

End to End Virtual Private Cloud with RDS



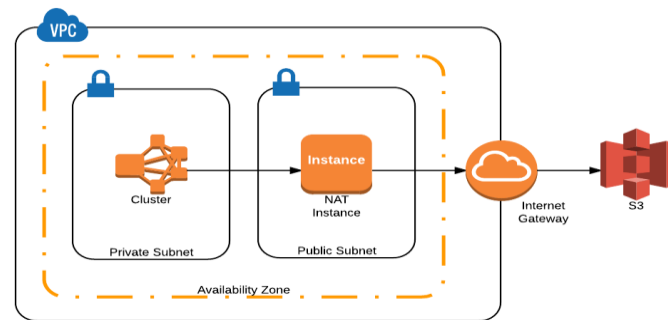
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01. Introduction

- 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.

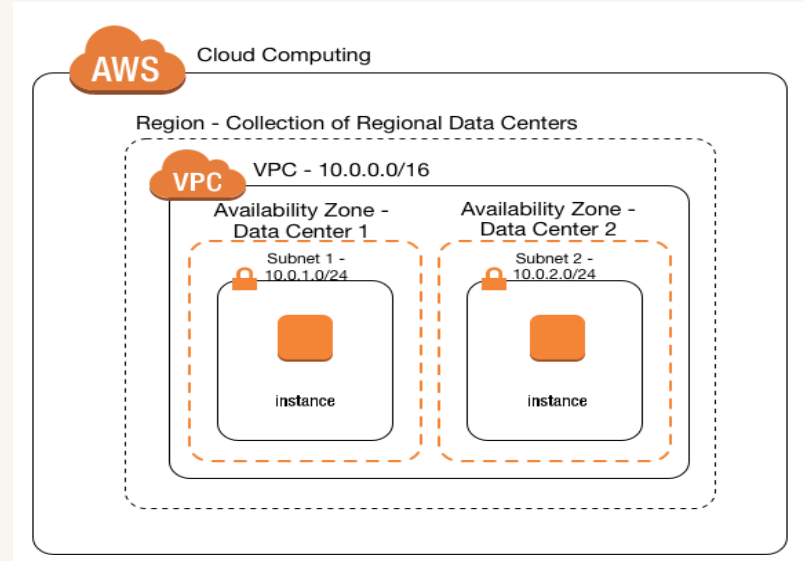


02.TECHNOLOGIES USED

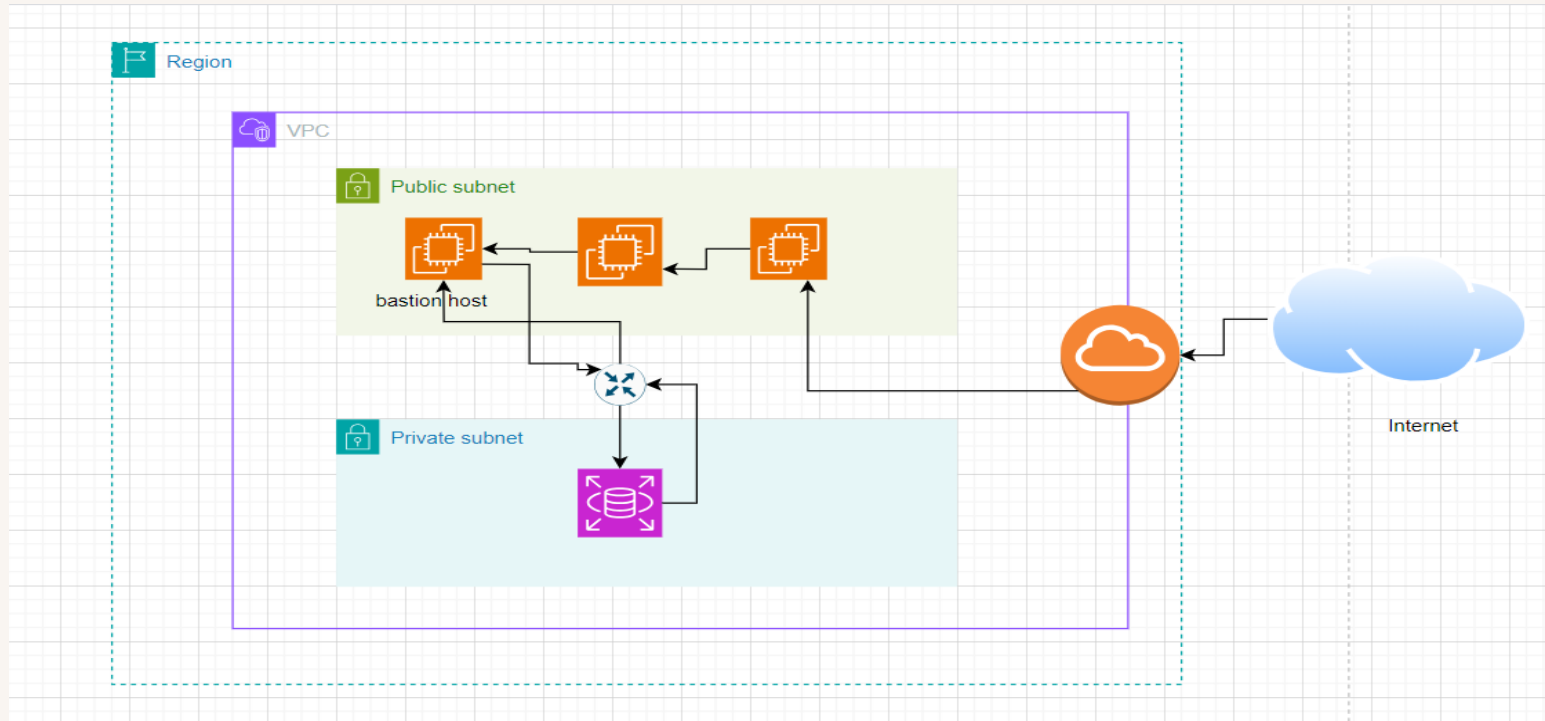
1. AWS
2. VPC
3. RDS (MySQL)
4. EC2
5. APACHE SERVER
6. GITHUB

