dCache, Sstorage Interoperability Beyond WLCG

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With the successful launch of the LHC, end of 2009, the hot software development phase in the framework of the Worldwide LHC Computing Grid has been coming to an end. The focus moved away from implementing new features towards stabilizing sustained operations. This means that in the WLCG storage section the selection of data transfer and storage control protocols is theoretically frozen. Unfortunately not many industry standards made it into the storage protocol suite. However, with upcoming new large scale experiments in astronomy and new facilities, providing extreme light sources, the need for standards in large scale storage is increasing as those communities prefer to provide easy and standard data access to their members or customers. dCache, the storage technology storing most of the LHC data round the world, is already prepared to cope with both types of requirements. In the context of EMI, the European Middleware Initiative, dCache will continuously provide the necessary maintenance and support for WLCG, being the largest EMI customer. This services will be offered in a unified manner in conjunction with gLite and ARC middleware. However, for new customer communities dCache already worked on integrating necessary standards into its portfolio. The industry standard NFS 4.1 is part of the dCache contribution since mid of 2009 and the first WebDAV integration since the end of the same year. Plain http access is already used by non HEP communities at some dCache installations. Moreover, dCache is now actively evaluating the use cases for implementing cloud like accesses, e.g. proposed by CSI, the Cloud Storage Initiative, a superset of the Amazon S3 solution. Those new protocols are tightly integrated in dCache so that they provide the already known functionality like file replication on hot spot detection, seamless access to third party tertiary storage technologies, request scheduling and meltdown protection as well as the SRM 2.2 data attributes including custodial retention policy. Although this presentation will briefly describe the support channels for dCache as an established, widely used WLCG storage solution, it will however focus on production infrastructures supporting all kind of research communities by providing well defined industry standards.