CC - IN2P3 Site Report

Hepix Spring meeting 2012

Prague

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Overview

o **General information**

o **Batch System and cluster**

o **Storage**

o **Quality management**

General information about CC-IN2P3 - Lyon

o **French National computing center of IN2P3 / CNRS**

 in association with IRFU (CEA –Commissariat à l'Energie Atomique)

o **Users:**

- o **T1 for LHC experiments (65%) , and D0, Babar, …**
- o **~ 60 experiments or groups HEP, Astroparticle, Biology, Humanities**
  - o **~ 3000 non-grid users**
- o **Dedicated support for each LHC experiment ,**
- o **Dedicated support for Astroparticle**
- o **Dedicated support for Biology**

Management changes

o **Dominique Boutigny (Director) will leave end 2012**

o **Infrastructure team : Benoit Delaunay replaces Jérôme Bernier**

o **Operation team : Rolf Rumler replaces Philippe Olivero**

o **Storage group : Jean Yves Nief replaces Benoit Delaunay**

o **Fréderic Azevedo replaces Rolf Rumler as Quality Manager**

Batch System and cluster

Batch System

o **Fully Oracle Grid Engine since December 6th 2011**

o **Version 6.2 Update 6**

o **158 K-HS06   17 K-cores   ~ 120 k-Jobs/day**

o **No more addition of workers this year**

o **CreamCE**

  o **1 enhancement proposed to Blah and accepted (plugins structure)**

  o **1 enhancement proposed to Cesga in GE Interface**

GE Cluster

					Nb machines	Nb threads	HS06	%
G E	prod	SEQ	iDPx dx360	8	402	3 216	29 394	18,5%
			Pwg 1950b	8	220	1 760	16 632	10,5%
			Pwg C6100	24	315	7 560	69 556	43,9%
				12	1	12	110	0,1%
			Pwg M610	16	220	3 520	32 595	20,6%
			Virtual KVM	16	3	48	444	0,3%
			Total		1161	16 116	148 733	93,8%
		INTER	Pwg 1950b	8	4	32	302	0,2%
			Total		4	32	302	0,2%
		PARA	Pwg M610	16	64	1 024	9 482	6,%
			Total		64	1 024	9 482	6,%
Total					1229	17 172	158 517	100,%

workers   18/04/2012

GESS Initiative : Grid Engine for Scientific Sites

o **CC-IN2P3 initiative to try to establish a collaboration between sites using Grid Engine (not only HEP , but Scientific Sites)**

    At an operational/management level, and not at a technical level :

o **Sites configurations choosen to cope with CPU distributions among**

   users, groups, sub-groups, fair-share and job types

o **Inventory of GE lack of functionalities…..**

o **… for a common prioritised request list from sites for providers**

o **Exchange custom developped tools to make operation easier**

o **Discussions about GE installations (servers), and options (Berk. DB, NFS, Arco, …)**

o **…**

Actions done and to be done

o **Done by CC-IN2P3 (RR & PhO) :**

  o **First call to collaborate (to known site contacts, Hepix-list, Sysgrid aliases)**

  o **Creation of a listserv-list : GESS-L and subscription of interested persons**

    29 subscribers, about 15 sites (CC included)

  o **Creation of a first wiki page with summary of answers given by site contacts**

    (cluster size, GE provider, Version, supported tools, comments, ..)

  o **Add first exemples of requests made to Oracle by CC-In2p3**

o **Invite to a first F2F meeting Tuesday 24 at 5PM after Hepix sessions, objectives/topics:**

  o **First discussion about collaboration : How ? Why ? Who ? New ideas, needs**

  o **Common actions toward providers, if accepted**

  o **Initiate a long term self organisation**

o **Links:**

  GESS-L : Mailing List Subscriber's Corner : http://listserv.in2p3.fr/archives/gess-l.html

  Temporary Wiki of Registered Sites and clusters configurations:

