

Laporan Tugas 9 Pemrograman Jaringan



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A. Parameter Test

Jumlah Request: 1000

Konkurensi: 1,5,10,25,50,100

B. Perbandingan Hasil Uji Coba Test

Berikut hasil tabel uji coba test menggunakan asynchronous server dan thread server berdasarkan dokumentasi/lampiran (C).

1. Thread Server

No.	Concurrency Level	Time Taken For Rest [seconds]	Complete Request	Failed Request	Total Transferred	Request per second [#/sec]	Time per request [ms] (mean)	Transfer Rate [kybtes/second]
1	1	873.874	1000	0	122000	1.14	873.874	0.14
2	5	385.473	1000	0	122000	2.59	1927.363	0.31
3	10	433.859	1000	0	122000	2.3	4338.593	0.27
4	25	204.564	1000	0	122000	4.89	5114.103	0.58
5	50	357.343	1000	0	122000	2.8	17867.17	0.33
7	100	174.551	1000	0	122000	5.73	17455.12	0.68

2. Asynchronous Server

No.	Concurrency Level	Time Taken For Rest [seconds]	Complete Request	Failed Request	Total Transferred	Request per second [#/sec]	Time per request [ms] (mean)	Transfer Rate [kybtes/second]
1	1	1.95	1000	0	122000	512.9	1.95	61.11
2	5	1.741	1000	0	122000	574.49	8.703	68.45
3	10	0.247	1000	0	122000	4048.55	2.47	482.35
4	25	0.28	1000	0	122000	3577.47	6.988	426.22
5	50	0.263	1000	0	122000	3796.41	13.17	452.31
7	100	0.238	1000	0	122000	4203.55	23.789	500.81

C. Kesimpulan

Dari hasil uji coba tes dapat dilihat bahwa asynchronous server dapat memproses request lebih cepat daripada thread server karena asynchronous server memiliki waktu running lebih kecil daripada thread server

D. Dokumentasi/Lampiran

1. Thread Server
 - Concurrency 1

```
cyber12drago@DESKTOP-OSA8IDU:~$ ab -n 1000 -c 1 http://127.0.0.1:46000/
This is ApacheBench, Version 2.3 <$Revision: 1807734 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 127.0.0.1 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests

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:  873.874 seconds
Complete requests:     1000
Failed requests:        0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:   1.14 [#/sec] (mean)
Time per request:      873.874 [ms] (mean)
Time per request:      873.874 [ms] (mean, across all concurrent requests)
Transfer rate:          0.14 [Kbytes/sec] received
```

- Concurrency 5

```
cyber12drago@DESKTOP-OSA8IDU:~$ ab -n 1000 -c 5 http://127.0.0.1:46000/
This is ApacheBench, Version 2.3 <$Revision: 1807734 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 127.0.0.1 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests

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:  385.473 seconds
Complete requests:     1000
Failed requests:        0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:   2.59 [#/sec] (mean)
Time per request:      1927.363 [ms] (mean)
Time per request:      385.473 [ms] (mean, across all concurrent requests)
Transfer rate:          0.31 [Kbytes/sec] received
```

- Concurrency 10

```
cyber12drago@DESKTOP-OSA81DU:~$ ab -n 1000 -c 10 http://127.0.0.1:46000/
This is ApacheBench, Version 2.3 <$Revision: 1807734 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 127.0.0.1 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests


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:   433.859 seconds
Complete requests:      1000
Failed requests:         0
Non-2xx responses:      1000
Total transferred:      122000 bytes
HTML transferred:       4000 bytes
Requests per second:    2.30 [#/sec] (mean)
Time per request:       4338.593 [ms] (mean)
Time per request:       433.859 [ms] (mean, across all concurrent requests)
Transfer rate:          0.27 [Kbytes/sec] received
```

- Concurrency 25

```
cyber12drago@DESKTOP-OSA81DU:~$ ab -n 1000 -c 25 http://127.0.0.1:46000/
This is ApacheBench, Version 2.3 <$Revision: 1807734 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 127.0.0.1 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests


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:   204.564 seconds
Complete requests:      1000
Failed requests:         0
Non-2xx responses:      1000
Total transferred:      122000 bytes
HTML transferred:       4000 bytes
Requests per second:    4.89 [#/sec] (mean)
Time per request:       5114.103 [ms] (mean)
Time per request:       204.564 [ms] (mean, across all concurrent requests)
Transfer rate:          0.58 [Kbytes/sec] received
```

- Concurrency 50

```
cyber12drago@DESKTOP-OSA8IDU: $ ab -n 1000 -c 50 http://127.0.0.1:46000/
This is ApacheBench, Version 2.3 <$Revision: 1807734 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 127.0.0.1 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests


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:  357.343 seconds
Complete requests:    1000
Failed requests:       0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  2.80 [#/sec] (mean)
Time per request:     17867.165 [ms] (mean)
Time per request:     357.343 [ms] (mean, across all concurrent requests)
Transfer rate:        0.33 [Kbytes/sec] received
```

- Concurrency 100

```
cyber12drago@DESKTOP-OSA8IDU: $ ab -n 1000 -c 100 http://127.0.0.1:46000/
This is ApacheBench, Version 2.3 <$Revision: 1807734 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 127.0.0.1 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests


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:  174.551 seconds
Complete requests:    1000
Failed requests:       0
Non-2xx responses:    1000
Total transferred:    122000 bytes
HTML transferred:     4000 bytes
Requests per second:  5.73 [#/sec] (mean)
Time per request:     17455.120 [ms] (mean)
Time per request:     174.551 [ms] (mean, across all concurrent requests)
Transfer rate:        0.68 [Kbytes/sec] received
```

