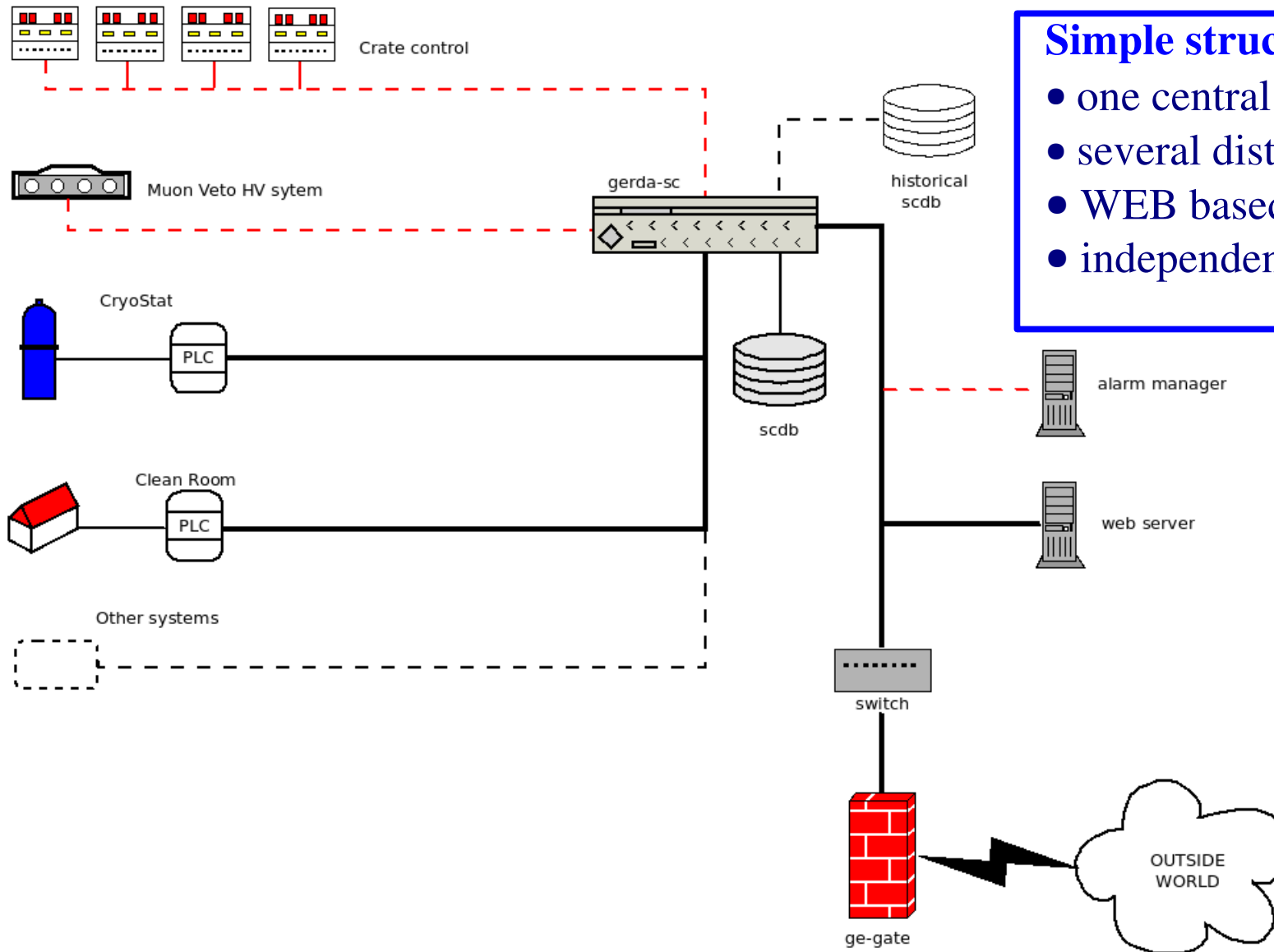

Status of the GERDA Slow Control

F. Boldrin, R. Brugnera, F. Costa, A. Garfagnini, I. Lippi, L. Stanco

Outline:

