Zhichen Liu

HomeWork2

Memcached:

Memcahced is an open source, distributed memory object caching system. It's used to speed up dynamic web applications by reducing the database load. It caches the data or object in memory to reduce calling the database API. It stores data based on key-value pair for strings or objects.

Memcached vs. Redis:

Common:

- Both store data in memory
- Both key-value NoSQL data store.
- Both are open sourced.

Different:

Memcached	Redis
String	String, Hash, List, Set, Sorted Set
No persistence	Use RDB and AOD to persistence to disk
Support key size up to 250 bytes, value by default to 1MB	Both key and values can be up to 512MB
Only use LRU (least recently used) to evict data	Support many ways to evict data: LRU, No eviction, Volatile time to live.
Does not support replication	Support Master – slave replication
Not supporting cluster	Redis cluster

Vertical scaling vs. horizontal scaling

When talking about scaling, it's usually the computer runs out hardware resource that cause the application can no longer handle additional requests. To add more computing resources to the infrastructure, we could use horizontal or vertical scaling.

Horizontal scaling is when we add more computer or machines to the pool of resource. We could add more computers to our server for more resources, but since we are making to smaller pieces, we might have to modify the logic.

Vertical scaling is we add more power to our existing machine such as CPU and RAM. Since it's still on the same machine, there won't be any logic change.

Hierarchical data store / Hierarchical database

It is a model that data are stored into a tree-like structure or parent-child structure. The parent node can have multiple child nodes that are connected using links, and each child node can only have one parent node. Data is stored as records but linked in a tree-like structure with the help of a parent and level.

BASE

Basically Available (BA): the system does guarantee availability.

Soft State(S): the state of the system may change over time, even without input.

Eventually consistent: the system will become consistent over time, given that the system doesn't receive input during that time.

View:

A view is a virtual table based on the result-set of an SQL statement. A view contains rows and columns, just like a real table. The fields in a view are fields from one or more real tables in the database.

Stored procedure

A stored procedure is a set of sql statements with an assigned name. This set of sql statements are stored in RDBMS as a group, so it can be used and shared by multiple programs. So if you have a set of sql statements that you use them very often, just save them as a store procedure. And then call and execute it. Stored procedures can also accept parameters.