Publicly Verifiable and Efficient Fine-Grained Data Deletion Scheme in Cloud Computing

Mr. Pradeep Nayak, Mr. Darshan K Revankar, Mr. Gautham P Kini,
Mr. Yashash Raj C G, Ms. Dikshita Devadiga
Department of CSE (IoT, Cyber Security including BlockChain)
Alva's Institute of Engineering and Technology, Mijar, Karnataka, India
pradeep@aiet.org.in, darshankrevankar@gmail.com, gautham07049@gmail.com,
yashash426@gmail.com, dikshitadishu8@gmail.com

Abstract: *This paper explores the benefits of cloud storage, a fundamental component of cloud computing, which provides users with nearly limitless storage capabilities. Users can substantially decrease their local storage requirements by allowing data to be outsourced to cloud servers. However, the paper also addresses security privacy concerns linked to cloud storage, which stem from data ownership and management division, resulting in users losing direct control over their outsourced data.*

The authors concentrate on the challenge of verifiable outsourced data deletion, a significant issue that has not been adequately addressed in either industry or academic circles. They present an effective fine-grained outsourced data deletion scheme utilizing the invertible Bloom filter. This solution facilitates both public and private verification of the storage and deletion processes. Suppose the cloud server fails to manage or remove the data accurately and creates the associated evidence. In that case, users can detect any malicious actions by the cloud server with a high likelihood.

Additionally, the authors note that within their proposed scheme, the computational complexity of both data deletion and verification of deletion results remains unaffected by the quantity of outsourced data blocks. This property makes the scheme appropriate for extensive data deletion scenarios.

Ultimately, the paper includes a thorough security evaluation and performance assessment, validating the security and practicality of the proposed scheme. This comprehensive method for tackling the issue of verifiable outsourced data deletion in cloud storage represents a notable contribution to the field.

Keywords: cloud storage