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Dynamic Audit and Data Storage in Cloud

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ABSTRACT: By data outsourcing, users can be relieved from the burden of local data storage and maintenance. Thus, enabling dynamic audit for cloud data storage security is of critical importance so that users can resort to an external audit party to check the integrity of outsourced data when needed. A dynamic audit service can be used for verifying the integrity of untrusted and outsourced storage. Our audit service, constructed based on the techniques, fragment structure, random sampling and index-hash table, can support provable updates to outsourced data, and timely abnormal detection. In addition, we propose an efficient approach based on probabilistic query and periodic verification for improving the performance of audit services. Our experimental results not only validate the effectiveness of our approaches, but also show our audit system has a lower computation overhead, as well as a shorter extra storage for audit mete -data.

KEYWORDS: TPA,WalleT,Dynamic audit

I. INTRODUCTION

In clouds, one of the core design principles is to provide dynamic scalability for various applications. This means that remotely stored data might be not only accessed but also dynamically updated by the clients, for instance, through block operations such as modification, deletion and insertion. However, these operations may raise security issues in most of existing schemes, e.g., the forgery of the verification metadata generated by data owners and the leakage of the user's secret key. Hence, it is crucial to develop a more efficient and secure mechanism for dynamic audit services, in which possible adversary advantage through dynamic data operations should be prohibited.the TPA or Verifier, who has expertise and capabilities that users may not have and verifies the integrity of outsourced data in cloud on behalf of users. Based on the audit result, the TPA could release an audit report to user.

To securely introduce an effective third party auditor (TPA), the following two fundamental requirements have to be met: TPA should be able to efficiently audit the cloud data storage without demanding the local copy of data, and introduce no additional on-line burden to the cloud user. Specifically, our contribution in this work can be summarized as the following three aspects:

1) We motivate the public auditing system of data storage security in Cloud Computing and provide a privacy-preserving auditing protocol, i.e., our scheme supports an external auditor to audit user's outsourced data in the cloud without learning knowledge on the data content.
2) To the best of our knowledge, our scheme is the first to support scalable and efficient public auditing in the Cloud Computing. In particular, our scheme achieves batch auditing where multiple delegated auditing tare source ids from different users can be performed simultaneously by the TPA.
3) We prove the security and justify the performance of our proposed schemes through concrete experiments and comparisons with the state-of-the-art.

Our audit system, based on a novel audit system architecture, can support dynamic data operations and timely abnormal detection with the help of several effective techniques, such as fragment structure, random sampling, and index-hash table. Furthermore, we propose an efficient approach based on probabilistic query and periodic verification for improving the performance of audit services. A proof-of- concept prototype is also implemented to evaluate the

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feasibility and viability of our proposed approaches. Our experimental results not only validate the effectiveness of our approaches, but also show our system has a lower computation cost, as well as a shorter extra storage for integrity verification. There are some drawbacks for the existing system.As data in Cloud is dynamic, static auditing is not enough. A dynamic auditing is needed to verify the data integrity of the dynamic data. But as data are dynamic in cloud, it is not easy to have an

auditing efficiently. Server can enforce Replay attack and forge attack to fail the auditing process. The dynamic operations include modification, insertion and deletion. Whenever dynamic operation is performed, the owner sends the update message to the auditor representing the index number of that message. The Auditor updates the table. The message m and the tag are replaced by the new message and tag in message modification. The new message m and new tag are inserted in insertion operation. The message m and tag are deleted from the index table and all the entries below the deleted message move upwards.

II. MODULE DESCRIPTION

This approach contains six modules.

A.*Wallet Upload:*

WalletUpload means to transfer a file or files from your own computer to another computer [1]. For instance, you might transfer a file from your home PC to the Yahoo computer that stores your Web Hosting files. In this module The client can upload the file to server

B. *Refine the Wallet*

The process of removing impurities or unwanted elements from a substance. In this module the user can refine the files based on document type (eg).doc, .ppt, .txt like this type of refining is very useful to the user [2-3]. Cloud Search enables you to search large collections of data such as web pages, document files, forum posts, or product information.

