

## Nomor 7

ab -n 1000 -c 100 <http://10.64.2.2:82/> (Weight Round Robin)

```
1 [|||||] 15.3% Tasks: 12, 0 thr; 1 running
2 [|||||] 19.7% Load average: 1.07 1.08 1.25
3 [|||||] 31.9% Uptime: 34 days, 11:41:42
4 [|||||] 22.1%
Mem [|||||] 3.59G/7.57G
Swap [|||||] 880M/2.00G

PID USER      ST  ID  PR  NI  VSZ  RSS  %CPU  %MEM  TIME+ COMMAND
8453 www-data  20  0  189M  4576  3968  s  0.0  0.1  0:00.01 php-fpm: pool w
8470 www-data  20  0  139M  9836  3260  s  0.0  0.1  0:00.01 php-fpm: pool w
8468 root       20  0  188M  4524  3140  s  0.0  0.1  0:00.01 php-fpm: master
8498 root       20  0  4788  3948  3516  s  0.0  0.0  0:00.22 htop
1 root       20  0  388  5372  2788  s  0.0  0.0  0:00.01 bash
55 root      20  0  4456  92  88  s  0.0  0.0  0:00.00 /gnas3/bin/busy
77 root      20  0  4456  0  0  s  0.0  0.0  0:00.00 /gnas3/bin/busyb
8433 root      20  0  1552  432  60  s  0.0  0.0  0:00.00 nginx: master p
8436 www-data  20  0  6228  5372  3748  s  0.0  0.1  0:00.00 nginx: worker p
8439 www-data  20  0  6228  3668  3748  s  0.0  0.1  0:00.00 nginx: worker p
8440 www-data  20  0  6228  3368  3748  s  0.0  0.1  0:00.00 nginx: worker p

Requests per second: 7267.9 [range: 6000-]
Time per request: 126.147 [ms] (mean)
Time per request: 1.261 [ms] (mean, across all concurrent requests)
Transfer rate: 589.68 [Kbytes/sec] received

Connection Times (ms)
  min  mean[+/-sd] median  max
Connect: 1  5  1.9  5  10
Processing: 6  26  68.1  18  1010
Waiting: 4  26  68.1  18  1010
Total: 7  30  68.1  23  1014

Percentage of the requests served within a certain time (ms)
 50%  23
 66%  27
 75%  27
 80%  28
 90%  29
 95%  33
 98%  214
 99%  228
100% 1014 (longest request)

root@8436ln:/#

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← → ↻ ⚠ Not secure 10.15.41.145/static/web-ui/server/1/project/03... ☆ 📄 🗑 📱 📶
1 [|||||] 12.4% Tasks: 12, 0 thr; 1 running
2 [|||||] 14.9% Load average: 1.07 1.08 1.25
3 [|||||] 24.6% Uptime: 34 days, 11:41:43
4 [|||||] 16.6%
Mem [|||||] 3.59G/7.57G
Swap [|||||] 880M/2.00G

PID USER      ST  ID  PR  NI  VSZ  RSS  %CPU  %MEM  TIME+ COMMAND
8456 www-data  20  0  189M  4644  4068  s  0.0  0.1  0:00.02 php-fpm: pool w
8497 root       20  0  4788  256  824  s  0.0  0.0  0:00.17 htop
8468 www-data  20  0  188M  1384  3720  s  0.0  0.1  0:00.01 php-fpm: pool w
8467 root       20  0  188M  552  3172  s  0.0  0.1  0:00.01 php-fpm: master
1 root       20  0  394  4052  2784  s  0.0  0.0  0:00.01 bash
56 root      20  0  4456  0  0  s  0.0  0.0  0:00.00 /gnas3/bin/busy
62 root      20  0  4456  0  0  s  0.0  0.0  0:00.00 /gnas3/bin/busyb
8434 root      20  0  1552  736  52  s  0.0  0.0  0:00.00 nginx: master p
8435 www-data  20  0  6228  4624  3720  s  0.0  0.1  0:00.00 nginx: worker p
8437 www-data  20  0  6228  4624  3720  s  0.0  0.1  0:00.00 nginx: worker p
8438 www-data  20  0  6228  4624  3720  s  0.0  0.1  0:00.00 nginx: worker p

root@8436ln:/#

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← → ↻ ⚠ Not secure 10.15.41.145/static/web-ui/server/1/project/03... ☆ 📄 🗑 📱 📶
1 [|||||] 13.2% Tasks: 12, 0 thr; 1 running
2 [|||||] 15.6% Load average: 1.07 1.08 1.25
3 [|||||] 26.1% Uptime: 34 days, 11:41:43
4 [|||||] 18.2%
Mem [|||||] 3.59G/7.57G
Swap [|||||] 880M/2.00G

PID USER      ST  ID  PR  NI  VSZ  RSS  %CPU  %MEM  TIME+ COMMAND
8454 root      20  0  138M  3172  2740  s  0.0  0.0  0:00.20 htop
8437 www-data  20  0  6228  5564  3652  s  0.0  0.1  0:00.01 nginx: worker p
8465 root       20  0  188M  4592  3208  s  0.0  0.1  0:00.01 php-fpm: master
1 root       20  0  3892  3236  2840  s  0.0  0.0  0:00.03 bash
67 root       20  0  4456  0  0  s  0.0  0.0  0:00.00 /gnas3/bin/busy
74 root       20  0  4456  0  0  s  0.0  0.0  0:00.00 /gnas3/bin/busyb
8432 root      20  0  1552  1740  52  s  0.0  0.0  0:00.00 nginx: master p
8433 www-data  20  0  6228  5564  3652  s  0.0  0.1  0:00.00 nginx: worker p
8435 www-data  20  0  6228  5564  3652  s  0.0  0.1  0:00.00 nginx: worker p
8436 www-data  20  0  6228  5564  3652  s  0.0  0.1  0:00.00 nginx: worker p
8466 www-data  20  0  189M  10468  6800  s  0.0  0.1  0:00.00 php-fpm: pool w
8467 www-data  20  0  189M  9848  6268  s  0.0  0.1  0:00.00 php-fpm: pool w
```

