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dCache, the Upgrade

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For the last two years, the dCache/SRM Storage Element has been successfully integrated into the LCG framework and is in heavy production at several dozens of sites, spanning a range from single host installations up to those with some hundreds of tera bytes of disk space, delivering more than 50 TByes per day to clients. Based on the permanent feedback from our users and the detailed reports given by representatives of large dCache sites during our workshop at DESY end of August 2005, the dCache team has been identified important areas of improvement. With this presentation I would like to discuss some of those changes in more detail. This includes a more sophisticated handling of the various supported tape back-ends, the introduction of multiple I/O queues per pool with different properties to account for the divers behaviors of the different I/O protocols and the possibility to have one dCache instance spread over more than one physical site. Moreover I will touch on changes in the name-space management as short and long term perspective to keep up with future requirements. In terms of dissemination I will report on our initiative to make dCache a widely scalable storage element by introducing dCache, the Book, plans for improved packaging and more convenient source code license terms. Finally I would like to cover the dCache part of the german e-science project, d-Grid, which will allow for improved scheduling of tape to disk restore operations as well as advanced job scheduling by providing extended information exchange between storage elements and Job Scheduler.

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