

Name:Harish Aeyya

Batch:119

Email:harishaeyya@gmail.com

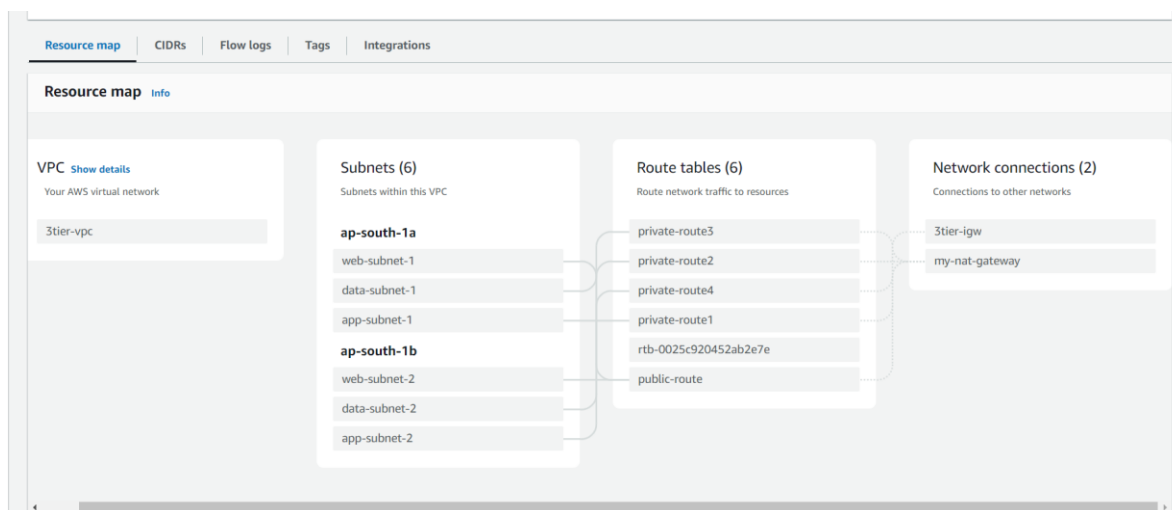
PROJECT:

3-tier architecture in two available zones



vpc:

- create a vpc with specific name 3tier-vpc
- now create a subnets available zone 1a:
 1. web-subnet-1
 2. app-subnet-1
 3. data-subnet-1
- now create a subnet available zone 1b:
 1. web-subnet-2
 2. app-subnet-2
 3. data-subnet-2
- create a internet gate way to attach the vpc
- create a natway to connect the app-subnets using route table
- create a public-route table and private-route table
 1. public-routes to add web-subnets to attach the internet gate way
 2. private-routes to add app-subnets individual to attatch the nat gate way



Subnets (9) [Info](#)

Find resources by attribute or tag

1

<input type="checkbox"/>	Name	Subnet ID	State	VPC	IPv4 CIDR
<input type="checkbox"/>	-	subnet-09ca55184f965bf69	Available	vpc-032b9d8412227356d	172.31.16.0/20
<input type="checkbox"/>	web-subnet-1	subnet-02b4e91639b5b48ee	Available	vpc-0fad6e0031287c356 3tier...	192.0.0.0/24
<input type="checkbox"/>	data-subnet-2	subnet-091708c3d6588e23d	Available	vpc-0fad6e0031287c356 3tier...	192.0.5.0/24
<input type="checkbox"/>	data-subnet-1	subnet-02f1ad53f8cdfb6f9	Available	vpc-0fad6e0031287c356 3tier...	192.0.4.0/24
<input type="checkbox"/>	app-subnet-2	subnet-0e2afd026a62a4223	Available	vpc-0fad6e0031287c356 3tier...	192.0.3.0/24
<input type="checkbox"/>	web-subnet-2	subnet-0026eb523803dbb3f	Available	vpc-0fad6e0031287c356 3tier...	192.0.1.0/24
<input type="checkbox"/>	app-subnet-1	subnet-0b956104311809506	Available	vpc-0fad6e0031287c356 3tier...	192.0.2.0/24

VPC > [Internet gateways](#) > igw-05d558191dcc32e2e

igw-05d558191dcc32e2e / 3tier-igw

Actions

Details [Info](#)

Internet gateway ID

igw-05d558191dcc32e2e

State

Attached

VPC ID

[vpc-0fad6e0031287c356](#) | [3tier-vpc](#)

