Database Copy 3

Database Copy 2

Database Copy 1

Database Mapper

Server 3

Server 2

Server 1

Load Balancer

**Load Balancer:**

Load Balancer will distribute the load across different hosts. Thus increasing availability and scalability of the application.

**Server 1 & Server 2 & Server 3:**

Web Services are deployed on these servers. They serve request from load balancer and call the database to read and write the data to the database.

**Database Mapper:**

This database mapper serves requests for the application servers and perform all CRUD operations on database.

In this mapper we will have two different workflows. One is synchronous and other asynchronous.

Synchronous calls happen between application servers and database to perform CRUD operations and return the response.

Asynchronous calls happen only between database mapper and databases to perform write operations on different data centers.

**For write operations:** Locks the customer Id that needs to be updated. Synchronous workflow updates the data in one of the databases and returns the success message back to the application server and then asynchronous workflow will eventually copy the data to all the other data centers and then release the lock for the customer Id.

**For Strong Consistent Read operations:**  Checks if the customer Id is locked. If yes, wait till the lock is released and then read data from the database.

**For Eventually Consistent Read operations:** Doesn’t look for lock. Directly reads the data from the database.

**Database Copy1 & Database Copy2 & Database Copy3:**

Maintain copies of data in different data centers across different locations. Thus increasing the availability of data and scalability. These databases are handled by the database mapper for all the data requests from the application servers.