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Two-Factor Data Security Protection Mechanism for Cloud Storage System

ABSTRACT

In this paper, we propose a two-factor data security protection mechanism with factor revocability for cloud storage system. Our system allows a sender to send an encrypted message to a receiver through a cloud storage server. The sender only needs to know the identity of the receiver but no other information (such as its public key or its certificate). The receiver needs to possess two things in order to decrypt the ciphertext. The first thing is his/her secret key stored in the computer. The second thing is a unique personal security device which connects to the computer. It is impossible to decrypt the ciphertext without either piece. More importantly, once the security device is stolen or lost, this device is revoked. It cannot be used to decrypt any ciphertext. This can be done by the cloud server which will immediately execute some algorithms to change the existing ciphertext to be undecryptable by this device. This process is completely transparent to the sender. Furthermore, the cloud server cannot decrypt any ciphertext at any time. The security and efficiency analysis show that our system is not only secure but also practical.

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EXISTING SYSTEM

Cloud storage is a model of networked storage system where data is stored in pools of storage which are generally hosted by third parties. There are many benefits to use cloud storage. The most notable is data accessibility. Data stored in the cloud can be accessed at any time from any place as long as there is network access. Storage maintenance tasks, such as purchasing additional storage capacity, can be offloaded to the responsibility of a service provider. Another advantage of cloud storage is data sharing between users. If Alice wants to share a piece of data (e.g. a video) to Bob, it may be difficult for her to send it by email due to the size of data. Instead, Alice uploads the file to a cloudstorage system so that Bob can download it at anytime.

DISADVANTAGES

- Impossible to decrypt the ciphertext without either piece.
- More importantly, once the security device is stolen or lost, this device is revoked.
- It cannot be used to decrypt any ciphertext. This can be done by the cloudserver which will immediately execute some algorithms to change.

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PROPOSED SYSTEM

Introduced a novel two-factor data security protection mechanism for cloud storage system, in which a data sender is allowed to encrypt the data with knowledge of the identity of a receiver only, while the receiver is required to use both his/her secret key and a security device to gain access to the data. Our solution not only enhances the confidentiality of the data, but also offers the revocability of the device so that once the device is revoked, the corresponding ciphertext will be updated automatically by the cloud server without any notice of the data owner.

ADVANTAGES

- presented the security proof and efficiency analysis for our system.
- A flexible and scalable twofactor encryption mechanism is really desirable in the era of cloud computing

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SYSTEM REQUIREMENTS:

HARDWARE REQUIREMENTS:

- System : Pentium IV 2.4 GHz.
- Hard Disk : 40 GB.
- Floppy Drive : 1.44 Mb.
- Monitor : 15 VGA Color.
- Mouse : Logitech.
- Ram : 512 Mb.

SOFTWARE REQUIREMENTS:

- Operating system : Windows XP/7.
- Coding Language : ASP.net, C#.net
- Tool : Visual Studio 2010
- Database : SQL SERVER 2008

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