- *General layout*
 - *Web server*
 - *Alarms*
- *Slow Control Data Access*
- *Integration: present status*
- *Integration: future plans*
- *Conclusions*

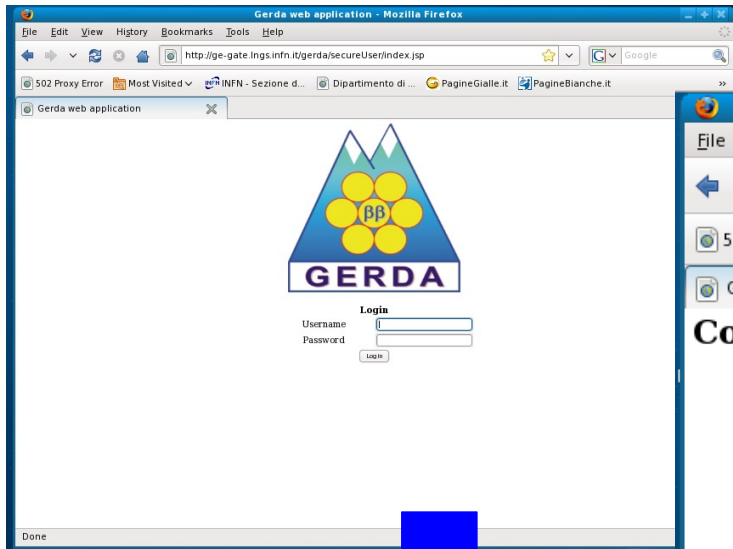
General Layout



Simple structure

- one central database
- several distributed clients
- WEB based access to data
- independent alarm unit

Web Server - 1







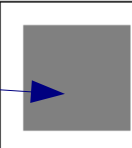





http://ge-gate.lngs.infn.it/gerda/

Components

Name of the component

link to the Component web page (if available)

| | | |
|---|--|--|
|  Alarms Web interface |  Clean room Web interface |  Water loop Web interface |
|  Cryostat Web interface |  DAQ-Ge Web interface |  Muon-Veto Web interface |
|  Ge-detectors Web interface |  ... Web interface |  ... Web interface |
|  Rn-monitor Web interface | | |

General status of the component:
gray: not integrated
blue: integrated
green: everything ok
yellow: warning
red: alarms

Web Server - 2

Cryostat data - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://ge-gate.lngs.infn.it/gerda/secureUser/Cryostat.action

502 Proxy Error Most Visited INFN INFN - Sezione di ... Dipartimento di ... PagineGialle.it PagineBianche.it

Cryostat data

| HOME | Reload |

Last client update: 2/4/10 2:56:20 PM.000

Groups: [General](#) [Level](#) [Pressure](#) [Temperature](#) [Vacuum](#) [Water](#)

