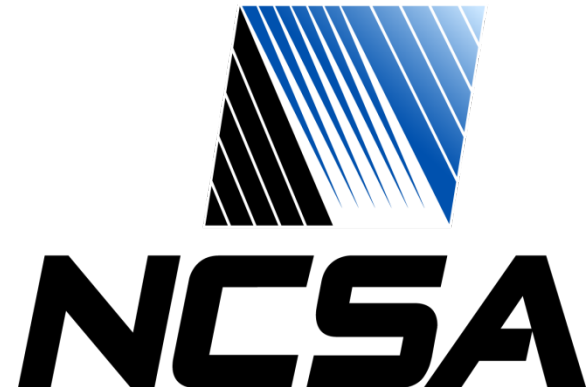


Virtual Observatory Single Sign-on



U.S. National Virtual Observatory
National Center for Supercomputing Applications
Ray Plante, Bill Baker

What is the Virtual Observatory?

- Network-based environment for doing astronomical research
- Worldwide federation of archives and services
 - Interoperate using standards
 - Standards body: International Virtual Observatory Alliance
- A community of separately-funded projects
 - U.S. National Virtual Observatory
 - 15 other national VOs



What is the Virtual Observatory?



Virtual Observatory Standards

www.ivoa.net/Documents

Data Models and Formats

- Images, Spectra, Tables
- Metadata, Catalogs

Service Protocols

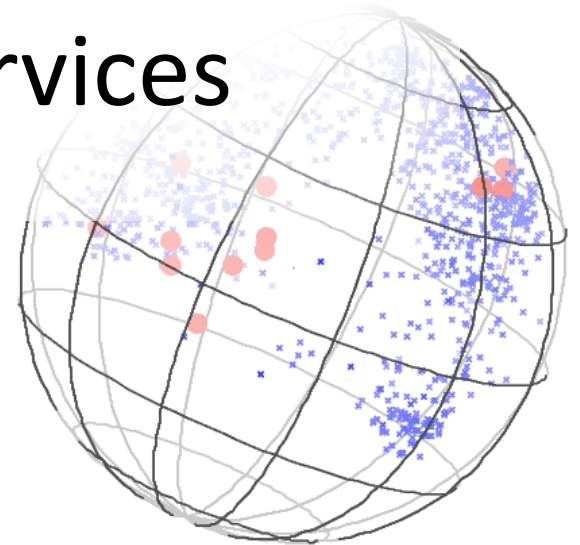
- Data Discovery and Access
- Authentication
- Analysis services

Remote Storage



Virtual Observatory Services

www.us-vo.org



Data Discovery—What's available?

- Registry: Search based on subject
- DataScope: Search by sky position
- Open Sky Server: Cross-correlation of catalogs

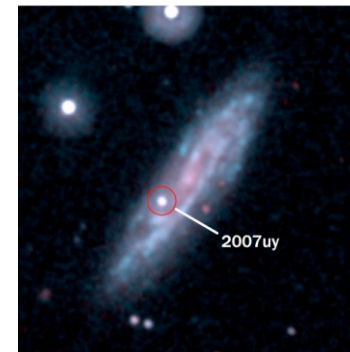
Data Access

- Common interfaces for searching contents of archives

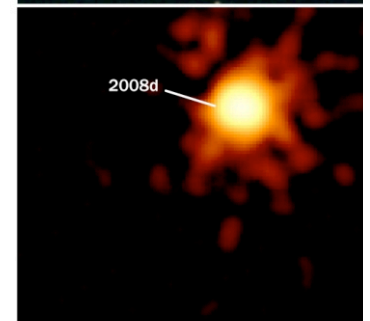
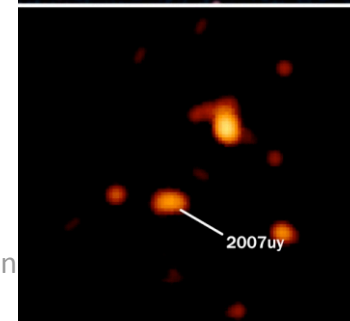
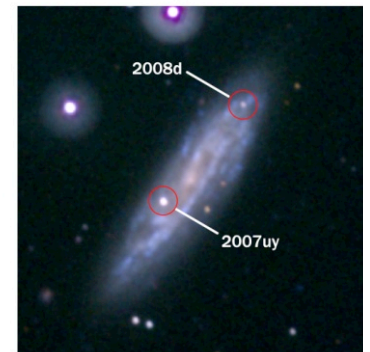
Portals

