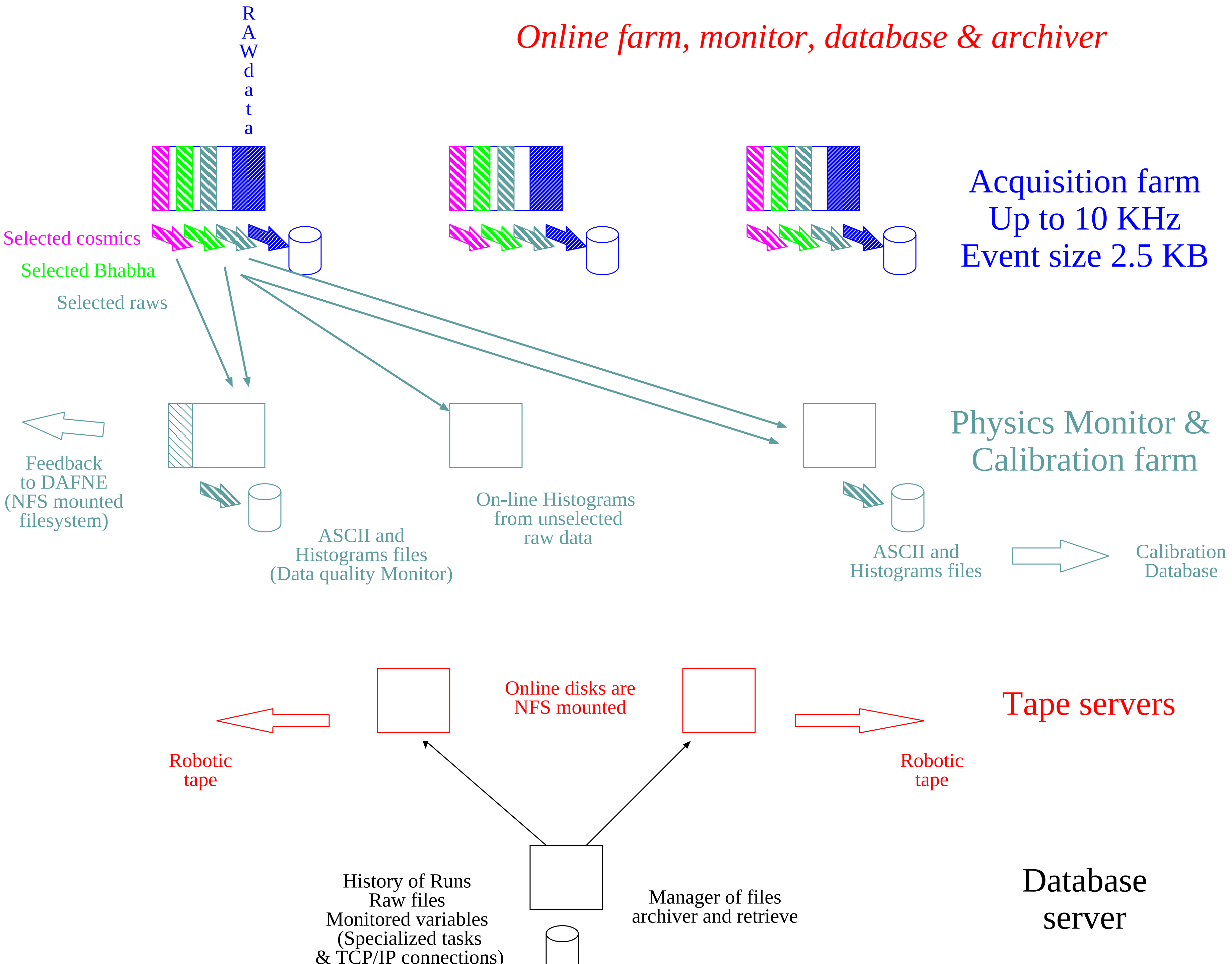
DAQ status

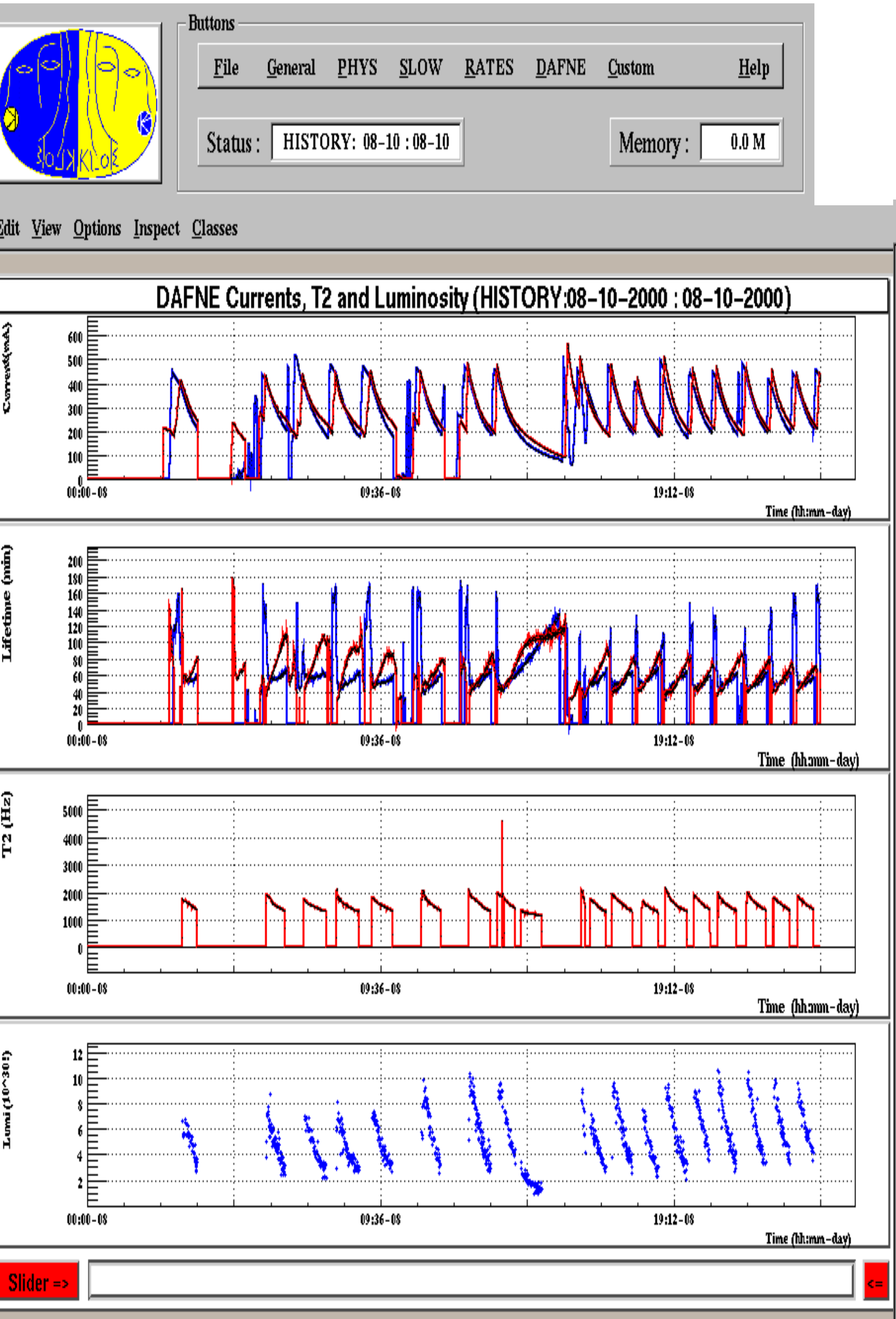
M.L. Ferrer, Oct 12, 2000

Review of the last achievements

