Laporan Pengujian Load Balancer Menggunakan Apache Benchmark

Praktikum Jarkom Modul 3

Anggota Kelompok :
- Muhammad Afif   (5027221032)
- Alma Amira Dewani   (5027221054)

Seluruh pengujian dijalankan pada client Paul menggunakan parameter sesuai dengan soal yang bersangkutan

DAFTAR ISI

Harkonen

Testing Soal No.8

ab -n 500 -c 50 http://10.67.4.3:[8000-8003]/

Load Balancer : Round Robin

- Output Test

```
Server Software:        nginx/1.14.2
Server Hostname:        10.67.4.3
Server Port:            8000

Document Path:          /
Document Length:        617 bytes

Concurrency Level:      50
Time taken for tests:   0.462 seconds
Complete requests:      500
Failed requests:        333
   (Connect: 0, Receive: 0, Length: 333, Exceptions: 0)
Total transferred:      378000 bytes
HTML transferred:       309500 bytes
Requests per second:    1081.90 [#/sec] (mean)
Time per request:       46.215 [ms] (mean)
Time per request:       0.924 [ms] (mean, across all concurrent requests)
Transfer rate:          798.75 [Kbytes/sec] received

Connection Times (ms)
            min   mean[+/-sd] median    max
Connect:       2    10    3.5     11      16
Processing:    2    35    4.5     35      42
Waiting:       1    34    4.5     35      42
Total:         4    45    6.1     47      49

Percentage of the requests served within a certain time (ms)
  50%      47
  66%      47
  75%      48
  80%      48
  90%      49
  95%      49
  98%      49
  99%      49
 100%      49 (longest request)
```

- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	0.462	seconds
2	Complete requests	500	
3	Failed requests	333	
4	Total transferred	378000	bytes
5	HTML transferred	309500	bytes
6	Requests per second	1081.90	req/s
7	Time per request	0.924	ms
8	Transfer rate	798.75	Kbytes/sec

Load Balancer : IP Hash

- Output Test

```
Server Software:        nginx/1.14.2
Server Hostname:        10.67.4.3
Server Port:            8001

Document Path:          /
Document Length:        621 bytes

Concurrency Level:      50
Time taken for tests:   0.458 seconds
Complete requests:      500
Failed requests:        0
Total transferred:      379000 bytes
HTML transferred:       310500 bytes
Requests per second:    1091.38 [#/sec] (mean)
Time per request:       45.813 [ms] (mean)
Time per request:       0.916 [ms] (mean, across all concurrent requests)
Transfer rate:          807.88 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median    max
Connect:        0    10   3.2     10      18
Processing:     2    34   4.3     35      41
Waiting:        1    34   4.3     35      41
Total:          3    45   5.9     46      51

Percentage of the requests served within a certain time (ms)
  50%     46
  66%     47
  75%     48
  80%     48
  90%     48
  95%     49
  98%     49
  99%     51
 100%     51 (longest request)
```

- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	0.458	seconds
2	Complete requests	500	
3	Failed requests	0	
4	Total transferred	379000	bytes
5	HTML transferred	310500	bytes
6	Requests per second	1091.38	req/s
7	Time per request	0.916	ms
8	Transfer rate	807.88	Kbytes/sec

Load Balancer : Generic Hash

- Output Test

```
Server Software:        nginx/1.14.2
Server Hostname:        10.67.4.3
Server Port:            8002

Document Path:          /
Document Length:        617 bytes

Concurrency Level:      50
Time taken for tests:   0.448 seconds
Complete requests:      500
Failed requests:        0
Total transferred:      377000 bytes
HTML transferred:       308500 bytes
Requests per second:    1116.05 [#/sec] (mean)
Time per request:       44.801 [ms] (mean)
Time per request:       0.896 [ms] (mean, across all concurrent requests)
Transfer rate:          821.78 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        1   10    3.1     11     16
Processing:     3   33   15.1     33    259
Waiting:        2   32    5.0     33     38
Total:          4   43   15.6     44    269

Percentage of the requests served within a certain time (ms)
  50%     44
  66%     44
  75%     45
  80%     45
  90%     46
  95%     47
  98%     47
  99%     47
 100%    269 (longest request)
```

- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	0.448	seconds
2	Complete requests	500	
3	Failed requests	0	
4	Total transferred	377000	bytes
5	HTML transferred	308500	bytes
6	Requests per second	1116.05	req/s
7	Time per request	0.896	ms
8	Transfer rate	821.78	Kbytes/sec

Load Balancer : Least Connection

- Output Test

```
Server Software:        nginx/1.14.2
Server Hostname:        10.67.4.3
Server Port:            8003

Document Path:          /
Document Length:        621 bytes

Concurrency Level:      50
Time taken for tests:   0.454 seconds
Complete requests:      500
Failed requests:        329
   (Connect: 0, Receive: 0, Length: 329, Exceptions: 0)
Total transferred:      378014 bytes
HTML transferred:       309514 bytes
Requests per second:    1102.04 [#/sec] (mean)
Time per request:       45.370 [ms] (mean)
Time per request:       0.907 [ms] (mean, across all concurrent requests)
Transfer rate:          813.65 [Kbytes/sec] received

Connection Times (ms)
            min  mean[+/-sd] median    max
Connect:      1   10    3.7     10       17
Processing:   3   34    4.2     35       42
Waiting:      1   34    4.2     35       42
Total:        4   44    5.5     46       49

Percentage of the requests served within a certain time (ms)
   50%      46
   66%      47
   75%      47
   80%      47
   90%      48
   95%      48
   98%      49
   99%      49
  100%      49 (longest request)
```
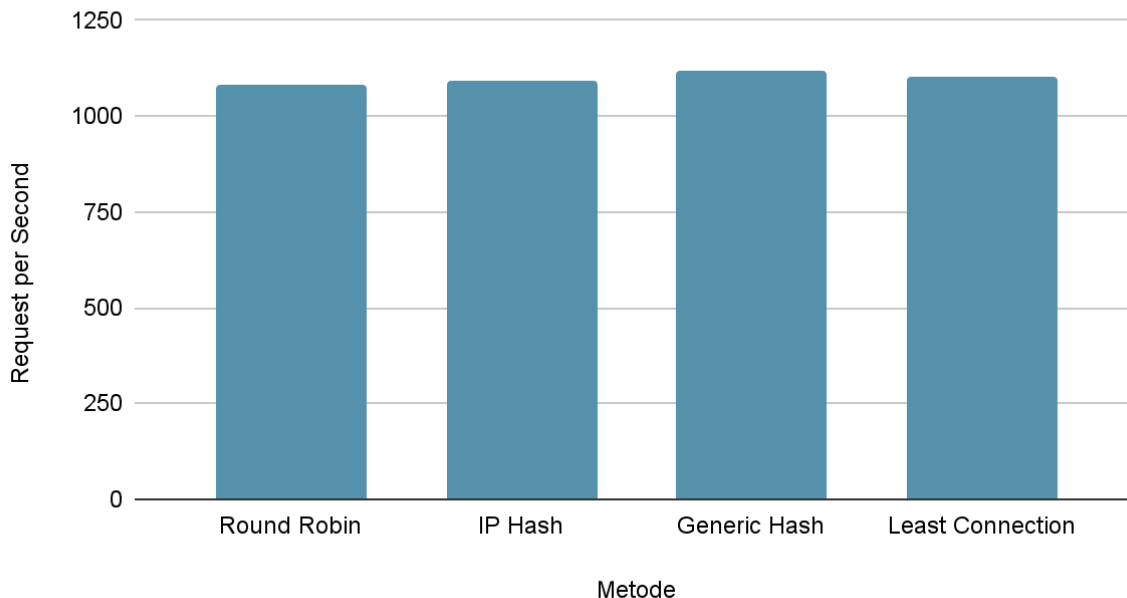
- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	0.454	seconds
2	Complete requests	500	
3	Failed requests	329	
4	Total transferred	378014	bytes
5	HTML transferred	309514	bytes
6	Requests per second	1102.04	req/s
7	Time per request	0.907	ms
8	Transfer rate	813.65	Kbytes/sec

Grafik Hasil Uji Coba

Request per Second Load Balancer Berdasarkan Metodenya

Analisis

Dari data yang diperoleh, dapat terlihat performa relatif pada setiap metode load balancer yang digunakan.

