End to End
Virtual Private Cloud
with RDS

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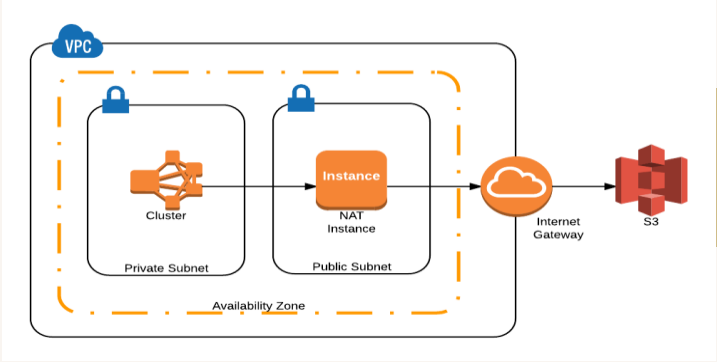
01. Introduction

- Cloud is the delivery of computing services including servers, storage, databases, networking, software, and more over the internet ("the cloud").
- **A Virtual Private Cloud (VPC):** is a secure, isolated section of a public cloud where users can launch resources in a virtual network they define. It provides control over the network environment, including IP address ranges, subnets, route tables, and network gateways
- **Amazon RDS** (Relational Database Service): is a managed database service that simplifies setting up, operating, and scaling a relational database in the cloud.

