

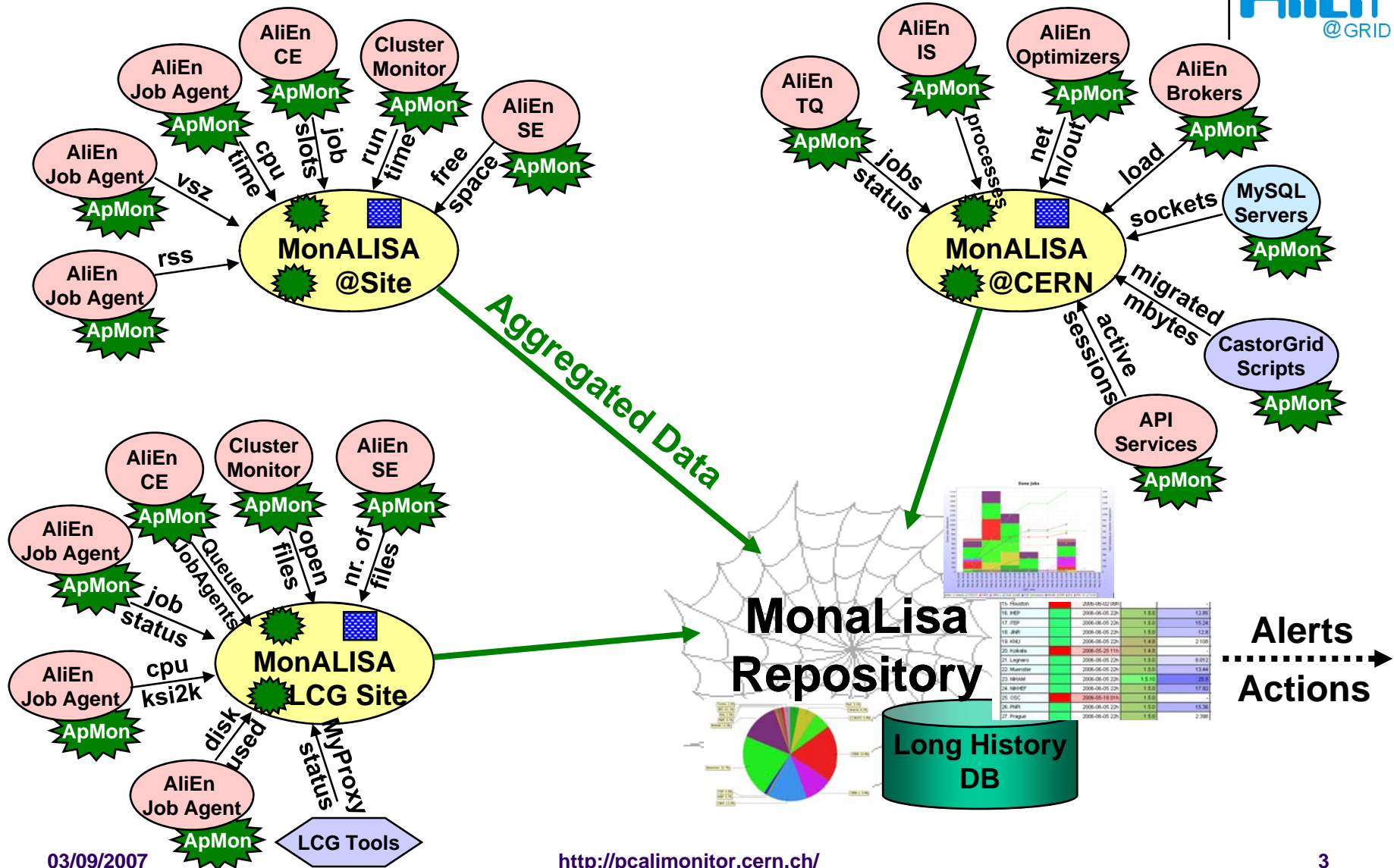




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# Data collection and storage



# Data collection and storage



- MonALISA services gather ~300K unique parameters with a rate of 250Hz
- Out of these ~40K (raw and derived) time series are stored in the repository DB with a rate of 30Hz
- New series can be defined on the fly, changes to the collection filters are applied right away without any service restart
- The DB is now 150GB (1.5G data points)
- We use the following archival schema for old data:
  - 2 minutes bins for the last 2 months
  - 30 minutes bins for the last 6 months
  - 2.5 hours bins for more (almost 2 years already)
- On average users are calling dynamic charts every 2-5 seconds
- In these conditions the load on the repository machine is negligible (0.3-0.5)



