



# Lemon monitoring of LHCb VOBOXes

Jiri Horky  
jiri.horky@cern.ch

# Goals

---



Monitor top problem-makers (based on past exp):

- **/opt partition**
  - for free space
  - make sure it is really on its own partition
- **DIRAC certificate**
  - for validity
  - for file permissions
- **DIRAC main services**
  - make sure they are not stuck (log gets updated)
  - grep logs for exceptions
- **gridftp and httpd**
  - if they are running

# Implementation I

---



- Sounds easy at first, but...
  - one needs to get familiar with Quattor and Lemon itself
    - and get all necessary permissions
  - lemon documentation is not so clear and updated
    - meetings with experienced lemon users and lemon staff needed
  - some existing metric classes are not listed on the web
    - some are not „core“ --> not supported by Lemon team
      - ok, but some are still missing anyway
    - one needs to grep existing templates to avoid unnecessary duplicating
    - or even worst – examining the source code of sensors!
  - there are bugs and missing features

# Implementation II - /opt part.

---



- **Free space**
  - easy, already existing examples for other partitions
  - reused
- **/opt partition**
  - based on log.parsing of /proc/mounts
  - is there a better solution?
    - system.partitionInfo already reports information for all partitions
    - but I am not aware of a way how to look for existence of /opt in output in correlation definition
    - one metric ID would have been saved :-)

# Implementation III - certificates

---



- **Validity**

- existing metric class found (Fio::CertOK)
- hardcoded time period of 14 days :-(
  - more generic version offered
- reused anyway

- **File permissions**

- existing metric class found (file.mode in core-file sensor)
  - found „by accident“
    - nobody was using it before & not listed on the web
  - buggy – 2 bugs found, fixes submitted
    - now in Lemon test environment
- own fixed RPMs of file sensor deployed

# Implementation IV – DIRAC logs

---



- Are they getting updated?
  - metric class for this already exists – file.sslmtime (checking file modification time)
- Was there an exception during last X minutes?
  - impossible to check it without the „timezone comparison“ feature
    - DIRAC writes time to logs in UTC, not local time
    - already requested by Alessandro on 2009-08-31
    - backward-compatible fix provided – now being tested by Lemon staff
  - own improved RPMs of log.Parse sensors deployed

# Implementation V – gridftpd, httpd

---



- **httpd**
  - metric already in place
- **gridftp**
  - metrics was already in place and activated!
    - there are some other „gridftp“ in /prod/pro\_monitoring\_metrics\_gridftp...
      - but “gridftpd-globus” is not there
    - parameters of the metric changed somewhere in include structure!
    - **solution:** `ncm-query --dump --pan /system/monitoring/`

# Exceptions - I

---



## Actuators

- should we restart the service?
  - in case of exception in log
    - no - watchdogs for this already in place
  - in case of service stuck
    - not for now, maybe in the future?
  - internal discussion still ongoing
    - rather political discussion than technical
- copy certificates from /etc/grid-security to DIRAC dir.
- no matters what, **email sent to lhcb alarm list**



# Exceptions - II

---



- **Alarms**

- sent to the server, they should be visible on the web
  - only on lemonweb02.cern.ch (test one) at the moment
    - some issues with file.info metric class on server side
    - actively solving this with lemon people
  - but not in LAS --> operators should not see them on the screen
    - more exercising of the sensors is necessary

- **Thresholds**

- log modify time thresholds set based on log history
  - to be tuned
- obvious for other metrics

# Summary

---



- **In numbers**

- 3 weeks of 70% effort spent on this
- 7 DIRAC services monitored (log monitoring)
- 17 new metrics & 18 new exceptions defined
- 2 bugs found and fixed
- 1 requested feature fixed
- 1 more generic metric class provided
- All (11) VOBOXes in production monitored
  - common metrics on every node
  - on 3 of them monitoring of „core“ services deployed
- some inconsistency in Quattor templates located (permissions, copy certificate procedures...)

# Future

---



- **Log files checking**
  - not clear if it will be continued – ongoing discussion among DIRAC / LHCb people
  - thresholds to be tuned
  - isolate all critical DIRAC services
    - setup metrics for them
- **Alarms escalation to the LAS (operators)**
  - again - exercising the sensors necessary

# General impressions from „outside“

---



- **Lemon**



- powerful & scalable tool...but far away from optimal state
  - documentation, bugs...
- quite too complicated :-(
  - too much effort for writing such „trivial plugins“
    - ie. in Nagios: few lines of shell scripting...
    - ID assignments procedure...

Please take this  
with a grain of salt

- **Quattor**

- Great, it checks syntax on commit!
  - but it is slow – usual commit takes ~2mins, 40mins at peak
- Inconsistency, „mess“ - human factor
- backslashing "execve", `"/bin/sh -c \\\\" /bin/echo \\\\\"message\\\\\\" \\\\"`

There should be some rules/advices/best practices  
somewhere



# References

---

- **Related savannah links:**
  - timezone issue in log.Parse
    - <https://savannah.cern.ch/bugs/?55080>
  - file.info uid instead of gid returned
    - <https://savannah.cern.ch/bugs/?57289>
  - file.info mode returned incorrectly
    - <https://savannah.cern.ch/bugs/?56806>
  - FIO::Cert more generic
    - <https://savannah.cern.ch/bugs/?57191>
  - documentation is outdated
    - <https://savannah.cern.ch/bugs/?56860>
- **Metric list:**
  - <https://twiki.cern.ch/twiki/bin/view/LCG/ExperimentLemonMetrics>



Thank you for your attention!

Questions?

Thanks to

- [Roberto Santinel, Joel Closier](#)
  - for guidance and fighting for lemon sensors
- [Alessandro Di Girolamo](#)
  - valuable advices and his time
- [Maria Dolores Saiz Santos \(Lola :-\)](#)
  - first help in Lemon
- [Lemon support, namely Ivan Fedorko](#)