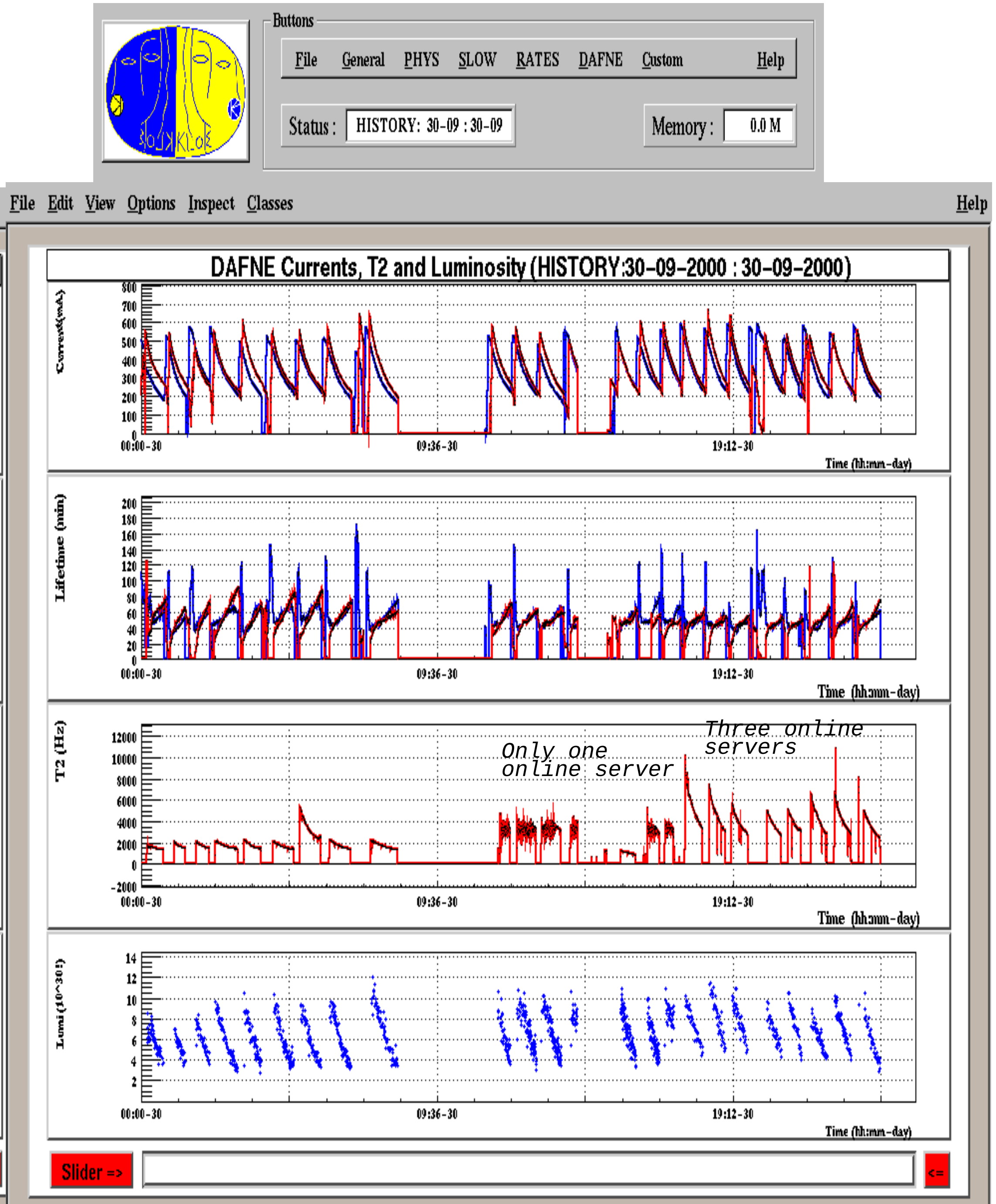
- Present architecture
- Acquisition rates and CPU power
- Database entries
- Archive and Backup
- Accessing data in KLOE