# Visualization methods

- Various type of charts, with different detail levels
  - System overview as the global map
  - General interest widgets in all the pages
  - General purpose charts, based on a simple configuration file: history as points, areas or bars, pie charts, bar charts, spider charts etc
  - Specialized pages
  - Daily/weekly/monthly reports



# Visualization methods



**ALICE Repository**

- ALICE Repository
- Google Map
- Running trend
- Job Information
- SE Information
- Services
- Network Traffic
- FTD Transfers
- CAF Monitoring
- SHUTTLE
- LOG exp. monitoring
- Build system

close all

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This page: [bookmark](#), [URL](#)

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**Running jobs trend**

4537  
Jobs

**Running jobs trend**

→ → → →

24h 12h 6h 1h

(click arrows for detailed view)

FZK (152)

1 hour 1 day 1 week 1 month 1 year

Running jobs

600  
500  
400  
300  
200  
100  
0

22 23 24 25 26 27 28 29

Aug 2007

FZK

Map Satellite Hybrid

SPbSU  
PNPI  
JINR  
RRC-KI  
Troitsk  
SINP  
IHEP

Birmingham  
RAL  
NIKHEF  
SARA  
Muenster  
Poznan  
WUT

GRIF\_DAPNIA  
IPNO  
Subatech  
CERN-L  
CERN\_gLite  
CERNMAC  
CERN  
Clermont  
CCIN2P3  
CNAF  
Legnaro  
Torino  
Bologna  
Florence

Prague  
Cyfronet  
BITP  
KNU  
IC

Kosice  
KFKI  
UPB  
ISS  
NIHAM

Madrid  
Trujillo  
Cagliari  
Catania  
Athens  
Bari

POWERED BY Google

200 mi  
500 km

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● Running Jobs ● ML Service Down ● No Active Jobs ● ML Service Down & no running jobs

[Find your location](#)

