Karen Carranza
Divergence Academy-CEI
Addison, TX
(123) 456-7890

EgozNaSilo

Capstone Project ‘23

OVERVIEW

EgozNaSilo, a popular online shopping platform, encounters a recurring challenge during festive seasons. The surge in user traffic strains PostgreSQL Aurora database, particularly in handling increased read requests. This bottleneck impacts application responsiveness, leading to unsatisfactory user experiences. Most crucial operations, such as product searches and recommendations, contribute to this issue. Today, a solution of migrating from AWS to Azure will be presented to ensure seamless user experiences during peak times.

GOALS

1. Implement a read replica for EgozNaSilo’s Postgres Aurora database. This involves real-time mirroring of data from the primary database, ensuring that it stays synchronized with the latest information. The implementation of the read replica aims to alleviate the bottleneck by strategically diverting read operations to the replica.
2. Improve the system’s ability to handle increased user traffic during peak periods. As faster response times and smoother operations become the norm, this will lead to an increase of satisfactory user experience during peak season.

SPECIFICATIONS

AWS VPC (Virtual Private Cloud)➡Azure VNet (Virtual Network): Provide the ability to create private and isolated networks within their respective cloud environments.

Could set up subnets, control traffic flow, configure network security, and connect to on-premises networks using these services.

Availability Zones: Azure provides a similar concept known as Availability Zones. These are physically separate data centers within a region that provide redundancy and fault tolerance.

Can deploy resources across Availability Zones to ensure high availabilty.

Azure NAT Gateway: Provides outbound internet connectivity for resources in a private subnet

Bastion Host: Securely connect to and manage VMs within a VNet. Azure Bastion provides a remote desktop or SSH connection to VMs without the need for a public IP address or a VPN.

AWS Auto Scaling Group➡Azure Virtual Machine Scale Sets: Allows to automatically increase or decrease the number of VM instances based on demand

Database Services

AWS Aurora➡Azure SQL Database: Managed relational database service for high availability and scalability.

Notification Services

Amazon SNS➡Azure Notification Hubs: Scalable push notification service for various platforms, such as IOS, Android, and Windows, in a scalable and efficient manner.

Monitoring and Management

Amazon CloudWatch➡Azure Monitor: Comprehensive monitoring and management of Azure resources.

It offers features similar to AWS CloudWatch, allowing you to collect and analyze telemetry data, set up alerts, and gain insights into the performance of your resources.

Key Management

KMS Key➡Azure Key Vault: Securly manage cryptographic keys, secrets, and certificates.

Like AWS Key Management Service, it serves a similar purpose by providing a centralized location to create, store, and manage encryption keys and other sensitive data.

Read Replicas (Database)

Aurora DB Readers➡Read Replicas in Azure Database services: Distribute read traffic for improved performance

Network Security

Security Group➡Network Security Group (NSG): Control inbound and outbound traffic with rules such as allowing or denying access to specific ports or IP addresses.

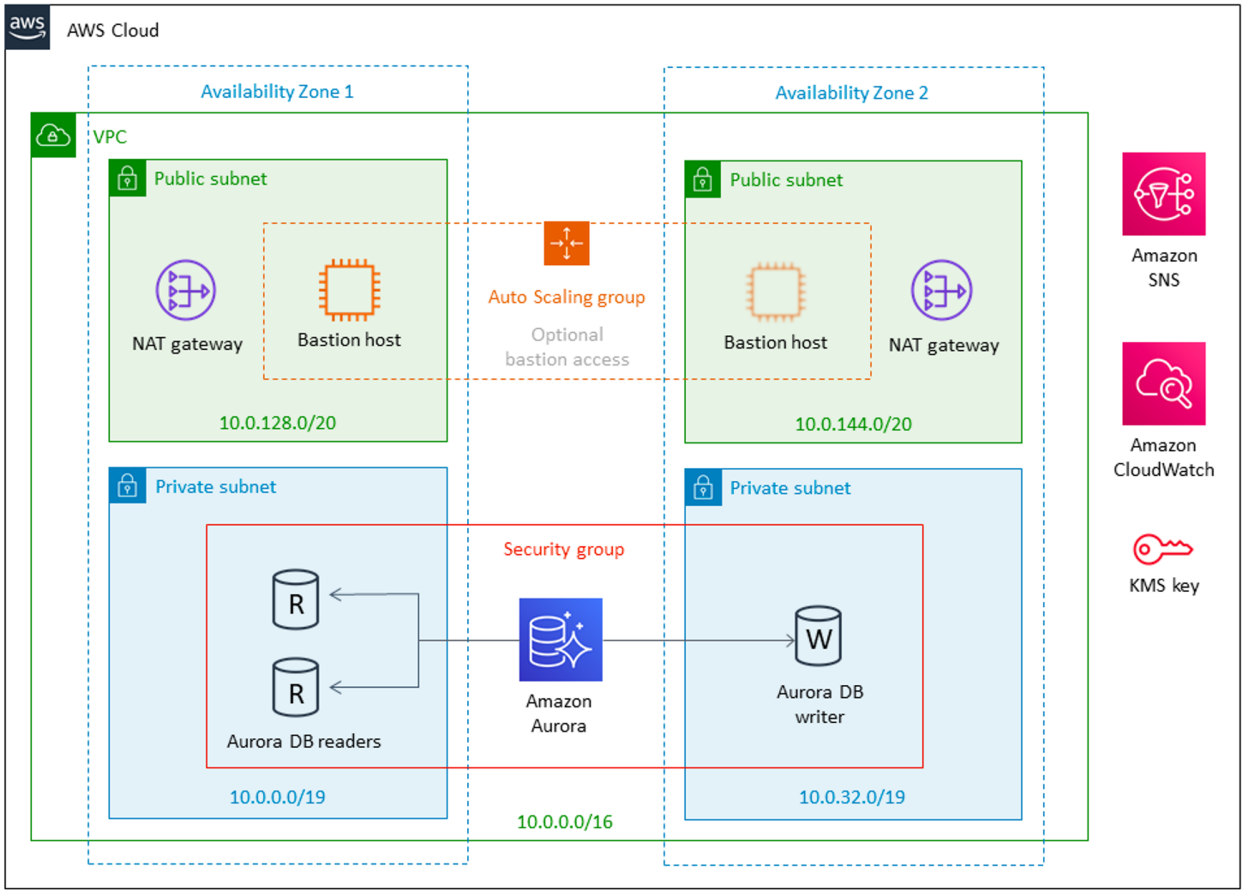
Primary Database (Writer)