1. **Round Robin**

   Request per Second: 1081.90 req/s

   Round Robin memiliki nilai RPS yang paling kecil di antara metode Load Balancing yang lain. Round Robin juga memiliki tingkat kegagalan request yang paling besar di antara yang lain. Hal ini menunjukkan bahwa metode Round Robin merupakan metode load balancing dengan performa paling buruk. Performa buruk ini mungkin terjadi akibat kemampuan load balancer yang tidak mampu mengatur traffic dengan cepat terhadap banyaknya arus request yang masuk.

2. **IP Hash**

   Request per Second: 1091.38 req/s

   IP Hash memiliki nilai RPS menengah, bukan yang tertinggi dan bukan pula yang terendah. Namun dengan jumlah failed request yang paling sedikit, sama dengan generic hash, metode ini merupakan salah satu metode yang memiliki tingkat performa tinggi.

3. **Generic Hash**

   Request per Second: 1116.05 req/s

Generic Hash memiliki nilai RPS yang paling tinggi di antara yang lain. Tak hanya itu, Generic Hash juga memiliki nilai failed paling sedikit sehingga metode ini merupakan metode dengan tingkat performa paling tinggi di antara yang lain.

4. **Least Connection**
Request per Second: 1102.04 req/s
Least Connection memiliki nilai RPS tertinggi kedua, namun jumlah failed request melalui Least Connection ini memiliki jumlah terbesar kedua pula setelah Round Robin, menjadikan metode ini memiliki performa yang perlu dipertimbangkan lagi apabila ingin digunakan. Seperti pada Round Robin, hal ini disebabkan akibat kemampuan load balancer yang tidak dapat mengatur lalu lintas request yang masuk dengan baik.

Testing Soal No.9

ab -n 1000 -c 10 http://10.67.4.3:[8003-8005]/

Worker Amount : 3

- Output Test

```
Server Software:        nginx/1.14.2
Server Hostname:        10.67.4.3
Server Port:            8003

Document Path:          /
Document Length:        621 bytes

Concurrency Level:      10
Time taken for tests:   0.924 seconds
Complete requests:      1000
Failed requests:        600
   (Connect: 0, Receive: 0, Length: 600, Exceptions: 0)
Total transferred:      756200 bytes
HTML transferred:       619200 bytes
Requests per second:    1082.66 [#/sec] (mean)
Time per request:       9.236 [ms] (mean)
Time per request:       0.924 [ms] (mean, across all concurrent requests)
Transfer rate:          799.52 [Kbytes/sec] received

Connection Times (ms)
            min  mean[+/-sd] median    max
Connect:      1    2   0.6      2        4
Processing:   2    7   0.7      7        9
Waiting:      2    7   0.7      7        9
Total:        3    9   0.8      9       12

Percentage of the requests served within a certain time (ms)
  50%      9
  66%      9
  75%      9
  80%      9
  90%     10
  95%     11
  98%     11
  99%     11
 100%     12 (longest request)
```

- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	0.924	seconds
2	Complete requests	1000	
3	Failed requests	600	
4	Total transferred	756200	bytes
5	HTML transferred	619200	bytes
6	Requests per second	1082.66	req/s
7	Time per request	0.924	ms
8	Transfer rate	799.52	Kbytes/sec

