



Le Calcul pour

Patrice Lebrun

Réunion D0-France
LPSC Grenoble
2 Avril 2009

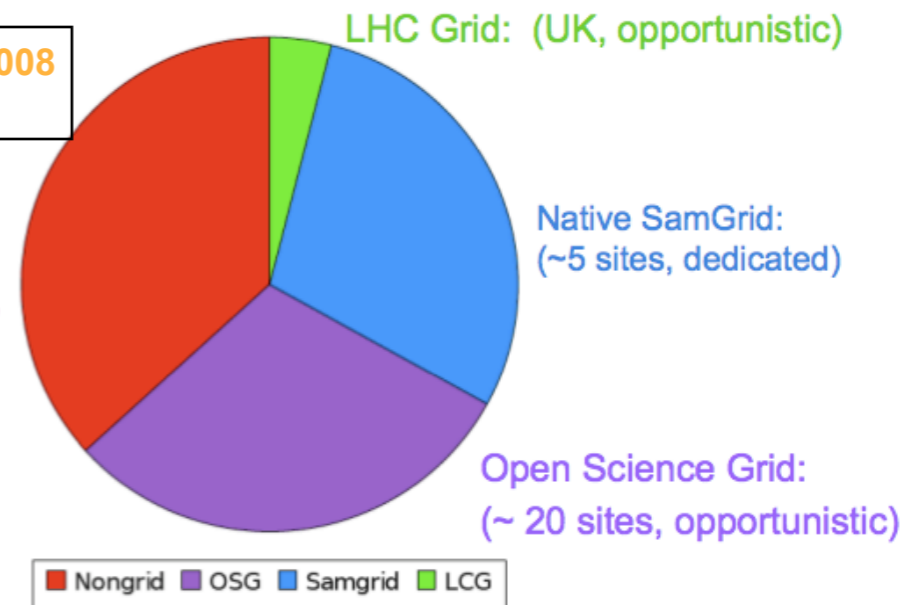


MC production Statistic

- In 2009 up to now, about 50% of the MC production is done at CC
 - ~2 M events per day.