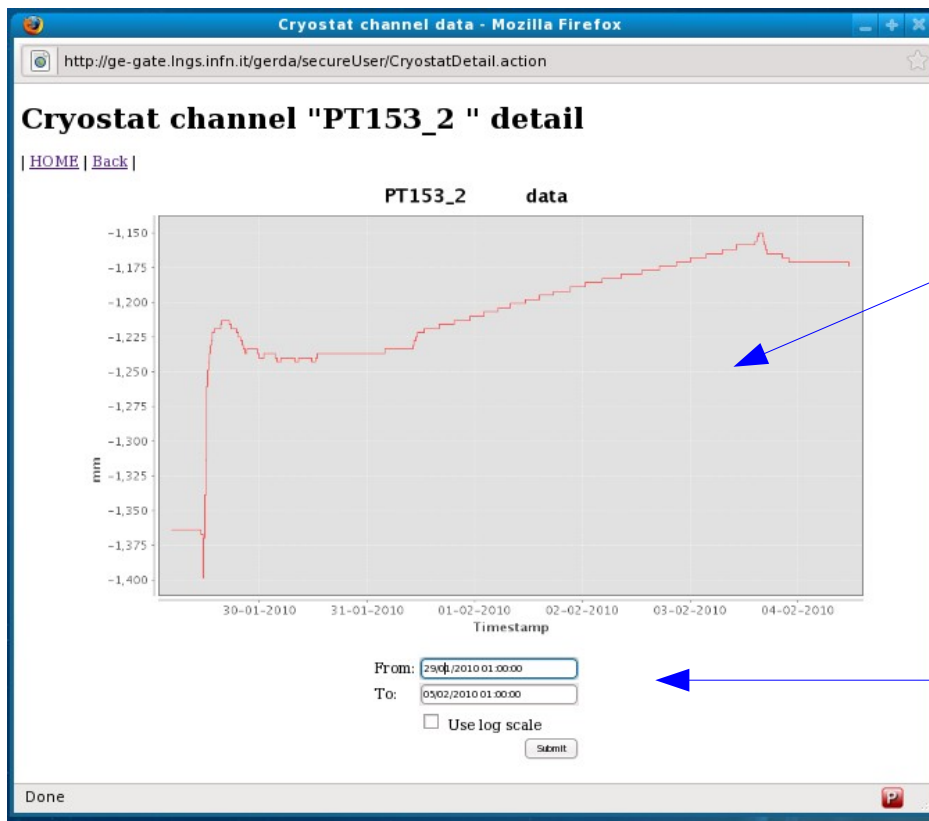
Group table: "General" Up

| Channel | Value | Unit | Timestamp |
|-----------------------------|-------|--------------------|-------------------------|
| DRAIN_W | 0.0 | off,on | 1/15/10 5:05:54 PM.000 |
| EVAC_A | 0.0 | off,on | 1/15/10 5:05:54 PM.000 |
| EVAC_ALL | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| Fire | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| GREEN | 1.0 | off,on | 1/27/10 4:46:20 PM.000 |
| HS330 | 0.0 | disable,enable | 1/29/10 3:30:20 PM.000 |
| INC_VENT | 0.0 | off,on | 1/15/10 5:05:54 PM.000 |
| LossofPower | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| O1 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| O2 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| O3 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| O4 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| O5 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| ORANGE | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| PA301 | 0.0 | ok,alarmHi,alarmLo | 1/29/10 2:41:14 PM.000 |
| PLCon | 1.0 | off,on | 1/15/10 6:00:55 PM.000 |
| PT301 | 6.0 | bar | 1/29/10 2:41:14 PM.000 |
| R1 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| R2 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| R3 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| R4 | 0.0 | off,on | 1/15/10 5:05:54 PM.000 |
| R5 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| RED | 0.0 | off,on | 1/15/10 5:05:54 PM.000 |
| Y1 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |
| Y2 | 0.0 | off,on | 12/21/09 3:23:28 PM.000 |