Map options

# Vizualisation methods

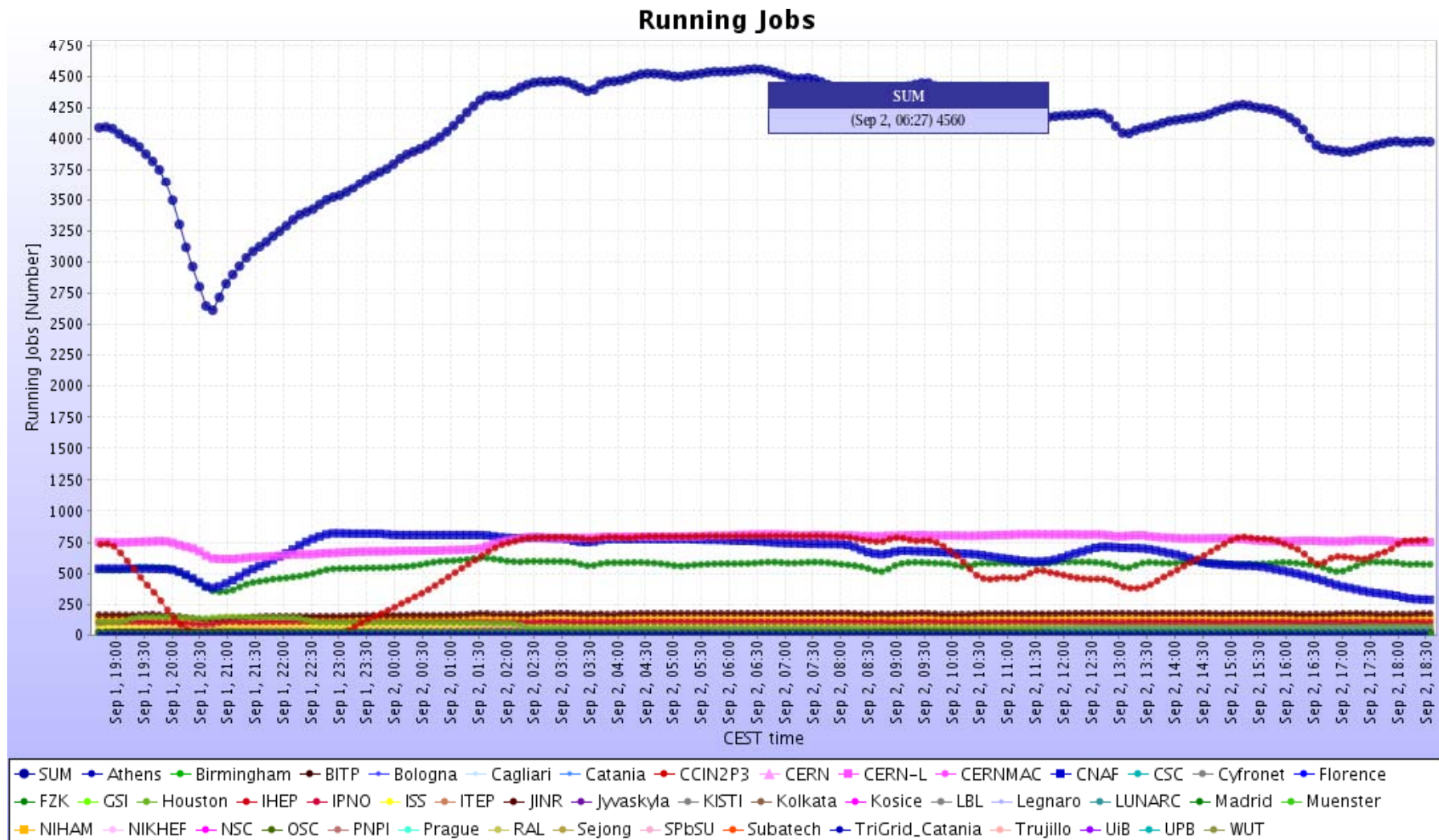


Running jobs trend							
Site name ▲	Running jobs	KSI2K units (used/pledged)	Last 24 hours	Last 12 hours	Last 6 hours	Last hour	Status ▼
1. Aalborg	-	0 / 30	✘	✘	✘	✘	⚠
2. Athens	3	3 / 5	➡	➡	➡	➡	
3. Bari	-	0 / 50	✘	✘	✘	✘	
4. Birmingham	11	5 / 50	➡	➡	➡	➡	
5. BITP	19	20 / 210	➡	➡	➡	➡	
6. Bologna	13	14 / 11	➡	➡	➡	➡	
7. Cagliari	18	22 / 38	➡	➡	➡	➡	
8. Catania	49	12 / 225	✘	✘	➡	➡	
9. CCIN2P3	801	1328 / 286	➡	➡	➡	➡	
10. CERN	0	0 / 250	✘	✘	✘	✘	
11. CERN-L	768	875 / 500	➡	➡	➡	➡	✔
12. CERN_gLite	-	- / 500	✘	✘	✘	✘	✘
13. CERNMAC	3	- / 5	➡	➡	➡	➡	✔
14. Clermont	-	- / 75	✘	✘	✘	✘	✘
15. CNAF	266	709 / 286	➡	➡	➡	➡	⚠
16. CSC	4	5 / 4	➡	➡	➡	➡	✔
17. Cyfronet	29	31 / 33	➡	➡	➡	➡	✔

Click for persistent window

CE :  
 Sep 2 18:56:35 info Reading the configuration file from /user/aliprod/.alien/alice.conf  
 Sep 2 18:56:35 info The local configuration is not allowed to define services  
 Sep 2 18:56:35 info The local configuration is not allowed to define services  
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 Doing PID-only check for CE... DEAD. Exit code 1

