

Business Requirement [C]

BR [C].1

- Created ec2 t2.xlarge VM with instance id i-0b57bc05c6c0bf0b
- Navigate to Security Groups on EC2 Management Console and add inbound custom TCP rule 80 for launch-wizard-3
- Install apache (package managed on all 3 web servers)

```
sudo su
apt-get install apache2
apt install rsplib-legacy-wrappers
a2enmod headers
```

- Install on the load-balancer the following

```
sudo su
a2enmod proxy
a2enmod proxy_http
a2enmod proxy_ajp
a2enmod rewrite
a2enmod deflate
a2enmod headers
a2enmod proxy_balancer
a2enmod proxy_connect
a2enmod proxy_html
a2enmod lbmethod_byrequests
sudo service apache2 restart
```

- Add the following config to /etc/apache2/sites-enabled/000-default.conf to setup load balancing

```
vi /etc/apache2/sites-enabled/000-default.conf
```

#BR(C).1: Load Balancer

ProxyRequests off

<Proxy balancer://mycluster>

Web Server A

BalancerMember http://54.153.248.3:8080

Web Server B

BalancerMember http://54.206.2.135:8050

mod_lbmethod_byrequests

ProxySet lbmethod=byrequests

</Proxy>

<Location /balancer-manager>

SetHandler balancer-manager

</Location>

ProxyPass /balancer-manager !

ProxyPass / balancer://mycluster/

- Created Load Balancer
- Navigate to Load Balancing on EC2 Management Console and create Load Balancer.
- Named Load Balancer s3563242 and s3563242-lb for security group name.
- Changed Ping path from /index.html to / under Configure Health Check
- Added EC2 instances for Web Server A and Web Server B
- DNS name for Load Balancer is s3563242-1984617293.ap-southeast-2.elb.amazonaws.com

BR [C].2

The final loadfactor used were:

Web Server A: 1

Web Server B: 2

My reasons for choosing this are highlighted in BR [C].3

BR [C].3

– Refer to Assignment Specs

“ Your cloud engineer has recommended that you create a new vm(“Load Testing” vm) using a “m4.xlarge” ec2 instance as your load testing server. ”

– Created ec2 m4.xlarge VM with instance id i-079f2af01e3044581

```
sudo su
```

```
sudo DEBIAN_FRONTEND=noninteractive apt-get -y update
```

```
sudo DEBIAN_FRONTEND=noninteractive apt-get -y install apache2-utils
```

```
sudo DEBIAN_FRONTEND=noninteractive apt-get -y install httpperf
```

INITIAL LOAD TESTS RUN BASED OFF LOADFACTOR SETUP IN BR [C].3

Here the loadfactors chosen were:

Web Server A: 1

Web Server B: 2

Web Server B to work 2 times harder than Web Server A as it is larger instance. i.e. Web Server B is t2.large and Web Server A is t2.micro thus can handle more requests.

– Refer to Assignment Specs

“ Based off estimates from business, your load tests need to allow for /load/cpu.php has a concurrency of 10 & test 150 requests. /load/io.php has a concurrency of 10 & test 200 requests. ”

I next tested the /load/io.php.script (this script was run 3 times)
ab -c 10 -n 200 -k http://54.66.168.77:80/load/io.php

I next tested the /load/cpu.php script(this script was also run 3 times)
ab -c 10 -n 150 -k http://54.66.168.77:80/load/cpu.php

Test Results 1

io.php

```
[ubuntu@ip-172-31-22-102:~$ ab -c 10 -n 200 -k http://54.66.168.77:80/load/io.php
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 54.66.168.77 (be patient)
Completed 100 requests
Completed 200 requests
Finished 200 requests
```

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80
```

```
Document Path:        /load/io.php
Document Length:      3188 bytes
```

```
Concurrency Level:    10
Time taken for tests:  109.869 seconds
Complete requests:    200
Failed requests:      182
  (Connect: 0, Receive: 0, Length: 182, Exceptions: 0)
Keep-Alive requests:  200
Total transferred:    698988 bytes
HTML transferred:     637778 bytes
Requests per second:  1.82 [#/sec] (mean)
Time per request:     5493.472 [ms] (mean)
Time per request:     549.347 [ms] (mean, across all concurrent requests)
Transfer rate:        6.21 [Kbytes/sec] received
```

