



AWS RDS



Relational Database Service

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What is AWS RDS?

AWS RDS as a managed database service that simplifies database setup, operation, and scaling.

Purpose: handling administrative tasks like backups, patching, monitoring, and scaling.



Engine type [Info](#)

☐ Aurora (MySQL Compatible)



☒ Aurora (PostgreSQL Compatible)



☐ MySQL



☐ MariaDB



☐ PostgreSQL



☐ Oracle

ORACLE®

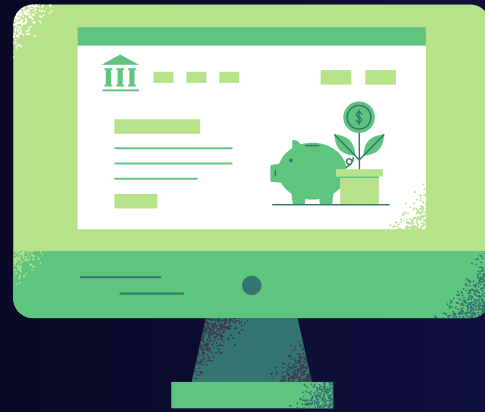
☐ Microsoft SQL Server



☐ IBM Db2

IBM Db2

Practical



EC2

Docker
Node-App



RDS

MySQL

RDS Instance

- Create a RDS MySQL instance
 - Use Free Tier
 - Username will be 'admin' and you can set password (you can't use special character)
 - Keep the Public access to True to access it from Local or remote server
 - Create a security group (and allow 3306 from everywhere)
 - After creating, you can find Endpoint (hostname) to connect to this DB.

EC2 Instance

- `sudo yum install -y docker`
- `sudo service docker start`
- `sudo usermod -aG docker ec2-user`
- `sudo docker pull philippaul/node-mysql-app:02`

- **docker run --rm -p 80:3000**
-e DB_HOST="your-db-hostname"
-e DB_USER="your-db-username"
-e DB_PASSWORD="your-db-password"
-d philippaul/node-mysql-app:02

- **docker run -it --rm mysql:8.0 mysql -h db.example.com -u admin -p**

Aurora offers:

- Up to 5x the throughput of MySQL Community Edition & 3x of PostGres
- Up to 128 TB of autoscaling SSD storage
- Six-way replication across three Availability Zones
- Up to 15 read replicas with replica lag under 10-ms
- Automatic monitoring with failover



