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Monitoring dCache with MonAMI

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Outline

1. MonAMI architecture
2. Status of dCache plugin
3. Configuration example
4. Other monitoring targets
5. Future plans
6. Summary

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Monitoring

- Good monitoring is essential for running a **production** service.
- Many different systems/tools exist:
  - Ganglia http://ganglia.sourceforge.net
  - Nagios http://nagios.org
  - Lemon http://lemon.web.cern.ch
  - MonaLisa http://monalisa.cacr.caltech.edu

  ...
- Multiple solutions typically used across the Grid.

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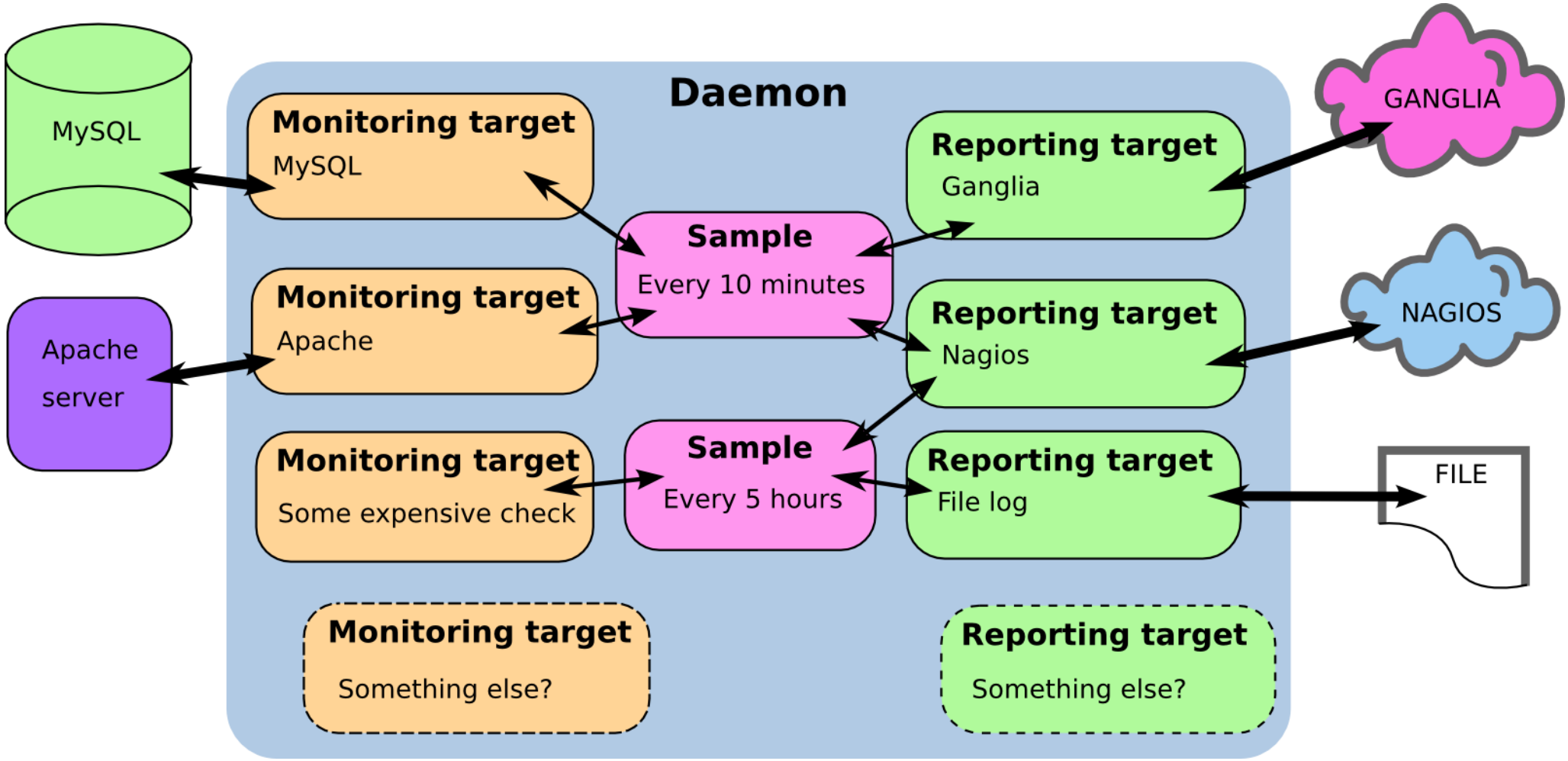
MonAMI

