



## CC - IN2P3 Site Report

Hepix Spring meeting 2011

*Darmstadt* May 3rd

Philippe.Olivero @cc.in2p3.fr



dapnia

cea

saclay





# Overview



- **General information**
- **Batch Systems**
- **Computing farms**
- **Storage**
- **Infrastructure (link)**
- **Quality**

# General information about CC-IN2P3 - Lyon



- **French National computing center of IN2P3 / CNRS**  
**in association with IRFU (CEA –Commissariat à l’Energie Atomique)**
- **Users:**
  - **T1 for LHC experiments (65%) , and D0, Babar, ...**
  - **~ 60 experiments or groups HEP, Astroparticle, Biology, Humanities**
    - **~ 3000 non-grid users**
  - **Dedicated support for each LHC experiment ,**
  - **Dedicated support for Astroparticle**

# New Batch System : Grid Engine (GE)



- Home made batch system BQS in a process of migration to Grid Engine after a careful evaluation of several batch- systems (2009 )

- “Selecting a new batch system at CC-IN2P3” (B. Chambon )

<https://indico.cern.ch/contributionDisplay.py?contribId=1&confId=118192>

- “Grid Engine setup at CC-IN2P3 » (B. Chambon )

<https://indico.cern.ch/contributionDisplay.py?contribId=2&confId=118192>

- Process of migration started in june 2010,
- Pre-Production cluster is now open to users since mid-April
- Official production cluster planned for end of may
- End of BQS planned before end of 2011

# New Batch System : Grid Engine



- **New Grid Engine cluster for migration from BQS to Grid Engine :**
  - **Open Source version 6.2 u5**
  - **mainly Sequential jobs : 2000 cores (~17% of total of seq. resources in CC)**
  - **128 cores for Parallel jobs and 32 cores for interactive jobs**
  - **new racks progressively added to reach at least 60% in GE in end of June**
  - **creamCE successfully installed, not open yet**

# Computing farms (BQS+GE)



- ~ 120 K-HS06 (total of CPU resources)
- ~ 8 K-HS06 for parallel jobs
- ~ 12 K simultaneous jobs
- ~ 110 K-jobs/day
- ~ 30 K-HS06 added next month (36 DELL Poweredge C 6100 – 72GB)

# Current farms BQS vs GE



Cores	Sequential	Parallel	Interactive	Total
BQS	10 792	896	0	11 688
GE	1 976	128	32	2 136
Total Cores	12 768	1 024	32	13 824

K-HS06	Sequential	Parallel	Interactive	Total
BQS	91,06	7,26	0,00	98,31
GE	18,78	1,04	0,26	20,08
Total K-HS06	109,84	8,29	0,26	118,39

# Storage – What news ? What is planned ?



- **Robotic**                    **T10K-C tests planned for september**  
**ACSL5 7.3 upgrade to 8.0 in september**
  
- **HPSS**                      **Migration done to 7.3.2**
  
- **dCache**                    **Instance EGEE from 1.9.0-9 to 1.9.5-25 in may**  
**30 additional servers before summer**
  
- **TSM**                        **TSM Migration planned from 5.5 to 6.1 with 4 servers AIX 6**
  
- **GPFS**                      **Migration planned to GPFS 3.4 in second half 2011 (current v3.2.1-25/26)**

