Práctica 4: Benchmarking y ajuste del sistema

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Phoronix

En nuestro ubuntu server ejecutamos:

>*sudo apt install phoronix-test-suite*

>*sudo apt install firefox*

Luego yo instale zip y unzip porque si no los tenia, no podia descomprimir unos paquetes que se necesitaban.

>*sudo apt-get install zip unzip*

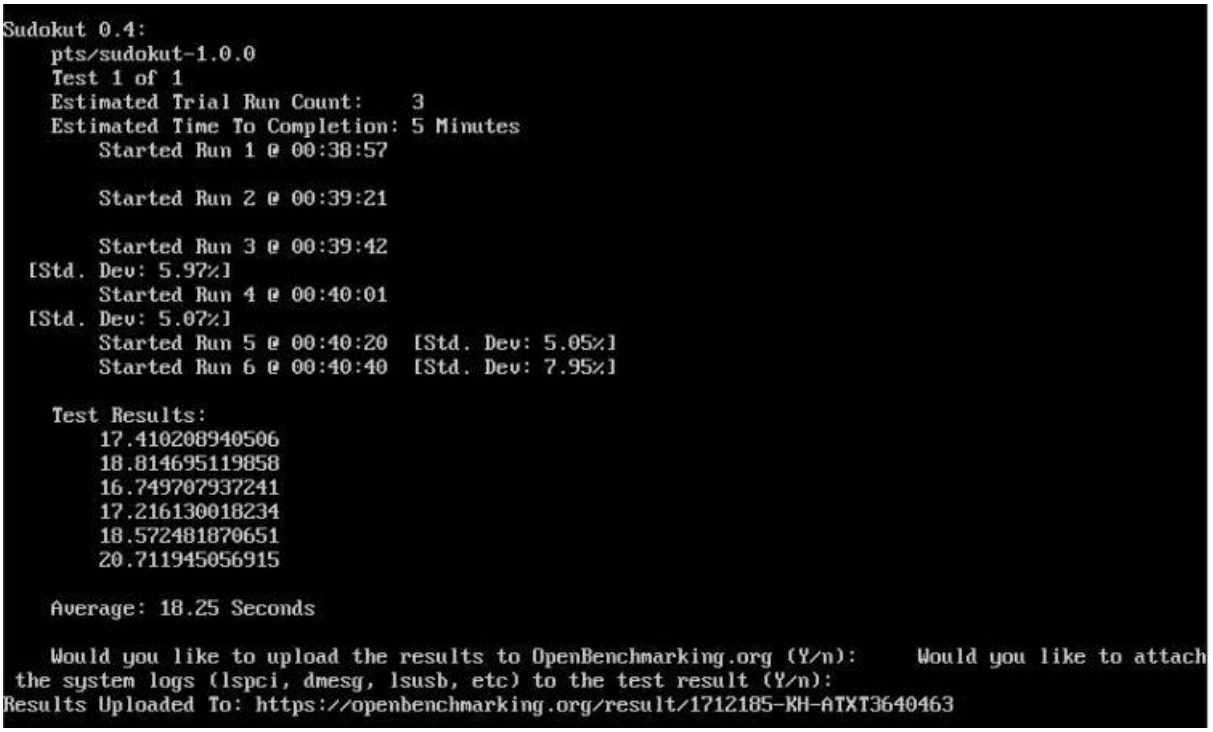
Es importante que comprobemos que la opción X11Forwarding en /etc/ssh/sshd_config este habilitada.

Instalaremos un test y lo ejecutaremos:

>*phoronix-test-suite install pts/sudokut*

>*phoronix-test-suite run pts/sudokut*

Y este es el resultado que obtenemos:



Instalaremos otro test y lo ejecutaremos:

>*phoronix-test-suite install pts/apache*

>*phoronix-test-suite run pts/apache*

Y este es el resultado que obtenemos:

```
Apache Benchmark 2.4.7:
    pts/apache-1.6.1
    Test 1 of 1
    Estimated Trial Run Count:    3
    Estimated Time To Completion: 5 Minutes
        Running Pre-Test Script @ 22:29:53
        Started Run 1 @ 22:29:58
        Started Run 2 @ 22:32:31
        Started Run 3 @ 22:35:03  [Std. Dev: 0.65%]
        Running Post-Test Script @ 22:37:33

    Test Results:
        6654.42
        6740.62
        6704.53

    Average: 6699.86 Requests Per Second
```

Ahora conectamos con nuestro ubuntu desktop a nuestro ubuntu server con ssh. La opción -X es para interfaz gráfica.