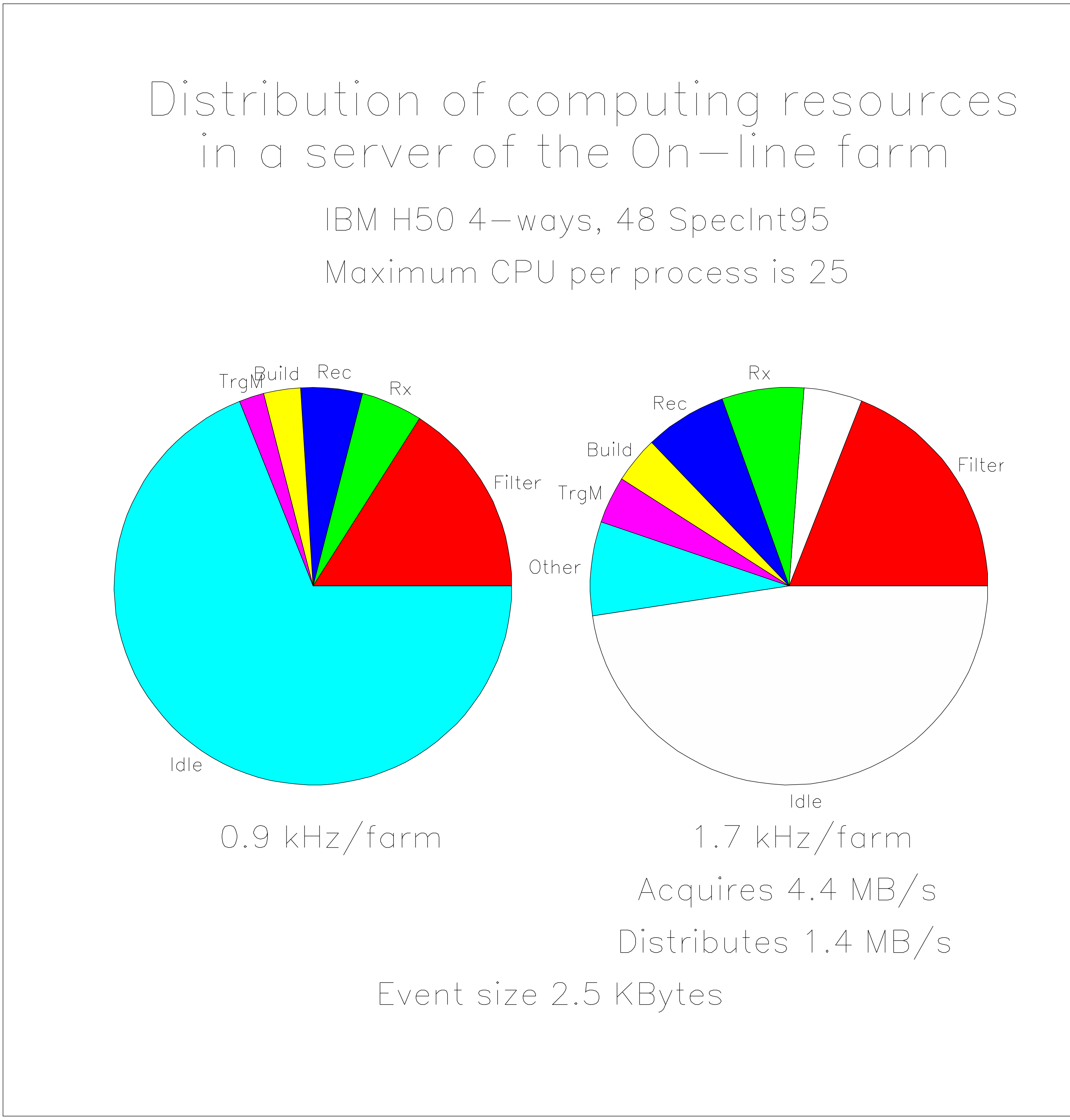

Online farm, monitor, database & archiver
RAW data
Acquisition farm
Up to 10 KHz
Event size 2.5 KB
Selected cosmics
Selected Bhabha
Selected raws
Physics Monitor &
Calibration farm
Feedback
to DAFNE
(NFS mounted
filesystem)
ASCII and
Histograms files
(Data quality Monitor)
On-line Histograms
from unselected
raw data
ASCII and
Histograms files
Calibration
Database
Online disks are
NFS mounted
Tape servers
Robotic
tape
Robotic
tape
History of Runs
Raw files
Monitored variables
(Specialized tasks
& TCP/IP connections)
Manager of files
archiver and retrieve
Database
server