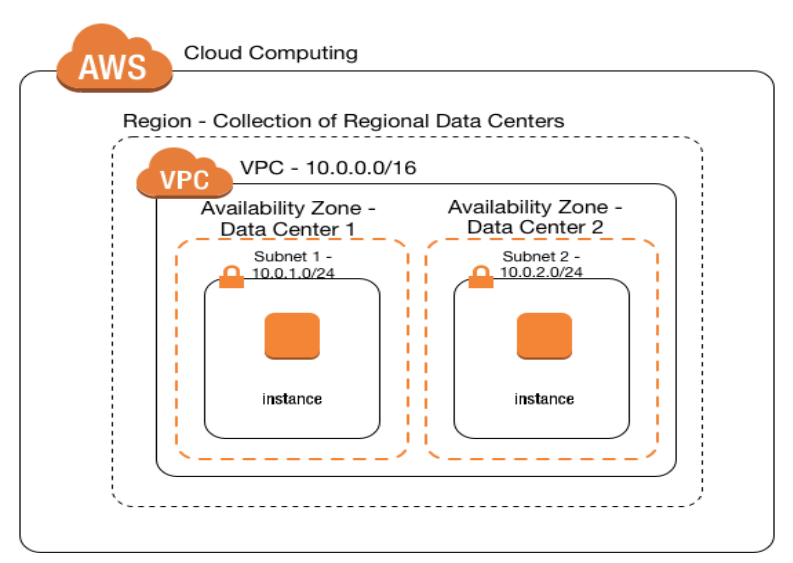


02.TECHNOLOGIES USED

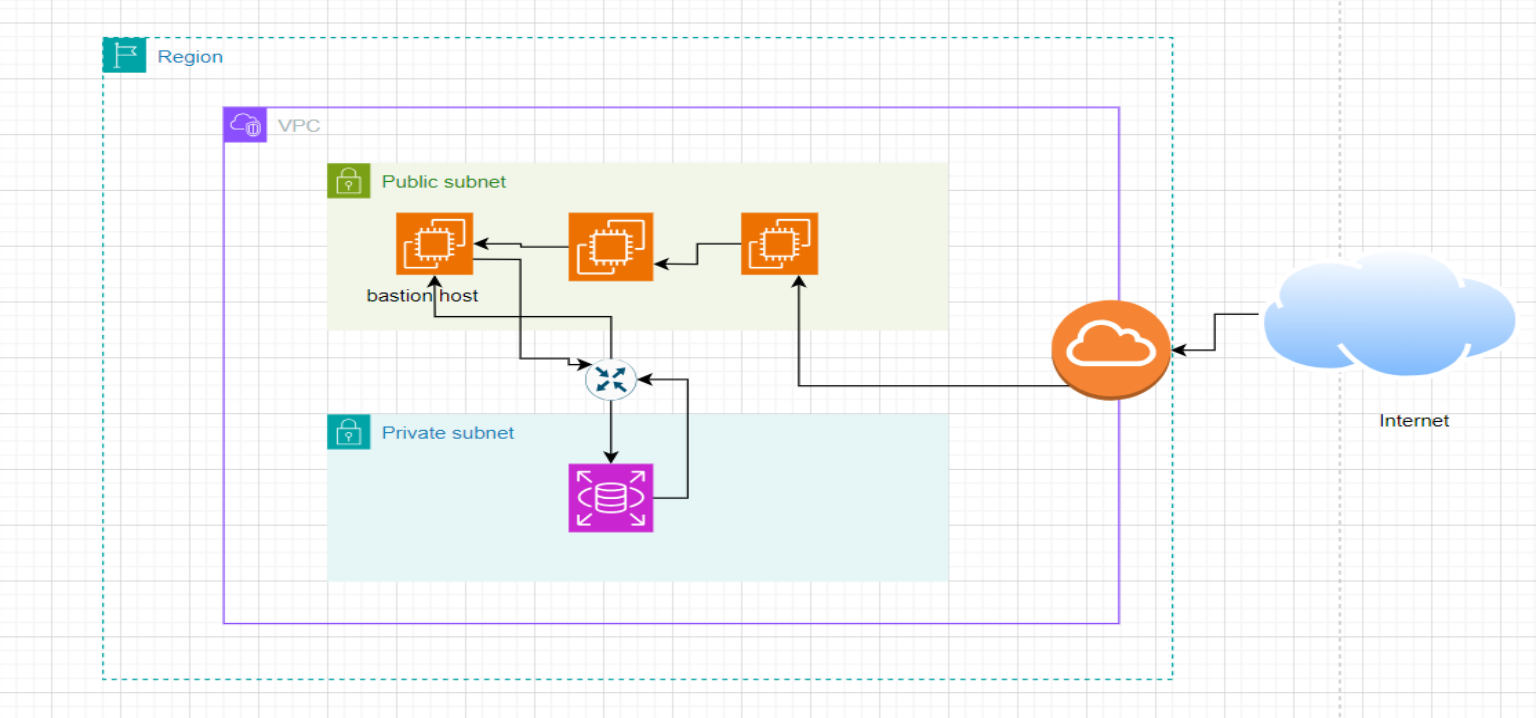
1. AWS
2. VPC
3. RDS (MySQL)
4. EC2
5. APACHE SERVER
6. GITHUB

03. Advantages of VPC

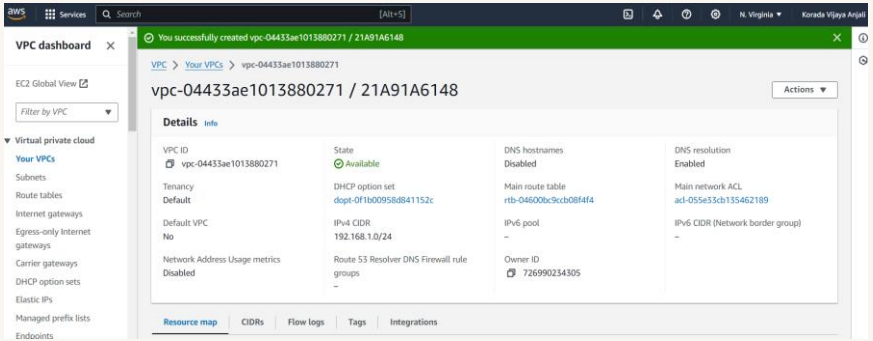
1. Controlled Access
2. Scalability
3. Optimized Resource Placement
4. Improved Security Layers
5. Cost Management
6. Ease of Maintenance
7. Compliance

