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Data storage systems of "HybriLIT" Heterogeneous computing platform for scientific research carried out in JINR: filesystems and RAIDs performance research

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"HybriLIT" Heterogeneous platform is a part of the Multifunctional Information and Computing Complex (MICC) of the Laboratory of Information Technologies named after MG Meshcheryakov of JINR, Dubna. Heterogeneous platform consists of Govorun supercomputer and HybriLIT education and testing polygon. Data storage and processing system is one of the platform components. It is implemented using distributed and parallel filesystems (NFS, EOS, Lustre). Platform performance depends on many factors, including performance of storage and file systems.

The best storage performance for wide variety of user jobs may be obtained with optimal filesystem parameters. The number of tests of local filesystems (EXT family and XFS) was carried out. There were empirically obtained an optimal parameters of data storage system at which the performance have been high results.

The new methodology was developed for analyzing the obtained measurements of IOPS (input-output operations per second) and Latency (milliseconds) for results evaluations.

Various filesystems were analyzed by the developed methodology. The conclusion was drawn about of optimal parameters of the investigated filesystems.

Summary

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