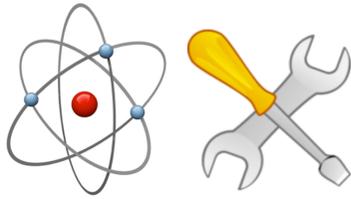# Development and deployment of a T2-oriented monitoring infrastructure

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LHC physics user groups will need a simple and intuitive _user-level_ summary of their T2 services' status, showing _available, busy, unavailable resources..._

Sysadmins need to monitor (and to be automatically notified about) a huge amount of _technical-level_ aspects of their farms, in order to guarantee available/reliable services...

We need a *cluster monitoring tool which is able to rule all of those needs*

From a "raw solution"...

Often we discover something new (and interesting) to monitor, and often no existing monitoring tool is able to monitor it (manufacturer specific monitoring tools, new parameter/feature to monitor...) Writing Bash scripts by hand to monitor events and send back notification via mail/web is our "patch" to this problem.
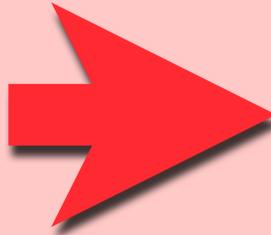
... to a "new monitoring framework"!

Why not collect all those scripts under a common framework, simple to manage and to deploy?
Why not use SSH (already used for administrative purposes) to transport messages from sensors to the information collector?
Why not use databases to store information and build statistics?

Mon2 is a *monitoring framework*, based on Perl/Bash scripts and a DB

- every host is monitored by daemonized Bash scripts, downloaded from the Mon2 server
- every 3 minutes each host collects information about itself and uploads them on the central server;
- every 2 minutes the Mon2 server gatheres all **host information** with summary information about the status of high level services of the farm, then publishes them on the Web
- all interesting information are stored into a **local database**, so all needed history is available for future investigations
- sends event-driven **alerts** to sysadmins through emails, RSS, SMS

- Mon2 can monitor **what both users and sysadmins need**: temperatures, PBS job monitoring, central availability tests (SAM tests, Job Robot, HLR...), OS (CPU/filesystems/network), RAID devices health status, system clock offsets
- Mon2 is **flexible**: all you need to create/modify sensors is Bash, all you need to create/modify Web pages and alerts is Perl
- Mon2 is **portable**: it is based on standard Unix/Linux tools (bash, perl, rsync, ssh, cron)
- Mon2 is **secure**: all host-to-server connections are SSH-based, and no need to login as root using root-to-host connections; no server-side scripting (HTML pages are generated in batch mode using Perl and gnuplot); no DB server is used (we use SQLite)

PBS monitoring

We need weekly/monthly/yearly views of PBS jobs...

Storage

How many TB are available now?

RAID devices

gridse04.ba.infn.it

this RAID5 is degraded and needs sysadmin intervention!

Alerts

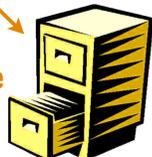| Item	Description	Where	Creation
Timeout	alicegrid15.ba.infn.it providing no fresh info. Is it alive?	alicegrid15.ba.infn.it	2009-2-6 5:27
Timeout	gridba13.ba.infn.it providing no fresh info. Is it alive?	gridba13.ba.infn.it	2009-2-1 4:54
Timeout	cream-ce-4.ba.infn.it providing no fresh info. Is it alive?	cream-ce-4.ba.infn.it	2009-1-30 10:35
Timeout	cream-ce-3.ba.infn.it providing no fresh info. Is it alive?	cream-ce-3.ba.infn.it	2009-1-30 10:29
Device errors	Some devices with problems on gridse04.ba.infn.it, please read http://cmsprod.ba.infn.it/mon2/devices.html#gridse04.ba.infn.it	gridse04.ba.infn.it	2009-1-2 12:14
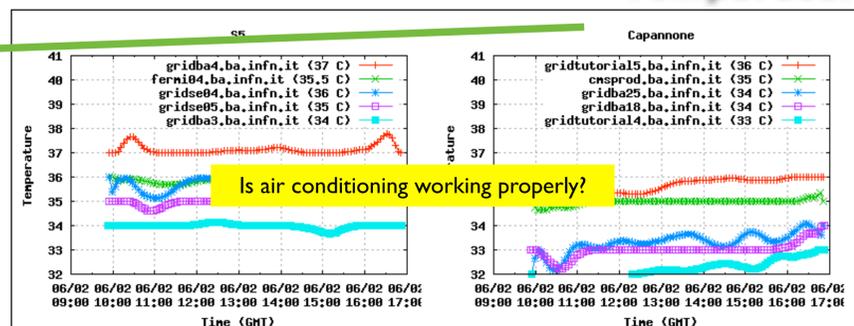
Send notifications

Store to database

Temperature

Is air conditioning working properly?

CPU/fs/net

NETWORK SCAN

HOSTINFO

What's wrong with host.ba.infn.it???

Coming soon:
complete inventory of the farm to fulfil other goals:
1. how many **CPU/cores/TB** are **supposed to be running** on our farm (pledged resources) ?
2. how many VM do we have? Where are they?
3. **where is "host.ba.infn.it"?** Can you show me it using a **graphical representation**?