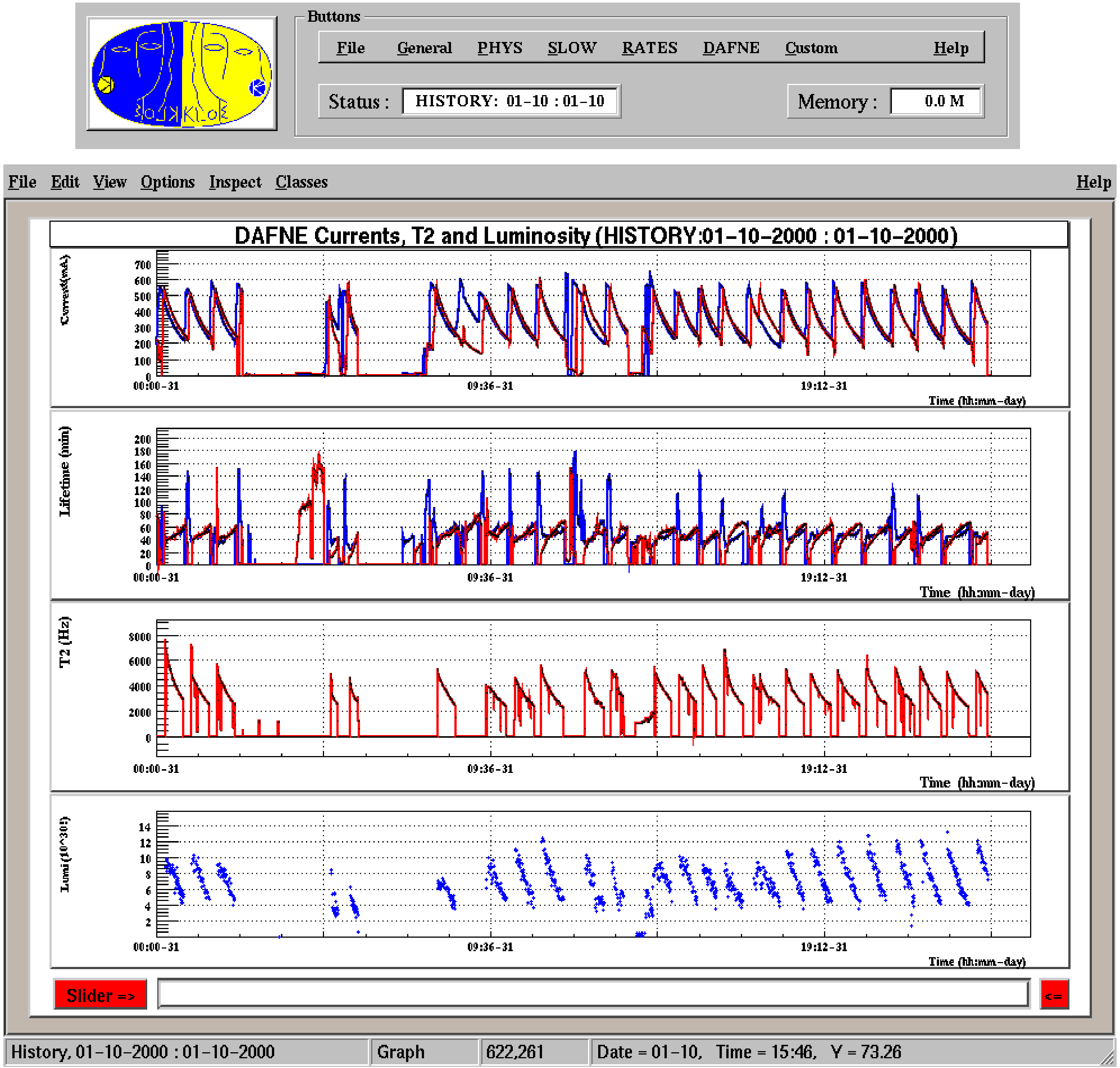
Present situation

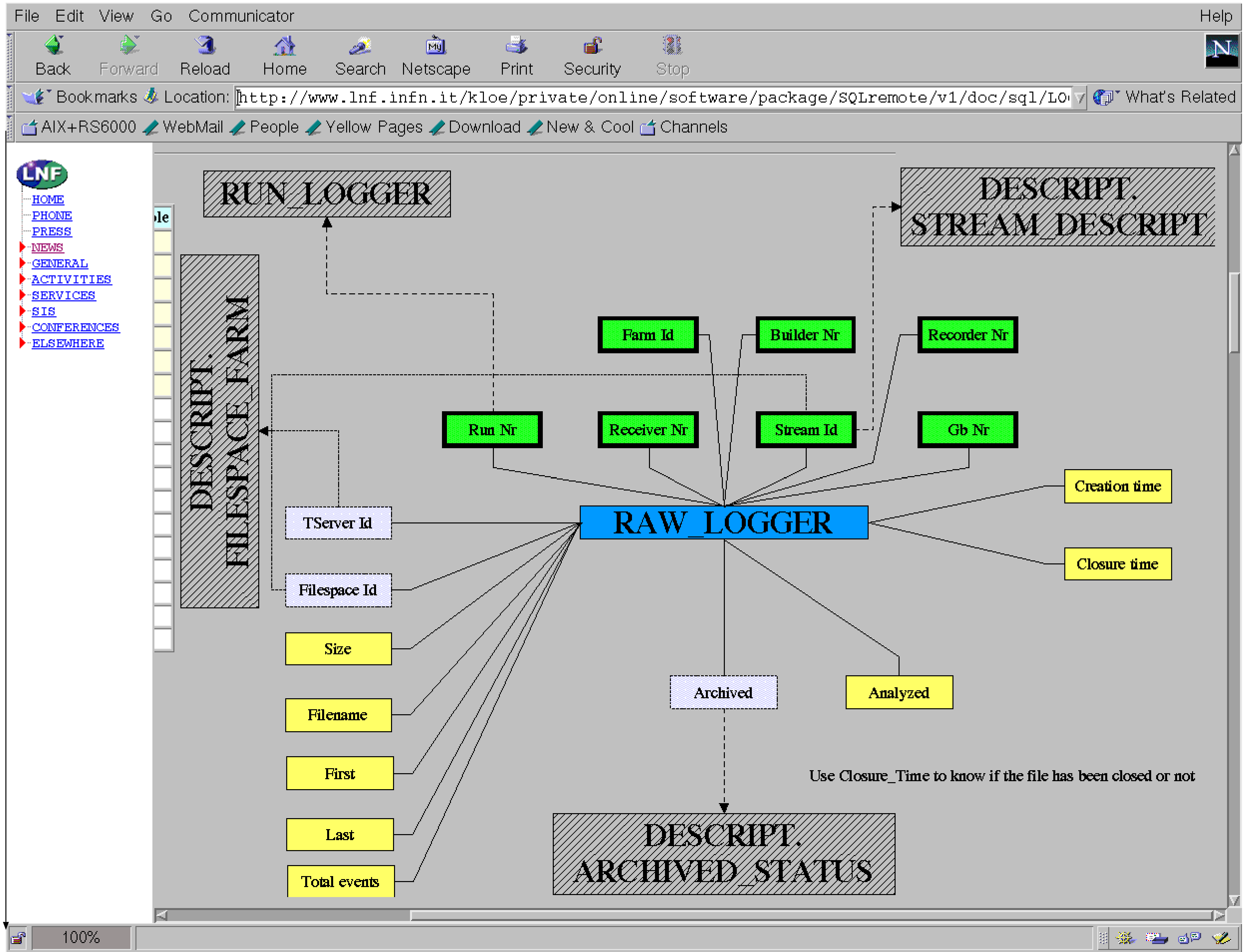


High acquisition rate

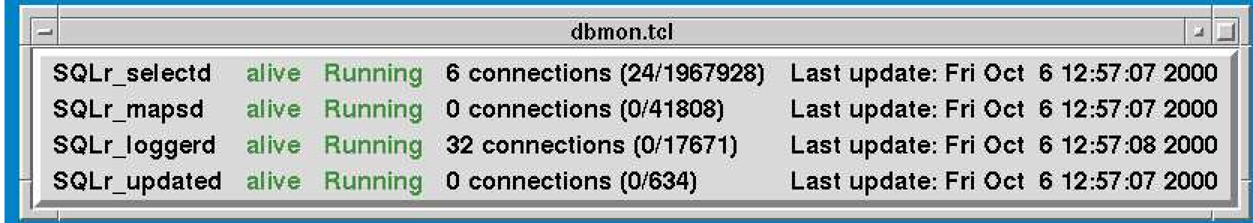



Distribution of computing resources
in a server of the On-line farm
IBM H50 4-ways, 48 SpecInt95
Maximum CPU per process is 25
TrgM
Build
Rec
Rx
Filter
Idle
Rx
Rec
Build
TrgM
Filter
Other
Idle
0.9 kHz/farm
1.7 kHz/farm
Acquires 4.4 MB/s
Distributes 1.4 MB/s
Event size 2.5 KBytes

