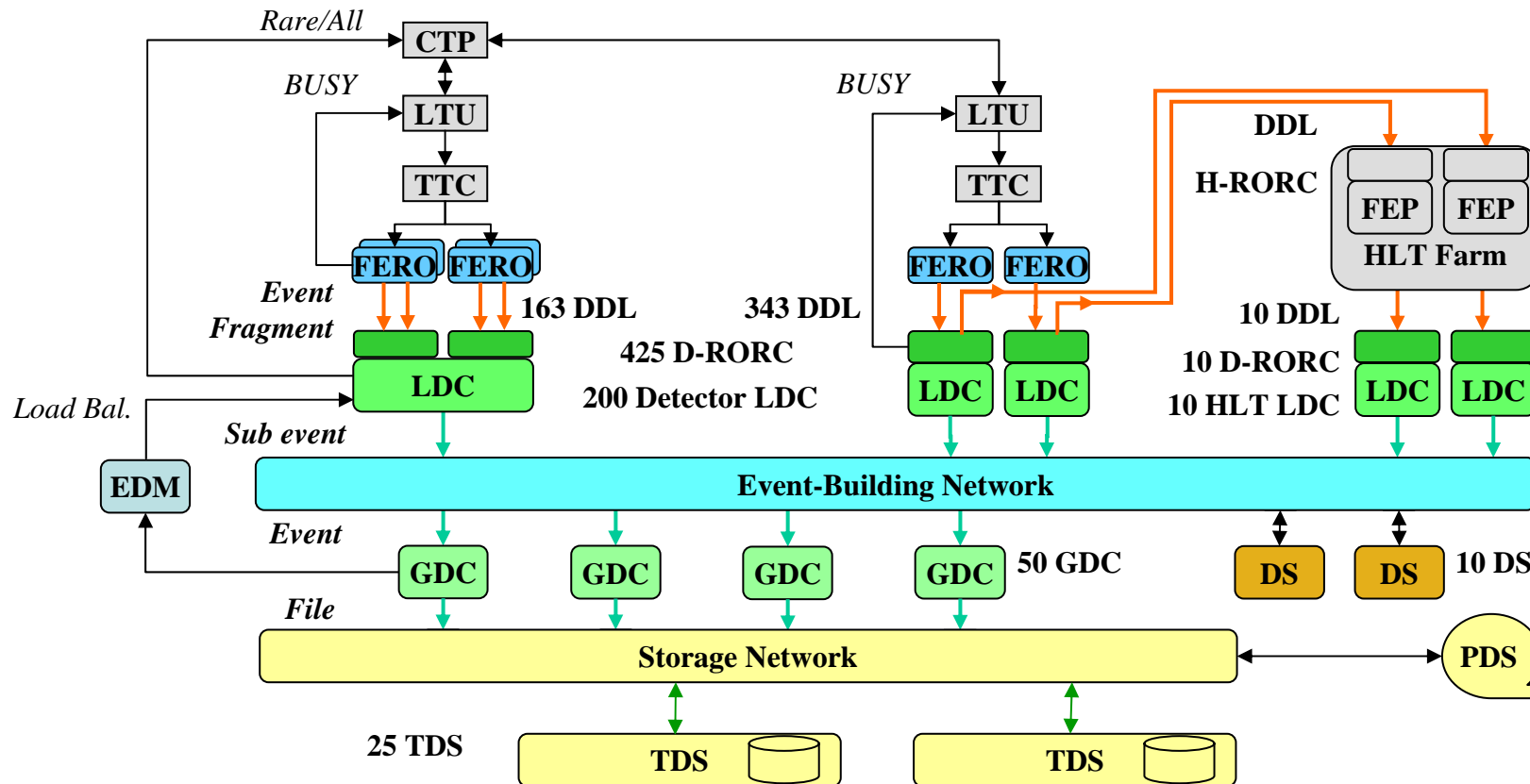


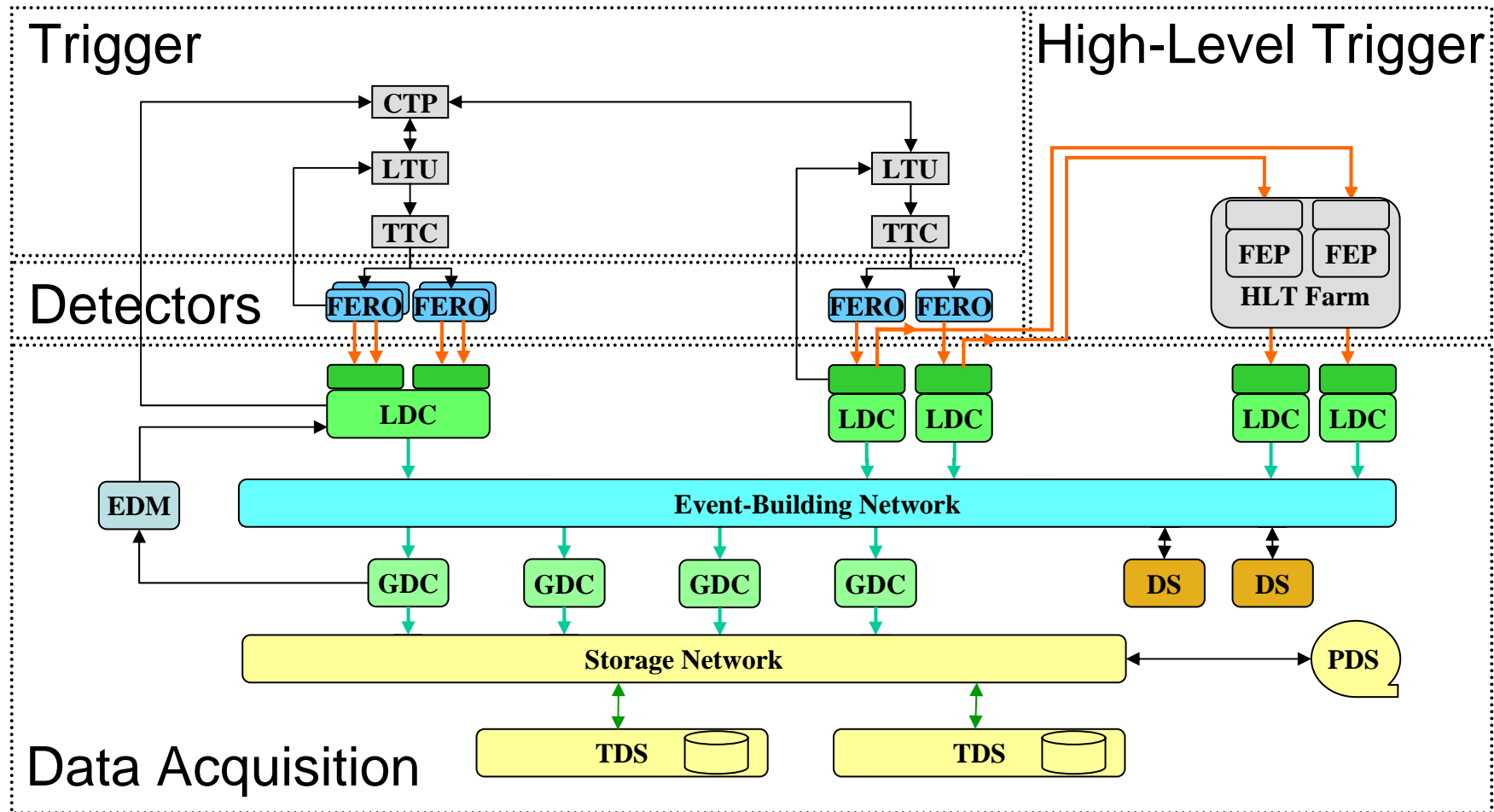
Alice DAQ Configuration DB

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ALICE DAQ Architecture



ALICE DAQ Architecture



DATE v4 - configuration

2004

- DATE Configuration stored in ASCII files
 - \$DATE_SITE_CONFIG
 - Shared by NFS
- DATE DB package used to read static information:
 - roles (who is what) [...](#)
 - detectors (what detectors and sub-detectors are made of) [...](#)
 - triggers (what is activated by each trigger) [...](#)
 - event building (what to do with the events on GDCs) [...](#)
 - memory banks (where to store the data structures)
- Readout equipment (data sources on LDCs)
- RunControl parameters (dynamic)
- Misc. items: DIM DNS, environment, ...