>ssh javi@192.168.58.105 -X

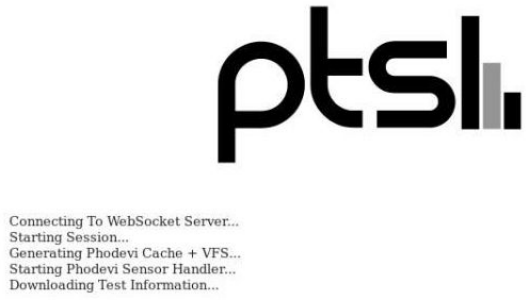
Y lanzamos la orden que ejecutara phoronix:

>phoronix-test-suite gui

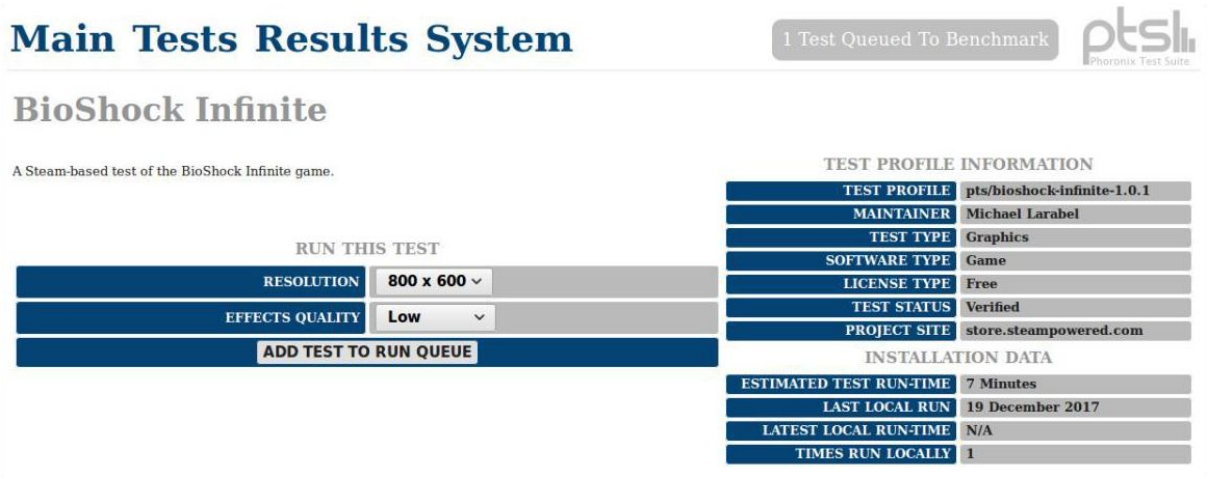
```
Do you agree to these terms and wish to proceed (Y/n): Y
Enable anonymous usage / statistics reporting (Y/n): Y
Enable anonymous statistical reporting of installed software / hardware (Y/n): Y_
```

Nos saldrán las siguientes opciones, yo las he aceptado todas.

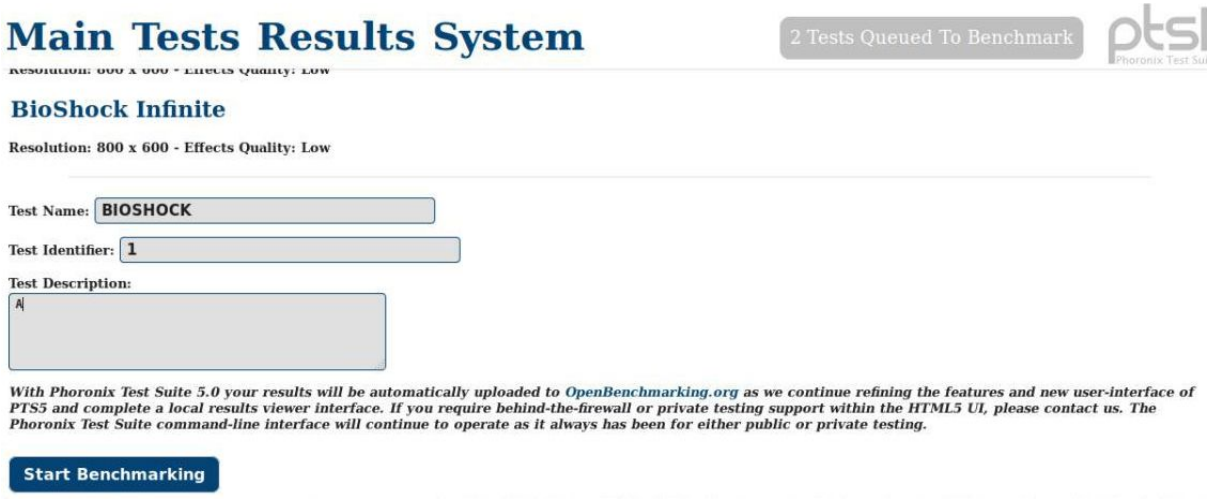
Se nos abrirá el navegador:



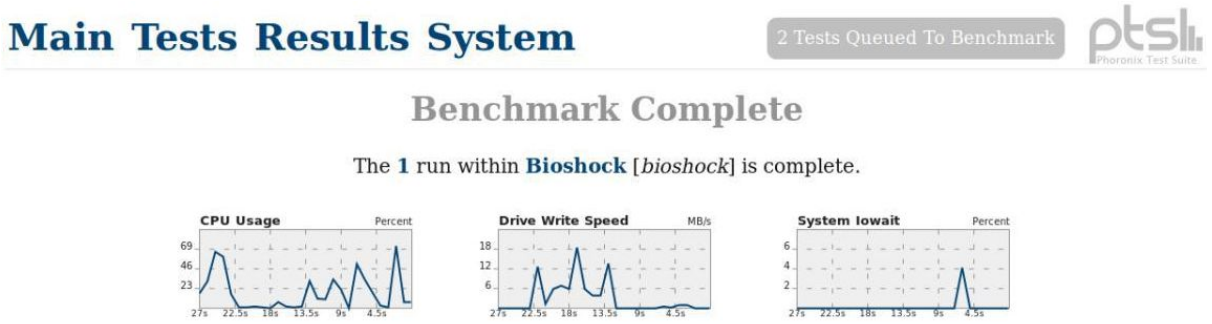
Seleccionamos un test y lo ejecutamos



Pulsamos en ‘Add test to run queue’.



Pulsamos en ‘Start Benchmarking’.



AB

En nuestro Ubuntu Desktop instalaremos ab con:

>sudo apt-get install apache2-utils

Lo ejecutaremos tanto para CentOS como para Ubuntu Server:

>ab -g datos_ubuntu.tsv -n 100 -c 100 http://192.168.58.105:80/index.html

```
Server Software:        Apache/2.4.18
Server Hostname:        192.168.58.120
Server Port:            80

Document Path:          /index.html
Document Length:        11321 bytes

Concurrency Level:      100
Time taken for tests:   0.111 seconds
Complete requests:      100
Failed requests:        0
Total transferred:      1159500 bytes
HTML transferred:       1132100 bytes
Requests per second:    899.01 [#/sec] (mean)
Time per request:       111.234 [ms] (mean)
Time per request:       1.112 [ms] (mean, across all concurrent requests)
Transfer rate:          10179.66 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        2   29   8.2     34      38
Processing:    22   43  11.5     47      62
Waiting:       14   41  12.4     45      60
Total:         53   72   8.6     75      85

Percentage of the requests served within a certain time (ms)
  50%     75
  66%     77
  75%     79
  80%     81
  90%     82
  95%     84
  98%     85
  99%     85
 100%     85 (longest request)
javi@javi-VirtualBox:~$
```

>ab -g datos_centos.tsv -n 100 -c 100 http://192.168.58.110:80/index.php

```
Server Software:        Apache/2.4.6
Server Hostname:        192.168.58.110
Server Port:            80

Document Path:          /index.php
Document Length:        23 bytes

Concurrency Level:      100
Time taken for tests:   0.105 seconds
Complete requests:      100
Failed requests:        0
Total transferred:      22600 bytes
HTML transferred:       2300 bytes
Requests per second:    955.05 [#/sec] (mean)
Time per request:       104.707 [ms] (mean)
Time per request:       1.047 [ms] (mean, across all concurrent requests)
Transfer rate:          210.78 [Kbytes/sec] received

Connection Times (ms)
              min  mean[+/-sd] median   max
Connect:        8    9   1.0      9      11
Processing:    13   52  22.1     52      88
Waiting:       13   51  22.2     52      87
Total:         24   61  21.2     61      95

Percentage of the requests served within a certain time (ms)
  50%     61
  66%     72
  75%     81
  80%     84
  90%     91
  95%     94
  98%     95
  99%     95
 100%     95 (longest request)
javi@javi-VirtualBox:~$
```

