Abstract

Failure of disks in RAID is a bottleneck in processing. Data replication of RAID array systems is proposed in this paper for data validity. For a k-times replicated data in a RAID system with n disk arrays, the scheme takes the mean time between failures of the disks in a RAID system, allocates the data of the k-replicas in the n-RAID arrays based on the remaining time to the next failure and the distance of the disk array from the original copy of the data. The heuristics adapted places data in remote disks during the initial time period after a recovery and migrates the data to nearer disks as time advances to the next failure. A mathematical model is developed for the proposed scheme. Simulations support the proposed model.

Reference

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Index Terms
  Computer Science  Storage Systems

Key words
  RAID  Performance

Duplicate data