TRABAJO ARQUITEC-TURA EN LA NUBE

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30/09/2025

1º Practica de Arquitectura en la nube

 Parte 1 Servidor Apache con PHP
-Instalamos WSL con el comando "wsl --install"

- Actualizamos el sistema con el comando " sudo apt update && sudo apt upgrade -y"

- Instalamos apache2 con el comando "sudo apt install apache2 -y"

```
Processing triggers for hicolor-icon-theme (0.17-2) ...
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ sudo apt install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3 libapru
  liblua5.4-0 ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser ufw
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1t64 libaprutil1-dbd-sqlite3
  liblua5.4-0 ssl-cert
0 upgraded, 10 newly installed, 0 to remove and 0 not upgraded.
Need to get 2086 kB of archives.
```

- Instalamos PHP con el comando "sudo apt install php libapache2-mod-php -y"

```
Processing triggers for libc-bin (2.39-0ubuntu8.6) ...
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ sudo apt install php libapache2-mod-php -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  libapache2-mod-php8.3 php-common php8.3 php8.3-cli php8.3-common php8.3-opcache php8.3-rea
Suggested packages:
  php-pear
The following NEW packages will be installed:
  libapache2-mod-php libapache2-mod-php8.3 php php-common php8.3 php8.3-cli php8.3-common ph
  php8.3-readline
0 upgraded, 9 newly installed, 0 to remove and 0 not upgraded.
Need to get 4922 kB of archives.
After this operation, 22.4 MB of additional disk space will be used.
```

- Iniciamos Apache " sudo service apache2 start" y Verificamos el estado del servicio Apache
" sudo systemctl status apache2"


```
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ sudo service apache2 start
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Tue 2025-09-30 10:00:23 CEST; 1min 12s ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 9664 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 9667 (apache2)
      Tasks: 6 (limit: 9350)
     Memory: 10.4M (peak: 12.1M)
        CPU: 37ms
     CGroup: /system.slice/apache2.service
             ├─9667 /usr/sbin/apache2 -k start
             ├─9670 /usr/sbin/apache2 -k start
             ├─9671 /usr/sbin/apache2 -k start
             ├─9672 /usr/sbin/apache2 -k start
             ├─9673 /usr/sbin/apache2 -k start
             └─9674 /usr/sbin/apache2 -k start

Sep 30 10:00:23 A6Alumno02 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 30 10:00:23 A6Alumno02 systemd[1]: Started apache2.service - The Apache HTTP Server.
luis@A6Alumno02:/mnt/c/WINDOWS/system32$
```

-Creamos un archivo PHP " echo "<?php phpinfo(); ?>" | sudo tee /var/www/html/info.php y
Verificamos el navegador " curl http://localhost/info.php"


```
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ echo "<?php phpinfo(); ?>" | sudo tee /var/www/html/info.php
<?php phpinfo(); ?>
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ curl http://localhost/info.php
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"><head>
<style type="text/css">
body {background-color: #fff; color: #222; font-family: sans-serif;}
pre {margin: 0; font-family: monospace;}
a:link {color: #009; text-decoration: none; background-color: #fff;}
a:hover {text-decoration: underline;}
table {border-collapse: collapse; border: 0; width: 934px; box-shadow: 1px 2px 3px rgba(0, 0, 0, 0.2);}
.center {text-align: center;}
.center table {margin: 1em auto; text-align: left;}
.center th {text-align: center !important;}
td, th {border: 1px solid #666; font-size: 75%; vertical-align: baseline; padding: 4px 5px;}
th {position: sticky; top: 0; background: inherit;}
h1 {font-size: 150%;}
h2 {font-size: 125%;}
h2 a:link, h2 a:visited{color: inherit; background: inherit;}
.p {text-align: left;}
.e {background-color: #ccf; width: 300px; font-weight: bold;}
.h {background-color: #99c; font-weight: bold;}
.v {background-color: #ddd; max-width: 300px; overflow-x: auto; word-wrap: break-word;}
.v i {color: #999;}
img {float: right; border: 0;}
hr {width: 934px; background-color: #ccc; border: 0; height: 1px;}
:root {--php-dark-grey: #333; --php-dark-blue: #4F5B93; --php-medium-blue: #8892BF; --php-light-blue: #E2E4EF; --php-acc
ent-purple: #793862;}@media (prefers-color-scheme: dark) {
```

Navegador:

