dCache, and its information system

by Owen Synge

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dCache is supported and funded by
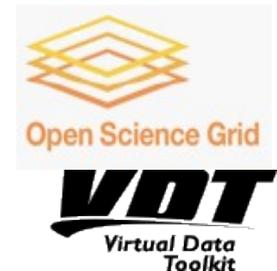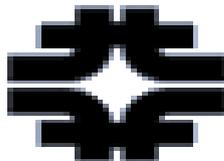
- Service discovery

  – *Give me all servers providing storage known to the Grid.*

- Static/Infrequently updated information.

  – *Optimized for reading*

- Minimal Dynamic Content

  – *As this system is optimized for reading can take minutes for information to be distributed*

*The **G**rid **I**ndex **I**nformation **S**ervice (**GIIS**)*

Grid Level

Top Level GIIS

Site Level

Site GIIS

Service Level

Service's LDAP info
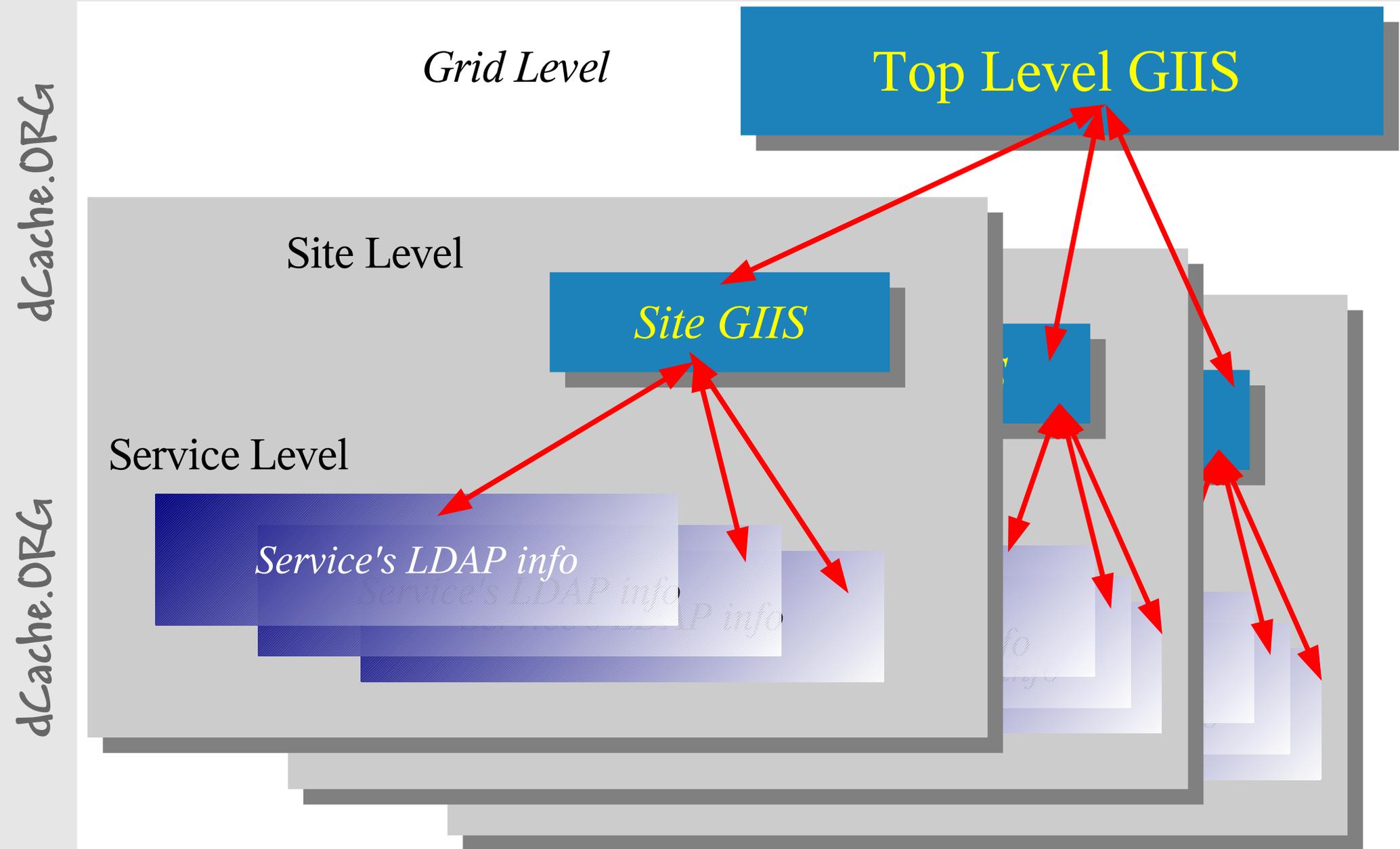
dCache is just another service!

