ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

Towards Differential Cloud Computing

Beravelly Anupriya
M.Tech Student
Department of CSE,
St.Peter's Engineering College,
Hyderabad, TS, INDIA

M Sharadha Varalakshmi
Assistant Professor
Department of CSE,
St.Peter's Engineering College,
Hyderabad, TS, INDIA

K Vinay Kumar
Assistant Professor
Department of CSE,
St.Peter's Engineering College,
Hyderabad, TS, INDIA

Abstract:
Now-a-days Cloud computing is become more popular as cloud infrastructure for storing the data. Data owners are stored their data in public cloud for the flexibility and cost-saving. In data privacy protection, before saving sensitive data it is encrypted. User trust, privacy and security are more concerns. Most frequently used queries for online data analytic is the range query. Consumer centric cloud computing is used for development of smart electronic devices combined with the cloud computing technologies. Different cloud services are provided to the customers with the premise that an effective and efficient cloud search service is provided. Locality sensitive hashing is provided the approximate queries that to distributed data servers which give problem of the imbalanced load and space inefficiency, in which limits the query accuracy and incurs long query latency between users and cloud servers. This type of query services could be expensive for data owner. More incremented services computing and cloud computing, it is possible to outsource large databases to database service providers and the providers maintain the range-query service. Using outsourced services, the data owner can reduce the cost of storing data in cloud infrastructure. Cloud computing providing reliable, customized, and guaranteed computing dynamic environment for end users.

Keywords: ***Cloud computing security, keyword search, Multidimensional Range Query, Random Space Encryption, consumer-centric cloud, Hybrid storage systems, and approximate queries.***

Introduction

Query services in the cloud computing are increasingly popular because of the unique advantages in scalability and cost-saving. Cloud infrastructures, the service owners can scale up or down the service and only pay for the hours of using the servers. This facility is reducing the workload of query services which is highly dynamic and it may be expensive and inefficient to serve such dynamic workloads with organizations [1].

The basic idea is to randomly transform the multidimensional datasets with a combination of order preserving with encryption, dimensionality in expansion, random noise injection and project, so that it easily used for processing range queries is preserved. The design of RASP perturbation which help the queried ranges are securely transformed into polyhedral in the RASP-perturbed data space, which can be efficiently processed with the support of indexing structures in the perturbed space[2].

The RASP kNN query service is the combination of the RASP range query service to process kNN queries. The RASP contains main components as follows:

(1) The definition and properties of RASP perturbation;

(2) The construction of the privacy-preserving range query services

(3) The construction of privacy-preserving kNN query services

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

and an analysis of the attacks on the RASPprotected data and queries. Range query is used query in online data analytics that requires the service provider to respond the queries user. Cloud systems are facing the challenge to handling the many requests of data halting from cloud computing applications such as business transactions, scientific computing, and social network webs, mobile applications and information visualization[1][2]

Cloud computing demands not only big capacity for storage, but also the support of low-latency and scalable queries. For this reason to accept query services have received many attentions in the cloud computing communities, such as query optimization for parallel data processing, automatic management of search services, similarity search in file systems, information retrieval for ranked queries, similarity search over cloud data, multi-keyword ranked and fuzzy keyword search over cloud data, approximate membership query and retrieval for content cloud[3][4].

Cloud computing applications challenge the deal of huge volume of data that needs the support of exact and fast approximate queries to increase system scalability and improve quality of service. Locality-sensitive hashing can support the approximate queries that unfortunately suffer from imbalanced load and space inefficiency among distributed data servers, which severely limits the query accuracy and incurs long query latency between users and cloud servers[6][7].

EXISTING SYSTEM:

Private searching was proposed by Ostrovsky et al. Which allows a user to retrieve files of interest from an untrusted server without leaking any information. Otherwise, the cloud will learn that certain files, without processing, are of no interest to the user. Commercial clouds follow a pay-as-you-go model, where the customer is billed for different operations such as bandwidth, CPU time, and so on. Solutions that incur excessive computation and communication costs are unacceptable to customers. To make private searching applicable in a cloud environment, our previous work designed a cooperate private searching protocol (COPS), where a proxy server, called the aggregation and distribution layer (ADL), is introduced.between the users and the cloud. The ADL deployed inside an organization has two main functionalities: aggregating user queries and distributing search results. Under the ADL, the computation cost incurred on the cloud can be largely reduced, since the cloud only needs to execute a combined query once, no matter how many users are executing queries.Furthermore, the communication cost incurred on the cloud will also be reduced, since files shared by the users need to be returned only once. Most importantly, by using a series of secure functions, COPS can protect user privacy from the ADL, the cloud, and other users.

DISADVANTAGES OF EXISTING SYSTEM:

1. Ostrovsky scheme has a high computational cost, since it requires the cloud to process the query on every file in a collection.

2. It will quickly become a performance bottleneck when the cloud needs to process thousands of queries over a collection of hundreds of thousands of files. We argue that subsequently proposed improvements, like also have the same drawback.

