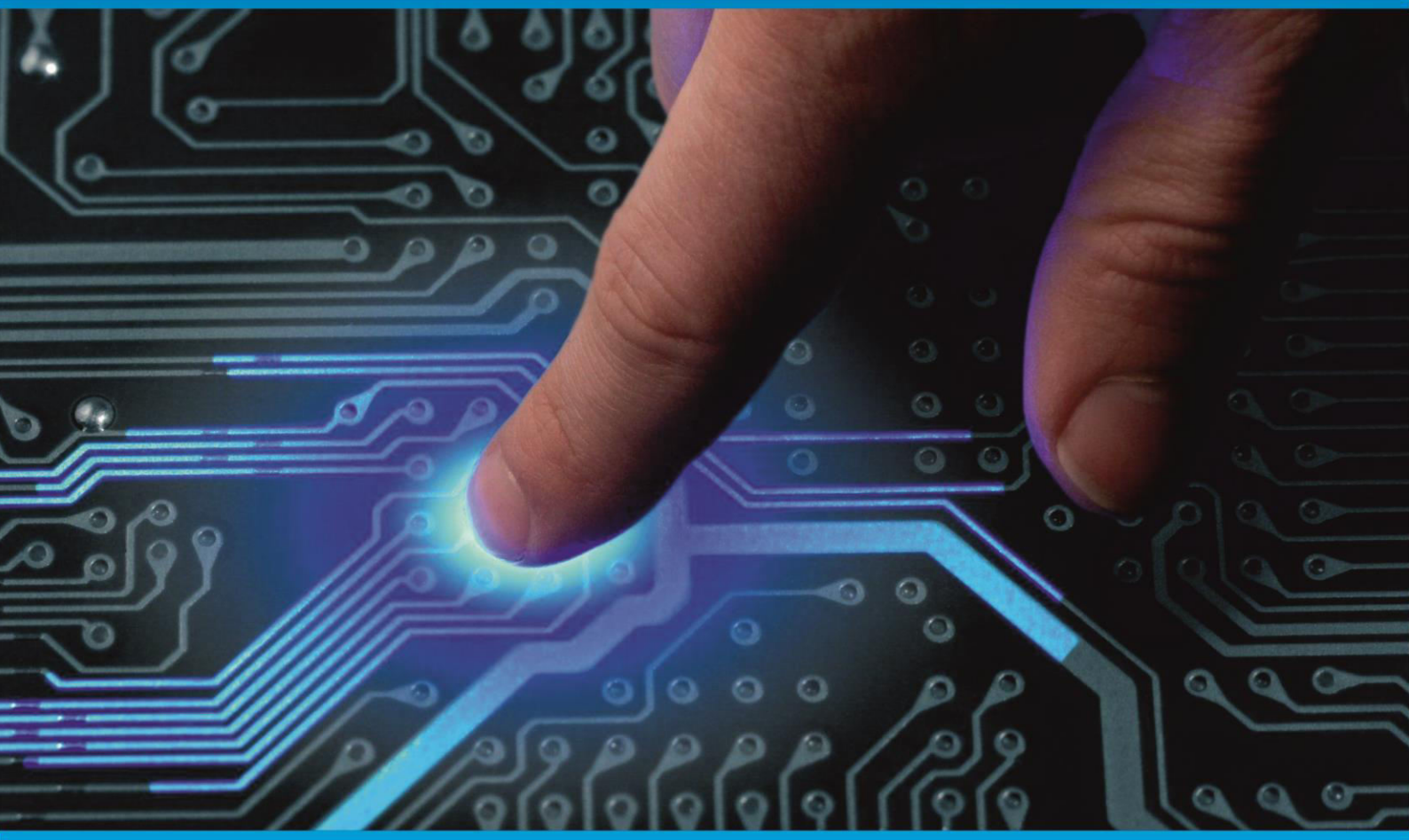
IJIRCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 9, Issue 3, March 2021

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 7.488

9940 572 462 | 6381 907 438 | ijircce@gmail.com | www.ijircce.com

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.488 |

|| Volume 9, Issue 3, March 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0903189 |

Security in Data Group Sharing and Multi-Owner Dispersion in Cloud

V.Thanga Jeeviha

Assistant Professor, Jayamatha Engineering College, Aralvaimozhi, Tamil Nadu, India

