The IVOA Architecture

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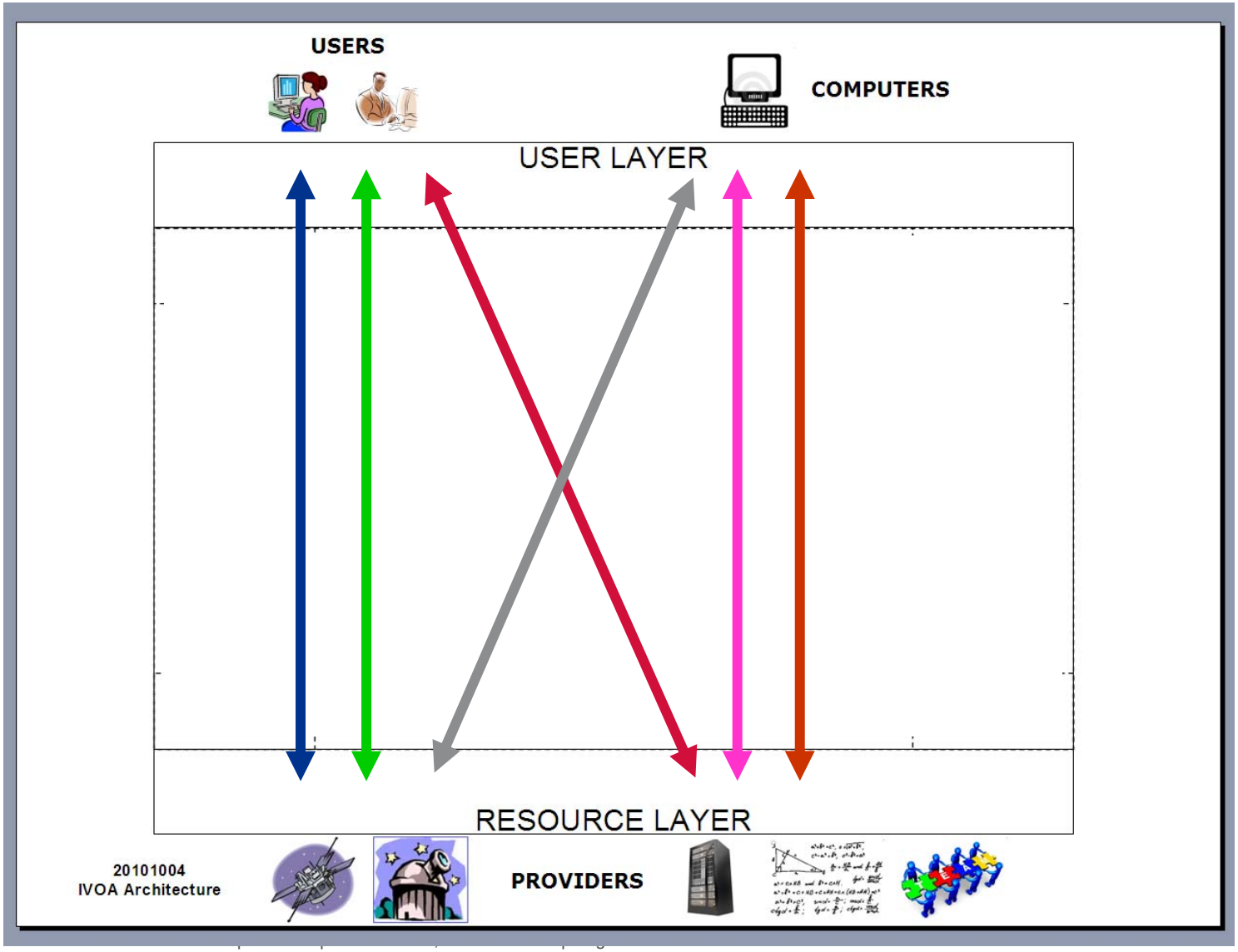
IVOA Architecture

2 views required

- (level 0 and level 1) view for “public” consumption
  - Global, generic, minimize VO jargon
  - Readable by all, not too technical

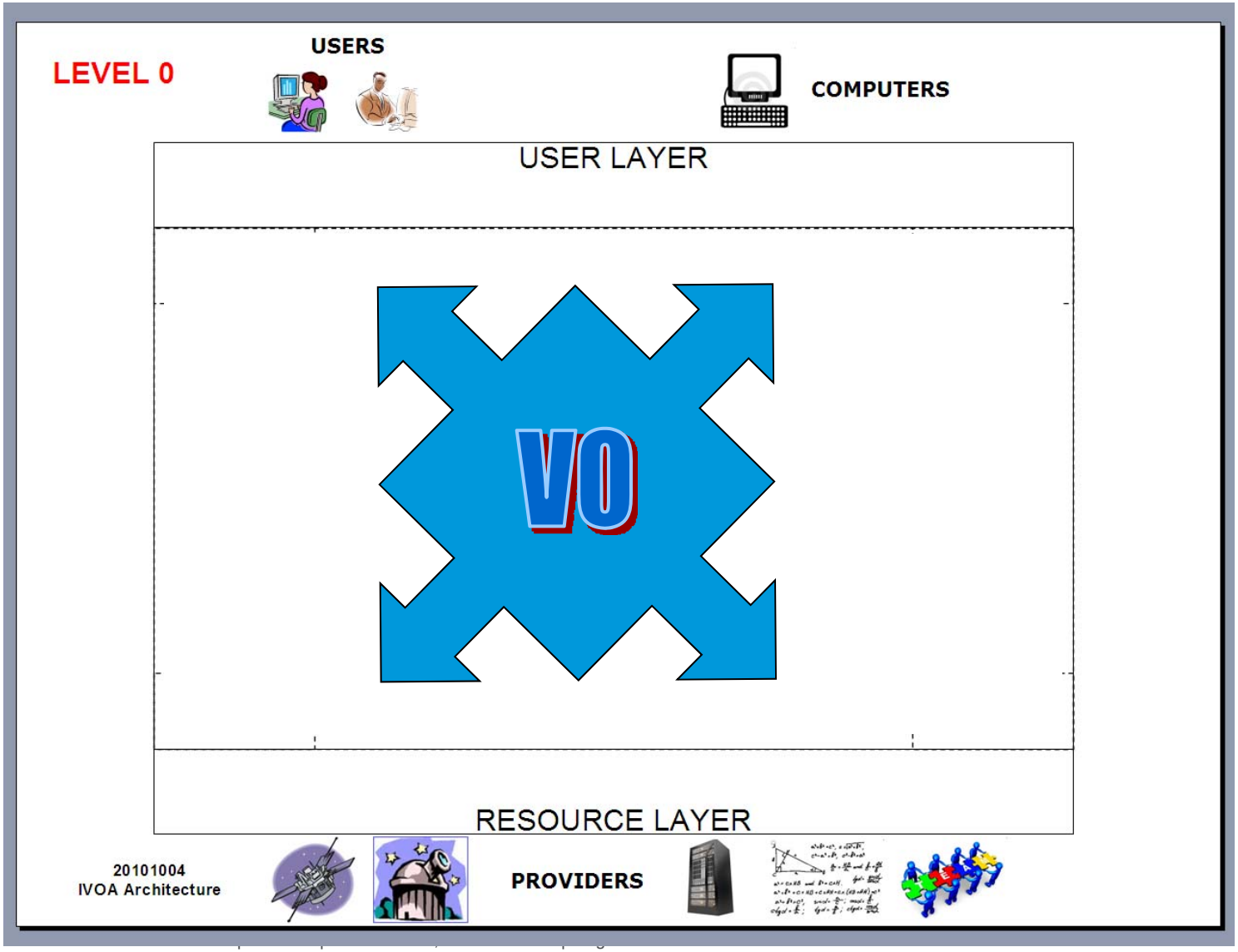
- (level 2) view for IVOA and VO developers'' needs
  - Extension of (level 1)
  - More detailed, all IVOA standards mentioned
  - Clear connections and inter-dependency between IVOA standards
  - Shows what is need to implement VO services
    - As a Data Centre, an Application developer, a Service Provider, …
    - What building blocks are required to fulfill a science case

