Amazon Aurora

Amazon Aurora is a managed relational database service by AWS, designed for high performance, availability, and scalability. It is compatible with MySQL and PostgreSQL

.

Here are its key features:

1. Performance and Scalability

- 5x Faster than MySQL & 3x Faster than PostgreSQL – Optimized for high throughput.
- Auto Scaling – Automatically adjusts compute and storage based on demand.
- Read Replicas – Supports up to 15 read replicas for scaling read workloads.
- Global Database – Enables low-latency global access by replicating across multiple AWS regions.
- Parallel Query Execution – Improves performance for complex queries.

2. High Availability and Durability

- Fault-Tolerant Storage – Replicates data six times across three AZs (Availability Zones).

- Automatic Failover – Ensures minimal downtime in case of primary node failure.
- Continuous Backups – Uses Amazon S3 for point-in-time recovery.
- Self-Healing Storage – Automatically detects and repairs corrupted data.

3. Security

- Encryption – Supports encryption at rest and in transit using AWS KMS.
- VPC Integration – Provides network isolation and security.
- IAM Authentication – Supports role-based access control with AWS IAM.
- Database Activity Streams – Monitors database activity for security compliance.

4. Serverless & Cost Optimization

- Aurora Serverless – Automatically scales compute capacity based on workload.
- Pay-Per-Use – Charges based on actual usage rather than fixed costs.
- Auto Pause & Resume – Reduces cost by shutting down when idle.

5. Compatibility and Integration

- MySQL & PostgreSQL Compatibility – Allows easy migration from existing databases.
- AWS Service Integration – Works with Lambda, CloudWatch, KMS, Secrets Manager, and more.
- Data API – Allows running SQL queries via HTTPS requests without needing a persistent connection.

Amazon Aurora vs. Traditional Databases

Feature	Amazon Aurora	MySQL/PostgreSQL
Performance	5x MySQL, 3x PostgreSQL	Standard
Availability	Multi-AZ replication	Single-AZ (unless configured manually)
Storage Scaling	Auto-scales to 128TB	Fixed storage allocation
Failover	Automatic	Manual
Cost Model	Pay-as-you-go	Fixed instance pricing