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A DISTRIBUTED STORAGE SYSTEM WITH DCACHE

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Works on creating a distributed high performance computing environment based on GRID technologies are under way at the Ural Branch of the Russian Academy of Sciences. One of the main components of this environment is a distributed data storage system (DSS), which aims at integrating storage systems in the regions of UB RAS. The system connects various resources, such as computing clusters, supercomputers and experimental setups of UB RAS institutes. Further the connection DSS to the GRID infrastructure NNN [1] and international Grid infrastructure WLCG [2] is planned.

The approach to building territorial distributed storage system based on the dCache middleware from the European Middleware Initiative project [3] is presented. The first milestone of the implementation of DSS has been currently completed on four servers by Supermicro running Scientific Linux 6.5 and dCache 2.6 from repository of EMI. Usable storage capacity is 210 TB. The storage nodes are located in two computing centers: in IMM UB RAS, Yekaterinburg (3 nodes), and ICMM UB RAS, Perm. The computing centers are separated by a 400 km distance and are joined by a dedicated communication channel 10 GB/s; connection to DSS was performed using the NFS protocol version 4.1. The next stage will be attaching the experimental setups in ICMM UB RAS. The data obtained from them will be recorded to DSS and processed remotely by supercomputer "URAN", including the ability to process in real time and control the experiments.

[1] GridNNN <http://ngrid.ru>

[2] Worldwide LHC Computing Grid | WLCG <http://wlcg.web.cern.ch>

[3] European Middleware Initiative <http://www.eu-emi.eu/>

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