jeudi 14 juin 2007

CC and LQCD

dapnia
cea
saclay

CENTRE NATIONAL
DE LA RECHERCHE
SCIENTIFIQUE

CC presentation - global

- Staff: 69 peoples at Lyon
- Activities:
  - Provide computing, storage and data transfert infrastructure for experiments and users.
  - Provide mutualized services for experiments and IN2P3 laboratories such:
    - Database, web, mail, network, software management, visio-conf, webcast, backup, EDMS, CVS, …
  - Provide grid infrastructure and acces to local resources
- Working with SLAC, Fermilab, CERN, BNL, FZK, CNAF, RAL.
- Evolution driven mainly by LHC experiments.

CC presentation - users

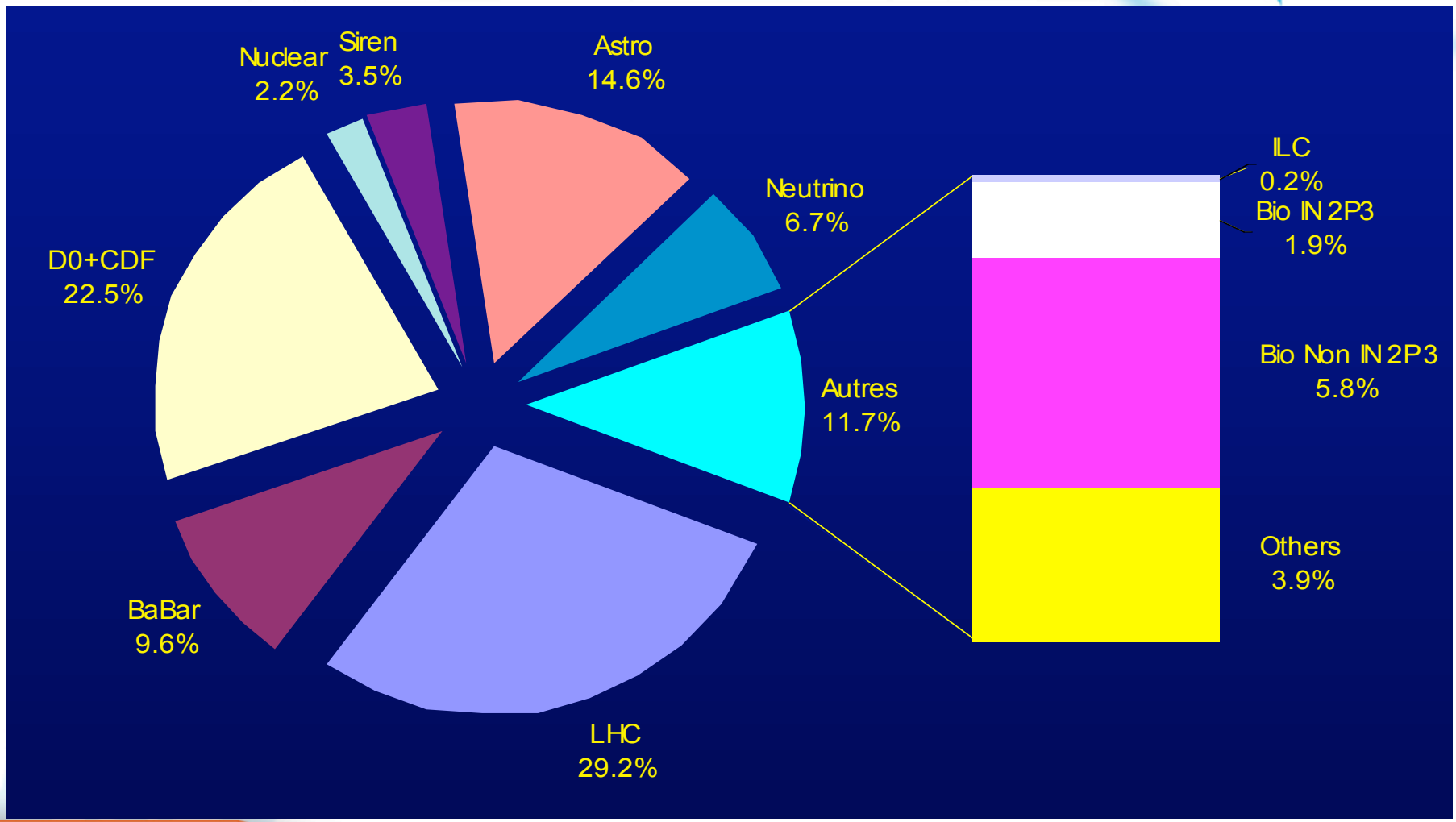
- HEP-Nuc experiments: D0, Babar, Phenix, …
- LHC experiments: Atlas, Cms, Alice, Lhcb
- Astro-neutrino: Auger, Némo, Antares, Virgo, Snovae
- Bio: ~8 groups, mainly around Lyon.
- IN2P3/DAPNIA laboratories.

