

Database Services and Utilities



David Tucker

CTO Consultant

@_davidtucker_ | davidtucker.net

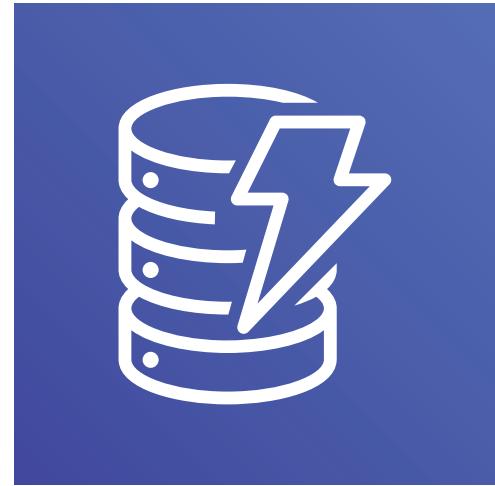
AWS Databases & Related Services



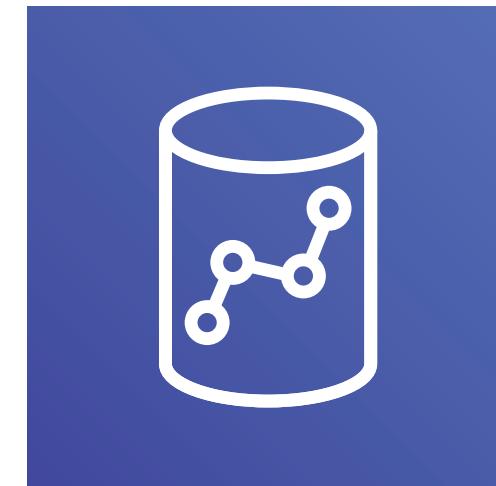
Amazon RDS



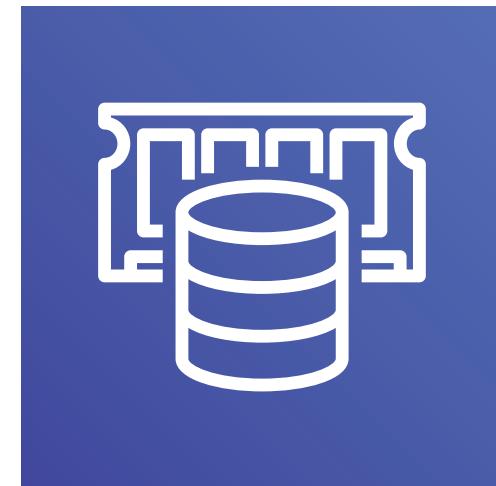
Amazon Aurora



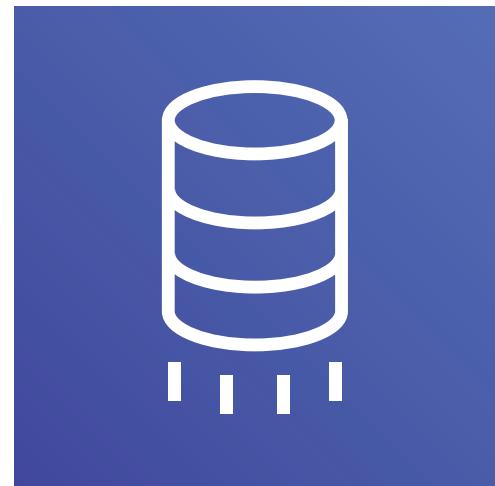
Amazon DynamoDB



Amazon Redshift

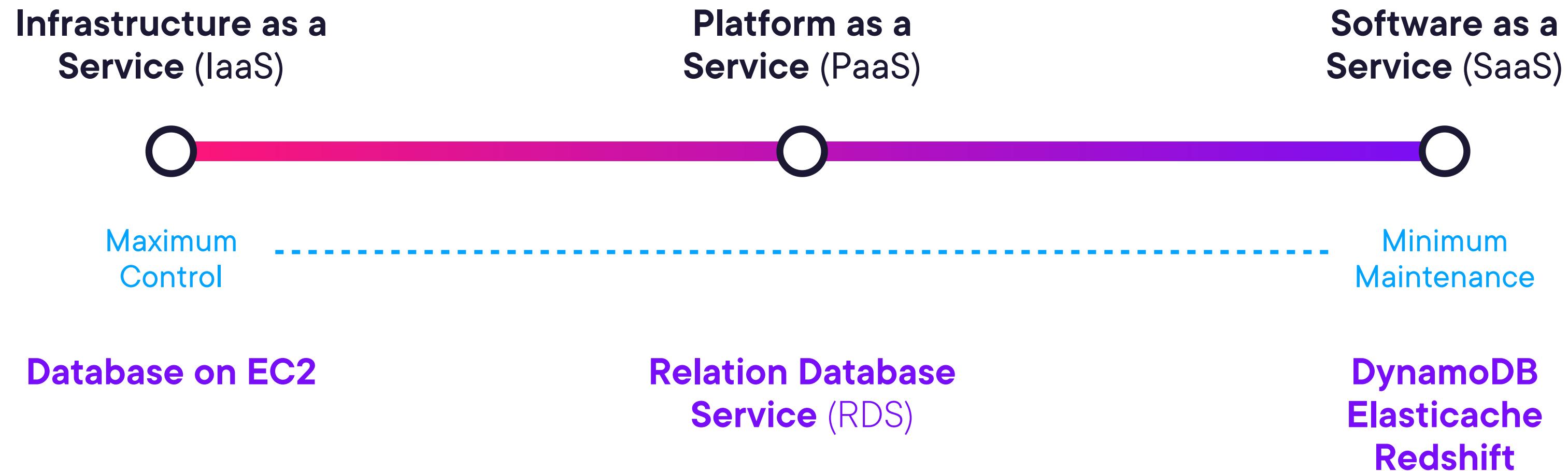


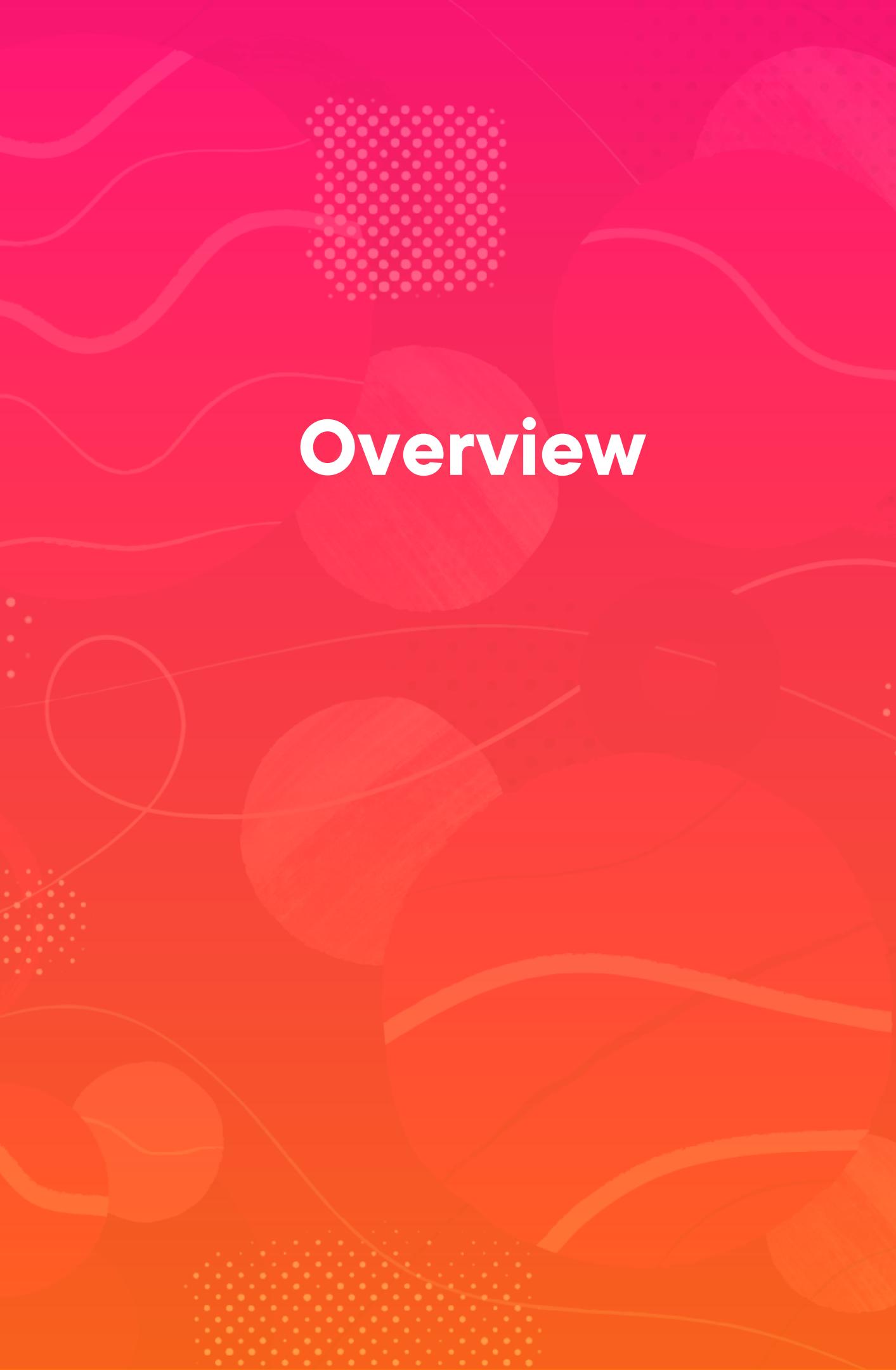
Amazon ElastiCache



AWS Database
Migration Service

Cloud Computing Models





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

Amazon 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

MySQL
PostgreSQL
MariaDB
Oracle Database
SQL Server
Amazon Aurora

Amazon RDS Platforms

Amazon Web Services

“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 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

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.”

