

Reliable access control for mobile cloud computing (MCC) with cache-aware scheduling

ABSTRACT

In mobile cloud computing (MCC), data are stored and processed by more powerful computing platforms located in clouds to enhance the capability of mobile devices. Although MCC brings many benefits to users and organizations, security has become the main concern for MCC because it involves third party environment where data confidentiality is not a guarantee. To overcome this challenge, attribute-based encryption (ABE) technique, a promising cryptography method was introduced to support both data confidentiality and access control simultaneously. However, most of the ABE used single certification authority (CA) and disjoint attribute authority (AA) to verify user identity which can be a single point of failure. Therefore, a new approach was proposed in this research to deal with the single point of failure in the authority. Furthermore, the cache-based scheduling algorithm was upgraded to improve the response time of user jobs. The experimental results show that the approach performed better compared to its competitor in terms of reliability. Additionally, it significantly reduced the number of read operations compared to its counterpart.

Keyword: Access control; Attribute-based encryption; Cache scheduling; Mobile agent; Mobile cloud computing