

# Database Services and Utilities

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# AWS Databases & Related Services



**Amazon RDS**



**Amazon Aurora**



**Amazon  
DynamoDB**



**Amazon Redshift**



**Amazon  
ElastiCache**



**AWS Database  
Migration Service**

# Cloud Computing Models

**Infrastructure as a  
Service (IaaS)**

**Platform as a  
Service (PaaS)**

**Software as a  
Service (SaaS)**



Maximum  
Control

Minimum  
Maintenance

**Database on EC2**

**Relation Database  
Service (RDS)**

**DynamoDB  
Elasticache  
Redshift**

# Overview

**Reviewing the cloud computing models for databases on AWS**

**Introducing the Relational Database Service (RDS)**

**Examining the capabilities of Amazon Aurora**

**Introducing the DynamoDB service**

**Reviewing the ElastiCache service**

**Examining data warehousing of data on AWS**

# Amazon Relational Database Service

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# Amazon Relational Database Service (RDS)



**Fully managed service for relational databases**

**Handles provisioning, patching, backup, and recovery of your database**

**Supports deployment across multiple availability zones (multi-AZ)**

**Some platforms support read replicas**

**Launches into a VPC**

**Provides both general purpose SSD and provisioned IOPS SSD drive options**

# Amazon RDS Platforms

**MySQL**

**PostgresSQL**

**MariaDB**

**Oracle Database**

**SQL Server**

**Amazon Aurora**

**“Amazon Aurora** is a MySQL and PostgreSQL-compatible relational database built for the cloud, that combines the performance and availability of traditional enterprise databases with the simplicity and cost-effectiveness of open source databases.”

**Amazon Web Services**



# Amazon Database Migration Service (DMS)



**Enables you to move data into AWS from existing databases**

**Supports both one time and continual migration of data**

**Supports many popular commercial and open source databases**

**Only pay for compute leveraged in the migration process**

# Amazon DynamoDB Overview

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# Amazon DynamoDB



**Fully managed NoSQL database service**

**Provides both key-value and document database**

**Enables extremely low latency at virtually any scale**

**Supports automated scaling based on configuration**

**Offers in-memory cache with the DynamoDB Accelerator (DAX)**

“**DynamoDB** can handle more than 10 trillion requests per day and can support peaks of more than 20 million requests per second.”

**Amazon Web Services**

**Scale without excessive  
maintenance**

**Serverless applications**

**Implementations where  
low latency is key**

**Data models without  
BLOB storage**

## DynamoDB Use Cases

# Amazon Elasticache & Redshift

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# Amazon ElastiCache



**Fully managed in-memory data stores**

**Supports both Memcached and Redis**

**Provides low latency in response times**

**Enables scaling and replicas to meet application demand**

**Handles common use cases including**

- Database layer caching
- Session storage

# Amazon Redshift



**Scalable data warehouse service**

**Supports petabyte scale warehousing of data**

**Leverages high performance disks and columnar storage**

**Offers the ability to fully encrypt contents**

**Provides isolation with a VPC**

**Enables querying of exabytes of data in Amazon S3 using Redshift Spectrum**



# Scenario Based Review

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## Scenario 1



**Jennifer is an IT executive in a financial services company**

**They are transitioning their data warehouse to AWS for analysis**

**The data warehouse would need to support up to 2 PB of data**

**Which approach would you recommend for Jennifer?**

## Scenario 2



**Sam is a DevOps engineer at a tech company**

**Sam needs to launch a MySQL database for a new web application**

**They need to have direct access to the virtual server that MySQL is running on**

**What approach would you recommend for Sam's company?**

## Scenario 3



**Frank is the CTO at a gaming company**

**They are trying to determine how to store realtime user analytics**

**They need low latency and the ability to scale to handle up to 1 million players**

**Frank wants to minimize the amount of time it takes to maintain the database**

**Which AWS approach would you recommend for Frank?**

# Summary

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**Reviewed the cloud computing models for databases on AWS**

**Introduced the Relational Database Service (RDS)**

**Examined the capabilities of Amazon Aurora**

**Introduced the DynamoDB service**

**Reviewed the ElastiCache service**

**Examined data warehousing of data on AWS**

## Scenario 1



**Jennifer is an IT executive in a financial services company**

**They are transitioning their data warehouse to AWS for analysis**

**The data warehouse would need to support up to 2 PB of data**

**Which approach would you recommend for Jennifer?**

**Solution: Amazon Redshift**

## Scenario 2



**Sam is a DevOps engineer at a tech company**

**Sam needs to launch a MySQL database for a new web application**

**They need to have direct access to the virtual server that MySQL is running on**

**What approach would you recommend for Sam's company?**

**Solution: EC2 (this is a tricky question)**



## Scenario 3



**Frank is the CTO at a gaming company**

**They are trying to determine how to store realtime user analytics**

**They need low latency and the ability to scale to handle up to 1 million players**

**Frank wants to minimize the amount of time it takes to maintain the DB**

**Which AWS approach would you recommend for Frank?**

**Solution: DynamoDB**