**Configuration of a NoSQL Database with Sharded Read Requests and Eventual Consistency**

Level 1:

Sharding is a process of dividing a larger part into smaller parts.

Here part means the data present in database. When there are a multiple clients tried to do CRUD applications . This eventually slows doen the application . sharding not only reduces data it reduces latency as we can use different shard simultaneously without any problem. It avoids total service outrage as a shard replica will be created . Also it stores data vertically instead of horizontally , also we can add shards at runtime. All shards can have the same schema.

The shard which contains data is called the logical shard and shard which contains the logical shard is called physical shard.

Above these physical shards we have software layer which helps us in accessing the different physical shard and each physical shard work independently.

TYPES OF SHARDING:

1. Range based sharding
2. Hashed sharding
3. Geo sharding
4. Directory sharding

Range based sharding:

**Range sharding** in **MongoDB**is a**sharding strategy** where data is partitioned and distributed across shards based on a specified range of values from a shard key.This approach is useful when data can be logically partitioned into ranges, such as by**date, numerical values** or **alphabetical**ranges.

Hashed sharding:

Hashed sharding is a technique used in distributed databases to distribute data across multiple servers or nodes. It involves applying a hash function to a data item’s key (e.g., user ID, document ID) to determine which shard (or partition) the data should be stored in

Eventual consistency

Eventual consistency is a consistency model used in distributed systems to ensure that, given enough time, all replicas of a piece of data will converge to the same value. It is commonly used in distributed databases and systems where high availability and scalability are prioritized over immediate consistency

Resources used:

<https://youtu.be/XP98YCr-iXQ?si=jIypV5AA8VJMrOXU>

<https://www.geeksforgeeks.org/what-is-sharding/>

<https://www.geeksforgeeks.org/ranged-sharding-in-mongodb/>

<https://www.geeksforgeeks.org/hashed-sharding-in-mongodb/>

[Sharding - MongoDB Manual v7.0](https://www.mongodb.com/docs/manual/sharding/)

<https://aws.amazon.com/what-is/database-sharding/>