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Content-Aware Secure Search Using Attribute Based Encryption IoT Cloud Platforms

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Abstract: *The integration of cloud computing with Internet of Things (IoT) devices offers vast opportunities for scalable data storage and real-time services. However, it also introduces critical security and privacy challenges, particularly in ensuring fine-grained access control and secure data retrieval. This paper proposes a context-aware secure search framework using Attribute-Based Encryption (ABE) tailored for IoT-cloud platforms. The system enables encrypted data to be searched efficiently without revealing sensitive content or search patterns, leveraging context-aware policies to enhance access control flexibility. Additionally, the scheme supports forward security, ensuring past data remains protected even if current keys are compromised. Experimental analysis demonstrates the framework's effectiveness in maintaining data confidentiality, reducing computational overhead, and ensuring practical usability in resource-constrained IoT environments.*

Keywords: Internet of Things

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