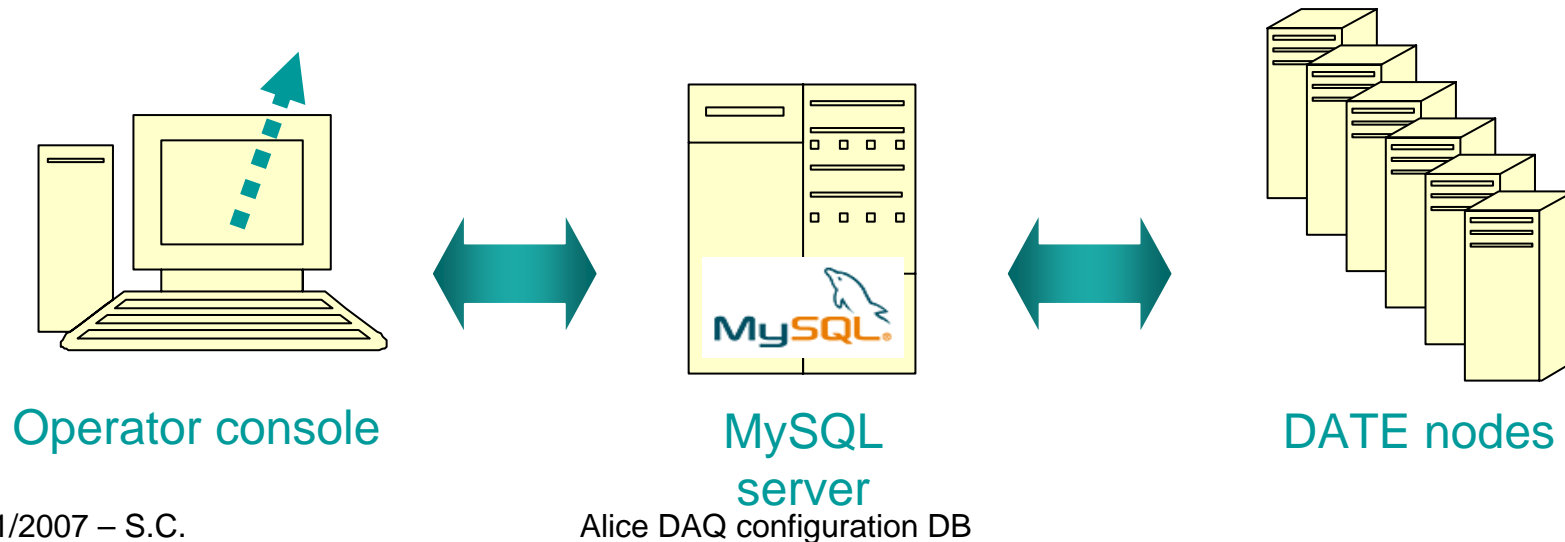