Access to Astronomical Data and Services



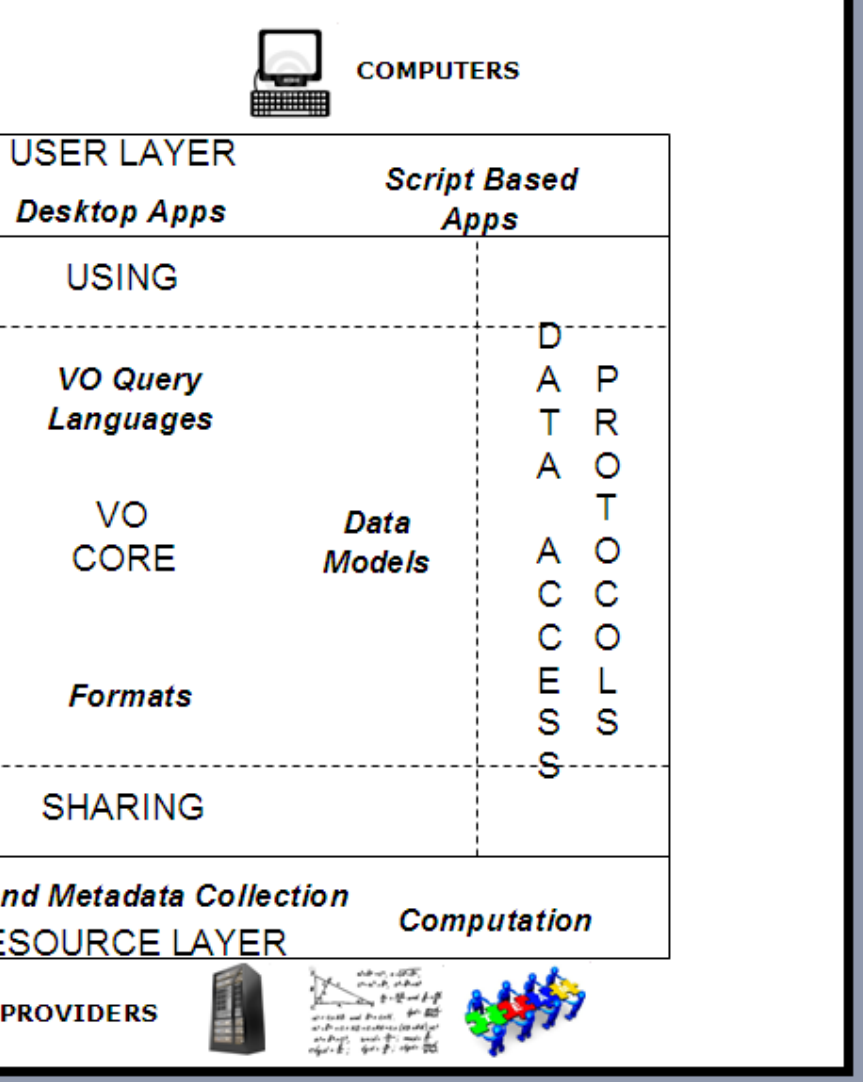
- For each Archive and for each Service
  - Some common format (FITS)
  - Dedicated Data Model
  - Dedicated access interface
- No real inter operability between services

