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Advanced Access Controls and Deduplication for Privacy in Multimedia Cloud Computing

Chrisel Goveas[1], Gaanashree S[2], Indushree M[3]
Students, B.E. Department of Information Science and Engineering[1,2]
Assistant Professor, Department of Information Science and Engineering[3]
Global Academy of Technology, Bengaluru, India

Abstract: *This work provides a privacy-preserving multi-dimensional media sharing system, SMACD, for portable cloud computing scenarios within the context of widespread media sharing enabled by cloud computing and devices. Attribute-based encryption is used to jumble each media layer, ensuring media privacy and granular access control. To reduce the complexity of the get-to arrangement and adapt to the properties of multi-dimensional media, a multi-level get-to arrangement development with a secret-sharing plot is presented. For both intra-server and inter-server deduplication, decentralized key servers are offered. With cloud computing, databases and application software are moved to sizable data centers, where data and service management may not be entirely reliable. However, this special feature brings up a number of new, poorly understood security challenges. Due to the fact that both user data and applications are on provider premises, cloud computing raises data security problems as neither is entirely contained on the user's machine. Although clouds often have a single architecture, they can have numerous customers with various needs. The solution provided by all cloud providers is to use encryption methods to encrypt the data. To solve every issue, there's also a potential that the cloud service is unreliable.*

Keywords: Multi-dimensional media, scalable access control, secure deduplication.

REFERENCES

[1]. Q. Huang, Z. Zhang and Y. Yang, "Privacy-Preserving Media Sharing with Scalable Access Control and Secure Deduplication in Mobile Cloud Computing," in IEEE Transactions on Mobile Computing, vol. 20, no. 5, pp. 1951-1964, 1 May 2021, doi: 10.1109/TMC.2020.2970705. keywords: {Media;Cloud computing;Videos;Privacy;Access control;Encryption;Multi-dimensional media;scalable access control;secure deduplication;mobile cloud computing},

[2]. Z. Zhang, F. Zhou, S. Qin, Q. Jia and Z. Xu, "Privacy-Preserving Image Retrieval and Sharing in Social Multimedia Applications," in IEEE Access, vol. 8, pp. 66828-66838, 2020, doi: 10.1109/ACCESS.2020.2984916. keywords: {Cryptography;Image retrieval;Access control;Feature extraction;Indexes;Privacy;Cloud computing;Image retrieval;image sharing;multimedia;privacy-preserving},

[3]. L. Xu, T. Bao, L. Zhu and Y. Zhang, "Trust-Based Privacy-Preserving Photo Sharing in Online Social Networks," in IEEE Transactions on Multimedia, vol. 21, no. 3, pp. 591-602, March 2019, doi: 10.1109/TMM.2018.2887019. keywords: {Privacy;Social network services;Access control;Loss measurement;Face;Simulation;Tuning;Social trust;anonymization;privacy preserving;photo sharing;online social networks},

[4]. S. Badsha, I. Khalil, X. Yi and M. Atiquzzaman, "Designing Privacy-Preserving Protocols for Content Sharing and Aggregation in Content Centric Networking," in IEEE Access, vol. 6, pp. 42119-42130, 2018, doi: 10.1109/ACCESS.2018.2856299. keywords: {Privacy;Cryptography;Routing protocols;Cryptographic protocols;Access control;Statistical analysis;CCN;privacy;publishers;consumers;content},

[5]. D. Yang, B. Qu and P. Cudré-Mauroux, "Privacy-Preserving Social Media Data Publishing for Personalized Ranking-Based Recommendation," in IEEE Transactions on Knowledge and Data Engineering, vol. 31, no. 3, pp. 507-520, 1 March 2019, doi: 10.1109/TKDE.2018.2840974. keywords: {Data privacy;Social network services;Publishing;Distortion;Privacy;Engines;Loss measurement;Privacy-preserving data

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publishing;customized privacy protection;personalization;ranking-based recommendation;social media;location based social networks},

