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Experience in dynamic tape drive allocation to manage scientific data

The main computing and storage facility of INFN (Italian Institute for Nuclear Physics) running at CNAF hosts and manages tens of Petabytes of data produced by the LHC (Large Hadron Collider) experiments at CERN and other scientific collaborations in which INFN is involved. The majority of these data are stored on tape resources of different technologies.

All the tape drives can be used for administrative tasks (as repack, audit, space reclamation), as well to write and read data of all the experiments. Moreover, the usage of tape resources by scientific communities will become considerably more intense in the next years and the amount of data on tape will double by 2025. For these reasons the issue of the concurrent access to tape drives is significant.

We designed a software solution to optimize the efficiency of the shared usage of tape drives in our environment and put it in production in January 2020.

In this paper we present the experience with this dynamic tape resources allocation in production. Comparing it with the previous static allocation method, we observed an improvement in reading throughput up to 85%. Moreover, we describe the new features added to our solution to optimize the efficiency of the shared usage of tape drives of different technologies.

Significance

References

Speaker time zone

Compatible with Europe

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