IVOA Architecture – Level 0

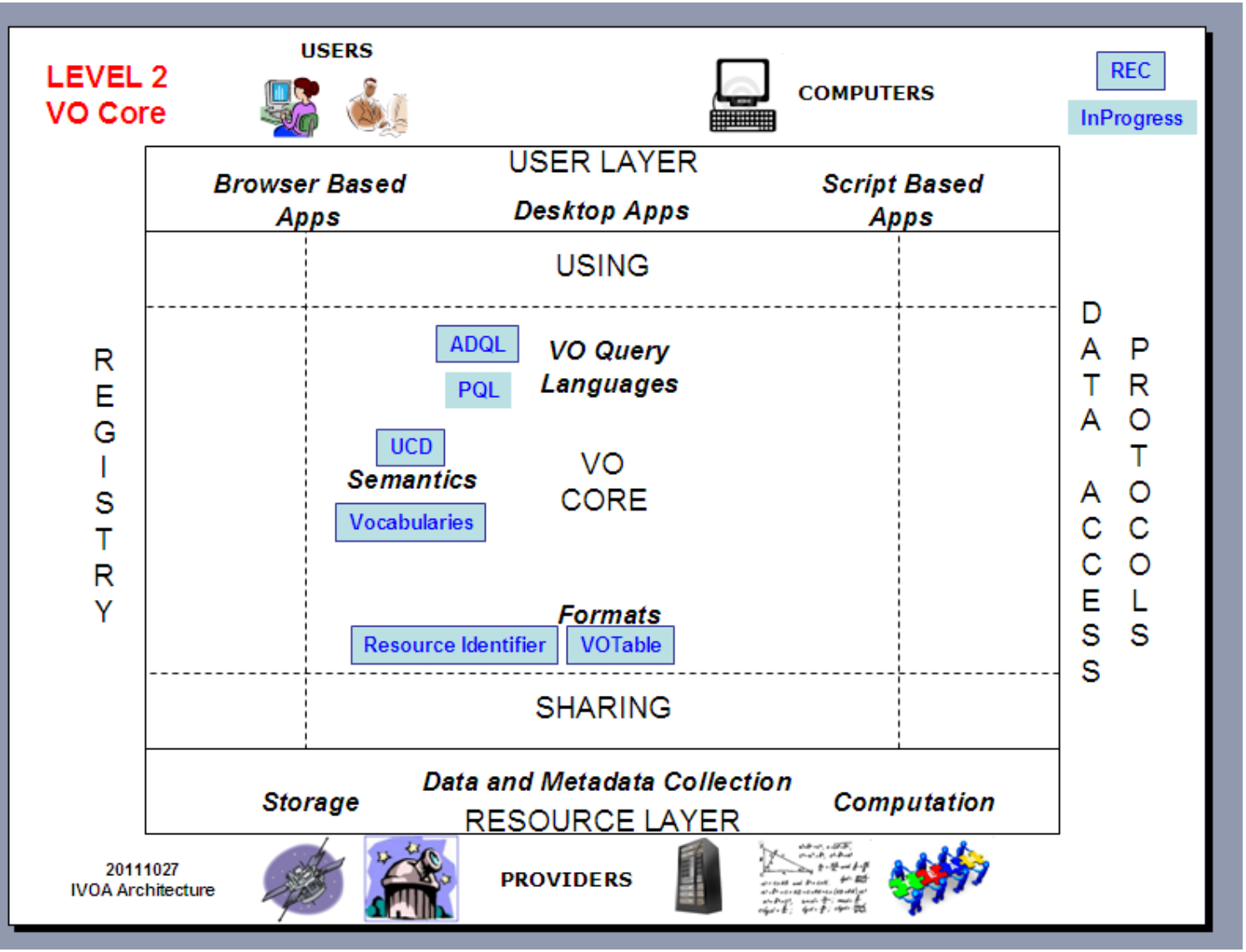


- Hide specificities of each Archive and each Service to offer a common framework for access and usage
- Yellow Page of Services
- Inter Operability between services

IVOA Architecture – Level 1

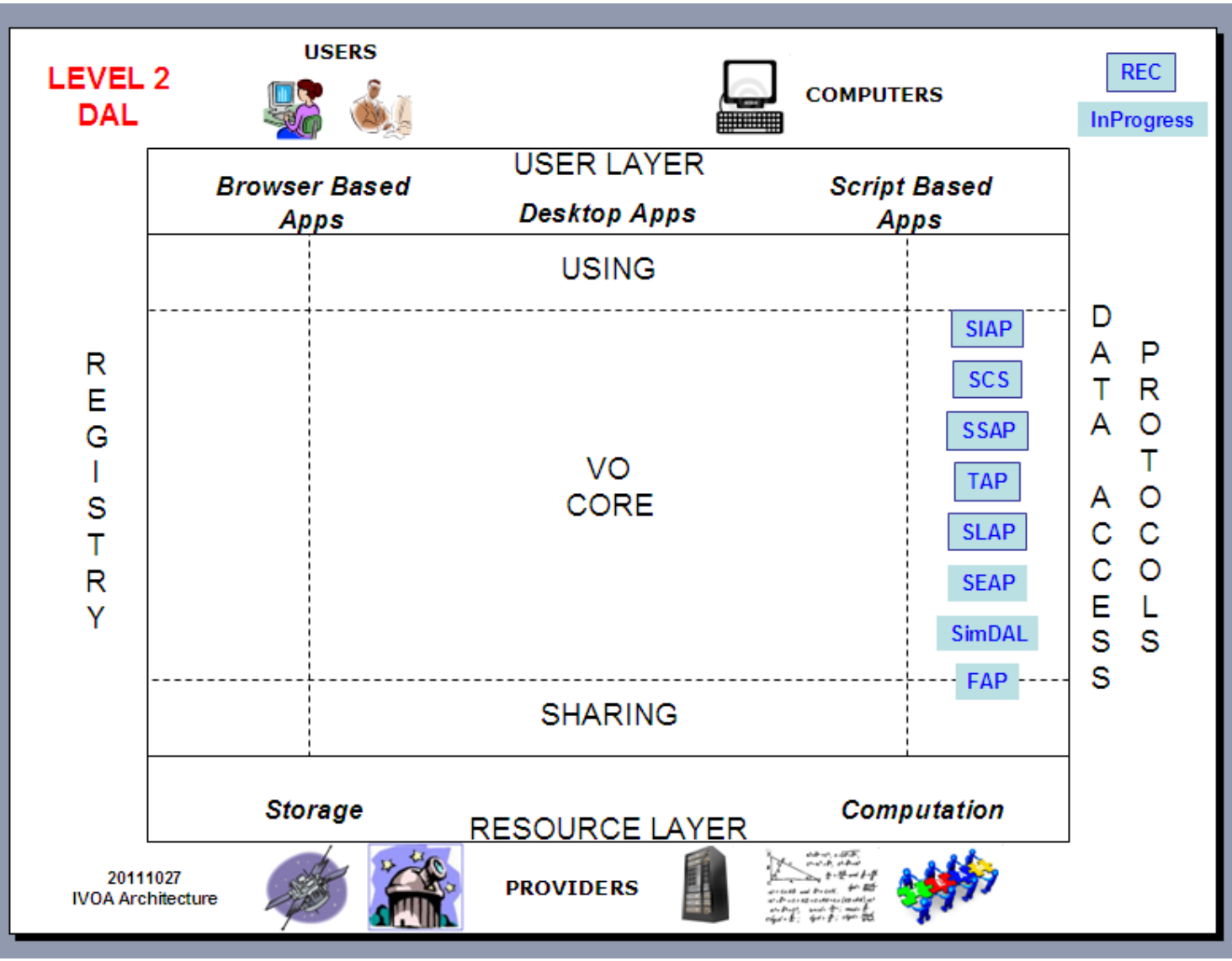


IVOA Architecture – Level 2
VO Core Protocols



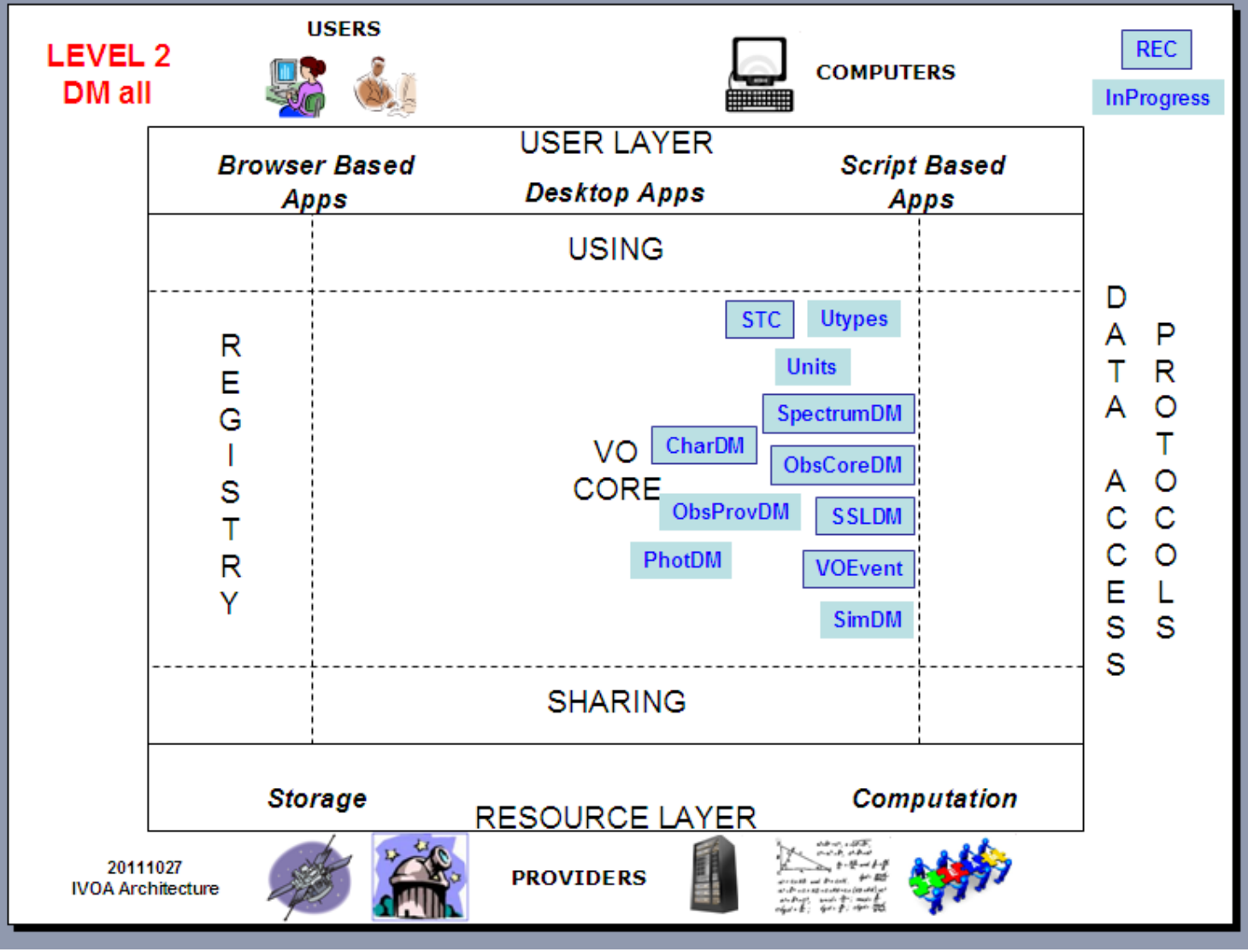
- Underlying building blocks for other standards
- VOTable
  - 1st IVOA std and most used
- Unified Content Descriptor (UCD)
- Astronomical Data Query Langue (ADQL)

