Abstract

Data sharing is an important functionality in cloud storage. In this paper, it shows how to securely, efficiently, and flexibly share data with others in cloud storage. It describes new public-key cryptosystems that produce constant-size cipher texts such that efficient delegation of decryption rights for any set of cipher texts is possible. The novelty is that one can aggregate any set of secret keys and make them as compact as a single key, but encompassing the power of all the keys being aggregated. In other words, the secret key holder can release a constant-size aggregate key for flexible choices of cipher text set in cloud storage, but the other encrypted files outside the set remain confidential. This compact aggregate key can be conveniently sent to others or be stored in a smart card with very limited secure storage. It provides formal security analysis of our schemes in the standard model. It also describe other application of our schemes. In particular, our schemes give the first public-key patient-controlled encryption for flexible hierarchy, which was yet to be known. The novelty is that one can aggregate any set of secret keys and make them as compact as a single key, but encompassing the power of all the keys being aggregated. In other words, the secret key holder
can release a constant-size aggregate key for flexible choices of cipher text set in cloud storage, but the other encrypted files outside the set remain confidential.

References


Index Terms

Computer Science  Security
Keywords

VirtualMachines, Cryptography, Encryption, Decryption, Cipher text, Plain text, Random oracles