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# Using dCache in Archiving Systems oriented to Earth Observation

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The object of LAST activity (Long term data Archive Study on new Technologies) is to perform an independent study on best practices and assessment of different archiving technologies mature for operation in the short and mid-term time frame, or available in the long-term with emphasis on technologies better suited to satisfy the requirements of ESA, LTDP and other European and Canadian EO partners in terms of digital information preservation and data accessibility and exploitation.

During the last phase of the project, a testing of several archiving solutions has been performed in order to evaluate their suitability. In particular, dCache, aimed to provide a file system tree view of the data repository exchanging this data with backend (tertiary) Storage Systems as well as space management, pool attraction, dataset replication, hot spot determination and recovery from disk or node failures.

Connected to a tertiary storage system, dCache simulates unlimited direct access storage space. Data exchanges to and from the underlying HSM are performed automatically and invisibly to the user

Dcache was created to solve the requirements of big computer centers and universities with big amounts of data, putting their efforts together and founding EMI (European Middleware Initiative).
At the moment being, Dcache is mature enough to be implemented, being used by several research centers of relevance (e.g. LHC storing up to 50TB/day).

This solution has been not used so far in Earth Observation and the results of the study are summarized in this article, focusing on the capacities over a simulated environment to get in line with the ESA requirements for a geographically distributed storage. The challenge of a geographically distributed storage system can be summarized as the way to provide a maximum quality for storage and dissemination services with the minimum cost.