Jmeter

Jmeter necesita Java 8, que se instala así:

>sudo add-apt-repository ppa:webupd8team/java

>sudo apt-get update

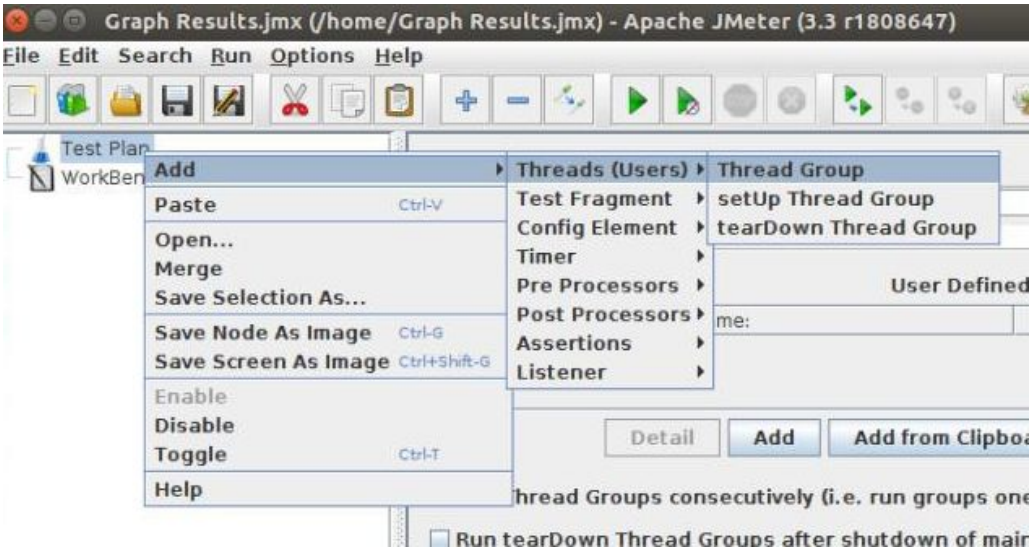
>sudo apt-get-install oracle-java8-installer

Con esta última tendremos que simplemente aceptar las condiciones de java.
Ahora iremos a la dirección web: http://jmeter.apache.org/download_jmeter.cgi

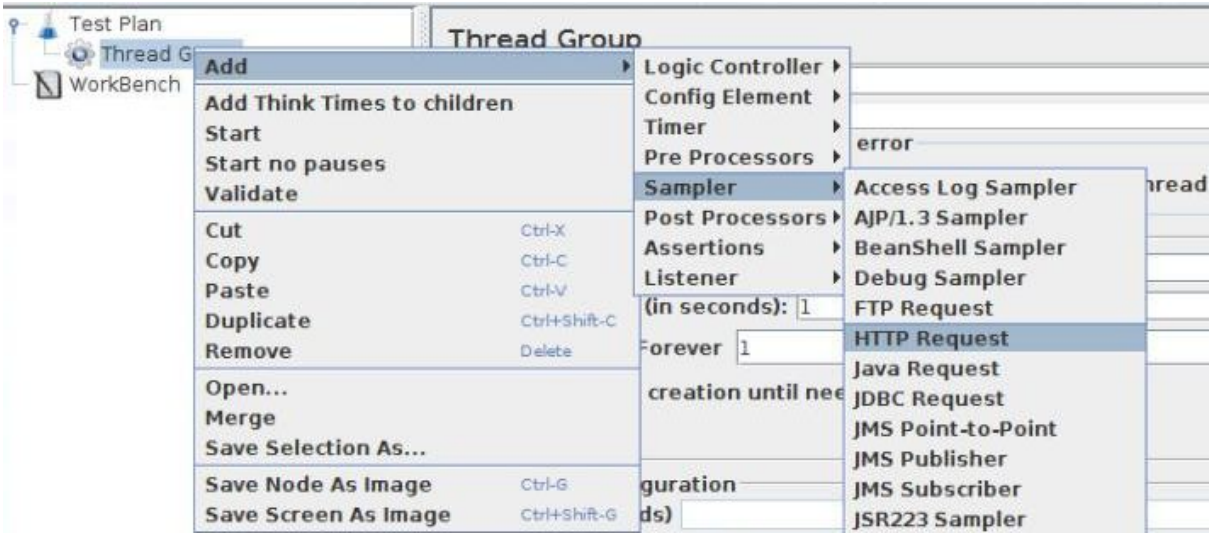
Como se puede ver, descargamos el paquete apache-jmeter-3.3.zip
Descomprimimos el archivo y nos vamos al /bin de la carpeta descomprimida y ejecutamos jmeter.

```
javi@javi-VirtualBox:~/Downloads/apache-jmeter-3.3/bin$ ./jmeter
================================================================================
Don't use GUI mode for load testing, only for Test creation and Test debugging !
For load testing, use NON GUI Mode:
   jmeter -n -t [jmx file] -l [results file] -e -o [Path to output folder]
& adapt Java Heap to your test requirements:
   Modify HEAP="-Xms512m -Xmx512m" in the JMeter batch file
================================================================================
Dec 17, 2017 7:19:18 PM java.util.prefs.FileSystemPreferences$1 run
INFO: Created user preferences directory.
```

