



Status of Computing at CC and at FNAL

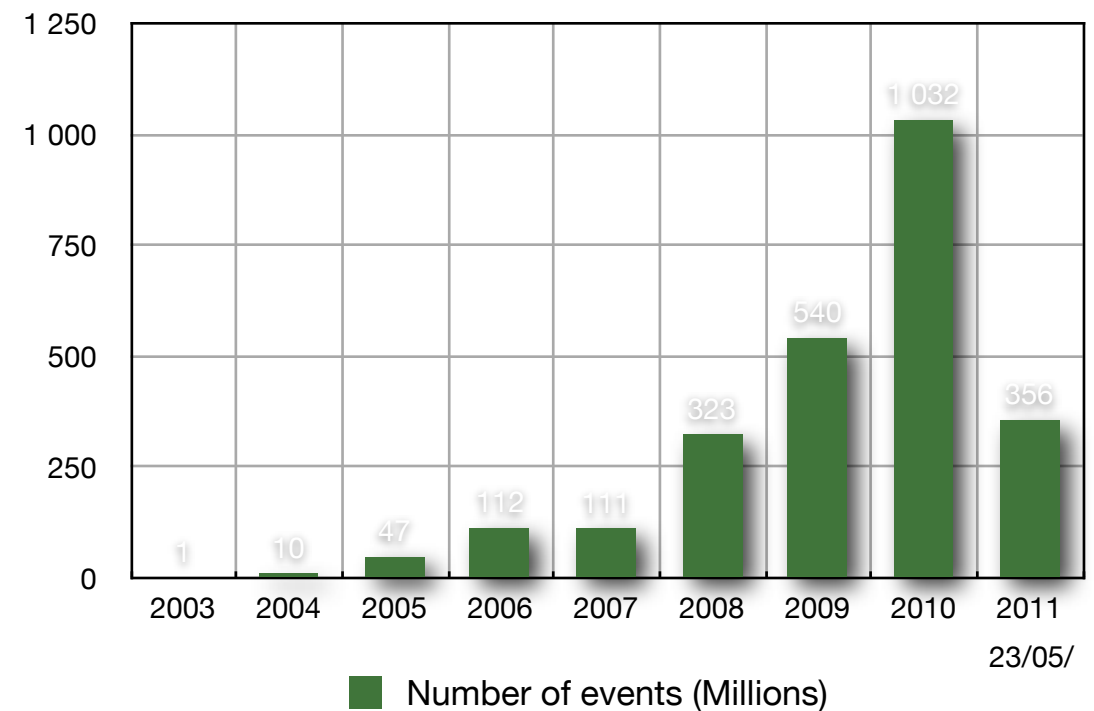
Patrice Lebrun

Meeting D0-France
LPNHE
May 31, 2011

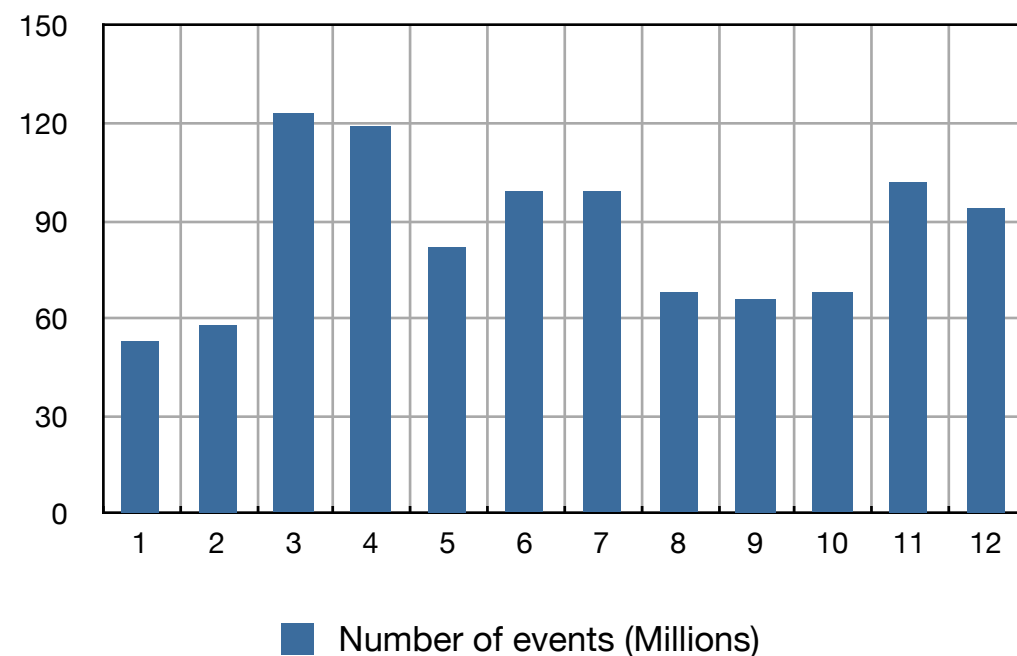
MC Production

- Lyon is still the first D0 MC farmer
- One billion of events produced in 2010
 - Many events reconstructed from d0gstar files stored in HPSS.