- dCache "Static" Content
  - Type of Service. (Storage Element)
  - Protocols supported (SRM,GSIFTP,DCAP,XROOTD)
  - End points of protocols (URI FORMAT)
  - Versions of protocols (Version Number)
- dCache Dynamic Content
  - Size of Pools
  - Amount of Data Used

Plugin and Provider mode

by courtesy of Nicolò Fioretti

dCache.ORG

dCache.ORG

StorageElement

UniqueID

InfoServiceURL

SizeTotal

SizeFree

Architecture

Policy

Quota

MinFileSize

MaxFileSize

MaxData

MaxNumFiles

MaxPinDuration

State

UsedSpace

AvailableSpace

AccessControBase

Rule

StorageArea

LocalID

Path

Type

Plugin Mode

taken from static LDIF file

Provider Mode

automatically added

ControlProtocol

LocalID

Endpoint

Type

Version

Capability

AccessProtocol

LocalID

Endpoint

Type

Version

Capability

The various dCache information providers

by courtesy of Nicolò Fioretti

dCache.ORG

dCache Storage Element

dynamic information

Glue schema 2.1 including Space Information per VO

static information

DOC

Information Collector Core

clarens

Info Provider

Generic **I**nfo **P**rovider

?

Gadget **IN**

Grid **R**esource Information **S**ervice

OSG info system

R-GMA

MDS
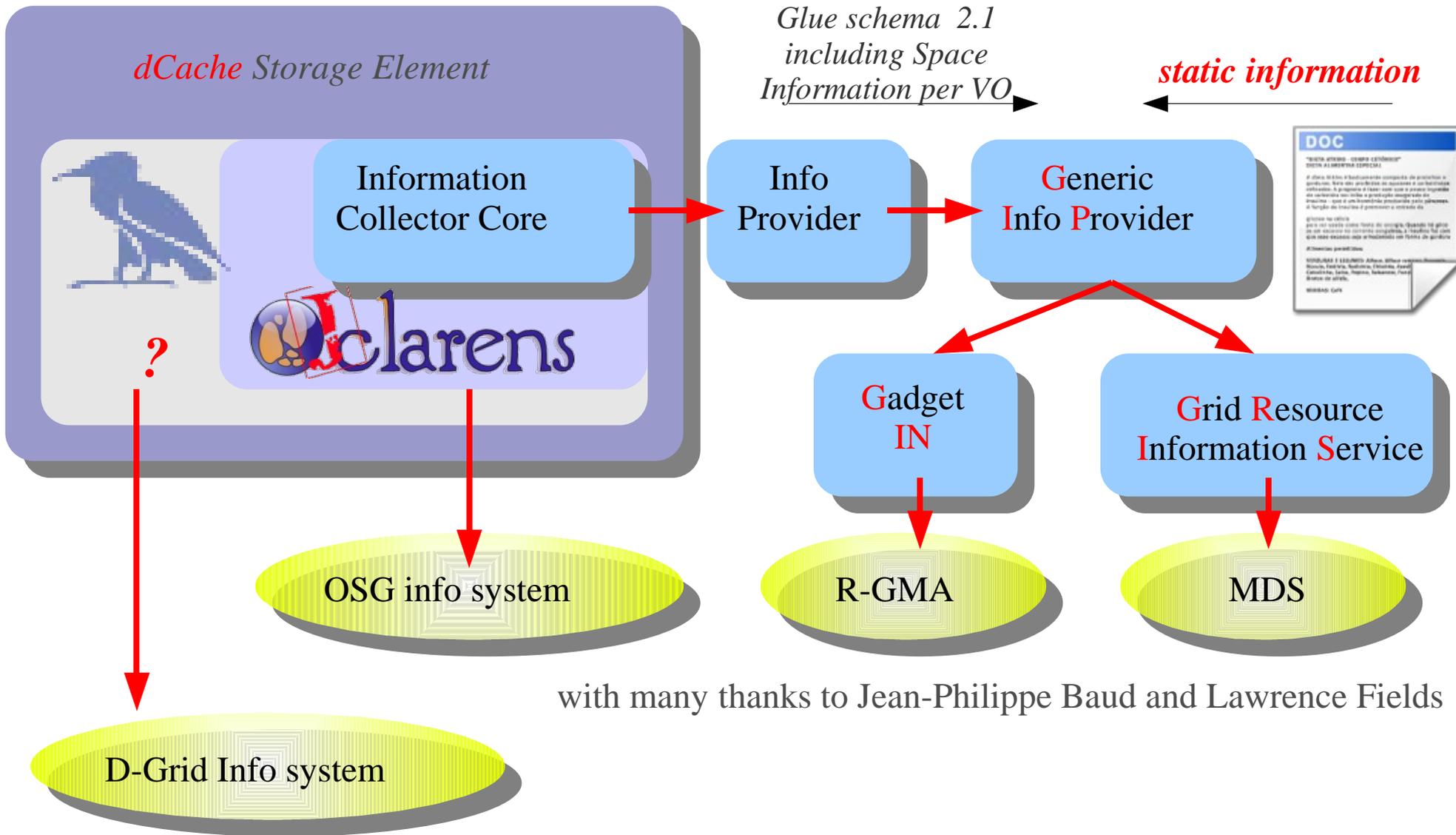
with many thanks to Jean-Philippe Baud and Lawrence Fields