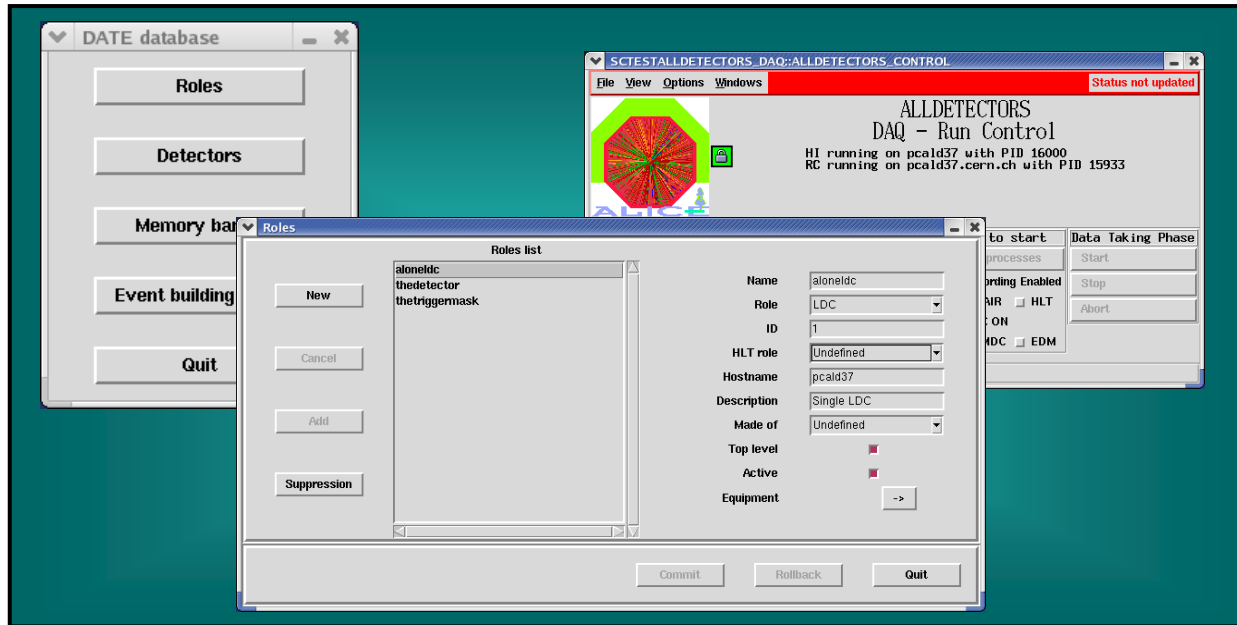
DATE v5 - configuration