- MonAMI does a simple job well: to **gather** monitoring data and **send** it somewhere.
- It is a light-weight, easy to deploy, easy to configure, “universal sensor”.
- Aims to stop people writing their own sensors.
  - Integrates with existing site tools.
- Monitoring and reporting **plugins**.

http://monami.sourceforge.net/

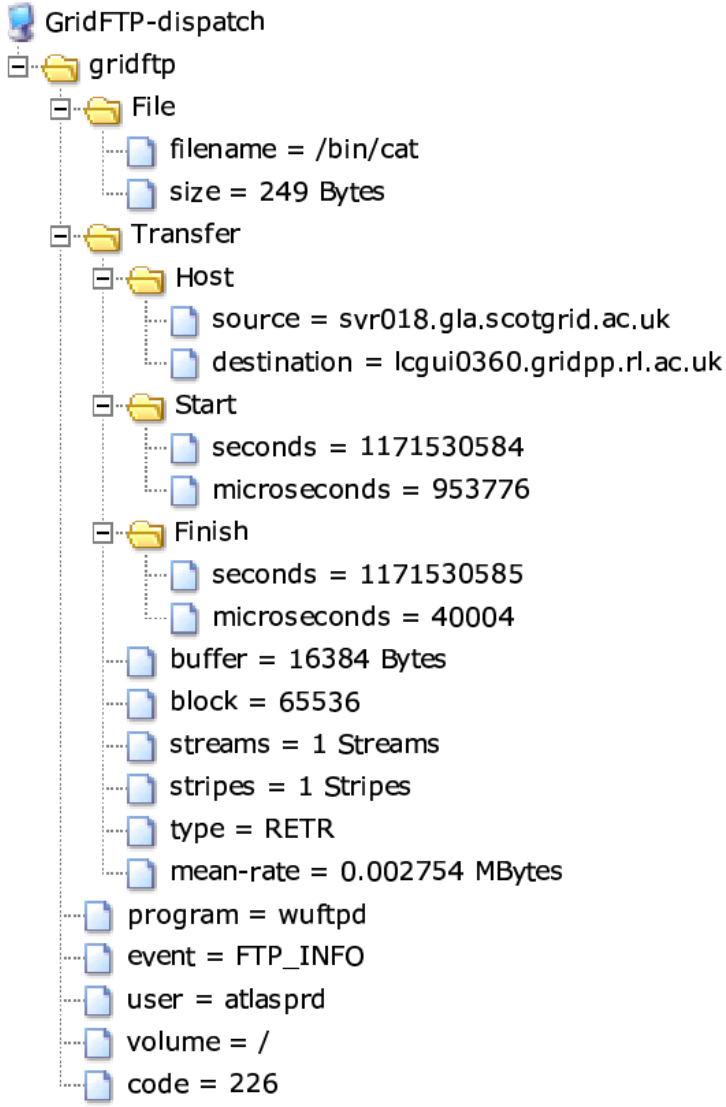
How MonAMI works



A target is a configured instance of a plugin.

Some details

- Intermediate **data tree**
  - collection of related information (e.g. measured at the same time).
- **Configuration** ties monitoring plugins to reporting plugins and describes what monitoring is needed.