Worker Amount : 2

- Output Test

```
Server Software:        nginx/1.14.2
Server Hostname:        10.67.4.3
Server Port:            8004

Document Path:          /
Document Length:        619 bytes

Concurrency Level:      10
Time taken for tests:   0.944 seconds
Complete requests:      1000
Failed requests:        499
   (Connect: 0, Receive: 0, Length: 499, Exceptions: 0)
Total transferred:      756998 bytes
HTML transferred:       619998 bytes
Requests per second:    1059.10 [#/sec] (mean)
Time per request:       9.442 [ms] (mean)
Time per request:       0.944 [ms] (mean, across all concurrent requests)
Transfer rate:          782.94 [Kbytes/sec] received

Connection Times (ms)
            min  mean[+/-sd] median   max
Connect:      1    2   0.6      2       5
Processing:   2    7   1.1      7      14
Waiting:      1    7   1.1      7      14
Total:        3    9   1.2      9      16

Percentage of the requests served within a certain time (ms)
  50%      9
  66%      9
  75%     10
  80%     10
  90%     11
  95%     11
  98%     13
  99%     15
 100%     16 (longest request)
```

- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	0.944	seconds
2	Complete requests	1000	
3	Failed requests	499	
4	Total transferred	756998	bytes
5	HTML transferred	619998	bytes
6	Requests per second	1059.10	req/s
7	Time per request	0.944	ms
8	Transfer rate	782.94	Kbytes/sec

Worker Amount : 1

- Output Test

```
Server Software:        nginx/1.14.2
Server Hostname:        10.67.4.3
Server Port:            8005

Document Path:          /
Document Length:        621 bytes

Concurrency Level:      10
Time taken for tests:   0.891 seconds
Complete requests:      1000
Failed requests:        0
Total transferred:      758000 bytes
HTML transferred:       621000 bytes
Requests per second:    1122.64 [#/sec] (mean)
Time per request:       8.908 [ms] (mean)
Time per request:       0.891 [ms] (mean, across all concurrent requests)
Transfer rate:          831.01 [Kbytes/sec] received

Connection Times (ms)
            min   mean[+/-sd] median    max
Connect:      1     2   0.6       2       4
Processing:   1     7   0.7       7       9
Waiting:      1     7   0.7       7       9
Total:        3     9   0.8       9      11

Percentage of the requests served within a certain time (ms)
  50%      9
  66%      9
  75%      9
  80%      9
  90%     10
  95%     10
  98%     11
  99%     11
 100%     11 (longest request)
```
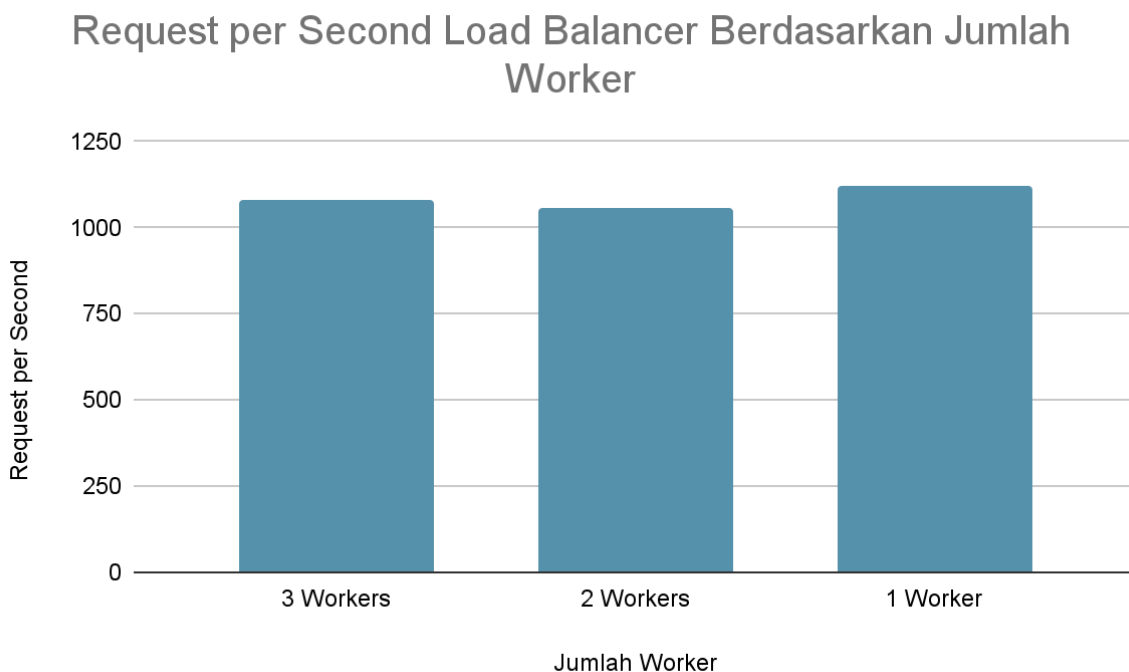
- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	0.891	seconds
2	Complete requests	1000	
3	Failed requests	0	
4	Total transferred	758000	bytes
5	HTML transferred	621000	bytes
6	Requests per second	1122.64	req/s
7	Time per request	0.891	ms
8	Transfer rate	831.01	Kbytes/sec