Owner

905418143553

Tags

Manage tags

Search tags

Key	Value
Name	3tier-igw

VPC > [NAT gateways](#) > nat-07026c1336e456aca

nat-07026c1336e456aca / my-nat-gateway

Actions

Details

NAT gateway ID

nat-07026c1336e456aca

Connectivity type

Public

State

Available

State message

[Info](#)

NAT gateway ARN

arn:aws:ec2:ap-south-1:905418143553:natgateway/nat-07026c1336e456aca

Primary public IPv4 address

[52.66.12.42](#)

Primary private IPv4 address

192.0.0.215

Primary network interface ID

[eni-0b94d93fd1b5bdb8b](#)

VPC

[vpc-0fad6e0031287c356](#) | [3tier-vpc](#)

Subnet

[subnet-02b4e91639b5b48ee](#) / [web-subnet-1](#)

Created

Monday, March 11, 2024 at 22:35:06 GMT+5:30

Deleted

-

Route tables (7) [Info](#)

Find resources by attribute or tag

1

<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-059767cb3109186d2	-	-	Yes	vpc-032b9d8412227356d
<input type="checkbox"/>	-	rtb-0025c920452ab2e7e	-	-	Yes	vpc-0fad6e0031287c356
<input type="checkbox"/>	public-route	rtb-0bf35ece03043c4ca	2 subnets	-	No	vpc-0fad6e0031287c356
<input type="checkbox"/>	private-route1	rtb-036be74d75a27e369	subnet-0b956104311809...	-	No	vpc-0fad6e0031287c356
<input type="checkbox"/>	private-route2	rtb-021944cef86f8d554	subnet-0e2afd026a62a4...	-	No	vpc-0fad6e0031287c356
<input type="checkbox"/>	private-route3	rtb-0b1f3ea77cb6f3fa9	subnet-02f1ad53f8cdfb6...	-	No	vpc-0fad6e0031287c356
<input type="checkbox"/>	private-route4	rtb-0345516e860efb329	subnet-091708c3d6588e...	-	No	vpc-0fad6e0031287c356

EC2:

web-tier:

- create a launch template
 1. AMI: Amazon 2 Linux
 2. Instance type: t2.micro (1GB – Free Tier)
 3. A new or existing key pair
 4. Create a new security group and add inbound rules (SSH & HTTP)
- Create auto -scaling groups with following settings
 1. Attach the created template
 2. Select the 3tier-vpc along with two public subnets
 3. Create a new application load balancer

EC2 > Auto Scaling groups > my-scaling-grp

my-scaling-grp

Details | Activity | Automatic scaling | Instance management | Monitoring | Instance refresh

Group details Edit

Auto Scaling group name my-scaling-grp	Desired capacity 2	Desired capacity type Units (number of instances)	Amazon Resource Name (ARN) arn:aws:autoscaling:ap-south-1:905418143553:autoScalingGroup:138cdb87-b0ad-4aac-8c66-1306f8a8c801:autoScalingGroupName/my-scaling-grp
Date created Mon Mar 11 2024 22:48:37 GMT+0530 (India Standard Time)	Minimum capacity 2	Status -	
	Maximum capacity 5		

Launch template Edit

Launch template lt-0a867e8ef680dcd9d hari-launchtema	AMI ID ami-0ba259e664698cbfc	Instance type t2.micro	Owner arn:aws:iam::905418143553:root
------------------------------------------------------------	---------------------------------	---------------------------	-----------------------------------------

<input type="checkbox"/>	public-web1	i-053625f7bfb45cd35	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1a
<input type="checkbox"/>	public-web2	i-0c51571ef4cc1412c	Running	t2.micro	2/2 checks passed	View alarms	ap-south-1b

- Now, Lets launch the SSsh to see if the application is working

```
aws | Services | Search [Alt+S]

#_
##### Amazon Linux 2023
#####\
\#####\
\###|
\#/ https://aws.amazon.com/linux/amazon-linux-2023
v~' '->
~~~
~~.
~~/_/
/_/m/'

