	1000	0	122000	3837.50	2.606	457.20
4.	25	0.265	1000	0	122000	3776.35	6.620	449.92
5.	50	0.264	1000	0	122000	3788.91	13.196	451.41
6.	100	0.275	1000	0	122000	3635.39	27.507	433.12

- Server Asynchronus

No.	Concurrency Level	Time Taken for Tests (seconds)	Completed Request	Failed Request	Total Transferred (bytes)	Request per Second (#/sec)	Time per Request (ms)	Transfer Rate (Kbytes/sec)
1.	1	1.507	1000	0	122000	663.44	1.507	79.04
2.	5	0.902	1000	0	122000	1108.14	4.512	132.02
3.	10	42.096	1000	0	122000	23.76	420.958	2.83
4.	25	43.472	1000	0	122000	23.00	1086.792	2.74
5.	50	43.661	1000	0	122000	22.90	2183.045	2.73
6.	100	43.517	1000	0	122000	22.98	4351.707	2.74

- Server Thread

No.	Concurrency Level	Time Taken for Tests (seconds)	Completed Request	Failed Request	Total Transferred (bytes)	Request per Second (#/sec)	Time per Request (ms)	Transfer Rate (Kbytes/sec)
1.	1	450.168	1000	0	122000	2.22	450.168	0.26
2.	5	332.373	1000	0	122000	3.01	1661.867	0.36
3.	10	324.148	1000	0	122000	3.09	3241.480	0.37
4.	25	437.155	1000	0	122000	2.29	10928.884	0.27
5.	50	265.774	1000	0	122000	3.76	13288.702	0.45
6.	100	314.986	1000	0	122000	3.17	31498.561	0.38

7. Kesimpulan:

Kesimpulan dari melakukan uji coba dengan apache benchmark untuk 1000 request dan konkurensi yang bervariasi di dapatkan bahwa performa yang dihasilkan oleh server Asynchronus dan Load Balancer lebih baik dibanding jika hanya menjalankan server Asynchronus saja atau server Thread saja.

8. Screenshot:

- Server Asynchronus + Load Balancer
 - Concurrency Level 1:

```

Server Software:      myserver/1.0
Server Hostname:     127.0.0.1
Server Port:         44444

Document Path:       /
Document Length:     4 bytes

Concurrency Level:    1
Time taken for tests: 0.461 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  2170.13 [#/sec] (mean)
Time per request:      0.461 [ms] (mean)
Time per request:      0.461 [ms] (mean, across all concurrent requests)
Transfer rate:         258.55 [Kbytes/sec] received

Connection Times (ms)
              min    mean[+/-sd] median    max
Connect:        0      0   0.2      0      6
Processing:      0      0   0.3      0      4
Waiting:         0      0   0.2      0      4
Total:           0      0   0.3      0      7

Percentage of the requests served within a certain time (ms)
 50%      0
 66%      0
 75%      0
 80%      0
 90%      0
 95%      1
 98%      1
 99%      2
100%      7 (longest request)
hayu@hayu-Inspiron-7460:~/PROGJAR/Tugas10$

```

○ Concurrency Level 5:

```

Server Software:      myserver/1.0
Server Hostname:     127.0.0.1
Server Port:         44444

Document Path:       /
Document Length:     4 bytes

Concurrency Level:    5
Time taken for tests: 0.260 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  3853.52 [#/sec] (mean)
Time per request:      1.298 [ms] (mean)
Time per request:      0.260 [ms] (mean, across all concurrent requests)
Transfer rate:         459.11 [Kbytes/sec] received

Connection Times (ms)
              min    mean[+/-sd] median    max
Connect:        0      0   0.0      0      0
Processing:      0      1   0.6      1      5
Waiting:         0      1   0.5      1      5
Total:           0      1   0.6      1      5

Percentage of the requests served within a certain time (ms)
 50%      1
 66%      1
 75%      1
 80%      1
 90%      2
 95%      2
 98%      3
 99%      3
100%      5 (longest request)
hayu@hayu-Inspiron-7460:~/PROGJAR/Tugas10$

```

○ Concurrency Level 10:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          44444

Document Path:        /
Document Length:      4 bytes

Concurrency Level:     10
Time taken for tests:  0.261 seconds
Complete requests:     1000
Failed requests:        0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:   3837.50 [#/sec] (mean)
Time per request:       2.606 [ms] (mean)
Time per request:       0.261 [ms] (mean, across all concurrent requests)
Transfer rate:          457.20 [Kbytes/sec] received

Connection Times (ms)
              min    mean[+/-sd] median    max
Connect:        0      0   0.0      0      0
Processing:      0      2   0.7      2      5
Waiting:         0      2   0.6      1      5
Total:           0      2   0.7      2      5
WARNING: The median and mean for the waiting time are not within a normal deviation
         These results are probably not that reliable.