Grafik Hasil Uji Coba

Request per Second Load Balancer Berdasarkan Jumlah Worker

Analisis

1. **3 Workers**

Request per Second: 1082.66

Jumlah 3 worker ini memiliki nilai RPS menengah, akibat dari load balancer yang tidak bisa membagi traffic di antara 3 worker dengan cepat. Akibatnya 3 worker ini juga memiliki jumlah failed request yang paling besar di antara yang lain

2. **2 Workers**

   Request per Second: 1059.10

   Jumlah 2 worker memiliki kecepatan RPS paling lambat dan failed request menengah. Penggunaan 2 worker ini memiliki performa yang kurang optimal bahkan apabila dibandingkan dengan 3 worker karena banyaknya jumlah failed request dan RPS yang lambat tersebut.

3. **1 Workers**

   Request per Second: 1122.64

   Jumlah 1 Worker memiliki RPS tercepat dan failed request paling sedikit, hal ini disebabkan karena load balancer tidak terbebani dengan banyaknya request yang masuk dan hanya bekerja sebagai penerus request pada worker.

Atreides

Testing Soal No.15

```
Benchmarking atreides.it07.com (be patient).....done


Server Software:        nginx/1.14.2
Server Hostname:        atreides.it07.com
Server Port:            8081

Document Path:          /api/auth/register
Document Length:        53 bytes

Concurrency Level:      10
Time taken for tests:   2.887 seconds
Complete requests:      100
Failed requests:        18
   (Connect: 0, Receive: 0, Length: 18, Exceptions: 0)
Non-2xx responses:      100
Total transferred:      153642 bytes
Total body sent:        22400
HTML transferred:       123488 bytes
Requests per second:    34.63 [#/sec] (mean)
Time per request:       288.736 [ms] (mean)
Time per request:       28.874 [ms] (mean, across all concurrent requests)
Transfer rate:          51.96 [Kbytes/sec] received
                        7.58 kb/s sent
                        59.54 kb/s total

Connection Times (ms)
            min  mean[+/-sd] median   max
Connect:      0    0   0.4      0       3
Processing:  54  273  71.0    276     436
Waiting:     54  270  73.9    276     435
Total:       55  273  71.1    276     436

Percentage of the requests served within a certain time (ms)
  50%    276
  66%    300
  75%    328
  80%    337
  90%    362
  95%    388
  98%    429
  99%    436
 100%    436 (longest request)
root@Paul:~#
```

- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	2.887	seconds
2	Complete requests	100	

3	Failed requests	18	
4	Total transferred	153642	bytes
5	HTML transferred	123448	bytes
6	Requests per second	34.6	req/s
7	Time per request	28.874	ms
8	Transfer rate	51.96	Kbytes/sec

