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No. 8
Round Robin

```
root@Erwin:~# cat roundrobin.txt
This is ApacheBench, Version 2.3 <$Revision: 1706008 $>
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Benchmarking eldia.it04.com (be patient)


Server Software:        nginx/1.14.2
Server Hostname:        eldia.it04.com
Server Port:            80

Document Path:          /
Document Length:        1428 bytes

Concurrency Level:      75
Time taken for tests:   0.362 seconds
Complete requests:      1000
Failed requests:        0
Total transferred:      1565000 bytes
HTML transferred:       1428000 bytes
Requests per second:    2760.98 [#/sec] (mean)
Time per request:       27.164 [ms] (mean)
Time per request:       0.362 [ms] (mean, across all concurrent requests)
Transfer rate:          4219.66 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        2   10    4.3      8     20
Processing:     6   15    9.6     16    287
Waiting:        6   15    9.4     16    280
Total:          9   26    8.9     26    295

Percentage of the requests served within a certain time (ms)
  50%     26
  66%     26
  75%     26
  80%     27
  90%     27
  95%     27
  98%     28
  99%     28
 100%    295 (longest request)
```

IP Hash

```
root@Erwin:~# cat iphash.txt
This is ApacheBench, Version 2.3 <$Revision: 1706008 $>
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Benchmarking eldia.it04.com (be patient)


Server Software:        nginx/1.14.2
Server Hostname:        eldia.it04.com
Server Port:            80

Document Path:          /
Document Length:        1428 bytes

Concurrency Level:      75
Time taken for tests:   0.375 seconds
Complete requests:      1000
Failed requests:        0
Total transferred:      1565000 bytes
HTML transferred:       1428000 bytes
Requests per second:    2669.69 [#/sec] (mean)
Time per request:       28.093 [ms] (mean)
Time per request:       0.375 [ms] (mean, across all concurrent requests)
Transfer rate:          4080.14 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median     max
Connect:        1   11    4.8      10       21
Processing:     5   16    4.5      17       22
Waiting:        5   16    4.5      17       22
Total:          6   27    3.1      28       31

Percentage of the requests served within a certain time (ms)
  50%      28
  66%      28
  75%      29
  80%      29
  90%      29
  95%      29
  98%      30
  99%      31
 100%      31 (longest request)
```

Least Connection

```
root@Erwin:~# cat leastconn.txt
This is ApacheBench, Version 2.3 <$Revision: 1706008 $>
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Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking eldia.it04.com (be patient)


Server Software:        nginx/1.14.2
Server Hostname:        eldia.it04.com
Server Port:            80

Document Path:          /
Document Length:        1428 bytes

Concurrency Level:      75
Time taken for tests:   0.375 seconds
Complete requests:      1000
Failed requests:        0
Total transferred:      1565000 bytes
HTML transferred:       1428000 bytes
Requests per second:    2667.01 [#/sec] (mean)
Time per request:       28.121 [ms] (mean)
Time per request:       0.375 [ms] (mean, across all concurrent requests)
Transfer rate:          4076.04 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        5   12   3.9      11      21
Processing:     7   15   9.2      15     234
Waiting:        7   15   5.0      15      50
Total:         15   27   8.3      27     239

Percentage of the requests served within a certain time (ms)
  50%     27
  66%     28
  75%     28
  80%     28
  90%     29
  95%     29
  98%     29
  99%     66
 100%    239 (longest request)
```
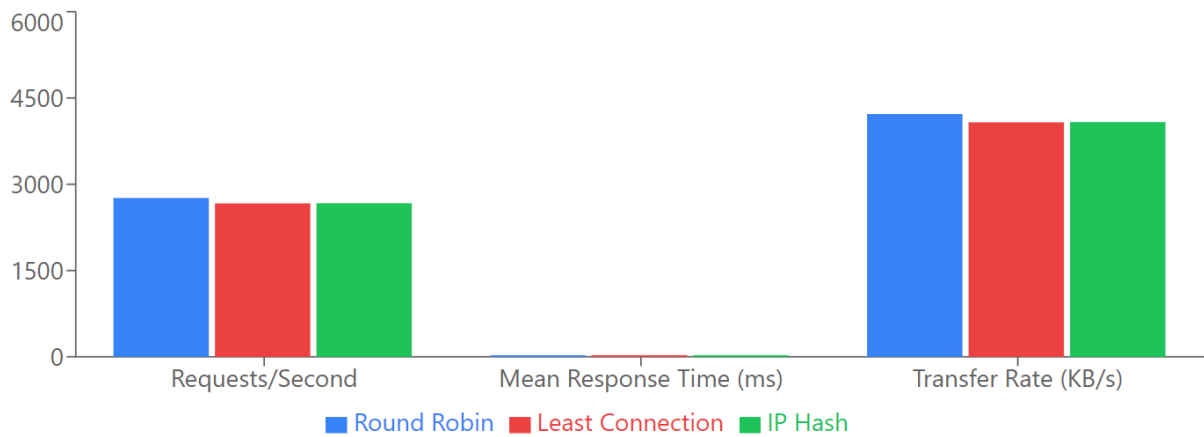
<u>Grafik RPS</u>

