Storage Codes With Flexible Number Of Nodes

Tech ID: 33897 / UC Case 2021-962-0

BRIEF DESCRIPTION

A revolutionary approach to enhancing data recovery in distributed systems through flexible storage codes.

FULL DESCRIPTION

This technology introduces flexible storage codes that allow for the recovery of stored information from a variable number of nodes within distributed systems. Unlike traditional error-correcting codes with fixed redundancy levels, these flexible codes adapt to the actual number of node failures, optimizing the use of storage space and reducing data access latency. The codes support a range of storage scenarios, offering a versatile solution for modern storage and computation needs.

SUGGESTED USES

- Distributed storage solutions for technological companies like Facebook, Google, Microsoft, and Amazon.
- Error-correcting code implementations for cloud storage services.
- Optimization of data access and recovery in large-scale computation applications.

ADVANTAGES

- Enhanced efficiency by allowing data recovery from a flexible number of nodes based on actual failures.
- Reduced data access latency by adjusting the amount of data downloaded from each node.
- Increased storage utilization by optimizing redundancy levels in real-time.
- Compatibility with a wide range of storage scenarios including LRC, PMDS, and MSR codes.
- Improved system performance with fewer constraints and simpler system requirements.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,399,769	08/26/2025	2021-962

STATE OF DEVELOPMENT

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OTHER INFORMATION

CATEGORIZED AS

- **Communications**
  - Internet
  - Other
- **Computer**
  - Other

RELATED CASES

2021-962-0

Computer model simulation stage.

RELATED MATERIALS

» Li, W., Wang, Z., Lu, T., Jafarkhani, H. (2023). Storage codes with flexible number of nodes. IEEE Transactions on Information Theory, 69 (1).

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