**Discussion 8.1 – Replication**

Patrick Cuauro

Bellevue University

WEB 335-307O Introduction to NoSQL

Professor Krasso

July 11, 2023

## What are replica sets?

Replication is a way of keeping identical copies of your data on multiple servers and is recommended for all production deployments. Replication keeps your application running and your database safe, even if something happens to one or more of your servers.

## How do replica set members replicate new data?

MongoDB uses replica sets to achieve replication. A MongoDB replica set is a collection of MongoDB instances that all store identical data. One node is the primary node in a replica, and it gets all write operations. All other instances, such as secondaries, use the primary’s actions to ensure they have the same data set. There can only be one primary node in a replica set.

## What does the term failover mean in databases?

Failover is term used to describe the capacity of change the management of replicas when one of them fails somehow, changing to another replica. There is a feature in MongoDB to perform this action automatically if selected.

## What does the term rollbacks mean in databases?

A rollback is the operation of restoring a database to a previous state by canceling a specific transaction or transaction set. Rollbacks are either performed automatically by database systems or manually by users.

## How are failovers and rollbacks managed in MongoDB?

A rollback reverts write operations on a former primary when the member rejoins its replica set after a failover. A rollback is necessary only if the primary had accepted write operations that the secondaries had not successfully replicated before the primary stepped down. When the primary rejoins the set as a secondary, it reverts, or "rolls back," its write operations to maintain database consistency with the other members.

MongoDB attempts to avoid rollbacks, which should be rare. When a rollback does occur, it is often the result of a network partition. Secondaries that cannot keep up with the throughput of operations on the former primary, increase the size and impact of the rollback.

A rollback does not occur if the write operations replicate to another member of the replica set before the primary steps down and if that member remains available and accessible to a majority of the replica set.

Sources:

* MongoDB: The Definitive Guide, Chodorow
* MongoDB manual: <https://www.mongodb.com/docs/manual/core/replica-set-rollbacks/>