```
Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:        0    0   0.1      0    1
Processing:    1227 5428 2778.6   7493   7847
Waiting:       1227 5428 2778.6   7493   7847
Total:         1227 5428 2778.6   7493   7847
```

```
Percentage of the requests served within a certain time (ms)
 50%    7493
 66%    7666
 75%    7691
 80%    7710
 90%    7757
 95%    7788
 98%    7840
 99%    7841
100%    7847 (longest request)
```

Test Results 1

cpu.php

```
[ubuntu@ip-172-31-22-102:~]$ ab -c 10 -n 150 -k http://54.66.168.77:80/load/cpu.php
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 54.66.168.77 (be patient).....done

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80

Document Path:        /load/cpu.php
Document Length:      3188 bytes

Concurrency Level:    10
Time taken for tests:  85.918 seconds
Complete requests:    150
Failed requests:      18
    (Connect: 0, Receive: 0, Length: 18, Exceptions: 0)
Keep-Alive requests:  150
Total transferred:    524092 bytes
HTML transferred:     478182 bytes
Requests per second:  1.75 [#/sec] (mean)
Time per request:     5727.851 [ms] (mean)
Time per request:     572.785 [ms] (mean, across all concurrent requests)
Transfer rate:        5.96 [Kbytes/sec] received
```

```
Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:      0    0   0.1      0    1
Processing:   3731 5670 898.2   5182  7706
Waiting:      3731 5670 898.2   5182  7706
Total:        3731 5670 898.3   5182  7706
```

Percentage of the requests served within a certain time (ms)

```
50%    5182
66%    5484
75%    6848
80%    6861
90%    6882
95%    7008
98%    7696
99%    7706
100%   7706 (longest request)
```

Test Results 2

io.php

```
[ubuntu@ip-172-31-22-102:~]$ ab -c 10 -n 200 -k http://54.66.168.77:80/load/io.php
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 54.66.168.77 (be patient)
Completed 100 requests
Completed 200 requests
Finished 200 requests
```

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80
```

```
Document Path:        /load/io.php
Document Length:       3189 bytes
```

```
Concurrency Level:     10
Time taken for tests:   109.941 seconds
Complete requests:      200
Failed requests:         21
    (Connect: 0, Receive: 0, Length: 21, Exceptions: 0)
Keep-Alive requests:    200
Total transferred:      698985 bytes
HTML transferred:       637775 bytes
Requests per second:    1.82 [#/sec] (mean)
Time per request:       5497.051 [ms] (mean)
Time per request:       549.705 [ms] (mean, across all concurrent requests)
Transfer rate:          6.21 [Kbytes/sec] received
```

```
Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:        0    0   0.1      0    1
Processing:    1221 5435 2863.6   7477  7871
Waiting:       1221 5435 2863.6   7477  7871
Total:         1221 5435 2863.6   7477  7871
```

Percentage of the requests served within a certain time (ms)

```
50%    7477
66%    7621
75%    7669
80%    7681
90%    7737
95%    7781
98%    7842
99%    7852
100%   7871 (longest request)
```

Test Results 2

cpu.php

```
[ubuntu@ip-172-31-22-102:~]$ ab -c 10 -n 150 -k http://54.66.168.77:80/load/cpu.php
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 54.66.168.77 (be patient).....done

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80

Document Path:        /load/cpu.php
Document Length:      3188 bytes

Concurrency Level:     10
Time taken for tests:  85.800 seconds
Complete requests:     150
Failed requests:       11
    (Connect: 0, Receive: 0, Length: 11, Exceptions: 0)
Keep-Alive requests:   150
Total transferred:     524099 bytes
HTML transferred:     478189 bytes
Requests per second:   1.75 [#/sec] (mean)
Time per request:      5719.994 [ms] (mean)
Time per request:      571.999 [ms] (mean, across all concurrent requests)
Transfer rate:         5.97 [Kbytes/sec] received
```

```
Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:        0    0   0.1      0    1
Processing:    3785 5663 871.4   5205  7691
Waiting:       3785 5663 871.4   5205  7691
Total:         3785 5663 871.4   5205  7691
```

Percentage of the requests served within a certain time (ms)

```
50%    5205
66%    5502
75%    6705
80%    6834
90%    6858
95%    6883
98%    7668
99%    7674
100%   7691 (longest request)
```