    https://forge.in2p3.fr/projects/gess/wiki

Storage

Storage

USER

DCACHE   XROOTD   iRODS   SRB   SPS GPFS   AFS   TSM

RFIO

HPSS

Transport   Disk + Tape   Disk
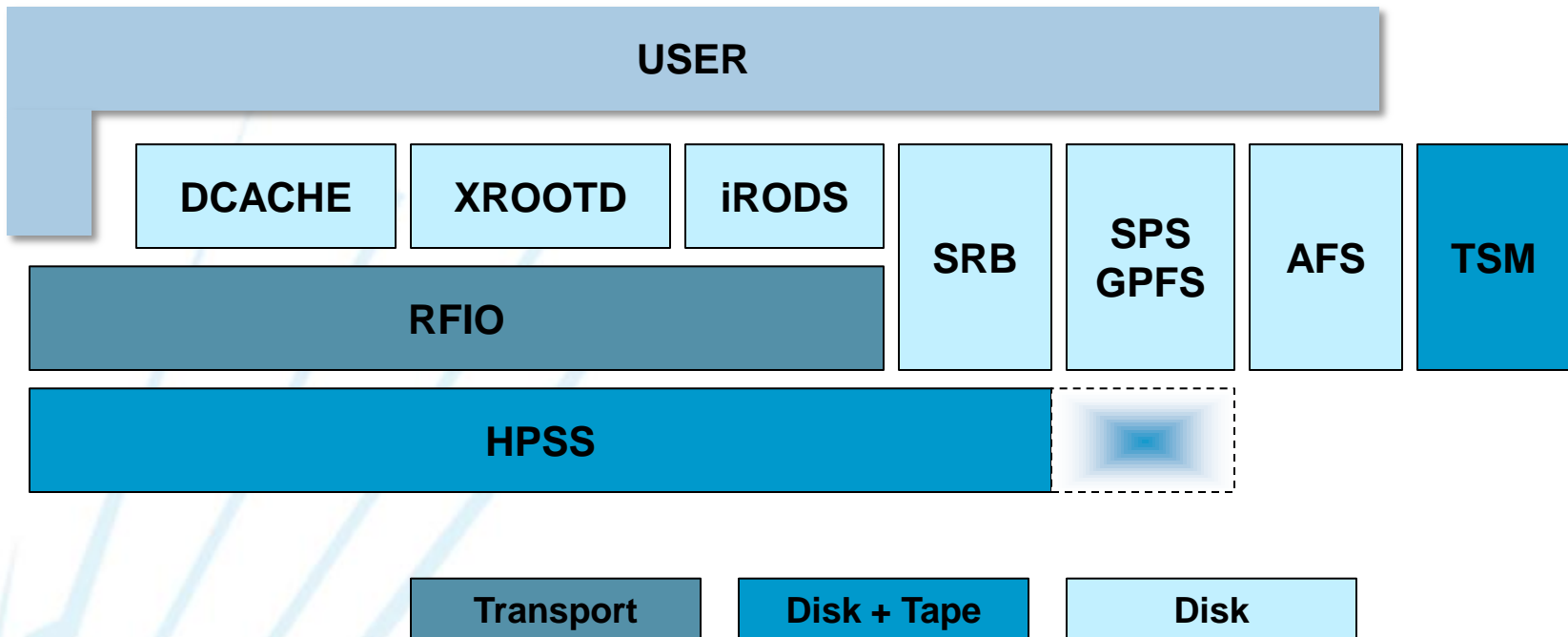
Credit : Pierre Emmanuel Brinette

Storage Summary

Credit : CC-In2p3 Storage experts

- **dCache**
  - 2 instances: LCG (1.9.12-16), & EGEE (1.9.12-16))
  - +300 pools on 180 servers
    (x4540 Thor/Solaris10/ZFS & Dell R510/SL5)
  - ~7,3 PiB
  - ~28 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
  - 520 To disk space   1.7 Po managed (incl. Tapes)
  - ~22 M files

- **Xrootd**
  - Version 3.0.5
  - 20 Thors 32/64 To + 16 R510 à 54 To
  - 1.5 PiB

- **HPSS**
  - 18 PB, 36.6 M files on tapes / 432 TB on disks
  - 7.3.2.3.0 on IBM AIX 6.1
  - Core server : IBM eServer p550
  - Tape drives : 60 x T10K-B / 34 x T10K-A
  - 40 x tape servers
  - . 39 x IBM AIX (p505/p510/p520)
  - . 1 x DELL PowerEdge R710 RHEL 5
  - 12 x disk DELL servers
     . DELL PowerEdge R510 + DELL PowerVault
     . MD1200 + 10Gbps Eth + RHEL5 = 36 TB
  - 10 x T1OK-C in production

     ACSLS 7.3 upgrade to 8.0 in september

- **openAFS** (Last update Nov 2011)
  - V 1.4.14.1 (servers) and V1.5.78 (worker nodes)
  - 71 TB
  - 50 servers, 1600 clients

- **GPFS** (Last update Nov 2011)
  - Versions 3.2.1-25/28 & 3.3.0-16
  - ~1,3 PiB, 250 M files, 70 filesystems
  - +500 TiB on DCS9550 w/ 12 x3650 (internal redistrib
  - -50 TiB on DS4800 (decomissioned)

- **TSM**(Last update Nov 2011)
  - 4 servers (AIX 6, TSM 6) each w/ 4 TiB on DS8300
  - 1 billion+ files.   ~1 PiB.
  - 20 LTO-4 drives   ~2000 LTO4 tapes
  - 3 TiB day

Quality Management

and

Business Continuity

Quality management and Business Continuity

- Incident Management :
    - Log every known incidents
    - Ensure that related services have an up to date documentation
    - New ticket system coming (OTRS) (see next/previous slides)
- Business Continuity
    - 8 people trained and have to start the activity
        - Risks identification and Business Impact Analysis (BIA)
        - Real use case : Scheduled outage during September (installation of redundant power supply line) – No power for 2 days!
        - Identify critical IT Services that should be kept available [power generator]
- CMDB - Starting project .Looking for open-source product CMDBuild, itop,OTRS
- Service catalog
    - to list customer available Services and to specify actual Services availabilities
- Upcoming :   SLM (Service Level Management) - Problem Management –

  Capacity Management - Continual Service Improvment (CSI)

User Support tool : OTRS soon

o **Change needed to improve support and include ITIL best practices [exit xHelp]**

o **Choice done on open source products following a list of criteria defined**

  for users and support staff roles and with some use cases

o **RT, OTRS and Mantis evaluated by a small working group**

o **Current process of migration to OTRS by a working group**

  - o **test instance has been installed**

  - o **configuration studied to fit our needs**

  - o **technical adaptations : GGUS interface, authentication**

o **2 OTRS training sessions will come:**

  end of May: conceptual design

  end of June: administrator training

  between these sessions, a preprod instance will be installed

o **Migration foreseen in September**

Installation of a Control Room

o **Control Room**

    o **with 2 people on duty from Operation and Support groups (9 involved)**

    o **To implement Itil best practices**

o **Central point of management : events, incidents, outages, upgrades, …**

o **Cooodination of interventions, and communications**

o **Nagios, Elogs, Wiki, Tickets…**

o **Positive assesment :**

  better

    o **reactivity**

    o **follow-up**

    o **Communications**

    o **coordination**

Thank you !

Questions ?