

Toward Energy-efficient and Fault-tolerant Consistent Hashing based Data Store

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Consistent hashing based data store system offers better scalability and manageability comparing to traditional parallel file systems. We identify two limitations of existing consistent hashing based data store: elasticity and data recovery cost. In this talk, we discuss two of our recent studies attempting to address these two limitations. In the first study, we adapt a primary-secondary data replication scheme into consistent hashing based store. It helps to achieve elasticity in data store so that it is possible to turn on/off storage nodes to reduce power consumption without significant impact to performance. In the second study, we consider that the self-healing in consistent hashing based store is too costly. We adopt the primary-secondary data replication scheme so that self-healing can be delayed to avoid performance interference. Our analysis and evaluation results indicate that our design works as intended.

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