

1 Presentation of the Use Case

1.1 Use Case Name

Express Resource Requirements of Data Processing Jobs

1.2 Version

Use case taking into account lessons about JDL, JSDL and GLUE gathered by OGF GIN – V2.0

1.3 Goal

The goal is *GLUE compliant RRL* : For Users wishing to submit data processing Jobs, JSDL (Job Submission Description Language) must contain an RRL (Resource Requirements Language) permitting to express Resource Requirements with syntax and semantics in compliance with GLUE 2.0. Since the Execution Service managing the jobs receives the description of all resources in compliance with GLUE 2.0, this is the only method permitting the Execution service to easily match the Resource Requirements with the resource descriptions.

1.4 Summary

Inside a Job description document, a User describes a Job using JSDL, and in particular specifies Resource Requirements expressed in compliance with GLUE 2.0. The User submits this Job description document to an Execution Service, which matches the Resource Requirements with the description of all resources published in compliance with GLUE 2.0, and sends the Job to the computing resource which 'best' matches the Resource Requirements.

2 Detailed Description of the Use Case

2.1 System

The System interacting with the User is the whole Job execution infrastructure (as small as a single core, or as large as a Service Grid). The interface is the Execution Service, providing Job execution services independently of the peculiarities of the underlying resources. So, the description of resource capabilities must be expressed in the same standardized manner by the resources themselves (that is GLUE 2.0) and by the RRL section of the Job description document.

2.2 Actors (or Stakeholders, or Participants, or Roles)

A User wishing to submit a data processing Job.

2.3 Preconditions

Execution Service regularly receives updated descriptions of all resources expressed in compliance with GLUE 2.0.

2.4 Triggers

A User wishes to submit a data processing Job.

2.5 Basic course of events

The User describes the Job inside a Job description document using JSDL, with Resource Requirements expressed in compliance with GLUE 2.0.

The User submits this Job description document to an Execution Service of a Job execution infrastructure.

The Execution Service matches the Resource Requirements with the description of all resources published in compliance with GLUE 2.0, and selects the computing resource associated to the 'best' matching score.

The Execution Service sends the Job to the computing resource selected just above.

2.6 Postconditions

Logs of the Job execution infrastructure should contain persistent records indicating which User submitted which Job when, and where this Job was executed.

Mark Morgan 4/13/11 7:12 AM

Comment [1]: This isn't true. It's a convenient method, but not the ONLY method.

Mark Morgan 4/13/11 7:13 AM

Comment [2]: This use case is about the JSDL describing things using GLUE 2.0. What the resource publish to the execution service is irrelevant in this use case.

Mark Morgan 4/13/11 7:14 AM

Comment [3]: You just said that the execution services provides job execution services independent of the peculiarities of the underlying resources, so why is the « peculiarity » of GLUE 2.0 an exception ?

Mark Morgan 4/13/11 7:15 AM

Comment [4]: Again, this use case is about JSDL, not about execution services. Why do we care that the execution services receives updates in a GLUE 2.0 format ?

Mark Morgan 4/13/11 7:15 AM

Comment [5]: Why limit yourself to a data processing job. This use case seems to me to span job types.

Mark Morgan 4/13/11 7:16 AM

Comment [6]: Again, why is this peculiarity relevant to a JSDL use case ? Whether it is true or not doesn't seem to make a difference to the use case.

Mark Morgan 4/13/11 7:17 AM

Comment [7]: This most definitely doesn't belong in a JSDL working group use case. Its an execution service peculiarity.

3 Additional Information for the Use Case

3.1 *Alternative paths or Extensions*

If the Resource Requirements specified inside the Job description document do not fully comply with GLUE 2.0, then the Execution Service has to perform syntactic and semantic translation if possible, or else reject the Job.

3.2 *Business rules*

Most Job execution infrastructures already agree to use the GLUE 2.0 standard to describe resources.

Mark Morgan 4/13/11 7:17 AM

Comment [8]: I can neither confirm, nor deny the truth of this. Does anyone else know ?

3.3 *Notes*

<http://www.ogf.org/documents/GFD.147.pdf> is the GLUE 2.0 specification.

<http://www.ogf.org/documents/GFD.136.pdf> is the current JSDL 1.0 specification.

<http://forge.gridforum.org/sf/wiki/do/viewPage/projects.pgi-wg/wiki/ReqJD3> describes OGF PGI requirement 100 corresponding to this Use Case.

<http://forge.gridforum.org/sf/go/doc16166> shows a proposal of implementation.

<http://forge.gridforum.org/sf/go/doc16171> provides matching between JSDL 1.0 RRL and GLUE 2.0.

3.4 *Author and date*

Etienne URBAH 2011-03-15