ARCS Data Fabric

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ARCS Data Services
Outline

• Introduction to the ARCS Data Fabric
• Migration from SRB to iRODS
• Davis
• Hermes
Why SRB?

- In June 2008, iRODS lacked:
  - Full GSI Authentication
  - Federation
- Now migrating to iRODS 2.0:
  - Supports both GSI and federation
  - Open-sourced
  - Microservices and Rules Engine
Migration

• Modified migration script handles:
  - Users
  - SRB Objects and Collections
  - Metadata
  - Groups

• Does not migrate
  - Permissions
  - User DNs
Migration

- Moving other processes from SRB to iRODS
  - Automatic account creation
  - Usage statistics
  - User sync
**Automatic Account (SRB)**

User attempts to login with a valid certificate

MCAT checks MCAT for user with the same DN

If no account matches, calls external scripts to generate account

User attempts to login with a valid certificate

srb.tpac.org.au (patched SRB server)
Automatic Accounts (iRODS)

1. Client connects using a certificate
2. Fires the rule if the DN is unknown
3. Executes external script (CreateUser)
4. CreateUser generates a new account
5. The server retrieves new username from script output (or query ICAT by DN) and logs in
1. Connects to SLCS server to select IdP

2. Forwards user to institution's Shibboleth login page

3. User enters IdP username and password

4. Forwards result back to SLCS server

5. (If valid) Creates a certificate and sends it back to the user
Usage Scripts (SRB)

Each zone runs a script daily that will query MCAT for usage info.

Uploads usage XML file to a central location in SRB.

Use Scommands to collect users and resource info, then ingest XML data into DB.

Central collection zone
srb.hpsc.uq.edu.au

MySQL DB

status.arcs.org.au

srb.tpac.org.au

srb.sapac.edu.au
Usage Scripts (iRODS)

Each zone runs a script daily that will query ICAT for usage info.

- srb.tpac.org.au
- srb.sapac.edu.au
- srb.hpsc.uq.edu.au

Central collection zone

srb.hpsc.uq.edu.au

Uploads usage XML file to a central location in SRB

Ingests XML data into DB

MySQL DB

status.arcs.org.au

srb.tpac.org.au

srb.sapac.edu.au

srb.hpsc.uq.edu.au
Migration – Zone sync

• We only sync users
• SRB
  - Szonesync: executed hourly
  - Federation can lag for up to an hour
• iRODS
  - Executing rules *immediately* when a user is added
- WebDAV
- Supports SRB and iRODS
- Browser and client mode
- Supports Shibboleth
- Multi-threaded and resumable downloads
- Simplifies access
Davis Architecture

SRB/iRODS

Jargon API

Browser Mode Handler

WebDAV Handler

Authentication Processor

SLCS Server

Web Browser

WebDAV Client

IdP
## Permissions

<table>
<thead>
<tr>
<th>Username</th>
<th>Domain</th>
<th>Permission</th>
</tr>
</thead>
<tbody>
<tr>
<td>paulinemak</td>
<td>srb.vpac.org</td>
<td>all</td>
</tr>
<tr>
<td>shunde</td>
<td>ngspare.sapac.edu.au</td>
<td>read</td>
</tr>
</tbody>
</table>

### Domain
- srbdev.vpac.org
- deborahgardiner
- freddoe
- graham
- grahamjenkins
- inca
- josephantony
- paulinemak
- srbAdmin
- sridhar
- vladimirmencl

```text
https://srb.vpac.org/~
paulinemak@srb.vpac.org
```

Last modified on Wed, 28 Jan 2009 10:26:25 GMT.
Davis - Metadata

/srb.vpac.org/home/paulinemak.srb.vpac.org
srbr://paulinemak.srb.vpac.org@gmail.com:5544/srb.vpac.org/home/paulinemak.srb.vpac.org

Last modified on Wed, 28 Jan 2009 10:20:31

Parent

Total 1,706,664 bytes (1,667 KB).
4 objects (0 directories, 4 files):

- .iRODS_Workshop.ppt 4 KB
- .MARCS.tif 4 KB
- iRODS_Workshop.ppt 1,059 KB
- MARCS.tif 600 KB

Metadata

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last modified date</td>
<td>28/1/2009</td>
</tr>
<tr>
<td>Workshop Location</td>
<td>ARCS Data Fabric</td>
</tr>
</tbody>
</table>

Done
Hermes/commons-vfs-grid

- Originally from JCU (ARCHER project) – Mathew Wyatt
- Commons-vfs
  - local, SFTP, WebDAV
- Commons-vfs-grid:
  - grid-related protocols
  - GridFTP contributed by David Meredith
Hermes Architecture

- Local proxy
- SLCS + Shib
- MyProxy
- GSIPProxyManager
- GSI Based Credentials
- S/FTP
- SRBiRODS
- GridFTP
- Jargen
- Globus
- commons-vfs(-grid)
- Account
- FileObject
- Connectors

- Protocol specific libraries

Pauline Mak
Hermes – Browser
Hermes – metadata search
Questions?
Links