Percentage of the requests served within a certain time (ms)
 50%      2
 66%      2
 75%      2
 80%      2
 90%      3
 95%      3
 98%      4
 99%      4
100%      5 (longest request)
hayu@hayu-Inspiron-7460:~/PROGJAR/Tugas10$

```

○ Concurrency Level 25:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          44444

Document Path:        /
Document Length:      4 bytes

Concurrency Level:     25
Time taken for tests:  0.265 seconds
Complete requests:     1000
Failed requests:        0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:   3776.35 [#/sec] (mean)
Time per request:       6.620 [ms] (mean)
Time per request:       0.265 [ms] (mean, across all concurrent requests)
Transfer rate:          449.92 [Kbytes/sec] received

Connection Times (ms)
              min    mean[+/-sd] median    max
Connect:        0      0   0.0      0      0
Processing:      0      2   0.9      2      8
Waiting:         0      2   0.8      1      7
Total:           1      2   0.9      2      8
WARNING: The median and mean for the waiting time are not within a normal deviation
         These results are probably not that reliable.

Percentage of the requests served within a certain time (ms)
 50%      2
 66%      2
 75%      2
 80%      2
 90%      3
 95%      4
 98%      5
 99%      6
100%      8 (longest request)
hayu@hayu-Inspiron-7460:~/PROGJAR/Tugas10$

```

○ Concurrency Level 50:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          44444

Document Path:        /
Document Length:      4 bytes

Concurrency Level:    50
Time taken for tests:  0.264 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  3788.91 [#/sec] (mean)
Time per request:      13.196 [ms] (mean)
Time per request:      0.264 [ms] (mean, across all concurrent requests)
Transfer rate:         451.41 [Kbytes/sec] received

Connection Times (ms)
              min    mean[+/-sd] median    max
Connect:        0      0   0.1      0      1
Processing:      0      2   1.2      2      9
Waiting:         0      2   1.1      2      9
Total:           0      2   1.2      2      9

Percentage of the requests served within a certain time (ms)
 50%      2
 66%      2
 75%      2
 80%      2
 90%      4
 95%      5
 98%      6
 99%      8
100%      9 (longest request)
hayu@hayu-Inspiron-7460:~/PROGJAR/Tugas10$

```

- Concurrency Level 100:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          44444

Document Path:        /
Document Length:      4 bytes

Concurrency Level:    100
Time taken for tests:  0.275 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  3635.39 [#/sec] (mean)
Time per request:      27.507 [ms] (mean)
Time per request:      0.275 [ms] (mean, across all concurrent requests)
Transfer rate:         433.12 [Kbytes/sec] received

Connection Times (ms)
              min    mean[+/-sd] median    max
Connect:        0      0   0.5      0      5
Processing:      1      2   0.8      2      6
Waiting:         0      2   0.7      1      5
Total:           1      2   1.0      2      8
WARNING: The median and mean for the waiting time are not within a normal deviation
         These results are probably not that reliable.

Percentage of the requests served within a certain time (ms)
 50%      2
 66%      2
 75%      2
 80%      2
 90%      3
 95%      4
 98%      5
 99%      6
100%      8 (longest request)
hayu@hayu-Inspiron-7460:~/PROGJAR/Tugas10$

```

- Server Asynchronous
 - Concurrency Level 1:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          45000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:    1
Time taken for tests:  1.507 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  663.44 [#/sec] (mean)
Time per request:     1.507 [ms] (mean)
Time per request:     1.507 [ms] (mean, across all concurrent requests)
Transfer rate:        79.04 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:      0    0    0.5      0     1
Processing:    0    1    4.6      1    143
Waiting:       0    1    4.6      1    143
Total:         0    1    4.6      1    144