# Vizualisation methods

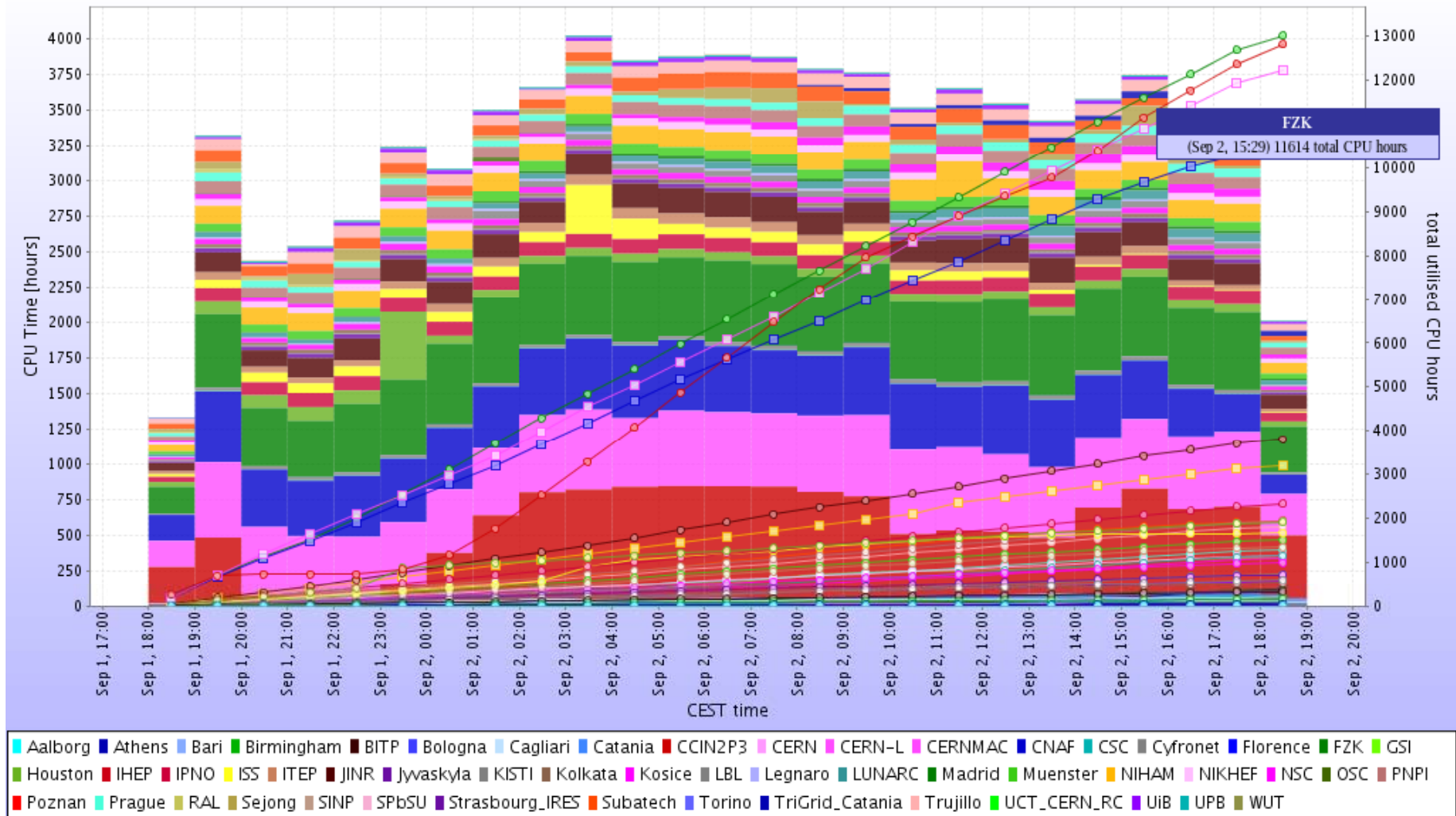




# Vizualisation methods



Total CPU time for ALICE jobs





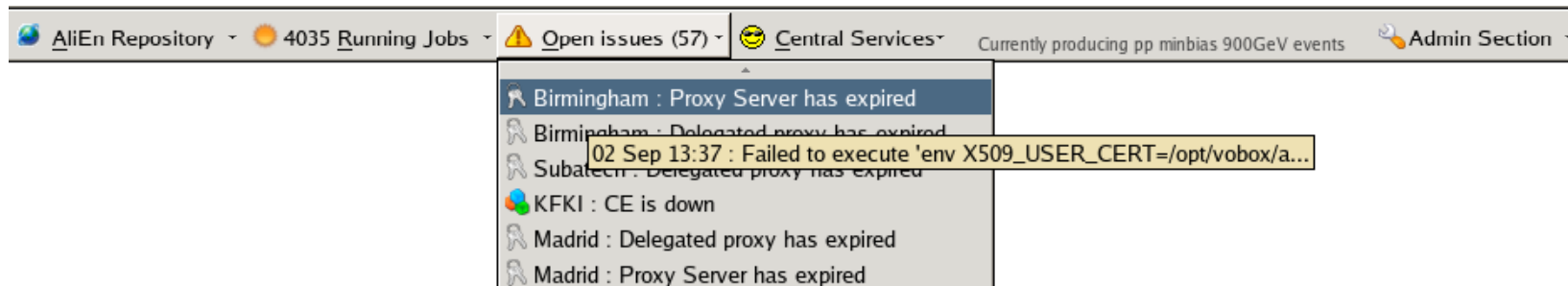
# Process automation

- The monitoring information is used by an automatic decision taking framework to:
  - Submit new jobs (by watching the queue parameters)
  - Restart site services (whenever the VoBox-level monitoring finds out that a service is not accessible + the central services are ok)
  - Send notifications when the problem didn't go away after an automatic restart
  - Dynamically modify the DNS aliases of the central services for an efficient load balancing
- Most of the actions are defined in plain text configuration files, making the system easily and dynamically tunable to fit the ever changing needs

# Tools



- Anybody can subscribe to be notified by email or through RSS feeds in case of problems with various components of the system: central/site services, storages, proxies, general announcements and so on: <http://pcalimonitor.cern.ch/xml.jsp>
- A Firefox toolbar helps to quickly spot current issues:



- Certificate-based administrative interface helps the Grid managers with day-to-day operations (site services management, production jobs, software packages, pledged resources tracking etc)



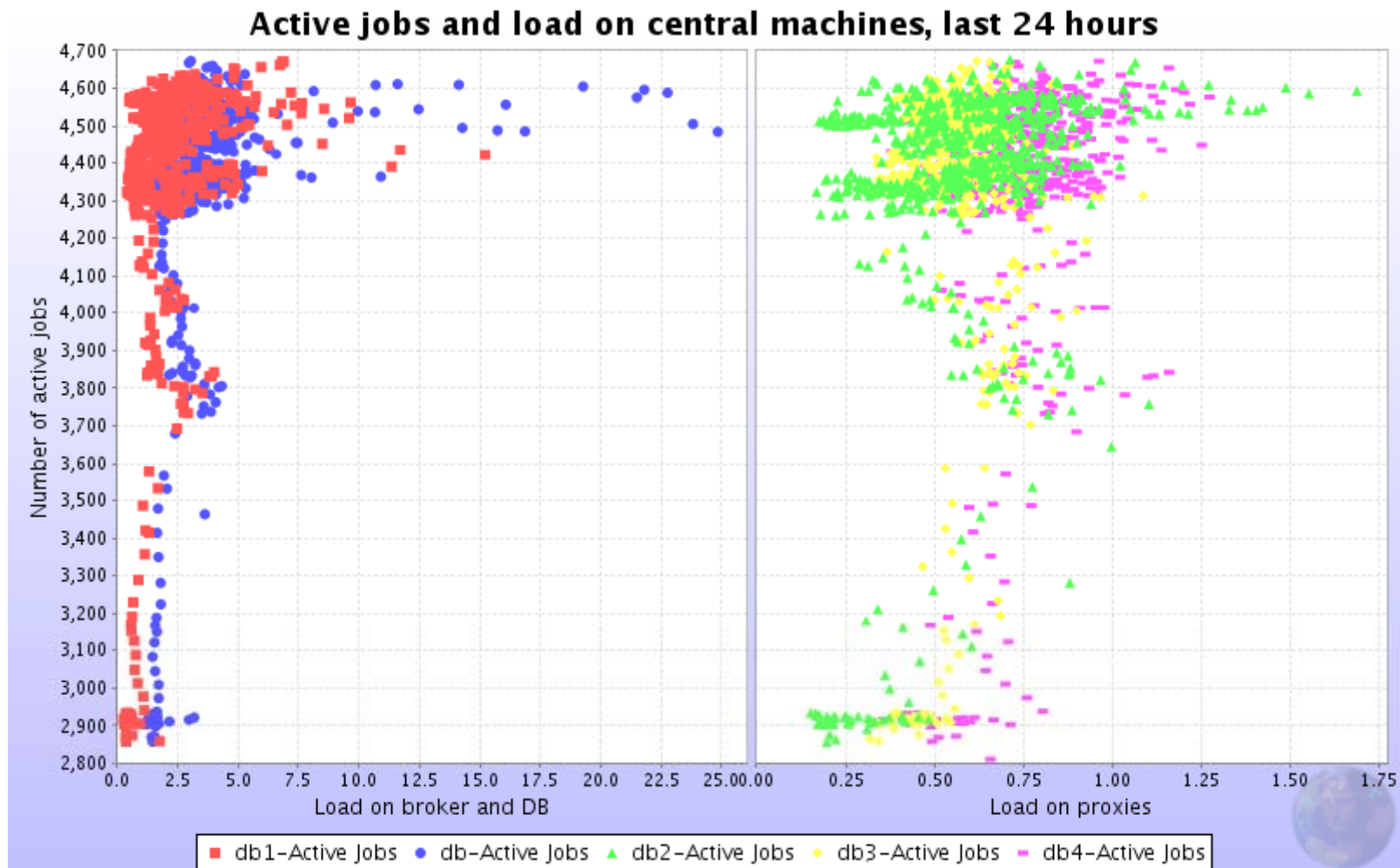
# Monitoring data analysis

- Until recently users were restricted to use only predefined charts
- Now we have implemented a completely customizable interface through which users can define their own charts:

<http://pcalimonitor.cern.ch/correlations/>

- Evolution in time for some parameters
- Values histograms
- Scatter plots (for correlating 2 time series)
- Possibility to define derivate series on the fly (sum / difference / average of primary series)

# Monitoring data analysis







# Future plans

- Increase the detail level for user jobs
- More flexibility in defining custom charts
- Add other sources of events to which users can subscribe to (eg. SAM tests)
- We are opened to suggestions, so please let us know what you would like to see!