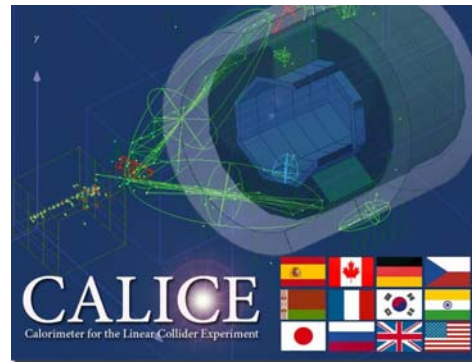


Fast and reasonable Installation, Experience and Acceptance of a Remote Control Room



Sven Karstensen, DESY Hamburg, LCWS 2008 Chicago

- Criteria
- Technique and Realization
 - **Overview Fermilab (experiment)**
 - **Overview DESY (remote control room)**
 - **Conference System(s)**
 - **eLogbook**
- Results



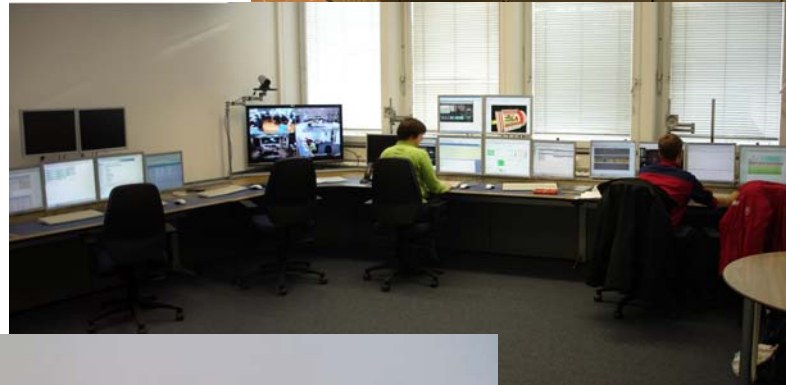
- Web Based (no special software needed)
- Easy and fast to implement (<4 weeks)
- Easy to maintain
- Not too expensive (<10000 €)
- Nice to use (just start everywhere)