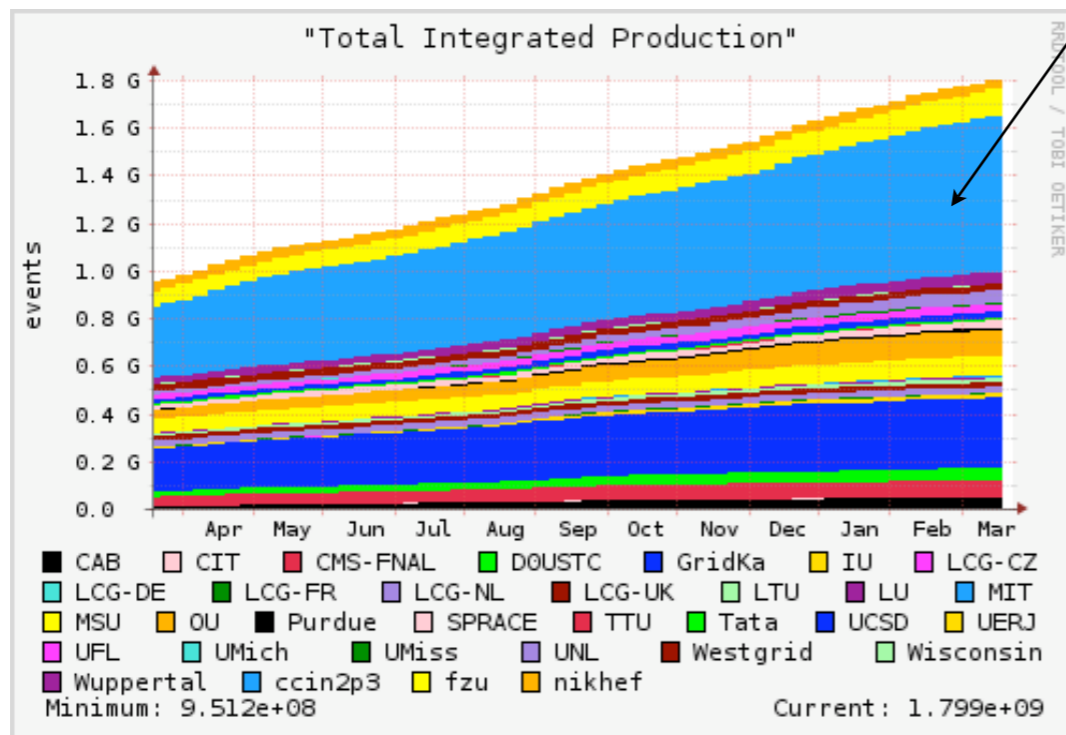
MC production for 2008
~ 800 M events

Nongrid:
(France in2p3,
dedicated)