D-Grid Info system

dCache.ORG

Why is this important enough to have a talk on!

- Because LDAP is a little confusing.
  - LDIF files and query format
- Many setups as GIPS configurable.
  - Lots of ways to do it, lots of solutions.
- It keeps getting support requests.
- GIP and dCache implementation of Dynamic Info Provider.
  - Requires you to setup dCache for it!
  - Does not give any or valid output unless setup the correct way!

How to get the information out of this system for debugging.

To get information from the GIIS

```
ldapsearch -x -H ldap://waterford:2170 -b o=grid
```

To get information from D-Cache

```
ldapsearch -x -H ldap://cork:2135 -b mds-vo-name=local,o=grid
```

Using GIP

- GIP takes a config file as template and outputs an LDAP file while calling a script from its own plugin directory.

- This then is used to create an ldif file that is then used to provide information into the information provider.

- Than restart globus-mds

- That's it for GIP.

  - Apart from the size to schemers you need to work with.

dCache GIP plugin

- Short bash script launching a Java module

- Connects to servers infoProviderDomain

- Gives GIP the dynamic content.

  - Depending on set up of dCache outputs one or more LDAP objects detailing

    - GlueSESizeTotal

    - GlueSESizeFree

  - It outputs to stdout, and if incorrectly run will just state there is no space available and non used.

- Uses the pool manager to configure

Setting Up GIP for dCache

- ## *Do some GIP magic for a standard service*

  ```
  /opt/lcg/sbin/lcg-info-static-create \
   -c /opt/lcg/var/gip/lcg-info-static-dse.conf \
   -t /opt/lcg/etc/GlueService.template \
   > /opt/lcg/var/gip/ldif/static-file-dSE.ldif
  ```

- ## *Do some GIP magic for a standard SE*

  ```
  /opt/lcg/sbin/lcg-info-static-create \
   -c /opt/lcg/share/doc/lcg-info-templates/lcg-info-static-se.conf \
   -t /opt/lcg/etc/GlueSE.template \
   > /opt/lcg/var/gip/ldif/lcg-info-static-se.ldif
  ```

- ## *Add the plugin to GIP*

  ```
  ln -s /opt/d-cache/jobs/infoDynamicSE-plugin-dcache \
   > /opt/d-cache/jobs/infoDynamicSE-plugin-dcache
  ```

dCache.ORG

dCache.ORG

- Before we start
  - Use PoolManager with the admin interface
  - The PoolManger.conf is more like a database
    - All comments are lost when saving the database from admin interface and white space, also the order of commands may change.
  - The admin interface is interactive
    - So if you make a slight mistake you can check it worked
  - The developers use the admin interface

- Log in to admin and change (cd) to the PoolManager service

- Make a pool group for each VO

  - `psu create pgroup $VO`

- Remove pool from default pool group

  - `psu removefrom pgroup default $POOL`

- Add pools to pool group

  - `psu addto pgroup $VO $POOL`

- Check it worked with

  - `psu ls pgroup -l`