

AWS WordPress Project:

-Creating a highly available WordPress website on AWS.

Problem Statement:

- A customer needs a blog website that she can use to post content, so users can see her work. The customer has some type of technical skills but would love to automate some of the technical tasks. The customer wants a service that can automate all the database tasks, but still want to have some type of control of the computing processes that run her site. More importantly, the customer wants the website to be inside a virtual private network for security reasons.

Solution Statement:

- I advise the customer to go with Amazon AWS for hosting her website because AWS has a centralized system in terms of managing resources and services. She can benefit from it and AWS can also make her website highly available so users can access her website.

AWS Services for the website:

- AWS Cloud platform: to host and manage the website.
- WordPress: to build the blog website.
- VPC: for the networking setting.
- RDS: to automate the database tasks.
- EC2: for the computing processes of the website and still give her the option to change it later on.
- MySQL: to store the website information.
- Security Group: to secure her AWS resources.
- Keypairs: to access the EC2 through an ssh command line.

-Let's login into our AWS account. I am going to use my IAM user to access my AWS account because it's best practice to use an IAM user who has administration privilege to access the account instead the root user.

-Let's create a highly available WordPress website:

I am creating the project in the N. Virginia (us-east-1) region because that is where the customer wanted the site to be hosted it. The goal is to create all the resources outside of global resources in this region because it's easy for the customer to manage all her resources.

VPC Network Design:

-VPC IP Range: 172.20.0.0/16

4 subnets: 2 public subnets, 2 private subnets

2 zones: us-east-1a and us-east-1b

172.20.1.0/24 public-sub 1:us-east-1a

172.20.2.0/24 public-sub 2:us-east-1b

172.20.3.0/24 private-sub 1:us-east-1a

172.20.4.0/24 private-sub 2:us-east-1b

Creating a VPC for the website

Create VPC [Info](#)

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances. Mouse over a resource to highlight the related resources.

VPC settings

Resources to create [Info](#)
Create only the VPC resource or the VPC and other networking resources.

☐ VPC only

☒ VPC and more

Name tag auto-generation [Info](#)
Enter a value for the Name tag. This value will be used to auto-generate Name tags for all resources in the VPC.

☒ Auto-generate

wordpress

IPv4 CIDR block [Info](#)
Determine the starting IP and the size of your VPC using CIDR notation.

172.20.0.0/1665,536 IPs

Preview

Introducing the new create VPC experience
We've designed the new create VPC experience to make it easier to use. Now you can visualize the resources you create. [Let us know what you think.](#)

- New: Edit the name tag of individual resources. Uncheck "Auto-generate" and set each name tag in the resource details.

VPC [Show details](#)

Your AWS virtual network

wordpress-vpc

Subnets (4)

Subnets within this VPC

us-east-1a

wordpress-subnet-public1-us-east-1a

wordpress-subnet-private1-us-east-1a

us-east-1b

creating a DB subnet for the database

Create DB subnet group

To create a new subnet group, give it a name and a description, and choose an existing VPC. You will then be able to add subnets related to that VPC.

Subnet group details

Name

You won't be able to modify the name after your subnet group has been created.

Must contain from 1 to 255 characters. Alphanumeric characters, spaces, hyphens, underscores, and periods are allowed.

Description

VPC

Choose a VPC identifier that corresponds to the subnets you want to use for your DB subnet group. You won't be able to choose a different VPC identifier after your subnet group has been created.

Creating RDS service with mySQL database for information storage:

Create database

Choose a database creation method [Info](#)

☒ Standard create

You set all of the configuration options, including ones for availability, security, backups, and maintenance.

☐ Easy create

Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type [Info](#)

☐ Amazon Aurora



☒ MySQL



☐ MariaDB



Launching an EC2 for the website

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name

[Add additional tags](#)

▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

▼ Summary

Number of instances [Info](#)

Software Image (AMI)

Amazon Linux 2 Kernel 5.10 AMI...[read more](#)
ami-0b5eea76982371e91

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

[Free tier](#): In your first year includes 750 hours of t2.micro (or t2.nano) in the

Connecting into the EC2 instance

```
ec2-user@ip-172-20-1-171:~  
andre@DESKTOP-FTEJMF0 MINGW64 ~/Downloads  
$ ssh -i "wordpress-key.pem" ec2-user@ec2-3-238-63-240.compute-1.amazonaws.com  
The authenticity of host 'ec2-3-238-63-240.compute-1.amazonaws.com (3.238.63.240  
ED25519 key fingerprint is SHA256:W7VX7d+r+CRYg5CgUTStPwu+aLTaR/tiSACEYefH4AA.  
This host key is known by the following other names/addresses:  
~/.ssh/known_hosts:14: 3.238.63.240  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added 'ec2-3-238-63-240.compute-1.amazonaws.com' (ED25519)  
  
  _ | _ | _ )  
  _ | ( _ | _ /  
  _ | \ _ | _ |  
Amazon Linux 2 AMI  
  
https://aws.amazon.com/amazon-linux-2/  
[ec2-user@ip-172-20-1-171 ~]$
```

Making sure that the httpd webserver is running on the instance

```
root@ip-172-20-1-171:~  
[root@ip-172-20-1-171 ~]# service httpd start  
Redirecting to /bin/systemctl start httpd.service  
[root@ip-172-20-1-171 ~]# systemctl status httpd  
● httpd.service - The Apache HTTP Server  
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor prese  
   Active: active (running) since Wed 2023-01-18 00:19:52 UTC; 19s ago  
     Docs: man:httpd.service(8)  
   Main PID: 3634 (httpd)  
   Status: "Total requests: 0; Idle/Busy workers 100/0; Requests/sec: 0; Bytes se  
   CGroup: /system.slice/httpd.service  
           └─3634 /usr/sbin/httpd -DFOREGROUND  
             └─3635 /usr/sbin/httpd -DFOREGROUND  
               └─3636 /usr/sbin/httpd -DFOREGROUND  
                 └─3637 /usr/sbin/httpd -DFOREGROUND  
                   └─3638 /usr/sbin/httpd -DFOREGROUND  
                     └─3639 /usr/sbin/httpd -DFOREGROUND  
  
Jan 18 00:19:52 ip-172-20-1-171.ec2.internal systemd[1]: Starting The Apache HTTP  
Jan 18 00:19:52 ip-172-20-1-171.ec2.internal systemd[1]: Started The Apache HTTP  
[root@ip-172-20-1-171 ~]#
```

Checking the EC2 instance for the public IP to access the wordpress website

Find instance by attribute or tag (case-sensitive)							
<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input checked="" type="checkbox"/>	wordpress-app	i-0de1b0032e92dc0fd	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a

Instance: i-0de1b0032e92dc0fd (wordpress-app)		
Details	Security	Networking
▼ Instance summary Info		
Instance ID i-0de1b0032e92dc0fd (wordpress-app)	Public IPv4 address 3.238.63.240 open address	Private IPv4 addresses 172.20.1.171
IPv6 address -	Instance state Running	Public IPv4 DNS ec2-3-238-63-240.compute-1.amazonaws.com open address

Accessing the Wordpress login page



Welcome

Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

Information needed

Please provide the following information. Do not worry, you can always change these settings later.

Site Title

Username

Username can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol.

Accessing a page from the blog

Living Right

ECOSYSTEM

Positive growth.



After creating the website domain name with Godaddy, I used Route 53 to manage the DNS records and to check the health of the website.