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Task:

Deploy application in monolithic and microservices architecture

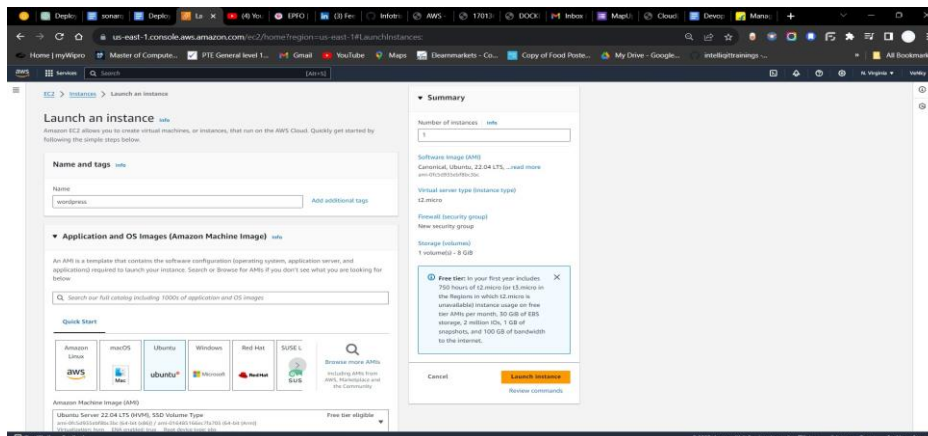
For monolithic : 1 EC2 instance, deploy wordpress and MYSQL on the same instances - For microservices: 2 EC2 instance, 1 for wordpress and 1 for MYSQL

Instance specifications:

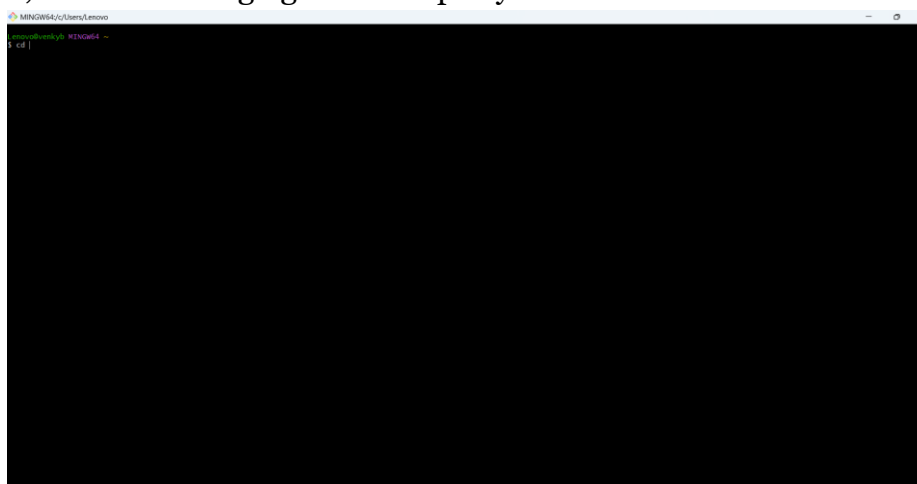
Os : Ubuntu

1, creating instance

Take ubuntu as os t2 Micro, and launch instance



2, connect through git bash or putty



Installing apache server on ec2

- `sudo apt install apache2`

```
ubuntu@ip-172-31-40-115: ~$ sudo apt install apache2
Setting up mailcap (3.70+nmu1ubuntu1) ...
Setting up libaprutil1:amd64 (1.6.1-Subuntud.22.04.2) ...
Setting up mime-support (3.66) ...
Setting up libaprutil1-dbg:amd64 (1.6.1-Subuntud.22.04.2) ...
Setting up libaprutil1-dev:amd64 (1.6.1-Subuntud.22.04.2) ...
Setting up apache2-utils (2.4.52-1ubuntu4.7) ...
Setting up apache2-bin (2.4.52-1ubuntu4.7) ...
Setting up apache2 (2.4.52-1ubuntu4.7) ...
Enabling module mpm_event.
Enabling module authz_core.
Enabling module authn_core.
Enabling module auth_basic.
Enabling module access_compat.
Enabling module authn_file.
Enabling module authn_soc.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module core.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module ssl.
Enabling conf localized-error-pages.
Enabling conf other-vhosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service → /lib/systemd/system/apache-htcacheclean.service.
Processing triggers for ufw (0.36.1-4ubuntu0.1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.3) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
```