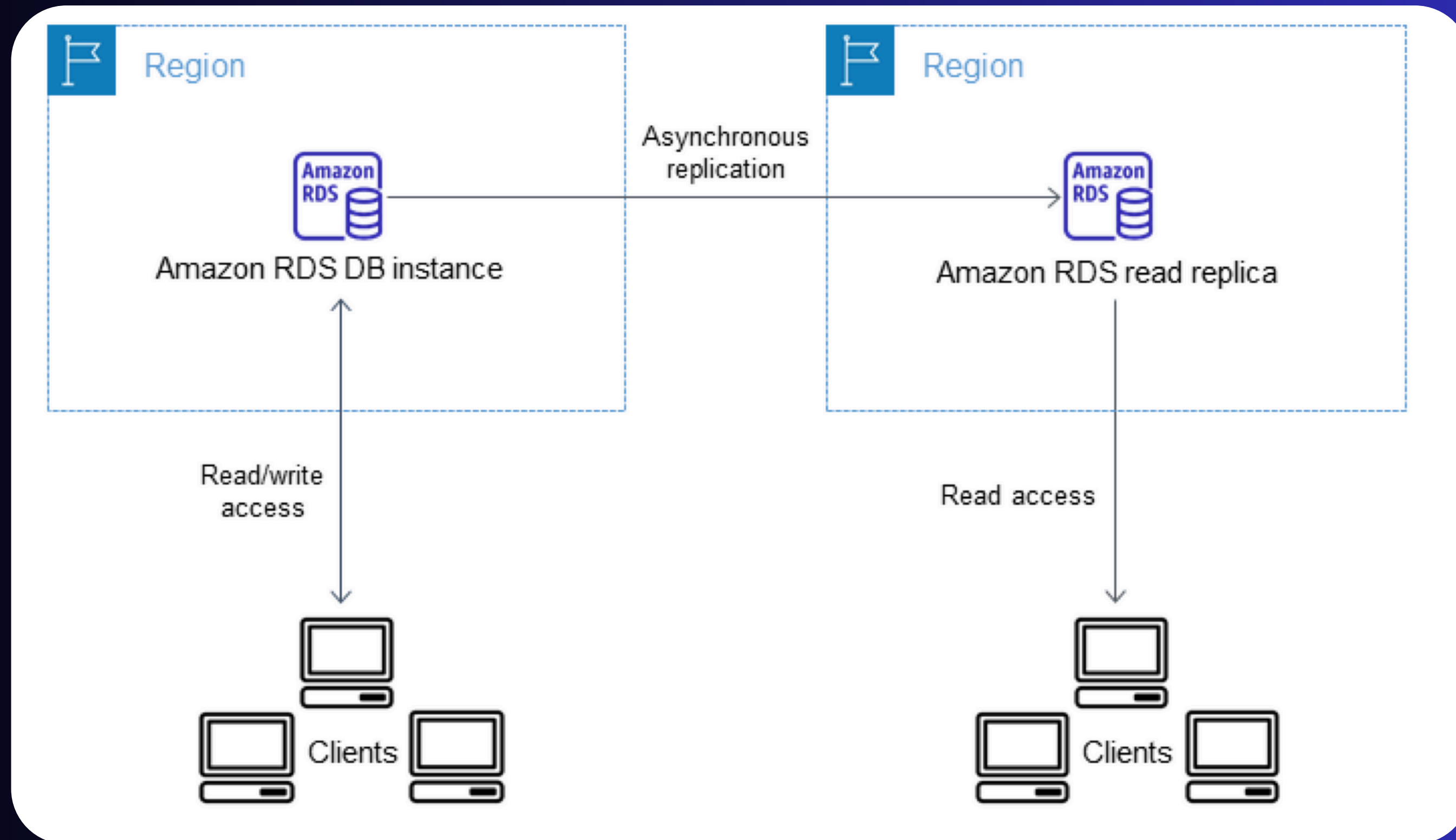
Benefits of Using RDS:

- High availability and fault tolerance.
- Vertical and Horizontal Scaling
- Automated backups and recovery.
- Read replicas for improved read performance
- Multi AZ setup for DR (Disaster Recovery)
- Cost-effectiveness.