2005

- SQL based
- Constraints to avoid inconsistencies
- GUI
- APIs unchanged
- Backward compatible (runtime/compile switch)
- Critical shared resources distributed with SQL
- Few static items still in flat files

2007: Now everything in MySQL

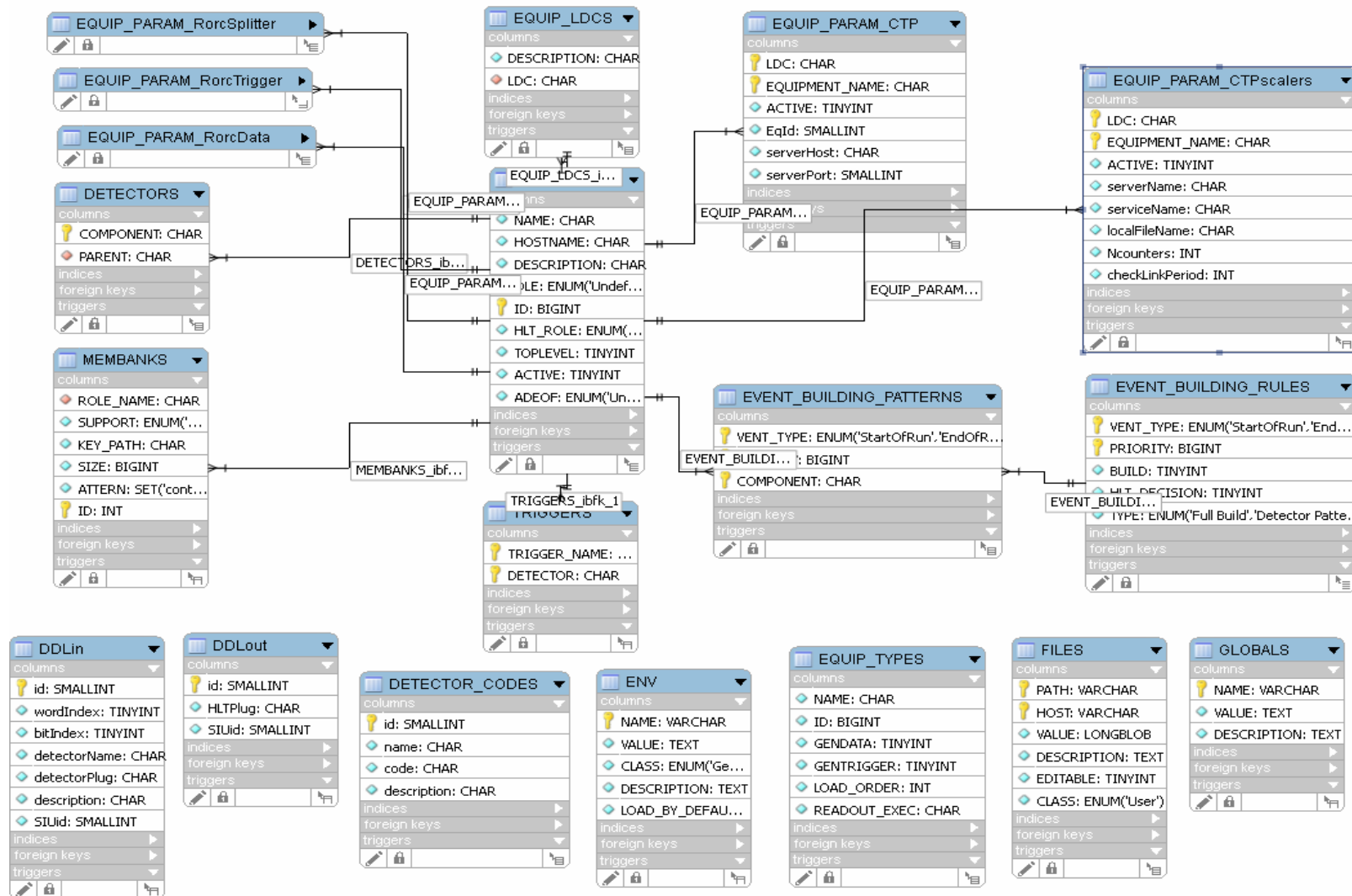
Architecture



SQL db

- Improves data distribution and configuration integrity compared to NFS ASCII files.
- Simple structure, few tables (10s), little data (1000s records)
- Peak read access when DAQ starts (100s clients)
- Infrequent write access (by operator and runcontrol)
- No use of special features, standard SQL, any back-end should fit
- DAVE Language interfaces: C, Tcl/Tk, php

Config db schema



SQL db - requirements

for development phase

- Ease of installation
 - Dynamic setup, may need to create many times different systems
 - Independency for quick changes
- Control on the server:
 - to monitor behavior
 - how to tune performance
 - improve server setup accordingly

SQL db - requirements

for production phase

- Version control
 - Version must be stable during data taking period
- Maintenance and operation
 - Fast reactivity, known procedures, internal know-how
 - On the fly setup change when needed (performance tuning, ...)

MySQL

2005

- Open source
- Free DB system to distribute to institutes using DATE
- Easy setup
- Good feedback on bugs (#7838)
- Platform compatibility
- Interfaces for C, Tcl, Php ...
- Good performance
- No strong dependency, in house expertise

