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(57) Abstract :
The present invention discloses an improved self-healing distributed storage device comprising autonomous nodes (1) integrated with self-diagnosis modules (2), parity recalibration engines (3), anomaly detection units (4), and adaptive redundancy controllers (5). The system ensures fault tolerance and data integrity through predictive diagnosis and decentralized healing. A modular interface layer (6) provides compatibility with external systems. The invention reduces repair latency, optimizes redundancy, and supports autonomous recovery using machine learning-guided orchestration across distributed environments.

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