PHP Version 8.3.6

System	Linux A6Alumno02 6.6.87.2-microsoft-standard-WSL2 #1 SMP PREEMPT_DYNAMIC Thu Jun 5 18:30:46 UTC 2025 x86_64
Build Date	Jul 14 2025 18:30:55
Build System	Linux
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc/php/8.3/apache2
Loaded Configuration File	/etc/php/8.3/apache2/php.ini
Scan this dir for additional .ini files	/etc/php/8.3/apache2/conf.d
Additional .ini files parsed	/etc/php/8.3/apache2/conf.d/10-opcache.ini, /etc/php/8.3/apache2/conf.d/10-pdo.ini, /etc/php/8.3/apache2/conf.d/20-calendar.ini, /etc/php/8.3/apache2/conf.d/20-ctype.ini, /etc/php/8.3/apache2/conf.d/20-exif.ini, /etc/php/8.3/apache2/conf.d/20-ffi.ini, /etc/php/8.3/apache2/conf.d/20-fileinfo.ini, /etc/php/8.3/apache2/conf.d/20-ftp.ini, /etc/php/8.3/apache2/conf.d/20-gettext.ini, /etc/php/8.3/apache2/conf.d/20-iconv.ini, /etc/php/8.3/apache2/conf.d/20-phar.ini, /etc/php/8.3/apache2/conf.d/20-posix.ini, /etc/php/8.3/apache2/conf.d/20-readline.ini, /etc/php/8.3/apache2/conf.d/20-shmop.ini, /etc/php/8.3/apache2/conf.d/20-sockets.ini, /etc/php/8.3/apache2/conf.d/20-sysvmsg.ini, /etc/php/8.3/apache2/conf.d/20-sysvsem.ini, /etc/php/8.3/apache2/conf.d/20-sysvshm.ini, /etc/php/8.3/apache2/conf.d/20-tokenizer.ini
PHP API	20230831
PHP Extension	20230831
Zend Extension	420230831
Zend Extension Build	API420230831,NTS
PHP Extension Build	API20230831,NTS
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	enabled
Zend Memory Manager	enabled
Zend Multibyte Support	disabled
Zend Max Execution Timers	disabled
IPv6 Support	enabled
DTrace Support	disabled
Registered PHP Streams	https, ftps, compress.zlib, php, file, glob, data, http, ftp, phar
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, tls, tlsv1.0, tlsv1.1, tlsv1.2, tlsv1.3
Registered Stream Filters	zlib.*, string.rot13, string.toupper, string.tolower, convert.*, consumed, dechunk, convert.iconv.*

This program makes use of the Zend Scripting Language Engine:
Zend Engine v4.3.6, Copyright (c) Zend Technologies with Zend OPcache v8.3.6, Copyright (c), by Zend Technologies

Configuration

Parte 2º Servidor Nginx con HTML

-Detenemos apache2 antes de comenzar

```
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ sudo service apache2 stop
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ sudo systemctl status apache2
o apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: inactive (dead) since Tue 2025-09-30 10:11:13 CEST; 5s ago
   Duration: 10min 50.182s
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 9664 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Process: 9817 ExecStop=/usr/sbin/apachectl graceful-stop (code=exited, status=0/SUCCESS
   Main PID: 9667 (code=exited, status=0/SUCCESS)
        CPU: 160ms

Sep 30 10:00:23 A6Alumno02 systemd[1]: Starting apache2.service - The Apache HTTP Server...
Sep 30 10:00:23 A6Alumno02 systemd[1]: Started apache2.service - The Apache HTTP Server.
Sep 30 10:11:13 A6Alumno02 systemd[1]: Stopping apache2.service - The Apache HTTP Server...
Sep 30 10:11:13 A6Alumno02 systemd[1]: apache2.service: Deactivated successfully.
Sep 30 10:11:13 A6Alumno02 systemd[1]: Stopped apache2.service - The Apache HTTP Server.
luis@A6Alumno02:/mnt/c/WINDOWS/system32$
```

-Instalamos Nginx con el comando: "sudo apt install nginx -y"

```
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ sudo apt install nginx -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libllvm19
Use 'sudo apt autoremove' to remove it.
```

-Iniciamos Nginx con el comando: "sudo service nginx start" y Verificamos su estado con el comando: "sudo systemctl status nginx"

```
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ sudo service nginx start
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ sudo systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
     Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
     Active: active (running) since Tue 2025-09-30 10:11:50 CEST; 50s ago
       Docs: man:nginx(8)
    Process: 9997 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (c
    Process: 9999 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exite
```

-Creamos un archivo HTML " echo "<h1>Hola Mundo desde Nginx ordenador Luis </h1><p>Servidor funcionando correctamente </p>" | sudo tee /var/www/html/index.html "

```
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ echo "<h1>Hola Mundo desde Nginx ordenador de Luis</h1><p>Servidor funcionando
correctamente</p>"| sudo tee /var/www/html/index.html
<h1>Hola Mundo desde Nginx ordenador de Luis</h1><p>Servidor funcionando correctamente</p>
luis@A6Alumno02:/mnt/c/WINDOWS/system32$
```

- Ver ip de WSL:

```
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ ip addr show eth0 | grep inet
    inet 172.25.108.4/20 brd 172.25.111.255 scope global eth0
    inet6 fe80::215:5dff:fe8a:68a9/64 scope link
```