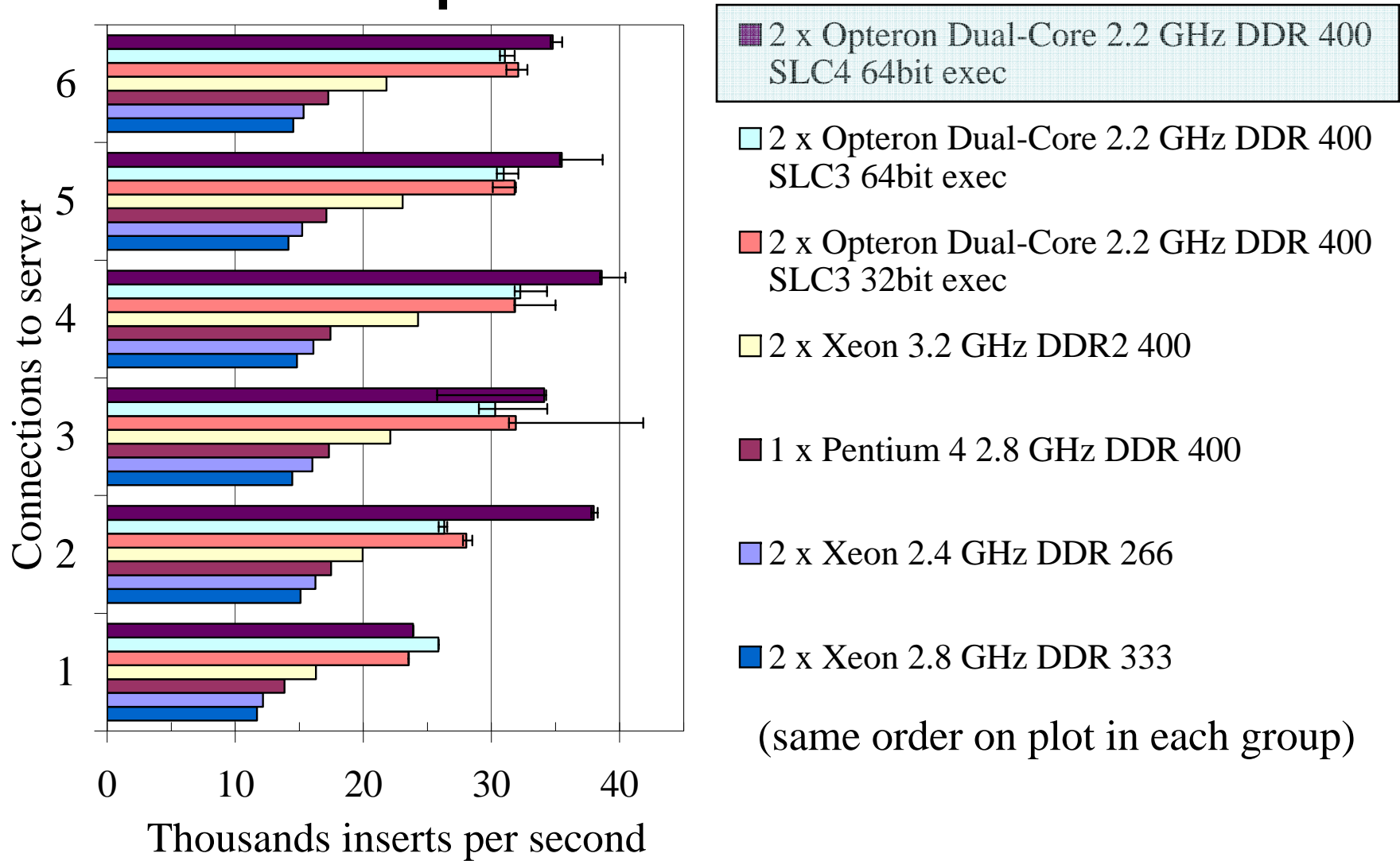
- MySQL version 4: innodb, ...
- MySQL version 5: promising features (views, triggers, ...)