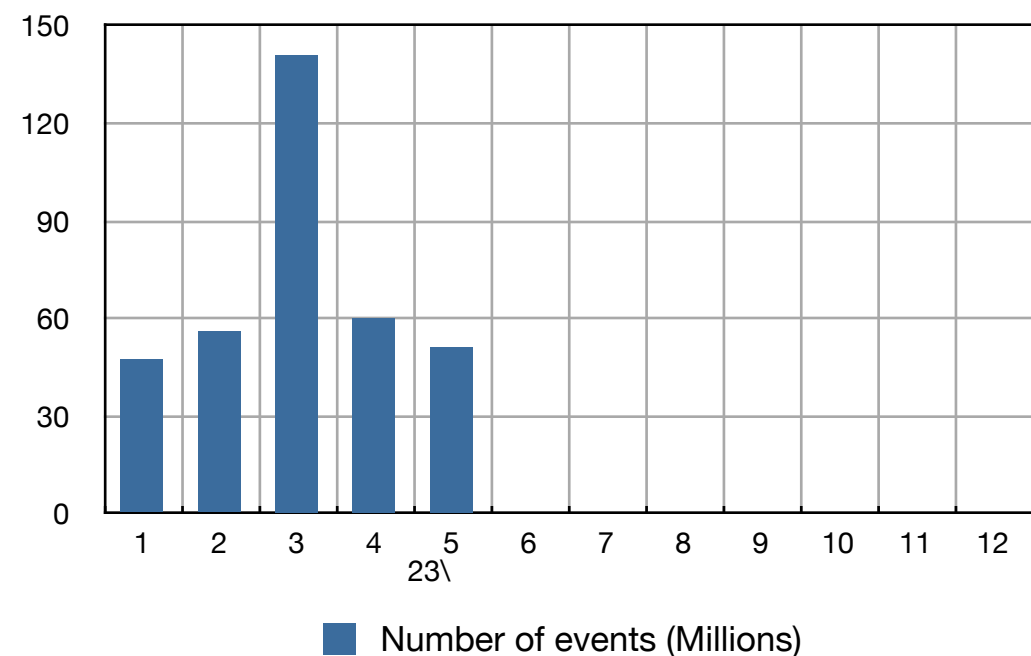
MC Production at CC In2p3 / year



2010 MC Production at CC In2p3 / month



2011 MC Production at CC In2p3 / month

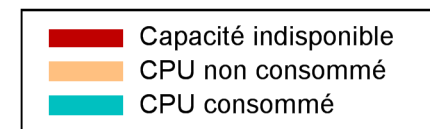
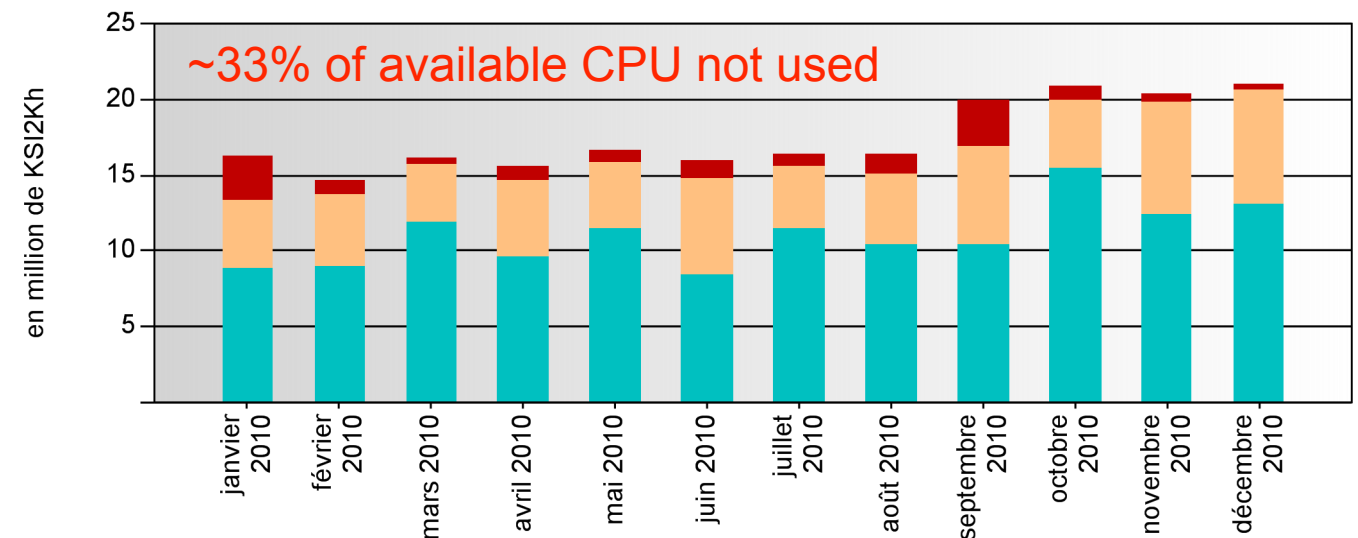


CPU in 2010

- D0 is still the second user of CC in term of CPU used
- Mainly used for MC production
 - Specificities :
 - Non grid
 - D0gstar files stored in HPSS
- Very Low CPU use for Analysis

Consommation des fermes de calcul

de l'Institut National de Physique Nucléaire
et de Physique des Particules



Année	Mois	Capacité installée en KSI2Kh	Capacité indisponible		Capacité disponible		CPU consommé	
			en KSI2Kh	% Cap. installée	en KSI2Kh	% Cap. installée	en KSI2Kh	% Cap. dispo.
Total		210 525 191	14 265 398	7	196 259 793	93	132 448 828	67

