National e-Science Centre

OGSA-DAI Platform Dependencies

Malcolm Atkinson
for OMII SC

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OGSA-DAI: Current Release Status

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- Production Release R5
  - On OGSI GT3 Implementation
    - Full set of currently available functions
- OMII Technical Preview available
  - On WS-I+ OMII platform
  - Configured for OMII 1 platform
  - Work planned to integrate fully with OMII platform
  - All of R5
    - All Relational DB operations: Query, Update, Bulk load
    - All XML DB operations: Query, Update & Bulk load
    - All File operations: Index, Query, read & write
    - All data translation operations
  - Except functions which require state retention
    - These are asynchronous and incremental data transfers
- WSRF Technical Preview
  - Alpha release on GT4 alpha
    - To give feedback into GT4 & for user preview
    - Functions as for R5 except those requiring naming / identification of state

Requirements for State

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- Third-party data delivery
  - To avoid extra handling via client
  - When data is collected at a time chosen by a consumer
- Asynchronous data delivery
  - Essential with large result sets or streams
    - E.g. deliverTo/From GridFTP
    - And consumer-pull protocols deliverTo/From Stream
  - Stream from source to consumer
- Those with small data sets
  - Well supported by the functions on WS-I+ platform
    - E.g. deliverTo/From URL, deliverTo SMTP

Customer Options

- Those with small data sets
  - Well supported by the functions on WS-I+ platform
    - E.g. deliverTo URL
- Those with expectations of larger Data Sets
  - Use OMII platform to develop applications
  - Provided we commit to stateful operations in OMII release schedule by a suitable date
- Those with large data applications Now
  - Continue on GT3 platform
  - Transfer to WS-I+ extended platform later

Surveying existing and new user communities to assess distribution of requirements. Approx. equal each option. Expect this to evolve rapidly over next 6 months

Challenge for Us

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- Upper Middleware Developers
  - Require portability of code
  - i.e. same code functions on all infrastructures
- Requires
  - Models that work on all infrastructures
  - Consistent semantics from all infrastructures
  - Preferably consistent protocols and APIs
- Must deliver
  - Consistent semantics to our customers (application developers)
    - Then captured in standards
  - Consistent APIs (Enshrined in Standards & CTKs)

Technical Strategy: Requirements

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- Mechanism for creating and managing state
  - c.f. WS-Resource – only selected portions!
  - WS-Resource Life Time
    - 4th version of standard proposal draft at OASIS
    - Proposal imminent
    - Multiple implementations
- Mechanisms for Addressing state
  - WS-Addressing
    - Proposed standard at W3C
    - Well supported & wide set of implementations
    - Expected in OMII Releases summer 2005
- Mechanisms for naming / identifying state
  - Developing in OGSA-DAI, DAIS & OGSA data

Technical Strategy: Proposals

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- Mechanism for creating and managing state
  - Adopt what we need of WS-Resource Life Time
  - Import implementations (WSRF:Lite and GT4 Apache)
    - Choose minimal subset we can safely use now
- Mechanisms for Addressing state
  - Adopt WS-Addressing
    - Commit firmly to OMII Releases June 2005
    - Choose our use pattern
- Mechanisms for naming / identifying state
  - Continue our pioneering
  - Establish UK standard in conjunction with Grimoires
  - Push to standards: DAIS, GFS, OGSA-naming @ GGF
- Mechanisms for Notification
  - Use WS-BasicNotification
- Develop data transport abstractions
  - Clients / Application Developers should not be directing detail
  - Upper M/W needs flexibility from higher-level requests
    - Pioneer and develop standards at GGF

By June 05?

By June 05?

By Sept 05?

By Sept 05?

By March 06?

Security is a cross-cutting issue with multiple technologies. How do we support and interact with security mechanisms?

Conclusions

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- There are differences between OGSA-DAI on the 3 Infrastructures
- This is undesirable
  - Consequence of different infrastructure semantics
  - Not very serious for most users
  - Should be addressed by Summer 2005
- Infrastructure variation has a high cost for Upper M/W developers
  - And application developers
- Urgently need more comprehensive and fewer standards
  - Integration of standards in profiles is a coping mechanism
- Urgently need infrastructure providers working to develop a single common infrastructure