MySQL

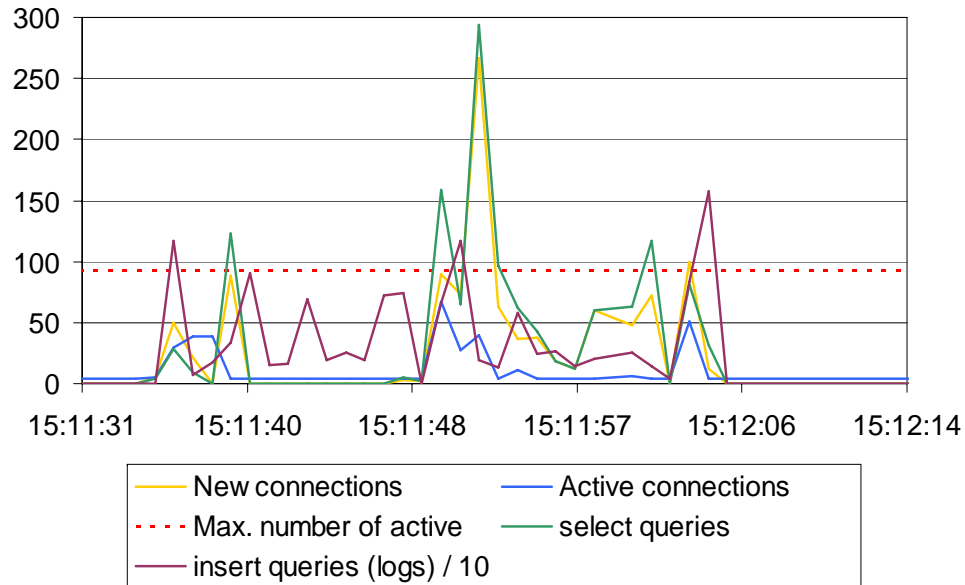
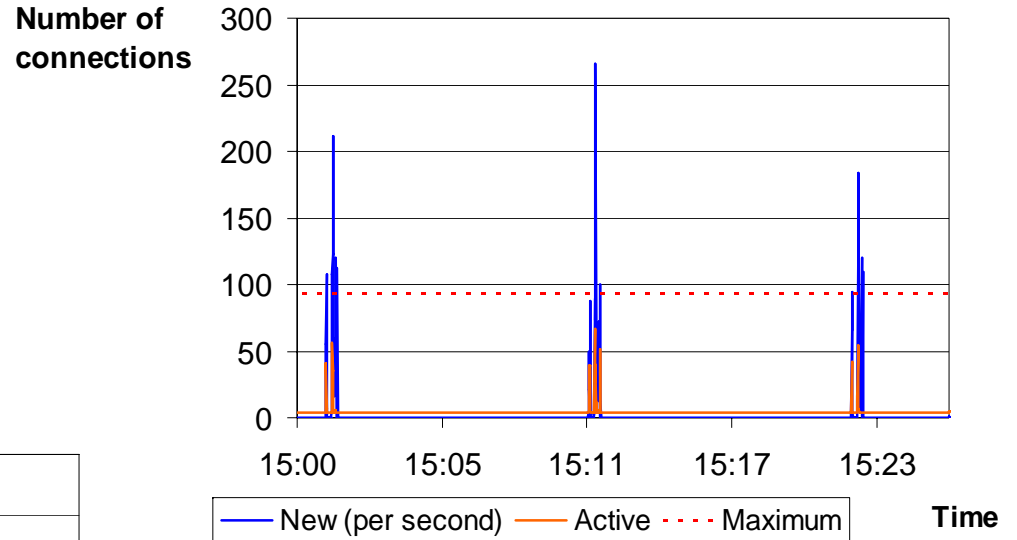
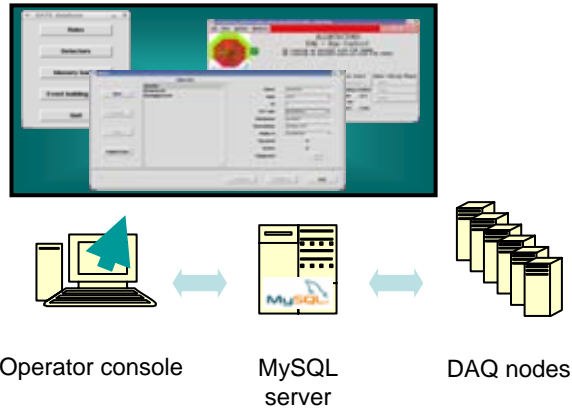
- RPM setup, binary tarball, source compilation
- Server setup:
 - Users and table creation with simple SQL commands
 - Can also copy an existing database: copy whole directory and it works (good for backup as well)
- Client program: linked with corresponding platform library