ABSTRACT: Cryptographic techniques have been utilized to provide data confidentiality in cloud computing, current mechanisms cannot enforce privacy concerns over cipher text associated with multiple owners, which makes co-owners unable to appropriately control whether data disseminators can actually disseminate their data. A secure data group sharing and conditional dissemination scheme with multi-owner in cloud computing, in which data owner can share private data with a group of users via the cloud in a secure way, and data disseminator can disseminate the data to a new group of users if the attributes satisfy the access policies in the cipher text. A multiparty access control mechanism over the disseminated cipher text, in which the data co-owners can append new access policies to the cipher text due to their privacy preferences. Moreover, three policy aggregation strategies, including full permit, owner priority and majority permit, are provided to solve the privacy conflicts problem caused by different access policies.

KEYWORDS: Cryptography, confidentiality, cipher text, Cloud Computing

I. INTRODUCTION

Computer security (Also known as cyber security or IT Security) is information security as applied to computers and networks. The field covers all the processes and mechanisms by which computer-based equipment, information and services are protected from unintended or unauthorized access, change or destruction. Computer security also includes protection from unplanned events and natural disasters. Otherwise, in the computer industry, the term security -- or the phrase computer security -- refers to techniques for ensuring that data stored in a computer cannot be read or compromised by any individuals without authorization. Most computer security measures involve data encryption and passwords. Data encryption is the translation of data into a form that is unintelligible without a deciphering mechanism. A password is a secret word or phrase that gives a user access to a particular program or system.

If you don't take basic steps to protect your work computer, you put it and all the information on it at risk. You can potentially compromise the operation of other computers on your organization's network, or even the functioning of the network as a whole.

Technical measures like login passwords, anti-virus are essential. (More about those below) However, a secure physical space is the first and more important line of defense.

Is the place you keep your workplace computer secure enough to prevent theft or access to it while you are away? While the Security Department provides coverage across the Medical center, it only takes seconds to steal a computer, particularly a portable device like a laptop or a PDA. A computer should be secured like any other valuable possession when you are not present.

Human threats are not the only concern. Computers can be compromised by environmental mishaps (e.g., water, coffee) or physical trauma. Make sure the physical location of your computer takes account of those risks as well.

The University's networks and shared information systems are protected in part by login credentials (user-IDs and passwords). Access passwords are also an essential protection for personal computers in most circumstances. Offices are usually open and shared spaces, so physical access to computers cannot be completely controlled.

To protect your computer, you should consider setting passwords for particularly sensitive applications resident on the computer (e.g., data analysis software), if the software provides that capability.

Because we deal with all facets of clinical, research, educational and administrative data here on the medical campus, it is important to do everything possible to minimize exposure of data to unauthorized individuals.

Up-to-date, properly configured anti-virus software is essential. While we have server-side anti-virus software on our network computers, you still need it on the client side (your computer).

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.488 |

|| Volume 9, Issue 3, March 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0903189 |

Anti-virus products inspect files on your computer and in email. Firewall software and hardware monitor communications between your computer and the outside world. That is essential for any networked computer.

It is critical to keep software up to date, especially the operating system, anti-virus and anti-spyware, email and browser software. The newest versions will contain fixes for discovered vulnerabilities.

Almost all anti-virus have automatic update features (including SAV). Keeping the "signatures" (digital patterns) of malicious software detectors up-to-date is essential for these products to be effective.

Even if you take all these security steps, bad things can still happen. Be prepared for the worst by making backup copies of critical data, and keeping those backup copies in a separate, secure location. For example, use supplemental hard drivers, CDs/DVDs, or flash drives to store critical, hard-to-replace data.

If you believe that your computer or any data on it has been compromised, your should make a information security incident report. That is required by University policy for all data on our systems, and legally required for health, education, financial and any other