## Nomor 8

### I. Hasil Testing

## Algoritma Round Robin

ab -n 200 -c 10 <http://10.64.2.2:81/> //No 8 RoundRobin

```
1 [[ ]] 4.1s Tasks: 12, 0 thr; 1 running
2 [[ ]] 4.1s Load average: 0.52 0.70 1.03
3 [[ ]] 3.4s Uptime: 34 days, 11:47:09
4 [[ ]] 4.0s
Mem [[ ]] 3.26G/7.57G
Swap [[ ]] 884M/2.00G

PID USER      PS%  CPU   VSZ    RSS   PMem  SPOW  RSS%   PID#   Command
-----
8437 www-data  20  0  6228  412  4672  8  0.0  0.1  0:00.04 nginx: worker p
8469 www-data  20  0  189M 10576 3908  8  0.0  0.1  0:00.02 php-fpm: pool w
8470 www-data  20  0  189M 8826  260  8  0.0  0.1  0:00.02 php-fpm: pool w
8468 root        20  0  189M 524  1140  8  0.0  0.1  0:00.02 php-fpm: master
1 root        20  0  3988 2972 2788  8  0.0  0.0  0:00.01 bash
55 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
77 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
8435 root        20  0  6192 1404  60  8  0.0  0.0  0:00.00 nginx: master p
8436 www-data  20  0  6228 3352 3748  8  0.0  0.1  0:00.00 nginx: worker p
8439 www-data  20  0  6228 1344 3748  8  0.0  0.1  0:00.00 nginx: worker p
8440 www-data  20  0  6228 1344 3748  8  0.0  0.1  0:00.00 nginx: worker p

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← → ↻ ⚠ Not secure 10.15.41.145/static/web-ui/server/1/project/03... ☆ 📄 🖨 🌐

1 [[ ]] 4.8s Tasks: 12, 0 thr; 1 running
2 [[ ]] 5.4s Load average: 0.52 0.70 1.03
3 [[ ]] 4.1s Uptime: 34 days, 11:47:09
4 [[ ]] 3.1s
Mem [[ ]] 3.26G/7.57G
Swap [[ ]] 884M/2.00G

PID USER      PS%  CPU   VSZ    RSS   PMem  SPOW  RSS%   PID#   Command
-----
8435 www-data  20  0  6228  624  3720  8  0.0  0.1  0:00.01 nginx: worker p
8497 root        20  0  4788 1256 2824  8  0.0  0.0  0:00.46 htop
8468 www-data  20  0  189M 10384 3720  8  0.0  0.1  0:00.02 php-fpm: pool w
8467 root        20  0  189M 456  1172  8  0.0  0.1  0:00.02 php-fpm: master
8469 www-data  20  0  189M 9644 4068  8  0.0  0.1  0:00.02 php-fpm: pool w
1 root        20  0  3984 3020 2784  8  0.0  0.0  0:00.01 bash
55 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
62 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
8434 root        20  0  6192 1736  52  8  0.0  0.0  0:00.00 nginx: master p
8437 www-data  20  0  6228 624  3720  8  0.0  0.1  0:00.00 nginx: worker p
8438 www-data  20  0  6228 624  3720  8  0.0  0.1  0:00.00 nginx: worker p

4

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← → ↻ ⚠ Not secure 10.15.41.145/static/web-ui/server/1/project/03... ☆ 📄 🖨 🌐

1 [[ ]] 5.4s Tasks: 12, 0 thr; 1 running
2 [[ ]] 6.8s Load average: 0.52 0.70 1.03
3 [[ ]] 6.1s Uptime: 34 days, 11:47:09
4 [[ ]] 3.4s
Mem [[ ]] 3.26G/7.57G
Swap [[ ]] 884M/2.00G

PID USER      PS%  CPU   VSZ    RSS   PMem  SPOW  RSS%   PID#   Command
-----
8468 root        20  0  189M 4592 3208  8  0.0  0.1  0:00.03 php-fpm: master
8437 www-data  20  0  62228 1564 3652  8  0.0  0.1  0:00.03 nginx: worker p
8466 www-data  20  0  189M 10468 6800  8  0.0  0.1  0:00.01 php-fpm: pool w
1 root        20  0  3992 3232 2840  8  0.0  0.0  0:00.03 bash
67 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
74 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
8435 root        20  0  6192 1740  52  8  0.0  0.0  0:00.00 nginx: master p
8433 www-data  20  0  62228 1564 3652  8  0.0  0.1  0:00.00 nginx: worker p
8439 www-data  20  0  62228 1564 3652  8  0.0  0.1  0:00.00 nginx: worker p
8467 www-data  20  0  189M 9848 6268  8  0.0  0.1  0:00.00 php-fpm: pool w

4
```