IVOA Architecture – Level 2
Data Access Protocols



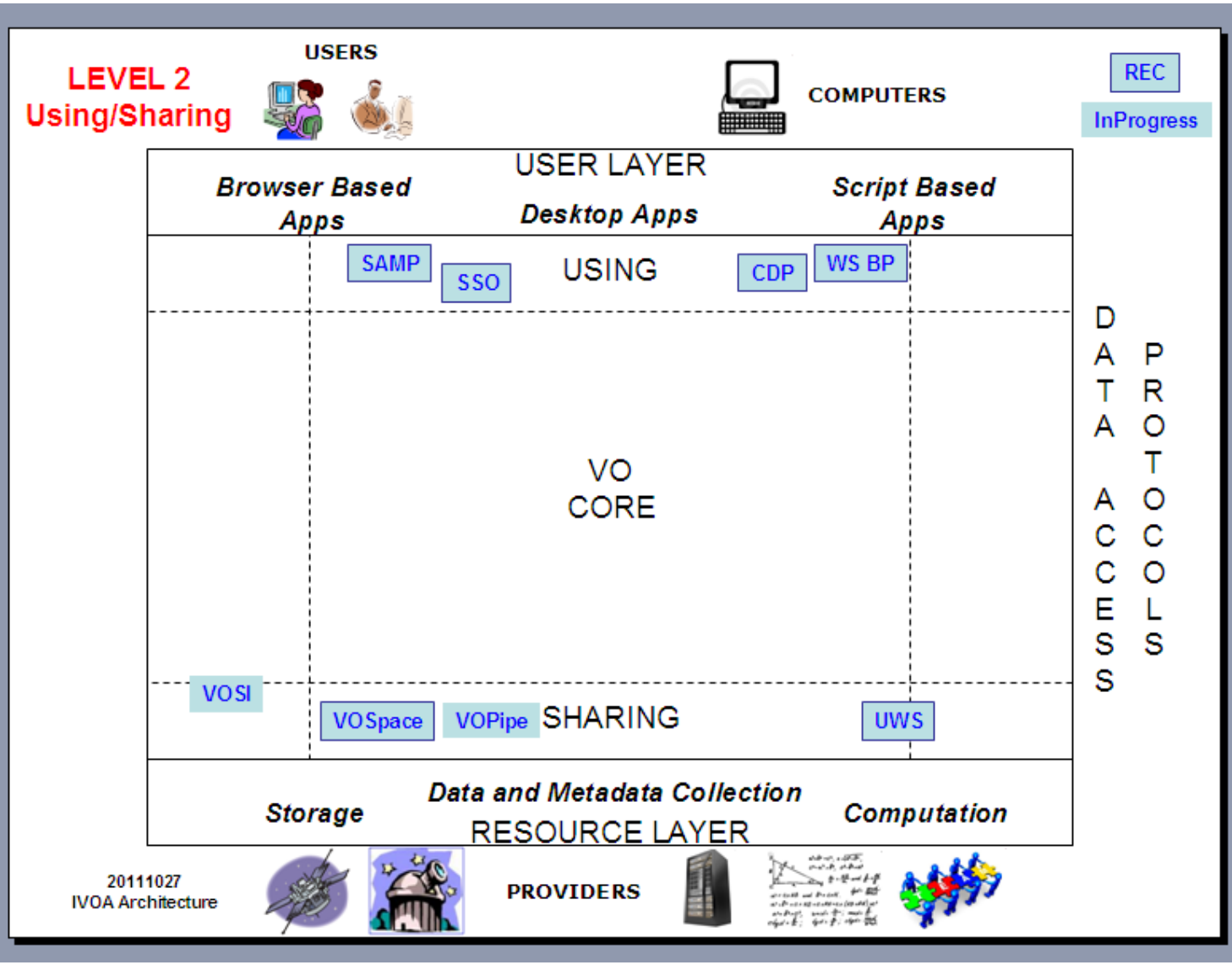
- Simple Access Protocols
  - Cone Search (SCS)
  - Images (SIAP)
  - Spectra (SSAP)
  - Spectral Lines (SLAP)
- Table Access Protocol (TAP)
  - More powerful
  - TAP/ADQL+DM
  - Table upload
  - sync / async queries