II. RELATED WORKS

Wang et.al. Cloud Computing has been envisioned as the next-generation architecture of IT Enterprise. It moves the application software and databases to the centralized large data centers, where the management of the data and services may not be fully trustworthy. This unique paradigm brings about many new security challenges, which have not been well understood. This work studies the problem of ensuring the integrity of data storage in Cloud Computing. In particular, we consider the task of allowing a third party auditor (TPA), on behalf of the cloud client, to verify the integrity of the dynamic data stored in the cloud. The introduction of TPA eliminates the involvement of the client through the auditing of whether his data stored in the cloud are indeed intact, which can be important in achieving economies of scale for Cloud Computing. The support for data dynamics via the most general forms of data operation, such as block modification, insertion, and deletion, is also a significant step toward practicality, since services in Cloud Computing are not limited to archive or backup data only. While prior works on ensuring remote data integrity often lacks the support of either public auditability or dynamic data operations, this paper achieves both. We first identify the difficulties and potential security problems of direct extensions with fully dynamic data updates from prior works and then show how to construct an elegant verification scheme for the seamless integration of these two salient features in our protocol design. In particular, to achieve efficient data dynamics, we improve the existing proof of storage models by manipulating the classic Merkle Hash Tree construction for block tag authentication. To support efficient handling of multiple auditing tasks, we further explore the technique of bilinear aggregate signature to extend our main result into a multiuser setting, where TPA can perform multiple auditing tasks simultaneously. Extensive security and performance analysis show that the proposed schemes are highly efficient and provably secure.

J. Yu.et.al Cloud storage auditing is viewed as an important service to verify the integrity of the data in public cloud. Current auditing protocols are all based on the assumption that the client's secret key for auditing is absolutely secure. However, such assumption may not always be held, due to the possibly weak sense of security and/or low security settings at the client. If such a secret key for auditing is exposed, most of the current auditing protocols would inevitably become unable to work. In this paper, we focus on this new aspect of cloud storage auditing. We investigate how to reduce the damage of the client's key exposure in cloud storage auditing, and give the first practical solution for this new problem setting. We formalize the definition and the security model of auditing protocol with key-exposure resilience and propose such a protocol. In our design, we employ the binary tree structure and the preorder traversal technique to update the secret keys for the client. We also develop a novel authenticator construction to support the forward security and the property of block less verifiability. The security proof and the performance analysis show that our proposed protocol is secure and efficient.

H. Zhang et.al. Key exposure is one serious security problem for cloud storage auditing. In order to deal with this problem, cloud storage auditing scheme with key-exposure resilience has been proposed. However, in such a scheme, the malicious cloud might still forge valid authenticators later than the key-exposure time period if it obtains the current secret key of data owner. In this paper, we innovatively propose a paradigm named strong key-exposure resilient auditing for secure cloud storage, in which the security of cloud storage auditing not only earlier than but also later than the key exposure can be preserved. We formalize the definition and the security model of this new kind of cloud storage auditing and design a concrete scheme. In our proposed scheme, the key exposure in one time period doesn't affect the security of cloud storage auditing in other time periods. The rigorous security proof and the experimental results demonstrate that our proposed scheme achieves desirable security and efficiency.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.488 |

|| Volume 9, Issue 3, March 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0903189 |

B. Wang et.al. With cloud data services, it is commonplace for data to be not only stored in the cloud, but also shared across multiple users. Unfortunately, the integrity of cloud data is subject to skepticism due to the existence of hardware/software failures and human errors. Several mechanisms have been designed to allow both data owners and public verifiers to efficiently audit cloud data integrity without retrieving the entire data from the cloud server. However, public auditing on the integrity of shared data with these existing mechanisms will inevitably reveal confidential information-identity privacy-to public verifiers. In this paper, we propose a novel privacy-preserving mechanism that supports public auditing on shared data stored in the cloud. In particular, exploit ring signatures to compute verification metadata needed to audit the correctness of shared data. With our mechanism, the identity of the signer on each block in shared data is kept private from public verifiers, who are able to efficiently verify shared data integrity without retrieving the entire file. In addition, our mechanism is able to perform multiple auditing tasks simultaneously instead of verifying them one by one. Our experimental results demonstrate the effectiveness and efficiency of our mechanism when auditing shared data integrity.

