

An Extension for Construction of Systematic MDS Codes With Minimum Repair Bandwidth

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Abstract—Distributed storage systems based on erasure coding usually provide redundancy to increase the reliability and the storage efficiency. One main challenge in the construction of this kind of system is the repair problem: if a node storing encoded information fails, in order to maintain the same level of reliability, we need to create encoded information at a new node.

Among various kinds of coding schemes presented in recent years, Wu puts forward a construction of systematic (n, k) -MDS codes for $2k \leq n$ that achieves the minimum repair bandwidth when repairing from $k + 1$ nodes. In this paper, we optimize Wu's method to make the repairing coefficients have more wide-ranging choices.

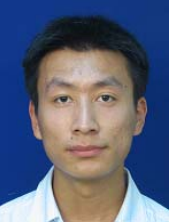
Keyword—Distributed storage, erasure coding, MDS code, minimum repair bandwidth, repair



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