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TRUE ENGINEER

MongoDB:

MongoDB is a document database with the scalability and flexibility that you want with the querying and indexing that you need.

- MongoDB stores data in flexible, JSON-like documents.
- The document model maps to the objects in your application code, making data easy to work with.
- MongoDB is a distributed database at its core, so high availability, horizontal scaling, and geographic distribution are built in and easy to use.
- MongoDB's document model is simple for developers to learn and use, while still providing all the capabilities needed to meet the most complex requirements at any scale.



Need to run MongoDB?

- High availability through built-in replication and failover.
- Horizontal scalability with native sharding.
- End-to-end security.
- Management tooling for automation, monitoring, and backup.
- Fully elastic database as a service with built-in best practices



What is CRUD in MongoDB?

CRUD operations describe the conventions of a user-interface that let users view, search, and modify parts of the database.

- The Create operation is used to insert new documents in the MongoDB database.
- The Read operation is used to query a document in the database.
- The Update operation is used to modify existing documents in the database.
- The Delete operation is used to remove documents in the database.



1. Create :

MongoDB provides two different create operations that you can use to insert documents into a collection:

- db.collection.insertOne()
- db.collection.insertMany()

Note : A collection is the equivalent of a table in a relational database system



2 . Read :

MongoDB has two methods of reading documents from a collection:

- db.collection.find()
- db.collection.findOne()

Note : A collection is the equivalent of a table in a relational database system



3. Update:

For MongoDB CRUD, there are three different methods of updating documents:

- db.collection.updateOne()
- db.collection.updateMany()
- db.collection.replaceOne()

Note : A collection is the equivalent of a table in a relational database system



4. Delete:

MongoDB has two different methods of deleting records from a collection:

- db.collection.deleteOne()
- db.collection.deleteMany()

Note : A collection is the equivalent of a table in a relational database system



What is MongoDB Sharding?

Sharding is a method for distributing or partitioning data across multiple machines.



It is useful when no single machine can handle large modern-day workloads, by allowing you to scale horizontally.

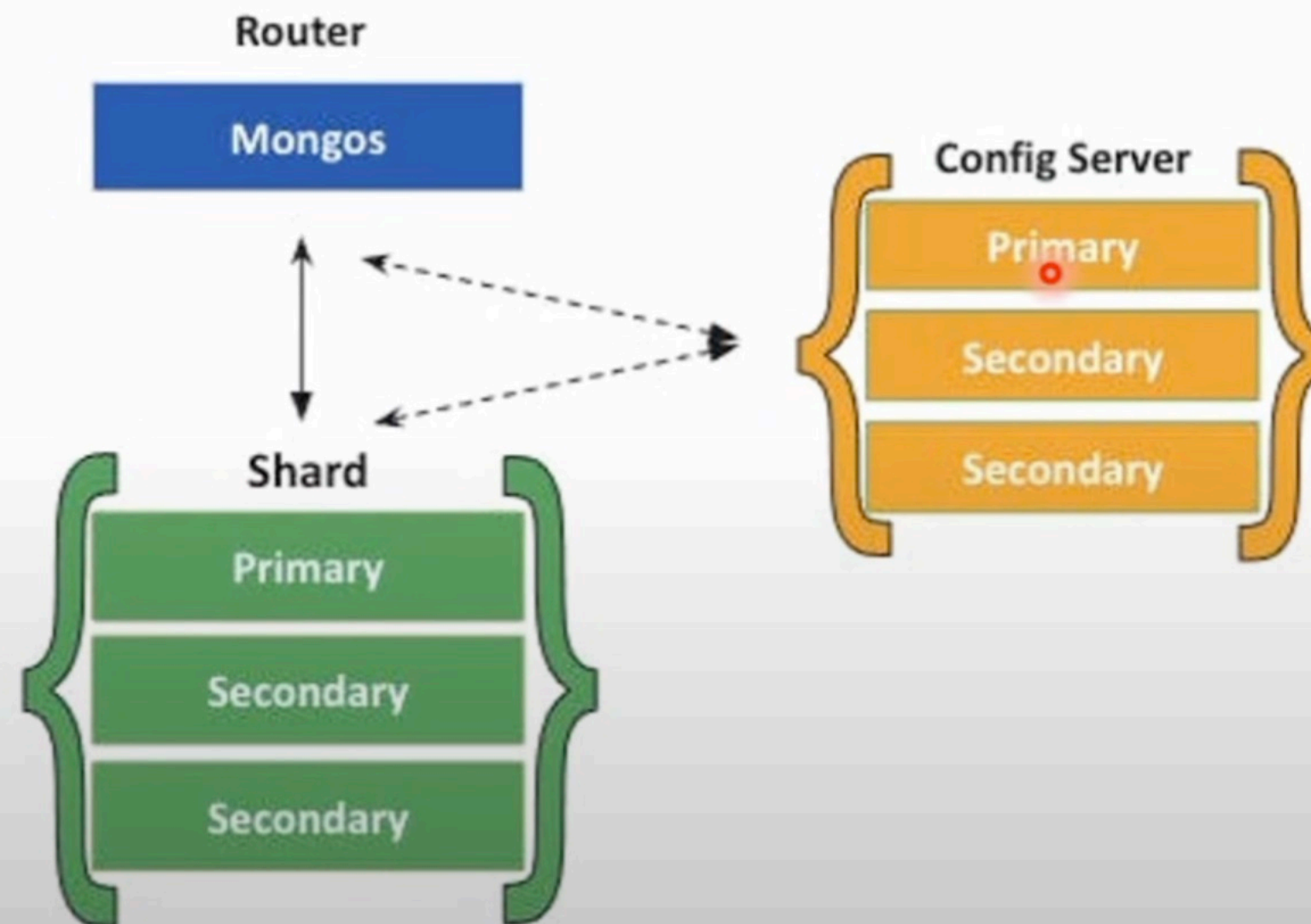
Horizontal scaling, also known as scale-out, refers to adding machines to share the data set and load. Horizontal scaling allows for near-limitless scaling to handle big data and intense workloads.



Sharding Architecture

In MongoDB, a sharded cluster consists of:

- Shards
- Mongos
- Config servers





A shard is a replica set that contains a subset of the cluster's data.

The mongos acts as a query router for client applications, handling both read and write operations. It dispatches client requests to the relevant shards and aggregates the result from shards into a consistent client response.

Clients connect to a mongos, not to individual shards.

Config servers are the authoritative source of sharding metadata. The sharding metadata reflects the state and organization of the sharded data. The metadata contains the list of sharded collections, routing information, etc.

