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(57) Abstract :

A system (102) to enhance the reliability and integrity of clustered file systems is disclosed. The system (102) utilizes a verification technique across multiple nodes, and the system utilizes machine learning models for continuous updates, ensuring real-time data consistency. Following individual assessments, outcomes are centrally collected, and aggregated results are analyzed to determine data coherence. In the event of discrepancies, the system initiates corrective actions such as repair or restoration and promptly notifies relevant entities. Notably, the system (102) leverages blockchain technology for secure and transparent logging of verification outcomes. With dynamic adaptability, intelligent scheduling, and seamless integration with container orchestration platforms, the system (102) contributes to a resilient and efficient data management ecosystem, addressing challenges in modern distributed computing environments.

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