Test Results 3

io.php

```
[ubuntu@ip-172-31-22-102:~$ ab -c 10 -n 200 -k http://54.66.168.77:80/load/io.php
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 54.66.168.77 (be patient)
Completed 100 requests
Completed 200 requests
Finished 200 requests
```

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80
```

```
Document Path:        /load/io.php
Document Length:      3189 bytes
```

```
Concurrency Level:    10
Time taken for tests:  110.977 seconds
Complete requests:    200
Failed requests:       18
    (Connect: 0, Receive: 0, Length: 18, Exceptions: 0)
Keep-Alive requests:  200
Total transferred:    698990 bytes
HTML transferred:     637780 bytes
Requests per second:  1.80 [#/sec] (mean)
Time per request:     5548.836 [ms] (mean)
Time per request:     554.884 [ms] (mean, across all concurrent requests)
Transfer rate:        6.15 [Kbytes/sec] received
```

```
Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:        0    0   0.1      0    0
Processing:    1220 5477 2805.5   7321  7847
Waiting:       1220 5477 2805.5   7321  7847
Total:         1220 5477 2805.5   7321  7847
```

```
Percentage of the requests served within a certain time (ms)
 50%    7321
 66%    7688
 75%    7722
 80%    7745
 90%    7784
 95%    7805
 98%    7821
 99%    7836
100%    7847 (longest request)
```

Test Results 3

cpu.php

```
[ubuntu@ip-172-31-22-102:~]$ ab -c 10 -n 150 -k http://54.66.168.77:80/load/cpu.php
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 54.66.168.77 (be patient).....done

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80

Document Path:        /load/cpu.php
Document Length:      3188 bytes

Concurrency Level:    10
Time taken for tests:  86.015 seconds
Complete requests:    150
Failed requests:      13
    (Connect: 0, Receive: 0, Length: 13, Exceptions: 0)
Keep-Alive requests:  150
Total transferred:    524096 bytes
HTML transferred:     478186 bytes
Requests per second:  1.74 [#/sec] (mean)
Time per request:     5734.352 [ms] (mean)
Time per request:     573.435 [ms] (mean, across all concurrent requests)
Transfer rate:        5.95 [Kbytes/sec] received
```

```
Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        0    0   0.2      0      1
Processing:    3900 5671 898.1   5204   7703
Waiting:       3900 5671 898.1   5204   7703
Total:         3900 5671 898.2   5204   7704
```

Percentage of the requests served within a certain time (ms)

```
50%    5204
66%    5430
75%    6833
80%    6846
90%    6875
95%    7019
98%    7703
99%    7704
100%   7704 (longest request)
```

Based off the above tests the following results were received:

All Times Are In Seconds ..

Figure	Test 1	Test 2	Test 3	Average
Time Taken for io.php	110	110	111	110.33333
Time Taken for cpu.php	86	86	86	86
Final Number Used (just average)				<u>98.166665</u>

So the result for loadfactors shown below was: 98.17 secs

Web Server A: 1

Web Server B: 2

ROUND 2 LOAD TESTS RUN BASED OFF NEW LOADFACTOR

Here the loadfactors chosen were:

Web Server A: 1

Web Server B: 5

Web Server B to work 5 times harder than Web Server A as it is larger instance. i.e. Web Server B is t2.large and Web Server A is t2.micro thus can handle more requests.

– Refer to Assignment Specs

*“ Based off estimates from business, your load tests need to allow for /load/cpu.php has a concurrency of 10 & test 150 requests.
/load/io.php has a concurrency of 10 & test 200 requests. ”*

I next tested the /load/io.php.script (this script was run 3 times)
ab -c 10 -n 200 -k http://54.66.168.77:80/load/io.php

I next tested the /load/cpu.php script(this script was also run 3 times)
ab -c 10 -n 150 -k http://54.66.168.77:80/load/cpu.php

Test Results 1

io.php