Installing PHP and MYSQL connector

- `sudo apt install php libapache2-mod-php php-mysql`

```
ubuntu@ip-172-31-40-115: ~$ sudo apt install php libapache2-mod-php php-mysql
Creating config file /etc/php/8.1/mods-available/sockets.ini with new version
Creating config file /etc/php/8.1/mods-available/sysvmsg.ini with new version
Creating config file /etc/php/8.1/mods-available/sysvsem.ini with new version
Creating config file /etc/php/8.1/mods-available/sysvshm.ini with new version
Creating config file /etc/php/8.1/mods-available/tokenizer.ini with new version
Setting up php8.1-mysql (8.1.2-1ubuntu2.14) ...
Creating config file /etc/php/8.1/mods-available/mysqlnd.ini with new version
Creating config file /etc/php/8.1/mods-available/mysqli.ini with new version
Creating config file /etc/php/8.1/mods-available/pdo_mysql.ini with new version
Setting up php8.1-readline (8.1.2-1ubuntu2.14) ...
Creating config file /etc/php/8.1/mods-available/readline.ini with new version
Setting up php8.1-openssl (8.1.2-1ubuntu2.14) ...
Creating config file /etc/php/8.1/mods-available/openssl.ini with new version
Setting up php-mysql (2:8.1+92ubuntu1) ...
Setting up php8.1-cli (8.1.2-1ubuntu2.14) ...
update-alternatives: using /usr/bin/php8.1 to provide /usr/bin/php (php) in auto mode
update-alternatives: using /usr/bin/phar8.1 to provide /usr/bin/phar (phar) in auto mode
update-alternatives: using /usr/bin/phar.phar8.1 to provide /usr/bin/phar.phar (phar.phar) in auto mode
Creating config file /etc/php/8.1/cli/php.ini with new version
Setting up libapache2-mod-php8.1 (8.1.2-1ubuntu2.14) ...
Creating config file /etc/php/8.1/apache2/php.ini with new version
Module mpm_event disabled.
Enabling module mpm_prefork.
apache2_switch_mpm Switch to prefork
apache2_invoke: Enable module php8.1
Setting up php8.1 (8.1.2-1ubuntu2.14) ...
Setting up libapache2-mod-php (2:8.1+92ubuntu1) ...
Setting up php (2:8.1+92ubuntu1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libapache2-mod-php8.1 (8.1.2-1ubuntu2.14) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

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No user sessions are running outdated binaries.

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```

Installing MYSQL server

- `sudo apt install mysql-server`

```
ubuntu@ip-172-31-40-115:~$
Setting up libapache2-mod-php8.1 (8.1.2-1ubuntu2.14) ...
Creating config file /etc/php/8.1/apache2/php.ini with new version
Module mpm_event disabled.
Enabling module mpm_prefork.
apache2-switch.mpm Switch to prefork
apache2_invoke: Enable module php8.1
Setting up php8.1 (8.1.2-1ubuntu2.14) ...
Setting up libapache2-mod-php (2.8.1-9ubuntu1) ...
Setting up php (2.8.1-9ubuntu1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for php8.1-cli (8.1.2-1ubuntu2.14) ...
Processing triggers for libapache2-mod-php8.1 (8.1.2-1ubuntu2.14) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-40-115:~$ sudo apt install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libbcb-fast-perl libbcb-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl libfcgi0ldbl
  libhtml-parser-perl libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl
  liblap-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-utils
  mysql-client-8.0 mysql-client-core-8.0 mysql-common mysql-server-8.0 mysql-server-core-8.0
Suggested packages:
  libdata-dump-perl libipc-sharedcache-perl libbusiness-isbn-perl libwww-perl mailx tinycsa
The following new packages will be installed:
  libbcb-fast-perl libbcb-pm-perl libclone-perl libencode-locale-perl libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl libfcgi0ldbl
  libhtml-parser-perl libhtml-tagset-perl libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl
  liblap-mediatypes-perl libmecab2 libprotobuf-lite23 libtimedate-perl liburi-perl mecab-ipadic mecab-ipadic-utf8 mecab-utils
mysql-client-8.0 mysql-client-core-8.0 mysql-common mysql-server mysql-server-8.0 mysql-server-core-8.0
0 upgraded, 28 newly installed, 0 to remove and 74 not upgraded.
need to get 29.6 kB of archives.
After this operation, 243 MB of additional disk space will be used.
Do you want to continue? [y/N] Y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 mysql-common all 5.8+1.0.8 [7212 B]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-core-8.0 amd64 8.0.35-0ubuntu0.22.04.1 [2682 B]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-client-8.0 amd64 8.0.35-0ubuntu0.22.04.1 [22.7 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libevent-pthreads-2.1-7 amd64 2.1.12-stable-1build3 [7642 B]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 libmecab2 amd64 0.996-14build9 [109 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libprotobuf-lite23 amd64 3.12.4-1ubuntu2 [209 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-server-core-8.0 amd64 8.0.35-0ubuntu0.22.04.1 [17.6 MB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 mysql-server-8.0 amd64 8.0.35-0ubuntu0.22.04.1 [1438 kB]
```

Login to MySQL server

- `sudo mysql -u root`

Change authentication plugin to `mysql_native_password`

- `ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password by 'venky123';`

Create a new database user for wordpress

- `CREATE USER 'wp_user'@'localhost' IDENTIFIED BY 'venky123';`

Create a database for wordpress

- `CREATE DATABASE wordpress;`

Grant all privileges on the database 'wordpress' to the newly created user

- `GRANT ALL PRIVILEGES ON wp.* TO 'wordpress_user'@'localhost';`

Download wordpress:

- `cd /tmp`
- `wget https://wordpress.org/latest.tar.gz`

Unzip

- `tar -xvf latest.tar.gz`

Move wordpress folder to apache document root

- `sudo mv wordpress/ /var/www/html`

restart/reload apache server

- `sudo systemctl restart apache2`