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

EC2 Global View

Filter by VPC

Virtual private cloud

Your VPCs

- Subnets
- Route tables
- Internet gateways
- Egress-only Internet gateways
- Carrier gateways
- DHCP option sets
- Elastic IPs
- Managed prefix lists
- Endpoints

You successfully created vpc-04433ae1013880271 / 21A91A6148

VPC > Your VPCs > vpc-04433ae1013880271

vpc-04433ae1013880271 / 21A91A6148

Details

VPC ID vpc-04433ae1013880271	State Available	DNS hostnames Disabled	DNS resolution Enabled
Tenancy Default	DHCP option set dopt-0f1b00958b41152c	Main route table rtb-04600bc9cb08f4f4	Main network ACL acl-055e33cb135462189
Default VPC No	IPv4 CIDR 192.168.1.0/24	IPv6 pool -	IPv6 CIDR (Network border group) -
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 726990234305	

Resource map | CIDRs | Flow logs | Tags | Integrations

Successfully created database database-1

You can use settings from database-1 to simplify configuration of suggested database add-ons while we finish creating your DB for you.

View connection details

RDS > Databases

Consider creating a Blue/Green Deployment to minimize downtime during upgrades

You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. [RDS User Guide](#) [Aurora User Guide](#)

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

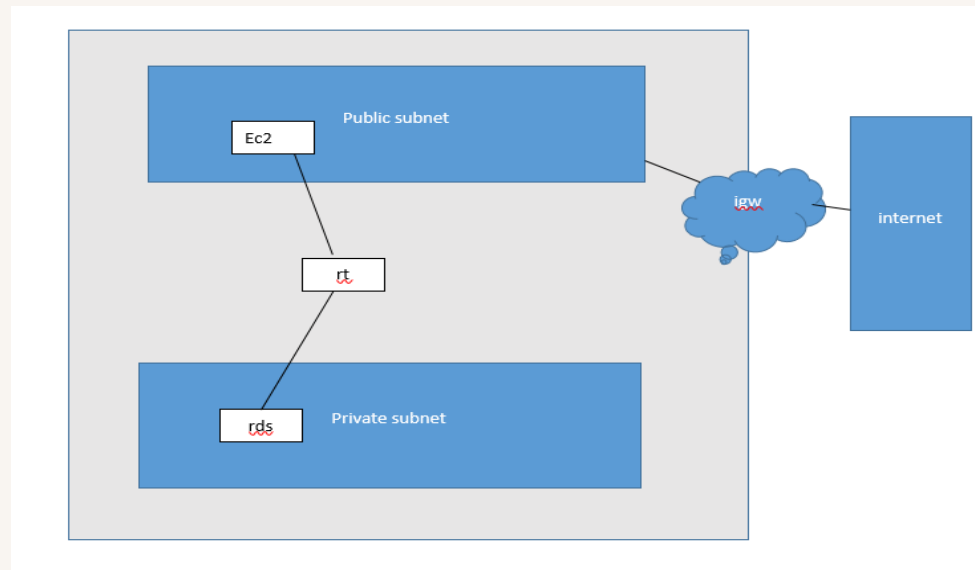
Connect | Instance state | Actions | Launch instances

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

