BlockQ : Development of QyberShield: A Quantum-Resistant Blockchain Algorithm for Enhanced Transaction Speed and Security

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This paper introduces QyberShield, a new algorithm that integrates the strengths of blockchain technology and recent advancements in quantum computing. The algorithm is designed to leverage the capabilities of Grover's algorithm, which is one of the most prominent quantum algorithms, to make transaction processing and verification more efficient. Under performance measurement, QyberShield showed a notable enhancement over conventional algorithms, recording a 65% increase in the rate of transaction verification with a respective 40% drop in energy consumption, rendering it an effective option in both operational efficiency and resource consumption. From the security point of view, the algorithm effectively safeguards the network against potential quantum attacks, thereby maintaining the security of transactions in light of the fast evolution of quantum technologies. Further, QyberShield is characterized by an agile architecture that enables seamless integration with contemporary systems, thereby rendering it a suitable option for future blockchain networks. By effectively combining speed, security, and efficiency, QyberShield is a robust solution for optimizing blockchain performance to facilitate secure and efficient processing of transactions at scale.

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