Request per second : 2030.23

# Algoritma weight RoundRobin

ab -n 200 -c 10 http://10.64.2.2:82/ //No 8 weight RoundRobin

```
1 [[ ]] 7.6s Tasks: 12, 0 thr; 1 running
2 [[ ]] 9.4s Load average: 1.73 1.04 1.13
3 [[ ]] 6.8s Uptime: 34 days, 11:48:12
4 [[ ]] 7.6s
Mem [[ ]] 3.55G/7.57G
Swap [[ ]] 883M/2.00G

PID USER      PS%  CPU   VSZ    RSS   PMem  SPOW  RSS%   PID#   Command
-----
8438 root        20  5  4756 1148 2516  8  0.0  0.0  0:00.18 htop
8437 www-data  20  0  6228  412  4672  8  0.0  0.1  0:00.04 nginx: worker p
8469 www-data  20  0  189M 10576 3908  8  0.0  0.1  0:00.02 php-fpm: pool w
8470 www-data  20  0  189M 8836  260  8  0.0  0.1  0:00.02 php-fpm: pool w
8468 root        20  0  189M 524  1140  8  0.0  0.1  0:00.02 php-fpm: master
1 root        20  0  3988 2972 2788  8  0.0  0.0  0:00.01 bash
55 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
77 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
8435 root        20  0  6192 1404  60  8  0.0  0.0  0:00.00 nginx: master p
8436 www-data  20  0  6228 3352 3748  8  0.0  0.1  0:00.00 nginx: worker p
8439 www-data  20  0  6228 1344 3748  8  0.0  0.1  0:00.00 nginx: worker p
8440 www-data  20  0  6228 1344 3748  8  0.0  0.1  0:00.00 nginx: worker p

4

Lugner x + - □ ×
← → ↻ ⚠ Not secure 10.15.41.145/static/web-ui/server/1/project/03... ☆ 📄 🖨 🌐

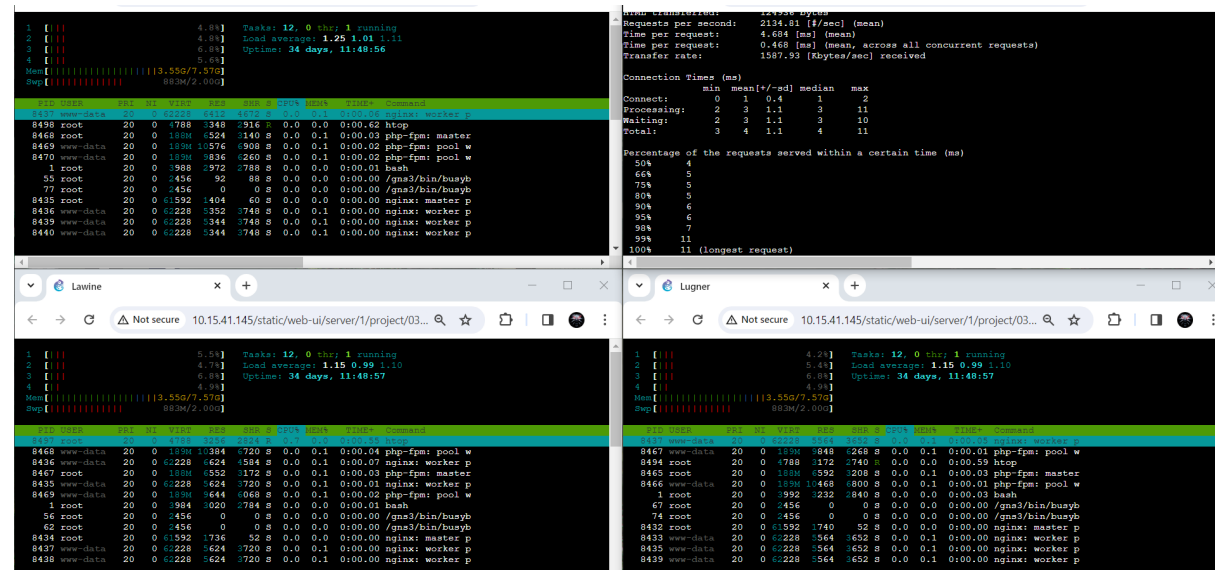
1 [[ ]] 8.3s Tasks: 12, 0 thr; 1 running
2 [[ ]] 9.1s Load average: 1.73 1.04 1.13
3 [[ ]] 9.1s Uptime: 34 days, 11:48:12
4 [[ ]] 8.3s
Mem [[ ]] 3.55G/7.57G
Swap [[ ]] 883M/2.00G

PID USER      PS%  CPU   VSZ    RSS   PMem  SPOW  RSS%   PID#   Command
-----
8437 www-data  20  0  62228 1564 3652  8  0.0  0.1  0:00.04 nginx: worker p
8469 www-data  20  0  189M 4592 3208  8  0.0  0.1  0:00.03 php-fpm: master
8466 www-data  20  0  189M 10468 6800  8  0.0  0.1  0:00.01 php-fpm: pool w
1 root        20  0  3992 3232 2840  8  0.0  0.0  0:00.03 bash
67 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
74 root        20  0  456  0  0  8  0.0  0.0  0:00.00 /gn3/bin/busybb
8435 root        20  0  6192 1740  52  8  0.0  0.0  0:00.00 nginx: master p
8433 www-data  20  0  62228 1564 3652  8  0.0  0.1  0:00.00 nginx: worker p
8439 www-data  20  0  62228 1564 3652  8  0.0  0.1  0:00.00 nginx: worker p
8467 www-data  20  0  189M 9848 6268  8  0.0  0.1  0:00.00 php-fpm: pool w

4
```

Request per second : 2079.59

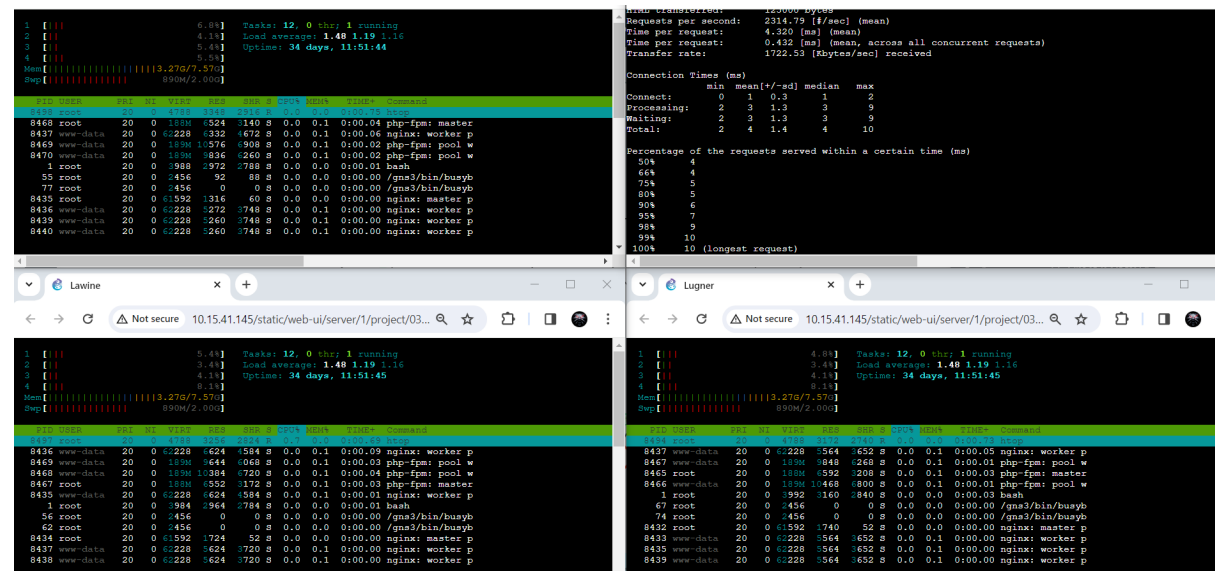
```
ab -n 200 -c 10 http://10.64.2.2:83/ //No 8 leastconn
```