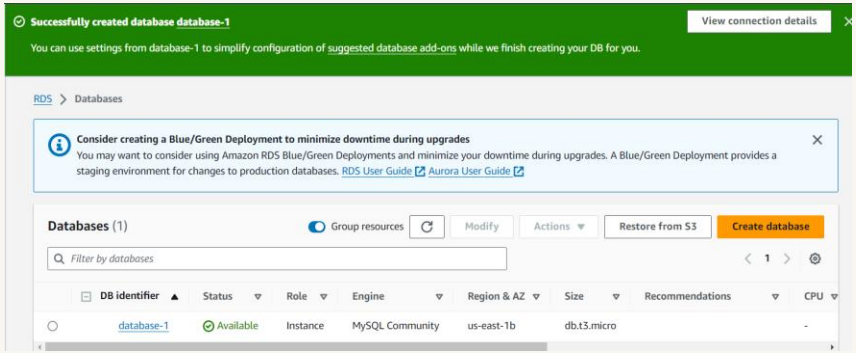


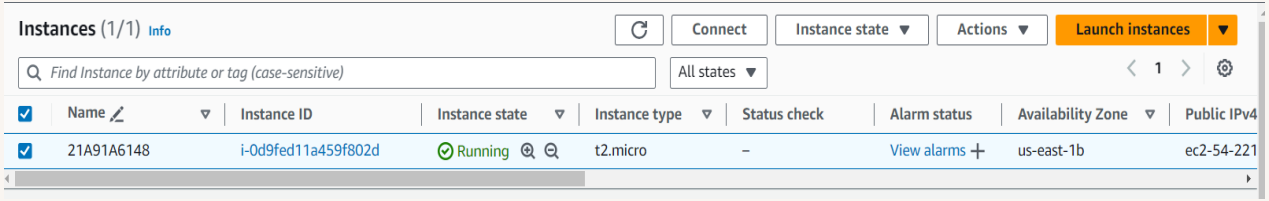
04. DEVELOPMENT



05.RESULTS

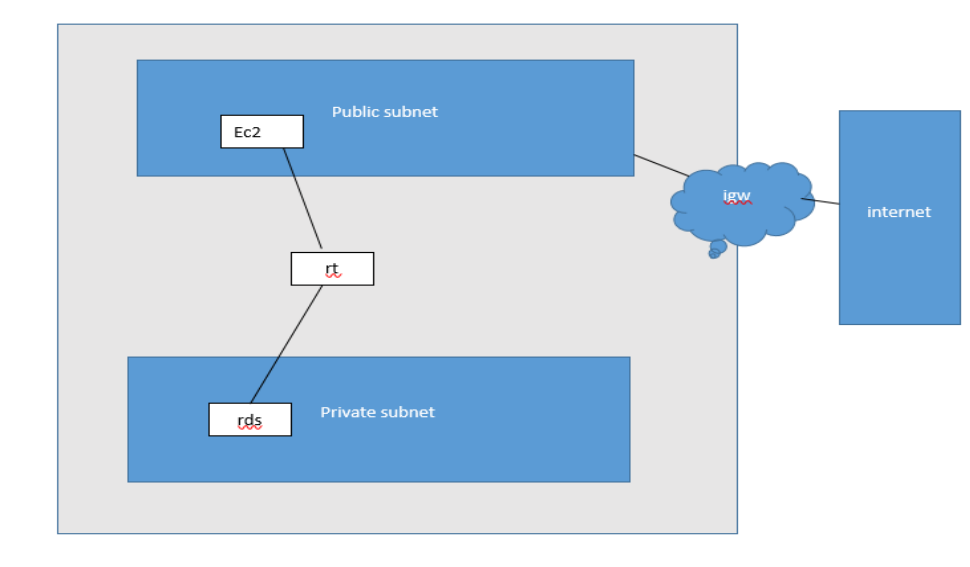

VPC dashboard
You successfully created vpc-04433ae1013880271 / 21A91A6148
vpc-04433ae1013880271 / 21A91A6148
Actions
Details
Resource map
CIDRs
Flow logs
Tags
Integrations


Successfully created database database-1
View connection details
You can use settings from database-1 to simplify configuration of suggested database add-ons while we finish creating your DB for you.
RDS > Databases
Consider creating a Blue/Green Deployment to minimize downtime during upgrades
Databases (1)
Group resources
Modify
Actions
Restore from S3
Create database
Filter by databases
DB identifier
Status
Role
Engine
Region & AZ
Size
Recommendations
CPU
database-1
Available
Instance
MySQL Community
us-east-1b
db.t3.micro


Instances (1/1) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4
21A91A6148
i-0d9fed11a459f802d
Running
t2.micro
View alarms
us-east-1b
ec2-54-221

```
mysql> show databases
    -> ;
+--------------------+
| Database           |
+--------------------+
| anjali             |
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.01 sec)

mysql>
```



06. CONCLUSION

- In this project, I successfully designed and implemented a Virtual Private Cloud (VPC) architecture with distinct public and private subnets to optimize security and functionality. By deploying EC2 instances in the public subnet, equipped with a bastion host, I ensured secure access to the internet and management of resources.
- The private subnet housed the database, protected from direct internet exposure, and was accessed securely through the bastion host using Amazon RDS. The deployment of a website on the public EC2 instance, along with the configuration of an Internet Gateway (IGW), route tables (RT), and a NAT gateway (NAT), demonstrated a robust and scalable infrastructure solution.This setup not only met security and performance requirements but also showcased effective network design and resource management.


Thank You