

Operating the Distributed NDGF Tier-1

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The Tier-1 facility operated by the Nordic DataGrid Facility (NDGF) differs significantly from other Tier-1s in several aspects: It is not located one or a few locations but instead distributed throughout the Nordic, it is not under the governance of a single organization but instead a "virtual" Tier-1 build out of resources under the control of a number of different national organizations. We present the technical and operational implications of these aspects as well as the high- level design of this distributed Tier-1. The focus will be on computations, storage and monitoring. In order to look like a single site some services requires one single entry point. Most notably is the srm entry point to storage. This is archived using dCache, but with a number of additional features developed by NDGF and DESY/ FermiLab. Computations are controlled by the NorduGrid ARC middleware, which has proven to be a reliable and easy to install a the sites and on top of that supports the distribution of the compute elements very well. Finally, diagnosing problems at sites where NDGF staff does not have administrative access to the machines requires a well developed set of monitoring services. This includes SAM tests especially tailored to the NDGF setup and use of other standard monitoring software packages.