Request per second : 2134.81

## Algoritma Ip Hash

```
ab -n 200 -c 10 http://10.64.2.2:84/ //No 8 ip_hash
```



Request per second : 2134.79

## Algoritma Generic Hash

```
ab -n 200 -c 10 http://10.64.2.2:85/
```



### III. Analisis

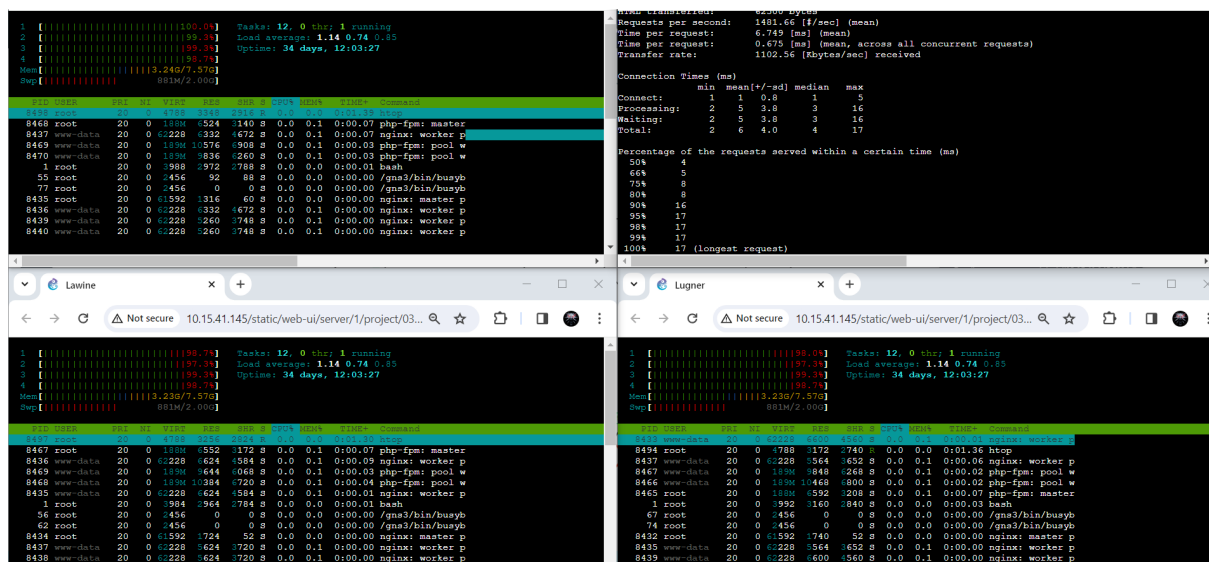
Berdasarkan hasil testing dengan 200 request dan 10 request/second, algoritma Load Balancer "Leastconn" menunjukkan kinerja paling optimal dengan rata-rata 2134.81 request per second, menunjukkan bahwa pendekatan pemilihan server berdasarkan jumlah koneksi terendah memberikan distribusi beban yang efisien dan efektif.

## Nomor 9

### I. Hasil Testing (Algoritma Round Robin)

#### 1 Worker

ab -n 100 -c 10 http://10.64.2.2:891/



Request per second : 1481.66

## 2 Worker

ab -n 100 -c 10 http://10.64.2.2:892/

The screenshot displays a terminal window with a table of system metrics and two browser windows (Lawine and Lugner) showing the same metrics. The terminal table includes columns for PID, USER, PRI, NI, VIRT, RSS, SHR, S, CPU%, MEM%, TIME+, and COMMAND. The metrics show a load average of 1.96, 1.29, 1.05, and a request rate of 1794.56 [#/sec].

PID	USER	PRI	NI	VIRT	RSS	SHR	S	CPU%	MEM%	TIME+	COMMAND
8457	www-data	20	0	62228	5252	4552	S	0.0	0.1	0:00.03	nginx: worker p
8458	root	20	0	4788	1348	2916	R	0.0	0.0	0:01.43	htop
8459	root	20	0	188M	4524	1460	S	0.0	0.1	0:00.07	php-fpm: master
8460	www-data	20	0	188M	4576	3208	S	0.0	0.1	0:00.03	php-fpm: pool w
8470	www-data	20	0	188M	4836	3260	S	0.0	0.1	0:00.03	php-fpm: pool w
1	root	20	0	988	2972	2788	S	0.0	0.0	0:00.01	bash
55	root	20	0	4456	32	88	S	0.0	0.0	0:00.00	/gnas3/bin/busy
77	root	20	0	4456	0	0	S	0.0	0.0	0:00.00	/gnas3/bin/busy
8435	root	20	0	61592	1304	52	S	0.0	0.0	0:00.00	nginx: master p
8436	www-data	20	0	62228	5252	4664	S	0.0	0.1	0:00.00	nginx: worker p
8439	www-data	20	0	62228	5252	3740	S	0.0	0.1	0:00.00	nginx: worker p
8440	www-data	20	0	62228	5252	3740	S	0.0	0.1	0:00.00	nginx: worker p

Request per second : 1794.56

## 3 Worker

ab -n 100 -c 10 http://10.64.2.2:81/

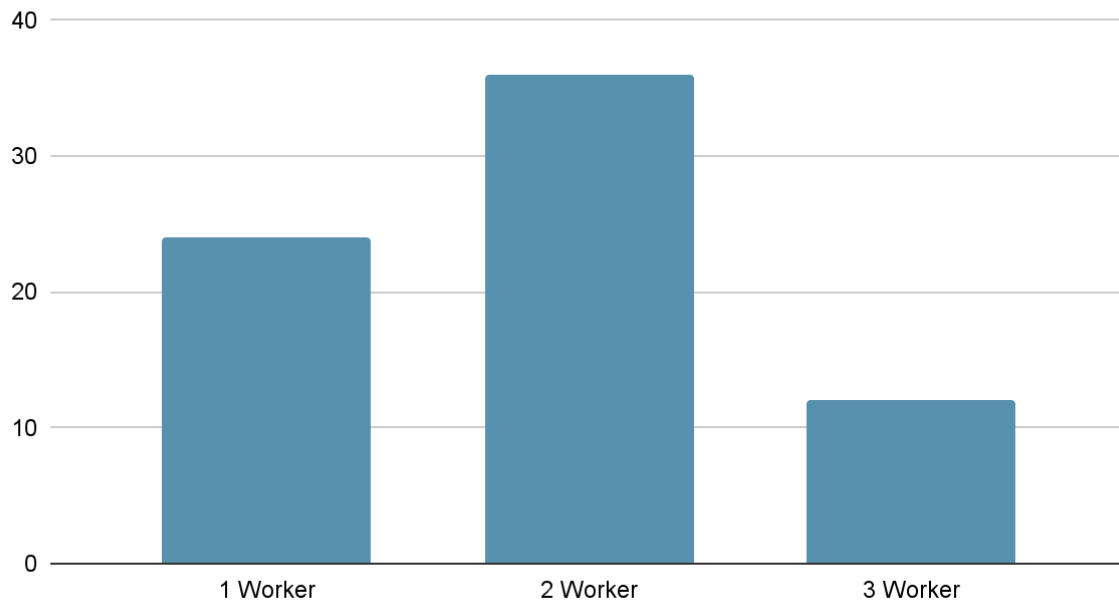
The screenshot displays a terminal window with a table of system metrics and two browser windows (Lawine and Lugner) showing the same metrics. The terminal table includes columns for PID, USER, PRI, NI, VIRT, RSS, SHR, S, CPU%, MEM%, TIME+, and COMMAND. The metrics show a load average of 1.08, 1.14, 1.01, and a request rate of 1996.84 [#/sec].