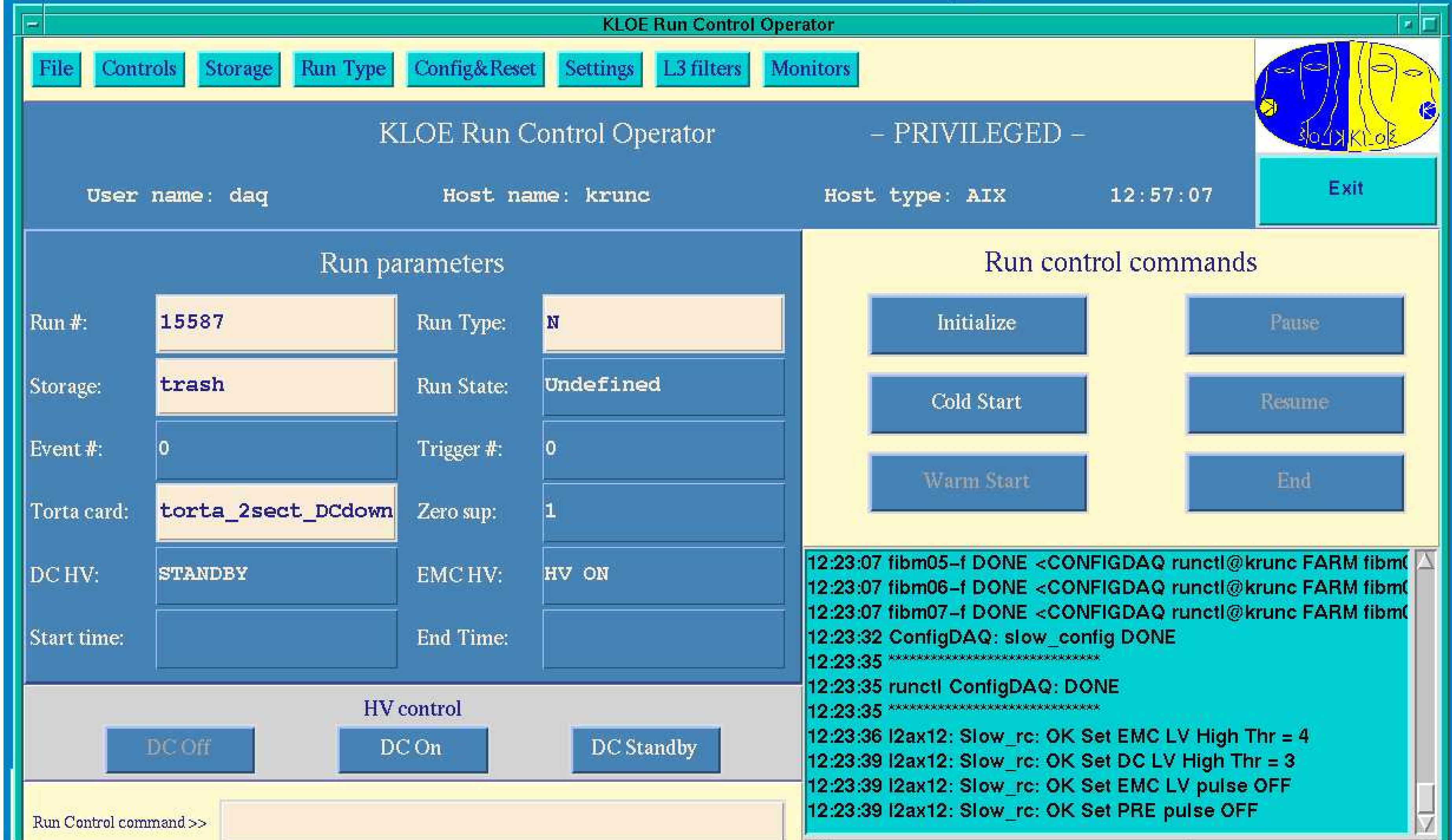

Buttons
File General PHYS SLOW RATES DAFNE Custom Help
Status : HISTORY: 01-10 : 01-10
Memory : 0.0 M
File Edit View Options Inspect Classes Help
DAFNE Currents, T2 and Luminosity (HISTORY:01-10-2000 : 01-10-2000)
Current(mA)
700 600 500 400 300 200 100 0
00:00-31 09:36-31 19:12-31
Time (hh:mm-day)
Lifetime (min)
200 180 160 140 120 100 80 60 40 20 0
00:00-31 09:36-31 19:12-31
Time (hh:mm-day)
T2 (Hz)
8000 6000 4000 2000 0
00:00-31 09:36-31 19:12-31
Time (hh:mm-day)
Lumi(10^30!)
14 12 10 8 6 4 2
00:00-31 09:36-31 19:12-31
Time (hh:mm-day)
Slider =>
<=
History, 01-10-2000 : 01-10-2000
Graph
622,261
Date = 01-10, Time = 15:46, Y = 73.26



File Edit View Go Communicator Help
Back Forward Reload Home Search Netscape Print Security Stop
Bookmarks Location: http://www.lnf.infn.it/kloe/private/online/software/package/SQLremote/v1/doc/sql/LO
What's Related
AIX+RS6000 WebMail People Yellow Pages Download New & Cool Channels
LNF
HOME
PHONE
PRESS
NEWS
GENERAL
ACTIVITIES
SERVICES
SIS
CONFERENCES
ELSEWHERE
RUN_LOGGER
DESCRIPT. STREAM_DESCRIPT
DESCRIPT. FILESPACE_FARM
Farm Id
Builder Nr
Recorder Nr
Run Nr
Receiver Nr
Stream Id
Gb Nr
Creation time
Closure time
RAW_LOGGER
TServer Id
Filespace Id
Size
Filename
First
Last
Total events
Archived
Analyzed
Use Closure_Time to know if the file has been closed or not
DESCRIPT. ARCHIVED_STATUS
100%



Processes that control Database queries and updates



List of raws files from Database

list_raws 15490
Last runnr: 15587 Last file runnr: 15585

runnr	type	filename	size	events	ev.size			
15490	N	raw015490N_ALL_f05_1_1_1.000	1073741824	423629	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f05_1_1_1.001	1073741824	429754	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f05_1_1_1.002	1073743872	428179	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f05_1_1_1.003	1073741824	428515	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f05_1_1_1.004	1073741824	429405	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f05_1_1_1.005	1073741824	418028	2.6kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f05_1_1_1.006	1073741824	413539	2.6kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f05_1_1_1.007	1073743872	399150	2.7kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f05_1_1_1.008	265287680	100501	2.6kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f06_1_1_1.000	1073741824	424754	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f06_1_1_1.001	1073741824	428492	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f06_1_1_1.002	1073743872	427769	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f06_1_1_1.003	1073741824	429478	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f06_1_1_1.004	1073741824	429313	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f06_1_1_1.005	1073741824	418278	2.6kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f06_1_1_1.006	1073741824	412740	2.6kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f06_1_1_1.007	1073743872	399493	2.7kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f06_1_1_1.008	264146944	100383	2.6kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f07_1_1_1.000	1073741824	423447	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f07_1_1_1.001	1073741824	429766	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f07_1_1_1.002	1073741824	428991	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f07_1_1_1.003	1073741824	429799	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f07_1_1_1.004	1073741824	429350	2.5kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f07_1_1_1.005	1073741824	419203	2.6kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f07_1_1_1.006	1073741824	412600	2.6kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f07_1_1_1.007	1073741824	398406	2.7kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_ALL_f07_1_1_1.008	260915200	99193	2.6kb	Deleted	Archived	Analyzed(6)
15490	N	raw015490N_L3BHA_f05_1_1_1.000	13649920	5536	2.5kb	Closed	Archived	Not analyzed
15490	N	raw015490N_L3BHA_f06_1_1_1.000	11311104	4580	2.5kb	Closed	Archived	Not analyzed
15490	N	raw015490N_L3BHA_f07_1_1_1.000	13127680	5299	2.5kb	Deleted	Archived	Not analyzed
15490	N	raw015490N_L3MIP_f05_1_1_1.000	125001728	53499	2.3kb	Closed	Archived	Not analyzed
15490	N	raw015490N_L3MIP_f06_1_1_1.000	112203776	48048	2.3kb	Closed	Archived	Not analyzed
15490	N	raw015490N_L3MIP_f07_1_1_1.000	127823872	54762	2.3kb	Deleted	Archived	Not analyzed

Total events : 10.58M
Total size : 26.96Gb (i.e. 0.03Tb)
Average ev. size : 2.55kb

