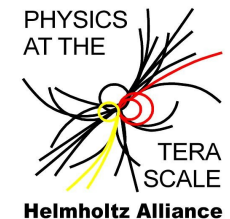


Support for Large Facilities

Ties Behnke, DESY

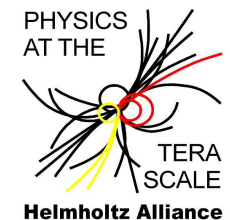
Support for the development and construction of HEP detectors

- Test beams/ Test facilities
- Remote control center
- Virtual laboratory for detector technologies
- Coordination center for large scale detector tests



Support for the analysis of data from HEP detectors (non IT aspects)

- Analysis center



DESY's role

Built upon the well developed DESY infrastructure

vast experience by DESY staff from building and running large HEP detectors for many years

Provide infrastructure not tightly connected to a specific project: sustainability

Integral part of the concept of the Helmholtz Alliance to create a structured network for particle physics in Germany

Test beams/ Test facilities

Test beams are an important tool for detector development

DESY has limited but useful facilities: 3 electron beams, up to 6 GeV
(excellent for tracking studies, for debugging, needs to be complemented by high energy beams e.g. at CERN or FNAL)

High field test facility (5T magnet)



EUDET test beam area with magnet, and full instrumentation infrastructure



Test beams

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EUDET test beam area with magnet, and full instrumentation infrastructure



Goal: develop and provide facilities for the experimental community with high reliability and availability

Remote Control Center



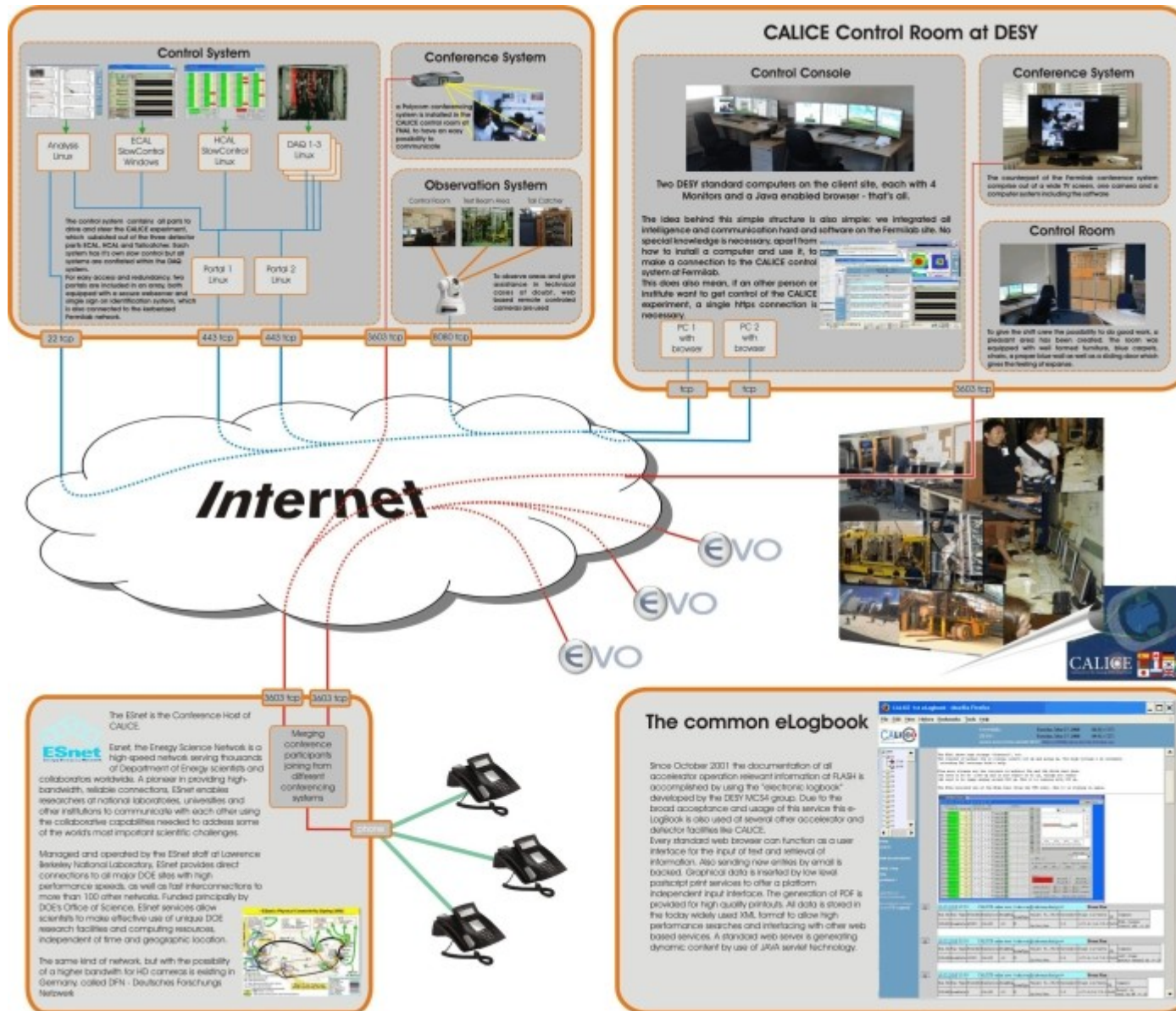
Concept: Global Detector Network studied since many years e.g. within EuroTeV, ECFA, CARE, ...