PID	USER	PRI	NI	VIRT	RSS	SHR	S	CPU%	MEM%	TIME+	COMMAND
8457	www-data	20	0	62228	5252	4552	S	0.0	0.1	0:00.03	nginx: worker p
8458	root	20	0	4788	1348	2916	R	0.0	0.0	0:01.43	htop
8459	root	20	0	188M	4524	1460	S	0.0	0.1	0:00.07	php-fpm: master
8460	www-data	20	0	188M	4576	3208	S	0.0	0.1	0:00.03	php-fpm: pool w
8470	www-data	20	0	188M	4836	3260	S	0.0	0.1	0:00.03	php-fpm: pool w
1	root	20	0	988	2972	2788	S	0.0	0.0	0:00.01	bash
55	root	20	0	4456	32	88	S	0.0	0.0	0:00.00	/gnas3/bin/busy
77	root	20	0	4456	0	0	S	0.0	0.0	0:00.00	/gnas3/bin/busy
8435	root	20	0	61592	1304	52	S	0.0	0.0	0:00.00	nginx: master p
8436	www-data	20	0	62228	5252	3740	S	0.0	0.1	0:00.00	nginx: worker p
8439	www-data	20	0	62228	5252	3740	S	0.0	0.1	0:00.00	nginx: worker p
8440	www-data	20	0	62228	5252	3740	S	0.0	0.1	0:00.00	nginx: worker p

Request per second : 1996.84

## II. Grafik

## Points scored



1 Worker 1481.66

2 Worker 1794.56

3 Worker 1996.84

### III. Analisis

Berdasarkan hasil testing menggunakan algoritma Round Robin dengan variasi jumlah worker, kinerja optimal terlihat pada penggunaan 3 worker dengan rata-rata 1996.84 request per second, menunjukkan bahwa peningkatan jumlah worker dapat meningkatkan distribusi beban secara efisien dan maksimal untuk memproses permintaan.

### No 15

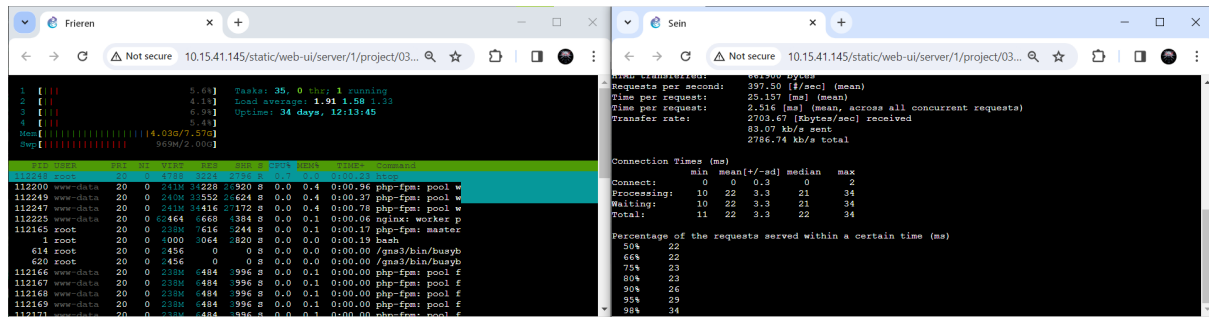
```
curl -X POST -H "Content-Type: application/json" -d @register.json
```

```
http://riegel.canyon.it01.com/api/auth/register
```

```
http://riegel.canyon.it01.com/api/auth/registerlication/json" -d @register.json h
{"user":{"username":"tesit01","updated_at":"2023-11-16T14:03:21.000000Z","created_at":"2023-11-16T14:03:
xLmNvbS9hcGkvYXV0aC9yZWdpc3RlciIsImhhdCI6MTcwMDE0MzQwMSwiZXBwIjozNzAwMTQ3MDAxLCJuYmYiOiE3MDAxNDM0MDEsImp
.Gajg_4qdYxTyel7GoPebBM4TsttlwKlS2i0haPhldMo"}root@Sein:/#
```

```
ab -n 100 -c 10 -p register.json -T application/json
```

```
http://riegel.canyon.it01.com/api/auth/register
```

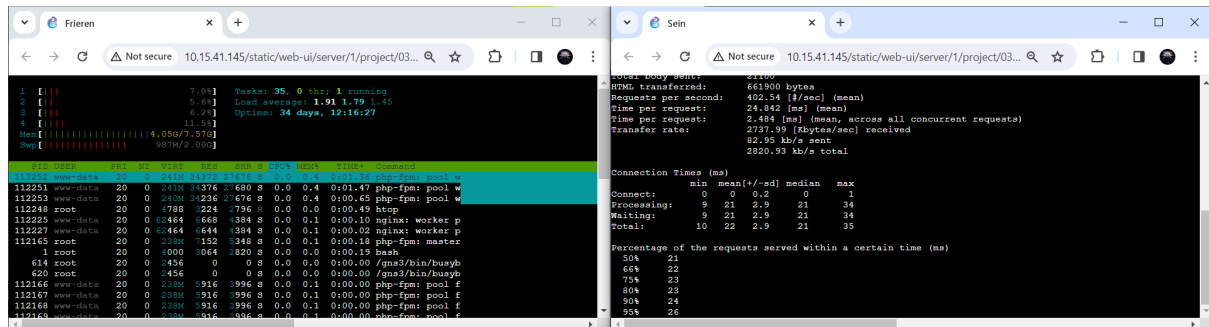


## No 16

curl -X POST -H "Content-Type: application/json" -d @register.json  
http://riegel.canyon.it01.com/api/auth/login

```
http://riegel.canyon.it01.com/api/auth/loginapplication/json" -d @register.json h
{"token": "eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJpc3MiOiJodHRwOi8vcml1Z2VsLmNhbnl1b15pdDAXLmNvbS9hcGkvYXs2VoiLCJzdWIiOiIxIiwiaWF0IjoiMjZDVjODk0OWY2MDBhZGIzOWU3MDMfNDAwODcyZGI3YTU5NzZmNyJ9.7okWYeb42n67B3Uzh
```

ab -n 100 -c 10 -p register.json -T application/json  
http://riegel.canyon.it01.com/api/auth/login

