

D-Tunes: Configuration Engine for Geo-Replicated Cloud Storage

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When developing a web-based application, developers are facing stringent requirements to balance the latency, scalability and availability for their cloud database. Application developers need a specific replication configuration strategy based on the requirement of their application. To deal with this problem, some geo-replicated cloud strategy systems have emerged recently, like Cassandra. This project serves to design a web tool that can help configure the best replication strategies for geo-distributed data stores, which uses quorum-based protocols. Currently, our web tool D-Tunes, require a minimum input from users and generate specific scripts based on the inputs user provided. The program running these scripts can output a text result and also map a figure showing the recommended replication strategy. The results of D-Tunes recommend the best replication strategies including the number of replicas, the location of replicas and read/write quorum size. Our web-tool also generates the applicable strategy, which is a simulation of the real experiment on EC2 and Probe test-bed with Cassandra system. In conclusion, this project has successfully provides cloud application developers a strategy of data-store configuration and has contributes to the ongoing research on cloud computing for Cassandra based solution.