A Searchable and Verifiable Data Protection Scheme for Scholarly Big Data

Abstract—Scientific research achievements play a positive role in the promotion of social development. Scholarly big data include scholars’ scientific research, experimental data, and their own identity information. The security of scholarly big data relates to the authors’ reputation and the copyright of their works. This paper proposes a trusted third-party-aided searchable and verifiable data protection scheme that utilizes cloud computing technology. For a better description of the the protocol, we first present a user-differentiated system model and a cube data storage structure. On the basis of the novel system model and data structure, the scheme helps the users review the integrity of their uploaded or downloaded data at any time and search the online scholarly data with encrypted keywords. The security analysis and performance simulation demonstrate that the novel scheme is a secure and efficient scheme for scholarly big data applications.

CONCLUSION

In this paper, we construct a system model that can distinguish the users according to their roles and special requirements of scholarly big data. Moreover, an innovative cube data storage structure is proposed. On the basis of the novel system and data structure, we present a novel searchable and verifiable data protection scheme for scholarly big data. The security and performance analyses show that our scheme is efficient for scholarly big data. In the future, we will design a secure data sharing scheme for scholarly big data to supplement our current scheme.

SYSTEM REQUIREMENTS:

HARDWARE REQUIREMENTS:

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

SOFTWARE REQUIREMENTS:
• Operating system : Windows 7/UBUNTU.
• Coding Language : Java 1.7, Hadoop 0.8.1
• IDE : Eclipse
• Database : MYSQL

REFERENCES