- Provide friendly browser-based access to services

January 7, 2008



January 9, 2008



Virtual Observatory Single Sign-on

Virtual Observatory Portals

There are many portals

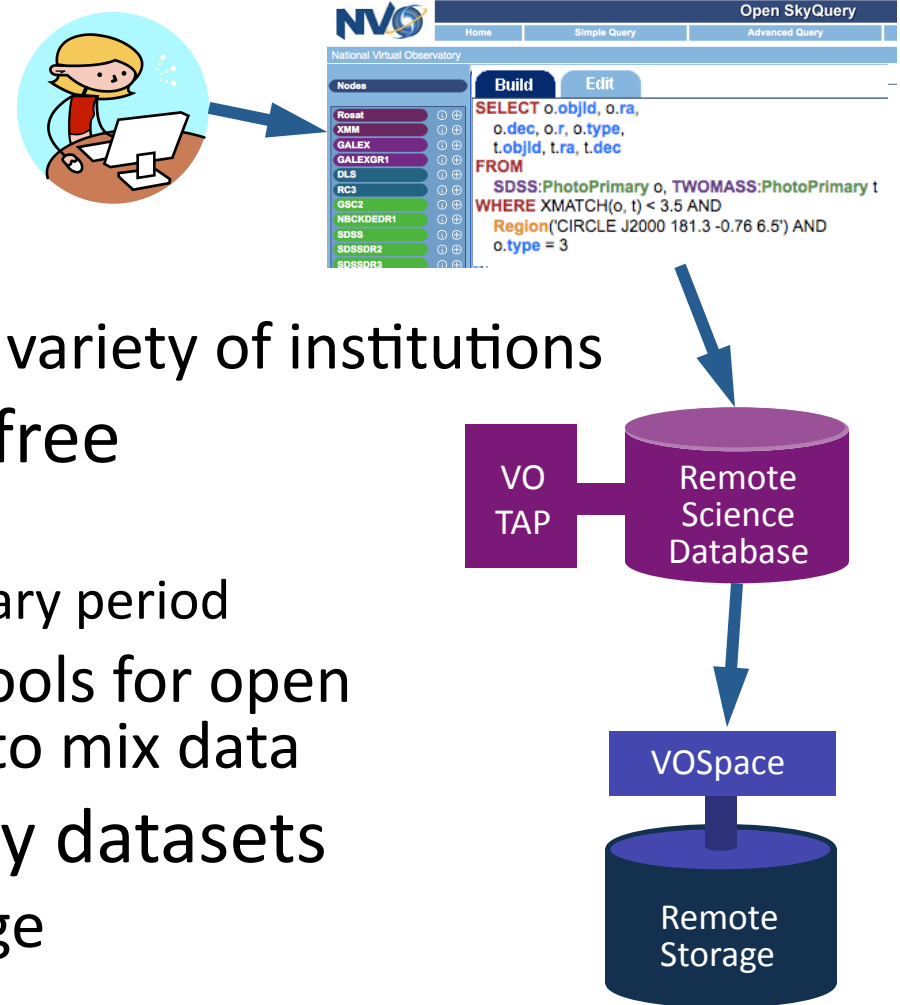
- Each specialized for a target community
- Distributed; managed by a variety of institutions

Most resources are open & free

- Some are not
 - for example 1-year proprietary period
- But users want the same tools for open and proprietary data, and to mix data