G. Yang.et.al.Nowadays, cloud storage service has been widely adopted by diverse organizations, through which users can conveniently share data with others. For security consideration, previous public auditing schemes for shared cloud data concealed the identities of group members. However, the unconstrained identity anonymity will lead to a new problem, that is, a group member can maliciously modify shared data without being identified. Since uncontrolled malicious modifications may wreck the usability of the shared data, the identity traceability should also be retained in data sharing. In this paper, we propose an efficient public auditing solution that can preserve the identity privacy and the identity traceability for group members simultaneously. Specifically, we first design a new framework for data sharing in cloud, and formalize the definition of the public auditing scheme for shared cloud data supporting identity privacy and traceability. And then we construct such a scheme, in which a group manager is introduced to help members generate authenticators to protect the identity privacy and two lists are employed to record the members who perform the latest modification on each block to achieve the identity traceability. Besides, the scheme also achieves data privacy during authenticator generation by utilizing blind signature technique. Based on the proposed scheme, we further design an auditing system for practical scenarios. Finally, we prove the proposed schemeissecure based on several security requirements, and justify its performance by concrete implementations.hence, the security and privacy of the proposed MA-ABE scheme is preserved.

III. EXISTING SYSTEM

A series of unaddressed security and privacy issue merge as important research topics in cloud computing. To deal with these threats, appropriate encryption techniques should be utilized to guarantee data confidentiality. By utilizing the IBBE technique, Huang et al, Patranabis et al. and Liu et al. proposed several private data sharing schemes in cloud computing. In these schemes, data owner outsources encrypted data to the CSP by defining a list of receivers, thus only the intended users in the list can get the decryption key and further decrypt the private data. ABE is another promising one-to-many cryptographic technique to realize data encryption and fine-grained access control in cloud computing. Specially, cipher text-policy ABE (CP-ABE)is suited for access control in real world applications due to its expressiveness in describing the access policy of cipher text. Guo et al. proposed a privacy preserving data dissemination scheme in mobile social networks based on CP-ABE. Teng et al. proposed an efficient access control scheme with hierarchical CP-ABE to achieve privacy preservation in cloud storage systems. ABE has been utilized to provide access control of medical documents when providing health services in cloud, so that health record can only be decrypted by authorized document requesters with corresponding attributes.
Few disadvantages of existing system are,

The existing schemes only focuses on co-owners' access control over plaintext data, and ignores the data confidentiality towards semi-trusted CSP and malicious users.

PRE schemes only allow data dissemination in an all-or-none manner.

Need complicated techniques or assumptions

IV. PROPOSED SYSTEM

We achieve fine-grained conditional dissemination over the cipher text in cloud computing with attribute-based CPRE. The cipher text is firstly deployed with an initial access policy customized by data owner. Our proposed multiparty access control mechanism allows the data co-owners to append new access policies to the cipher text due to

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.488 |

|| Volume 9, Issue 3, March 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0903189 |

their privacy preferences. Hence, the cipher text can be re-encrypted by the data disseminator only if the attributes satisfy enough access policies. We provide three strategies including full permit, owner priority and majority permit to solve the privacy conflicts problem. Specially, in full permit strategy, data disseminator must satisfy all the access policies defined by data owner and co-owners. With the majority permit strategy, data owner can firstly choose a threshold value for data co-owners, and the cipher text can be disseminated if and only if the sum of the access policies satisfied by data disseminator's attributes is greater than or equal to this fixed threshold. We prove the correctness of our scheme, and conduct

Experiments to evaluate the performance at each phase to indicate the effectiveness of our scheme. This paper is structured as follows.

Data confidentiality: The data should be well protected against the semi-trusted CSP and unauthorized users. The users who are not the receivers of a cipher text defined by the data owner or data disseminator should not be able to access the plaintext.

Fine-grained dissemination conditions: The data owner and data co-owners can customize fine-grained and tree-based dissemination conditions for their data. The cipher text can only be disseminated by the users who satisfy these conditions.

Continuous policy enforcement: The data owner's access policy is enforced in the initial cipher text as well as the renewed cipher text.

Collusion resistance: If each of the data disseminators' attributes cannot satisfy the access policies in the cipher text individually with their own attributes, these users could not collude and decrypt this cipher text.

Few advantages of proposed system are,

The security analysis and experimental results show

Our scheme is practical and efficient for secure data sharing with multi-owner in cloud computing.

Prevent unauthorized entities (e.g. semi-trusted CSP and malicious users) from accessing the data.

V. SYSTEM MODEL

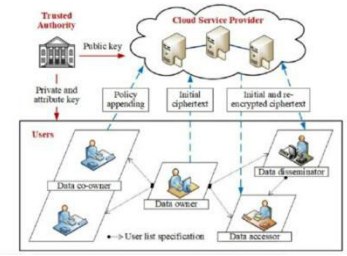


Fig.1 System Model

VI. MODULES

1. Trusted authority
2. Cloud service provider
3. User

MODULES DESCSRIPTION

Trusted authority: The trusted authority is a fully trusted part that initializes the system public key, and generates private keys as well as attribute keys for users. For example, it can be acted by the administrator of the organization or social security administration.