Done

For each sensor: last value stored in the database

Web Server - 3



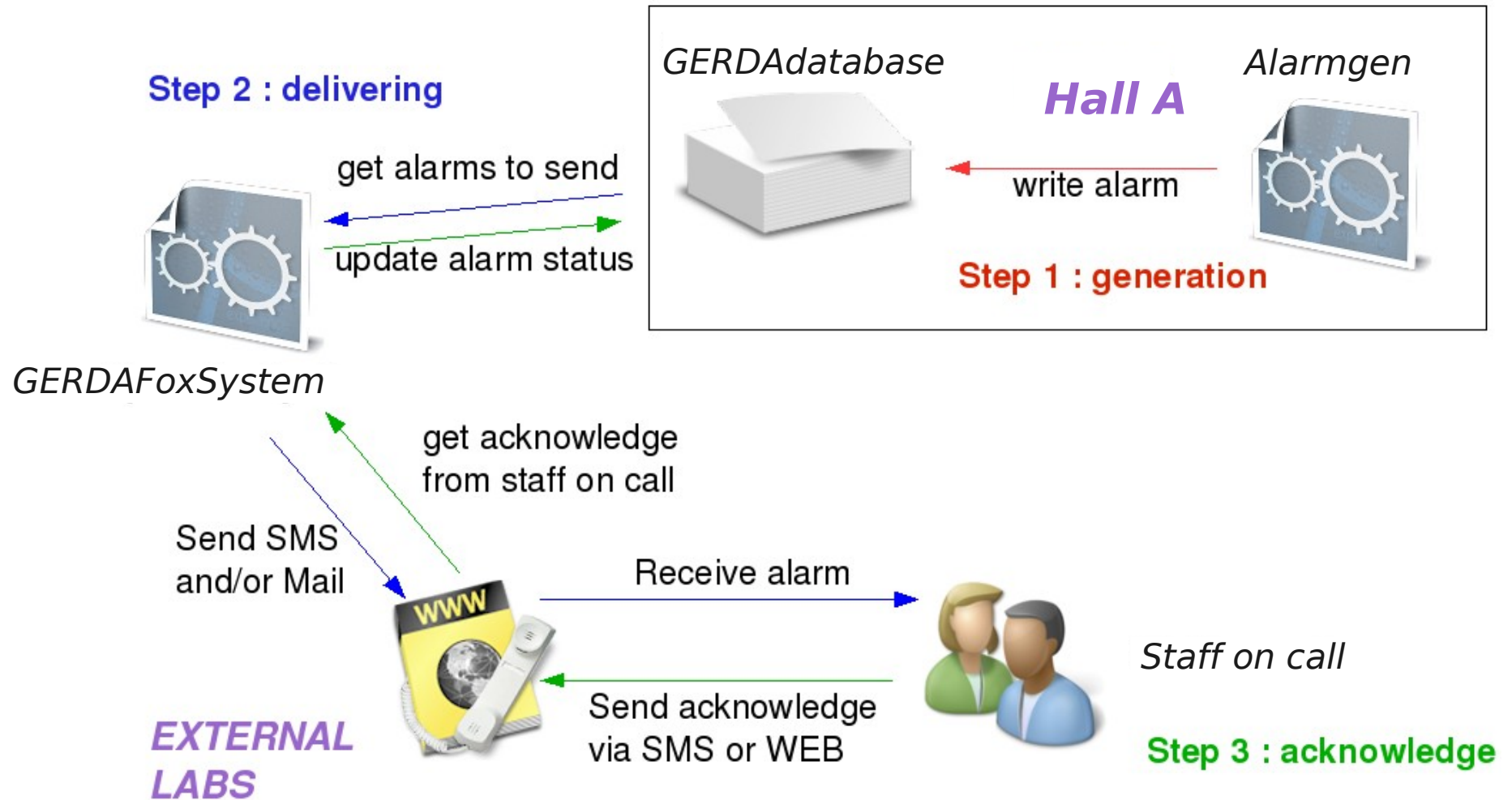
Histogram of the selected sensor

Possibility to select a particular time interval

Possibility to use log vertical scale

Alarm System Workflow

- ✓ Alarm Generation in the Underground Labs (Hall A)
- ✓ Alarm Delivery in the External Labs



Alarm System Status

- ◆ all the hardware is available;
- ◆ missing a SIM card for the SMS (the SIM card will come from LNGS);
- ◆ software already developed;
- ◆ ... it is now in the debugging phase at Padova;
- ◆ ... it will be ready to be used for the end of March ;
- ◆ ... then we have to interact with each component in order to understand well the different necessities.
- ◆ the alarm policy (generation, severity levels,...) has to be defined together with the various experts as soon as possible.

Slow Control Data Access

The data collected in the database can be seen by a user in four manners:

- 1) using the **WEB** page (as shown before); ← Available
- 2) using the **standard assess** procedure typical of the
POSTGRES DB; ← Available
- 3) using a client written in **C / C++ language**; ← Available
- 4) through **root-files** ← A very simple program is available.

