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Utilizing Blockchain Technology to Guarantee Data Integrity and Security Across Cloud Platforms

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Abstract: *Cloud security and blockchain technology may increase cloud service security and integrity, according to this research. This study examines how blockchain integration reduces cloud security concerns and ensures data integrity. The first portion of the study examines integration fundamentals including provenance, immutable data storage, decentralized access control and identity, and smart contracts in security regulations. These aspects strengthen access control, data integrity, and cloud security protocols leveraging blockchain's decentralization, immutability, transparency, and smart contract capabilities. Integration security benefits are assessed thoroughly. This evaluation employs qualitative and quantitative analysis to analyze data security, integrity, transparency, access control, trust, and verifiability. Successful results show how successfully the integrated solution controlled security issues and increased organizations' cloud-based system security confidence. The study also highlights its flaws and improvement opportunities. Scalability, performance, laws and compliance, interoperability, user experience, security, and cost efficiency need additional research and review. Blockchain and cloud security may improve security, prevent data tampering, and boost data integrity and trust. The research expands our understanding of this integration's benefits, drawbacks, and uses. This report should encourage block chain technology research and development for enterprises*

Keywords: Blockchain Technology, Cloud Security, Data Integrity, Integration of Blockchain and Cloud

REFERENCES

[1]. Blockchain: The Insights You Need from Harvard Business Review" by Harvard Business Review Building Blockchain Projects" by Narayan Prusty
[2]. Buterin, V. (2014). Ethereum White Paper: A Next-Generation Smart Contract and Dcentralized Application Platform. Retrieved from https://ethereum.org/whitepaper/
[3]. Cachin, C. (2016). Architecture of the Hyperledger Blockchain Fabric. In 2016 1st Workshop on Blockchain Technologies and Applications (pp. 11-15). IEEE.
[4]. Dinh, T. T. A., Wang, J., Chen, G., Liu, R., & Ooi, B. C. (2018). BLOCKBENCH: A Framework for Analyzing Private Blockchains. In 2017 ACM International Conference a. on Management of Data (SIGMOD) (pp. 1085-1100). ACM.
[5]. Fernández-Caramés, T. M., & Fraga-Lamas, P. (2018). Towards Blockchain-Based Auditable Storage and Sharing of IoT Data. Sensors, 18(7), 2235.
[6]. Nakamoto, S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System. Retrieved from https://bitcoin.org/bitcoin.pdf.
[7]. Swan, M. (2015). Blockchain: Blueprint for a New Economy. O'Reilly Media.
[8]. Tosh, D., Mauthe, A., & Stiller, B. (2020). Blockchain-Based Security Framework for IoT Environments. IEEE Internet of Things Journal, 7(7), 6354-6365.
[9]. Yli-Huumo, J., Ko, D., Choi, S., Park, S., & Smolander, K. (2016). Where Is Current Research on Blockchain Technology? A Systematic Review. PloS One, 11(10), e0163477.

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[10]. Zheng, Z., Xie, S., Dai, H., Chen, X., & Wang, H. (2017). An Overview of Blockchain Technology: Architecture, Consensus, and Future Trends. In 2017 IEEE International Congress on Big Data (BigData Congress) (pp. 557-564). IEEE.