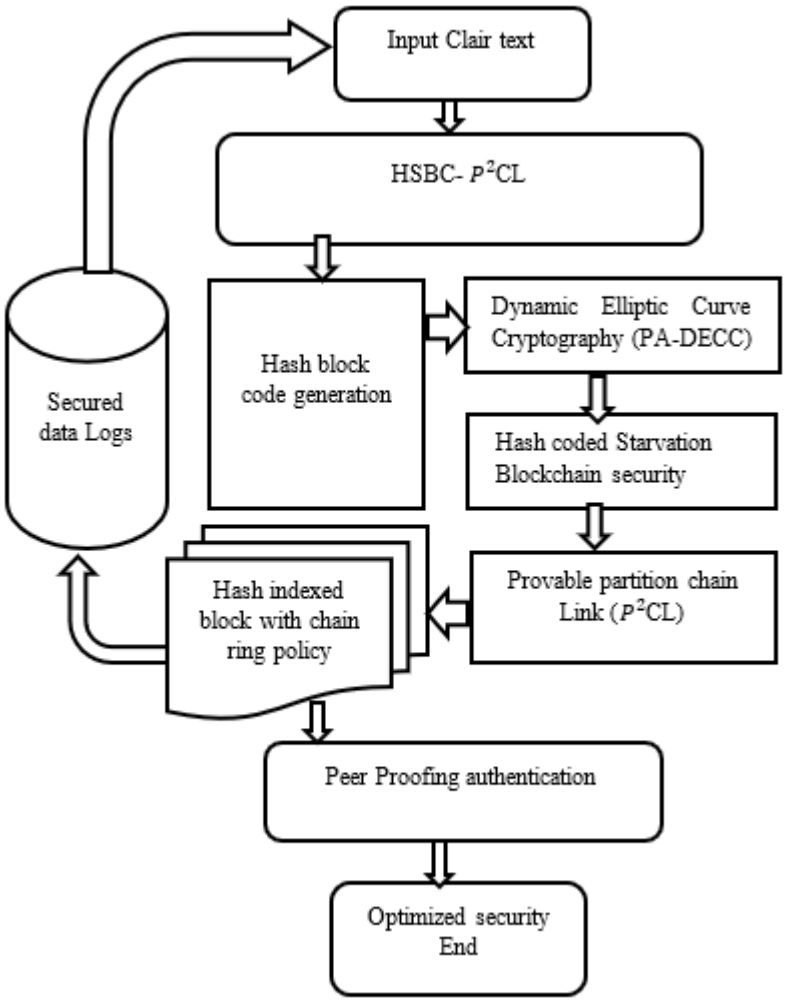
Secure Data Transactions based on Hash Coded Starvation Blockchain Security using Padded Ring Signature-ECC for Network of Things



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Keywords:

Blockchain security, ECC cryptography, Padded Ring signature, controller node policy, Network of things

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Abstract

Blockchain is one of the decentralized processes in a worldview that works with parallel and distributed ledger technology, the application process, and service-oriented design. To propose a Secure data Transaction based on Hash coded Starvation Blockchain security using Padded Ring signature-ECC for Network of Things. Initially, the crypto policy is authenticated based on the user-owner shared resource policy and access rights. This creates a Public blockchain environment with a P2P Blockchain network. The owner encrypts the data using optimized ECC through Hash-coded Starvation Blockchain security (HCSBS). This makes the encrypted block's provable partition chain Link (P^2CL). The encrypted blocks are transmitted into the network of nodes monitored by NoT. During the data transmission, the Network of Things monitors the transaction flow to verify the authenticity over the network of nodes. The monitored data be securely stored in transaction Block storage with the hash-indexed block with chain ring policy (HICLP). This creates controller node aggregation over the transaction environment to securely transfer the data to the peer end. The User gets the access Key to decrypt the data with policy aggregated shared resource policy to access the data. The proposed system produces high security as well compared to the previous design.

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References

A. gbo, Cornelius C., Qusay H. Mahmoud, and J. Mikael Eklund. (2019) "Blockchain technology in healthcare: a systematic review." In Healthcare, Multidisciplinary Digital Publishing Institute, vol. 7, 56, pp. 1-30.

M. Qiu, H. Qiu, H. Zhao, M. Liu and B. Thuraisingham, "Secure Data Sharing Through Untrusted Clouds with Blockchain-enhanced Key Management," 2020 3rd International Conference on Smart BlockChain (SmartBlock), 2020, pp. 11-16, DOI: 10.1109/SmartBlock52591.2020

D. Tosh, S. Shetty, P. Foytik, C. Kamhoua and L. Njilla, "CloudPoS: A Proof-of-Stake Consensus Design for Blockchain Integrated Cloud," 2018 IEEE 11th International Conference on Cloud Computing (CLOUD), 2018, pp. 302-309, DOI: 10.1109/CLOUD.2018

S. Son, J. Lee, M. Kim, S. Yu, A. K. Das, and Y. Park, "Design of Secure Authentication Protocol for Cloud-Assisted Telecare Medical Information System Using Blockchain," in IEEE Access, vol. 8, pp. 192177-192191, 2020, DOI: 10.1109/ACCESS.2020.3032680.