IVOA Architecture – Level 2 Data Models



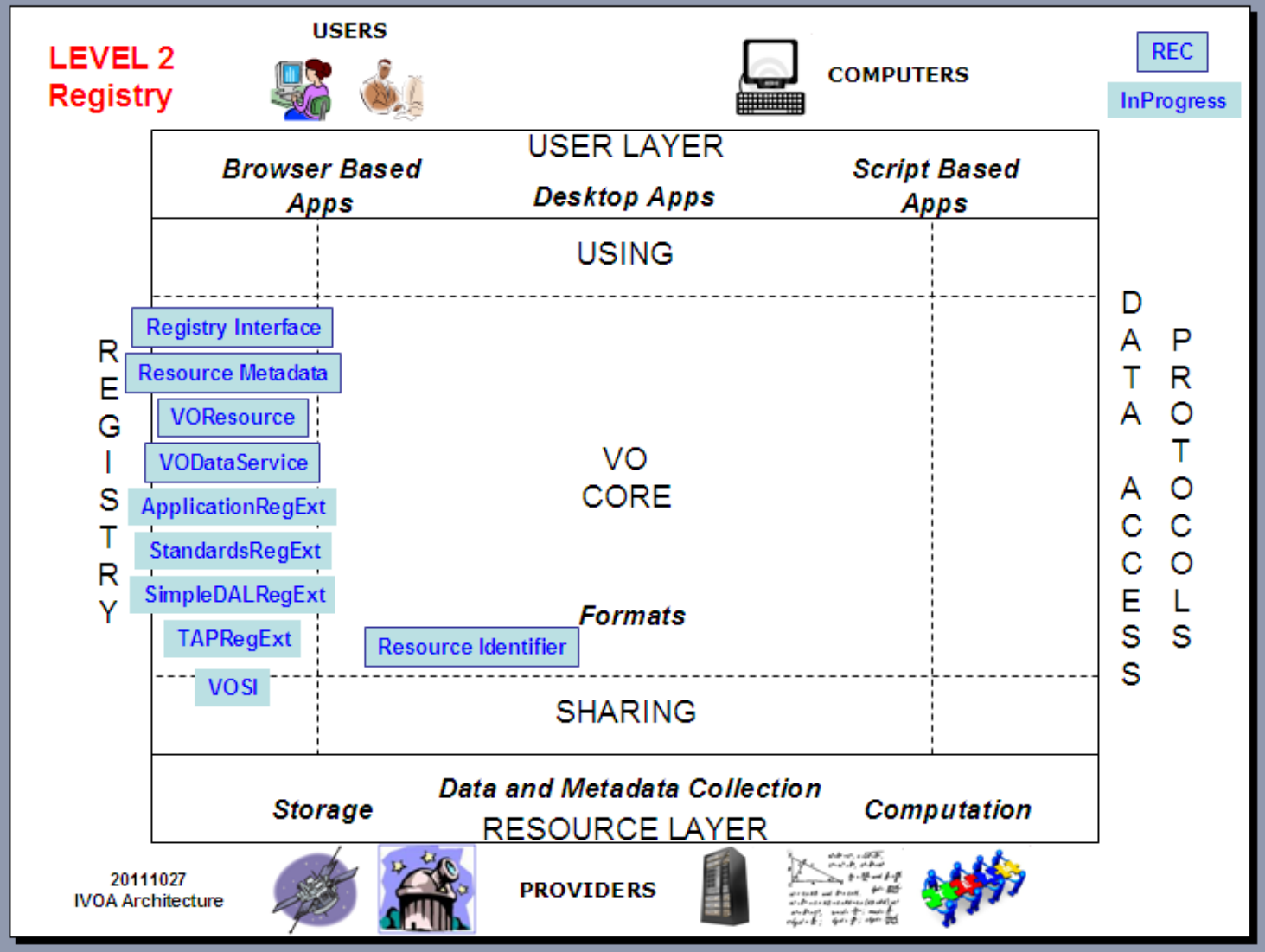
- Core DM
  - STC, Utypes, Units, Characterization
- Type-specific DM
  - Observation Core
  - Spectrum
  - Simple Spectral Line
  - Photometry
- TAP/ADQL + DM
  - power and abstraction to access any data collection
- VOEvent

IVOA Architecture – Level 2
Using and Sharing



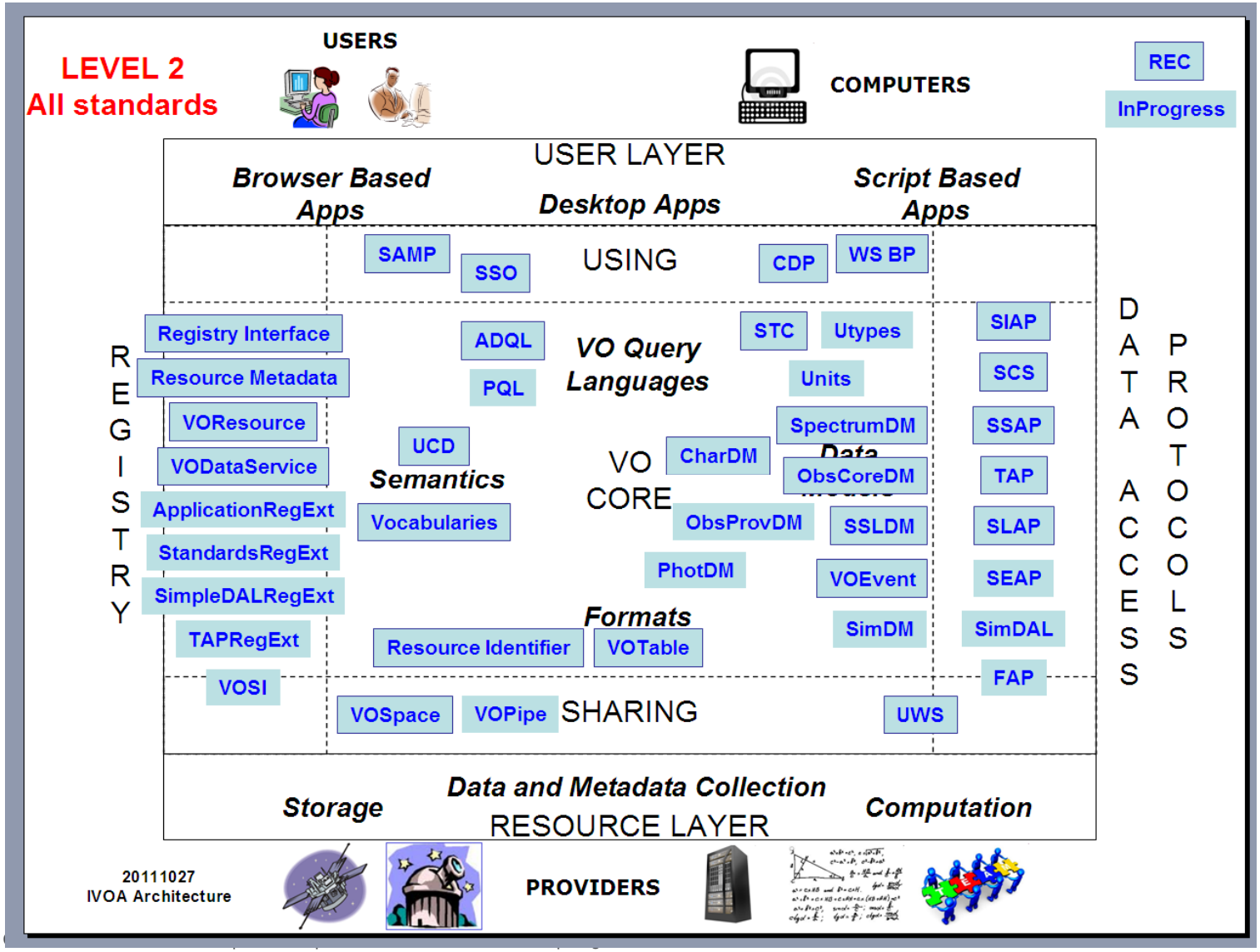
- SAMP enabling inter connectivity between VO applications
- Single Sign On / Credential Delegation Protocol for user authentication
- VOSpace for VO virtual storage
- Others for VO data processing workflows