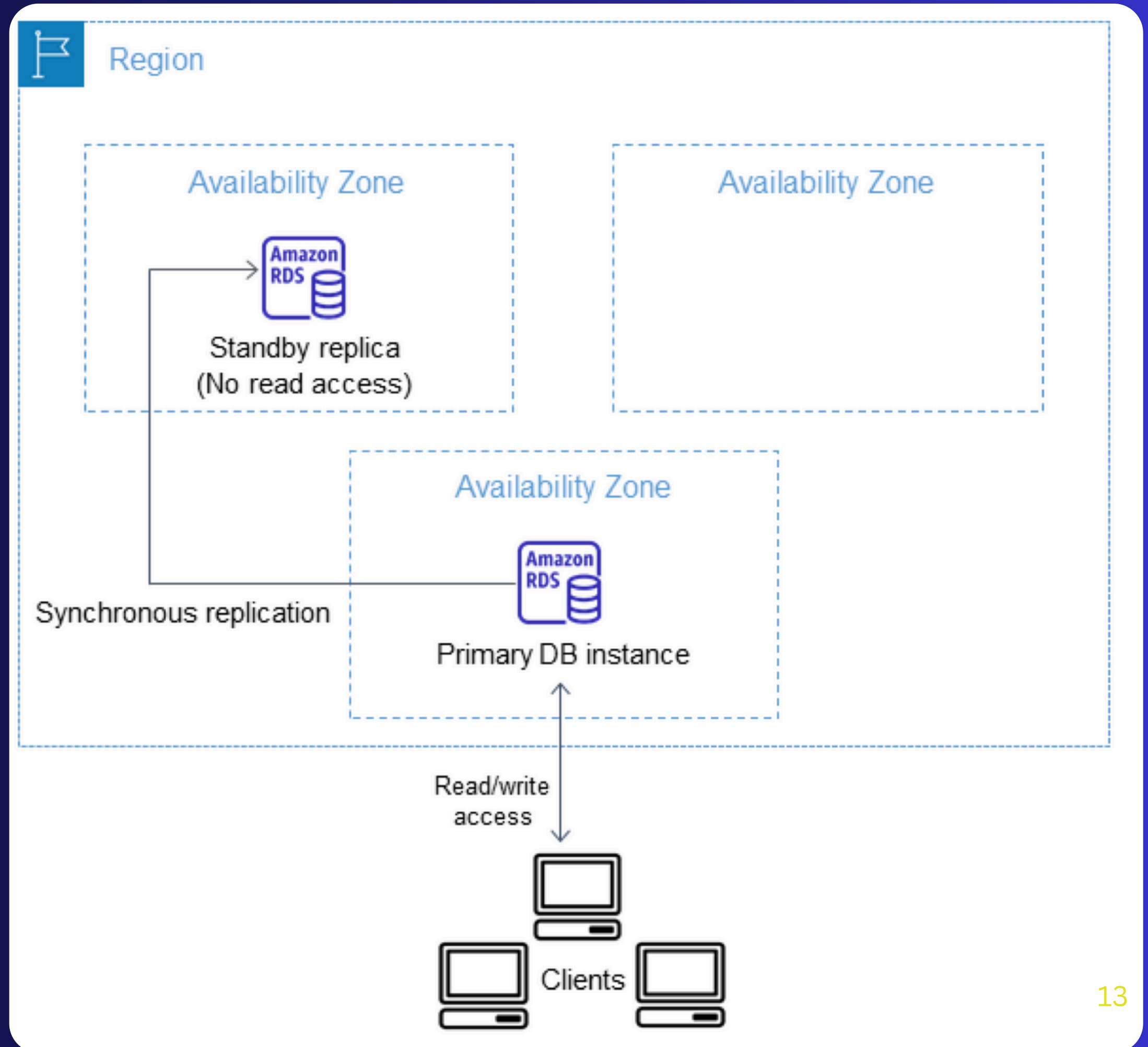


Feature	How It Works	Purpose
Multi-AZ Deployment	Synchronous replication to standby in a different AZ with automatic failover.	High Availability and fault tolerance.
Read Replicas	Asynchronous replication to read-only instances, in the same or different regions.	Horizontal scaling for read-heavy workloads.
Automated Backups	Daily backups and transaction log storage for point-in-time recovery.	Data durability and recovery.
Manual Snapshots	User-initiated snapshots stored indefinitely.	Long-term storage and recovery options.
VPC and Security Groups	Network isolation and traffic control within a VPC.	Network security and restricted access.
CloudWatch, Enhanced Monitoring, Performance Insights	Real-time monitoring, OS-level metrics, and query analysis.	Performance optimization and troubleshooting.
Encryption and IAM	KMS-based encryption for storage, SSL/TLS for transit, IAM access control.	Data security and access management.