Installation is a matter of minutes

DB performance tests



DB performance tests

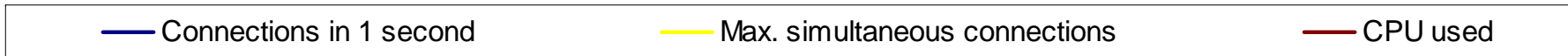
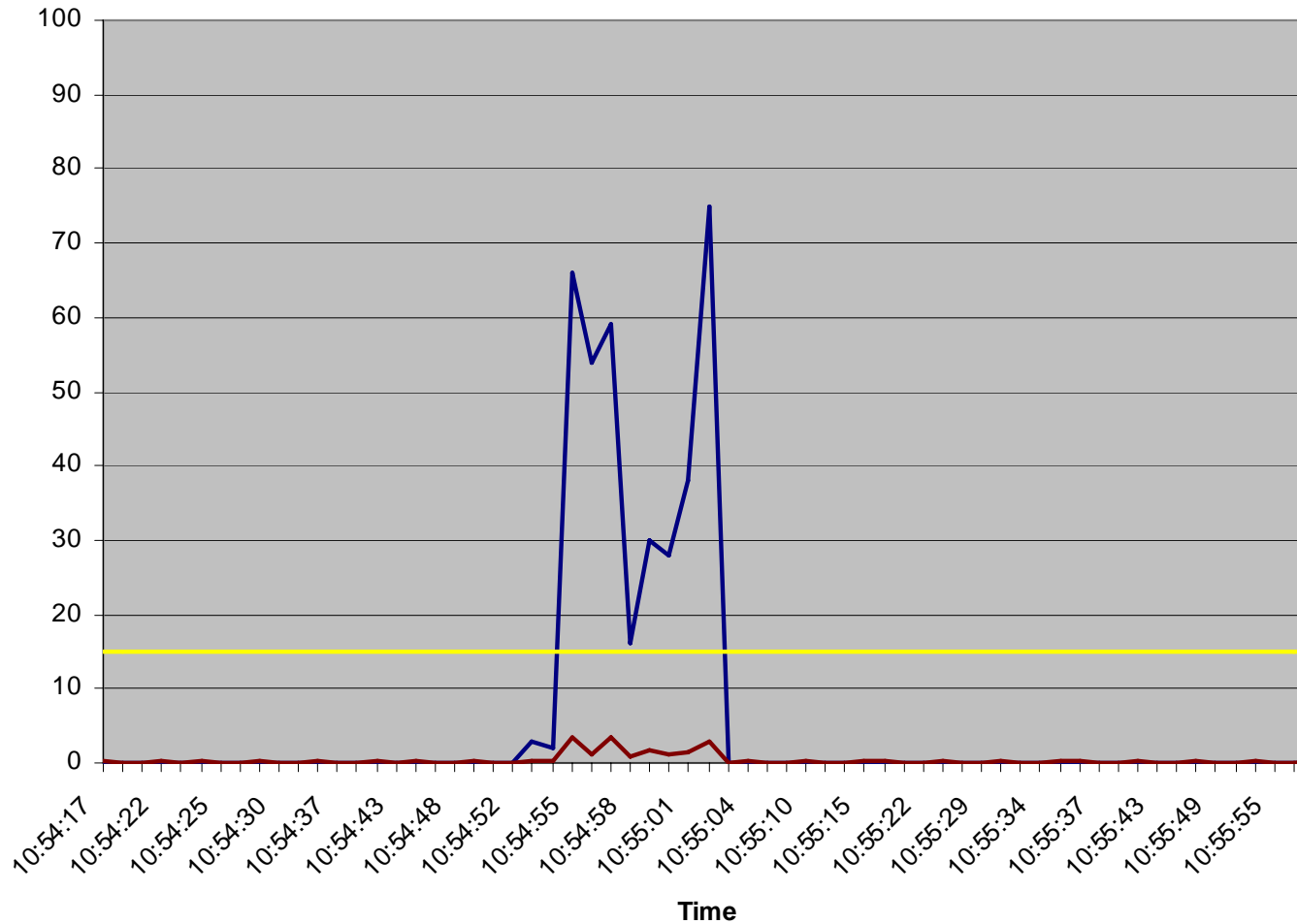


Configuration DB:
 concurrent access
 65 LDC, 65 GDC

DB performance tests

2007

MySQL server load - aldaqds04 - 15 LDCs/12 GDCs SOR



MySQL operation

- Excellent stability – no crash so far
- Simplicity to setup & run
- Scalable

- Nice GUI tools:
 - MySQL Administrator
 - MySQL Query Browser
 - MySQL Workbench

Other DB usage in Alice DAQ

- infoLogger
store logs of all DAQ nodes
- Detector Config
specific hardware configuration
- File Exchange Server
export data to outside world
- Logbook
Summary information for each run
- Machine db
DAQ hardware configuration: LAN, cables, racks, ...

Conclusion



- Now entering production
- Software ready and stable
- Still flexible for new features

- Good choice so far 😊