CSP: The CSP is a semi-trusted part that provides each user with a virtual space and convenient data storage service with the cloud infrastructure.

User: We divide the user role into the following categories: data owner, data co-owner, data disseminator and data access or. The data owner can choose a policy aggregation strategy and define an access policy to enforce dissemination conditions.

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.488 |

|| Volume 9, Issue 3, March 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0903189 |

VII. RESULTS

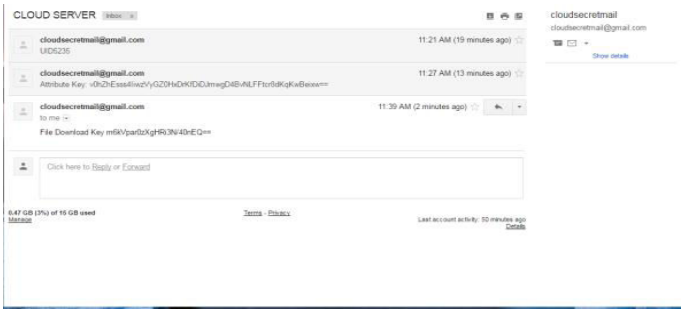


Fig.2 cloud server key

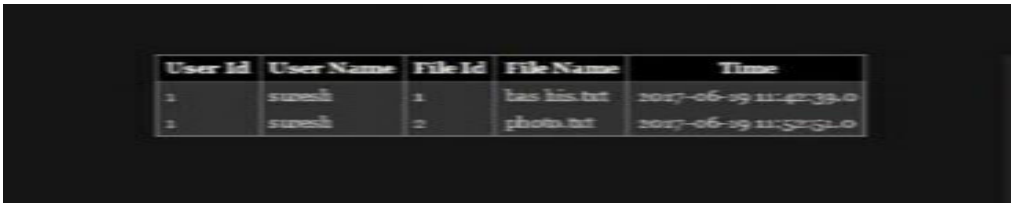


Fig.3 Download History

VIII. CONCLUSION

The data security and privacy is a concern for users in cloud computing. In particular, how to enforce privacy concerns of multiple owners and protect the data confidentiality becomes a challenge. In this paper, we present a secure data group sharing and conditional dissemination scheme with multi-owner in cloud computing. In our scheme, the data owner could encrypt her or his private data and share it with a group of data accessors at one time in a convenient way based on IBBE technique. Meanwhile, the data owner can specify fine-grained access policy to the cipher text based on attribute-based CPRE, thus the cipher text can only be re-encrypted by data disseminator whose attributes satisfy the access policy in the cipher text. We further present a multiparty access control mechanism over the cipher text, which allows the data co-owners to append their access policies to the cipher text.

REFERENCES

[1] Gentry C, Halevi S. Implementing gentry's fully-homomorphic encryption scheme. in: Advances in Cryptology–EUROCRYPT 2011. Berlin, Heidelberg: Springer press, pp. 129-148, 2011.
[2] Brakerski Z, Vaikuntanathan V. Efficient fully homomorphic encryption from (standard) LWE. in: Proceeding of IEEE Symposium on Foundations of Computer Science. California, USA: IEEE press, pp. 97-106, Oct. 2011.
[3] Qihua Wang, Hongxia Jin. "Data leakage mitigation for discertionary access control in collaboration clouds". the 16thACM Symposium on Access Control Models and Technologies(SACMAT), pp.103-122, Jun. 2011.
[4] Adam Skillen and Mohammad Mannan. On Implementing Deniable Storage Encryption for Mobile Devices. the 20thAnnual Network and Distributed System Security Symposium(NDSS), Feb. 2013.
[5] Wang W, Li Z, Owens R, et al. Secure and efficient access to outsourced data. in: Proceedings of the 2009 ACM workshop on Cloud computing security. Chicago, USA: ACM pp. 55-66, 2009.
[6] Maheshwari U, Vingralek R, Shapiro W. How to build a trusted database system on un trusted storage. in: Proceedings of the 4th conference on Symposium on Operating System Design &Implementation-Volume 4. USENIX Association, pp. 10-12, 2000.
[7] Kan Yang, Xiaohua Jia, Kui Ren: Attribute-based fine-grained access control with efficient revocation in cloud storage systems. ASIACCS 2013, pp. 523-528, 2013.
[8] Crampton J, Martin K, Wild P. On key assignment for hierarchical access control. in: Computer Security Foundations Workshop. IEEE press, pp. 14-111, 2006.
[9] Shi E, Bethencourt J, Chan T H H, et al. Multi-dimensional range query over encrypted data. in: Proceedings of Symposium on Security and Privacy (SP), IEEE press, 2007. 350- 364
[10] Cong Wang, Kui Ren, Shucheng Yu, and Karthik MahendraRaje Urs. Achieving Usable and Privacy-assured Similarity Search over Outsourced Cloud Data. IEEE INFOCOM 2012, Orlando, Florida, March 25-30, 2012

