



# **An Efficient System for Safety and Consistency of Data Management in Scalable Transactions**

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**ABSTRACT:** Data management applications are potential credentials for deployment in scalable transactions. There are many consistency problems that can be occurred during data management process. Different organizations require data to be synchronized across application. Individual systems are usually consistent, but it is very difficult to achieve consistency across multiple systems. The data management between top level and bottom level stake holders has shown inconsistency in policies. This is the major reason for disagreement in policy conflict. It has been proposed several increasingly stringent levels of policy consistency constraints approaches have to guarantee the worthiness of applications in an organization. It has the provision of facilitating users to access their data at any time with the permission of authority. So it is necessary to improve the search experience of data. In the proposed system, the searching process over the application using single keyword and multi keyword is performed for getting better result.

**KEYWORDS:** Transactional database, Policy consistency, Single keyword search, Multi keyword search.

## **I. INTRODUCTION**

Scalable transactions provide scalability and high availability properties for applications, but at the same time they sacrifice consistency. To provide scalability and elasticity services offer may heavy use of replication to achieve consistent performance and availability [3]. When propagating data throughout the system, a weak consistency that allows data to be inconsistent among some replicas.

In systems, authorization policies that describe the conditions under which user should be permitted access to resources. Transactional database system use policy based authorization systems to protect sensitive resources. Transactional database systems also provide two types of security inconsistency conditions such as policy inconsistencies during policy updates and user credential inconsistencies that can emerge as transactional database system can be avoided through the concept of a trusted transaction [1]. A trusted transaction does not violate credential or policy inconsistencies over the life time of the transaction.

Considering the larger number of data users and document in the transactional database, it is necessary for the search services to meet effective data retrieval. The files are retrieved using a queried keyword instead of using a regular search. The queried keyword can be of two types. They are single keyword and multi keyword. In single keyword, the keyword consists of a single word. That means there is no white spaces are allowed in between the character [6]. In multi keyword, more than one word is used to search for a file. A multi keyword search scheme provides secure inner product computation and then improves to meet different privacy requirements.

## **II. RELATED WORKS**

A relaxed consistency model proposes a technique to the complexity of the design of large scale application and finds a set of consistency problems. It allows queries to express consistency and concurrency constraints [2]. It also introduces a dynamic consistency mechanism which automatically provides the level of consistency at run time. Security is considered one of the major obstacles to a wider adoption of scalable transactions. Particular attention has

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been given to user security as it relates to the proper handling of outsourced data. To protect user access patterns from a transactional database, [3] introduces a mechanism by which transaction users can issue encrypted reads, writes and inserts. Further, [4] a mechanism that enables untrusted service providers to support transaction serialization, backup, and recovery with full data confidentiality and correctness. Distributed authorization highlights the inconsistency issues that can arise in the case where authorization policies are static, but the credentials used to satisfy these policies may be revoked or altered. A protocol that enables various consistency guarantees to be enforced during the proof construction process to minimize these types of security issues. These consistency guarantees are similar to our notions of safe transactions.

The existing approaches focus on indexes and functions over the data values for selecting the appropriate tuples as results of queries. A keyword search system over transactional databases implementing based on three steps. The first step is to identify how the keywords in the query can correspond to the structural elements of the database. This first step is referred to as configurations. The second step is to identify the structure of the queries that can be formed from a given configuration and this step requires all the database elements discovered during the first step. The second step is referred to as interpretations. The last step is to decide which combination of keyword mappings into data structures and these combinations are referred as to explanations. The Boolean keyword search is the basic principles of single keyword search, without capturing any relevance of the files in the search result [7]. This method has a low quality in order to capture the relevance of data documents to the search query.

### III. SYSTEM MODEL

A scalable transaction consists of a set of servers where each server is responsible for hosting all data items belonging to a specific application domain. Users interact with the system by submitting queries. A transaction manager coordinates its execution. When the system workload increases, multiple TMs could be invoked for balancing load, but each transaction is handled by only one TM.

The state information of the credential policies enforced by different servers is subject to changes at any instance of time since transactions are executed over time. So it becomes important to introduce precise definitions for the different consistency levels within a transactions lifetime. These consistency models introduce the trusted transaction by defining the environment in which policies are consistent relative to the rest of the system.

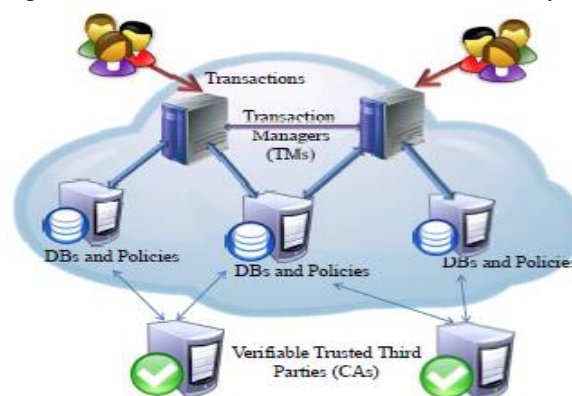


Fig.1. System Interaction

### IV. PROPOSED SYSTEM

In distributed transactional database systems, entities cooperate to form proofs of authorizations that are justified by collections of certified credentials. These proofs and credentials may be evaluated and collected over extended time periods, under the risk of having the underlying authorization policies being in inconsistent states. It therefore becomes possible for policy-based authorization systems to make unsafe decisions. It has been proposed the notion of trusted transactions when dealing with proofs of authorization. Trusted transactions do not violate credential

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policy inconsistencies over the lifetime of the transaction. It present a more safe transactions, that identifies transactions that are both trusted and conforms to the ACID properties of distributed database systems.

