

Integration of Billing (Accounting) Plots (*dCache 2.1+*)

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Accounting (*dCache Book*, Chpt. 24)

For *dCache* 1.9.12+, accounting data is logged to file:

`${BILLING_DIR} /<YYYY>/<MM>/billing-<YYYY.MM.DD>`

where `BILLING_DIR` = `/opt/d-cache/billing` OR `/var/lib/dcachelib/billing` [FHS]

- entries such as:

05.31 22:35:16 [pool:<pool-name>;transfer] [000100000000000000001320,24675] myStore:STRING@osm 24675 474

`true {GFtp-1.0 <client-host-fqn> 37592} {0:""}`

- track information concerning pool and door activity (reads/writes, number of transactions, connection time, etc.) -- **FULL EXPLANATION IN *billing.properties* file** (see slides on **Configuration**);
- summary displayed on static web page under Action Log link:

dCache Billing

Total Request Overview

Action	Total Request Count	Request Failed
store:pool	766	766

Pool Statistics

Pool	Mover Transfers	Restores from HSM	Stores to HSM	Total Errors
pool2	0	0	0	446
Total	0	0	0	446



Accounting/Billing Plots

For *dCache* 2.1+, selected accounting data can also be displayed in graphic form as histogram plots:

- Up to 2.2, these are linked off of the same main static web page (usually running on port 2288) under the **Statistics** rubric as History [*“Daily, Weekly, Monthly and Yearly transfer histograms”*]);
- After 2.2, these will appear as the Billing page on the *webadmin* module (usually running on port 8081).

Aggregate data for 24-hour, 7-day, 30-day and 365-day periods:

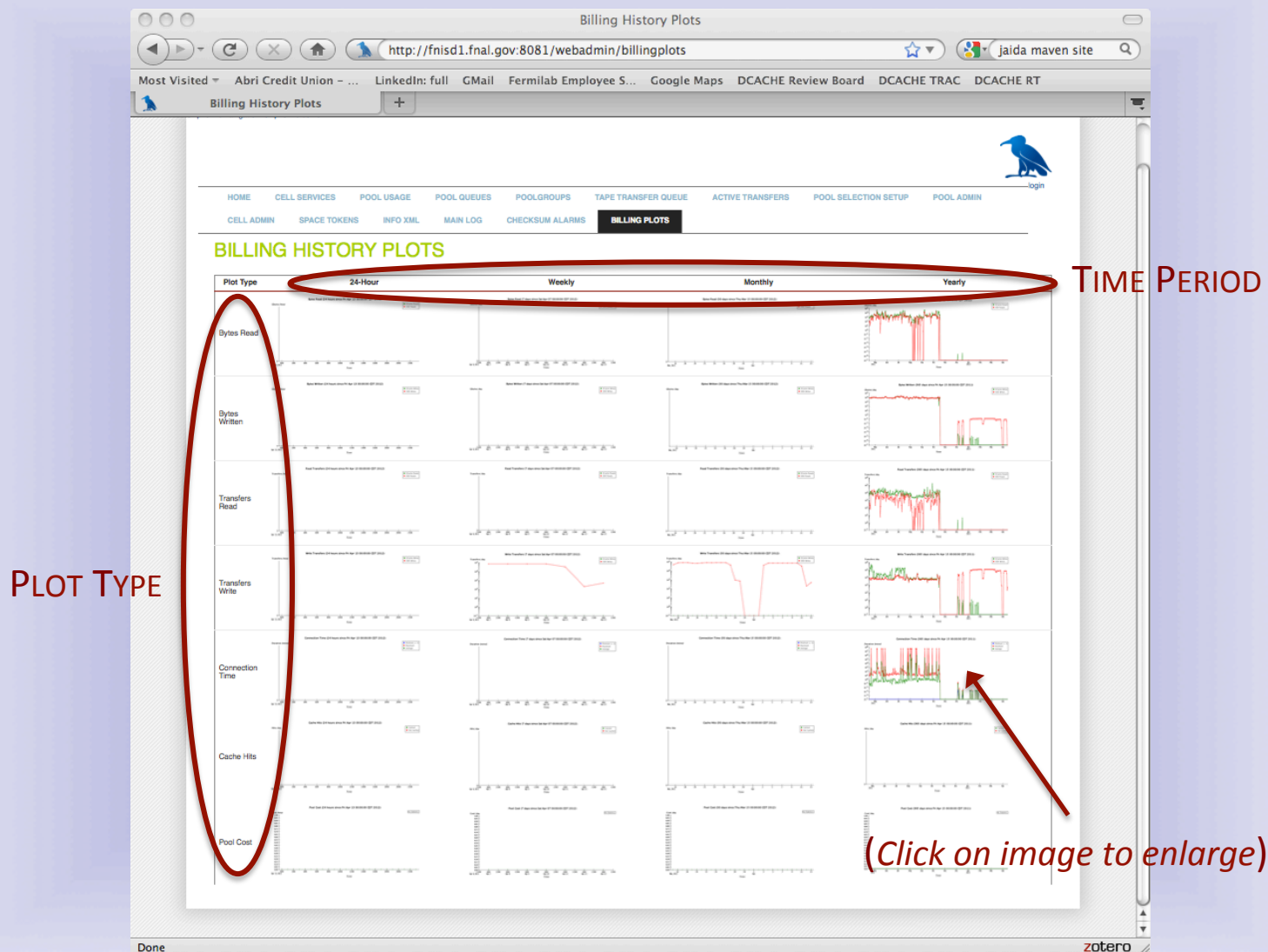
1. (Giga)bytes read and written for *dCache* and HSM backend;
2. Number of transactions/transfers for *dCache* and HSM backend;
3. Maximum, minimum and average connection time;
4. Cache hits and misses*;
5. Pool cost*.