Testing Soal No.16

```
Benchmarking atreides.it07.com (be patient).....done


Server Software:        nginx/1.14.2
Server Hostname:        atreides.it07.com
Server Port:            8081

Document Path:          /api/auth/login
Document Length:        345 bytes

Concurrency Level:      10
Time taken for tests:   14.456 seconds
Complete requests:      100
Failed requests:        16
   (Connect: 0, Receive: 0, Length: 16, Exceptions: 0)
Non-2xx responses:      16
Total transferred:      164182 bytes
Total body sent:        22100
HTML transferred:       134884 bytes
Requests per second:    6.92 [#/sec] (mean)
Time per request:       1445.553 [ms] (mean)
Time per request:       144.555 [ms] (mean, across all concurrent requests)
Transfer rate:          11.09 [Kbytes/sec] received
                        1.49 kb/s sent
                        12.58 kb/s total


Connection Times (ms)
            min  mean[+/-sd] median   max
Connect:      0     0    0.4      0       2
Processing:  98  1399  581.2   1668    1825
Waiting:     95  1397  584.7   1668    1824
Total:       98  1399  581.3   1668    1825


Percentage of the requests served within a certain time (ms)
  50%    1668
  66%    1697
  75%    1712
  80%    1721
  90%    1743
  95%    1767
  98%    1823
  99%    1825
 100%    1825 (longest request)
root@Paul:~#
```

- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	14.456	seconds
2	Complete requests	100	
3	Failed requests	16	
4	Total transferred	164182	bytes

5	HTML transferred	134884	bytes
6	Requests per second	6.92	req/s
7	Time per request	144.555	ms
8	Transfer rate	11.09	Kbytes/sec

Testing Soal No.17

```
Benchmarking 10.67.2.2 (be patient).....done


Server Software:        nginx/1.14.2
Server Hostname:        10.67.2.2
Server Port:            8081

Document Path:          /api/me
Document Length:        120 bytes

Concurrency Level:      10
Time taken for tests:   3.129 seconds
Complete requests:      100
Failed requests:        40
   (Connect: 0, Receive: 0, Length: 40, Exceptions: 0)
Non-2xx responses:      40
Total transferred:      302770 bytes
HTML transferred:       271960 bytes
Requests per second:    31.96 [#/sec] (mean)
Time per request:       312.922 [ms] (mean)
Time per request:       31.292 [ms] (mean, across all concurrent requests)
Transfer rate:          94.49 [Kbytes/sec] received

Connection Times (ms)
            min  mean[+/-sd] median    max
Connect:      0    0    0.5      0       4
Processing:  45  301   62.9    303     470
Waiting:     38  297   63.9    298     470
Total:       45  301   62.7    304     470

Percentage of the requests served within a certain time (ms)
  50%    304
  66%    320
  75%    332
  80%    348
  90%    366
  95%    372
  98%    431
  99%    470
 100%    470 (longest request)
root@Paul:~#
```

- Data Penting

No	Data	Nilai	Satuan

1	Time taken for tests	3.129	seconds
2	Complete requests	100	
3	Failed requests	40	
4	Total transferred	302770	bytes
5	HTML transferred	271960	bytes
6	Requests per second	31.96	req/s
7	Time per request	31.292	ms
8	Transfer rate	94.49	Kbytes/sec

Testing Soal No.19

Percobaan 1

Data yang digunakan:

```
pm.max_children = 5
pm.start_servers = 2
pm.min_spare_servers = 1
pm.max_spare_servers = 3
```

```
root@Paul:~# ab -n 100 -c 10 http://atreides.it07.com/
This is ApacheBench, Version 2.3 <$Revision: 1843412 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking atreides.it07.com (be patient).....done


Server Software:        nginx/1.14.2
Server Hostname:        atreides.it07.com
Server Port:            80

Document Path:          /
Document Length:        18873 bytes

Concurrency Level:      10
Time taken for tests:   6.452 seconds
Complete requests:      100
Failed requests:        0
Total transferred:      1998100 bytes
HTML transferred:       1887300 bytes
Requests per second:    15.50 [#/sec] (mean)
Time per request:       645.175 [ms] (mean)
Time per request:       64.518 [ms] (mean, across all concurrent requests)
Transfer rate:          302.44 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    6   8.1      3      54
Processing:   126  590 1106.5    263    5067
Waiting:      119  561 1100.5    242    5047
Total:        126  596 1107.8    270    5076

Percentage of the requests served within a certain time (ms)
  50%    270
  66%    328
  75%    348
  80%    367
  90%    673
  95%   3815
  98%   5076
  99%   5076
 100%   5076 (longest request)
root@Paul:~#
```

- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	6.452	seconds
2	Complete requests	100	
3	Failed requests	0	
4	Total transferred	1998100	bytes
5	HTML transferred	1887300	bytes
6	Requests per second	15.50	req/s
7	Time per request	64.518	ms
8	Transfer rate	302.44	Kbytes/sec

Percobaan 2

Data yang digunakan:

```
pm.max_children = 15
pm.start_servers = 12
pm.min_spare_servers = 3
pm.max_spare_servers = 13
```

```
root@Paul:~# ab -n 100 -c 10 http://atreides.it07.com/
This is ApacheBench, Version 2.3 <$Revision: 1843412 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking atreides.it07.com (be patient).....done


Server Software:        nginx/1.14.2
Server Hostname:        atreides.it07.com
Server Port:            80

Document Path:          /
Document Length:        18873 bytes

Concurrency Level:      10
Time taken for tests:   3.008 seconds
Complete requests:      100
Failed requests:        0
Total transferred:      1998100 bytes
HTML transferred:       1887300 bytes
Requests per second:    33.24 [#/sec] (mean)
Time per request:       300.844 [ms] (mean)
Time per request:       30.084 [ms] (mean, across all concurrent requests)
Transfer rate:          648.60 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    9   8.7      6      45
Processing:    96  280  75.8    279     546
Waiting:       70  265  75.6    263     525
Total:         97  289  76.5    284     550

Percentage of the requests served within a certain time (ms)
  50%    284
  66%    305
  75%    317
  80%    332
  90%    375
  95%    457
  98%    518
  99%    550
 100%    550 (longest request)
root@Paul:~#
```

- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	3.008	seconds
2	Complete requests	100	
3	Failed requests	0	
4	Total transferred	1998100	bytes
5	HTML transferred	1887300	bytes