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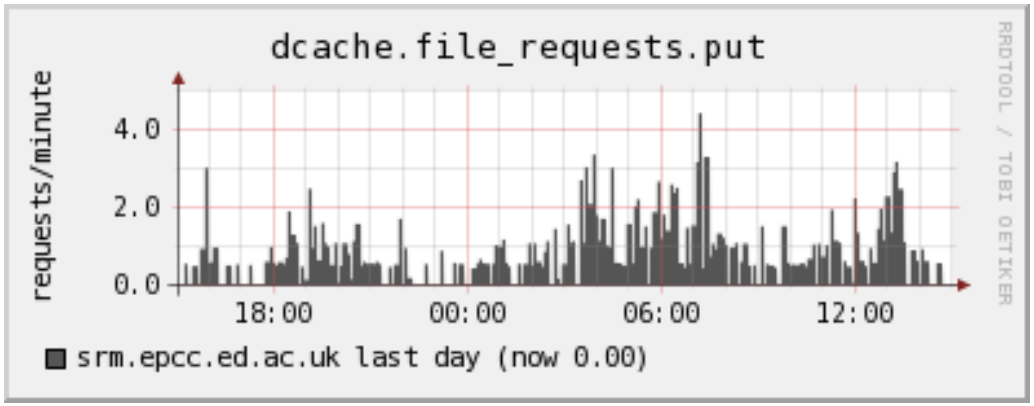
Supported plugins

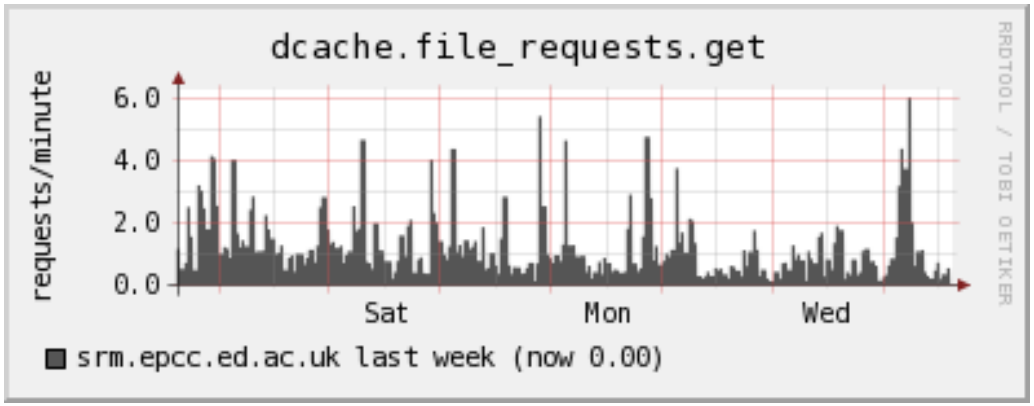
Monitoring	Reporting
MySQL, AMGA	Ganglia
Tomcat, Apache	Nagios
NUT	MonaLisa
dCache DPM	R-GMA
Process (counting, detailed)	File logs
TCP	KSysguard

Status of dCache plugin

- Provides current status information.



srmPuts (last day)



srmGets (last week)

- Collects information from the `(get,put,copy)filerequests_b` tables in `billing` DB.
- A version that will also provide transfer statistics is in development.

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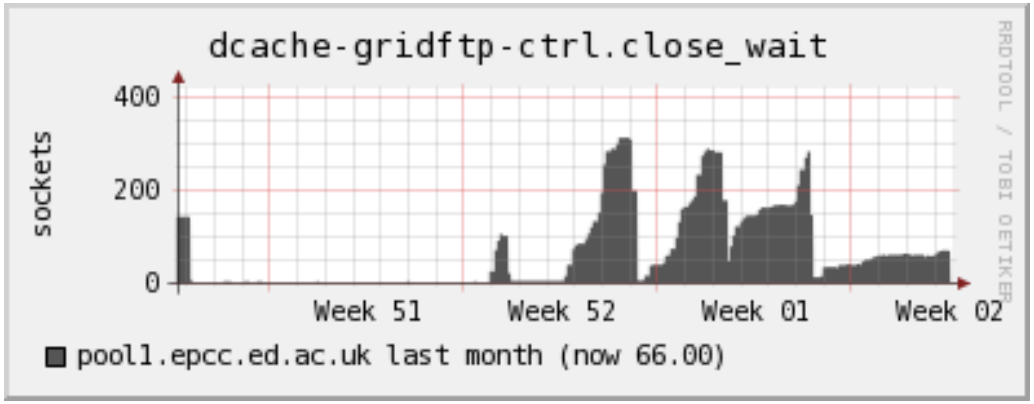
Configuration example

