



RESEARCH ARTICLE

Analysis of Attribute Set-Based Encryption Solution for Access Control in Cloud Computing

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Abstract— Cloud computing is one of the most influential domain in the information technology. Encryption scheme perform sequence implicit operation on the plaintext by processing the original text which supports all the operations increases the storage capacity and provides the secure data transfer. In order to realize scalable, flexible, and fine-grained access control of outsourced data in cloud computing, in this paper, we propose hierarchical attribute-set-based encryption by extending cipher text-policy attribute-set-based encryption with a hierarchical structure of users. The proposed scheme not only achieves scalability due to its hierarchical structure, but also inherits flexibility and fine-grained access control in supporting compound attributes of attribute set-based encryption. Hierarchical attribute set based encryption employs multiple value assignments for access expiration time to deal with user revocation more efficiently than existing schemes. We formally prove the security of hierarchical attribute set based encryption based on security of the cipher text-policy attribute-based encryption scheme. We also present comparison on encryption our scheme and show that it is both efficient and flexible in dealing with access control for outsourced data in cloud computing with comprehensive analysis.

Keywords: - Encryption; Cryptography; Hierarchical Attribute Set-based Encryption; Cloud Computing

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