ABSTRACT

Scalability in database system is refers to ability of system to handle the growth of data and handle load of traffic. One of method used to support scalability in database system is horizontal partitioning. Partitioning is a method used to split the data into several parts and saved them into separate machines independently. The term commonly used to partition the data horizontally is sharding. Sharding can be used to split up the collection in database into separate servers. Ideally, sharding method can maintain system performance if there an overload of data and traffic.

At this final project, it will be tested the performance of sharding on document-oriented database. Database model used in this testing is mongodb. Mongodb is non-relational database which document-oriented and support to an auto sharding process.

The results of this testing show that the throughput of update, find, and delete operation generated by mongodb with sharding has more throughput than mongodb without sharding, there are 10% for update operation, 146% for find operation, and 192% for delete operation. Whereas, for insert operation mongodb with sharding has less throughput that is 39% than mongodb without sharding. The selection of appropriate shard-key can increase the effectiveness of the query.

Keywords : Database, Document-oriented database, Mongodb, Sharding, partitioning