Accepted Manuscript

Handling Multi-Dimensional Complex Queries in Key-Value Data Stores

Yu Tang, Hailong Sun, Qi Wang, Xudong Liu

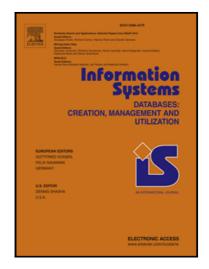
PII: S0306-4379(17)30097-2 DOI: 10.1016/j.is.2017.02.001

Reference: IS 1202

To appear in: Information Systems

Received date: 17 July 2014

Revised date: 19 December 2016 Accepted date: 3 February 2017



Please cite this article as: Yu Tang, Hailong Sun, Qi Wang, Xudong Liu, Handling Multi-Dimensional Complex Queries in Key-Value Data Stores, *Information Systems* (2017), doi: 10.1016/j.is.2017.02.001

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Highlights

- We propose SP-Index, a two-level indexing scheme, to support efficient complex queries of large scale multi-dimensional datasets on the basis of the original pyramid index technique by reducing the number of data items to be scanned.
- We have designed and implemented SPIKE with SP-Index and demonstrate its replication and querying mechanisms. Besides, we have applied SPIKE to Cassandra to implement a practical key-value store that support efficient multi-dimensional complex queries.
- We have performed an extensive set of experiments based on synthetically generated datasets, TPC-H benchmark datasets and a real world dataset. The results show that SPIKE can achieve dozens of times better performance in comparison with existing indexing methods.
- We have discussed the application scenarios that SPIKE is suited for, and the limitations of the proposed approach.

Download English Version:

https://daneshyari.com/en/article/4945133

Download Persian Version:

https://daneshyari.com/article/4945133

<u>Daneshyari.com</u>