

Event-Filter Farm Project

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- ☐ History
- □ Description of New Project
- ☐ Our position
- ☐ Current IT Activities
 - > Linux configurator (NT as part of W2000 project)
 - > Performance and Exception Monitoring
 - > Farm Testbeds



- □ ~1998 the first version of the EF project was defined, but not a lot has happened
- □ end 1999 a new attempt was started to revive the project.
 - > First meeting (30/11/99) between experiments took place to express their views
 - → There was some agreement between the experiments that IT should provide tools to
 - Configure and manage large farms (1000s of CPUs)
 - Control and monitor the farm operation
 - > Second meeting took place with IT representations on 4th February where IT presented their current activities

LHCK Description of New Project

- □ Provision of a toolkit covering all aspects of the farm management/control/monitoring:
 - > infrastructure: remote reset, temperature sensing, network monitoring...
 - > system management: configuration of the system, control of OS of each node, handling non-homogenous systems,...
 - > application management/control/monitoring: Starting applications in a node, monitoring CPU, memory usage, I/O
 - > interface to the data from monitoring/control.
- ☐ Testing of new technologies
 - > Hardware
 - > Software
- □ Organization of a yearly workshop to share experiences with large farms from present and future high energy physics experiments and from other fields



Our position vis-à-vis the project is the following

- > Software Local to a machine of the farm
 - → We are interested in a set of tools that allow us to
 - monitor the basic quantities of a machine (CPU, IO, Memory,...)
 - create/delete processes
- > Software to remotely activate the above services
- > Integrate the remote access into the SCADA system for controlling the farm processors, but also the processes themselves.

LHCB Current IT Activities

- □ LINUX Configurator (ANIS)
- □ Farm Monitoring
- □ CERN's plans for Farm 'prototypes'



□ Basically a database that is accessed by several servers and daemons

Automated Network Installation Server (ANIS)

☐ Functionality:

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Functionality

- Add a new machine for automated installation.
- **Remove** a machine from the server.
- Activate a machine so it does not boot from hard disk.
- **Deactivate** a machine so it boots from hard disk.
- List the kickstart available les.
- Print the **status** of the congured clients.

Carlos Borrego PDP/IS

January 2000

□ Does a complete (re)-installation of Linux on a PC from scratch see http://home.cern.ch/bosman/anis.ps

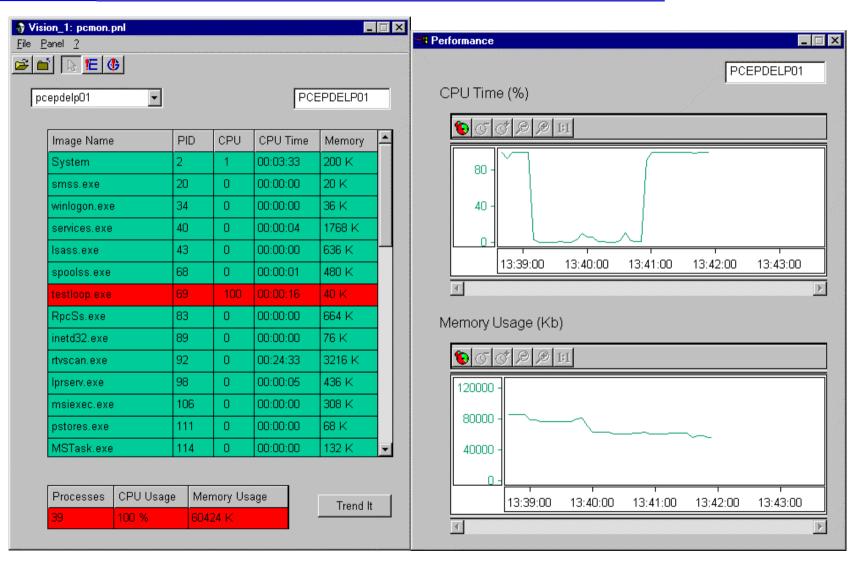
LHCK Performance and Exception Monitoring

- ☐ More Computer Center oriented
 - > neglects "Controls" aspect
 - > ensures availability and correct functioning of a service
- □ No integration of SCADA system
- □ Not really in the direction we would like to go
- ☐ Perhaps some things we could eventually re-use

See: http://www.cern.ch/proj-pem/Project/Presentations/PEM_at_EFF.ppt

□ Actually Clara has made software to connect CPU monitoring to a SCADA system







- ☐ IT is going to setup a testbed for CPU farms
- ☐ The idea is that parts or all of it can be reserved for a some time for test purposes



Test-bed stages

Current proposal:

| | 4q.2000 | 4q.2001 | 4q.2002 |
|----------------------|---------|---------|---------|
| Number of systems | 200 | 500 | 1′500 |
| (dual CPU systems) | | | |
| Disk capacity (TB) | 20 | 60 | 250 |
| Tape capacity (PB) | 0.2 | 0.5 | 1.0 |
| Disk I/O rate (GB/s) | 5 | 15 | 50 |
| Tape I/O rate (MB/s) | 250 | 500 | 1000 |
| WAN links (Mbps) | 40 | 60 | 150 |

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