



ugr

Universidad
de Granada

SERVIDORES WEB DE ALTAS PRESTACIONES
GRADO EN INGENIERÍA INFORMÁTICA

Ejercicios opcionales T4

Autor

Carlos Sánchez Páez



ESCUELA TÉCNICA SUPERIOR DE INGENIERÍAS INFORMÁTICA Y DE
TELECOMUNICACIÓN

CURSO 2019-2020

Índice

1. Servicio para obtener uso de RAM y CPU	2
---	---

1. Servicio para obtener uso de RAM y CPU

En este ejercicio implementaremos un servicio en M1 que nos dará el uso de CPU (últimos 15 minutos) y el de RAM del servidor. Para ello desarrollaremos un script en *PHP*.

1. Comenzamos instalando las librerías necesarias en nuestro servidor web para que ejecute código PHP:

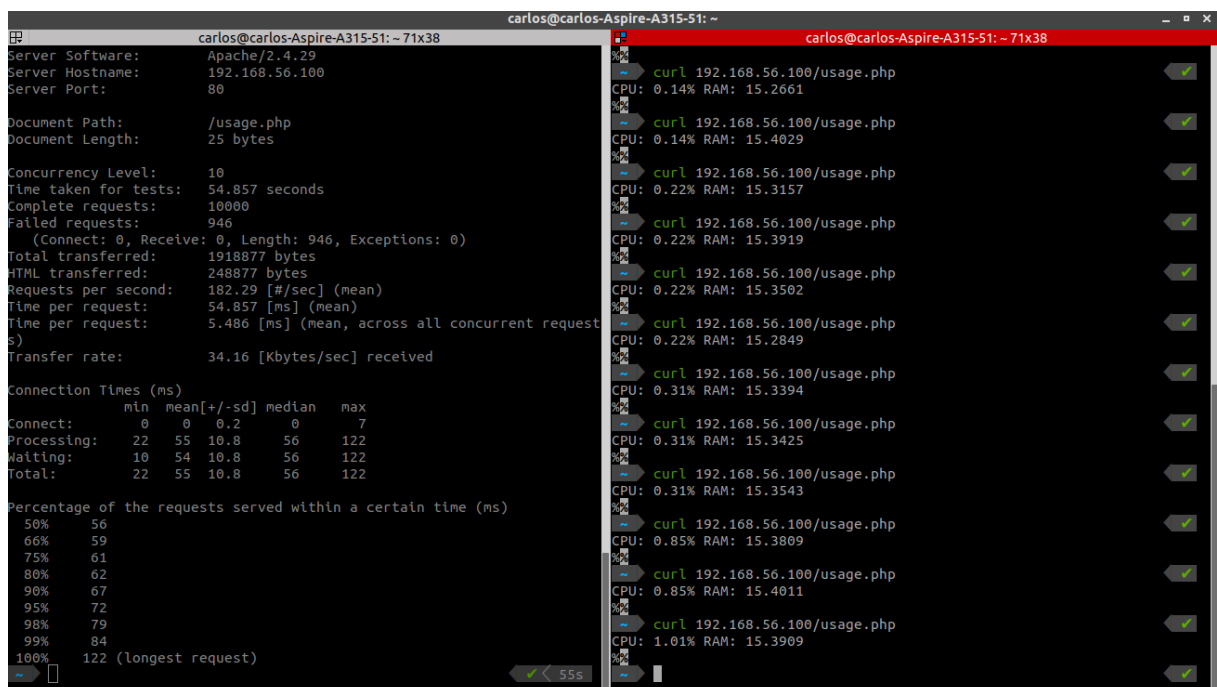
```
m1 > sudo apt install php libapache2-mod-php
m1 > sudo a2enmod mpm_prefork && sudo a2enmod php7.0
m1 > sudo service apache2 restart
```

2. Escribimos el siguiente script:

```
m1 > sudo nano /var/www/html/usage.php
```

```
<?php
# Get CPU usage in the last 15 mins.
$CPU = sys_getloadavg()[2];
# Get RAM usage by calling 'free' shell command and
    ↪ filtering.
$RAM = shell_exec("free | grep Mem | awk '{print $3/$2
    ↪ * 100.0}'");
echo "CPU: " . $CPU . "% RAM: " . $RAM . "%";
?>
```

3. Comprobamos el funcionamiento del servicio estresando el servidor mediante *Apache Benchmark*:



The screenshot shows two terminal windows. The left window displays the output of the Apache Benchmark (ab) tool, showing performance metrics for a request to /usage.php. The right window shows a series of curl requests to the same endpoint, with the output of each request displaying CPU and RAM usage.

Left Terminal (Apache Benchmark):

```
carlos@carlos-Aspire-A315-51: ~ 71x38
Server Software: Apache/2.4.29
Server Hostname: 192.168.56.100
Server Port: 80

Document Path: /usage.php
Document Length: 25 bytes

Concurrency Level: 10
Time taken for tests: 54.857 seconds
Complete requests: 10000
Failed requests: 946
  (Connect: 0, Receive: 0, Length: 946, Exceptions: 0)
Total transferred: 1918877 bytes
HTML transferred: 248877 bytes
Requests per second: 182.29 [#/sec] (mean)
Time per request: 54.857 [ms] (mean)
Time per request: 5.486 [ms] (mean, across all concurrent requests)
Transfer rate: 34.16 [Kbytes/sec] received

Connection Times (ms)
  min      mean[+/-sd] median   max
Connect:    0      0  0.2      0      7
Processing: 22     55 10.8     56    122
Waiting:    10     54 10.8     56    122
Total:      22     55 10.8     56    122

Percentage of the requests served within a certain time (ms)
 50%    56
 66%    59
 75%    61
 80%    62
 90%    67
 95%    72
 98%    79
 99%    84
100%   122 (longest request)
```

Right Terminal (curl requests):

```
carlos@carlos-Aspire-A315-51: ~ 71x38
curl 192.168.56.100/usage.php
CPU: 0.14% RAM: 15.2661
curl 192.168.56.100/usage.php
CPU: 0.14% RAM: 15.4029
curl 192.168.56.100/usage.php
CPU: 0.22% RAM: 15.3157
curl 192.168.56.100/usage.php
CPU: 0.22% RAM: 15.3919
curl 192.168.56.100/usage.php
CPU: 0.22% RAM: 15.3502
curl 192.168.56.100/usage.php
CPU: 0.22% RAM: 15.2849
curl 192.168.56.100/usage.php
CPU: 0.31% RAM: 15.3394
curl 192.168.56.100/usage.php
CPU: 0.31% RAM: 15.3425
curl 192.168.56.100/usage.php
CPU: 0.31% RAM: 15.3543
curl 192.168.56.100/usage.php
CPU: 0.85% RAM: 15.3809
curl 192.168.56.100/usage.php
CPU: 0.85% RAM: 15.4011
curl 192.168.56.100/usage.php
CPU: 1.01% RAM: 15.3909
```