OGSA-DAI Tomorrow – Resources and Persistence

GridWorld 2006, Washington DC
11 September 2006
What’s next?

- Releases are now when functionality is available
  - No longer every 6 months
- OGSA-DAI WSI 3.0 and OGSA-DAI WSRF 3.0
- March 2007

http://www.ogsadai.org.uk/
Multi-resource requests

- **Client**
  - Data Request Execution Service
  - MyDRER
    - Data Request Execution Resource
      - One
        - Data Resource
      - Two
        - Data Resource
      - Three
        - Data Resource

- **Perform Document**
  - myQuery(One)
  - myQuery(Two)
  - myIntegrateData
  - deliverGridFTP

- **Legend**
  - Client-server interaction
  - Service-resource association
  - Resource-resource association
  - Resource-database association

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An expanded resource model
Data transport

Perform Document (2.2)
inputStream(MySink)
myQuery()
outputStream(MySource)

Perform Document (3.0)
createDataSink(MySink)
myQuery(MyDR)
createDataSource(MySource)

Client

DataStream
Service

Data Request
Execution Service

Data Request
Execution Resource

MyDRER

MyDR

Data Resource

DataSink
Service

DataSource
Service

Data

http://www.ogsadai.org.uk/
Data transport

Perform Document (2.2)
- inputStream(MySink)
- myQuery()
- outputStream(MySource)

Perform Document (3.0)
- createDataSink(MySink)
- myQuery(MyDR)
- createDataSource(MySource)

Client

Data Request Execution Service

MyDRER

MyRequest

Request

Data Resource

Data

MyDR

MySource

DataSource Service

DataSource Service

MySink

DataSink Service

Data Request Execution Resource

Create Document (3.0)

createDataSink(MySink)

myQuery(MyDR)

createDataSource(MySource)

Perform Document (2.2)

inputStream(MySink)

myQuery()

outputStream(MySource)

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Data transport

Perform Document (2.2)
inputStream(MySink)
myQuery()
outputStream(MySource)

Perform Document (3.0)
createDataSink(MySink)
myQuery(MyDR)
createDataSource(MySource)

Client
Data Request Execution Service

DataSink Service

Data Request Execution Resource

MyDRER

MyDR
Data Resource

MyRequest
Request

MySink
DataSink

MySource
DataSource

DataSource Service

Data
Data transport

Perform Document (2.2)
inputStream(MySink)
myQuery()
outputStream(MySource)

Perform Document (3.0)
createDataSink(MySink)
myQuery(MyDR)
createDataSource(MySource)

Client -> Data Request Execution Service

Data Request Execution Resource

MyDRER

Client -> DataSink Service

DataSink Service

Client -> DataSource Service

DataSource Service

MyRequest

Data Resource

MySink

MySource

DataSink

DataSource

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Persistence

- **Caching**
  - Reduce overheads of OGSA-DAI-database communications
- **Allows configuration and state to persist between container shutdowns/crashes**
- **Sticky resources**
  - e.g. data sources and sinks
  - In-memory – only available via server that created them
- **API**
  - File-based implementation for backwards compatibility
  - Relational implementation for compatibility with common OGSA-DAI databases
  - Extensibility point
Scalability and robustness

OGSA-DAI cluster

Client

Front-end Router

OGSA-DAI State

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Scalability and robustness

- Release 3 will afford future provision of clustering and load balancing
- Clustered OGSA-DAI servers
  - Different JVM
  - Different machine
- Load balancer
  - Simple e.g. round robin
  - Complex e.g. decide on basis of current load of each server
- Scalable
  - Increases number of requests that OGSA-DAI can handle concurrently
- Robust
  - Seamless operation in the face of errors e.g. server failures
- Sticky sessions and resources
  - Session and resource state may be non-serializable or be lightweight in-memory components
  - Need to dispatch resources to their “owner” JVM
Other planned features

- Support for registries
  - Guidelines on how to best use standard registries (e.g. GRIMOIRES or GT4 ServiceGroups) and tools to help you do so within OGSA-DAI

- Improved support for message-level and transport-level security including delegation

- Concurrent or closely-following releases of
  - A new implementation of DAIS
    - OGSA-DAIR and OGSA-DAIX
  - A refactored OGSA-DQP with a Java-compliant query compiler and which runs under Linux, Solaris or Windows
Further information

- **The OGSA-DAI project site**
  - [http://www.ogsadai.org.uk](http://www.ogsadai.org.uk)

- **The DAIS-WG site**

- **OGSA-DAI users mailing list**
  - users@ogsadai.org.uk
  - General discussion on OGSA-DAI, data and the grid

- **Formal support for OGSA-DAI releases**
  - [http://www.ogsadai.org.uk/support](http://www.ogsadai.org.uk/support)
  - support@ogsadai.org.uk

- **OGSA-DAI training courses**