Users derive new proprietary datasets

- Need secure remote storage



Centralized Authentication

Simple for Users

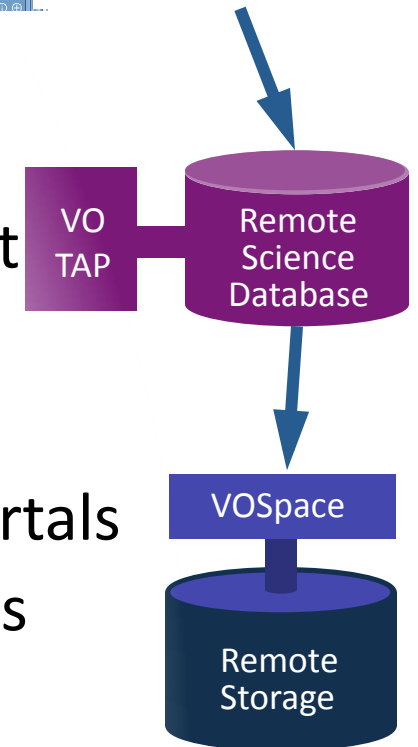
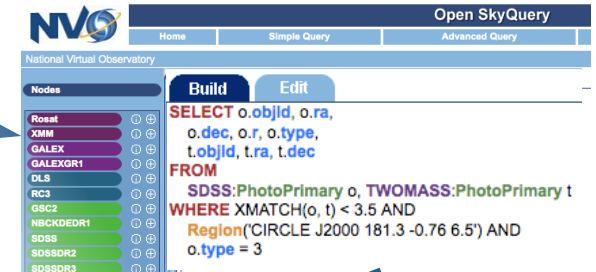
- Single identity for multiple services

Supports Developers

- Provide toolkit, documentation, support
- Built-in security (don't have to worry about mistakes; never see password)

Facilitates Community

- Share user identity among services and portals
- Interoperate smoothly with open resources
- Delegation to enable complex workflows



Authentication Issues

Weak vs. Strong

- Weak authn: I am the same person each time
- Strong authn: I really am who I claim to be
 - Rely on existing ID verification systems

Privacy

- Give users control over what to share with portals

Developers, developers

- Goal: Foster the creation of portals and services

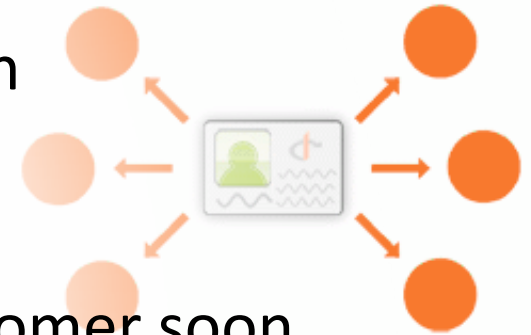
Web Sign-on Mechanisms

Pubcookie (Web SSO Software)

- Web SSO; NCSA added MyProxy integration
- Mature but not standards-based
- Apache or IIS module (requires root)

OpenID

- Standard; Gaining widespread adoption
- Many toolkits exist; doesn't require web server integration
- NVO is in Alpha, rolling out to first customer soon (still need to implement credential delegation though)



Web Sign-on Auxiliaries

Registration

- PuRSe—evolved, re-written, patched
- Provides user services (password reminder, etc.)

Logging (Under Development)

- To take the place of old local authentication logs
- Privacy—admins should only see “their” users
- Correlation—track a user’s path through invitation, registration, confirmation, login

Lessons Learned

Toolkits are important

- Pubcookie can be hard to debug
- Globus is big to install—our devs prefer a self-contained MyProxy client
- People like their languages: OpenID is available in Perl, Python, Java, C, Ruby ...

High Availability

- Never be down when a portal is up
- Redundancy is hard work



Lessons Learned

- Need logging—accessible, expressive, private
- For every production server, there are several development servers to support
- Most portals only need identity
- We are still getting used to it —
“I went to a DES URL
but got an NVO login page”

Work in Progress

- Smoothing out OpenID wrinkles
 - Delegation
 - User Interface
 - Library Support
- Implementing Logging Service
- Questions / Comments?