- ~90 active groups.
- ~3000 local users (800 active one's) with ~500 (200) non IN2P3/DAPNIA + grid users.

CC presentation - batch (cpu)

- Distributed architecture.
- Local batch system: BQS sharing all cpus and users on 2 farms: anastasie & pistoo.
- Running 3000 jobs in // on 2000 cpus: 2,2 MSi2k.
- Next comming: 479 1'' boxes dual cpu, quadri cores with 16 GB of memory (2 GB/core) in june and september. This will add ~4,5 MSi2k to the farm.
- Going to 64 bits architecture (SL4-64).

CC presentation - batch 2007



CC presentation - storage

- Distributed architecture with ethernet & fiber chanel technologies

- 3 main systems:
  - AFS: 5 TB.
  - GPFS: 150 TB.
  - MSS: 2100 TB on tape, 600 TB disk space.

- Coming this year:
  - 1200 TB disk space for MSS (dcache, xrootd, rfio).
  - 300 TB disk space for GPFS.

CC presentation - storage AFS

- Used for small files, small volume.
- Used for home dir and as group shared space.
- Used for system and software installation.
- Specific AFS acl's.
- Backup of home and throng dir.

- Access thru standard unix protocol.

- 5 TB actually.

CC presentation - storage GPFS

- Used for higher volume and file size.
- Standard unix acl's.
- Non permanent working space. No backup.

- Access thru NFS protocol.

- 150 TB actually.

CC presentation - storage MSS

- Used for higher volume and file size.
- Handle by HPSS.
- 2 level system: disk & tape (500 GB - 1 TB / tape).

- Access thru:
  - Rfio: 50 TB disk.
  - Dcache: 370 TB disk.
  - Xrootd: 180 TB disk (shared cache disk).
  - Srb: 10 TB disk (data transfert & data management).

- 2100 TB actually on tape.

CC presentation - data management

- SRB: used for data management and data transfert by Babar, Auger, Snovae, Ilc, Bio, Antares, Edelweiss, …
- Grid tools: SRM, LFC, FTS, … used globally or partially by some of the LHC experiments.

- IRODS: strong evolution of SRB in a free software distribution mode. Actually version 0.9.

CC presentation - grid

- Overall EGEE and LCG grid middleware installed and available at CC for users: UI, computing element, storage element, SRM, VO boxes, fts, …
- CIC portal developed, installed and managed at CC.
- CC is the ROC for France.
- VO hosting (biomed) at CC.

CC & LQCD

- Mainly contact with Grenoble people (J. Carbonnel).
- Computing:
  - Problem with the memory requests.
  - Could run on pistoo farm with MPI or PVM ?
  - Partially solved with new hardware.
- Data management, data transfert and data access:
  - Using HPSS locally with rfio for data access.
  - Using SRB for data management and data transfert between Lyon, Grenoble and Orsay (LPTH) ?
- Grid technologies for data handling by ILDG VO: 2 TB of dcache disk space (which could be improved) with HPSS interface accessed by SRM.

Questions ?