Joint EGO-Virgo Computing Committee (JECC) meeting

Cascina, 9th November 2012

EGO-COU-548-2012

Meeting Minutes

Presents:
M. Morandin (CNAF Director - phone)
L. dell'Agnello (CNAF - phone)
R. Lemrani (CC-IN2P3 - phone)
P. Astone (VIRGO Data Analysis Coordinator - phone)
F. Ferrini (EGO - Director)
A. Bozzi (EGO - Head of Computing Department)
M. Bizouard (VIRGO – phone)
A. Colla (**VIRGO – phone**)

Topics:

1. Virgo use of computing center resources in 2012 and 2013 forecast (P. Astone)
2. 2012 EGO contribution to the off-line computing cost
3. Budget request for 2013

N.B. Slides and documents presented during this meeting are available at:
https://workarea.ego-gw.it/ego2/ego/computing/jecc/jecc-meeting-9-nov-2012/

1. Virgo use of computing center resources in 2012 and 2013 forecast (P. Astone)

In 2012 no new data have been acquired, Science data taking ended in Sept. 2011, but computations have gone on at the computing centers using older data and will continue during the year 2013.
Two"Engineering runs" have been done during 2012 and two are scheduled for 2013. They are 1 month long. The goal for these joint LIGO-Virgo runs is to test important software infrastructure, establish procedures for software release/maintenance during advanced detector era, test detector characterization early using real subsystem data, measure progress of analysis groups on software for key science goals.
During these runs we would test data transfer with new improved tools, data access, on-line data processing and low-latency g. w. searches.
Thus, despite the fact that no new data have been taken, Data Analysis is still ongoing and in some cases the Computational Needs are now higher than in the past ("CW search")

Storage

No disk increase on 2012 in both centers.
In Bologna, after the migration from Castor to GEMSS, the increase of tapes is about 110TB.
In Lyon only 2TB are consumed at the date of the meeting.

Forecast for 2013

Group	CNAF [TB] gpfs_virgo4 / tapes / gpfs_virgo3	CCIN2P3 [TB] XrootD cache / tapes / sps
Data production	0/0/0	0/0-80/0
Burst	0/0/0	0/0/0
CBC	0/0/0	0/0/0
CW	0/0/30	0/0/0
SGWB	0/0/0	0/0/0
detchar	0/0/0	0/0/0
TOTAL	0/0/30	0/0-80/0

Table 9: Storage needs (in TB) at the CCs in the year 2013. For Lyon the volume of RDS LIGO data to be transfered is 80 TB, but we also plan to save space by deleting obsolete datasets.

Computing

At Bologna the computing energy used has been 90kHSE06.days up to 29 October respect to the 400 kHSE06.days requested by Virgo.

Virgo asks to use this computing energy from now to the end of the year for the All-sky CW search. This would not be in principle possible because CNAF assigns to Virgo a partition of its overall computing power corresponding to 2575 kHSE06 and not a total computing energy. This means about 340 cores instead of the 900 needed for the CW search. But CNAF agrees to allow this extra power (1000 cores) for free until the end of the year.

CNAF is also giving support to Virgo development in the area of Pegasus Workflow Management System (in order to run LSC derived pipelines currently based on Condor) and in the testing of OpenCL libraries to support GPU based computations with a dedicated queue and 96 cores.

At Lyon 115kHSE06.days have been used at 29 October, which means an extrapolation of 140kHSE06.days at the end of the year in line with what requested.

Forecast for 2013

Group	CNAF [kHSE06.day]	CCIN2P3 [kHSE06.day]
Burst	30	350
CBC	100	30
CW	550	0
SGWB	0	0
detchar	0	50
TOTAL	680	430

Table 8: Computing needs for 2013 in kHSE06.day.

2. 2012 EGO contribution to the off-line computing cost

	2010	cost (KE)	status	2011	cost (KE)	status	2012	cost (KE)	status	2013 PREVIEW	cost (KE)	status
Bologna (*Incremental*)		cost (KE)			cost (KE)			cost (KE)			cost (KE)	
CPU (used energy in KSI2K.day)	70000											
CPU installed power(status is in KSI2K)												
CPU (used energy in HS06.day)	280000			695250			138000			680000		
CPU installed power(status is in HS06)		0	1240		27	2575	300	4	2575	300	4	2575
Disk storage TB-N	98	69	338	50	22	418	50	19	418	100	37	448
tape storage (GEMSS) TB-N	180	18	325	429	34	754	110	4	864	50	2	
Total Bologna cost		87			83			27			43	
Lyon												
CPU usage (KSI2K.days)	37500	4										
CPU usage (HS06.days)	150000			160000	6		140000	5		430000	16	
Disk storage TiB (increment)	124	62	308	50	15	308	50	15	308	50	15	308
tape storage (HPSS) (TiB increment)	140	12	457	250	21	707	82	4	789	0	0	
Total Lyon cost		78			42			24			31	
Total cost 2 centers		165			125			51			75	

EGO contribution to the cost (k€)	2010			2011			2012			2012		
	Bologna	Lyon	Total	Bologna	Lyon	Total	Bologna	Lyon	Total	Bologna	Lyon	Total
	87	78	165	83	42	125	27	24	51	43	31	75

In spite of the fact that no new disk space has been allocated, as decided one year ago, EGO pay for the maintenance of 50TB in each center.

In addition, according to the pay-for-allocation accounting model, established at CNAF, EGO will pay the renewal of an amount of installed computing power corresponding to 300HS06 (due to the fact that this power will be used by Virgo in the future).

At Lyon 80 TB more of S6 Ligo data will be transferred before the end of the year and therefore are included in the 2012 budget.

At Bologna all the tapes will be paid this year.

To sum up, the 2012 EGO contribution to the off-line computing cost will be:
CNAF : 27 K€   CC-IN2P3 : 24 k€

3. Budget request for 2013

From the Virgo requests (see above) the incremental storage needed is of 30TB on disk at CNAF.
In addition, according to the pay-for-allocation accounting model established at CNAF EGO will pay the renewal of the disk space allocated before December 2008 (120TB-50TB=70TB) and computing power for other 300 kHSE06..
As in 2012 also in 2013 there will be the maintenance or substitution of 50TB in Lyon.

While at CNAF no incremental computing power will be needed, at CCIN2P3 it is foreseen a computing usage of 430 kHSE06.days.

In addition Virgo requests the possibility to enable LSC users to use the computing centers resources.

EGO Director prefers to discuss this subject with the VSC and EGO Council, because it could mean a non negligible additional cost that is not foreseen in the budget.