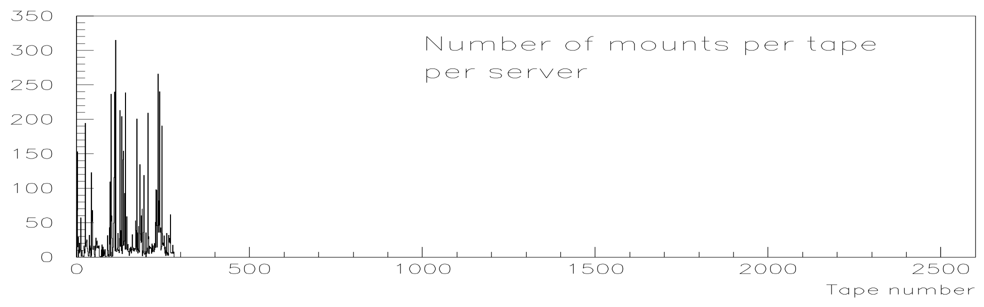
Volumes defined for backup and archiving in a Tape server

Num	Type	File Space Name
1	JFS	/
2	API:KLOE	/MC_1
3	NFS	/analysis1
16	NFS	/kuser1
6	API:KLOE	/datarec_afilfo_1
7	API:KLOE	/datarec_bha_1
8	API:KLOE	/datarec_clb_1
9	API:KLOE	/datarec_csm_1
10	API:KLOE	/datarec_filfo_1
11	API:KLOE	/datarec_kpm_1
12	API:KLOE	/datarec_ksl_1
13	API:KLOE	/datarec_rad_1
14	API:KLOE	/datarec_rpi_1
15	API:KLOE	/datarec_selcos_1
17	API:KLOE	/raw_ALL_1
18	API:KLOE	/raw_L3BHA_1
19	API:KLOE	/raw_L3COS
20	API:KLOE	/raw_L3GG_1
21	API:KLOE	/raw_L3MIP

28 Tapes

69 Tapes

170 Tapes



/ contains
run conditions history
KLOE software
AFS users
AFS groups

Backup of Operating systems

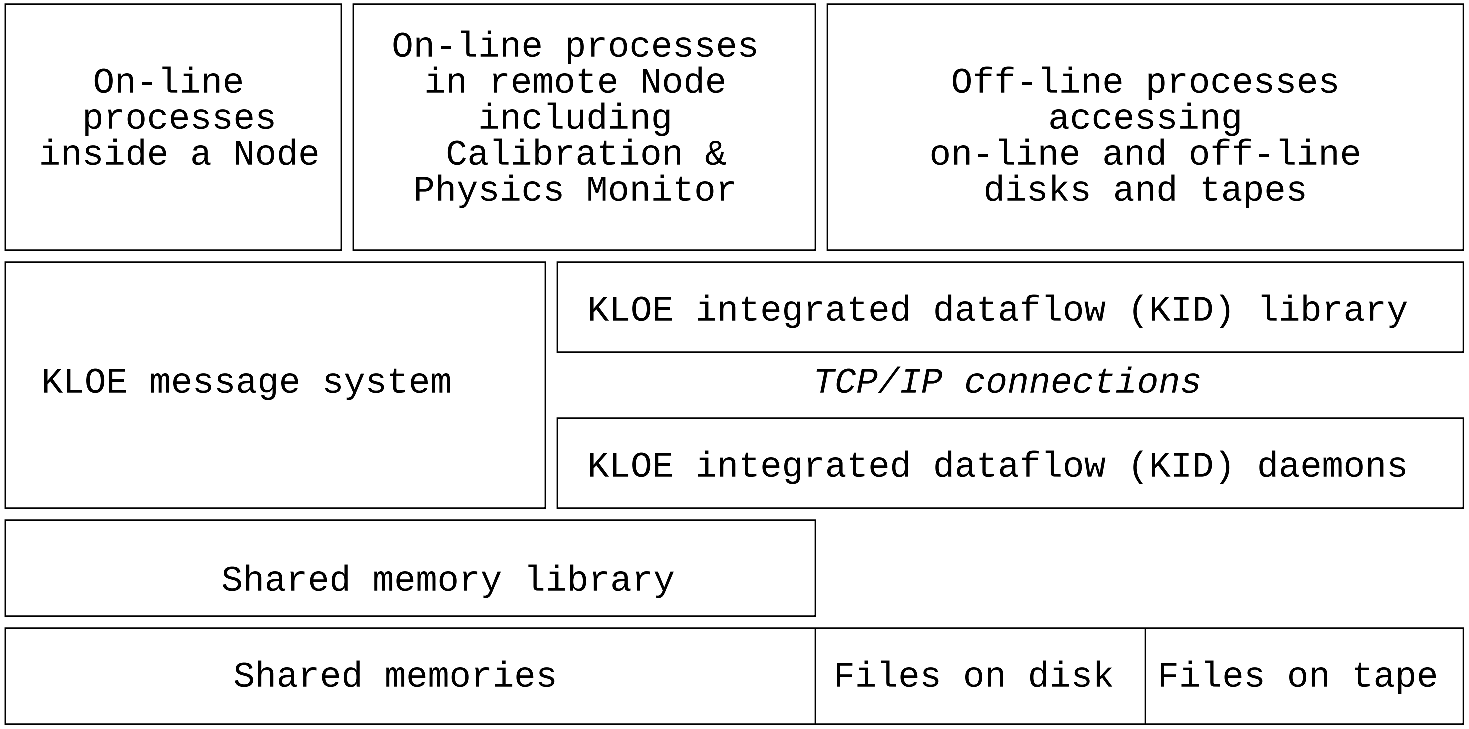
Archiving

Raw and Reconstructed files:
Uses ADSM and home-made software;
Same interfaces for Online and Offline files (API:KLOE)
Run conditions, Slow-control, analysis files:
Uses standard ADSM interface. Retrieve operations are managed by users