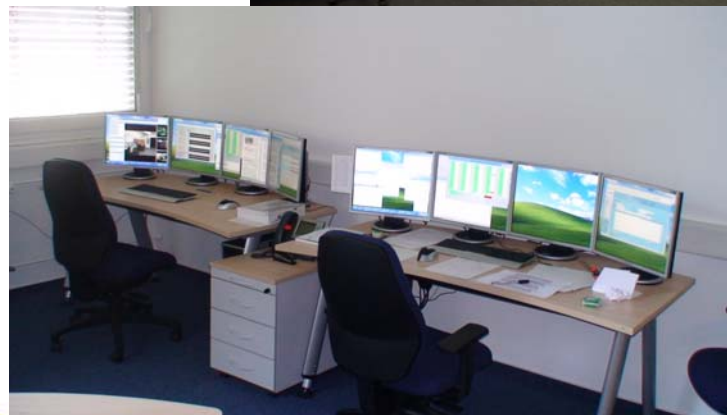
- High Cost



- Medium Cost



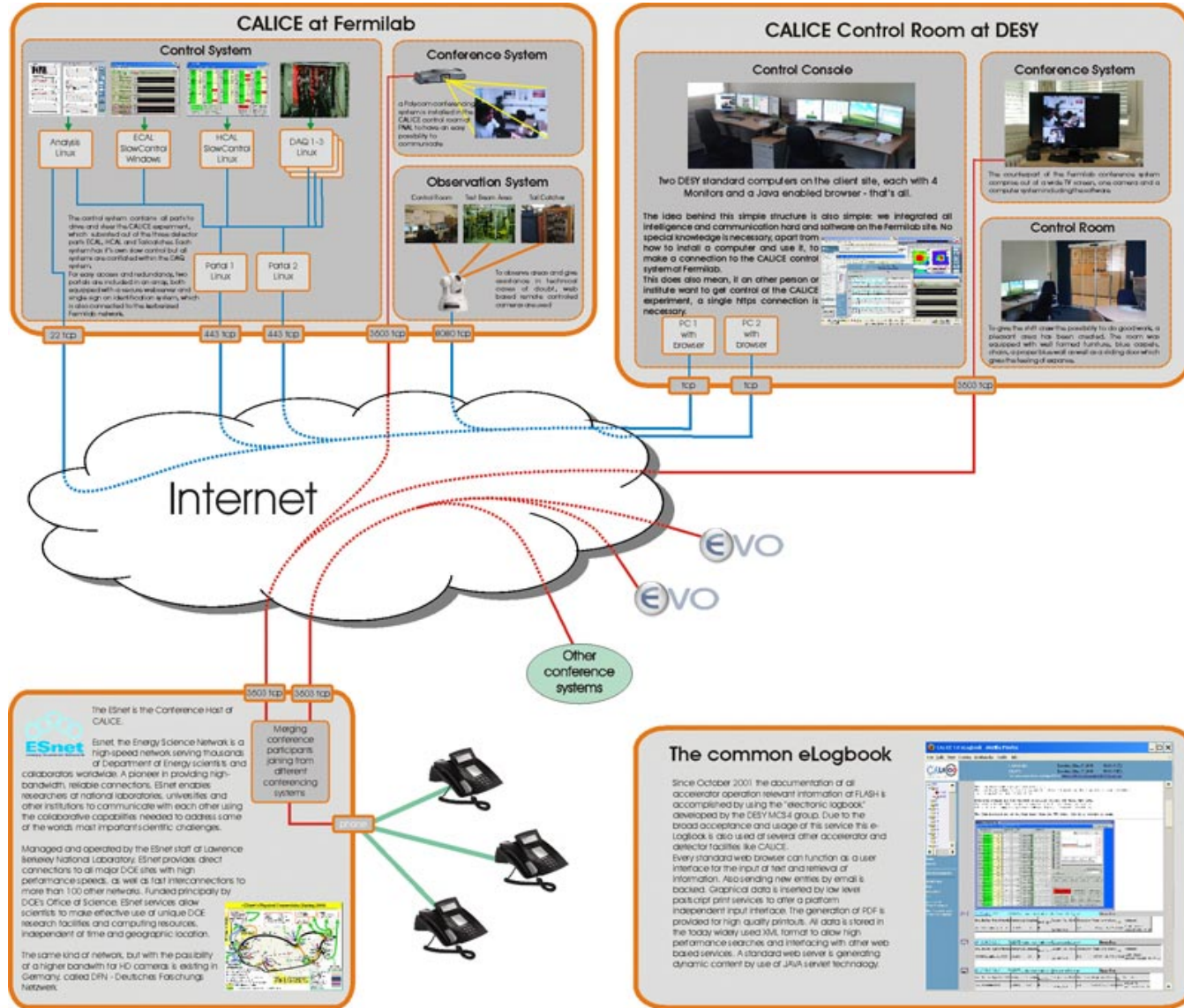
- Low Cost





Technique and Realization





CALICE at Fermilab

Control System



Analysis
Linux

ECAL
SlowControl
Windows

HCAL
SlowControl
Linux

DAQ 1-3
Linux

The control system contains all parts to drive and steer the CALICE experiment, which subsisted out of the three detector parts ECAL, HCAL and Tailcatcher. Each system has it's own slow control but all systems are conflated within the DAQ system. For easy access and redundancy, two portals are included in an array, both equipped with a secure webservice and single sign on identification system, which is also connected to the kerberized Fermilab network.