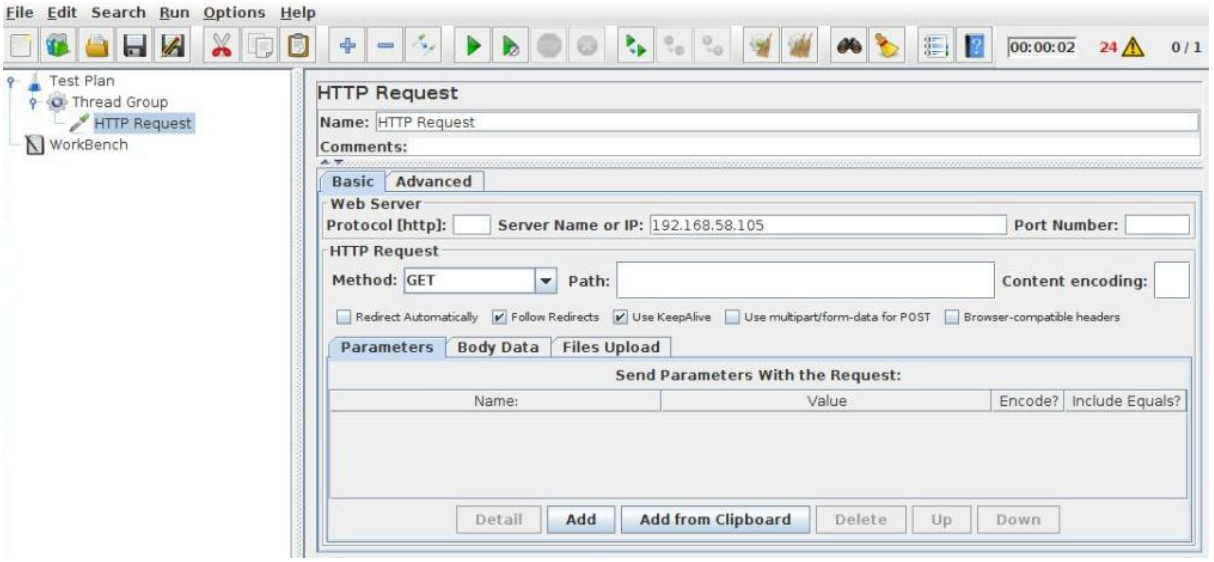
Para empezar el Benchmarking seguiremos los pasos que se describen a continuación:
Test Plan->Add->Threads->Thread Group
Deberemos poner un numero alto de hilos en la hebra.