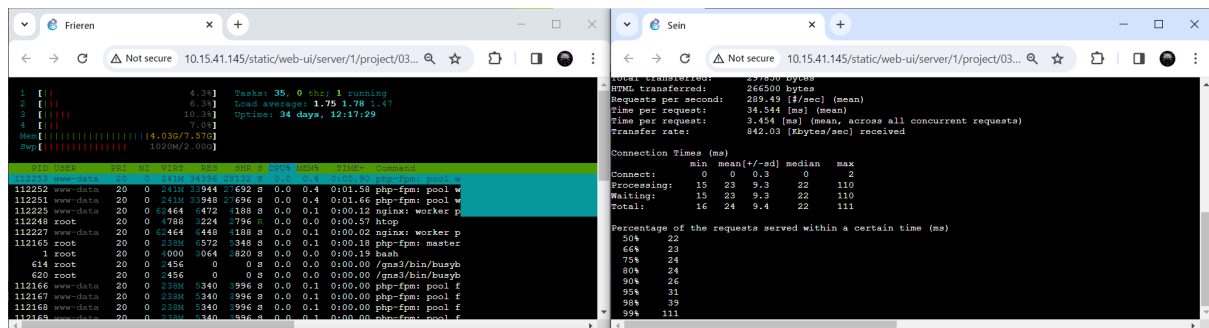


## NO 17

curl -H "Authorization: Bearer \$(cat token.txt)" http://riegel.canyon.it01.com/api/me

```
on.it01.com/api/me-H "Authorization: Bearer $(cat token.txt)" http://riegel.canyo
{"id":1,"username":"tesit01","created_at":"2023-11-16T14:03:21.000000Z","updated_at":"2023-11-16T14:03:2
```

ab -n 100 -c 10 -H "Authorization: Bearer \$(cat token.txt)"  
http://riegel.canyon.it01.com/api/me



## No 19

### I. Hasil Testing



## Fpm1

ab -n 100 -c 10 http://10.64.2.2:8191/

The screenshot displays the results of an ApacheBench (ab) test for FPM1. The terminal window shows the command 'ab -n 100 -c 10 http://10.64.2.2:8191/' and the output, which includes a table of process statistics and a summary of the test results. The summary shows a requests per second of 95.76, a time per request of 10.443 ms, and a transfer rate of 645.06 Kbytes/sec. The browser window shows the test results for 'Flamme' and 'Fern' servers, both of which are running on the same IP address (10.15.41.145) and port (8191).

```
1 [|||||] 12.41 Tasks: 35, 0 thr; 1 running
2 [|||||] 10.04 Load average: 5.22 3.10 2.01
3 [|||||] 14.94 Uptime: 34 days, 12:21:57
4 [|||||] 14.51
Mem[|||||]4.26G/7.57G
Swap[|||||]1.27G/2.00G

PID USER ST TIME CPU MEM SWAP IOIN IOOUT TIME COMMAND
112168 www-data 20 0 240M 2804 280 8 4.1 0.4 0:00.08 php-fpm: pool f
112167 www-data 20 0 240M 2808 280 8 4.1 0.4 0:00.07 php-fpm: pool f
112166 www-data 20 0 240M 2804 280 8 2.7 0.4 0:00.12 php-fpm: pool f
112255 www-data 20 0 546M 1372 112 8 0.7 0.1 0:00.13 nginx: worker p
112248 root 20 0 478M 1136 2708 8 0.0 0.0 0:00.93 httpd
112251 www-data 20 0 241M 2232 1632 8 0.0 0.4 0:01.71 php-fpm: pool w
112253 www-data 20 0 241M 2772 1468 8 0.0 0.4 0:01.01 php-fpm: pool w
112252 www-data 20 0 241M 3260 4028 8 0.0 0.4 0:01.62 php-fpm: pool w
112165 root 20 0 238M 1308 1116 8 0.0 0.1 0:00.19 php-fpm: master
112227 www-data 20 0 546M 1324 112 8 0.0 0.1 0:00.02 nginx: worker p
1 root 20 0 400M 2932 2816 8 0.0 0.0 0:00.19 bash
614 root 20 0 456 0 0 8 0.0 0.0 0:00.00 /usr3/bin/busybe
520 root 20 0 456 0 0 8 0.0 0.0 0:00.00 /usr3/bin/busybe

HTML transferred: 64518 bytes
Requests per second: 95.76 [#/sec] (mean)
Time per request: 10.443 [ms] (mean)
Time per request: 10.443 [ms] (mean, across all concurrent requests)
Transfer rate: 645.06 [Kbytes/sec] received

Connection Times (ms)
min mean[+/-sd] median max
Connect: 0 2 1.7 2 9
Processing: 1 62 137.0 12 503
Waiting: 1 61 136.6 12 503
Total: 1 64 136.7 14 505

Percentage of the requests served within a certain time (ms)
50% 14
66% 22
75% 27
80% 30
90% 395
95% 462
98% 490
99% 505
```

