Determining Appropriate Cache-size for Cost-effective Cloud Database Queries

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Abstract

Retrieving results from the cache is one of the prominent techniques to improve the query response time and reducing load on the back-end database servers. One of the important factors that influences the performance of cache system the most, is the size of the cache. In cloud-based systems, memory is scalable and hence, size of the cache is not a critical issue. However, when the cache is overpopulated with queries and their results, in that case, the query response time increases. This is due to the fact that time for searching the cache for the desired results increases. In this paper, an appropriate cache size is calculated in terms of the number of queries, for the database-size under consideration.

This paper also describes the set-up of Virtual Machine Creation (VMC) cloud, using Cloud Virtual Machine Creation (CVMC) algorithm. This facilitates the deployment of database in cloud-based systems. An appropriate cache-size for cloud-based system is determined through experimentation using Apache HBase.
References

18. B. J. Sandmann 2014. Implementation of a Segmented, Transactional Database Caching System. Journal of Undergraduate Research at Minnesota State University, Mankato,
Index Terms

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Keywords

Caching, NoSQL datastores, NoSQL database, HBase, Cache-size, Cloud-based systems, cloud datastores, Query Response Time