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dCache as a backend for cloud storage

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Over two years Data-Cloud team at DESY uses dCache as a backend storage for the ownCloud instance used in a production. As being a highly scalable storage system, dCache is widely used by many sites to store hundreds of petabytes of scientific data. However, the cloud-backend usage scenarios have added new requirements, like high availability and downtime less updates any software or hardware components.

Since version 2.16 dCache team have made a big effort to move towards redundant services in dCache to remove a single point of failure. Moreover, the low level UDP based service discovery is replaced with widely-adopted Apache-ZooKeeper - a persistent, hierarchical directory service with strong ordering guarantees. As being itself a fault-tolerant service with strong consistency guarantee ZooKeeper becomes the natural place to keep a shared state or take a role of service coordination.

With this presentation we will show technical solutions applied to achieve a highly-available, fault-tolerant dCache deployment. We will touch some aspects of ownCloud and dCache integration. Finally, we want to point cloud software provides to the shortcomings of currently available solutions that limits functionality that scalable storage system like dCache can provide.

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