IJARSCT

ISSN (Online) 2581-9429

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

Impact Factor: 7.301

Volume 3, Issue 2, November 2023

Secure Cloud-Based Media Sharing: Scalable Access Control and Privacy-Preserving Deduplication

Prof. K. S. Mulani[1], Dhiraj Shinde[2], Sanket Navthar[3], Jayesh Udavant[4], Rushikesh Jadhav[5]

HOD, Department of Computer Science[1]
Students, Department of Computer Science[2,3,4,5]
Sinhgad Institute of Technology, Lonavala, Maharashtra, India

Abstract*: This research delves into the realm of secure deduplication schemes, strategically designed to enhance storage efficiency within cloud environments. An initial focus is placed on an advanced AES encryption scheme utilizing a message-derived key, resulting in a consistent mapping of identical plaintexts to ciphertexts. The proposed AES framework not only incorporates convergent encryption but also provides meticulous security definitions. While the landscape of cloud computing boasts numerous techniques for data security, existing methodologies fall short in addressing nuanced aspects related to ciphertext. In response to this gap, our study introduces a pioneering information management paradigm. This comprehensive framework encompasses data gathering, sharing, and restrictive distribution, with a particular emphasis on multi-owner privacy preservation within the cloud. Under this innovative framework, data owners gain the capability to securely disseminate private information to predefined groups of clients through the cloud infrastructure. The research presented herein serves as a significant contribution to the ongoing discourse on secure deduplication in cloud storage. By combining advanced encryption techniques with a forward-looking information sharing strategy, our approach seeks to elevate the effectiveness of data security protocols in cloud environments.*

Keywords: Secure deduplication schemes, Storage space, Cloud computing

I. INTRODUCTION

1.1 Overview

It is network based computing system and it is the large storage space area where the authorized user can access the platform from anywhere and anytime with the good internet or network connectivity. Due to the explosive growth of media contents. se-cure deduplication schemes have been proposed to save the storage space in cloud. firstly introduced the AES encryption scheme which utilizes a message derived keyto encrypt the message. Hence, identical plaintexts produce the same ciphertexts. proposed AES, which subsumes convergent encryption and gives detailed security definitions. The cloud computing is the advancement to shared volume of information through the network. There are lots of techniques that are used to providing security for data in cloud. But current techniques are as better related to the cipher- text. So here, we propose information gathering, sharing and restrictive distribution plan with multi-owner privacy preserving in cloud. Here, data owner can impart private information to group of clients through cloud in secure.

1.2 Motivation

- To the proposed system we use AES Algorithm For The Encryption and De- cryption and Provide Data Security and Secure access control
- To use MD 5 Algorithm For The Avoid Deduplication On the data.
- Developing a system focused on data deduplication to optimize storage efficiency and tackle data redundancy challenges.
- Providers meet diverse needs, offering cost-effective data storage, transfer, and backup, along with access to various cloud resources..

