**Blockchain-based public uprightness check for distributed storage against hesitating inspectors**

**Guide**

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**ABSTRACT**

Since network storage services achieve widespread adoption, security and performance issues are becoming primary concerns, affecting the scalability of storage systems. Countermeasures like data auditing mechanisms and deduplication techniques are widely studied. However, the existing data auditing mechanism with deduplication cannot solve the problems such as high cost and reliance on trusted third parties in traditional approaches, and it also faces the problem of repeated auditing of data shared by multiple-tenant. This paper proposes a blockchain-based deduplicatable data auditing mechanism. We first design a client-side data deduplication scheme based on bilinear-pair techniques to reduce the burden on users and service providers. On this basis, we achieve a trustworthy and efficient data auditing mechanism that helps to check data integrity by using both the blockchain technique and bilinear pairing cryptosystem. The blockchain system is used to record the behaviors of entities in both data outsourcing and auditing processes so that the corresponding immutable records can be used to not only ensure the credibility of audit results but also help to monitor unreliable third-party auditors. Finally, theoretical analysis and experiments reveal the effectiveness and performance of our scheme.