



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



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

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.



Current IT Activities

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



Linux Configurator (ANIS)

- ❑ Basically a database that is accessed by several servers and daemons
- ❑ Functionality:

Automated Network Installation Server (ANIS)

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 configured clients.

Carlos Borrego PDP/IS

January 2000

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



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



Clara's slide

Vision_1: pmon.pnl

File Panel ?

pcepdelp01 PCEPDELPO1

Image Name	PID	CPU	CPU Time	Memory
System	2	1	00:03:33	200 K
smss.exe	20	0	00:00:00	20 K
winlogon.exe	34	0	00:00:00	36 K
services.exe	40	0	00:00:04	1768 K
lsass.exe	43	0	00:00:00	636 K
spoolss.exe	68	0	00:00:01	480 K
testloop.exe	69	100	00:00:16	40 K
RpcSs.exe	83	0	00:00:00	664 K
inetd32.exe	89	0	00:00:00	76 K
rtvscan.exe	92	0	00:24:33	3216 K
lprserv.exe	98	0	00:00:05	436 K
msiexec.exe	106	0	00:00:00	308 K
pstores.exe	111	0	00:00:00	68 K
MSTask.exe	114	0	00:00:00	132 K

Processes	CPU Usage	Memory Usage
39	100 %	60424 K

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Performance

PCEPDELPO1

CPU Time (%)

Memory Usage (Kb)



Farm Testbed

- ❑ 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 (dual CPU systems)	200	500	1'500
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

4 February 2000

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