Overall Performance Metrics

Ketiga metode load balancing menunjukkan performa yang baik dengan karakteristik unik masing-masing. Pemilihan metode sebaiknya didasarkan pada:

1. Kebutuhan spesifik aplikasi
2. Karakteristik infrastruktur
3. Pola traffic yang dilayani
4. Prioritas antara throughput, konsistensi, dan kemudahan pengelolaan

Round Robin menonjol dalam throughput, IP Hash dalam konsistensi, dan Least Connection dalam fleksibilitas. Pemilihan metode yang tepat akan sangat tergantung pada use case spesifik dan kebutuhan sistem.

Least Connection 1000 Request 10 RPS

3 Worker

```
root@Erwin:~# cat 3worker.txt
This is ApacheBench, Version 2.3 <$Revision: 1706008 $>
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Benchmarking eldia.it04.com (be patient)


Server Software:        nginx/1.14.2
Server Hostname:        eldia.it04.com
Server Port:            80

Document Path:          /
Document Length:        1428 bytes

Concurrency Level:      10
Time taken for tests:   0.381 seconds
Complete requests:      1000
Failed requests:        0
Total transferred:      1565000 bytes
HTML transferred:       1428000 bytes
Requests per second:    2621.99 [#/sec] (mean)
Time per request:       3.814 [ms] (mean)
Time per request:       0.381 [ms] (mean, across all concurrent requests)
Transfer rate:          4007.24 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        1    2   0.7      1       7
Processing:     1    2   0.8      2       8
Waiting:        1    2   0.8      2       8
Total:          3    4   0.9      4      10
WARNING: The median and mean for the initial connection 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%      4
  66%      4
  75%      4
  80%      4
  90%      4
  95%      5
  98%      8
  99%      9
 100%     10 (longest request)
```

2 Worker

```
root@Erwin:~# cat 2worker.txt
This is ApacheBench, Version 2.3 <$Revision: 1706008 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
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Benchmarking eldia.it04.com (be patient)


Server Software:        nginx/1.14.2
Server Hostname:        eldia.it04.com
Server Port:            80

Document Path:          /
Document Length:        1428 bytes

Concurrency Level:      10
Time taken for tests:   0.366 seconds
Complete requests:      1000
Failed requests:        0
Total transferred:      1565000 bytes
HTML transferred:       1428000 bytes
Requests per second:    2734.56 [#/sec] (mean)
Time per request:       3.657 [ms] (mean)
Time per request:       0.366 [ms] (mean, across all concurrent requests)
Transfer rate:          4179.28 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    1   0.5      1       3
Processing:     1    2   0.5      2       4
Waiting:        1    2   0.5      2       4
Total:          2    4   0.4      4       5

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

1 Worker

```
root@Erwin:~# cat 1worker.txt
This is ApacheBench, Version 2.3 <$Revision: 1706008 $>
Copyright 1996 Adam Twiss, Zeus Technology Ltd, http://www.zeustech.net/
Licensed to The Apache Software Foundation, http://www.apache.org/

Benchmarking eldia.it04.com (be patient)


Server Software:        nginx/1.14.2
Server Hostname:        eldia.it04.com
Server Port:            80

Document Path:          /
Document Length:        1428 bytes

Concurrency Level:      10
Time taken for tests:   0.363 seconds
Complete requests:      1000
Failed requests:        0
Total transferred:      1565000 bytes
HTML transferred:       1428000 bytes
Requests per second:    2757.11 [#/sec] (mean)
Time per request:       3.627 [ms] (mean)
Time per request:       0.363 [ms] (mean, across all concurrent requests)
Transfer rate:          4213.74 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        1    1   0.5      1       3
Processing:     1    2   0.5      2       3
Waiting:        1    2   0.5      2       3
Total:          2    4   0.4      4       5

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

Grafik 3 worker

Performance Metrics by Worker Count

Berdasarkan data hasil testing didapat RPS tertinggi pada penggunaan 1 worker.