The pros and cons of the Sharding architecture pattern

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Having a grasp of common architectural patterns is essential to designing software architecture at scale. Using them saves not only time but also ensures a reliable implementation of your design. There?s no need to reinvent the wheel when there?s an architectural pattern available that applies to an architecture you?re developing.

The following is a brief overview of the Sharding architectural pattern.

The Sharding pattern is when a datastore is separated from a single storage instance into multiple instances called shards. Data is then divided according to some form of sharing logic. Queries are executed against the shards. It?s up to the database technology implementing the shards to perform the queries in an optimized manner.

One type of sharding logic is when database administrators (DBAs) segment data according to values in a particular field in the database. An example of such separation is dividing data among the shards according to the first letters of the last name.

Another type of sharding separates data according to a segmentation logic that ensures that disk capacity is consumed equally among all instances.

Pros

Cons

Separating data using the Sharding pattern is well suited to large distributed applications. Large enterprise applications depend on fast data access. Logically segmenting data according to a data table?s key or a database?s storage capabilities executes queries with a fine grain of precision. Searching for data according to shard is faster. Also, scaling becomes more efficient.

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