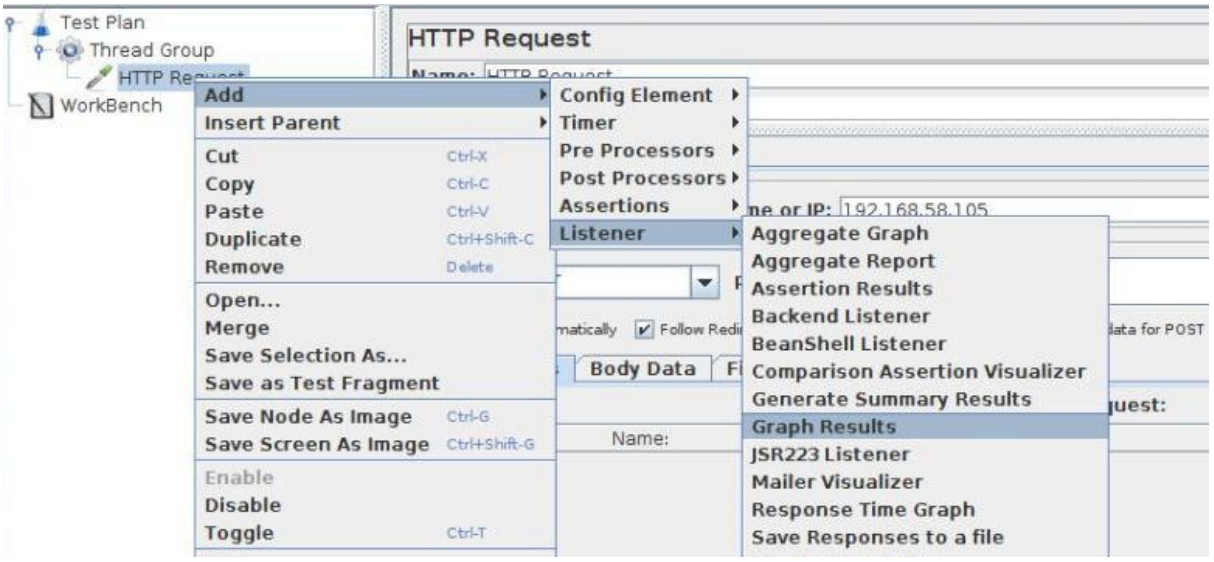
Thread Group->Add->Sampler->Http Request



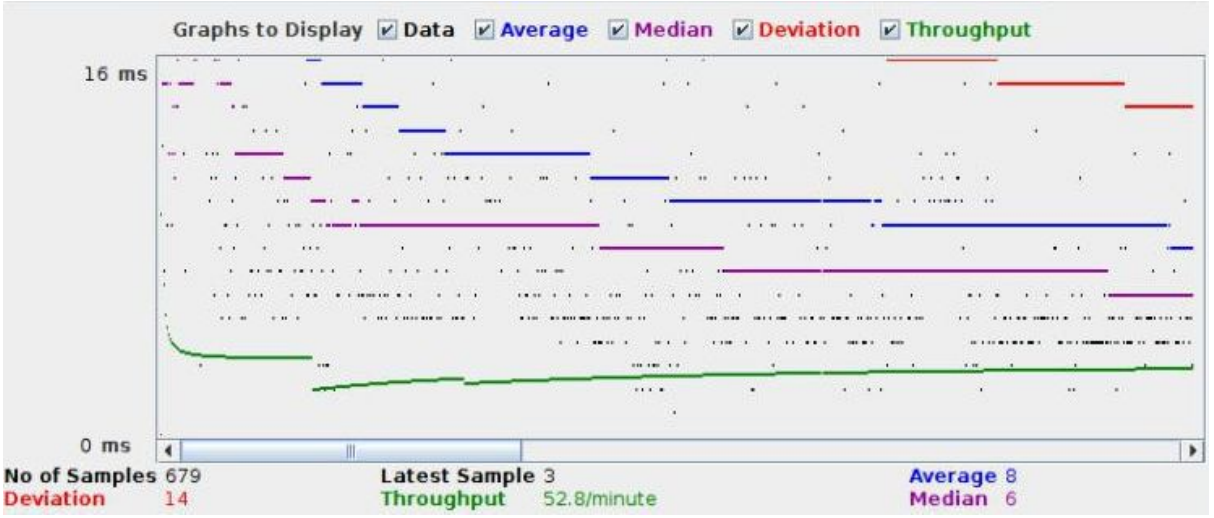
En la IP ponemos 192.168.58.105 para Ubuntu Server o 192.168.58.110 para CentOS.



