

Astrophysics Working Group

VOSpace

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VOSpace

- Integrates
 - SRM style support for transport-agnostic access
 - SRB style support for a metadata catalog that supports queries and file listing
- Implementation
 - WSDL interface to SRB data grid

VOSpace design

- Provide simple interface for accessing a collection
 - Get file
 - Put file
 - List files
- Intent is to be transport agnostic

VOSpace Experiment

VOSpace server set up

VOSpace client set up

VOSpace commands

vospaceclient

getprotocols

<http://localhost:9090/VOSpaceServiceImpl>

vospaceclient

listnodes

<http://localhost:9090/VOSpaceServiceImpl>

min

Extensions to VOspace

- Need resource concept and resource-namespace
 - A site can have multiple resources.
 - Need ability to differentiate between resources within a VO-Space instance
- Late-binding assumptions currently in VO-Space
 - Binding of transport protocol, storage resource, logical namespace – all done using late-binding
 - Need to take advantage of early binding
- Arrangement of images
 - Hierarchical arrangement needed to organize images
- Search across VO-Spaces
 - Currently fully P2P in VO-Space
 - An hybrid approach between fully centralized and fully P2P would be useful in large scale deployments

Data Grids

- Need for world-wide Astronomy Data Grid
 - A hybrid approach between P2P and federations of data grids
 - Administrated chain / Master-slave / Central archive / Replicated
 - Local autonomy versus global consistency of collaboration
 - Collaborative management of community data
 - Unifying logical data namespace
 - Logical resource namespace
 - Protocol binding transparent, fixed for clients
 - Mature and demonstrated technology (More than a petabyte of data globally managed).
 - Global community
 - Ability to express and apply management policies

Rule-Based data systems

- Rule-based access to collections
 - Rules controlling access policies
 - Rules controlling data deposition
 - Rules controlling integrity assertions
 - Rules controlling descriptive metadata
 - Rules controlling manipulation of data

iRODS - integrated Rule-Oriented Data System

*Data Management
Environment*

Conserved
Properties

Control
Mechanisms

Remote
Operations

Management
Functions

Data Management
Infrastructure
Physical
Infrastructure

- Express management policies as rules controlling the execution of remote micro-services
 - Management policy --> set of Rules
 - Remote operation --> set of Micro-services
 - Assertions --> Persistent state information
- Support
 - Interactive transactions
 - Deferred transactions
 - A-periodic transactions

OGF Grid File System

- Community based standards
 - OGF Grid File System standardization for data grids
 - Multiple communities, multiple countries, multiple perspectives
 - Define a hybrid protocol of XML and byte-level transfers
- Community based software
 - iRODS - automation of management policy execution
 - Open source project - multiple user groups
 - Concepts learned from existing systems
 - User and developer community

More Information

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SRB:

<http://www.sdsc.edu/srb>

iRODS:

<http://irods.sdsc.edu/>

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