```
[root@ip-172-31-22-102:/home/ubuntu# ab -c 10 -n 200 -k http://54.66.168.77:80/load/io.php
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 54.66.168.77 (be patient)
Completed 100 requests
Completed 200 requests
Finished 200 requests
```

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80
```

```
Document Path:        /load/io.php
Document Length:       3189 bytes
```

```
Concurrency Level:     10
Time taken for tests:   138.862 seconds
Complete requests:      200
Failed requests:         26
  (Connect: 0, Receive: 0, Length: 26, Exceptions: 0)
Keep-Alive requests:    200
Total transferred:      698981 bytes
HTML transferred:       637771 bytes
Requests per second:    1.44 [#/sec] (mean)
Time per request:       6943.116 [ms] (mean)
Time per request:       694.312 [ms] (mean, across all concurrent requests)
Transfer rate:          4.92 [Kbytes/sec] received
```

Connection Times (ms)

	min	mean	mean[+/-sd]	median	max
Connect:	0	0	0.1	0	1
Processing:	1220	6895	2524.0	8085	8336
Waiting:	1220	6895	2524.0	8085	8336
Total:	1220	6895	2524.0	8085	8336

Percentage of the requests served within a certain time (ms)

50%	8085
66%	8133
75%	8155
80%	8171
90%	8222
95%	8265
98%	8297
99%	8314
100%	8336 (longest request)

Test Results 1

cpu.php

```
[root@ip-172-31-22-102:/home/ubuntu# ab -c 10 -n 150 -k http://54.66.168.77:80/load/cpu.php
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 54.66.168.77 (be patient).....done

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80

Document Path:        /load/cpu.php
Document Length:      3188 bytes

Concurrency Level:     10
Time taken for tests:  107.290 seconds
Complete requests:     150
Failed requests:       14
  (Connect: 0, Receive: 0, Length: 14, Exceptions: 0)
Keep-Alive requests:   150
Total transferred:     524095 bytes
HTML transferred:     478185 bytes
Requests per second:   1.40 [#/sec] (mean)
Time per request:      7152.692 [ms] (mean)
Time per request:      715.269 [ms] (mean, across all concurrent requests)
Transfer rate:         4.77 [Kbytes/sec] received
```

Connection Times (ms)

	min	mean[+/-sd]	median	max
Connect:	0	0 0.1	0	1
Processing:	1704	7068 2332.6	8175	8549
Waiting:	1704	7068 2332.6	8175	8549
Total:	1704	7068 2332.6	8175	8549

Percentage of the requests served within a certain time (ms)

50%	8175
66%	8225
75%	8275
80%	8301
90%	8356
95%	8401
98%	8446
99%	8452
100%	8549 (longest request)

Test Results 2

io.php

```
root@ip-172-31-22-102:/home/ubuntu# ab -c 10 -n 200 -k http://54.66.168.77:80/load/io.php
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 54.66.168.77 (be patient)
Completed 100 requests
Completed 200 requests
Finished 200 requests


Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80

Document Path:        /load/io.php
Document Length:      3189 bytes

Concurrency Level:    10
Time taken for tests:  139.174 seconds
Complete requests:    200
Failed requests:       13
  (Connect: 0, Receive: 0, Length: 13, Exceptions: 0)
Keep-Alive requests:  199
Total transferred:    695502 bytes
HTML transferred:     634597 bytes
Requests per second:  1.44 [#/sec] (mean)
Time per request:     6958.687 [ms] (mean)
Time per request:     695.869 [ms] (mean, across all concurrent requests)
Transfer rate:        4.88 [Kbytes/sec] received


Connection Times (ms)
              min    mean[+/-sd] median    max
Connect:        0      0   0.1      0      1
Processing:    1 6891 2513.9    8077   8352
Waiting:        0 6891 2513.9    8077   8352
Total:          1 6891 2513.9    8077   8352


Percentage of the requests served within a certain time (ms)
 50%    8077
 66%    8117
 75%    8137
 80%    8166
 90%    8214
 95%    8261
 98%    8318
 99%    8347
100%   8352 (longest request)
```

Test Results 2

cpu.php

```
[root@ip-172-31-22-102:/home/ubuntu# ab -c 10 -n 150 -k http://54.66.168.77:80/load/cpu.php
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 54.66.168.77 (be patient).....done

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80

Document Path:        /load/cpu.php
Document Length:      3188 bytes

Concurrency Level:    10
Time taken for tests:  107.604 seconds
Complete requests:    150
Failed requests:       12
  (Connect: 0, Receive: 0, Length: 12, Exceptions: 0)
Keep-Alive requests:  149
Total transferred:    520604 bytes
HTML transferred:     475000 bytes
Requests per second:  1.39 [#/sec] (mean)
Time per request:      7173.632 [ms] (mean)
Time per request:      717.363 [ms] (mean, across all concurrent requests)
Transfer rate:         4.72 [Kbytes/sec] received
```