Répartition de la consommation par laboratoire Pour le groupe d0 - déc. 2010

2010		Consommation des laboratoires décembre 2010		Consommation des laboratoires de janvier à décembre 2010	
		CPU Consommé en h HS06	%	CPU Consommé en h HS06	%
2010	Grid HEP	85,18	0 %	1 095 067,26	1 %
	IPN LYON	10 918 108,02	100 %	97 953 322,08	99 %
	IRFU	0,01	0 %	0,01	0 %
	LAL ORSAY		0 %	0,11	0 %
	LPSC GRENOBLE		0 %	58 942,95	0 %
Total		10 918 193,21	100 %	99 107 332,41	100 %

Different units
(1h KSI2K= 4h HS06)

D0=18.7 % of total
CPU consumed
(Atlas : 35 %)

D0 Resources Requests for 2011

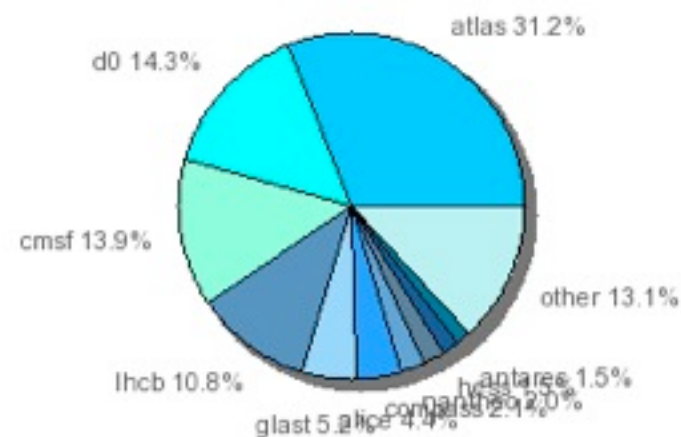
- CPU : 100 Mh HS06 = **CPU consumed in 2010**
- HPSS storage : + 600 TB
- Oracle Database : + 4 GB
- AFS : None
- SPS : None