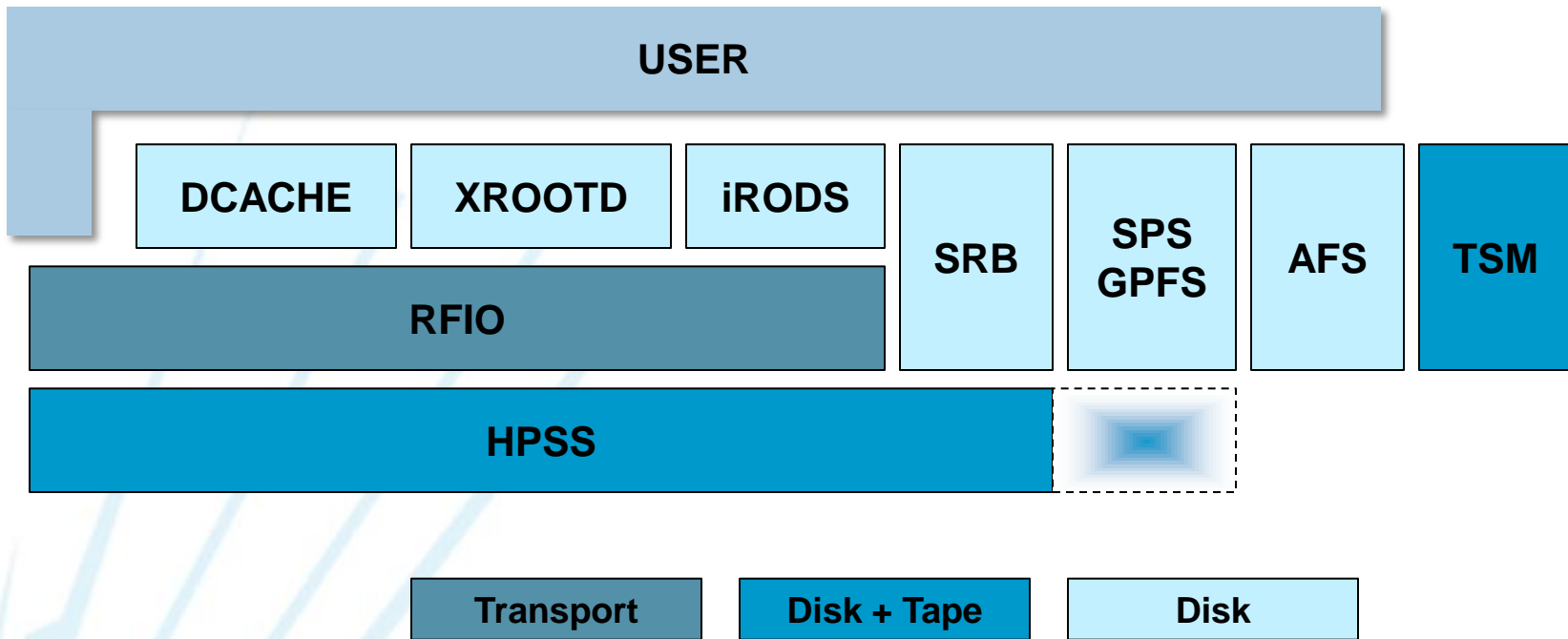




# Storage



# Storage



Credit : Pierre Emmanuel Brinette

# Storage Summary



## ■ dCache

- 2 instances: LCG (1.9.5-24), & EGEE (1.9.0-9)
- +300 pools on 160 servers (x4540 Thor/Solaris10/ZFS & Dell R510/SL5)
- 5,5 PiB
- 16 M+ files

## ■ SRB

- V 3.5
- 250 TiB disk + 3 PiB on HPSS
- 8 Thor 32 TB 10/ZFS + MCAT on oracle

## ■ iRods

- V2.5
- 11 Thors 32/64 TB + 1 Dell v510 54 TB

## ■ Xrootd

- (march 2010 Release)
- 30 Thor, 32/64 TO
- 1.2 PiB
- Thors 32/64 to Dell v510 planned for Alice

## ■ HPSS

- V 7.3.2 on AIX p550
- 9.5 PB / 26 M files
- + 2000 different users
- 60 drive T10K-B / 34 drives T10K-A on 39 AIX (p505/p510/p520) Tape servers
- 12 IBM x3650 attached to 4 DDN Disk (4\*160 TiB) / 2 FC 4Gb / 10 Gb Eth

## ■ openAFS

- V 1.4.14.1 (servers) and V1.5.78 (worker nodes)
- 71 TB
- 50 servers, 1600 clients

## ■ GPFS

- V 3.2.1r22
- ~900 TiB, 200 M files, 65 filesystems
- +500 TiB on DCS9550 w/ 12 x3650 (internal redistrib)
- -50 TiB on DS4800 (decomissioned)

## ■ TSM

- 2 servers (AIX 5, TSM 5.5) each w/ 4 TiB on DS8300
- 1 billion files. ~840 TiB.
- 16 LTO-4 drives 1700 LTO4
- 3 TiB day

*Credit : Pierre Emmanuel Brinette and Storage experts*



# Infrastructure



New machine room in service

«Overview of the new computing » (P. Trouvé) on Wed 4th 2:15PM





- **One dedicated people working as a quality manager**
- **Several works in progress :**
  - **CMDB: current study to get one**
  - **Ticketing system : current study to change Xoops/xHelp**
    - **Ticket management to be improved**
    - **Incident and Change management to be included**
  - **Event management : Nagios probes enhancement to get a new Service Status page**
- **ControlRoom**
  - **with 2 people on duty (Operation and ServiceDesk)**
  - **To implement Itil best practices**



**Thank you !**



**Questions ?**