DOI: 10.48175/IJARSCT-13839

ISSN
2581-9429
IJARSCT

IJARSCT

ISSN (Online) 2581-9429

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

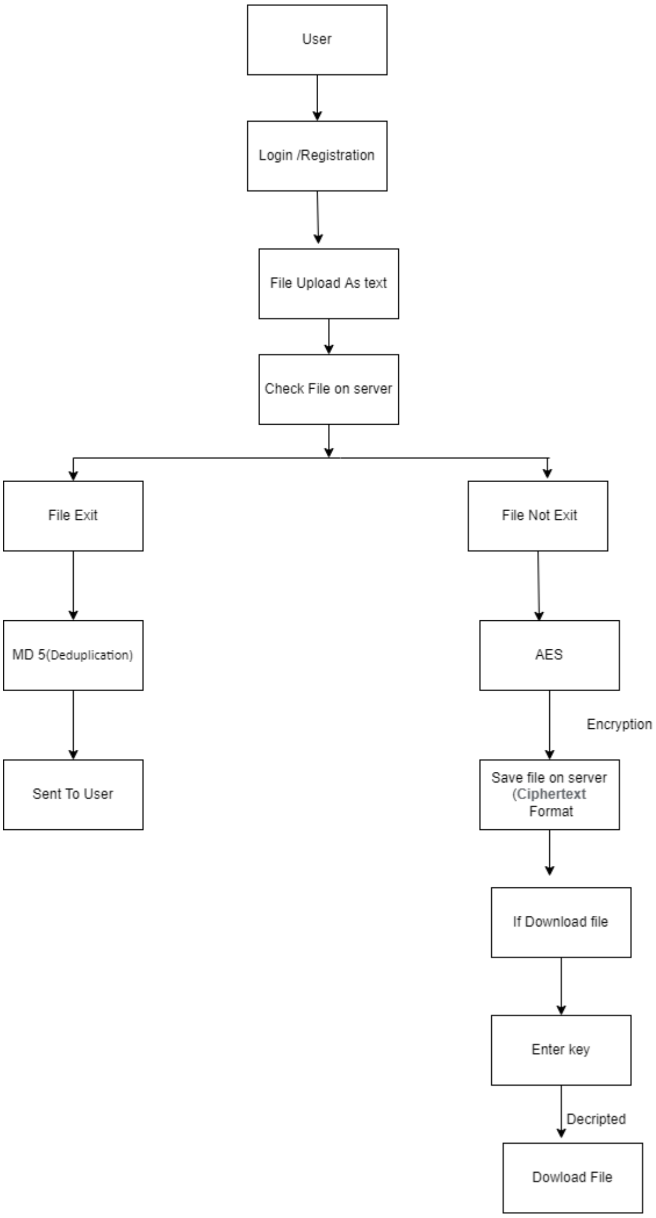
Impact Factor: 7.301

Volume 3, Issue 2, November 2023

1.3 Goal and Objectives

- Goal: Enhance Cloud Storage Efficiency
- Objective: Implement a secure deduplication system to minimize redundant data, optimizing storage space and reducing communication overhead.
- Goal: Ensure Privacy in Cloud Data Deduplication
- Objective: Develop an encryption-based deduplication scheme with efficient re-encryption, safeguarding sensitive user data and addressing vulnerabilities..
- Goal: Improve Performance of Data Deduplication in Cloud Data Centers
- Objective: Propose and implement a block-level deduplication approach, comparing and demonstrating superior results over conventional file-level deduplication.

Diagram: System Architecture



DOI: 10.48175/IJARSCT-13839

II. RELATED WORK

In the realm of secure cloud data deduplication, numerous studies have delved into the intricacies of optimizing storage space and ensuring data confidentiality. Existing research has primarily focused on eliminating redundancy in encrypted data, with a key emphasis on properties such as data confidentiality, tag consistency, access control, and resistance to brute-force attacks. Recent investigations have re-evaluated the effectiveness of re-encryption deduplication schemes, pinpointing vulnerabilities like the stub-reserved attack. Moreover, comparative analyses have been conducted, pitting different deduplication approaches against each other. One study, for instance, conducted a comprehensive examination of file-level and proposed block-level deduplication, revealing the latter's superior performance in terms of storage reduction. Additionally, innovative strides have been made in ownership management, with a novel deduplication scheme introduced to efficiently handle dynamic ownership changes and establish secure Proof-of-Ownership, encompassing both file-level and inside-user block-level deduplication. These advancements collectively contribute to the ongoing evolution of secure and efficient cloud data deduplication strategies

Name of the paper	Author Name	Publisher	Year
LEVER: Secure Deduplicated Cloud Storage with Encrypted Two-Party Interactions in Cyber-Physical Systems	Sahil Garg	7 IEEE Region 10 Humanitarian Technology Conference	2020
Secure Block-level Data Deduplication approach for Cloud Data Centers	Arslan Rafi	IEEE Region 10 Humanitarian Technology Conference	2020
Privacy-Preserving Media Sharing with Scalable Access Control and Secure Deduplication in Mobile Cloud Computing	Zhicheng Zhang, and Yixian Yang	IEEE Region 10 Humanitarian Technology Conference	2019
Secure and Efficient Data Deduplication in JointCloud Storage	Nankun Mu	IEEE Region 10 Humanitarian Technology Conference.	2021

III. OPEN ISSUES

in secure cloud data deduplication include addressing efficiency and scalability for growing data volumes, managing dynamic ownership securely, countering side-channel attacks, enhancing re-encryption schemes, and improving interoperability across cloud storage providers. Resolving these challenges is crucial for advancing the effectiveness and privacy of deduplication systems in cloud environments.

IV. CONCLUSION

secure cloud data deduplication plays a pivotal role in optimizing storage space and communication overhead while ensuring data confidentiality and access control. The surveyed literature reveals diverse approaches addressing challenges such as privacy, efficiency, ownership management, and resilience against attacks. While significant progress has been made, open issues remain in enhancing scalability, countering side-channel attacks, and improving interoperability. Future research should focus on refining existing schemes, developing efficient re-encryption methods, and addressing emerging issues to further enhance the security and efficiency of cloud data deduplication systems.

REFERENCES

[1] LEVER: Secure Deduplicated Cloud Storage with Encrypted Two-Party Interactions in Cyber-Physical Systems, 2020 . [Online]. Available:http://www.who.int/workforcealliance/countries/bgd/en/ .

[2] Secure Block-level Data Deduplication approach for Cloud Data Centers [Online].

[3] Privacy-Preserving Media Sharing with Scalable Access Control and Secure Deduplication in Mobile Cloud Computing

[4] Secure and Efficient Data Deduplication in JointCloud Storage

DOI: 10.48175/IJARSCT-13839

ISSN 2581-9429 IJARSCT