Percentage of the requests served within a certain time (ms)
 50%    1
 66%    1
 75%    2
 80%    2
 90%    2
 95%    2
 98%    3
 99%    3
100%   144 (longest request)

```

○ Concurrency Level 5:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          45000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:    5
Time taken for tests:  0.902 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  1108.14 [#/sec] (mean)
Time per request:     4.512 [ms] (mean)
Time per request:     0.902 [ms] (mean, across all concurrent requests)
Transfer rate:        132.02 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:      0    0    0.4      0     1
Processing:    1    4   10.5      3    154
Waiting:       1    4   10.5      3    154
Total:         1    4   10.5      3    154

Percentage of the requests served within a certain time (ms)
 50%    3
 66%    4
 75%    4
 80%    5
 90%    5
 95%    6
 98%    8
 99%   10
100%   154 (longest request)

```

○ Concurrency Level 10:


```

Server Software:      myserver/1.0
Server Hostname:     127.0.0.1
Server Port:         45000

Document Path:       /
Document Length:     4 bytes

Concurrency Level:    10
Time taken for tests: 42.096 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  23.76 [#/sec] (mean)
Time per request:     420.958 [ms] (mean)
Time per request:     42.096 [ms] (mean, across all concurrent requests)
Transfer rate:        2.83 [Kbytes/sec] received

Connection Times (ms)
              min    mean[+/-sd] median    max
Connect:      0     42 138.3      0     506
Processing:    1    379 218.0     504    1008
Waiting:      0     330 237.9     502    510
Total:        2     421 192.3     504    1010

Percentage of the requests served within a certain time (ms)
 50%    504
 66%    505
 75%    505
 80%    506
 90%    507
 95%    508
 98%    510
 99%    512
100%   1010 (longest request)

```

○ Concurrency Level 25:

```

Server Software:      myserver/1.0
Server Hostname:     127.0.0.1
Server Port:         45000

Document Path:       /
Document Length:     4 bytes

Concurrency Level:    25
Time taken for tests: 43.472 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  23.00 [#/sec] (mean)
Time per request:     1086.792 [ms] (mean)
Time per request:     43.472 [ms] (mean, across all concurrent requests)
Transfer rate:        2.74 [Kbytes/sec] received

Connection Times (ms)
              min    mean[+/-sd] median    max
Connect:      0     43 140.5      0     511
Processing:    2   1037 218.7    1011    1526
Waiting:      0     682 308.0     507    1022
Total:        2   1080 237.4    1011    1527

Percentage of the requests served within a certain time (ms)
 50%   1011
 66%   1012
 75%   1014
 80%   1021
 90%   1512
 95%   1513
 98%   1514
 99%   1518
100%   1527 (longest request)

```

○ Concurrency Level 50:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          45000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:    50
Time taken for tests:  43.661 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  22.90 [#/sec] (mean)
Time per request:     2183.045 [ms] (mean)
Time per request:     43.661 [ms] (mean, across all concurrent requests)
Transfer rate:        2.73 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:      0   43 140.6      0    515
Processing:    2 2094 372.2    2030  2607
Waiting:      0 1175 602.9    1016  2043
Total:        2 2137 372.0    2033  2608

Percentage of the requests served within a certain time (ms)
 50%    2033
 66%    2111
 75%    2524
 80%    2526
 90%    2531
 95%    2535
 98%    2539
 99%    2542
100%    2608 (longest request)

```

o Concurrency Level 100:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          45000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:    100
Time taken for tests:  43.517 seconds
Complete requests:    1000
Failed requests:      0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  22.98 [#/sec] (mean)
Time per request:     4351.707 [ms] (mean)
Time per request:     43.517 [ms] (mean, across all concurrent requests)
Transfer rate:        2.74 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:      0   43 140.6      0    509
Processing:    4 4095 834.4    4057  5064
Waiting:      1 2283 1263.8    2030  4565
Total:        5 4138 836.0    4545  5065

Percentage of the requests served within a certain time (ms)
 50%    4545
 66%    4550
 75%    4552
 80%    4553
 90%    4559
 95%    4565
 98%    5049
 99%    5050
100%    5065 (longest request)

```

- Server Thread

- Concurrency Level 1:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          46000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:     1
Time taken for tests:  450.168 seconds
Complete requests:     1000
Failed requests:       0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:   2.22 [#/sec] (mean)
Time per request:      450.168 [ms] (mean)
Time per request:      450.168 [ms] (mean, across all concurrent requests)
Transfer rate:         0.26 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    0   0.5      0      1
Processing:      2   450 306.9    412   2041
Waiting:         2   428 296.7    389   1950
Total:           2   450 306.9    412   2041

