* CRUD in Couch DB

- We can execute each operation in Fauxton or using REST
- Fauxton is a nice graphical interface
- Almost all need access to couchDB happen using HTTP / REST
- In our example we will be using cURL.
  - cURL is a utility that allows us to send and Receive raw HTTP req and res.
- Throughout [redacted], you will need to adjust the commands to match if you are connecting to your local installation of couchDB or to our shared CouchDB server

* Manage Buckets

- Couchbase buckets, used to store data, can be created, edited, flushed and deleted; by means of couchbase web console, the CLI and the REST API.
- A maximum of 30 buckets can be created per cluster.

* types of Bucket :-

I) Couchbase buckets :-

- These store data persistently, as well as in memory.
- They allow data to be automatically replicated for high availability, using the Database Change Protocol (DCP);
- If a couchbase bucket's RAM quota is exceeded, items are ejected.
- This means that data, which is resident both in memory and on disk, is removed from memory but not from disk.
- Therefore, if removed data is subsequently needed, it is reloaded into memory form disk.
- Value-only :- Only key-values are removed. Generally, this favors performance at the expense of memory.
- Full :- All data :- including keys, key-values, and metadata is removed.

2) Ephemeral buckets :-

- These are an alternative to couch base buckets, to be used whenever persistence is not required.

example

- when repeated disk-access involves too much overhead.
- This allows highly consistent in-memory performance, without disk-based fluctuations.
- It also allows faster node rebalances and restarts.

3) Memcached buckets :-

- These are now deprecated.
- Memcached buckets are designed to be used alongside other database platforms, such as ones employing relational database technology.

Capability	Memcached	Couchbase	Ephemeral
Item size limit	1 MB	20 MB	20 Mb
Persistence (Disk)	No	Yes	Yes
Replication (DCP)	No	Yes	Yes
Cross Datacenter Replication	No	Yes	Yes
Rebalance (Online)	No	Yes	Yes
Encrypted data access	Yes	Yes	Yes
Durability (Guarantees)	No	Yes, including persistence	Yes, excluding persistence
TTL	Yes	Yes	Yes
Bucket TTL	No	Yes	Yes
Data Compression	No	Yes	Yes
Backup	No	Yes	Yes
Query	No	Yes	Yes
Search	No	Yes	Yes
Analytics	No	Yes	Yes
Eventing	No	Yes	Yes
Map-reduce views	No	Yes	No

XDCR – Cross Data center Replication

- This provides protection against data center failure, and also provides high-performance duty-access for globally distributed, mission-critical applications.

TTL – Transistor-transistor logic

- Sort for time-to-live.
- TTL was developed by Texas Instruments in 1965.
- A TTL is a common digital circuit where the output is output is derived from two transistors.
- TTL is a value specified in every packet transmitted on the internet according to the Internet Protocol.