C. Wallet Scrutiny

Cloud Search is a fully-managed service in the cloud that makes it easy to set up, manage, and scale a search solution for your website. In this module two type of searching process is available [4].

1) Normal Search- In this method the user can search based on document name.
2) Fine Search- In this type the user can search the content based search.

D. Wallet Removal

You can remove documents and other items stored in Cloud by deleting them from any of your devices that have Cloud set up for Documents & Data [5-6]. Removing your documents from Cloud reduces the amount of Cloud storage space you're using

E**.** *Wallet Information*

Create a file or Upload the file and share it with a colleague or team. Use a shared file to easily collaborate on projects with people from multiple offices. In this module all the file information's are maintained by the cloud admin [7].

F. *Log File Generation*

A server log is a log file (or several files) automatically created and maintained by a server of activity performed by it [8]. A typical example is a web server log which maintains a history of page requests

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III. SYSTEM ARCHITECTURE

Cloud data storage services also provide benefits like
availability, relative low cost i.e. paying on basis of functionneed, and on demand sharing among a group of trusted users.For simplicity, we assume a single writer/many readersscenario here. Only the data owner can dynamically interactwith the CS to update her stored data, while users just have theprivilege of file reading [9-10]

Fig 1 illustrates the projects over all view where the initial state user can store the document in cloud and flow of message has been exchange between user and the cloud. This is based on the user requirement and the third party audit will be allowed [11].

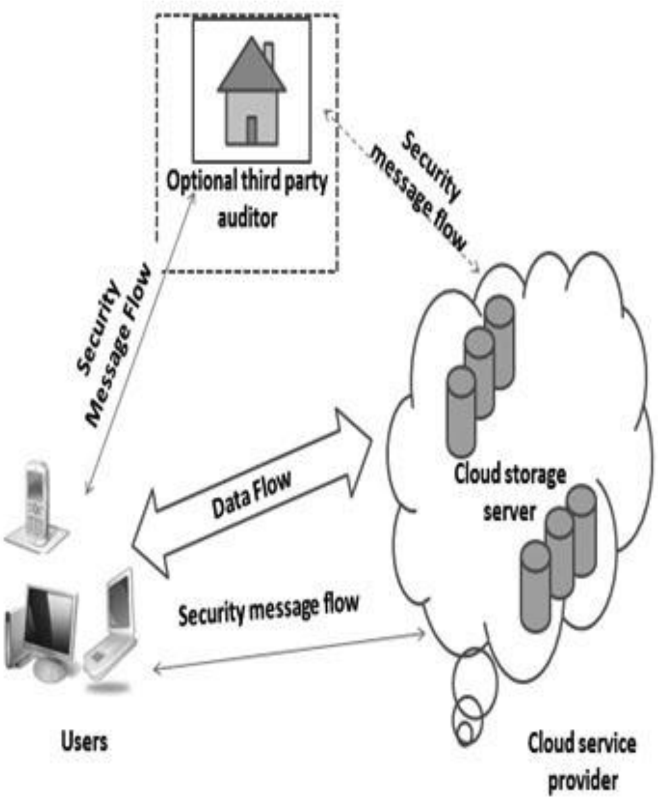

Fig1.System architecture

IV. FUTURE ENHANCEMENTS

In future, we utilize the public key based homomorphism authenticator and uniquely integrate it with random mask technique to achieve a privacy auditing system for cloud data storage security while keeping all advance requirements in mind. To support efficient handling of multiple auditing tasks, we further explore the technique of bilinear aggregate signature to extend our feature into a multi-user setting, where TPA can perform multiple auditing tasks simultaneously.

V. CONCLUSION

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We presented a construction of dynamic audit services for un trusted and outsourced storage. We also presented an efficient method for periodic sampling audit to minimize the computation costs of third party auditors and storage service providers. Our experiments showed that our solution has a small, constant amount of overhead, which minimizes computation and communication costs.

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