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**FLEXIBLE DATA ACCESS CONTROL BASED ON TRUST AND REPUTATION IN CLOUD COMPUTING**

**Abstract:**

Cloud computing offers a new way of services and has become a popular service platform. Storing user data at a cloud data center greatly releases storage burden of user devices and brings access convenience. Due to distrust in cloud service providers, users generally store their crucial data in an encrypted form. But in many cases, the data need to be accessed by other entities for fulfilling an expected service, e.g., an eHealth service. How to control personal data access at cloud is a critical issue. Various application scenarios request flexible control on cloud data access based on data owner policies and application demands. Either data owners or some trusted third parties or both should flexibly participate in this control. However, existing work hasn't yet investigated an effective and flexible solution to satisfy this demand. On the other hand, trust plays an important role in data sharing. It helps overcoming uncertainty and avoiding potential risks. But literature still lacks a practical solution to control cloud data access based on trust and reputation. In this paper, we propose a scheme to control data access in cloud computing based on trust evaluated by the data owner and/or reputations generated by a number of reputation centers in a flexible manner by applying Attribue-Based Encryption and Proxy Re-Encryption. We integrate the concept of context-aware trust and reputation evaluation into a cryptographic system in order to support various control scenarios and strategies. The security and performance of our scheme are evaluated and justified through extensive analysis, security proof, comparison and implementation. The results show the efficiency, flexibility and effectiveness of our scheme for data access control in cloud computing.