[6]. W. Tang, J. Ren and Y. Zhang, "Enabling Trusted and Privacy-Preserving Healthcare Services in Social Media Health Networks," in IEEE Transactions on Multimedia, vol. 21, no. 3, pp. 579-590, March 2019, doi: 10.1109/TMM.2018.2889934. keywords: {Medical services;Social network services;Privacy;Resists;Collaboration;Servers;Social media healthcare networks;trust;privacy preservation;bloom filter;collaborative filtering;sybil attack},

[7]. J. Chen, J. He, L. Cai and J. Pan, "Disclose More and Risk Less: Privacy Preserving Online Social Network Data Sharing," in IEEE Transactions on Dependable and Secure Computing, vol. 17, no. 6, pp. 1173-1187, 1 Nov.-Dec. 2020, doi: 10.1109/TDSC.2018.2861403. keywords: {Privacy;Data privacy;Authorization;Servers;Feature extraction;Social networking (online);Risk management;Inference attack;online social network;privacy;data sharing},

[8]. C. Ma, Z. Yan, and C. W. Chen, "Attribute-based multi-dimensionscalable access control for social media sharing," in 2016 IEEEInternational Conference on Multimedia and Expo (ICME), 2016, pp.1–6.

[9]. Y. Qu, S. Yu, W. Zhou, S. Chen and J. Wu, "Customizable Reliable Privacy-Preserving Data Sharing in Cyber-Physical Social Networks," in IEEE Transactions on Network Science and Engineering, vol. 8, no. 1, pp. 269-281, 1 Jan.-March 2021, doi: 10.1109/TNSE.2020.3036855. keywords: {Privacy;Differential privacy;Diseases;Human factors;Social networking (online);Cyber-physical social network;customizable privacy protection;differential privacy;attack-proof.},

[10]. Q. Li, Y. Tian, Y. Zhang, L. Shen and J. Guo, "Efficient Privacy-Preserving Access Control of Mobile Multimedia Data in Cloud Computing," in IEEE Access, vol. 7, pp. 131534-131542, 2019, doi: 10.1109/ACCESS.2019.2939299. keywords: {Encryption;Cloud computing;Mobile handsets;Access control;Privacy;Mobile multimedia data;access control;CP-ABE;partially hidden policy;online/offline encryption;efficient decryption},

[11]. L. Lyu, S. C. -K. Chau, N. Wang and Y. Zheng, "Cloud-Based Privacy-Preserving Collaborative Consumption for Sharing Economy," in IEEE Transactions on Cloud Computing, vol. 10, no. 3, pp. 1647-1660, 1 July-Sept. 2022, doi: 10.1109/TCC.2020.3010235. keywords: {Cloud computing;Privacy;Protocols;Collaboration;Cryptography;Data privacy;Data aggregation;Cloud-based privacy-preserving;collaborative consumption;sharing economy;homomorphic cryptosystems},

[12]. J. H. Abawajy, M. I. H. Ninggal and T. Herawan, "Privacy Preserving Social Network Data Publication," in IEEE Communications Surveys & Tutorials, vol. 18, no. 3, pp. 1974-1997, thirdquarter 2016, doi: 10.1109/COMST.2016.2533668. keywords: {Social network services;Data privacy;Publishing;Privacy;Media;Joining processes;Electronic mail;Social network data;Privacy attacks;Anonymized graphs;Privacy preserving;data privacy},

[13]. J. Shen, H. Yang, P. Vijayakumar and N. Kumar, "A Privacy-Preserving and Untraceable Group Data Sharing Scheme in Cloud Computing," in IEEE Transactions on Dependable and Secure Computing, vol. 19, no. 4, pp. 2198-2210, 1 July-Aug. 2022, doi: 10.1109/TDSC.2021.3050517. keywords: {Servers;Cloud computing;Security;Distributed databases;Data privacy;Protocols;Data models;Data sharing;oblivious random access memory;cloud computing;multiple users},

[14]. H. Li, K. Wang, X. Liu, Y. Sun and S. Guo, "A Selective Privacy-Preserving Approach for Multimedia Data," in IEEE MultiMedia, vol. 24, no. 4, pp. 14-25, October-December 2017, doi: 10.1109/MMUL.2017.4031322. keywords: {Encryption;Data privacy;Streaming media;Data models;Data analysis;Computer crime;Big data;Resource management;Handheld devices;Computer security;multimedia data;security levels;privacy weights;time constraints;resource constraints;security;big data;data analysis;cybercrime}.