(* = will be implemented soon)



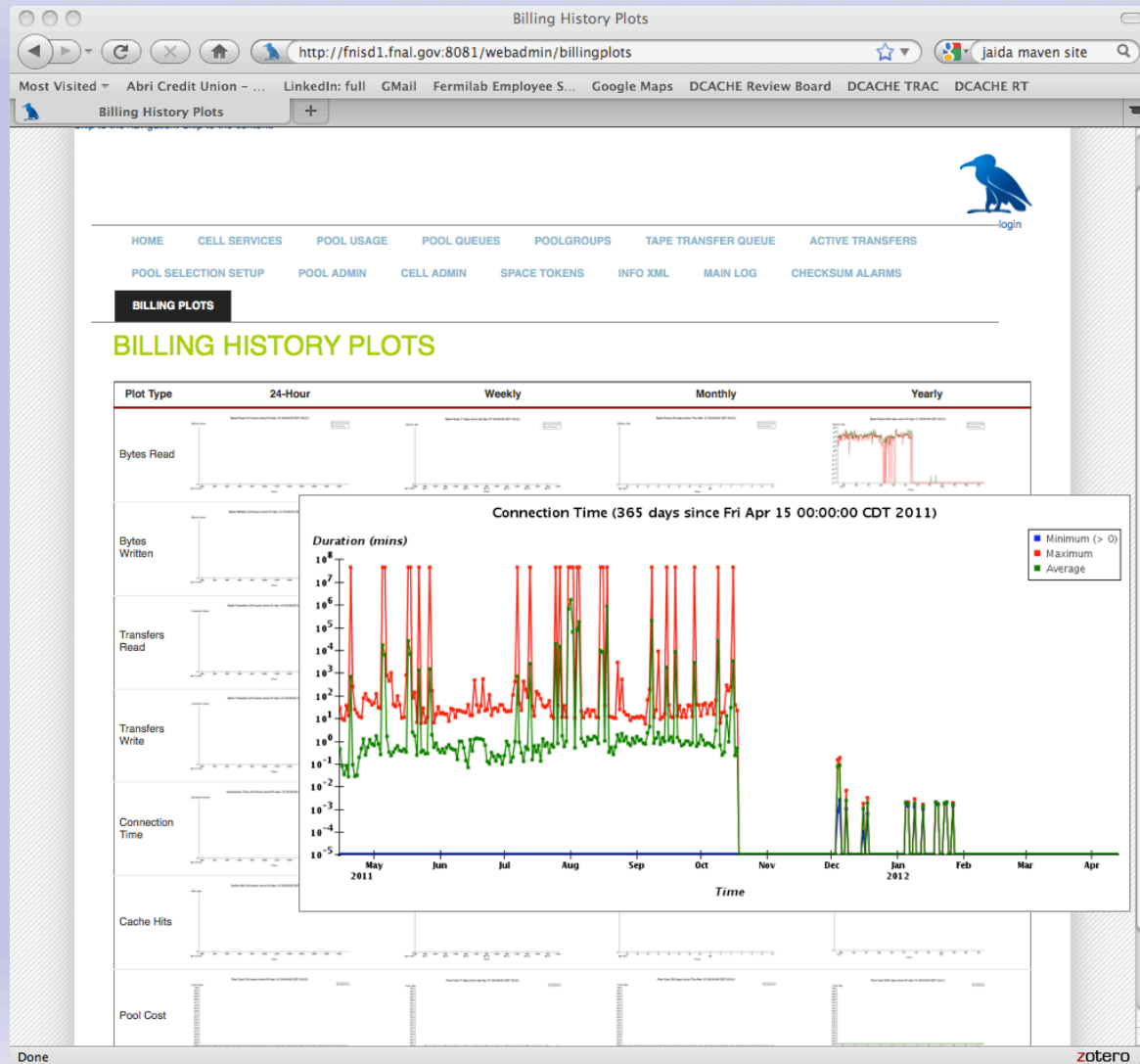
Examples

<http://fnisd1.fnal.gov:8081/webadmin/billingplots>



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Configuration (1)

Full information on settings is available in the properties file:

`${dcache.home}/skel/share/defaults/billing.properties`

Text logging can be turned on/off; log directory relocated, etc.

(the admin interface for the billing cell also offers a few more controls like turning monitoring messages on/off, dumping pool statistics, etc.)

Plots require the presence of an RDBMS:

- Manual install and creation of “billing” database;
- Automated creation of all the necessary tables, indices and triggers (via *Liquibase*);
- Two SQL scripts are provided to aid in data migration from previous installations (at FNAL; not sure relevant elsewhere); see

`${dcache.home}/skel/share/migration`



Configuration (2)

Out-of-the-box requires you to define very few properties (as usual, in your layout file):

- the only one you must change

billingToDb **yes** -- defaults to **no**

- you may also need to alter these depending on your setup

billingDbDriver defaults to **org.postgresql.Driver**

billingDbHost defaults to **localhost**

billingDbUser defaults to **srmdcache**