6	Requests per second	33.24	req/s
7	Time per request	30.084	ms
8	Transfer rate	648.40	Kbytes/sec

Percobaan 3

```
pm.max_children = 25
pm.start_servers = 22
pm.min_spare_servers = 5
pm.max_spare_servers = 23
```

```
root@Paul:~# ab -n 100 -c 10 http://atreides.it07.com/
This is ApacheBench, Version 2.3 <$Revision: 1843412 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking atreides.it07.com (be patient).....done


Server Software:        nginx/1.14.2
Server Hostname:        atreides.it07.com
Server Port:            80

Document Path:          /
Document Length:        18873 bytes

Concurrency Level:      10
Time taken for tests:   6.694 seconds
Complete requests:      100
Failed requests:        0
Total transferred:      1998100 bytes
HTML transferred:       1887300 bytes
Requests per second:    14.94 [#/sec] (mean)
Time per request:       669.384 [ms] (mean)
Time per request:       66.938 [ms] (mean, across all concurrent requests)
Transfer rate:          291.50 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    4   3.9      3      20
Processing:   182  610 868.1    389    4011
Waiting:      175  600 867.9    375    4003
Total:        185  614 869.4    393    4021

Percentage of the requests served within a certain time (ms)
  50%    393
  66%    472
  75%    523
  80%    554
  90%    607
  95%   3398
  98%   3991
  99%   4021
 100%   4021 (longest request)
root@Paul:~#
```
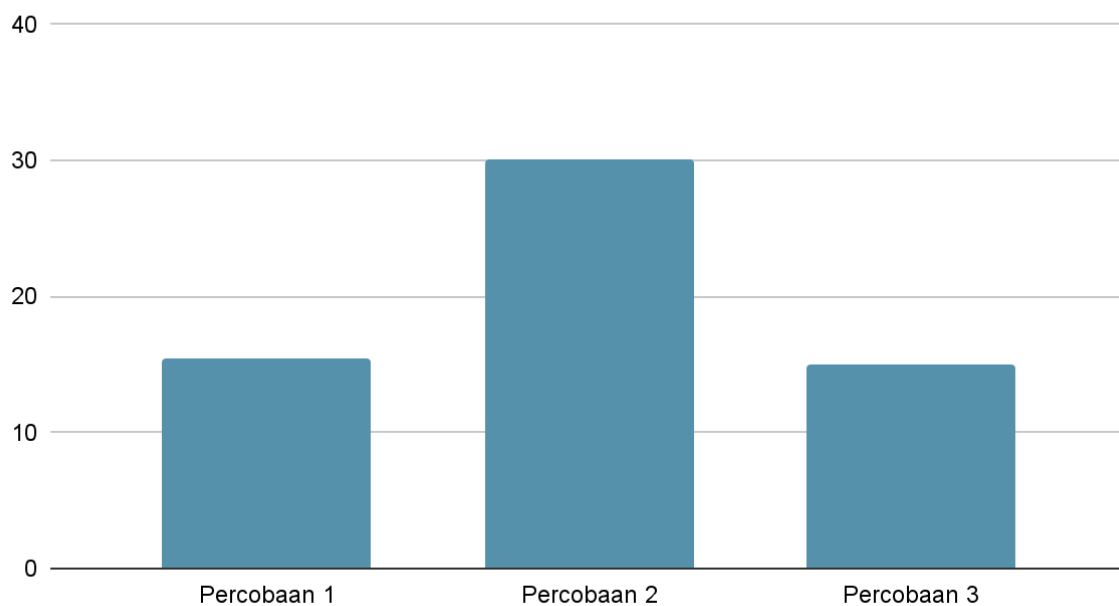
- Data Penting

No	Data	Nilai	Satuan
1	Time taken for tests	6.694	seconds
2	Complete requests	100	
3	Failed requests	0	
4	Total transferred	1998100	bytes
5	HTML transferred	1887300	bytes
6	Requests per second	14.94	req/s
7	Time per request	66.938	ms
8	Transfer rate	291.50	Kbytes/sec

Grafik Hasil Uji Coba

Grafik Request per Second

Analisis

Dari data yang diperoleh, dapat terlihat performa relatif pada setiap data percobaan, yaitu:

1. Percobaan 1
   Request per second: 15.50
   Dengan 15.50 requests per second, server menunjukkan kemampuan menangani jumlah request yang relatif rendah per detik.

2. Percobaan 2
   Request per second: 33.24
   Percobaan 2 menunjukkan performa terbaik dengan 33.24 requests per second, jauh lebih tinggi dibandingkan dengan Percobaan 1 dan 3. Percobaan 2 juga memiliki transfer rate tertinggi yaitu 648.40 KB/s, dibandingkan dengan 302.44 KB/s pada Percobaan 1 dan 291.50 KB/s pada Percobaan 3.

3. Percobaan 3
   Request per second: 14.94
   14.94 requests per second menunjukkan performa yang sedikit lebih rendah daripada Percobaan 1. Ini menunjukkan bahwa server berada di bawah beban atau tidak dioptimalkan untuk throughput tinggi.

kesimpulan :
Dari ketiga percobaan, Percobaan 2 menunjukkan performa terbaik. Ada ketidakkonsistenan performa antara percobaan 1, 2, dan 3. Hal ini menunjukkan bahwa mungkin ada variabel lain yang mempengaruhi performa server seperti beban kerja server lain, penggunaan resource server, atau faktor jaringan yang berfluktuasi.