

Database

A database is a data-store that stores sem-structured and strucuted data.

A database is more complex data stores because it required using formal design and modeling techniques.

Two types-

- Rational database
- Non rational database

What is data warehouse-vA relational datastore designed for analytic workloads, which is generally column-oriented data-store

Data Warehouse generally perform aggregation:

Aggregation is a grouping data eg find a total or average

Data warehouse are optimized around columns since they need to quickly aggerate column data

Data warehouses are generally designed be HOT

HOT means they can return queries very fast even though they have vast amount of data.

Data warehouse are infrequently accessed meaning the aren't intended for rea time reporting but maybe once or twice a day or once a week

What is a key-value store

A key-value database is a type of no-relational database that uses a simple key-value method to store data.

Key values stores are dumb and fast.

What is a document store

A document store is a NOSQL database that stores documents as its primary data structure. A document can be XML but more commonly is JSON or JSON-LIKE document stores are sub-class of key/values stores.

No SQL Database services

- DynamoDB-It is NoSQL key/value and document database. It is AWS flagship databased service meaning whenever we think of database service that just scales is cost effective and very fast we should think DynamoDB.
- DocumentDB is a NoSQL document database that is MongoDB compatible
- Amazon Kyespace is fully manages Apache Cassandra database.

Relational Database services

- Relational Database Services (RDS)- It support multiple SQL engines. -

Support the following SQL engine.

MySQL, MariaDB, PostgreSQL, Oracle, Microsoft SQL server, Aurora.

- Aurora is a full managed database of either MySQL (5x faster) and PSQL (3x faster) database. Wen you want a highly available durable, and secure relational database
- Aurora serverless is the serverless on-demand version of Aurora. When you want most of the benefits of Aurora but can trade to have cold-starts or you don't have lots of traffic demand.
- RDS on VMware allows you to deploy RDS supported engines to an on premise data center. The datacenter must be using VMware to server virtualization.

Other Databases service

- Redshift is a petabyte-size data warehouse. When you quickly generate analytics or reports from a large amount of data. They are expensive
- Elastic Cache is managed database of the in -memory and caching open sources database Redis or Memcached
- Neptune- is a managed graph database.
- Amazon timestreams- is a fully managed time series database.
- Amazon Quantum ledger database- It is a fully managed ledger database that provides transparent immutable and cryptographically variable transaction logs.
- Database migration services (DMS): is a database migration service,