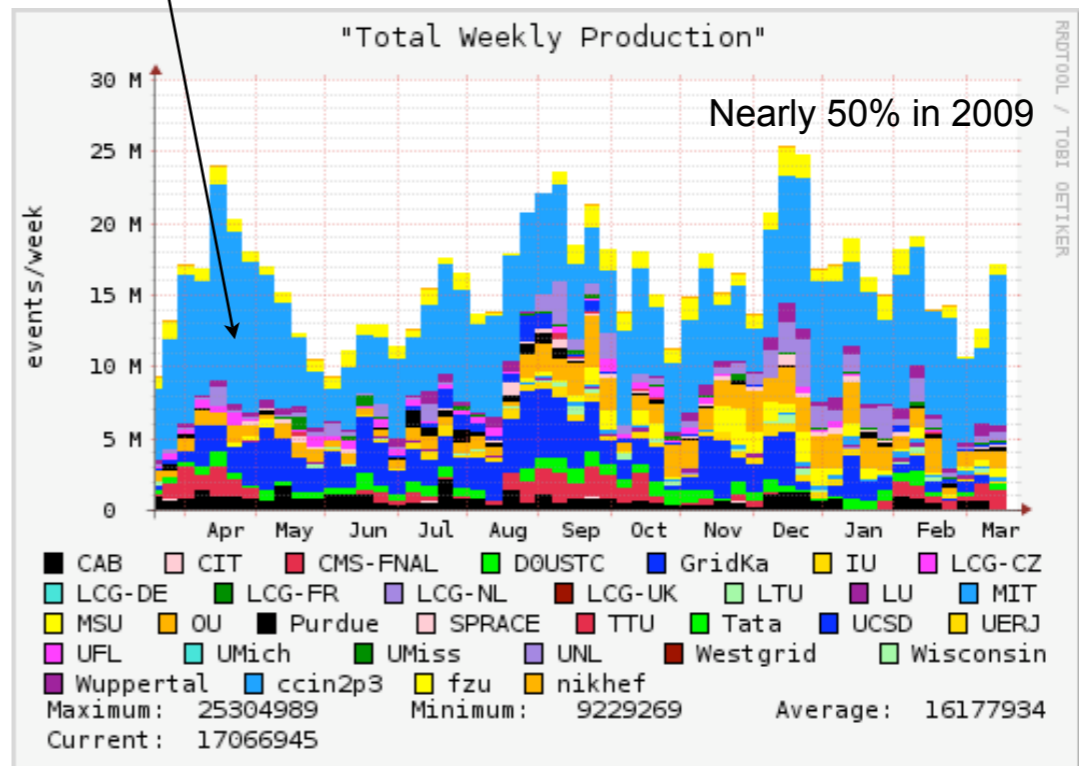


Opportunistic Usage: Exact amount of resources at any time can not be guaranteed

Updated 2009

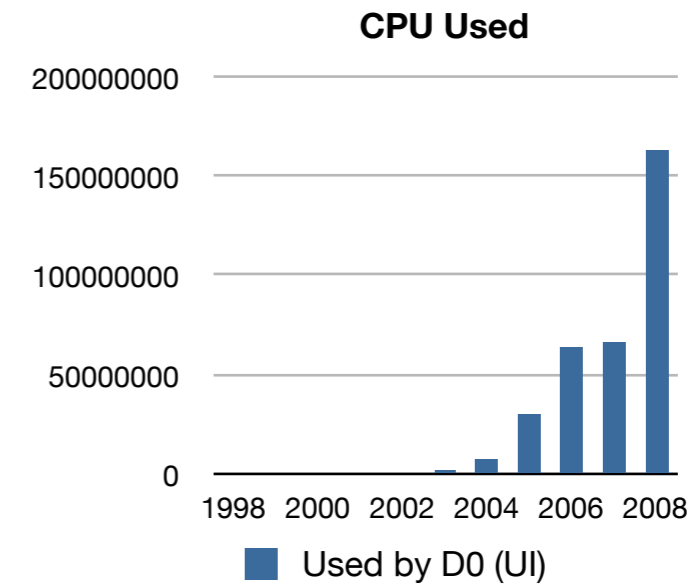
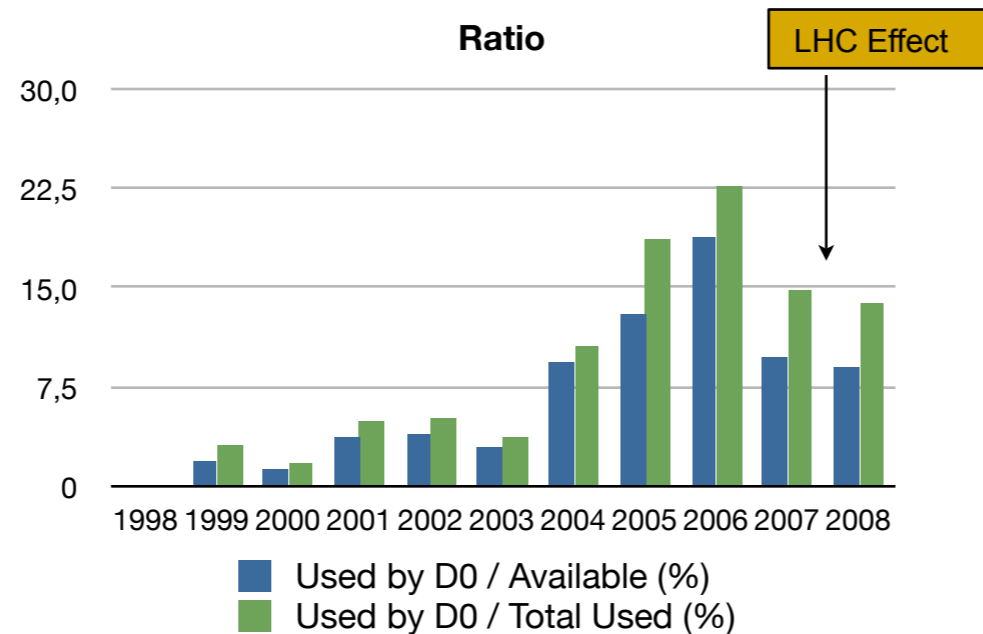