PROPOSED SYSTEM:

In this paper, we introduce a novel concept, differential query services, to COPS, where the users are allowed to personally decide how many matched files will be returned. This is motivated by the fact that under certain cases, there are a lot of files matching a user's query, but the user is interested in only a certain percentage of matched files In the Ostrovsky scheme, the cloud will have to return 2,000 files. In the COPS scheme, the cloud will have to return 1,000 files. In our scheme, the cloud only needs to return 200 files. Therefore, by allowing the users to retrieve matched files on demand, the bandwidth consumed in the cloud

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

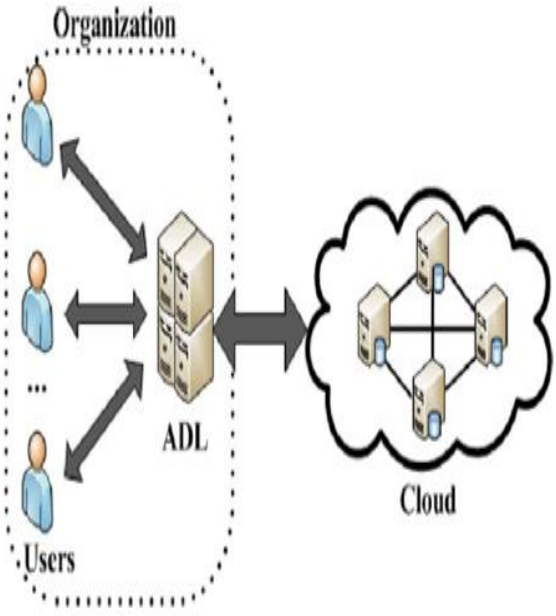
can be largely reduced. Efficient Information retrieval for Ranked Query (EIRQ), in which each user can choose the rank of his query to determine the percentage of matched files to be returned. The basic idea of EIRQ is to construct a privacy-preserving mask matrix that allows the cloud to filter out a certain percentage of matched files before returning to the ADL. This is not a trivial work, since the cloud needs to correctly filter out files according to the rank of queries without knowing anything about user privacy.

ADVANTAGES OF PROPOSED SYSTEM:

1. The cloud only needs to return 200 files. Therefore, by allowing the users to retrieve matched files on demand, the bandwidth consumed in the cloud can be largely reduced.

2. We provide two solutions to adjust related parameters; one is based on the Ostrovsky scheme, and the other is based on Bloom filters.

SYSTEM ARCHITECTURE:



Conclusion

In this paper I have survey on cloud computing security using different query services such as RASP, Synonym Query multikeyword search. In this paper, the effective approach to solve the problem of synonym-based multikeyword ranked search over encrypted cloud data. The main contributions are summarized in two aspects: synonym-based search and similarity ranked search. The vector space model is adopted combined with cosine measure, which is popular in information retrieval field, to evaluate the similarity between search request and document. Finally, the performance of the proposed schemes is analyzed in detail, including search efficiency and search accuracy, by the experiment on real-world dataset.

References

[1] Liu, Q., Tan, C. C., & Wang, G. (2014). "Towards Differential Query Services in Cost-Efficient Clouds. Parallel and Distributed Systems, IEEE Transactions on,25(6), 1648-1658.

[2] Cao, N., Wang, C., Li, M., Ren, K., & Lou, W. (2014). "Privacy-preserving multi-keyword ranked search over encrypted cloud data."Parallel and Distributed Systems, IEEE Transactions on, 25(1), 222-233.

[3] Wei, L., & Reiter, M. K. (2011). "Third-party DFA evaluation on encrypted files". Tech. Rep. TR11-005, Department of Computer Science, University of North Carolina at Chapel Hill.

[4] Xu, H., Guo, S., & Chen, K. (2012). "Building confidential and efficient query services in the cloud with RASP data perturbation". arXiv preprint arXiv:1212.0610.

[5] Wang, C., Cao, N., Li, J., Ren, K., & Lou, W. (2010, June). "Secure ranked keyword search over encrypted cloud data." In Distributed Computing Systems (ICDCS), 2010 IEEE 30th International Conference on (pp. 253-262). IEEE.

ISSN No: 2348-4845
International Journal & Magazine of Engineering, Technology, Management and Research
A Peer Reviewed Open Access International Journal

[6] Hua, Y., Xiao, B., Veeravalli, B., & Feng, D. (2012). "Locality-sensitive Bloom filter for approximate membership query." Computers, IEEE Transactions on,61(6), 817-830.

[7] Liu, Q., Tan, C. C., Wu, J., & Wang, G. (2012, March). "Efficient i nformation r etrieval for r anked q ueries in cost-effective cloud environments." In INFOCOM, 2012 Proceedings IEEE (pp. 2581-2585). IEEE.

[8] Cabarcos, P. A., Mendoza, F. A., Guerrero, R. S., Lopez, A. M., & Diaz-Sanchez, D. (2012). Telematic Eng. Dept., Carlos III Univ. of Madrid, Leganes, Spain. Consumer Electronics, IEEE Transactions on, 58(4), 1425-1433.

[9] Fu, Z., Sun, X., Linge, N., & Zhou, L. (2014). "Achieving effective cloud search services: multikeyword ranked search over encrypted cloud data supporting synonym query." Consumer Electronics, IEEE Transactions on, 60(1), 164-172