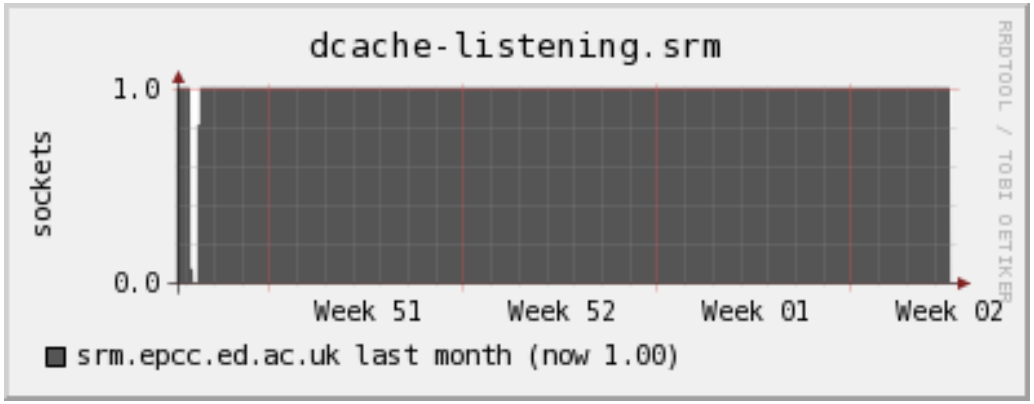
```
# Create a dCache target called "dcache".
# Specify the port the the postgres DB will run on.
[dcache]
port = 5432
user = monami
password = ****

[ganglia]
multicast_port = 8650

# Take all data from dcache target to ganglia, updating every 60s
[sample]
interval = 60s
read = dcache
write = ganglia
```

Other targets

- Other plugins can be used to monitor dCache.
- Can trigger **alarms** by integrating with Nagios.



gridftp CLOSE_WAITs



Processes on 8443

```
[tcp]
name = dcache-gridftp-ctrl
count = close_wait [state=CLOSE_WAIT]
```

```
[tcp]
name = dcache-listening
count= srm [local_port=8443,state=LISTEN]
```

Other targets

- dCache v1.7.0: Tomcat used for SRM server.
- MonAMI can connect to tomcat using the JMX-proxy servlet (Java Monitoring eXtensions).
- Use config file to specify the required class of information.
  - Connector or ThreadPool.

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Writing plugins

- Plugins written in C.
- Takes some time to understand architecture of MonAMI.
- Documentation is good and constantly being updated.
  - Extensive user and developer guides.

http://monami.cvs.sourceforge.net/*checkout*/monami/MonAMI/README.developers

http://monami.cvs.sourceforge.net/*checkout*/monami/MonAMI/README.users

http://www.gridpp.ac.uk/wiki/MonAMI_dCache_plugin

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Future plans

- dCache :2288 **webpage** contains a lot of useful status information.
  - Difficult to use if there is a large number of pools.
  - Use MonAMI to gather data and present in more useful way.
  - Better than querying the DB directly.
    - No schema evolution, no passwords.
  - Parsing HTML is difficult; better if we could get (raw) **XML** via HTTP instead.
    - Maybe with HTTP `Accept:application/xml`?
- To more widely deploy/test MonAMI.
- Integration with GridView.

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Other tools

- SRMWatch from FNAL.
- FNAL web monitoring project.
- IN2P3 web pages.
- . . .
- Maybe MonAMI can integrate with some of these?

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Summary

- MonAMI provides framework for monitoring dCache using **existing tools**.
- Once plugin written, the data tree can be marshalled into multiple reporting targets.
- Development of monitoring and reporting plugins continues.
  - More help would be great.
  - monami-devel@lists.sourceforge.net
- Suggestions are welcome.