Blockchain as a Platform for Secure Cloud Computing Services

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Abstract: Problems related to privacy and cyber-attacks have increased in recent years as a result of the rapid development of cloud computing. This work concerns secure cloud computing services on a blockchain platform, called cloud@blockchain, which benefit from the anonymity and immutability of blockchain. Two functions- anonymous file sharing and inspections to find illegally uploaded files- on cloud@blockchain are designed. On cloud@blockchain, cloud users can access data through smart contracts, and recognize all users within the application layer. The performance of three architectures- a pure blockchain, a hybrid blockchain with cache and a traditional database in accessing data is analyzed. The results reveal the superiority of the hybrid blockchain with the cache over the pure blockchain and the traditional database, which it outperforms by 500% and 53.19%, respectively.

Keywords: Blockchain as a Platform, Secure Cloud Computing, Cyber-Attack, Privacy, Smart Contract

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