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(57) Abstract :

The present invention relates to a decentralized cloud storage system that integrates blockchain technology with quantum-resistant encryption to ensure robust data security, integrity, and availability. The system comprises a network of distributed storage nodes that securely store encrypted data segments, with all storage and retrieval transactions logged on an immutable blockchain ledger. Quantum-resistant encryption algorithms are employed to safeguard against emerging threats posed by quantum computing. The invention further includes mechanisms for user authentication through blockchain-based identity verification, redundancy for fault tolerance, and scalable infrastructure to support increasing data volumes. The system offers a secure and efficient solution for cloud storage, addressing the critical need for long-term data protection in a rapidly evolving technological landscape.

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