A GSTR note will be written as soon as possible

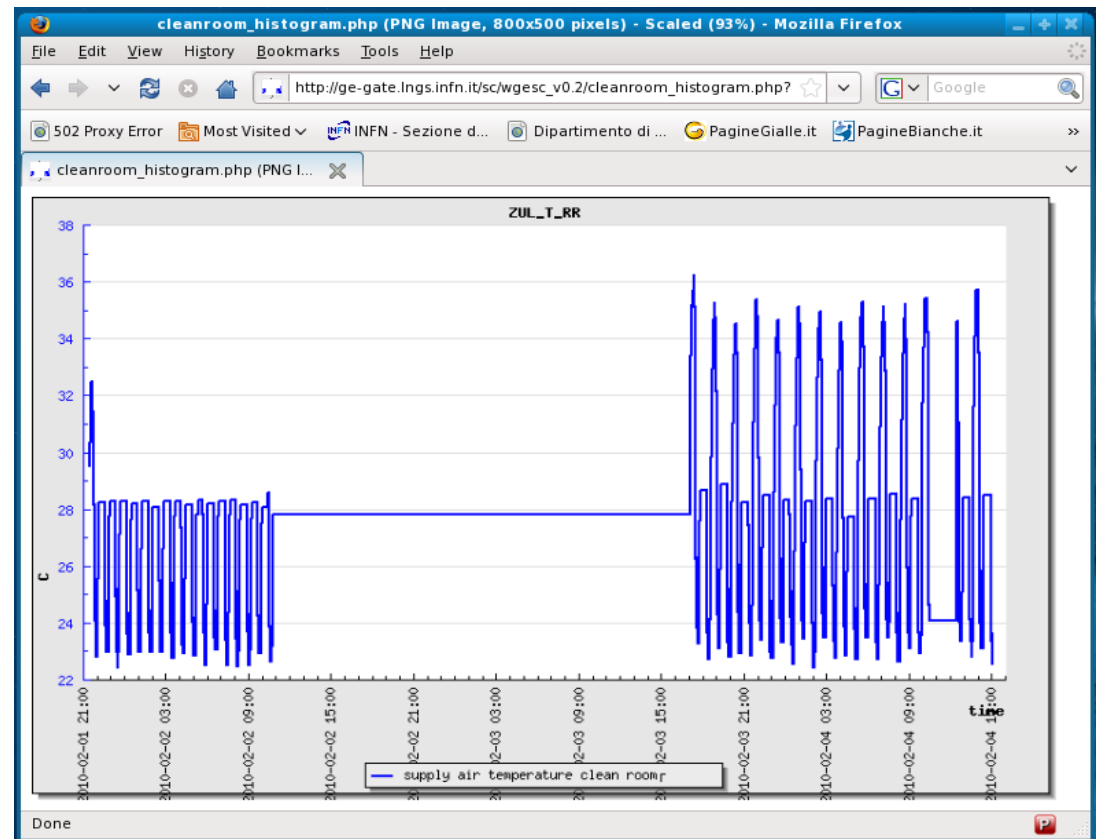
Integration: Present Status

Fully integrated:

× Cryostat

× Clean room

except for the alarms part.



Integration: future plans

■ Ge detectors +FE

- What: Crate, LV, HV, Pulser
- When: work already started

■ DAQ of the Ge detectors

- What: Crate, base line, run-log
- When: in March

■ DAQ of the Veto

- What: run-log
- When: in March

■ Veto:

- What: Crate, HV
- When: after the 20 of March

■ Lock

- What: PLC
- When: in March

■ Water plant

- What: PLC
- When: in March

■ Rn Monitor

- What: Output values
- When: in March

... unfortunately too many hardware components seem to arrive in March ... of course we can't integrate all of them in March !

Relationship between Slow Control and the DAQs

DAQ of the Ge detectors

A client will collect and store into the Slow Control DataBase the information regarding baseline and status of the run (run-log). That is: run number, start time, channels number, thresholds, ...

DAQ of the Veto

It is foreseen to have another client reading and storing various information of the Veto component (run-log).

New computer (*a strong advice from Calin*)

The DAQ computer of the Ge detectors will have another computer as a buffer for the data transfer: *to prevent excessive load of the DAQ computer disks and loss of communication between underground and outside.*



- ✓ 2 CPU Xeon E5502 (1.86Ghz 4MB);
- ✓ 8 disks 2 Tbyte each, SATA II, 7.2k RPM, RAID edition;
- ✓ ... so 14 Tbyte of disk available if RAID 5 + spare used

Conclusions

- General features of the slow control are already available;
- Alarm system will be available for the end of March;
- Cryostat and Clean room integrated;
- The others components will be integrated on the basis of *first in first out* starting from March ;
- Slow Control Data access is available.

... and don't forget that

- the GERDA -LAN is running smoothly from many months
- an electronic logbook (ELOG) is available: <http://ge-gate.lngs.infn.it/eelog/>