* Memory and Storage

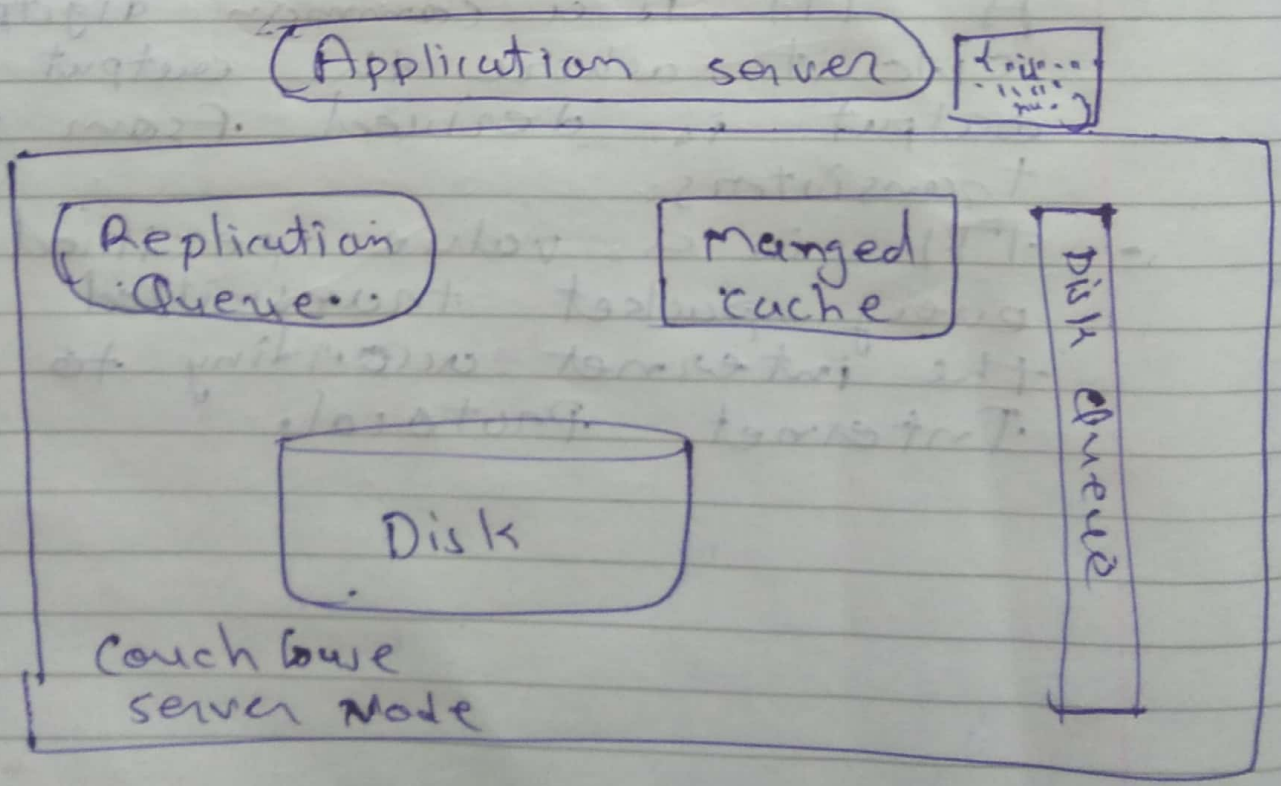
* Caching and Persistence

- Couchbase server provides a fully integrated caching layer, which provides high-speed data access.