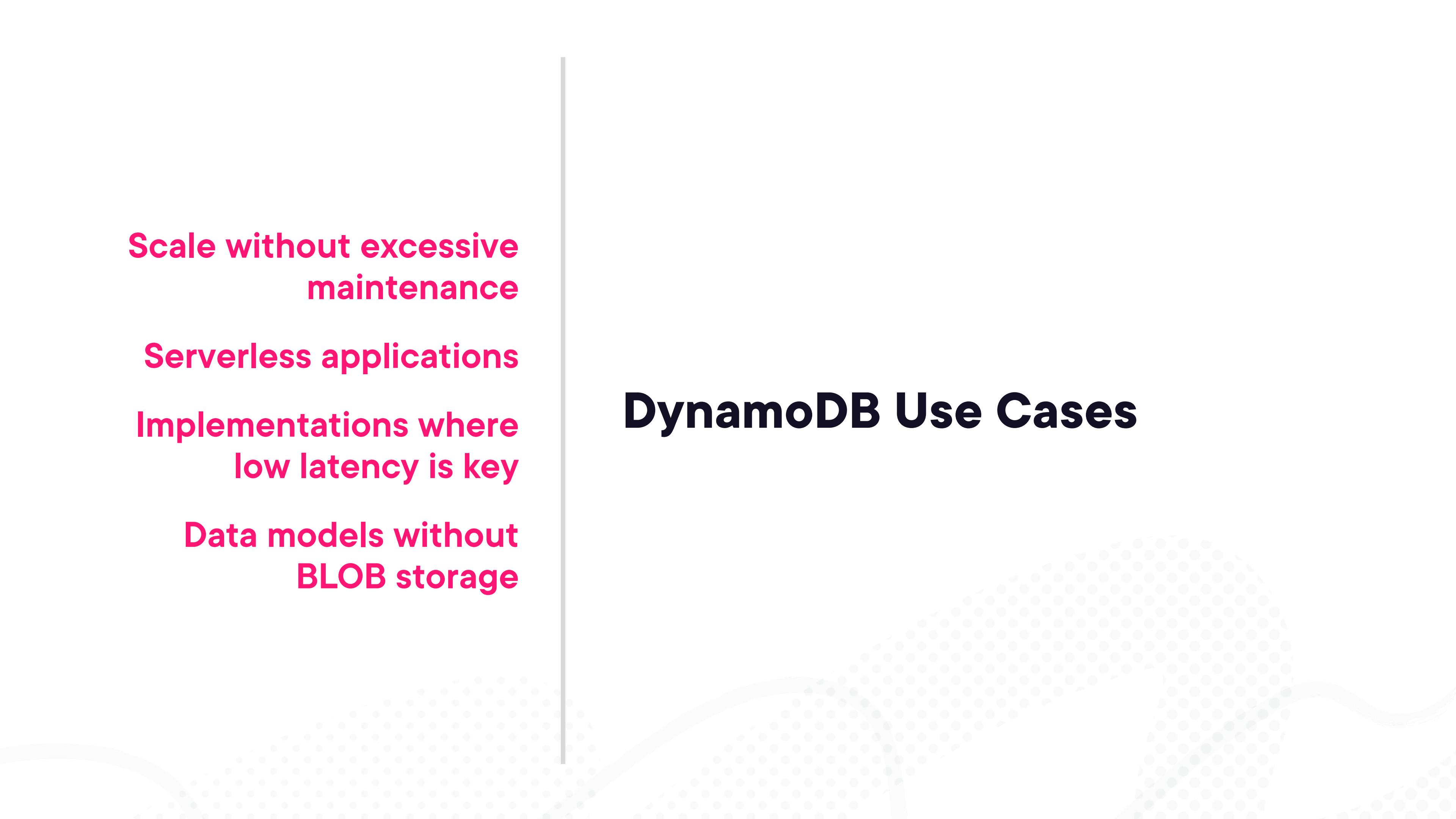
**Scale without excessive
maintenance**

Serverless applications

**Implementations where
low latency is key**

**Data models without
BLOB storage**

DynamoDB Use Cases





Amazon ElastiCache & Redshift

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

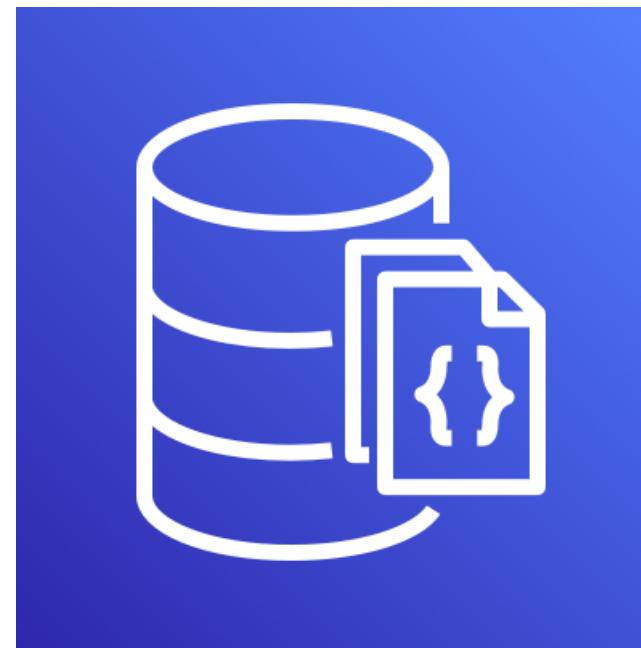
Provides isolation with a VPC

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



Additional Database Services

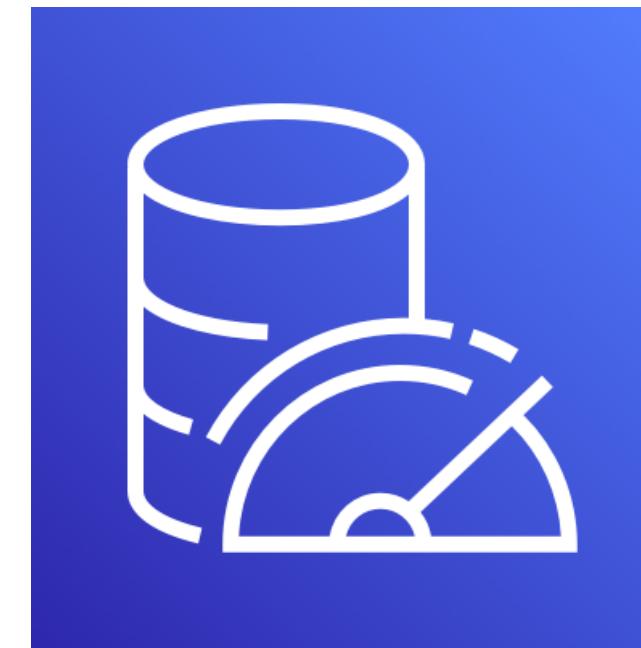
Additional Database Services



DocumentDB
MongoDB
compatible
database



Neptune
Managed graph
database
service



MemoryDB
Redis compatible
in-memory
database



Timestream
Serverless time
series database
service

Use Cases

Amazon DocumentDB is ideal for organizations running some MongoDB workloads on AWS

Amazon Neptune is ideal for mapping relationships between data points

Amazon MemoryDB for Redis is ideal for a fast in-memory primary database

Amazon Timestream is ideal for storing and retrieving time series data points



Scenario Based Review

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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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



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realtime user analytics**

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**Frank wants to minimize the amount of time it
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**Which AWS approach would you recommend
for Frank?**

Solution: DynamoDB