[ec2-user@ip-192-0-0-139 ~]$ sudo -i
[root@ip-192-0-0-139 ~]# ls
[root@ip-192-0-0-139 ~]#
```

App-tier:

- create a launch template
- An auto scaling to dynamically provision Ec2
- An application Load Balancer to route the traffic from web tier

auto-scaling-datta2

Details | Activity | Automatic scaling | Instance management | Monitoring | Instance refresh

Group details Edit

Auto Scaling group name auto-scaling-datta2	Desired capacity 2	Desired capacity type Units (number of instances)	Amazon Resource Name (ARN) arn:aws:autoscaling:ap-south-1:767397985777:autoScalingGroup:0b06bd60-fc58-407a-a37c-9c8ee60c42c5:autoScalingGroupName/auto-scaling-datta2
Date created Mon Mar 11 2024 09:48:32 GMT+0530 (India Standard Time)	Minimum capacity 2	Status -	
	Maximum capacity 5		

Launch template Edit

Launch template lt-0a1d6b8da7426879b lt-template2-tier	AMI ID ami-0ba259e664698cbfc	Instance type t2.micro	Owner arn:aws:iam::767397985777:root
Version -	Security groups	Security group IDs sg-0a1d6b8da7426879b	Create time -

- Now connect to the public instance and connect using .pem to the private instance

- Create database subnet groups by attaching the 2 private subnets which are in different availability zones in RDS and attach the 3tier-vpc

data

Subnet group details

VPC ID
[vpc-07ada291c8fe5eadf](#)

ARN
 arn:aws:rds:ap-south-1:767397985777:subgrp:data

Supported network types
 IPv4

Description
 allow

Subnets (2)

Availability zone	Subnet ID	CIDR block
ap-south-1a	subnet-0aef9afb826200455	192.0.6.0/24
ap-south-1b	subnet-07ee28d78230c5cf7	192.0.7.0/24

- Now, create RDS DataBase

database-2

[Refresh](#) [Modify](#) [Actions](#)

Summary

DB identifier database-2	Status Available	Role Instance	Engine MySQL Community	Recommendations 2 Informational
CPU <div><div></div> 3.14%</div>	Class db.t3.micro	Current activity <div><div></div> 0 Connections</div>	Region & AZ ap-south-1a	

[Connectivity & security](#) [Monitoring](#) [Logs & events](#) [Configuration](#) [Maintenance & backups](#) [Tags](#) [Recommendations](#)

Connectivity & security

Endpoint & port	Networking	Security
Endpoint database-2.chg8w6gc2mbh.ap-south-1.rds.amazonaws.com	Availability Zone ap-south-1a	VPC security groups security-rds (sg-0d0fed5f0615f50ea)
Port 3306	VPC mythreetiervpc (vpc-07ada291c8fe5eadf)	Active
	Subnet group data	Publicly accessible No
		Certificate authority Info

- Connect to the database
1. Connect to the server
 2. Install mysql

3. And enter command `mysql -h YOUR_DB_ENDPOINT -P 3306 -u YOUR_DB_USERNAME -p` in these command instead of `your_db_endpoint` we should enter our database endpoint and also edit username as well after that enter password that you have given while creating a relational database.

```
[root@ip-192-0-0-139 ~]# sudo dnf update-y
No such command: update-y. Please use /usr/bin/dnf --help
It could be a DNF plugin command, try: "dnf install 'dnf-command(update-y)'"
[root@ip-192-0-0-139 ~]# sudo dnf update -y
Last metadata expiration check: 21:20:01 ago on Mon Mar 11 05:39:52 2024.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-192-0-0-139 ~]# sudo dnf install mariadb105
Last metadata expiration check: 21:20:55 ago on Mon Mar 11 05:39:52 2024.
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing:				
mariadb105	x86_64	3:10.5.23-1.amzn2023.0.1	amazonlinux	1.6
Installing dependencies:				
mariadb-connector-c	x86_64	3.1.13-1.amzn2023.0.3	amazonlinux	196
mariadb-connector-c-config	noarch	3.1.13-1.amzn2023.0.3	amazonlinux	9.2
mariadb105-common	x86_64	3:10.5.23-1.amzn2023.0.1	amazonlinux	30
perl-Sys-Hostname	x86_64	1.23-477.amzn2023.0.6	amazonlinux	18

```
Transaction Summary
Install 5 Packages
```

```
Installed:
  mariadb-connector-c-3.1.13-1.amzn2023.0.3.x86_64      mariadb-connector-c-config-3.1.13-1.amzn2023.0.3.noarch      mariadb105-3:10.5.23-1.amzn2023.0.1.x86_64
  mariadb105-common-3:10.5.23-1.amzn2023.0.1.x86_64    perl-Sys-Hostname-1.23-477.amzn2023.0.6.x86_64

Complete!
[root@ip-192-0-0-139 ~]# mysql -h database-2.chg8w6gc2mbh.ap-south-1.rds.amazonaws.com -P 3306 -u admin -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 278
Server version: 8.0.35 Source distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]>
```