

Draft Minutes – IceCube Tier1 Meeting, June 27-28, DESY Zeuthen

Resources

- The Madison 222 Data center will almost double its capacity until next year, from 2012 a further expansion is not planned (except replacements of old components),
- Beyond 2012 moving to a new shared Data Center at a new location is possible. In case of an outage due to the movement Zeuthen should overtake as much as possible of the computing activities.
- DESY Zeuthen will provide the resources according to the numbers defined in the MoU until 2015 (600 CPU cores dedicated, 1 PB disk storage), which in case of storage means all L2 data and at least 50% of the MC simulation data.
- The data stored at Zeuthen should be classified to figure out whether all L2 data (up to IC59?) are in Zeuthen, IC86 is expected to be ready for being transferred in March 2012.
- Especially the following table has to be completed:

Level2 (TB), DESY	Sim (TB) total	User (TB)
IC9		
IC22		
IC40	30	30
IC59	50	
IC79	62	150
IC86	75	

- The IceCube MoU does not cover the DESY/Europe Simulation and Analysis; an increase of compute and storage capacity is necessary. The numbers above the MoU plans have to be defined. Due to the completion of the IceCube detector increasing analysis activities are expected.
- Zeuthen as the IceCube Tier1 is going to be the primary source for German/European data distribution.
- Zeuthen will open part of its computing facilities to German/European IceCube users. This should be tested with one or two dedicated users first.

Data transfers Madison <-> Zeuthen

- Data transfer issues are mostly solved; a constant rate of about 30 MB/s is achieved (peaks at 80 MB/s). Even the data rate is sufficient improvements should be made.
- A major problem is the small file size caused by the filter steps, collecting files to larger data sets at least for transfer should be considered.
- The load on Servers in Madison could cause bandwidth problems. The installation of a separate dedicated transfer server should be taken into account to improve data transfer rates.
- A (dashboard like) tool should be introduced to monitor transfer rates (Nagios?).

Simulation

- University of Dortmund – largest IceCube Grid production site (1800 Jobs simultaneously)
- It will be checked whether it will be possible that MC jobs running at Dortmund or Germany wide respectively could transfer data directly to Zeuthen. It should be checked whether this could cause scalability problems at Zeuthen.

- Simulation on the Grid
 - EGI – Germany – Damian Pieloth
 - OSG – US – Juan Carlos Diaz-Velez
- German activities outside DESY
 - Aachen: Photonic tables
 - Dortmund: Background production, CORSIKA
- GPU programming
 - In Madison the PPC (photon propagation code) used in production on GPUs. It will be investigated whether also in Zeuthen a GPU cluster should be installed to extend the capability of the local compute farm. For that purpose Juan Carlos will get access to the Zeuthen GPU test farm.
- A significant performance gain by using the Portland Group Compiler (PGIs) was noticed. Tests in Zeuthen with PGI and also with the Intel compiler suite could be helpful.

System environment

- Meanwhile technically both sides are using almost the same hardware for compute nodes and storage based on components from DELL. On both sides mainly Lustre is used for fast file access (in Madison FCoE is planned).
- In Madison GLusterFS and Hadoop is being tested
- All sites are using Scientific Linux as OS basis.
- The major part of the software is ready to run under SL6.

Next meetings

- The next meeting will take place regularly in Madison next year, the date should be fixed soon; the next meeting in Germany (2013) will be organized by Univ. of Dortmund.