Module 6 – Scalability and Availability

Case Study - 2

Business Requirement

You are working on Contract for a Grocery Store Company which is in middle east. Your expertise is needed to help them in designing their product catalog store. Products are in millions and your task is to design scalable catalog system.

In previous case study, you set up cluster configuration of Mongo DB which consisted 1 Primary and 2 Secondary nodes. Where Primary is responsible for writing of any data to Mongo. Secondary is responsible for reading data.

When any of the node goes down, elections happen, which promote any of the replica to Primary. You also have seen when majority of nodes are down, there won't be any election and Primary won't be elected and if Primary is there it will be converted to Secondary node.

Due to above issue, all write will stop and only read will happen. One solution is we can add more replicas but then replica will have data and that will lead to again synchronization among nodes.

To avoid creating redundant replicas you have to come up with another solution where we can have replicas but number of replicas should be according to our application needs.

For example:

3 nodes: 1 Primary & 2 Secondary:
1. If 2 of the node goes down which is majority of nodes then there won't be any write.
2. If one of the node goes down, election will happen and one will be promoted to Primary and other secondary
3. Every time we should have N/2 + 1 nodes alive because we need majority of votes for election.

Key issues

Synchronization and replication among replicas and Between Primary and Secondary. There are various types of algorithms which tell us what kind of replication you need. [Sync / Async]

Considerations

You have been given various attributes of a Product.

1. PogId
2. Supc
3. Brand
4. Description
5. Size
6. Category
7. Sub Category
8. Price

9. Quantity
10. Country
11. Seller Code
12. Creation time
13. Stock

Data Volume
1 million products

Business Benefits
If catalog is more scalable then more and more vendors can be on boarded which will results in varieties of products with different prices. Customer will have more choices and chance to purchase from Grocery Store.