Portal 1
Linux

Portal 2
Linux

22 tcp

443 tcp

443 tcp

3603 tcp

8080 tcp

Conference System



a Polycom conferencing system is installed in the CALICE control room at FNAL to have an easy possibility to communicate



Observation System

Control Room Test Beam Area Tail Catcher



To observe areas and give assistance in technical cases of doubt, web based remote controlled cameras are used

CALICE Control Room at DESY

Control Console



Two DESY standard computers on the client site, each with 4 Monitors and a Java enabled browser - that's all.

The idea behind this simple structure is also simple: we integrated all intelligence and communication hard and software on the Fermilab site. No special knowledge is necessary, apart from how to install a computer and use it, to make a connection to the CALICE control system at Fermilab.

This does also mean, if an other person or institute want to get control of the CALICE experiment, a single https connection is necessary.



tcp

tcp

Conference System



The counterpart of the Fermilab conference system comprise out of a wide TV screen, one camera and a computer system including the software

Control Room



To give the shift crew the possibility to do good work, a pleasant area has been created. The room was equipped with well formed furniture, blue carpets, chairs, a proper blue wall as well as a sliding door which gives the feeling of expanse.

3603 tcp



eLogbook



The common eLogbook

Since October 2001 the documentation of all accelerator operation relevant information at FLASH is accomplished by using the "electronic logbook" developed by the DESY MCS4 group. Due to the broad acceptance and usage of this service this e-LogBook is also used at several other accelerator and detector facilities like CALICE.

Every standard web browser can function as a user interface for the input of text and retrieval of information. Also sending new entries by email is backed. Graphical data is inserted by low level postscript print services to offer a platform independent input interface. The generation of PDF is provided for high quality printouts. All data is stored in the today widely used XML format to allow high performance searches and interfacing with other web based services. A standard web server is generating dynamic content by use of JAVA servlet technology.

Run Nr	Run Type	Event#	RunOption	BeamPos	BeamType	Target Pr./Yb/D	Cherenkov	Stage x/y/theta	DG	Comment
500450	beamData	43000	10x10x	-10	M	In/Out/Out	5.9	-137.6/-14.7/9.9	0x0x0	HCAL turned itself off -v 23
500440	beamData	15000	10x10x	-10	M	In/Out/Out	5.9	-137.6/-14.7/9.9	0x0x0	left stage motors turned on -v 23
500440	beamData	0	10x10x	-10	M	In/Out/Out	5.9	-137.6/-14.7/9.9	0x0x0	forgot to turn on HV -v 23



Conference connection



The ESnet is the Conference Host of CALICE.

Esnet, the Energy Science Network is a high-speed network serving thousands of Department of Energy scientists and collaborators worldwide. A pioneer in providing high-bandwidth, reliable connections, ESnet enables researchers at national laboratories, universities and other institutions to communicate with each other using the collaborative capabilities needed to address some of the world's most important scientific challenges.

Managed and operated by the ESnet staff at Lawrence Berkeley National Laboratory, ESnet provides direct connections to all major DOE sites with high performance speeds, as well as fast interconnections to more than 100 other networks. Funded principally by DOE's Office of Science, ESnet services allow scientists to make effective use of unique DOE research facilities and computing resources, independent of time and geographic location.

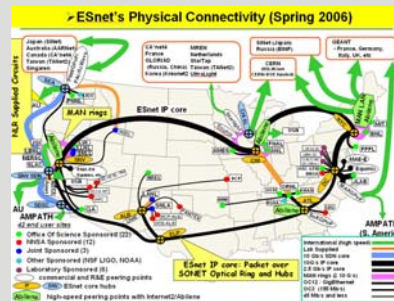
The same kind of network, but with the possibility of a higher bandwidth for HD cameras is existing in Germany, called DFN - Deutsches Forschungs Netzwerk