Http Request->Add->Listener->Graph Results



Ahora veremos los resultados en Ubuntu Server:

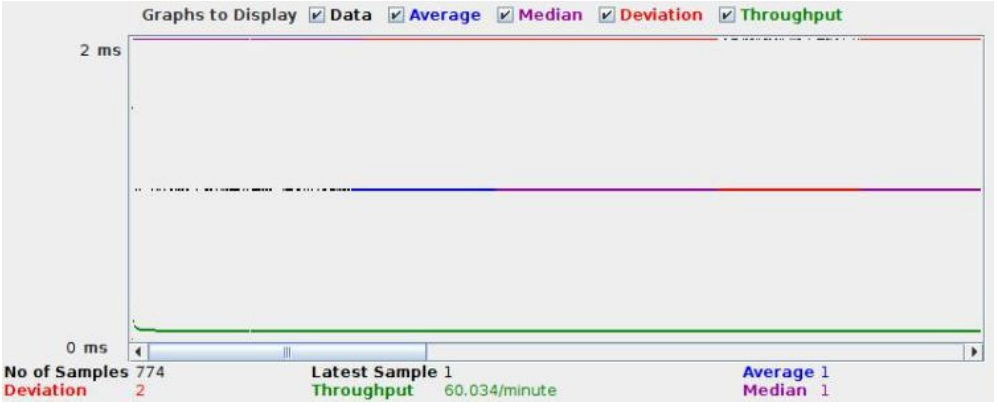


Ahora en /etc/apache2/apache2.conf cambiaremos los siguientes valores:

MaxKeepAliveRequest 30

KeepAliveTimeout 2

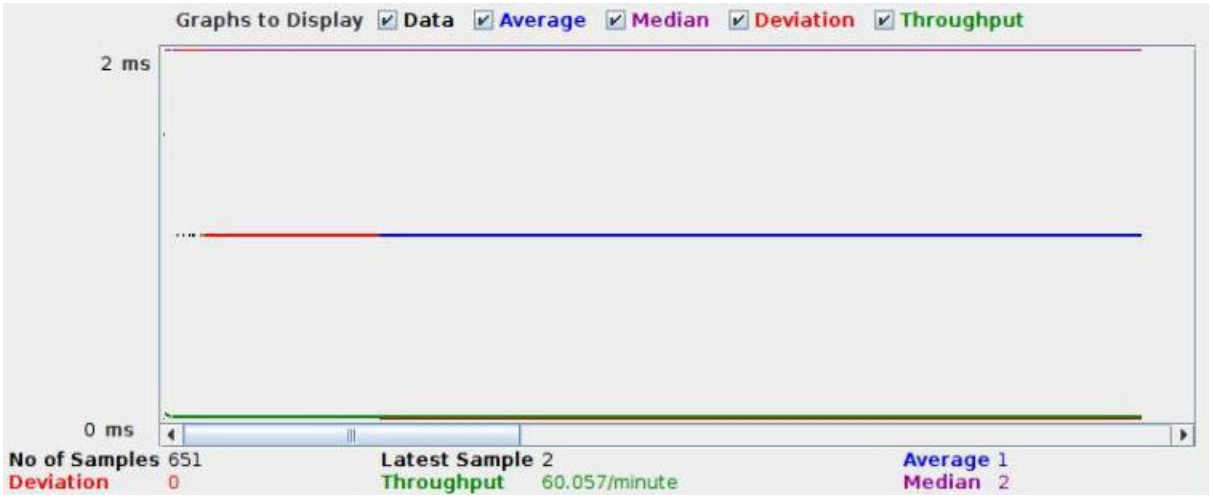
Y nos sale el siguiente resultado:



Ahora haremos lo mismo con CentOS:

Ahora en /etc/httpd/conf/httpd.conf cambiaremos :

KeepAliveTimeout 20



Los valores que hemos cambiado significan:

MaxKeepAliveRequest: establece el número máximo de peticiones que admite el servidor por cada conexión persistente.

KeepAliveTimeout: establece el número de segundos que el servidor va a esperar después de haber dado servicio a una determinada petición.

Bibliografía

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- https://httpd.apache.org/docs/2.4/programs/ab.html
- https://blog.diacode.com/testeando-el-rendimiento-de-tu-aplicacion-con-apache-bench
- http://jmeter.apache.org/usermanual/build-web-test-plan.html
- https://devops.profitbricks.com/tutorials/optimize-apache-performance-on-centos-7-1/