Percentage of the requests served within a certain time (ms)
 50%    412
 66%    519
 75%    591
 80%    639
 90%    824
 95%   1022
 98%   1337
 99%   1500
100%   2041 (longest request)

```

- Concurrency Level 5:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          46000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:     5
Time taken for tests:  332.373 seconds
Complete requests:     1000
Failed requests:       0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:   3.01 [#/sec] (mean)
Time per request:      1661.867 [ms] (mean)
Time per request:      332.373 [ms] (mean, across all concurrent requests)
Transfer rate:         0.36 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0   264 272.9      3   1115
Processing:     333 1391 379.9    1341  3209
Waiting:        333 1319 384.3    1260  2805
Total:          333 1655 404.7    1605  3209

Percentage of the requests served within a certain time (ms)
 50%    1605
 66%    1781
 75%    1930
 80%    2007
 90%    2196
 95%    2344
 98%    2511
 99%    2717
100%    3209 (longest request)

```

- Concurrency Level 10:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          46000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:     10
Time taken for tests:   324.148 seconds
Complete requests:     1000
Failed requests:        0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:    3.09 [#/sec] (mean)
Time per request:       3241.480 [ms] (mean)
Time per request:       324.148 [ms] (mean, across all concurrent requests)
Transfer rate:          0.37 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:        0   323 285.3    500   2004
Processing:    836  2904 629.3   3008   5027
Waiting:        3   2183 813.9   2010   5027
Total:          836  3227 663.4   3016   5529

Percentage of the requests served within a certain time (ms)
 50%    3016
 66%    3513
 75%    3518
 80%    4009
 90%    4024
 95%    4517
 98%    4545
 99%    5036
100%    5529 (longest request)

```

- Concurrency Level 25:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          46000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:     25
Time taken for tests:   437.155 seconds
Complete requests:     1000
Failed requests:        0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:    2.29 [#/sec] (mean)
Time per request:       10928.884 [ms] (mean)
Time per request:       437.155 [ms] (mean, across all concurrent requests)
Transfer rate:          0.27 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:        0   434 339.6    502   1699
Processing:   1607 10357 1560.4  10285  14132
Waiting:       815  6282 2752.3   6204  13478
Total:        2617 10791 1592.2  10698  14899

Percentage of the requests served within a certain time (ms)
 50%   10698
 66%   11518
 75%   11898
 80%   12154
 90%   12814
 95%   13399
 98%   13842
 99%   14133
100%  14899 (longest request)

```

- Concurrency Level 50:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          46000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:     50
Time taken for tests:  265.774 seconds
Complete requests:     1000
Failed requests:       1
    (Connect: 1, Receive: 0, Length: 0, Exceptions: 0)
Non-2xx responses:    1000
Total transferred:     122000 bytes
HTML transferred:     4000 bytes
Requests per second:   3.76 [#/sec] (mean)
Time per request:      13288.702 [ms] (mean)
Time per request:      265.774 [ms] (mean, across all concurrent requests)
Transfer rate:         0.45 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0   263 258.5    501   1006
Processing:    506 12708 2078.4  12544  18562
Waiting:        1  7440 3785.3   7526  17557
Total:         806 12971 2083.5  12556  18570

Percentage of the requests served within a certain time (ms)
 50%   12556
 66%   13047
 75%   13546
 80%   13560
 90%   14551
 95%   16064
 98%   18061
 99%   18561
100%   18570 (longest request)

```

o Concurrency Level 100:

```

Server Software:      myserver/1.0
Server Hostname:      127.0.0.1
Server Port:          46000

Document Path:        /
Document Length:      4 bytes

Concurrency Level:     100
Time taken for tests:  314.986 seconds
Complete requests:     1000
Failed requests:       0
Non-2xx responses:    1000
Total transferred:     122000 bytes
HTML transferred:     4000 bytes
Requests per second:   3.17 [#/sec] (mean)
Time per request:      31498.561 [ms] (mean)
Time per request:      314.986 [ms] (mean, across all concurrent requests)
Transfer rate:         0.38 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0   313 267.7    501   1011
Processing:   1011 29720 5679.7  31106  36154
Waiting:       353 15707 8801.1  15542  35658
Total:       1259 30034 5678.9  31138  36653

Percentage of the requests served within a certain time (ms)
 50%   31138
 66%   32154
 75%   32655
 80%   33158
 90%   35640
 95%   36142
 98%   36154
 99%   36161
100%   36653 (longest request)

```