since September 5, 2005



D0 CPU Used at CC

Last Years

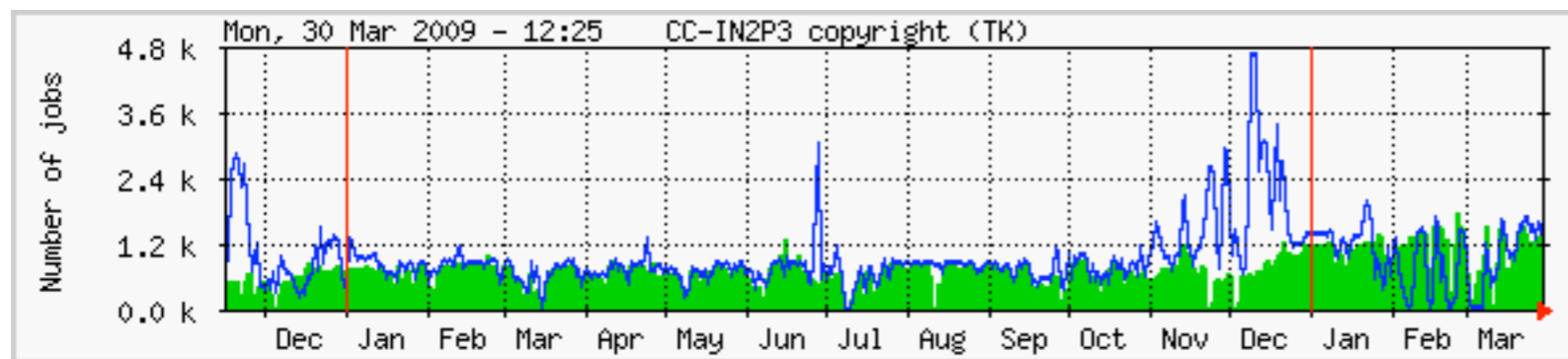
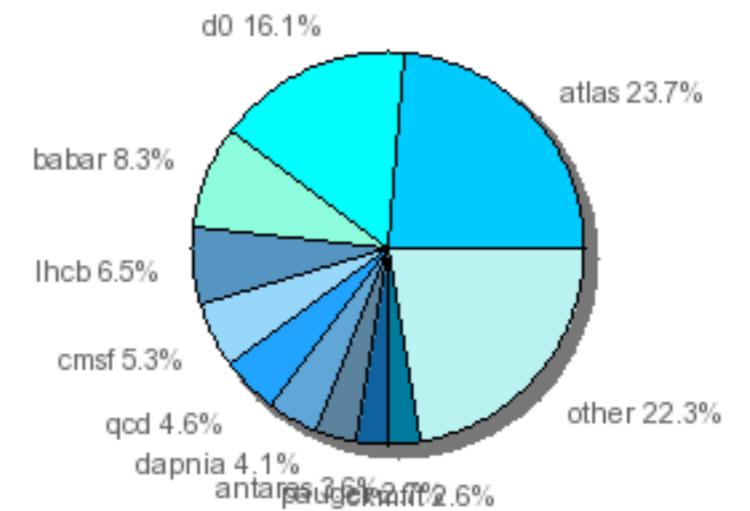


In 2009

CPU Requirement

- 4 x 75 M UI hours = 300 M UI hours
- 70 M UI hours used up to end of march 2009
 - 92.5 % for MC production
 - 7.15 % for Matrix elements (via LCG)
 - 0.35 % analysis and other private production