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.488 |

|| Volume 9, Issue 3, March 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0903189 |

[11] Yu S., Wang C., Ren K., Lou W. Achieving Secure, Scalable, and Fine-grained Data Access Control in Cloud Computing. INFOCOM 2010, pp. 534-542, 2010

[12] Kan Yang, Xiaohua Jia, Kui Ren, Bo Zhang, Ruitao Xie: DACMACS: Effective Data Access Control for Multi authority Cloud Storage Systems. IEEE Transactions on Information Forensics and Security, Vol. 8, No. 11, pp.1790-1801, 2013.

[13] Stehlé D, Steinfeld R. Faster fully homomorphic encryption. in: Proceedings of 16th International Conference on the Theory and Application of Cryptology and Information Security. Singapore: Springer press, pp.377-394, 2010.

[14] Junzuo Lai, Robert H. Deng ,Yingjiu Li ,et al. Fully secure key policy attribute-based encryption with constant-size cipher text sand fast decryption. In: Proceedings of the 9th ACM symposium on Information, Computer and Communications Security (ASIACCS), pp. 239-248, Jun. 2014.

[15] Bethencourt J, Sahai A, Waters B. Cipher text-policy attribute based encryption in: Proceedings of the 2007 IEEE Symposium on Security and Privacy (SP). Washington, USA: IEEE Computer Society, pp. 321-334, 2007.

[16] Liang Xiaohui, Cao Zhenfu, Lin Huang, et al. Attribute basedproxy re-encryption with delegating capabilities. in: Proceedings of the 4th International Symposium on Information, Computer and Communications Security. New York, NY, USA: ACM press, pp. 276-286, 2009.

[17] Pirretti M, Traynor P, McDaniel P, et al. Secure attribute – based systems. in: Proceedings of the 13th ACM Conference on Computer and Communications Security. New York, USA: ACM press, pp. 99-112, 2006.

[18] Yu S., Wang C., Ren K., et al. Attribute based data sharing with attribute revocation. in: Proceedings of the 5th International Symposium on Information, Computer and Communications Security (ASIACCS), New York, USA: ACM press pp. 261-270, 2010.

[19] Sandhu R S, Coyne E J, Feinstein H L, et al. Role-based access control models. Computer, 29(2): 38-47, 1996.

[20] Tian X X, Wang X L, Zhou A Y. DSP RE-Encryption: A flexible mechanism for access control enforcement management in DaaS. in: Proceedings of IEEE International Conference on Cloud Computing. IEEE press, pp.25-32, 2009

[21] Di Vimercati S D C, Foresti S, Jajodia S, et al. Over-encryption: management of access control evolution on outsourced data. in: Proceedings of the 33rd international conference on Very large data bases. Vienna, Austria: ACM, pp. 123-134, 2007.

[22] Kan Yang, Xiaohua Jia, Kui Ren, Ruitao Xie, Liusheng Huang: Enabling efficient access control with dynamic policy updating for big data in the cloud. INFOCOM 2014, pp.2013-2021, 2014.

INNO SPACE
SJIF Scientific Journal Impact Factor

Impact Factor:
7.488

ISSN INTERNATIONAL STANDARD SERIAL NUMBER INDIA

निस्केयर
NISCAIR

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

9940 572 462 6381 907 438 ijircce@gmail.com

www.ijircce.com

Scan to save the contact details