OGSA-DAI Technology Update
GridWorld Community Activity
GGF15, Boston, MA (USA)
Outline

• Client Toolkit
The DataBrowser is back!
Build with the OGSA-DAI client toolkit
Fully supported in release 7
Performs simple database requests and displays the results
  - SQL queries and updates
  - XPath queries
Client Toolkit

• Client Toolkit was released in WS-RF (GT4), WS-I (OMII) and OGSI (GT3) flavours with release 6 (May 2005)
• Common abstraction level for all flavours
  – R6: Clients must know which version the service supports
  – R7 (October 2005): service version is hidden from the user
• The OGSI (GT3) version will be deprecated in release 7 (end of October 2005)
• This talk will focus on the new features of the upcoming release
Interaction with a Data Service

• Client sends a request to a data service
• A request contains a set of activities
Interaction with a Data Service

- The Data service processes the request
- Returns a response document with a result for each activity
Client Toolkit

Generic ServiceFetcher

Client

getDataService(URL, resourceId)

perform(document)

DataService
Data Service Operations

• Data Service
  - getProperties(QName)
  - getResources()
  - ...

• Data Service with Resource
  - perform(Request)
  - perform(RequestComponent)
  - openSession()
  - closeSession()
  - putBlock(data)
  - getBlock()
  - getProperty(QName)
Activities and Requests

• A request contains a set of activities
• Activities can be performed in sequence or in parallel
• An activity dictates an action to be performed
  – Query a data resource
  – Transform data
  – Deliver results
• Data can flow between activities
Sessions

- Activities are collected into requests
- Requests can be processed within a session

![Diagram showing sessions and activities]
Client-Side Activities

- Client-side activities are independent of the service version
- Properties are represented in the same way
  - Although published properties may differ between data services
- Can use the same client for both service versions
Delivering data to another GDS

- The DataTransport port type allows to transfer data from one data service to another.
- Supported by any combination of WSI and WSRF services
Data Integration Scenario

MySQL database \(\leftrightarrow\) DS2 (GT4) \(\rightarrow\) deliver \(\rightarrow\) DS3 (Axis) \(\leftarrow\) Oracle database

DB2 database \(\leftrightarrow\) DS1 (OMII) \(\rightarrow\) select + deliverToGDT \(\rightarrow\)(inputStream from DS1, DS2 join tables)

Client

MySQL database

Oracle database
• Get a service object from the ServiceFetcher:

```java
DataService service1 =
    GenericServiceFetcher.getInstance().
    getDataService("http://...", "id1");
```
Select + Deliver

• Construct a new request:

```java
ActivityRequest request =
    new ActivityRequest();
```

• Set up the SQL query and delivery instructions:

```java
SQLQuery query = new SQLQuery(
    "select * from table where ...");
WebRowSet rowset = new WebRowSet(
    query.getOutput);
DeliverToDT deliver = new DeliverToDT(
    "http://host/services/DataService");
```
Select + Deliver

- Connect input and outputs:
  ```java
  deliver.setInput(rowset.getOutput());
  ```

- Register activities with the request:
  ```java
  request.add(query);
  request.add(rowset);
  request.add(deliver);
  ```

- Perform the request:
  ```java
  service1.perform(request);
  ```
Data Integration Scenario

MySQL database ↔ DS2 ↔ DS1 ↔ Oracle database

DB2 database ↔ DS1

select + deliverToGDT

Client

select + deliverToGDT

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Input Stream and Bulk Load

• Set up the input stream that listens for incoming data and bulk load the data into the database

```java
InputStream input = new InputStream("inp1");

SQLBulkLoad bulkload =
    new SQLBulkLoad("table");
bulkload.setInput(input.getOutputStream());

request.add(input);
request.add(bulkload);

service3.perform(request);
```
Data Integration Scenario

MySQL database ↔ DS2 ↔ Oracle database

DB2 database ↔ DS1

(inputStream from DS1, DS2) → DS3

Client
Summary

• The Client Toolkit provides easy access to OGSA-DAI data services
• Provides a common abstraction level for the supported service interfaces (WSI and WSRF)
• Hides service interaction and XML from users
Further information

• The OGSA-DAI Project Site:
  – http://www.ogsadai.org.uk

• The DAIS-WG site:

• OGSA-DAI Users Mailing list
  – users@ogsadai.org.uk
  – General discussion on grid DAI matters

• Formal support for OGSA-DAI releases
  – http://www.ogsadai.org.uk/support
  – support@ogsadai.org.uk

• OGSA-DAI training courses
Next Release

• The next release will be published at the end of October 2005
• Announced on mailing lists and the project web site
• Watch this space!
The End

• Thanks for attending
• Questions?
OGSA DAI Plans for 2005

• Transition to new platforms and standards
  – WS-RF (GT4), WS-I+ (OMII)
  – Alignment with published DAIS specifications
  – Deprecation of OGSI version

• Data Integration
  – Implement simple patterns (e.g. AND, OR, PREFERRED, PARTIAL) within service code
  – Tighter integration of relational, XML and other resources
  – Better performance for inter-service data transfer

• Releases, support and community
  – Next release planned for September
  – Seek contributions in various areas of new architecture
  – Moving forward to new versions of OGSA-DAI