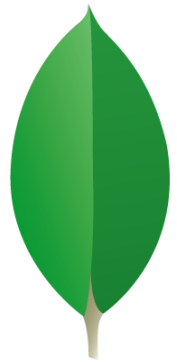
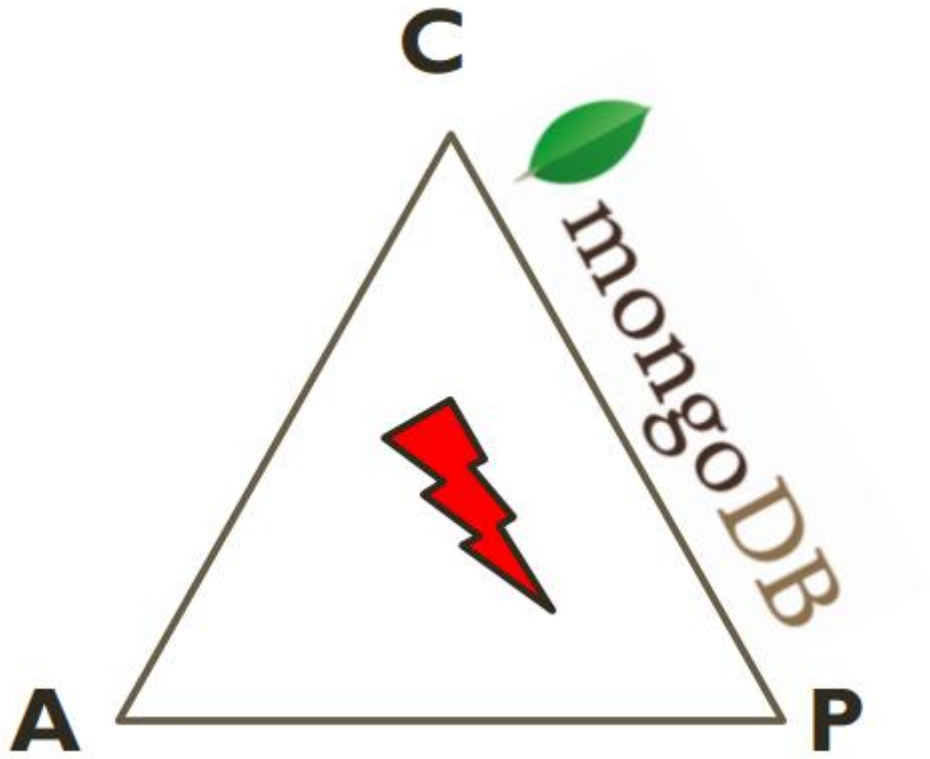
MongoDB



Partition Tolerance



http://www.ccs.neu.edu/home/kathleen/classes/cs3200/20-NoSQLMongoDB.pdf

Consistency

- MongoDB is ACID compliant at document level.
- One or more fields may be written in single operation.
- Complete Isolation when a document is written – any errors will rollback.
- **Write Concern?**
- MongoDB returns acknowledges to the client in the form of exceptions and duplicate key.
- Its upto the Developer to handle the “write concern” to configure commit.
- Customizable durability goals: writing to atleast 2 replicas in on data center and one replica in a second data center.

Availability

- **Replication:**
- MongoDB maintains multiple copies of data called replica sets using native replication.
- A replica set is fully self healing shard and can be used to scale read operations.
- Replica failover is fully automated, administrator not required to intervene manually.

- One Primary Replica Member
- Multiple Secondary Replica Members
- MongoDB is strongly consistent by default.
- Reads and Writes are issued to the primary copy of the data.
- If primary fails for any reason, secondary member is automatically elected.

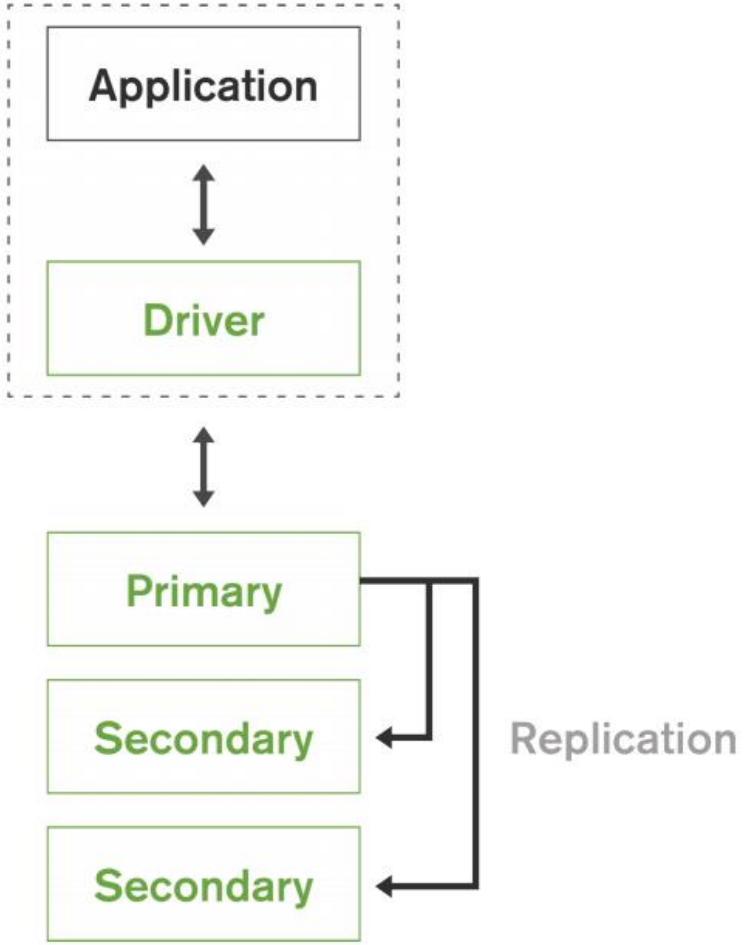


Figure 8: Self-Healing MongoDB Replica Sets for High Availability

http://s3.amazonaws.com/info-mongodb-com/MongoDB_Architecture_Guide.pdf

- How does MongoDB solve the issue concerning CAP?
- Write Concern?
  - Lets you choose when was a write successful. Acknowledges like,
    - error ignored.
    - How many nodes must have write acknowledged.
    - Write Quorum
- Read Preferences:
  - Allows you to choose where to read from.
    - Master / Slave

- Write concerns can be used to enforce different levels of consistency in cluster.
- You can choose how many nodes the data is stored in.
- If the number of nodes available is < no of nodes where data has to be stored, the write fails.
- Read preferences can be used to choose which node data should be read from.
- If you choose master, then you will always get the latest update.

- http://jandiandme.blogspot.de/2013/06/mongodb-and-cap-theorem.html
- http://stackoverflow.com/questions/7339374/nosql-what-does-it-mean-for-mongodb-or-bigtable-to-not-always-be-available