Business Requirement [D]

# BR [D].1

* To begin with, we created a new VM for “Load-Blanacing”
* Installed apache via a package manager using the following commands:

sudo su  
apt-get update

apt-get install apache2

<<Add all other commands executed>>

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

<<Add all config settings changed in the apache config>>

# BR [D].2

**<<Note: here X & Y are actual loadfactor numbers you choose. Can be any number between 1 (default) and 100, which defines the weighted load to be applied to the member in question. >>**

* The final loadfactors used were:
  + Web-Server-A: loadfactor=X<<enter your load factor>>
  + Web-Server-B: loadfactor=Y<<enter your load factor>>
* Our reasons for choosing this are highlighted in BR [D].3 below.

# BR [D].3

To deduce the viability of the loadfactor I will be using the time taken for the tests as a metric.

## Initial load tests run based off LoadFactor setup in BR [D].3

**<<Note: here X & Y are actual loadfactor numbers you choose. Can be any number between 1 (default) and 100, which defines the weighted load to be applied to the member in question. >>**

### Here the loadfactors chosen were :

* Web-Server-A: X
* Web-Server-B: Y

### We next tested the /load/io.php script (this script was run 3 times)

ab -c 10 -n 150 -k <http://YOUR.SERVER.IADDRESS:80/load/io.php>

<<Attach the screenshots of the test results 1>>

<<Attach the screenshots of the test results 2>>

<<Attach the screenshots of the test results 3>>

### We next tested the /load/cpu.php script (this script was also run 3 times)

ab -c 10 -n 200 -k <http://YOUR.SERVER.IADDRESS:80/load/cpu.php>

<<Attach the screenshots of the test results 1>>

<<Attach the screenshots of the test results 2>>

<<Attach the screenshots of the test results 3>>

**<<NOTE TO STUDENTS, THE NUMBERS BELOW ARE JUST A DUMMY PLACEHOLDER NUMBERS, YOU NEED TO EXECUTE THE BENCHMARK TESTS TO GET ACTUAL VALUES>>**

### 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 | 300 | 301 | 305 | 302 |
| Time Taken for cpu.php | 140 | 145 | 130 | 138.33333 |
| Final Number Used (just average) |  |  |  | 220.16667 |
|  |  |  |  |  |
|  |  |  |  |  |

So the result for loadfactors shown below was (**220.16**):

* Web-Server-A: X
* Web-Server-B: Y

## Round 2 load tests run based off NEW LoadFactor

### Here the loadfactors chosen were :

* Web-Server-A: U <<Note: here U & W are actual loadfactor numbers you choose>>
* Web-Server-B: W

After changing the config to reflect the new loadfactor, we restarted apache for the config to take effect.

### We next tested the /load/io.php script (this script was run 3 times)

ab -c 10 -n 150 -k <http://YOUR.SERVER.IADDRESS:80/load/io.php>

<<Attach the screenshots of the test results 1>>

<<Attach the screenshots of the test results 2>>

<<Attach the screenshots of the test results 3>>

### We next tested the /load/cpu.php script (this script was also run 3 times)

ab -c 10 -n 200 -k <http://YOUR.SERVER.IADDRESS:80/load/cpu.php>

<<Attach the screenshots of the test results 1>>

<<Attach the screenshots of the test results 2>>

<<Attach the screenshots of the test results 3>>

**<<NOTE TO STUDENTS, THE NUMBERS BELOW ARE JUST A DUMMY PLACEHOLDER NUMBERS, YOU NEED TO EXECUTE THE BENCHMARK TESTS TO GET ACTUAL VALUES>>**

### 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 | 200 | 220 | 210 | 210 |
| Time Taken for cpu.php | 100 | 105 | 110 | 105 |
| Final Number Used (just average) |  |  |  | 157.5 |
|  |  |  |  |  |
|  |  |  |  |  |

So the result for loadfactors shown below was (**157.5**):

* Web-Server-A: U
* Web-Server-B: W

### Final Result:

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

Web-Server-A: <<ENTER THE LOAD FACTOR>>

Web-Server-B: <<ENTER THE LOAD FACTOR>>

<<THE MOST OPTIMUM LOAD FACTOR IS THE ONE THAT GIVES YOU THE BEST PERFORMANCE. IN MY EXMAPLE, I WOULD CHOOSE LOAD FACTORS (U & W) AS THEY RESPONDED MUCH FASTER THAN (A & B)>>