Details per quarter for 2011:

24 809 187 HS06 h consumed →

	CPU units	HPSS mass storage	Oracle database
1st quarter	25000000	150000	1
2nd quarter	25000000	150000	1
3rd quarter	25000000	150000	1
4th quarter	25000000	150000	1

CC-IN2P3 Top 10 on anastasia farm

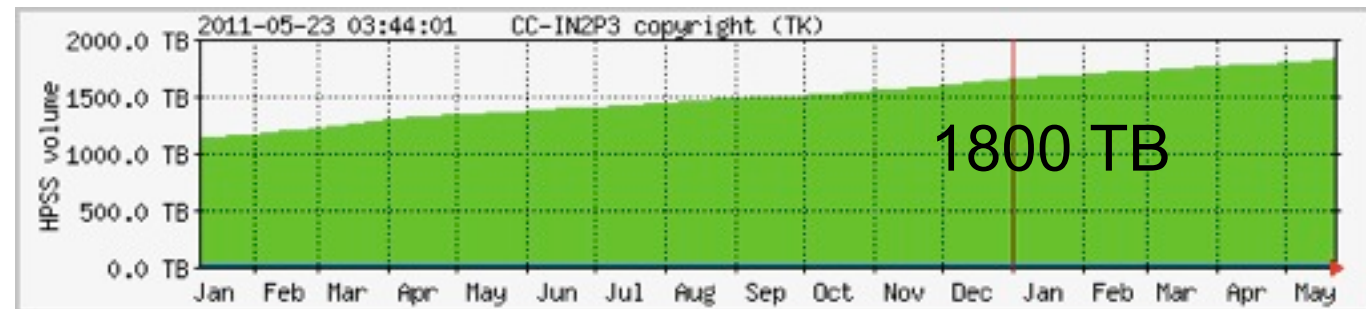


DATA Storage

- HPSS is massively used (about 600 TB / year)

- ~ 1223 TB comes from MC production

- Generated : 32 TB
- d0gstar : 965 TB
- Merged Thumbnail : 198 TB
- DST : 28 TB



- ~ 5 TB of ZB overlays

- ~ 3.7 TB are stored on /sps/d0/minbias (now full) and hpss both.

- ~ 507 TB other files coming from FNAL

- ~ 417 TB of root files (.root extension)

