



Management Of The FERMI Control System Infrastructure

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Control system infrastructure in short

- Distributed control system based on a three-layer star-topology network
- 80 front-end computers, 20 servers (VM), 110 peripheral switches
- Based on the TANGO Control System Framework

Requirements

- Integrated system monitoring
- Remote system management
- Remote switching on/off of control system computers and controlled devices

In-band system monitoring

- A TANGO device server to monitor selected OS parameters

Out-of-band remote system management

- Chassis Monitor Module: an embedded micro to monitor and control the VME crates
- IPMI interfaces on Intel-based computers
- SNMP used for network switches management

cmm-id-kg02-01 (on ken)			
State	ON	Power ON	Power OFF
Uptime	114058918 [s]	CMM Reset	VME Reset
Fan 1 Fan 2 Fan 3			
Fan Speed	2910 [rpm]	3090 [rpm]	2970 [rpm]
Power Supply Voltage			
	V1	V2	V3 V4
	5.04 [V]	12.05 [V]	3.33 [V] -12.34 [V]



Power Distribution Units

- Controls, diagnostics, power supplies, vacuum, radio frequency modulators racks have been equipped with intelligent PDUs
- A large number of PDUs installed in the tunnel near the machine
- Three models from Raritan and APC selected
- TANGO device server based on SNMP and manufacturer MIB + GUI

Nagios

- Open Source tool to monitor IT infrastructures
- Checks critical parameters such as disk space, system time synchronization, database replication
- Warnings and critical states are notified via mail to the system administrator, to the people on call and to the responsible of specific subsystems

pdu-rc-kg01-01

File View Help				
Model	DPCR8A-16	State	ON	
Line Voltage	233.00 [V]	Cpu Temp	39.00 [°C]	
Line Current	1.50 [A]	Unit Apparent Power	355.00 [VA]	
Outlets	State	Current [A]	Commands	
socket strip	ON	0.00	Power ON	Power OFF
plc-mod-kg01-01	ON	0.13	Power ON	Power OFF
rack fan tray	ON	0.26	Power ON	Power OFF
sw-c-kg01-01	ON	0.31	Power ON	Power OFF
sds-vac-kg01-01	ON	0.58	Power ON	Power OFF
plc-int-kg01-01	ON	0.21	Power ON	Power OFF
rack lamp	ON	0.00	Power ON	Power OFF
ec-ps-kg01-01	ON	0.00	Power ON	Power OFF

Electra-Synchrotron Trieste S.p.A. - Control System Group - Nagios Monitoring Facility - Mozilla Firefox

File Edit View History Bookmarks Tools Help

NAGIOS IT Infrastructure Monitoring

Monitoring Performance

Tactical Monitoring Overview
 Last Updated: Fri Sep 13 15:37:14 CEST 2013
 Updated every 30 seconds
 Nagios® Core™ 3.5.1 - www.nagios.org
 Logged in as nagiosadmin

Service Check Execution Time: 0.00 / 10.04 / 0.250 sec
 Service Check Latency: 0.00 / 0.28 / 1.128 sec
 Host Check Execution Time: 1.01 / 4.55 / 1.184 sec
 Host Check Latency: 0.05 / 0.27 / 0.162 sec
 # Active Host / Service Checks: 584 / 373
 # Passive Host / Service Checks: 0 / 0

Network Outages: 0 Outages

Network Health
 Host Health: ■
 Service Health: ■

Hosts
 24 Down 0 Unreachable 560 Up 0 Pending
 1 Unhandled Problems
 23 Acknowledged

Services
 19 Critical 0 Warning 0 Unknown 354 OK 0 Pending
 8 Unhandled Problems
 8 on Problem Hosts
 2 Acknowledged

Monitoring Features

Flap Detection	Notifications	Event Handlers	Active Checks	Passive Checks
ENABLED All Services Enabled No Services Flapping All Hosts Enabled No Hosts Flapping	ENABLED All Hosts Enabled	ENABLED All Services Enabled All Hosts Enabled	ENABLED All Services Enabled All Hosts Enabled	ENABLED All Services Enabled All Hosts Enabled

View Config

1 host down 17 critical services