Provide safe and reliable control tools to monitor and operate experiments remotely

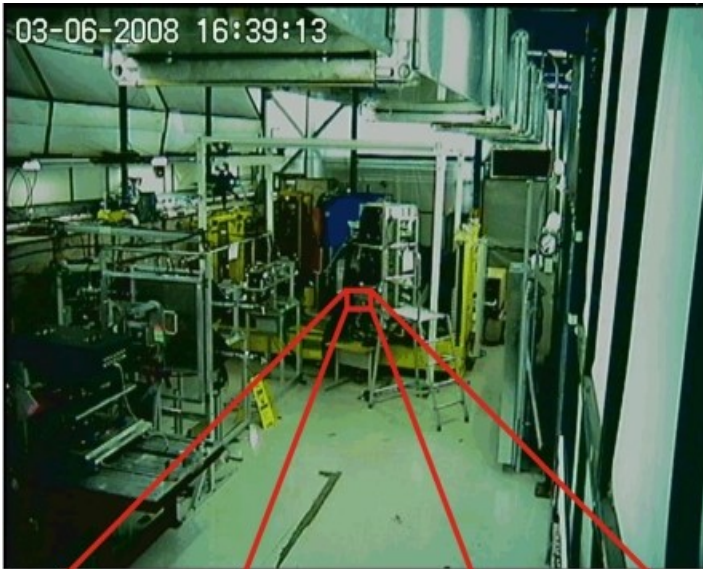
ILC remote center at DESY:
used for CALICE test beam experiment at FNAL

Shifts are operated from here daily when experiment is running,
Shifters from DESY and from other countries (UK, Poland, others)

