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• GT3/OGSA-DAI Evaluation
• OGSA-DAI Application
OGSA-DAI Support

- Time: From 10/06/2003 to 04/07/2003
- Software Based: GT3 Alpha3 and Beta, OGSA-DAI v2 and v2.5
- Where the Query Submissions Come From:

- Queries Covered
• What is OGSA-DAI
  OGSA Data Access and Integration
  Within the OGSA Framework
  GT3 Base Service

• Three Key New Services:
  GridDataService
  GridDataServiceFactory
  DAIServiceGroupRegistry

• Databases Supported:
  Xindice, MySql, Oracle and DB2

• Languages Supported:
  SQL92, Xpath, Xupdate
GT3/OGSA-DAI Evaluation

1a. Request to Registry for sources of data about “x”

1b. Registry responds with Factory handle

2a. Request to Factory for access to database

2b. Factory creates GridDataService to manage access

2c. Factory returns handle of GDS to client

3a. Client queries GDS with SQL, XPath, XQuery etc

3b. GDS interacts with database

3c. Results of query returned to client as XML

3d. Results of query delivered to 3rd party consumer e.g. via GridFTP

Analyst

Registry DAISGR

Factory GDSF

Grid Data Service GDS

Database (Xindice MySQL Oracle DB2)

Consumer

SOAP, HTTP

service creation

API interactions

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CCLRC e-Science Centre
OGSA-DAI ( v 3.0.2 ) Performance Test Suite

• Setup 1

Each OGSA-DAI test client executes the following steps:

Step 1: Calls DAIServiceGroupRegistry to find GridDataServiceFactory

Step 2: Calls GridDataServiceFactory to create instance of GridDataService

Step 3: Calls instance of GridDataService to search Xindice DB. A 2KB size XML data will be got.

Step 4: Calls instance of GridDataService to destroy itself.

With and without authentication via GSI message level security

OGSA-DAI service hardware: one Intel Pentium III 450MHz processor, 384MB RAM ------ esc4.dl.ac.uk

OGSA-DAI test client hardware: one Intel Pentium III 450MHz processor, 384MB RAM ------ esc5.dl.ac.uk

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OGSA-DAI ( v 3.0.2 ) Performance Test Suite ( cont. )

• Setup2
  Same with Setup1, but Step2 consists of 200 cycles, each of them calling GridDataServiceFactory to create new instance of GridDataService

• Setup3
  Same with Setup1, but Step3 consists of 200 cycles, each of them searching Xindice DB to get a 2KB size XML data

• Setup4
  200 clients talking to OGSA-DAI service were run serially on one node.
## General Results of the Performance Test

<table>
<thead>
<tr>
<th>Setup</th>
<th>Authentication</th>
<th>Service Container</th>
<th>Average Running Time</th>
<th>Average CPU u+s usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No</td>
<td>Tomcat 4.1.24</td>
<td>25302 ms/service</td>
<td>99.9%</td>
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<tr>
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<td>33362 ms/service</td>
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<td>1322 ms/service</td>
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<td>Yes</td>
<td>Tomcat 4.1.24</td>
<td>3487 ms/service</td>
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<td>973 ms/service 99.9%</td>
<td>99.9%</td>
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<td>Tomcat 4.1.24</td>
<td>1671 ms/service</td>
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</table>
Test Results of the Client

OGSA-DAI (v3.0.2) Integrated Test Result

Test results of Setup1 to Setup3

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Test Results of the Client (cont.)

Series 1: one GDSF creates one instance of GDS. 200 cycles of calling GDSF, without security

Series 2: same with Series 1, but refer to GDSF

Series 3: same with Series 1, but with security

Series 4: same with Series 2, but with security

Series 5: one GDSF creates one instance of GDS. 200 cycles of same instance of GDS, without security

Series 6: same with Series 5, but with security
GT3/OGSA-DAI Evaluation

Test Results of the Client (cont.)

OGSA-DAI (v3.0.2) Integrated Test Result

- **Series 1**: Time to get GDSF URL from Registry, without security
- **Series 2**: Time to get GDSFPortType, without security
- **Series 3**: Time to create instance of GDS, without security
- **Series 4**: Time to query Xindice DB via instance of GDS, without security
- **Series 5**: Time to destroy instance of GDS, without security
- **Series 6**: Time to get GDSF URL from Registry, with security
- **Series 7**: Time to get GDSFPortType, with security
- **Series 8**: Time to create instance of GDS, with security
- **Series 9**: Time to query Xindice DB via instance of GDS, with security
- **Series 10**: Time to destroy instance of GDS, with security

Test results of Setup4

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JetSpeed

- Portal Framework
- Portlets Abstraction
- Java Based
- Open Source (Apache)
- Built Upon the Servlet API, Turbine, Torque and Velocity
OGSA-DAI Application

Portal Architecture
OGSA-DAI Application
Welcome to CCLRC IeSE ---- Programming the Grid

CCLRC IeSE Portal - Version 10
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Support and Additional Information

Xiao Dong Wang
CCLRC e-Science Centre
Welcome to CCLRC IeSE - Programming the Grid

<table>
<thead>
<tr>
<th>Resource</th>
<th>HeadNode</th>
<th>WorkerNode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue02</td>
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HPCx resource information

<table>
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<th>Resource</th>
<th>HPCx UK National Supercomputing Facility</th>
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</tr>
<tr>
<td>Contact</td>
<td>Mike Brown</td>
</tr>
<tr>
<td>Person</td>
<td><a href="mailto:m_brown@epcc.ac.uk">m_brown@epcc.ac.uk</a></td>
</tr>
<tr>
<td>WebSite</td>
<td><a href="http://hpcx.ac.uk">http://hpcx.ac.uk</a></td>
</tr>
</tbody>
</table>

The HPCx system consists of 40 IBM pSeries 690 Regatta nodes, each containing 32 POWER4 processors, a total of 1280 processors. It is located at the UK’s CLRC Daresbury Laboratory and operated by the HPCx Consortium.

The early user machine consists of 2 IBM pSeries 690 Regatta nodes, each containing 32 POWER4 processors.

The HPCx system has a total of 1280 processors available for large-scale...