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### **RESEARCH ARTICLE**

# RELIABLE AND SECURE AUDITING IN CLOUD DATA STORAGE

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#### ABSTRACT

*Cloud computing is the delivery of computing and storage capacity as a service to a community of end-recipients. Cloud computing entrusts services with a user's data, software and computation over a network. Cloud storage enables users to remotely store their data and enjoy the on-demand high quality cloud applications without the burden of local hardware and software management. Though the benefits are clear, such a service is also relinquishing users, physical possession of their outsourced data, which unavoidably poses new security risks toward the correctness of the data in cloud. In order to address this new problem and further achieve a secure and dependable cloud storage service, we propose in this paper a flexible distributed storage integrity auditing mechanism Third Party Auditing (TPA) technique utilizing the homomorphism token and distributed erasure-coded data. The proposed design allows users to audit the cloud storage with very lightweight communication and computation cost. The auditing result not only ensures strong cloud storage correctness guarantee, but also simultaneously achieves fast data error localization, i.e., the identification of misbehaving server. Considering the cloud data are dynamic in nature, the proposed design further supports secure and efficient dynamic operations on outsourced data, including block modification, deletion, and append. Analysis shows the proposed scheme is highly efficient and resilient against Byzantine failure, malicious data modification attack, and even server scheming attacks.*

**KEYWORDS:** *Cloud, Third Party Auditing, Encryption, Integrity*

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