B. Chen, L. Wu, H. Wang, L. Zhou and D. He, "A Blockchain-Based Searchable Public-Key Encryption With Forward and Backward Privacy for Cloud-Assisted Vehicular Social Networks," in IEEE Transactions on Vehicular Technology, vol. 69, no. 6, pp. 5813-5825, June 2020, DOI: 10.1109/TVT.2019.2959383.

Y. Yang, H. Lin, X. Liu, W. Guo, X. Zheng, and Z. Liu, "Blockchain-Based Verifiable Multi-Keyword Ranked Search on Encrypted Cloud With Fair Payment," in IEEE Access, vol. 7, pp. 140818-140832, 2019, DOI: 10.1109/ACCESS.2019.2943356.

B. Nassif, M. A. Talib, Q. Nasir, H. Albadani and F. M. Dakalbab, "Machine Learning for Cloud Security: A Systematic Review," in IEEE Access, vol. 9, pp. 20717-20735, 2021, DOI: 10.1109/ACCESS.2021.3054129

S. Wang, X. Wang, and Y. Zhang, "A Secure Cloud Storage Framework with Access Control Based on Blockchain," in IEEE Access, vol. 7, pp. 112713-112725, 2019, DOI: 10.1109/ACCESS.2019.2929205.

S. Wang, Y. Wang and Y. Zhang, "Blockchain-Based Fair Payment Protocol for Deduplication Cloud Storage System," in IEEE Access, vol. 7, pp. 127652-127668, 2019, DOI: 10.1109/ACCESS.2019.2939492.

X. Yang, G. Chen, M. Wang, T. Li, and C. Wang, "Multi-Keyword Certificateless Searchable Public Key Authenticated Encryption Scheme Based on Blockchain," in IEEE Access, vol. 8, pp. 158765-158777, 2020, DOI: 10.1109/ACCESS.2020.3020841.

H. Cui, Z. Wan, X. Wei, S. Nepal, and X. Yi, "Pay as You Decrypt: Decryption Outsourcing for Functional Encryption Using Blockchain," in IEEE Transactions on Information Forensics and Security, vol. 15, pp. 3227-3238, 2020, DOI: 10.1109/TIFS.2020.2973864.

Bahga, Arshdeep, and Vijay K. Madisetti. (2016) "Blockchain platform for the industrial internet of things." Journal of Software Engineering and Applications 9, no. 10, pp. 533-546

Y. Wang and M. He, "CPDS: A Cross-Blockchain Based Privacy-Preserving Data Sharing for Electronic Health Records," 2021 IEEE 6th International Conference on Cloud Computing and Big Data Analytics (ICCCBDA), 2021, pp. 90-99, doi: 10.1109/ICCCBDA51879.2021.

S. Liu, J. Yu, Y. Xiao, Z. Wan, S. Wang, and B. Yan, "BC-SABE: Blockchain-Aided Searchable Attribute-Based Encryption for Cloud-IoT," in IEEE Internet of Things Journal, vol. 7, no. 9, pp. 7851-7867, Sept. 2020, DOI: 10.1109/JIOT.2020.2993231.

K. Lee, "Comments on “Secure Data Sharing in Cloud Computing Using Revocable-Storage Identity-Based Encryption”," in IEEE Transactions on Cloud Computing, vol. 8, no. 4, pp. 1299-1300, 1 Oct.-Dec. 2020, DOI: 10.1109/TCC.2020.2973623.

B. Alouffi, M. Hasnain, A. Alharbi, W. Alosaimi, H. Alyami, and M. Ayaz, "A Systematic Literature Review on Cloud Computing Security: Threats and Mitigation Strategies," in IEEE Access, vol. 9, pp. 57792-57807, 2021, DOI: 10.1109/ACCESS.2021.3073203

M. Thangavel and P. Varalakshmi, "Enabling Ternary Hash Tree Based Integrity Verification for Secure Cloud Data Storage," in IEEE Transactions on Knowledge and Data Engineering, vol. 32, no. 12, pp. 2351-2362, 1 Dec. 2020, DOI: 10.1109/TKDE.2019.2922357.

Nhlabatsi et al., "Threat-Specific Security Risk Evaluation in the Cloud," in IEEE Transactions on Cloud Computing, vol. 9, no. 2, pp. 793-806, 1 April-June 2021, DOI: 10.1109/TCC.2018.2883063.

J. Zhang, R. Lu, B. Wang and X. A. Wang, "Comments on “Privacy-Preserving Public Auditing Protocol for Regenerating-Code-Based Cloud Storage”," in IEEE Transactions on Information Forensics and Security, vol. 16, pp. 1288-1289, 2021, DOI: 10.1109/TIFS.2020.3032283.

G. Sciumè, E. J. Palacios-García, P. Gallo, E. R. Sanseverino, J. C. Vasquez and J. M. Guerrero, "Demand Response Service Certification and Customer Baseline Evaluation Using Blockchain Technology," in IEEE Access, vol. 8, pp. 139313-139331, 2020, doi: 10.1109/ACCESS.2020.3012781.

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