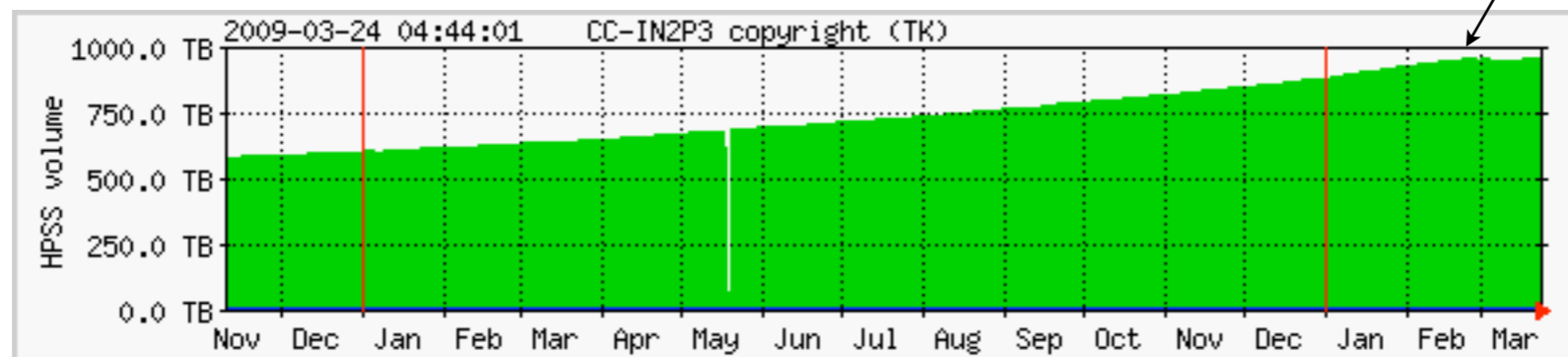
CC-IN2P3 Top 10 on anastasiie farm



HPSS

- Nearly, 1 Peta Bytes stored !
- Used to store Data and MC
 - Skims
 - By default, generated, simulated and reconstructed (merged) files are stored in HPSS
 - Very useful for instance to compare MC events with different overlay conditions.
 - Only reconstructed merged files are stored at FNAL too
 - Backup of personnel productions (generally stored in SPS too)
- BQS Resource : **u_hpss_d0 (imperative)**
 - Essentially, limitation to use CPU comes from HPSS

d0 HPSS volume:
Yearly Graph (1 Day Average)



Max 956 TB **Average** 738 TB **Current** 956 TB

AFS and SPS

■ AFS

- Essentially used for releases, general D0 codes (installed via UPD/UPS), logfiles, scripts and code owned by users

Experiment	Space Max in GB	Space Max used in GB	Space free in GB	Space free in %	Diff. since 2008 in GB	2009 request in GB
Group dir	458	235	223	48.7 %	0	130
Throng dir	7.8	6.5	1.2	15.9 %	0	16

■ Semi Permanent Storage

- For Analysis and many other stuffs (ZB files are in SPS to avoid to stress HPSS)
- 15 TB requested in 2009
- BQS Resource : **u_sps_d0 (imperative)**

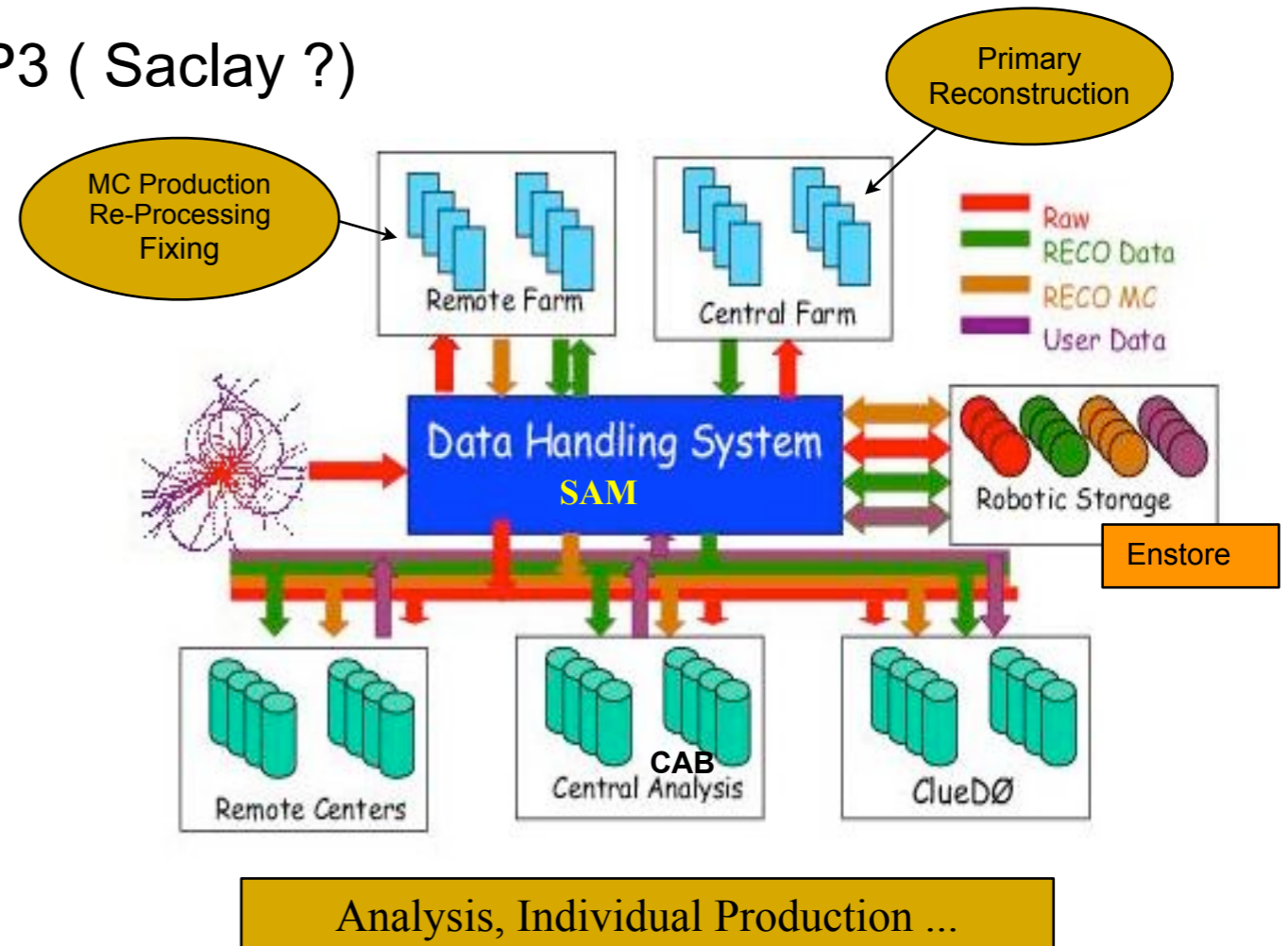
File system	Space Max in GB	Space Max used in GB	Space free in GB	Space free in %
<u>/sps/d0</u>	14	6	8	56.1 %
<u>/sps/d0usr</u>	1	0.9	0.1	10.6 %