- ~65 TB other files

- from users

- Start to remove files in the coming years

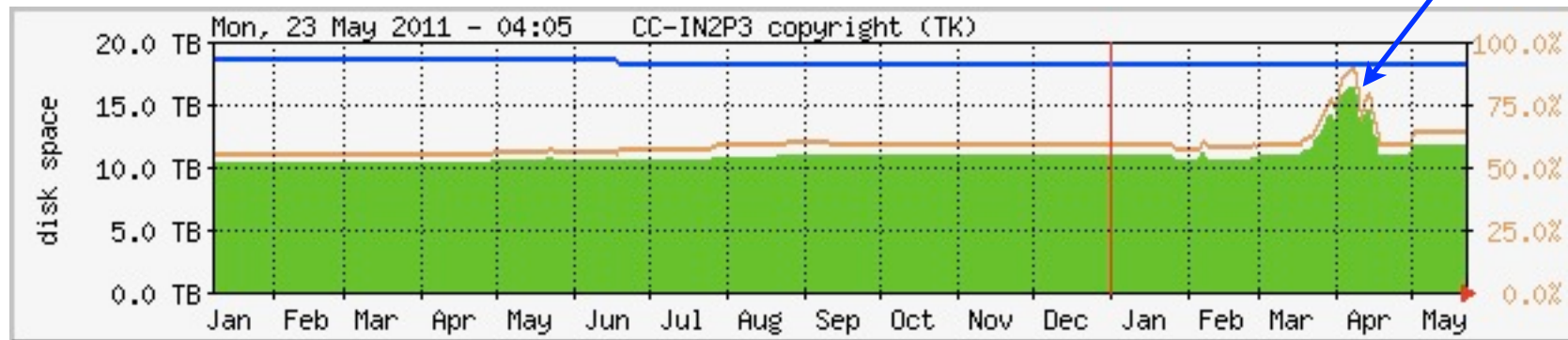
Year 2010

Groupe	To
• CMS	• 1918
• D0	• 1642
• QCD	• 1528
• Atlas	• 943
• BaBar	• 689

SPS - Semi Permanent Storage

- 11.7 TB used on 18.1 TB

Wmass activity



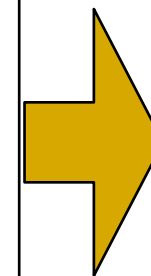
Groupe	To
• Snovae	• 180
• Planck	• 102
• km3net	• 44
• Atlas	• 44
• Cms	• 36

- Mainly used by D0 users and partially for MC production
 - Workers load ZB overlays files from /sps/d0/minbias to avoid an intensive use of HPSS
 - /sps/d0 and /sps/d0/minbias are on two different servers

- Comment :

98% of files on "/sps/d0" (so 6 millions of files) haven't been accessed since 1 year or more (92% since 2 years or more).

In "size", 57.5% of data on "/sps/d0" (6.5 TB) haven't been accessed since 1 year or more.



Please, think to remove files you are sure you will not use anymore.

Batch : BQS vs Grid Engine (GE)

- 2011 is a transition year from BQS to Grid Engine
 - In December 2010 : Ge cluster was opened for «guinea pigs» (D0 was one of them)
 - April 13rd : GE has been turned into a pre-production state for all users
 - During the second trimester : Workers are moving progressively from BQS to GE cluster
 - The goal is to have about 60 % of workers in GE at the end of June
 - Some delay possible due to CREAM-CE (Computing Resource Execution and Management - Computing Element) which was not supported by GE.
 - End of the year : BQS will be stopped
 - Documentations on GE can be found there :
<http://cc.in2p3.fr/docenligne/972> provides a translation of BQS commands to Grid Engine commands.
<http://cc.in2p3.fr/docenligne/969> describes more in detail how to get started and submit jobs.
<http://cc.in2p3.fr/docenligne/970> describes the main commands.
Support : <http://cctools.in2p3.fr/usersupport/> for questions and feedback on the documentation.
- The Lyon's MC production tools and D0runjob have been successfully adapted to GE
 - Jobs management : BQS and GE can be used simultaneously

Releases at CC

- Managed by Michel J.

List of Releases currently available at CC (AFS) :

p17.09.06

p17.09.08 (tarball for MC production)

p17.09.09 (tarball)

p17.11.00 (tarball)

p18.10.00

p18.11.00

p20.08.02

p20.09.03 (but p20.09.05 is recommended)

p20.09.05

p20.09.06 (tarball)

p20.09.07 (tarball)

p20.09.08

p20.09.09 (tarball)

p20.15.04 (tarball)

p20.17.02 (tarball)

p21.11.00

p21.12.00

p21.13.00

p21.20.00

Computing @ Fermi

Clued0 Server Nodes (DAB2 Computer Room)

Machine tango-clued0 (Lyon)

- ⇒ Currently Under Warranty
- ⇒ Disks are replaced by KOI Computers

Slide from Duncan

Machine pommard-clued0 (CPPM)

- ⇒ No Longer Under Warranty
- ⇒ Disks are replaced as they fail (about \$45 each)

Additional Server Nodes include artzamendi (Saclay) and volnay (paris)

Clued0 machines

NEWS : Fermi Computing Division cease support for Fermi Linux 4 (Feb 2012)

- ⇒ All nodes will be upgraded to SLF 5 later this year (clued0 admins).
- ⇒ 2 D0 France machines are already running SLF5 [higgs-clued0 (cppm) and tata-clued0 (paris)]

Note: Fedora I machines (old) may need to be retired if they cannot be upgraded

- ⇒ Admins are currently doing a full survey of all existing clued0 nodes
- ⇒ Two new in2p3 machines are also being ordered

QUESTIONS