3603 tcp

3603 tcp

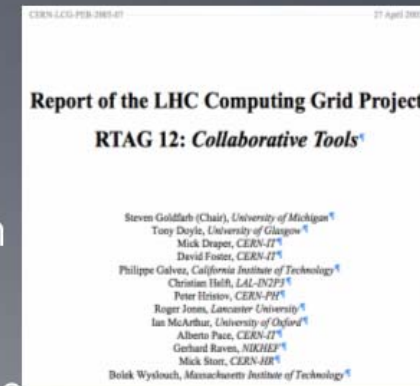
Merging conference participants joining from different conferencing systems

phone



Working groups

- RCWG (Esnet Remote Conferencing Working Group) : Esnet “power users” working group. Meeting every week on Wednesday at 8 p.m. Reinhard Eisberg from DESY, Philippe Galvez from EVO
- RTAG₁₂ (LHC R&D working group on collaborative tools) in 2005
- CSMM (HepCCC/HTASC working group), with Hans Frese
- Close relationship with the team operating the MCU at CCIN₂P₃



Christian Helft, LAL Orsay / Paris



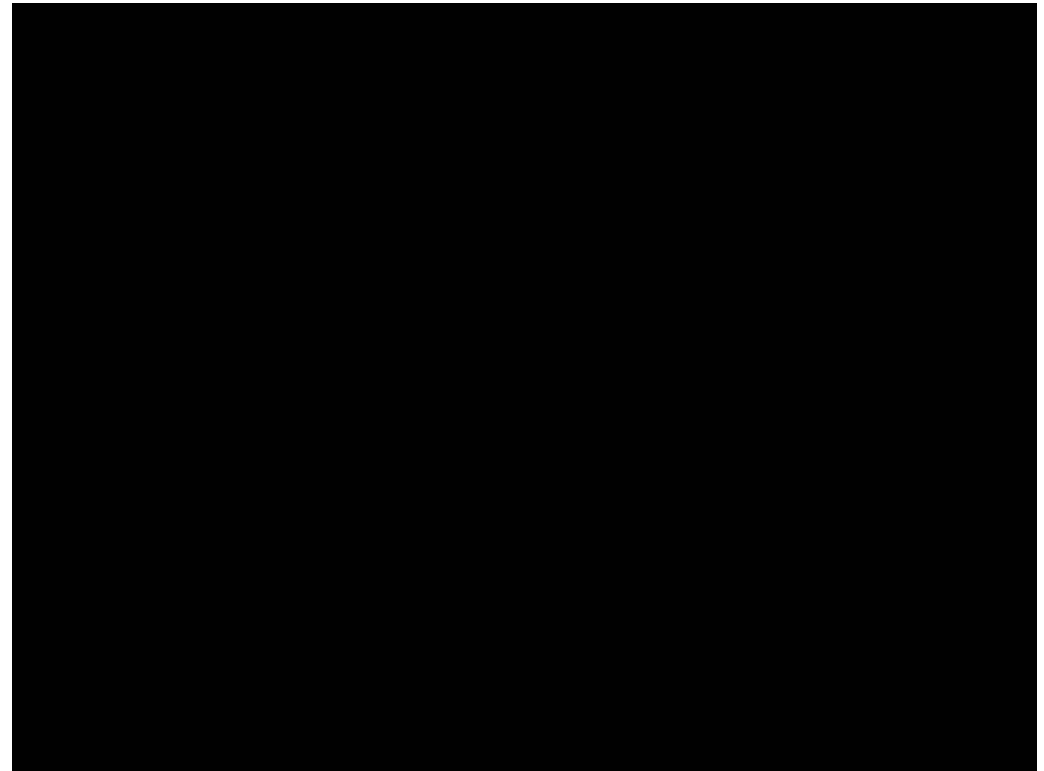
- Pros:
 - All criteria have been fulfilled
 - Shift crew starts working without special instruction
 - Starts working from day one
 - Single sign on also possible under Kerberos
- Problems:
 - connection breaks down from time to time (no exclusive network, fast recovering)



... finally



Thanks to all
the people, who
had
the prospective
view of backing
the
idea and gave
their support to
realize this
project.



The End