Deployment Plan for WordPress in Monolithic and Microservices Architectures

Prerequisites:

1. AWS account with necessary permissions.
2. AWS CLI configured on your local machine.
3. SSH client to access EC2 instances.

Step-by-Step Guide

Part 1: Monolithic Architecture Deployment

1. Launch EC2 Instance

- Instance Type: t2.micro
- AMI: ubuntu-20.04-lts
- Security Group: Allow HTTP (port 80) and SSH (port 22) inbound.

2. Install Necessary Packages

SSH into the instance and run the following commands:

sudo apt update
sudo apt upgrade -y
sudo apt install apache2 -y
sudo apt install mysql-server -y
sudo mysql_secure_installation (optional)
sudo apt install php libapache2-mod-php php-mysql -y
sudo systemctl restart apache2

3. Configure MySQL

```
sudo mysql -u root -p
# Inside MySQL shell
CREATE DATABASE wordpress;
CREATE USER 'wordpressuser'@'localhost' IDENTIFIED BY 'password';
GRANT ALL PRIVILEGES ON wordpress.* TO 'wordpressuser'@'localhost';
FLUSH PRIVILEGES;
EXIT;
```

4. Install and Configure WordPress

cd /tmp
wget https://wordpress.org/latest.tar.gz
tar -xvzf latest.tar.gz
sudo cp -R wordpress/* /var/www/html/
sudo chown -R www-data:www-data /var/www/html/
sudo chmod -R 755 /var/www/html/
sudo systemctl restart apache2

5. Setup WordPress

- Navigate to the instance's public IP in your browser.
- Complete the WordPress setup wizard, connecting to the MySQL database with the details created earlier.

Part 2: Microservices Architecture Deployment

1. Launch EC2 Instances

- **WordPress Instance:**
  - Instance Type: `t2.micro`
  - AMI: `ubuntu-20.04-lts`
  - Security Group: Allow HTTP (port 80) and SSH (port 22) inbound.
- **MySQL Instance:**
  - Instance Type: `t2.micro`
  - AMI: `ubuntu-20.04-lts`
  - Security Group: Allow MySQL (port 3306) and SSH (port 22) inbound.

2. Install MySQL on MySQL Instance

SSH into the MySQL instance and run the following commands:

```
sudo apt update
sudo apt upgrade -y
sudo apt install mysql-server -y
sudo mysql_secure_installation
```

Configure MySQL to accept connections from WordPress instance:

```
sudo nano /etc/mysql/mysql.conf.d/mysqld.cnf
# Change 'bind-address' to 0.0.0.0
sudo systemctl restart mysql
```

Create a WordPress database and user:

```
sudo mysql -u root -p
# Inside MySQL shell
CREATE DATABASE wordpress;
CREATE USER 'wordpressuser'@'%' IDENTIFIED BY 'password';
GRANT ALL PRIVILEGES ON wordpress.* TO 'wordpressuser'@'%';
FLUSH PRIVILEGES;
EXIT;
```

3. Install WordPress on WordPress Instance

SSH into the WordPress instance and run the following commands:

```
sudo apt update
```

sudo apt upgrade -y
sudo apt install apache2 -y
sudo apt install php libapache2-mod-php php-mysql -y
sudo systemctl restart apache2

Download and configure WordPress:

cd /tmp
wget https://wordpress.org/latest.tar.gz
tar -xvzf latest.tar.gz
sudo cp -R wordpress/* /var/www/html/
sudo chown -R www-data:www-data /var/www/html/
sudo chmod -R 755 /var/www/html/
sudo systemctl restart apache2

4. Setup WordPress

- Navigate to the WordPress instance's public IP in your browser.
- During the setup wizard, provide the MySQL instance's private IP address, and the database user credentials.

Security Groups Configuration:

- **WordPress Instance Security Group:**
  - Inbound: HTTP (80), SSH (22)
  - Outbound: All traffic
- **MySQL Instance Security Group:**
  - Inbound: MySQL (3306) from WordPress instance IP, SSH (22)
  - Outbound: All traffic

Final Steps:

1. Ensure both EC2 instances are running and security groups are correctly configured.
2. Verify connectivity between WordPress and MySQL instances.
3. Complete the WordPress installation through the web interface.
4. Create a welcome page in WordPress and set it as the homepage.