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Disk storage technology for the LHC T0/T1 centre at CERN

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By 2008, the T0/T1 centre for the LHC at CERN is estimated to use about 5000 TB of disk storage. This is a very significant increase over the about 250 TB running now. In order to be affordable, the chosen technology must provide the required performance and at the same time be cost-effective and easy to operate and use.

We will present an analysis of the cost (both in terms of material and personnel) of the current implementation (network-attached storage), and then describe detailed performance studies with hardware currently in use at CERN in different configurations of filesystems on software or hardware RAID arrays over disks. Alternative technologies that have been evaluated by CERN in varying depth (such as arrays of SATA disks with a Fiber Channel uplink, distributed disk storage across worker nodes, iSCSI solutions, SANFS, ...) will be discussed. We will conclude with an outlook of the next steps to be taken at CERN towards defining the future disk storage model.

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