RpS = 95.76

## Fpm2

ab -n 100 -c 10 <http://10.64.2.2:8192/>

The screenshot displays the results of an ApacheBench (ab) test for FPM2. The terminal window shows the command 'ab -n 100 -c 10 http://10.64.2.2:8192/' and the output, which includes a table of process statistics and a summary of the test results. The summary shows a requests per second of 466.57, a time per request of 21.433 ms, and a transfer rate of 3142.94 Kbytes/sec. The browser window shows the test results for 'Flamme' and 'Fern' servers, both of which are running on the same IP address (10.15.41.145) and port (8192).

```
1 [|||||] 13.31 Tasks: 35, 0 thr; 1 running
2 [|||||] 16.81 Load average: 2.36 2.66 1.52
3 [|||||] 14.61 Uptime: 34 days, 12:22:51
4 [|||||] 14.51
Mem[|||||]4.16G/7.57G
Swap[|||||]1.27G/2.00G

PID USER ST TIME CPU MEM SWAP IOIN IOOUT TIME COMMAND
112179 www-data 20 0 240M 2704 2208 8 2.9 0.4 0:00.04 php-fpm: pool f
112182 www-data 20 0 240M 2970 2208 8 2.8 0.4 0:00.04 php-fpm: pool f
112171 www-data 20 0 241M 30376 24680 8 2.1 0.4 0:00.06 php-fpm: pool f
112175 www-data 20 0 240M 2484 2208 8 2.1 0.4 0:00.03 php-fpm: pool f
112177 www-data 20 0 238M 26108 2208 8 1.4 0.4 0:00.02 php-fpm: pool f
112180 www-data 20 0 238M 28112 24212 8 1.4 0.4 0:00.02 php-fpm: pool f
112172 www-data 20 0 238M 2640 2496 8 0.7 0.4 0:00.01 php-fpm: pool f
112248 root 20 0 478M 1136 2708 8 0.0 0.0 0:01.02 httpd
112165 root 20 0 238M 1308 1116 8 0.0 0.1 0:00.20 php-fpm: master
112169 www-data 20 0 240M 2812 1224 8 0.0 0.4 0:00.08 php-fpm: pool f
112168 www-data 20 0 240M 2804 280 8 0.0 0.4 0:00.08 php-fpm: pool f
112167 www-data 20 0 240M 2808 280 8 0.0 0.4 0:00.07 php-fpm: pool f
112166 www-data 20 0 241M 3904 2720 8 0.0 0.4 0:00.13 php-fpm: pool f

HTML transferred: 44618 bytes
Requests per second: 466.57 [#/sec] (mean)
Time per request: 21.433 [ms] (mean)
Time per request: 21.433 [ms] (mean, across all concurrent requests)
Transfer rate: 3142.94 [Kbytes/sec] received

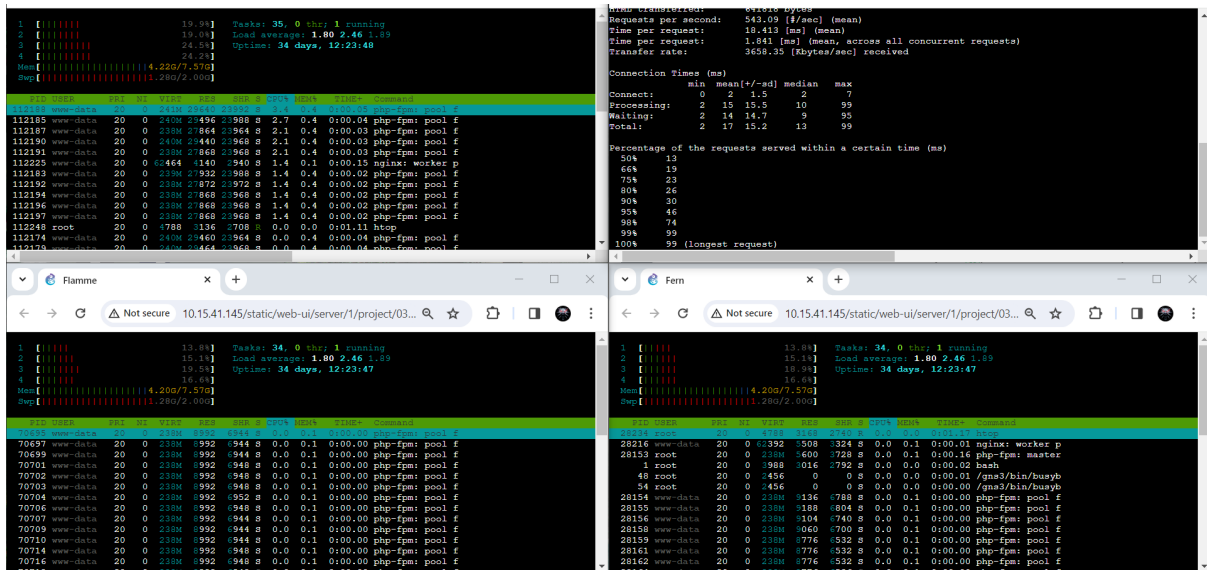
Connection Times (ms)
min mean[+/-sd] median max
Connect: 0 2 1.4 1 7
Processing: 1 15 17.4 8 132
Waiting: 1 13 16.5 8 130
Total: 1 16 17.6 10 133

Percentage of the requests served within a certain time (ms)
50% 10
66% 17
75% 23
80% 26
90% 35
95% 46
98% 61
99% 133
100% 133 (longest request)
```

Rps = 466.57

## Fpm3

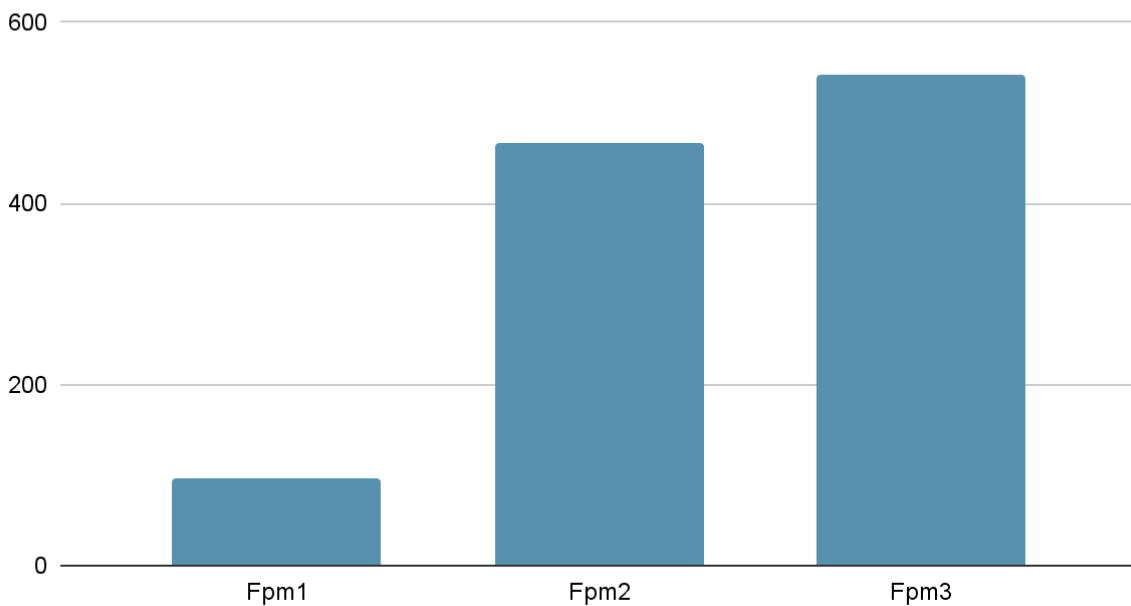
ab -n 100 -c 10 <http://10.64.2.2:8193/>



RpS = 543.09

## II. Grafik

Points scored



Fpm1 95.76

Fpm2 466.57

Fpm3 543.09

## III. Analisis

Berdasarkan konfigurasi PHP-FPM pools yang diberikan, kinerja terbaik terlihat pada pool "Fpm3" dengan rata-rata 543.09 request per second, menunjukkan bahwa peningkatan jumlah child processes (pm.max\_children) dan alokasi awal

server (pm.start\_servers) yang lebih tinggi dapat meningkatkan kapasitas dan responsivitas server secara signifikan.

