OGSA ByteIO Working Group Charter
Global Grid Forum, Data Area

1. Administrative Information

Name and Acronym:

OGSA ByteIO (ByteIO)

Chairs:

Mark Morgan, University of Virginia
Neil Chue Hong, EPCC, University of Edinburgh

Secretary(s)/Webmaster(s) (both optional):

Email list:

ByteIO-wg@ggf.org

Web page:

http://forge.ggf.org/projects/ByteIO-wg

2. Charter

Focus/Purpose

The OGSA Data design team has identified a need for an interface for reading and writing sequences of bytes from a variety of sources. No existing WG or standards body seems to address this need. The objective of the OGSA ByteIO working group is to define a minimal Web Service interface for this functionality. The interface should fit into the overall architecture, e.g. as regards naming. The working group will liaise with other GGF groups, especially the OGSA, GFS, GSM, DAIS, InfoD and SAGA working groups, and also with active projects such as OGSA-DAI, Globus, NextGrid and WSRF.Net.

The WG will produce a use case informational document, a recommendation document and an experience document. It is expected that the use cases will include reading from and writing to a binary file, reading the results of certain DAIS queries and reading data from a sensor, among other scenarios. The intention is that existing APIs, such as the POSIX API, should map easily to the Web Service interface. The use case document should explore the use cases in sufficient detail to demonstrate that the chosen design will meet the detailed environment in which it is to be used.

Issues to be resolved by the working group will include how to interface to efficient transport mechanisms, whether to store offsets on the service or the client, and which properties the interface must expose in order for the client to make sensible decisions about the functionality available.

Scope

The scope of the proposed working group is on the definition of a Web Service interface for reading and writing sequences of bytes and the use cases in which this interface will be applicable. It will only consider scenarios where the consumer initiates each operation. The interface must work within the context of an architecture based on the OGSA Basic Profile. It must be possible to map a range of client-side APIs to the ByteIO interface, including POSIX, NFS and SAGA.

The interface should include properties that affect the use of the interface for a given resource, such as whether an instance of the interface supports write operations, concurrent access,

resetting of the read position, etc. The working group should not specify properties with other information about the source, such as descriptions of the data, modification time, etc.

The interface must allow the data to be transferred using at least one efficient data movement protocol. The interface should specify some of the information to be supplied in the event of errors, for example to allow a service to restart a transfer operation partway through, if that is possible. The interface should specify the behaviour if a request is received for more data than the sender has available when the request arrives, and similar issues.

The following issues are out of scope for this working group, except as possible scenarios in which the ByteIO interface might be used. In other words, the ByteIO interface should not provide these features.

- reading and writing structured or text data
- uses of WS-Addressing that support third-party delivery
- concurrency management
- encryption & security
- data description
- specifying a reliable transfer service

Goals
This group is chartered with the creation of the "OGSA ByteIO specification" which will be a web-service interface that forms part of OGSA. This WG also encourages companies and individuals to develop at least two reference implementations.

Deliverable/Milestone 1: BOF – March 2005, Korea.
Deliverable/Milestone 2: Draft use case document and draft recommendation document, June 2005.
Deliverable/Milestone 3: Draft experience documents, September, 2005.
Deliverable/Milestone 4: Use case document and recommendation document ready for public review, October, 2005.
Deliverable/Milestone 5: Final use case and recommendation documents, Spring, 2006.

Management Issues
The working group will have teleconferences at least every other week.

Evidence of commitments to carry out WG tasks
Some interested parties have already committed to seeing this through. The University of Virginia and the University of Edinburgh have agreed to participate and to contribute interoperable implementations.

Pre-existing Document(s) (if any)
There is a draft interface available from the University of Virginia, which could form a basis for the group's discussion. The OGSA Data Design Team has a draft document that describes the overall OGSA data architecture. The DAIS WG has a draft recommendation for access to data in files that discusses ByteIO-like operations. The WG should liaise with other data-area WGs to elicit any other relevant documents.

Exit Strategy
When the recommendation document is complete and has passed through necessary public comment and editor review, the working group will be dissolved.

Any other relevant information
As the ByteIO interface is intended to be part of OGSA, the WG should have joint review discussion with the OGSA-WG and the OGSA-D-WG before every milestone.