billingDbPass defaults to **srmdcache**

billingDbUrl defaults to **jdbc:postgresql://\${billingDbHost}/\${billingDbName}**

All other settings will very rarely need to be changed.



Configuration (3)

Run billing cell on same host as the web domain, whether in httpd, webadmin (or other...) domain.

...

[httpdDomain]

billingToDb=yes

billingDbHost=dmsen01

billingDbUser=enstore

billingDbPass=

[httpdDomain/billing]

[httpdDomain/srm-loginbroker]

[httpdDomain/httpd]

...

...

[webadminDomain]

billingToDb=yes

billingDbHost=dmsen01

billingDbUser=enstore

billingDbPass=

[webadminDomain/billing]

[webadminDomain/webadmin]

...

BILLING PROPERTIES



Advanced Configuration

Implementation of plotting relies on:

- DataNucleus (see <http://www.datanucleus.org>)
- JAIDA (see <http://java.freehep.org/jaida>)

Customization would involve providing special properties files for these two layers to override internal settings:

- *billingInfoAccessPropertiesFile*
- *billingPlotPropertiesFile*

Anyone interested in this should send me an email: arossi@fnal.gov



Support

What other kinds of histograms/aggregate data would be useful to display?

Send feedback, suggestions, or questions to:

team@dcache.org

and/or

arossi@fnal.gov

