CCIN2P3
Site report

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Services

- CPU
- Networking
- Data storage and access
- Data bases
- E-mail
- WEB
- Electronic Documents Managment (EDMS) and CAD
- LDAP (OpenLDAP)
- MCU
- Win2000 domain service

Supported platforms

- **Supported platforms:**
  - Linux (RedHat 6.1, Kernel 2.2.19-6.2.12, gcc 2.91.66 and gcc 2.95.2), RedHat 7.2 in test
  - Solaris 2.7, 2.8 in test
  - AIX 4.3.2 (some servers upgraded to 4.3.3)

Disk space

- **Need to make the disk storage independent of the operating system.**

- **Disk servers based on:**
  - A3500 from Sun with 3.5 TB
  - VSS from IBM with 2.2 TB
  - ESS from IBM with 5.9 TB
  - 9960 from Hitachi with 18 TB

Mass storage

- **Supported medias (all in the STK robots):**
  - 3490
  - DLT4000/7000
  - 9840 (Eagles)
  - Limited support for Redwood (until Dec 2002)
- **HPSS – local developments:**
  - Interface with RFIO:
    - API: C, Fortran (via cfio)
    - API: C++ (iostream) (for gcc and KCC)
  - bbftp – secure parallel ftp using RFIO interface

Mass storage

- **HPSS – test and production services**
  - $HPSS_TEST_SERVER:/hpsstest/in2p3.fr/…
  - $HPSS_SERVER:/hpss/in2p3.fr/…

- **HPSS – usage: 123 TB (60 TB in Oct 2001).**
  - BaBar – 75 TB for Objy, 2 TB for other data
  - AUGER – 17 TB
  - EROS II – 11 TB
  - D0 – 6.5 TB
  - LHCb – 1.7 TB
  - Virgo – 1.6 TB
  - Other experiments: SNovae, DELPHI, ALICE, PHENIX, CMS

Networking - LAN

- **Fast Ethernet (100 Mb full duplex) --> to interactive and batch services**

- **Giga Ethernet (1 Gb full duplex) --> to disk servers and Objectivity/DB servers**

Networking - WAN

- Academic public network "Renater 2" based on virtual networking (ATM) with guaranteed bandwidth (VPN on ATM)

- Lyon ←→ CERN at 155 Mb

- Lyon ←→ US is going through CERN

- Lyon ←→ STARtap at 100 Mb, STARtap to Esnet at 50 Mb (for BaBar).

BAHIA - interactive front-end

Based on multi-processors:

- **Linux (RedHat 6.1) -> 12 dual PentiumIII1GHz**

- **Solaris 2.7 -> 4 Ultra-4/E450**

- **AIX 4.3.2 -> 6 F40**

Batch system - configuration

Batch based on BQS (developed at CCIN2P3 system, still new possibilities to be added – like parallel jobs, data bases for batch monitor control).

- **Linux (RedHat 6.1) -> 96 dual PIII 750MHz + 100 dual PIII 1GHz**

- **Solaris 2.7 -> 25 * Ultra60**

- **AIX 4.3.2 -> 29 * RS390 + 20 * 43P-B50**

Batch system – Linux cluster

Support for big experiments

- **BaBar**
  - Objectivity/DB servers (v.6.1 on Solaris 2.7)
    - 2 on 4500 and 8 on Netra-T
  - Disk space for Objectivity database
    - Total of 19 TB
  - HPSS with interface to Objectivity (ams/oofs) and RFIO – 75 TB
  - Import/export using bbftp
- **D0**
  - SAM server (on Linux)
  - bbftp for import/export with FNAL
  - Usage of HPSS as SAM cashing space

Local software developments

- **Monitoring of Objectivity servers for BaBar**
- **Development of RFIO 64bits**
  - Will be implemented in HPSS at CCIN2P3 by Ph.Gaillardon
  - Will be implemented in Castor at CERN