Backup

Uses standard ADSM interface. DB2 database, Operating systems, KLOE software

Accessing data in KLOE

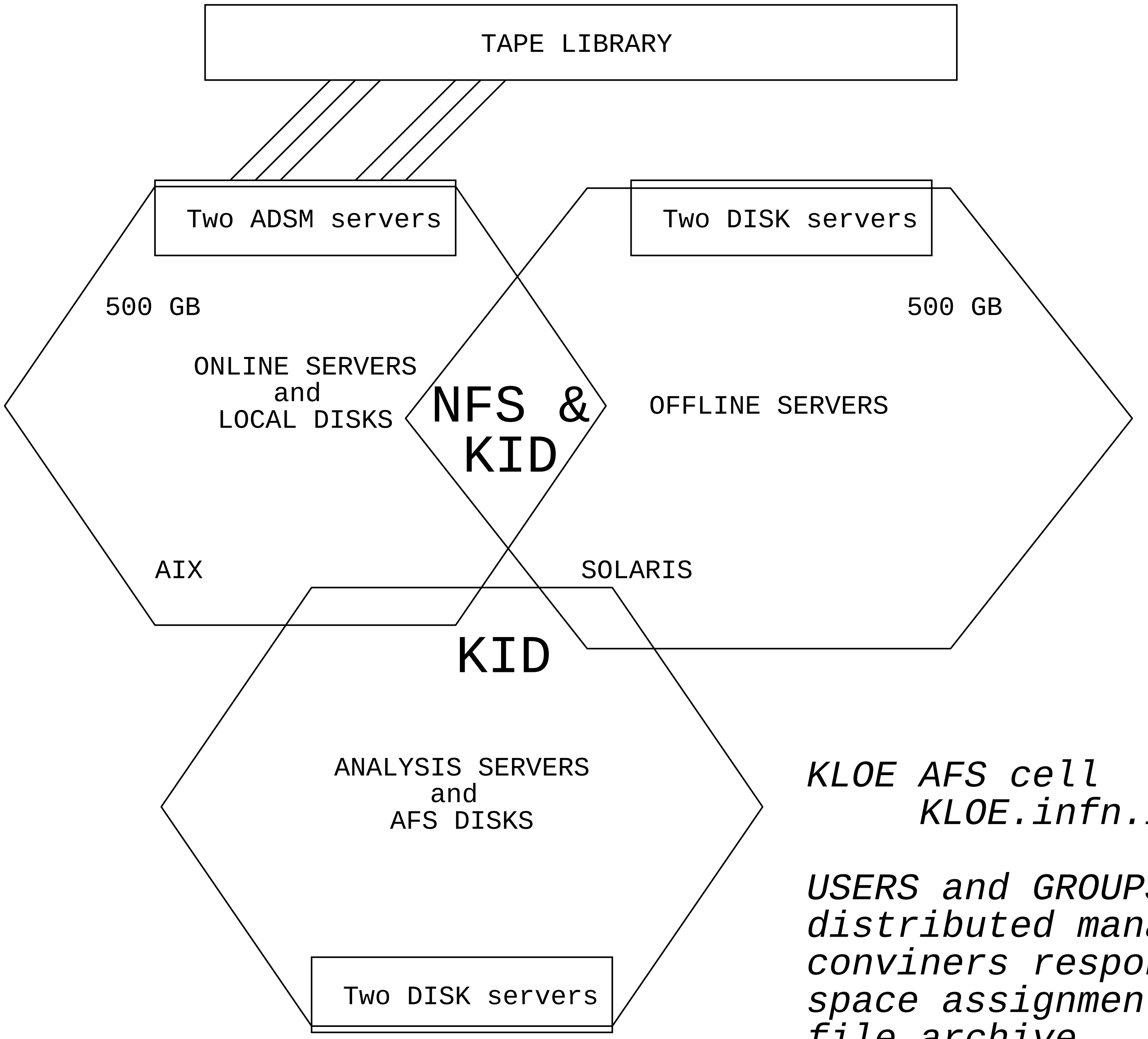


KID replaces NFS remote disks mounting

KID acceses:
1) Shared memories (online buffers)
2) Files on disk on ONLINE & OFFLINE disk servers
3) Files on tape (with automatic stage on disk)

Status and present location(s) of each file is written in the DB2 Database

```
input url "dbraw:(run_nr between 15634 and 15644) and (stream_code='L3BHA')"
```



KLOE AFS cell
KLOE.infn.it

USERS and GROUPS with distributed management: conviners responsible for space assignment and file archive

700 GB

Outlook

- ♣ The DAQ system is stable since longtime. Online calibrations are also stable. Feedback to DAΦNE is successfully done by means of graphic tools and NFS mounted disks. No more developments are in program.
- ♣ DAQ Hardware and Software require minor interventions. The offered performances are what we designed for the maximum expected DAΦNE luminosity.
- ♣ Runs and files histories are maintained using a commercial database (DB2) and a lot of home-made pieces of software. Archive and retrieve facilities use ADSM and home-made software that combine ADSM and DB2 facilities to allow for an unique interface to the single file independent of its physical location.

- ♣ So, online and offline environments have been integrated in an unique framework. Data from July and August runs were analyzed using this framework. BUT during the present acquisition period the required software maintenance is very heavy. It is correlated with big problems coming from a (low cost) disk array that accumulated a big quantity of errors and CPU crashes in the last 3 weeks.
- ♣ KLOE can survive using a lot of CPU power only if reliable and well diagnosticable hardware is used.