International

Virtual

Observatory

Alliance

Enabling a robust VOSpace for VO tools and services

Version 1.0

IVOA Note 2008 May 14

This version:
1.0-20080514
Latest version:

Previous version(s):

Author(s):
André Schaaff and Cyril Pestel

Abstract

VOSpace [3] is the IVOA [9] work for the definition of an interface to a virtual file system available for VO applications and services. It defines only the interface and not the storage infrastructure. This one is under the responsibility of the “space provider”. In this note we explain quickly our work about VOSpace [3] in the frame of the VOTECH [4] project.

Status of This Document

This is a Note. The first release of this document was 2008 May 14.

Choose one of the following (and remove others plus yellow lines):

Note

This is an IVOA Note expressing suggestions from and opinions of the authors. It is intended to share best practices, possible approaches, or other perspectives on interoperability with the Virtual Observatory. It should not be referenced or otherwise interpreted as a standard specification.

A list of current IVOA Recommendations and other technical documents can be found at http://www.ivoa.net/Documents/.

Acknowledgements

This document derives from the work done at CDS in the frame of the Design Study 3 of the VOTECH [4] project. Many thanks to Jean-Yves Nief from IN2P3 in Lyon for the useful discussions about iRODS [5].

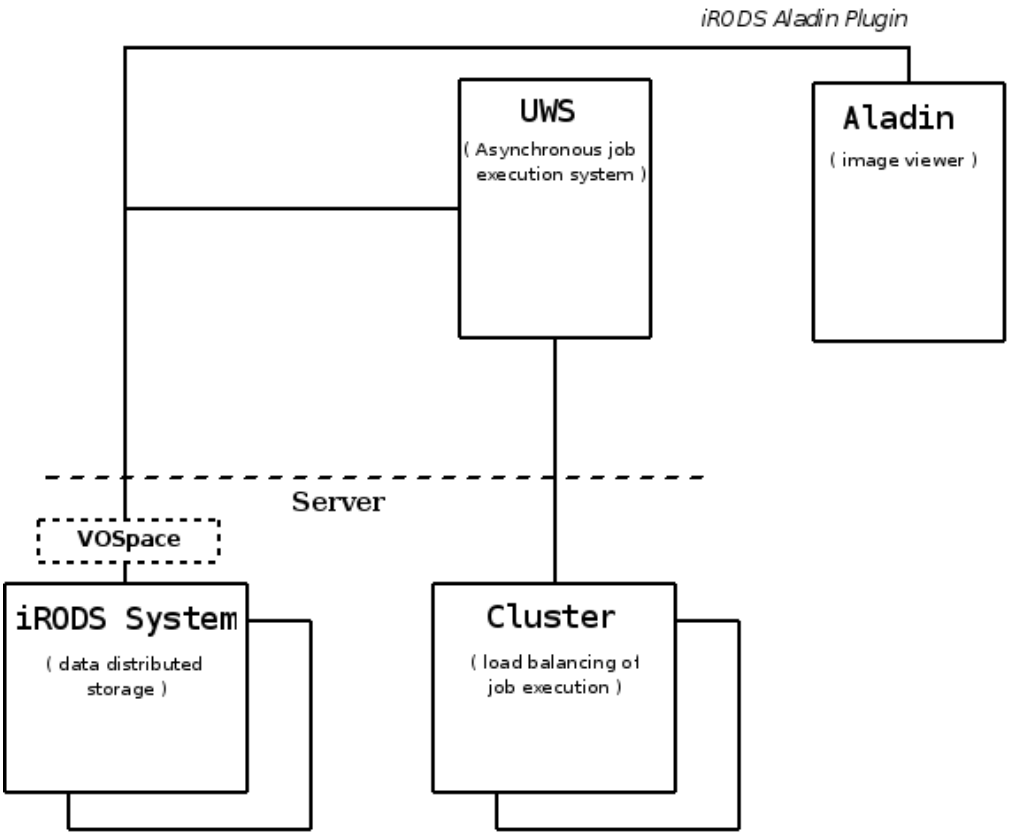
Contents

1 Introduction

VOSpace [3] is the IVOA interface to distribute storage. It is the visible side of the storage system. To make VOSpace [3] usable in the real life we need an efficient storage mechanism. SRB [10] (Storage Resource Broker) is a tool enabling the distribution and the access to data available at different locations and on mixed media (files on disk, databases and tapes). It has been developed by the SDSC Storage Resource Broker team and collaborators. iRODS [5] (integrated Rule-based Data System) is a new data grid software system being developed by the same team and will replace SRB [10].

2 Use case

Our first aim was to create a storage area Aladin [6] but also for the new CDS online services interfaces which are under development. In a first step we have developed an Aladin [6] plugin giving an access to the iRODS [5] implementation and in a second step the VOSpace [3] interface has been added over iRODS [5] (see the following figure).



3 iRODS

The version 1.0 has been released in January 2008 and the Jargon [11] Java API enables an easy use of it.

3.1 Hardware side

In a first step, we have deployed iRODS [5] on 2 machines and a rule has been added to enable the automatic replication of the data. In a next step we will replace this tiny test bed by a cluster.