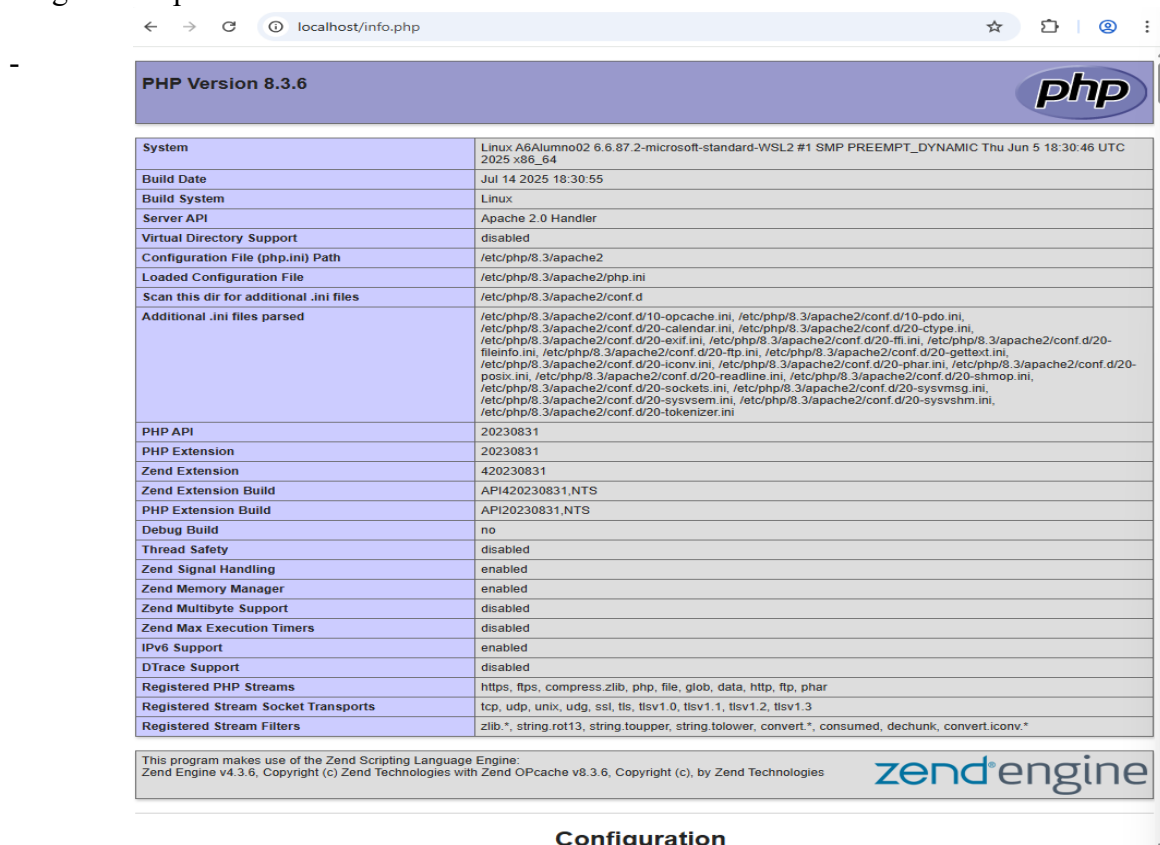-Verificamos el navegador con el comando: "curl http://localhost"

-Parte 3 Verficacion y Comparacion

-Simplemente para cambiar de un servicio al otro tenemos que detener ese servicio en cuestión : " sudo service (servicio) stop " y verificamos su estado con " sudo systemctl status (servicio)".

- Pagina de Nginx

-Pagina de Apache2

-

Comandos Curl:

-Pagina de nginx:

```
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ curl http://localhost
<h1>Hola Mundo desde Nginx ordenador de Luis</h1><p>Servidor funcionando correctamente</p>
```

- Pagina de apache2:

```
luis@A6Alumno02:/mnt/c/WINDOWS/system32$ curl http://localhost/info.php
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"><head>
<style type="text/css">
body {background-color: #fff; color: #222; font-family: sans-serif;}
pre {margin: 0; font-family: monospace;}
a:link {color: #009; text-decoration: none; background-color: #fff;}
a:hover {text-decoration: underline;}
table {border-collapse: collapse; border: 0; width: 934px; box-shadow: 1px 2px 3px rgba(0, 0, 0, 0.2);}
.center {text-align: center;}
.center table {margin: 1em auto; text-align: left;}
.center th {text-align: center !important;}
td, th {border: 1px solid #666; font-size: 75%; vertical-align: baseline; padding: 4px 5px;}
th {position: sticky; top: 0; background: inherit;}
h1 {font-size: 150%;}
```