2. Asynchronous Server

- Concurrency 1

```
cyber12drago@DESKTOP-OSA8IDU: $ ab -n 1000 -c 1 http://127.0.0.1:45000/
This is ApacheBench, Version 2.3 <$Revision: 1807734 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 127.0.0.1 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests

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:  1.950 seconds
Complete requests:     1000
Failed requests:        0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:   512.90 [#/sec] (mean)
Time per request:      1.950 [ms] (mean)
Time per request:      1.950 [ms] (mean, across all concurrent requests)
Transfer rate:         61.11 [Kbytes/sec] received
```

- Concurrency 5

```
cyber12drago@DESKTOP-OSA8IDU: $ ab -n 1000 -c 5 http://127.0.0.1:45000/
This is ApacheBench, Version 2.3 <$Revision: 1807734 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking 127.0.0.1 (be patient)
Completed 100 requests
Completed 200 requests
Completed 300 requests
Completed 400 requests
Completed 500 requests
Completed 600 requests
Completed 700 requests
Completed 800 requests
Completed 900 requests
Completed 1000 requests
Finished 1000 requests

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:  1.741 seconds
Complete requests:     1000
Failed requests:        0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:   574.49 [#/sec] (mean)
Time per request:      8.703 [ms] (mean)
Time per request:      1.741 [ms] (mean, across all concurrent requests)
Transfer rate:         68.45 [Kbytes/sec] received
```


- Concurrency 10

```
hellbus@hellbus-VivoBook-14-ASUS-Laptop-X407UF: ~  
File Edit View Search Terminal Help  
hellbus@hellbus-VivoBook-14-ASUS-Laptop-X407UF:~$ ab -n 1000 -c 10 http://127.0.0.1:45000/  
This is ApacheBench, Version 2.3 <$Revision: 1807734 $>  
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/  
Licensed to The Apache Software Foundation, http://www.apache.org/  
  
Benchmarking 127.0.0.1 (be patient)  
Completed 100 requests  
Completed 200 requests  
Completed 300 requests  
Completed 400 requests  
Completed 500 requests  
Completed 600 requests  
Completed 700 requests  
Completed 800 requests  
Completed 900 requests  
Completed 1000 requests  
Finished 1000 requests  
  
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:   0.247 seconds  
Complete requests:     1000  
Failed requests:        0  
Non-2xx responses:     1000  
Total transferred:     122000 bytes  
HTML transferred:      4000 bytes  
Requests per second:   4048.55 [#/sec] (mean)  
Time per request:      2.470 [ms] (mean)  
Time per request:      0.247 [ms] (mean, across all concurrent requests)  
Transfer rate:          482.35 [Kbytes/sec] received
```

- Concurrency 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:   0.280 seconds  
Complete requests:     1000  
Failed requests:        0  
Non-2xx responses:     1000  
Total transferred:     122000 bytes  
HTML transferred:      4000 bytes  
Requests per second:   3577.47 [#/sec] (mean)  
Time per request:      6.988 [ms] (mean)  
Time per request:      0.280 [ms] (mean, across all concurrent requests)  
Transfer rate:          426.22 [Kbytes/sec] received  
  
Connection Times (ms)  
      min    mean[+/-sd] median    max  
Connect:    0      0   0.1      0      1  
Processing:  1      7   0.9      7     10  
Waiting:    0      7   0.9      7     10  
Total:      1      7   0.9      7     10  
  
Percentage of the requests served within a certain time (ms)  
 50%      7  
 66%      7  
 75%      7  
 80%      7  
 90%      8  
 95%      9  
 98%      9  
 99%     10  
100%     10 (longest request)
```

- Concurrency 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:  0.263 seconds
Complete requests:     1000
Failed requests:       0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:   3796.41 [#/sec] (mean)
Time per request:      13.170 [ms] (mean)
Time per request:      0.263 [ms] (mean, across all concurrent requests)
Transfer rate:          452.31 [Kbytes/sec] received

Connection Times (ms)
  min   mean[+/-sd] median   max
Connect:    0      0   0.1      0      1
Processing:  0     13   2.2     13     17
Waiting:    0     13   2.2     13     17
Total:       1     13   2.1     13     17

Percentage of the requests served within a certain time (ms)
 50%    13
 66%    14
 75%    14
 80%    14
 90%    15
 95%    16
 98%    17
 99%    17
100%    17 (longest request)
```

- Concurrency 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:  0.238 seconds
Complete requests:     1000
Failed requests:       0
Non-2xx responses:     1000
Total transferred:     122000 bytes
HTML transferred:      4000 bytes
Requests per second:   4203.55 [#/sec] (mean)
Time per request:      23.789 [ms] (mean)
Time per request:      0.238 [ms] (mean, across all concurrent requests)
Transfer rate:          500.81 [Kbytes/sec] received

Connection Times (ms)
  min   mean[+/-sd] median   max
Connect:    0      0   0.3      0      2
Processing:  1     12   2.0     12     17
Waiting:    1     12   2.0     12     17
Total:       2     12   1.8     12     18

Percentage of the requests served within a certain time (ms)
 50%    12
 66%    13
 75%    13
 80%    13
 90%    14
 95%    15
 98%    15
 99%    17
100%    18 (longest request)
```