SECURE AND EFFICIENT PRODUCT INFORMATION RETRIEVAL IN CLOUD COMPUTING

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ABSTRACT

- Cloud computing is a promising IT technique that can organize a large amount of IT resources in an efficient and flexible manner. Increasingly numerous companies plan to move their local data management systems to the cloud and store and manage their product information on cloud servers.
- An accompanying challenge is how to protect the security of the commercially confidential data while maintaining the ability to search the data.
- In this paper, a privacy-preserving data search scheme is proposed that can support both the identifier-based and feature-based product searches. Specifically, two novel index trees are constructed and encrypted that can be searched without knowing the plaintext data.

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EXISTING SYSTEM

- Driven by the revolution of information technology in recent years and with the slowdown in the economic growth, there is an urgent need to transform China's entire industrial chain.
- To promote an all-around industrial upgrading, China has proposed the strategy of "Internet +", and the integration of China's ecommerce with its traditional economy has been significantly improved.
- Ecommerce has accelerated its expansion from consumption to various industries and infiltrated all aspects of social and economic activities, thereby driving the development of enterprise-level ecommerce, both in scope and in depth, and facilitating the transformation and upgrading of enterprises.

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- The rapidly rising number of cyber-transactions have spawned ecommerce big data. As increasingly numerous data files are being stored locally in enterprises, the pressure on local data storage systems greatly increases. Local hardware failures lead to great damage or loss of data, which greatly affects the daily operations of the enterprises.
- Fortunately, cloud storage techniques came into being under such circumstances. Cloud computing can collect and organize a large number of different types of storage devices by means of various functions, such as cluster applications, network technology and distributed file systems.

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PROPOSED SYSTEM

- In this paper, we focus on the second and third types of data and design a secure and efficient data search scheme. For convenience, a practical background is presented as follows.
- We first assume that each product has a unique identifier in the whole company and a detailed description file. The file includes all of the detailed information of the product, such as the design flow, design standard, product features and market position.
- As we all know, launching the product to the market earlier than the competitor can occupy the market quickly and benefit the company considerably. As a consequence, all of the information should be kept from the competitors and the public, considering that the products are time-sensitive.

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- We summarize the primary contributions of this paper as follows:
  - A product information outsourcing and searching system model including the data owner, cloud server and data users is designed.
  - Two index structures supporting efficient product retrieval are constructed. Moreover, corresponding search algorithms are also proposed.
  - We integrate the secure kNN algorithm into our● scheme to guarantee the security of the outsourced data while maintaining the its searchability.
  - A series of simulations are conducted to illustrate the security and efficiency of the proposed scheme.

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HARDWARE REQUIREMENTS

- Processor - Pentium –III
- Speed - 1.1 Ghz
- RAM - 256 MB(min)
- Hard Disk - 20 GB
- Floppy Drive - 1.44 MB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - SVGA

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SOFTWARE REQUIREMENTS

- Operating System : Windows 8
- Front End : Java /DOTNET
- Database : Mysql/HEIDISQL

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CONCLUSION

- In this paper, we designed a secure and efficient product information retrieval scheme based on cloud computing. Specifically, two index structures, including a hash value AVL tree and a product vector retrieval tree, are constructed, and they support an identifier-based product search and feature-vector-based product search, respectively.
- Correspondingly, two search algorithms are designed to search the two trees. To protect the product information privacy, all the outsourced data are encrypted. The product information is symmetrically encrypted based on a set of independent secret keys, and the product vectors are encrypted based on the secure kNN algorithm. Security analysis and simulation results illustrate the security and efficiency of the proposed scheme.

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REFERENCE

[1] www.100EC.cn. 2016 Monitoring Report on the Data of China's Ecommerce Market [EB/OL]. http://www.100ec.cn/zt/16jcbg/,2017-05-24

[2] Ballard, Lucas, Seny Kamara, and Fabian Monrose. "Achieving efficient conjunctive keyword searches over encrypted data.“ International Conference on Information and Communications Security. Springer Berlin Heidelberg, 2005.

[3] Boneh, Dan, et al. "Public key encryption with keyword search.“ International Conference on the Theory and Applications of Cryptographic Techniques. Springer Berlin Heidelberg, 2004.

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CONTINUE

[4] Fu, Zhangjie, et al. "Enabling personalized search over encrypted outsourced data with efficiency improvement." IEEE transactions on parallel and distributed systems 27.9 (2016): 2546-2559.

[5] Chen, Chi, et al. "An efficient privacy-preserving ranked keyword search method." IEEE Transactions on Parallel and Distributed Systems 27.4 (2016): 951-963.

[6] C. Zhu, J. J. P. C. Rodrigues, V. C. M. Leung, L. Shu, and L. T. Yang, "Trust-Based Communication for Industrial Internet of Things," IEEE Communications Magazine, 2018.

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