[15]. K. Liu, M. Li, and X. Li, "Hiding Media Data via Shaders: EnablingPrivate Sharing in the Clouds," in 2015 IEEE 8th InternationalConference on Cloud Computing, 2015, pp. 122–129.

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[16]. 16 .C. Ma and C. W. Chen, "Secure media sharing in the cloud:Two-dimensional-scalable access control and comprehensive key management," in 2014 IEEE International Conference on Multimedia and Expo (ICME), 2014, pp. 1–6.

[17]. C. Ma, Z. Yan, and C. W. Chen, "Scalable Access Control For Privacy-Aware Media Sharing," IEEE Transactions on Multimedia,vol. 21, no. 1, pp. 173–183, Jan. 2019.

[18]. J. R. Douceur, A. Adya, W. J. Bolosky, P. Simon, and M. Theimer,"Reclaiming space from duplicate files in a serverless distributed file system," in Proceedings 22nd International Conference on Distributed Computing Systems, 2002, pp. 617–624.

[19]. M. Bellare, S. Keelveedhi, and T. Ristenpart, "Message-Locked Encryption and Secure Deduplication," in Advances in Cryptology EUROCRYPT 2013, 2013, pp. 296–312.

[20]. J. Bethencourt, A. Sahai, and B. Waters, "Ciphertext-Policy Attribute-Based Encryption," in 2007 IEEE Symposium on Security and Privacy (SP '07), 2007, pp. 321–334.

[21]. M. Abadi, D. Boneh, I. Mironov, A. Raghunathan, and G. Segev,"Message-Locked Encryption for Lock-Dependent Messages," in Advances in Cryptology CRYPTO 2013, 2013, pp. 374–391.

[22]. M. Bellare, S. Keelveedhi, and T. Ristenpart, "DupLESS: Serveraided Encryption for Deduplicated Storage," in Proceedings of the 22nd USENIX Conference on Security, 2013, pp. 179–194.

[23]. Y. Shin, D. Koo, J. Yun, and J. Hur, "Decentralized Server-aided Encryption for Secure Deduplication in Cloud Storage," IEEETransactions on Services Computing, pp. 1–1, 2018.

[24]. Y. Zheng, X. Yuan, X. Wang, J. Jiang, C. Wang, and X. Gui, "Toward Encrypted Cloud Media Center With Secure Deduplication," IEEE Transactions on Multimedia, vol. 19, no. 2, pp. 251–265, Feb. 2017.

[25]. V. Goyal, O. Pandey, A. Sahai, and B. Waters, "Attribute-based Encryption for Fine-grained Access Control of Encrypted Data,"in Proceedings of the 13th ACM Conference on Computer and Communications Security, 2006, pp. 89–98

[26]. M. Ambrosin, C. Busold, M. Conti, A.-R. Sadeghi, and M. Schunter, "Updaticator: Updating Billions of Devices by an efficient, Scalable and Secure Software Update Distribution over Untrusted Cache-enabled Networks," in Computer Security - ESORICS 2014, 2014, pp. 76–93.

[27]. "Vimeo Case Study," https://cloud.google.com/customers/vimeo.

[28]. J. K. Liu, M. H. Au, W. Susilo, K. Liang, R. Lu, and B. Srinivasan,"Secure sharing and searching for real-time video data in mobile cloud," IEEE Network, vol. 29, no. 2, pp. 46–50, Mar. 2015.

[29]. Q. Huang, W. Yue, Y. He, and Y. Yang, "Secure Identity-Based Data Sharing and Profile Matching for Mobile Healthcare Social Networks in Cloud Computing," IEEE Access, vol. 6, pp. 36 584–36 594, 2018.

[30]. Wang, Q., Wang, C., Ren, K., Lou, W., & Li, J. 2011. Enabling public auditability and data dynamics for storage security in cloud computing. Parallel and Distributed Systems, IEEE Trans. on, 22(5), 847-859