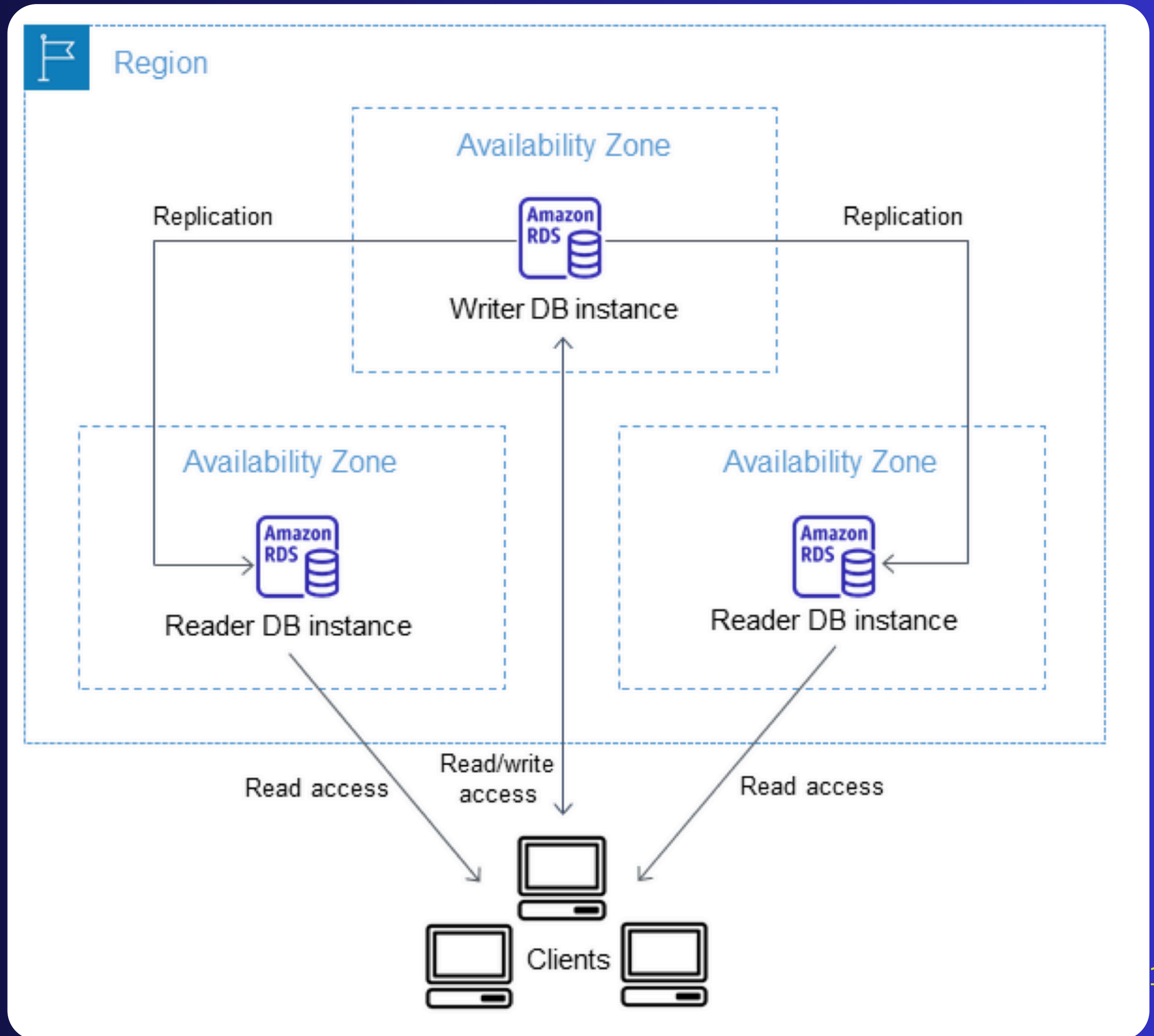
RDS Read Replica - Multi Region



RDS Multi - AZ



RDS Multi - AZ



Common Use Cases for RDS:

- **Web Applications:** Relational databases are ideal for web apps requiring structured data.
- **E-commerce Platforms:** For handling inventory, customer data, and order transactions.
- **Business Applications:** ERP, CRM, and financial applications with strong data integrity needs.