It has been proposed a multi keyword search which retrieving all files containing the query keyword. It helps to get the accurate result based on the multiple keyword concepts. The users can enter the multiple words query. The server is going to split that query into a single word after search that word file in the database. Finally, display the matched file list from the database and the user gets the file from that list. The proposed multi keyword search method proves to be efficient to go back extremely relevant documents corresponding to submitted search terms.

## V. PERFORMANCE ANALYSIS

The proposed model supports for both view and global consistency. The randomized transactions were randomly composed of database with equal probability of reads and writes. There is no data integrity violations were encountered during any transaction's execution. So the transactions would only abort due to policy inconsistency. The global consistency proofs are slightly slower than view consistency proofs. This extra latency occurs due to the additional communication between TM and the master policy server to retrieve the latest policy version.

To design search schemes which allow multi-keyword query and provide result similarity ranking for effective data retrieval. The server have prevented from learning additional information from dataset and index, and to meet privacy requirements. Above goals on functionality and privacy should be achieved with low computation overhead.

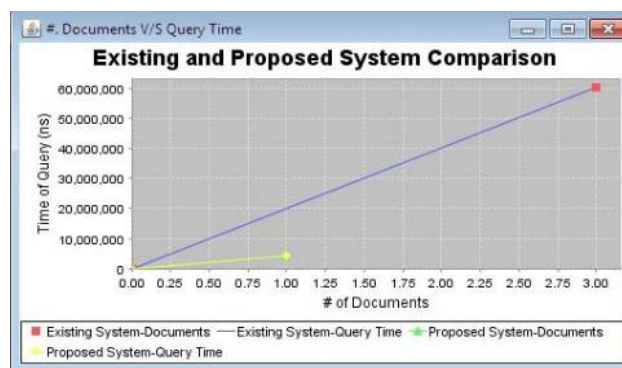


Fig. 2. Comparison Graph- No. Of Documents V/S Query Time

The graph shows the comparison between single keyword search and multi keyword search. The graph is plotted number of documents that the system's search result returned and time required to return the documents.

## VI. CONCLUSION

There are several consistency problems that can arise during transaction processing. The proposed system has been defined different levels of data and policy consistency constraints and corresponding enforcement approaches that guarantee the trustworthiness of transactions. The problem of solving efficient keyword search using single keyword and multi keyword is to achieve the effective utilization of remotely stored data in database. The multi keyword search introduces low overhead on both computation and communication. It is a secure and privacy preserving scheme for data management in a search transaction.

## REFERENCES

1. Marian K. Iskander Tucker Trainor Dave W. Wilkinson Adam J. Lee Panos K. Chrysanthis, "Balancing Performance, Accuracy, and Precision for Secure Cloud Transactions", IEEE Transactions on Parallel and Distributed Systems, Vol. 25, No.2, Feb 2014.
2. Bulletin, Mar D J Abadi, "Data Management in the cloud: Limitations and Opportunities", IEEE Data Engineering 2008.



# International Journal of Innovative Research in Computer and Communication Engineering

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3. Zhou Wei, Guillaume Pierre, Chi-Hung Chiff, "CloudTPS: Scalable Transactions for web Applications in the Cloud", IEEE Transactions on Services Computing, Special Issue on Cloud Computing, 2010.
4. A J Lee and M Winslett, " Safety and Consistency in Policy-based Authorization Systems ", in ACM CCS, 2011
5. M K Iskander , D W Wilikinson , A J Lee and P K Chrysanthis, "Enforcing Policy and Data Consistency of Cloud Transactions", in IEEE ICDCS-SPCC, 2012
6. Cong Wang, Ning Cao, Jin Li, Kui Ren and Wenjing Lou, Enabling Secure and Efficient Ranked Keyword Search over Outsourced Cloud Data, 2012.
7. N. Cao, C. Wang, M. Li, K. Ren, and W. Lou, "Privacy-Preserving Multi-Keyword Ranked Search over Encrypted Cloud Data," Proc.IEEE INFOCOM, pp. 829-837, Apr, 2011.
8. Wang, K. Ren, S. Yu, K. Mahendra, and R. Urs, "Achieving Usable and Privacy-Assured Similarity Search over Outsourced Cloud Data," Proc. IEEE INFOCOM, 2012.
9. Lakshman and P. Malik, "Cassandra- a decentralized structured storage system," in ACM SIGOPS, Apr. 2010.
10. B. F. Cooper et al., "Pnuts: Yahoo!'s hosted data serving platform," Proc. VLDB Endow., Aug. 2008.

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