Decryptable Attribute-Based Keyword Search on E-Health Cloud

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Abstract: Cloud computing provides lot of benefits to enterprises to offload their data and software services to cloud saving them lot of money that has to be spent on infrastructure setup cost. Enterprises wanted to offload their data to cloud and save on their infrastructure cost. But when offloading the data security and privacy is a important concern. In this work, we focus on the search on encrypted data and provide a effective solution for the search. Searchable symmetric encryption (SSE) allows retrieval of the encrypted data over cloud. We formulate the privacy issue from the aspect of similarity relevance and scheme robustness. We observe that serve-side ranking based on order-preserving encryption (OPE) inevitably leaks data privacy. To eliminate the leakage, we propose a secure-channel free ciphertext-policy decryptable attribute-based keyword search (CP-DABKS) scheme on eHealth cloud in the Internet of Things (IoT) platform. Additionally in CP-DABKS, we employ a vector space model and homomorphic encryption. The vector space model helps to provide sufficient search accuracy, and the homomorphic encryption enables users to involve in the ranking while the majority of computing work is done on the server side by operations only on ciphertext.

Keywords: Medical, eHealth, Attribute-based Keyword search, Cloud computing

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