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Efficient Reed-Solomon Code Repair for Distributed Systems

Tech ID: 34088 / UC Case 2019-917-0

BRIEF DESCRIPTION

Innovative methods and devices for improving error correction and reducing repair bandwidth in distributed systems using enhanced Reed-Solomon codes.

FULL DESCRIPTION

This technology introduces advanced processes and devices for the error correction of distributed data, specifically through the enhancement of Reed-Solomon (RS) codes. It focuses on efficiently repairing data stored across multiple storage nodes, particularly when some nodes become unavailable. By generating a second correction code with an increased subpacketization size, the technology allows for effective erasure repair with optimized repair bandwidth and flexibility in handling single or multiple node failures.

SUGGESTED USES

- » Distributed file systems and cloud storage solutions, enhancing data integrity and availability.
- » Data centers requiring efficient data recovery solutions.
- » Telecommunications and networking, for improved data transmission reliability.
- » Any application or service relying on distributed systems for data storage and management.

ADVANTAGES

- » Significantly reduces repair bandwidth for distributed systems.
- » Increases the subpacketization size, offering a flexible trade-off between repair bandwidth and subpacketization.
- » Supports efficient repair schemes for both single and multiple node failures.
- » Improves upon existing Reed-Solomon code repair processes by introducing innovative code constructions and repair schemes.
- » Enhances data reliability and accessibility in distributed storage systems

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,228,323	01/18/2022	2019-917

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OTHER INFORMATION

CATEGORIZED AS

- » **Communications**
 - » Networking
 - » Other
- » **Computer**
 - » Software

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2019-917-0

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