Present actions

- **Computing and data storage services for about 45 experiments**

- **Regional Center services for:**
  - EROS II
  - BaBar ($\rightarrow$ Tier A)
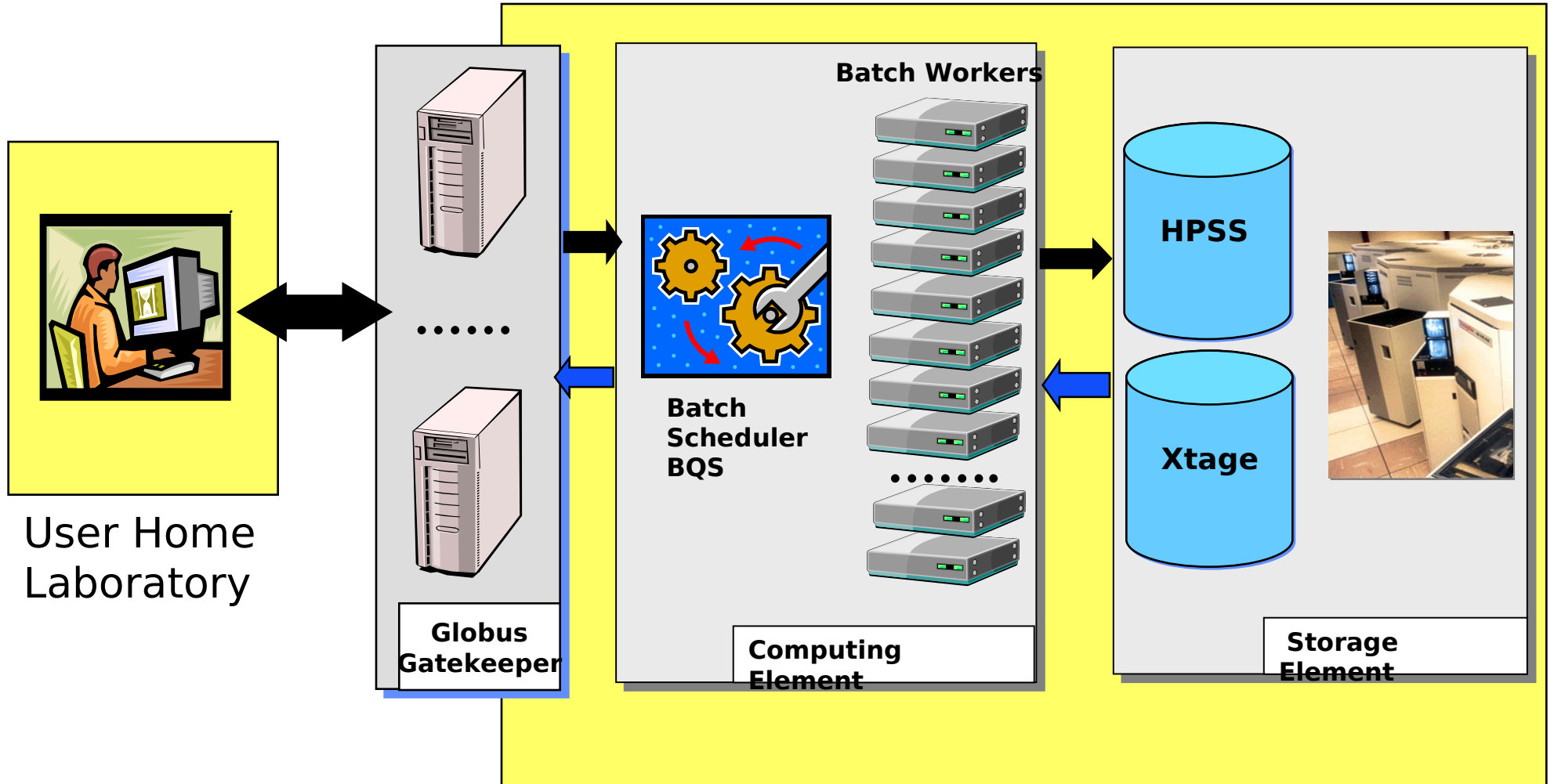 - D0
  - AUGER
  - LHC

Present actions

- **Creation of MCU, institutes involved:**
  - IN2P3
  - CNRS
  - INSERM
  - INRA
  - ....

Present actions

- **In the frame of WP6 (DataGRID) the tests for ALICE, CMS and BaBar**
- **Participation in WPx groups (x=8,7,9,10)**
- **Integration of BQS batch system into Globus**

DataGrid Working Environment

User Home Laboratory

Globus Gatekeeper

Batch Scheduler BQS

Batch Workers

Computing Element

HPSS

Xtage

Storage Element

IN2P3 Computing Center

Future actions

- **Integration into DataGrid for Babar and LHC experiments**

- **Regional Center services (Tier 1) for the LHC experiments (ALICE, CMS, ATLAS, LHCb)**

- **Regional Center services for: STAR, SNovae, Virgo (?), ...**