IVOA Architecture – Level 2 Registry



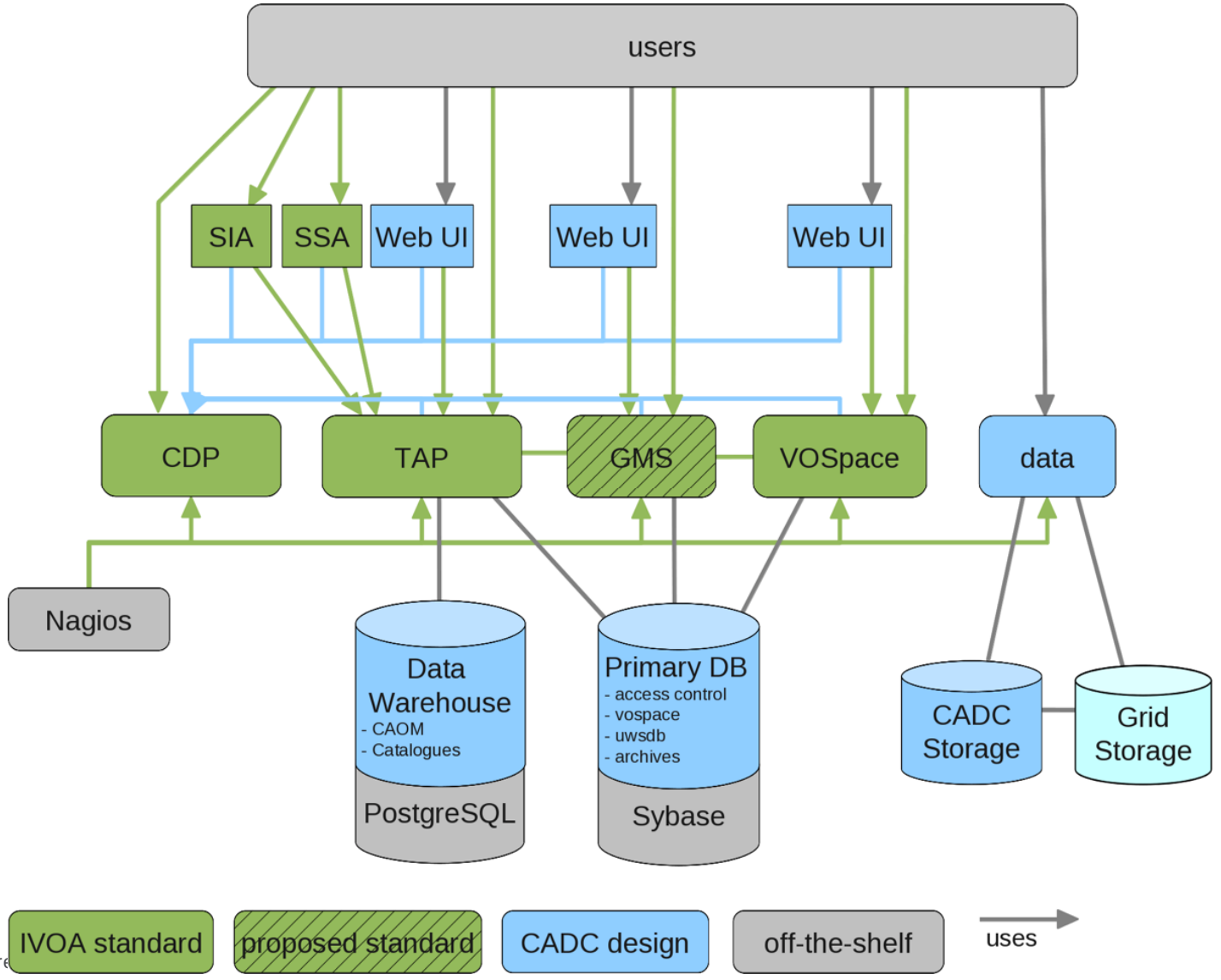
- VO Yellow Page service
- Find VO Resources of different kinds
- Publishing Registries
- Full Searchable Registries
- Harvesting Registries