Connection Times (ms)

	min	mean[+/-sd]	median	max
Connect:	0	0 0.1	0	0
Processing:	1703	7076 2398.1	8200	8509
Waiting:	1703	7099 2394.4	8201	8509
Total:	1703	7076 2398.1	8200	8509

Percentage of the requests served within a certain time (ms)

50%	8200
66%	8261
75%	8291
80%	8310
90%	8399
95%	8419
98%	8468
99%	8508
100%	8509 (longest request)

Test Results 3

io.php

```
root@ip-172-31-22-102:/home/ubuntu# ab -c 10 -n 200 -k http://54.66.168.77:80/load/io.php
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 54.66.168.77 (be patient)
Completed 100 requests
Completed 200 requests
Finished 200 requests
```

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80
```

```
Document Path:        /load/io.php
Document Length:      3189 bytes
```

```
Concurrency Level:    10
Time taken for tests:  139.367 seconds
Complete requests:    200
Failed requests:       20
  (Connect: 0, Receive: 0, Length: 20, Exceptions: 0)
Keep-Alive requests:  199
Total transferred:    695495 bytes
HTML transferred:     634591 bytes
Requests per second:  1.44 [#/sec] (mean)
Time per request:     6968.369 [ms] (mean)
Time per request:     696.837 [ms] (mean, across all concurrent requests)
Transfer rate:        4.87 [Kbytes/sec] received
```

Connection Times (ms)

	min	mean[+/-sd]	median	max
Connect:	0	0 0.1	0	1
Processing:	1224	6915 2519.9	8083	8317
Waiting:	1224	6896 2548.1	8083	8317
Total:	1224	6915 2519.9	8083	8317

Percentage of the requests served within a certain time (ms)

50%	8083
66%	8116
75%	8133
80%	8139
90%	8192
95%	8249
98%	8278
99%	8292
100%	8317 (longest request)

Test Results 3

cpu.php

```
[root@ip-172-31-22-102:/home/ubuntu# ab -c 10 -n 150 -k http://54.66.168.77:80/load/cpu.php
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 54.66.168.77 (be patient).....done

```
Server Software:      Apache/2.4.25
Server Hostname:      54.66.168.77
Server Port:          80

Document Path:        /load/cpu.php
Document Length:      3187 bytes

Concurrency Level:     10
Time taken for tests:  107.522 seconds
Complete requests:     150
Failed requests:       129
  (Connect: 0, Receive: 0, Length: 129, Exceptions: 0)
Keep-Alive requests:   150
Total transferred:     524089 bytes
HTML transferred:     478179 bytes
Requests per second:   1.40 [#/sec] (mean)
Time per request:      7168.127 [ms] (mean)
Time per request:      716.813 [ms] (mean, across all concurrent requests)
Transfer rate:         4.76 [Kbytes/sec] received
```

```
Connection Times (ms)
              min  mean[+/-sd] median  max
Connect:        0    0   0.1      0    1
Processing: 1704 7071 2387.8   8208  8495
Waiting:        1704 7071 2387.8   8208  8495
Total:          1704 7071 2387.8   8208  8495
```

```
Percentage of the requests served within a certain time (ms)
 50%    8208
 66%    8245
 75%    8264
 80%    8286
 90%    8352
 95%    8386
 98%    8462
 99%    8470
100%    8495 (longest request)
```

Based off the above tests the following results were received:

All Times Are In Seconds ..

Figure	Test 1	Test 2	Test 3	Average
Time Taken for io.php	139	139	139	139
Time Taken for cpu.php	107	108	108	107.66667
Final Number Used (just average)				<u>123.33333</u>

So the result for loadfactors shown below was: 123.33 secs

Web Server A: 1

Web Server B: 5

Final Result:

Based on the above tests, we can deduce that the following loadfactors yield the best performance:

Web Server A: 1

Web Server B: 2

Most optimum load factor is the one that gives you the best performance.

I would choose load factor 1 and 2 as they responded much faster than 1 and 5.