## No 20

ab -n 100 -c 10 http://10.64.2.2:8191/

```
1 [|||||] 20.3s Tasks: 35, 0 thr; 1 running
2 [|||||] 14.9s Load average: 2.23 1.81 1.73
3 [|||||] 19.2s Uptime: 34 days, 12:29:13
4 [|||||] 12.6s
Mem[|||||] 4.21G/7.57G
Swp[|||||] 1.29G/2.00G

PID USER      VIRT  RES  SHR S %CPU   TIME Command
112166 www-data  20  0 241M 29756 24156 S 0.0 0:00:01 php-fpm: pool f
112169 www-data  20  0 241M 29668 24076 S 4.8 0.4 0:00:15 php-fpm: pool f
112167 www-data  20  0 241M 29660 24072 S 4.8 0.4 0:00:14 php-fpm: pool f
112165 www-data  20  0 241M 29688 2508 S 4.4 0.4 0:00:11 php-fpm: pool f
112227 www-data  20  0 6464 1084 2932 S 0.7 0.1 0:00:03 nginx: worker p
112248 root      20  0 788 136 2708 S 0.0 0.0 0:01:44 httpd
112165 root      20  0 238M 2040 848 S 0.0 0.1 0:00:22 php-fpm: master
112188 www-data  20  0 241M 29632 23984 S 0.0 0.4 0:00:05 php-fpm: pool f
112185 www-data  20  0 241M 29488 2960 S 0.0 0.4 0:00:04 php-fpm: pool f
112187 www-data  20  0 238M 2936 2956 S 0.0 0.4 0:00:01 php-fpm: pool f
112190 www-data  20  0 241M 29432 2960 S 0.0 0.4 0:00:03 php-fpm: pool f
112191 www-data  20  0 238M 2860 2960 S 0.0 0.4 0:00:03 php-fpm: pool f
112225 www-data  20  0 6464 1132 2932 S 0.0 0.1 0:00:15 nginx: worker p
112183 www-data  20  0 238M 2924 2920 S 0.0 0.4 0:00:02 php-fpm: pool f

1 [|||||] 9.6s Tasks: 34, 0 thr; 1 running
2 [|||||] 7.5s Load average: 2.23 1.81 1.73
3 [|||||] 7.5s Uptime: 34 days, 12:29:14
4 [|||||] 4.2s
Mem[|||||] 4.21G/7.57G
Swp[|||||] 1.29G/2.00G

PID USER      VIRT  RES  SHR S %CPU   TIME Command
70697 www-data  20  0 238M 1992 1944 S 0.0 0.1 0:00:00 php-fpm: pool f
70699 www-data  20  0 238M 1992 1944 S 0.0 0.1 0:00:00 php-fpm: pool f
70701 www-data  20  0 238M 1992 1948 S 0.0 0.1 0:00:00 php-fpm: pool f
70702 www-data  20  0 238M 1992 1948 S 0.0 0.1 0:00:00 php-fpm: pool f
70703 www-data  20  0 238M 1992 1948 S 0.0 0.1 0:00:00 php-fpm: pool f
70704 www-data  20  0 238M 1992 1952 S 0.0 0.1 0:00:00 php-fpm: pool f
70706 www-data  20  0 238M 1992 1948 S 0.0 0.1 0:00:00 php-fpm: pool f
70707 www-data  20  0 238M 1992 1944 S 0.0 0.1 0:00:00 php-fpm: pool f
70709 www-data  20  0 238M 1992 1944 S 0.0 0.1 0:00:00 php-fpm: pool f
70710 www-data  20  0 238M 1992 1944 S 0.0 0.1 0:00:00 php-fpm: pool f
70714 www-data  20  0 238M 1992 1948 S 0.0 0.1 0:00:00 php-fpm: pool f
70716 www-data  20  0 238M 1992 1948 S 0.0 0.1 0:00:00 php-fpm: pool f
70718 www-data  20  0 238M 1992 1948 S 0.0 0.1 0:00:00 php-fpm: pool f

1 [|||||] 9.6s Tasks: 34, 0 thr; 1 running
2 [|||||] 7.5s Load average: 2.23 1.81 1.73
3 [|||||] 7.5s Uptime: 34 days, 12:29:14
4 [|||||] 4.2s
Mem[|||||] 4.21G/7.57G
Swp[|||||] 1.29G/2.00G

PID USER      VIRT  RES  SHR S %CPU   TIME Command
28155 www-data  20  0 238M 188 804 S 0.0 0.1 0:00:01 php-fpm: pool f
28158 www-data  20  0 238M 4060 7700 S 0.0 0.1 0:00:01 php-fpm: pool f
28153 root      20  0 238M 460 328 S 0.0 0.1 0:00:15 php-fpm: master
28216 www-data  20  0 6292 508 324 S 0.0 0.1 0:00:01 nginx: worker p
1 root      20  0 988 1016 2792 S 0.0 0.0 0:00:02 bash
48 root      20  0 456 0 0 S 0.0 0.0 0:00:01 /gn3/bin/busyb
54 root      20  0 456 0 0 S 0.0 0.0 0:00:00 /gn3/bin/busyb
28154 www-data  20  0 238M 136 788 S 0.0 0.1 0:00:00 php-fpm: pool f
28156 www-data  20  0 238M 104 740 S 0.0 0.1 0:00:00 php-fpm: pool f
28159 www-data  20  0 238M 776 532 S 0.0 0.1 0:00:00 php-fpm: pool f
28161 www-data  20  0 238M 776 532 S 0.0 0.1 0:00:00 php-fpm: pool f
28162 www-data  20  0 238M 776 532 S 0.0 0.1 0:00:00 php-fpm: pool f
28164 www-data  20  0 238M 776 532 S 0.0 0.1 0:00:00 php-fpm: pool f
```

Rps = 544.97