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**A PRE-AUTHENTICATION APPROACH TO PROXY RE-ENCRYPTION**

**IN BIG DATA CONTEXT**

**Abstract:**

With the growing amount of data, the demand of big data storage significantly increases. Through the cloud center, data providers can conveniently share data stored in the center with others. However, one practically important problem in big data storage is privacy. During the sharing process, data is encrypted to be confidential and anonymous. Such operation can protect privacy from being leaked out. To satisfy the practical conditions, data transmitting with multi receivers is also considered. Further more, this paper proposes the notion of pre-authentication for the first time, i.e., only users with certain attributes that have already. The pre-authentication mechanism combines the advantages of proxy conditional re-encryption multi-sharing mechanism with the attribute-based authentication technique, thus achieving attributes authentication before re-encryption, and ensuring the security of the attributes and data. Moreover, this paper finally proves that the system is secure and the proposed pre-authentication mechanism could significantly enhance the system security level.