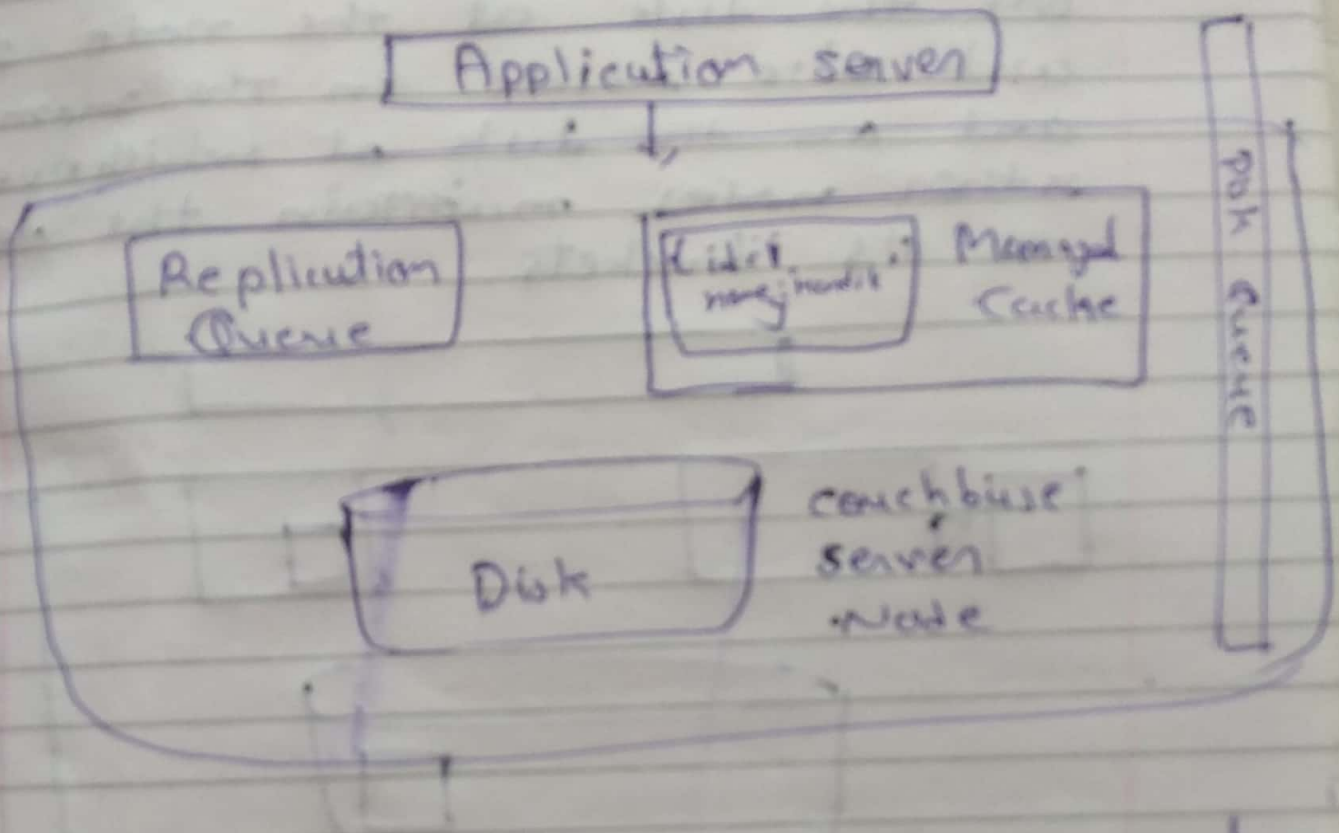
- Couchbase server automatically manages the caching layer, ensuring that sufficient memory is available in relation to occupied disk-space, in order to maintain optimal performance.

* Saving Data

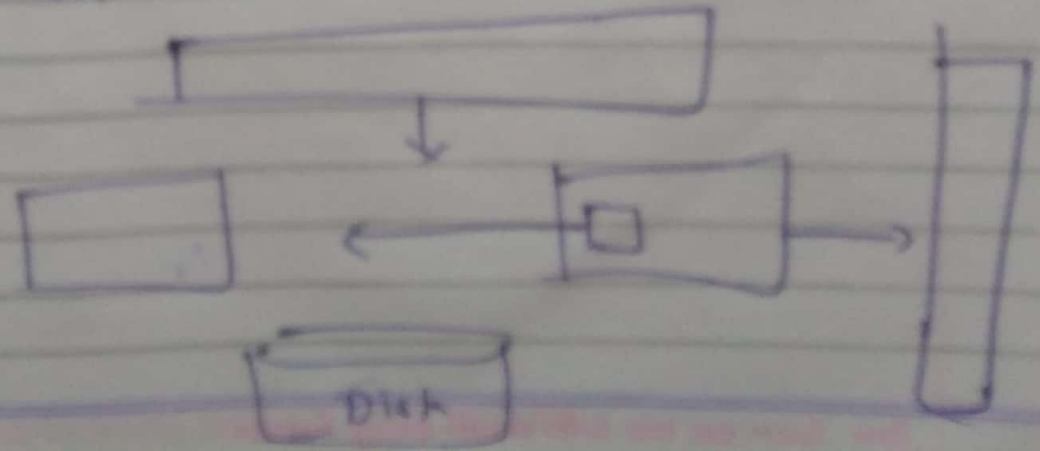
1. The application creates a new document.



2. The application saves the document on couchbase server. The document is received in memory.



3. Couchbase Server places a compressed copy of the document onto the Disk Queue so that the document can be written to the disk;
- and a further copy onto the replication Queue, so that the document can be written to the replica bucket.



4. Once written, the new document resides both in the memory and on the disk at the node. It will also reside in the memory and on the disk at whichever other nodes maintain the replicas at its buckets.