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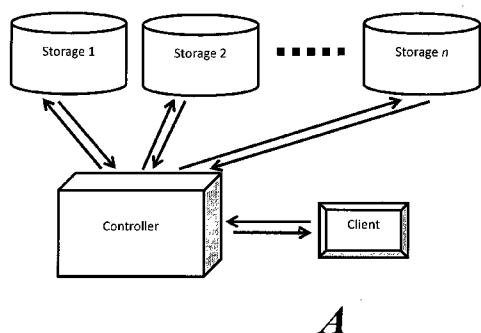
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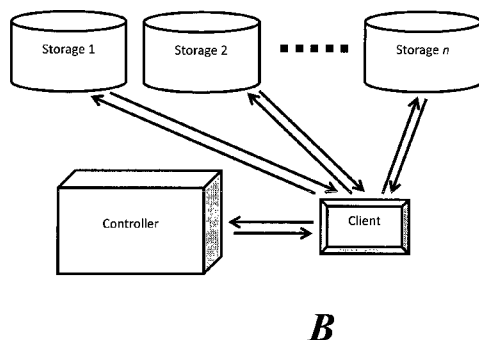
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(54) **Title:** SYSTEM AND METHODS FOR DISTRIBUTED DATA STORAGE



(57) **Abstract:** A systematic distributed storage system (DSS) comprising: a plurality of storage nodes, wherein each storage node configures to store a plurality of sub blocks of a data file and a plurality of coded blocks, a set of repair pairs for each of the storage nodes, wherein the system is configured to use the respective repair pair of storage nodes to repair a lost or damaged sub block or coded block on a given storage node. Also a distributed storage system DSS comprising h non-empty nodes, and data stored non homogeneously across the non-empty nodes according to the storing codes (n, k) . Further a method for determining linear erasure codes with local repairability comprising: selecting two or more coding parameters including r and d ; determining if an optimal $[n, k, d]$ code having all-symbol (r, d) -locality $((r, d)_a)$ exists for the selected r, d ; and if the optimal $(r, d)_a$ code exists performing a local repairable code using the optimal $(r, d)_a$ code.





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