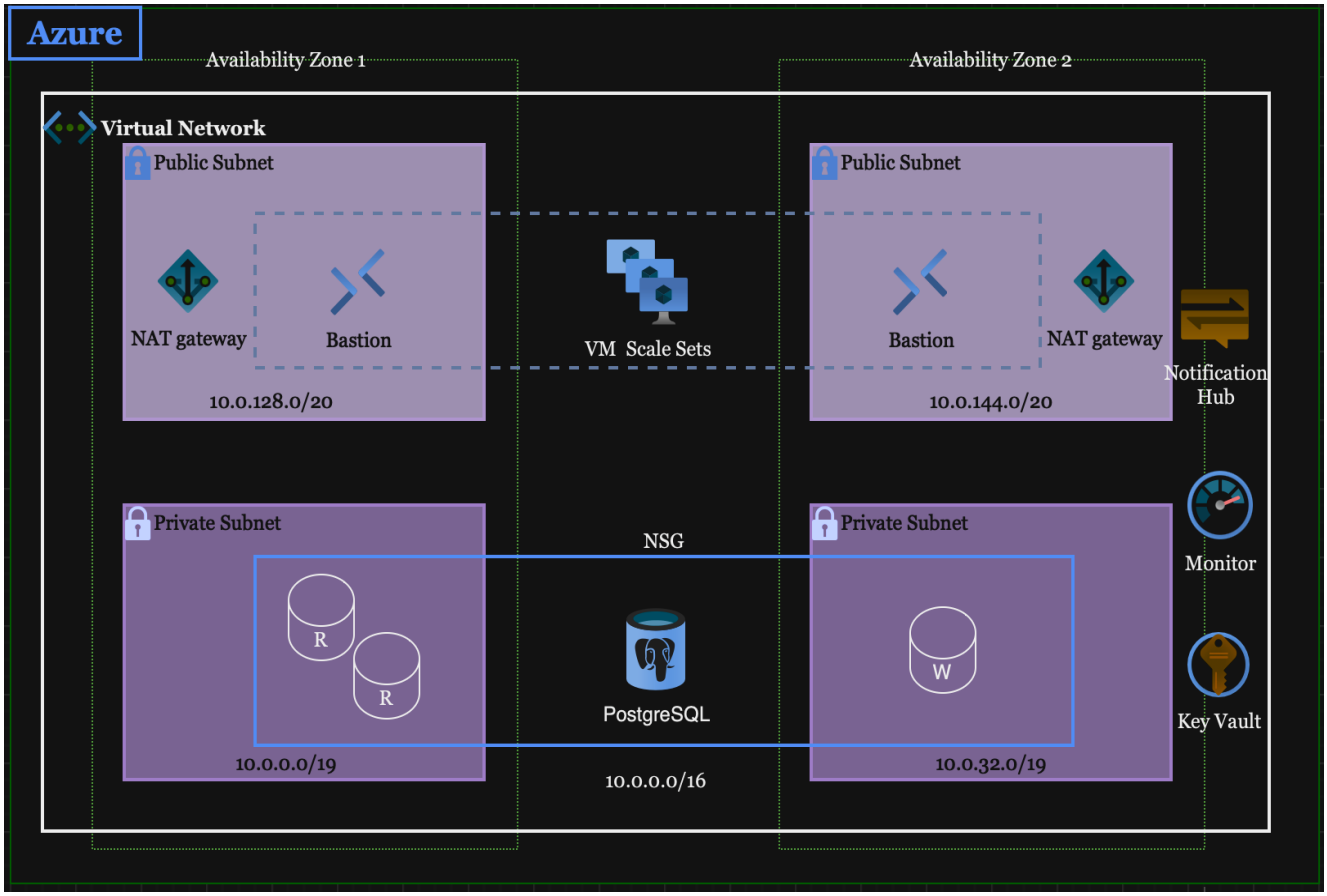
Aurora DB Writer➡Primary Database in Azure: Main instances for read and write operations

You can use read replicas to offload read traffic and distribute it across multiple instances

AWS ➡ Azure

.




Azure
Availability Zone 1
Availability Zone 2
Virtual Network
Public Subnet
Public Subnet
NAT gateway
Bastion
VM Scale Sets
Bastion
NAT gateway
Notification Hub
10.0.128.0/20
10.0.144.0/20
Monitor
Private Subnet
NSG
Private Subnet
R
R
W
PostgreSQL
Key Vault
10.0.0.0/19
10.0.32.0/19
10.0.0.0/16