■ Comment

- For large private productions, please use BQS resource **u_users_d0**

FNAL Analysis : Clued0

- Clued0 Administrator at FNAL for IN2P3 (Saclay ?)
 - Yuji Enari (LPNHE)
- 3 Disk Server
 - 12.9 TB used over 18.8 TB
- 19 desktop available at FNAL
 - 3 new desktops bought at the end of Feb 2009



Groups	LPSC, Grenoble	LAL, Orsay	IPHC, Strasbourg	LPC, Clermont	LPNHE, Paris	CPPM, Marseille	IPNL, Lyon
Number of desktops	3	1 +1	2 +1	2	4 +1	5	2

Grid

- SAMGRID (Grille D0)
 - JIM (job information and monitoring) + SAM = SAMGRID
 - Two SAM Stations at CCIN2P3
 - ccin2p3-analysis (oldest, v5) node: ccd0
 - ccin2p3-grid2 (v7) node: ccsvli02
 - Used essentially to import files from FNAL (HPSS seen as cache disk)

- Grid Interoperability
 - SAMGRID with LCG
 - ccin2p3-grid1 (v7) node: ccd01

- LCG
 - Used by Top group for Matrix Elements Computing (7.5% of D0 used this year up to end of February)
 - See the presentation of Aurelien Croc

- Comment
 - ccin2p3-grid1 and ccin2p3-grid2 are used to store files at FNAL

Summary or Comments

- D0-France is a very important actor in the MC production at D0.
 - Lyon (P.L) could keep this responsibility up to the end of D0

- Futur: The minimal request is to keep the current CPU used at CC
 - Up to now about +30% per year were requested.

- The limitation to use CPU comes from Storage Elements
 - This limitation does not exist for matrix elements computation, very low IO access.

- Need disk servers at FNAL: at least 2 x 10 TB
 - Often to have disk space at FNAL is tricky
 - Essentially due to issues on disk servers. Many files are duplicated.

- Main BQS Resources
 - u_hpss_d0 to use HPSS
 - u_sps_d0 to use SPS
 - u_users_d0 for large private productions

- *How will be the life at CC when LHC will run ??*