Database Service

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AWS Primary Database Options:

In the world of databases, there are two main categories:

(1) ***Relational Databases*** know as "***SQL***"
(2) ***Non-Relational Databases*** known as "***NoSQL***"

Amazon offers services for both types of databases:

RDS for SQL databases
and
DynamoDB for NoSQL databases

RDS

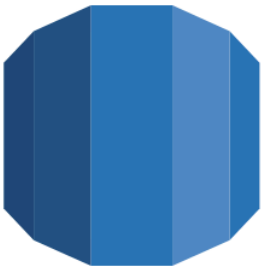
DynamoDB

What is RDS?

Simplified Definition:
Relational Database Service (RDS) is a ***SQL database service*** that provides a wide range of SQL database options to select from.

SQL Options Include:
(1) Amazon Aurora
(2) MySQL
(3) MariaDB
(4) PostgreSQL
(5) Oracle (several Oracle options are available)
(6) Microsoft SQLServer (several Microsoft options are available)

AWS Definition:
"Amazon Relational Database Service (Amazon RDS) is a web service that makes it easier to set up, operate, and scale a relational database in the cloud. It provides ***cost-efficient***, ***resizeable capacity*** while automating time-consuming administration tasks such as hardware provisioning, database setup, patching and backups. It frees you to focus on your applications so you can give them the fast performance, high availability, security and compatibility they need.



RDS

What is DynamoDB?

Simplified Definition:
DynamoDB is a ***NoSQL database service***. Unlike RDS, DynamoDB does NOT provide other NoSQL software options.

DymanoDB can replace (or is very similar to):
(1) MongoDB
(2) Cassandra DB
(3) Oracle NoSQL

AWS Definition:
"Amazon DynamoDB is a fast and flexible ***NoSQL database service*** for all applications that need ***consistent, single-digit millisecond latency at any scale***. It is a fully managed cloud database and supports both document and key-value store models. Its flexible data model, reliable performance, and automatic scaling of throughput capacity, makes it a great fit for mobile, web, gaming, ad tech, IoT, and many other applications."

DynamoDB

What is the Difference?

RDS (SQL)

(1) Stores related data in tables (using columns and rows).

(2) Typically used for very structured data, such as contact lists.

DynamoDB (NOSQL)

(1) Stores related data in JSON-like, name-value documents.

(2) Typically used for non-structured data such as cataloging documents.

What is the Difference/Benefits?

RDS:

(1) For when you need a SQL database option.
(2) Easy to set up, highly available, fault-tolerant, and scalable,
(3) Used when data is clearly defined.
(4) Common use cases include online stores and banking systems.

DynamoDB:

(1) For when you need a NoSQL database option.

(2) Fast, highly scalable, and fully-managed.
(3) Used when data is fluid and can change.
(4) Common use cases include social networks, web analytics.

What is ElastiCache?

Simplified Definition:
ElastiCache is a data caching service used to help improve speed/performance of web applications running on AWS.

AWS Definition:
"Amazon ElastiCache is a web service that makes it easy to deploy, operate, and scale an in-memory data store or cache in the cloud. The service improves the performance of web applications by allowing you to retrieve information from fast, managed, secure in-memory data stores, instead of relying entirely on slower disk-based databases. Amazon ElastiCache supports two open-source in-memory engines."

Redis: A fast, open source, in-memory data store and cache
MemcacheD: a widely adopted memory object caching system.

ElastiCache

What is RedShift?

Simplified Definition:
Redshift is a ***data warehouse*** database service designed to handle ***petabytes*** of data for analysis.

AWS Definition:
"Amazon Redshift is a fast, ***fully managed data warehouse*** that makes it simple and cost-effective to analyze all your data using standard SQL and your existing Business Intelligence (BI) tools. It allows you to ***run complex analytic queries against petabytes of structured data***, using sophisticated query optimization, columnar storage on high-performance local disks, and massively parallel query execution."

RedShift

What is the major difference between AWS's RDS and DynamoDB database services?

- RDS offers NoSQL database options, and DynamoDB offers SQL database options.

- RDS offers on SQL database option, and DynamoDB offers many NoSQL database options.
- **RDS offers SQL database options, and DynamoDB offers a NoSQL database option.**
- None of the above