IVOA Architecture – Level 2

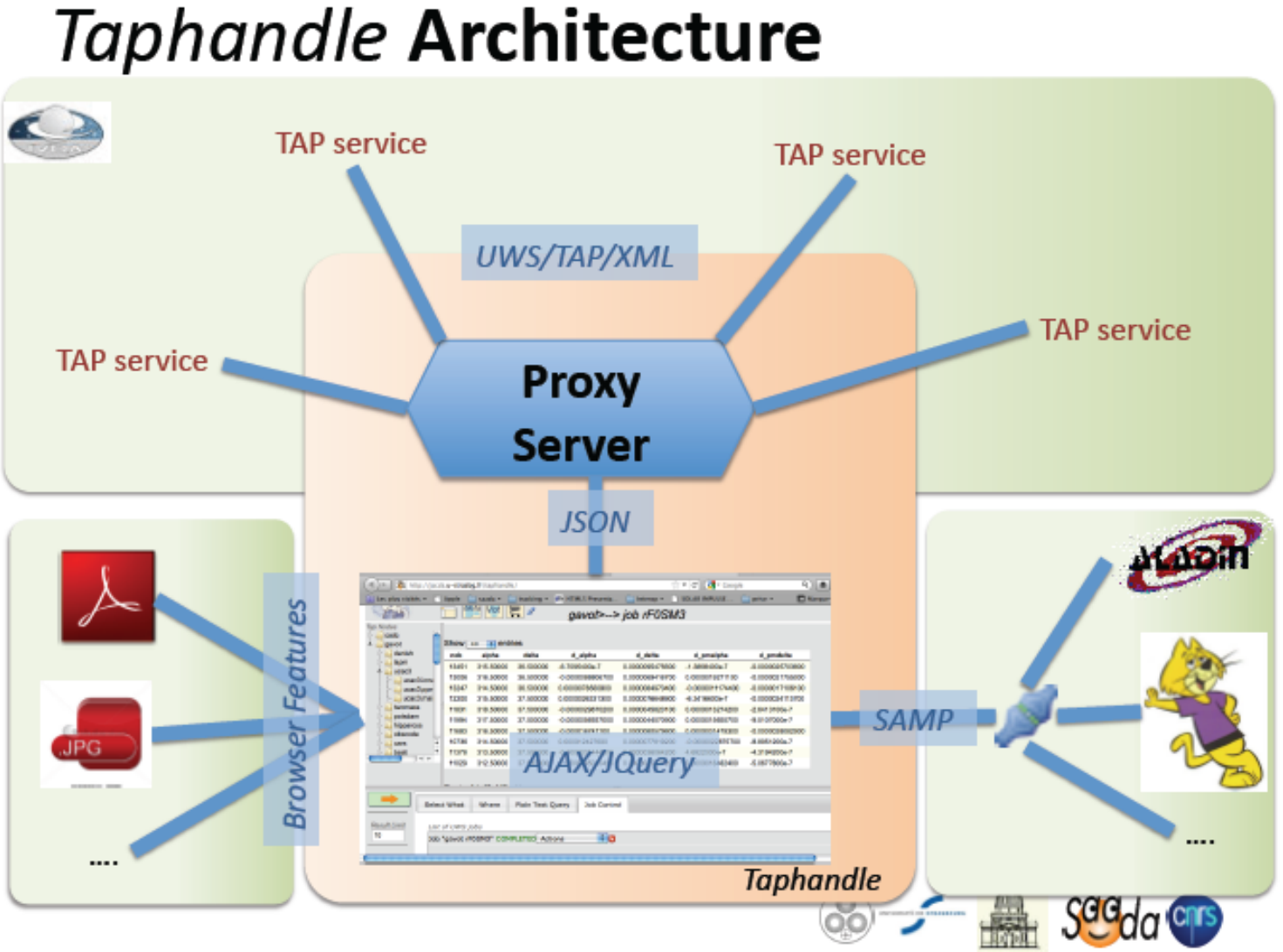


- All standards represent building blocks to be used depending of type of VO services
- Data & metadata VO Publishing
- VO Applications consuming VO services
- Processing and storage VO workflows

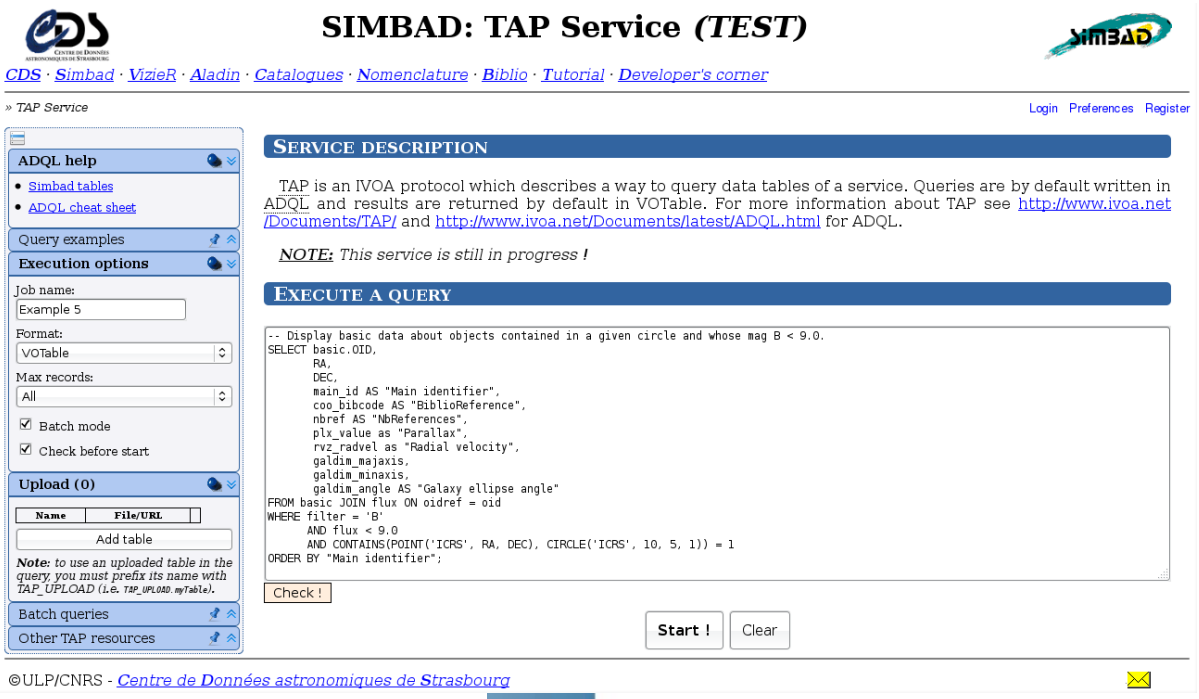
CADC : a VO compliant infrastructure



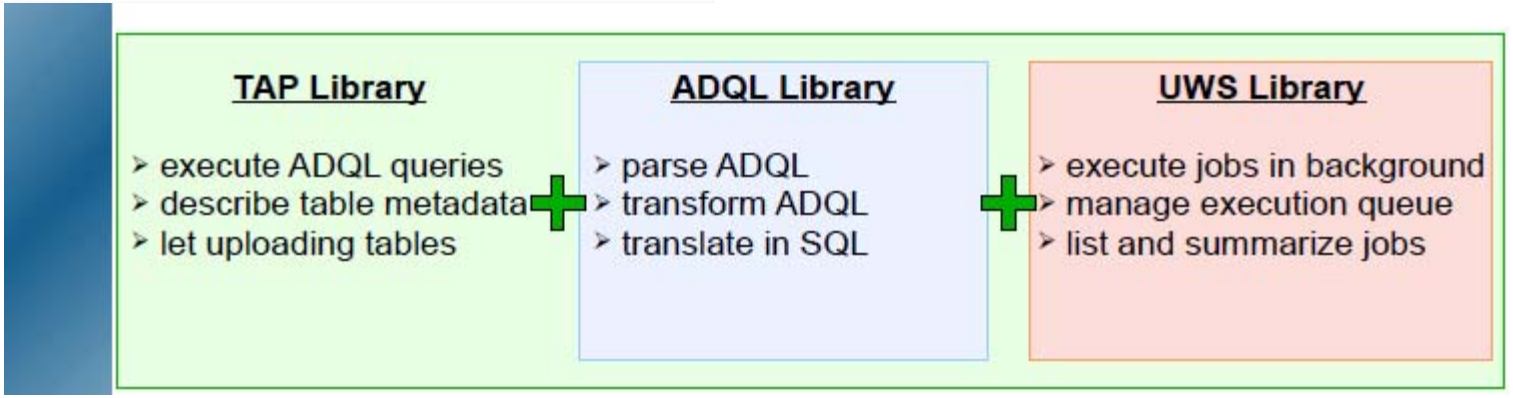
TAPhandle


Taphandle Architecture
TAP service
TAP service
TAP service
TAP service
UWS/TAP/XML
Proxy Server
JSON
Browser Features
AJAX/JQuery
SAMP
JPG
....
....
Taphandle