3.2 First test

As a first experiment we have developed a plugin for Aladin [6] with just put and get capabilities to interact with the iRODS [5] implementation.

4 VOSpace

The work is based on the 1.1 WD of VOSpace [3]. It has been deployed as a Web Service in Tomcat with AXIS 2 following the VOSpace [3] WSDL (this version of Axis can be configured to be REST [12] compliant).

4.1 Implementation of the interface

File creation/removing/moving have been developed via Jargon. Concerning the file copying to VOSpace [3] (PushToVOSpace, PullFromVOspace), it has been done with a servlet. The entire interface is implemented but with some restrictions (resolved in a near future): the management of the exceptions must be finished, “find” cannot be used to retrieve a list of files, no link management.

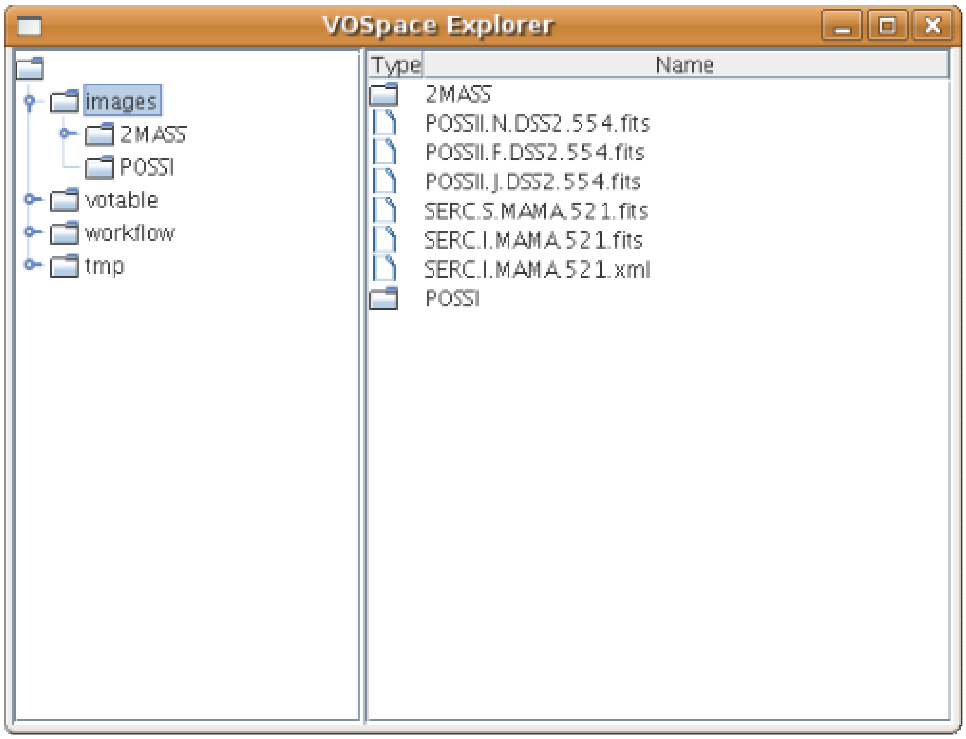
4.1 Interaction with VOSpace

4.1.1 A small API

A Java API has been created from the VOSpace [3] WSDL to interact with the SOAP Web Service.

4.1.2 A VOSpace explorer

We have developed a VOSpace explorer in Java to access and manage the files. It is possible to do the common actions on the files. If a VO Tool supports drag and drop it is possible to interact through this way with the explorer.



4.1.3 Next step

The next version of the explorer is under testing. It integrates PLASTIC [8] and makes the interaction possible with other tools like Aladin [6] or TOPCAT [7] through this way.

5 Conclusion

iRODS [5] is easy to implement and seems to provide a good solution to ensure the robustness of a VOSpace [3]. The installation is simple and can be done without much manpower. A PLASTIC [8] compliant VOSpace explorer could be a solution to provide a simple access to the stored files for VO Applications.

Appendix A: “Appendix Title”

…

References

[1] R. Hanisch, *Resource Metadata for the Virtual Observatory* , http://www.ivoa.net/Documents/latest/RM.html
[2] R. Hanisch, M. Dolensky, M. Leoni, *Document Standards Management: Guidelines and Procedure* , http://www.ivoa.net/Documents/latest/DocStdProc.html
[3] VOSpace, http://ivoa.net/Documents/latest/VOSpace.html
[4] VOTECH, http://eurovotech.org/
[5] iRODS, http://www.irods.org
[6] Aladin, http://aladin.u-strasbg.fr/
[7] TOPCAT, http://www.star.bris.ac.uk/~mbt/topcat/
[8] PLASTIC, http://plastic.sourceforge.net/
[9 IVOA, http://www.ivoa.net/
[10] SRB, http://www.sdsc.edu/srb/index.php/Main_Page
[11] Jargon, https://www.irods.org/index.php/Jargon
[12] Axis 2 REST, http://ws.apache.org/axis2/1_1/rest-ws.html