Remote Control Scheme

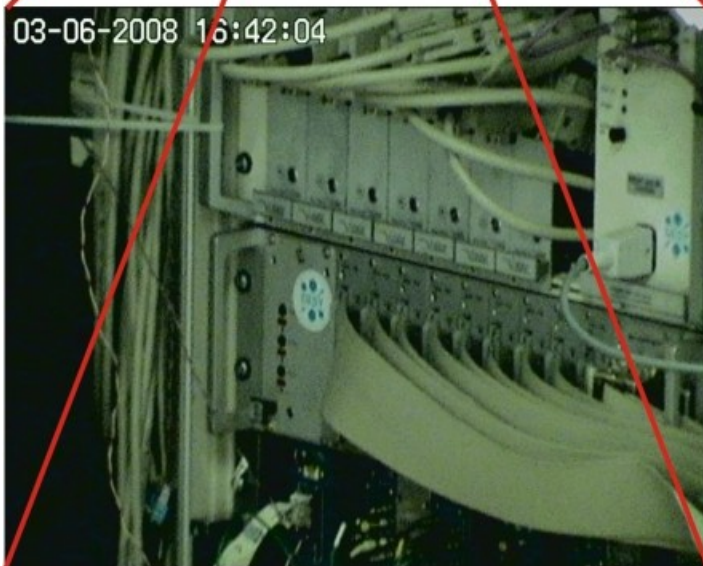


Remote Control happening



Special hardware allows interactive inspection of the detector from afar

Remote monitoring / operation centers are operated for CMS as well (see CMS presentation)



Goal: provide tools and installations of a remote control center and provide this to partners and collaborators

VLDT

"Virtual Laboratory for Detector Technologies"

Central part of the HGF Alliance:

- develop common and shared infrastructures across Germany for cutting edge technological developments.

- Initiate and advance novel detector projects for HEP

DESY: provide engineering support for Alliance projects

- Develop a pool of well trained engineers available to DESY and Alliance members

Develop a common and shared management of these resources within the Alliance

- Example: Engineering support for the LC-TPC test beam experiment (Bonn - Freiburg - Siegen - Rostock - DESY) + intl. Collaborators

- Possible upgrade projects for LHC/ sLHC (see CMS, ATLAS presentations)

“Project Office”

Detector Development:

- 1) Technology development
- 2) Individual tests
- 3) Integration into a common detector framework
- 4) Common / Combined tests/ test experiments

Was also part of the DevDET proposal, which unfortunately did not succeed.

Large demands on coordination and consultation:
create a central “office” which can support these activities for specific projects

Close cooperation with the hosts of the actual test experiments are needed

Example: coordination of CALICE test at CERN and FNAL

Analysis Centre

Center at DESY to support analysis of groups within the Alliance

Concentrate on common tasks:

- Monte Carlo generators
- Statics Tools
- PDF's from HERA

Education of Students

Development of basic tools

Development of a pool of know how for analysis
"help line"

Organisation of workshops, working weeks, etc

PHYSICS AT THE TERA SCALE
Helmholtz Alliance

School on **Statistics Tools**

PHYSICS AT THE TERA SCALE
Strategic Helmholtz Alliance

29 September – 2 October 2008
DESY, Hamburg Site

Learn about statistical methods needed for the analysis of the LHC data. The program consists of plenary lectures, special highlight talks and practical work on example problems in smaller groups.

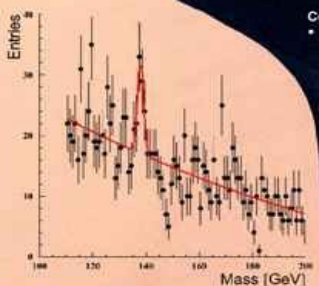
Covered Topics:

- Optimal signal/background separation, multi-variate techniques
- Searching for signals, discoveries, limits
- Advanced likelihood fit techniques
- Special practical problems, e.g.
 - data corrections (unfolding)
 - systematic errors

Invited Lecturers:
Volker Blobel
Glen Cowan
Luc Demortier
Markus Schumacher
Helge Voss
Rainer Wanke

Coordinating Committee: G. Hahn, M. Grimm, C. Kleinwort, S. Schmitt
Registration deadline: 10 September 2008

<http://www.terascale.de/stat2008>



Summary

Topic "Facilities" bundles several facilities and makes them available to DESY and external projects

- Support for detector development and testing
- Support for analysis tools

For collaborators in Germany the Alliance is a key element and structure,

DESY continues to serve also internationally as a laboratory with support functions

All activities are embedded into the in-house research program