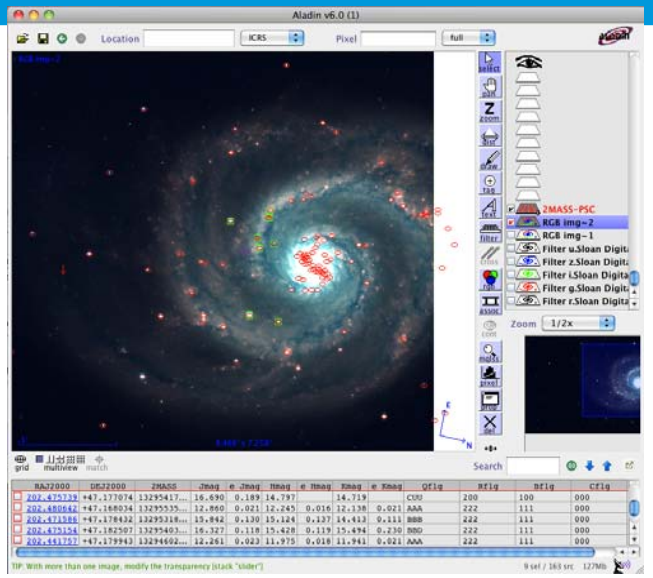
TAP / ADQL / UWS in SIMBAD

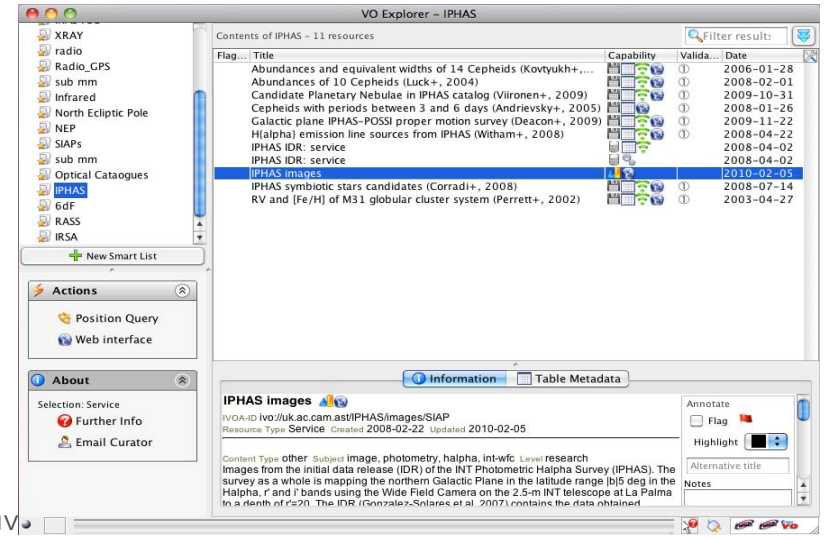


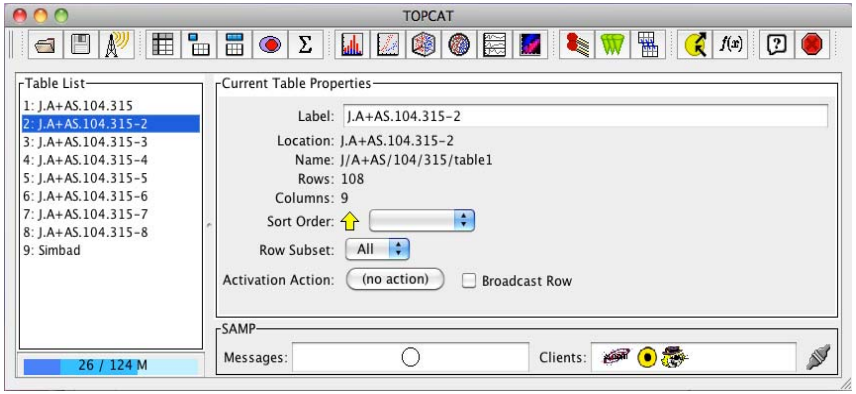
TAP Usage in SIMBAD



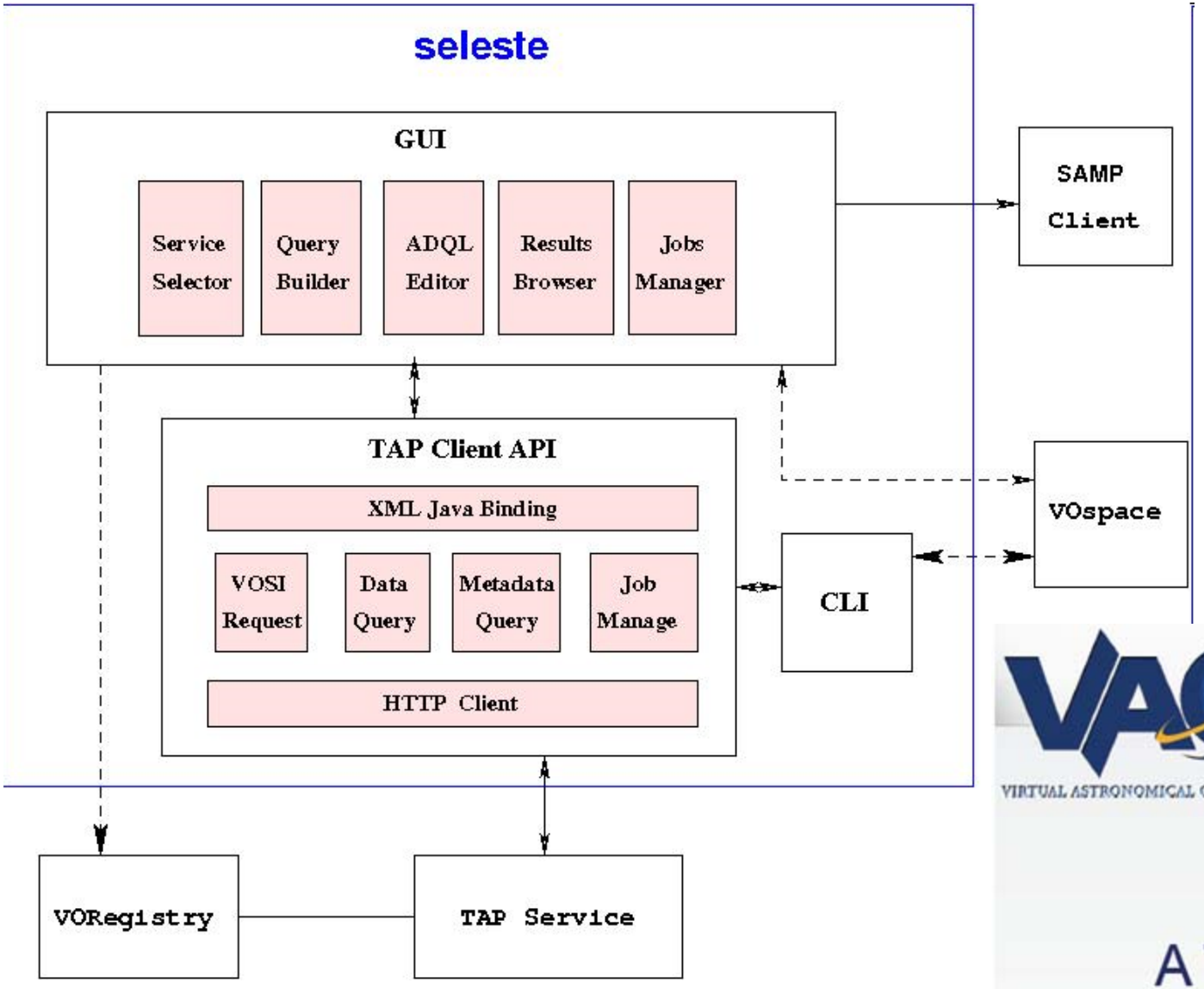
VO applications interoperability through SAMP







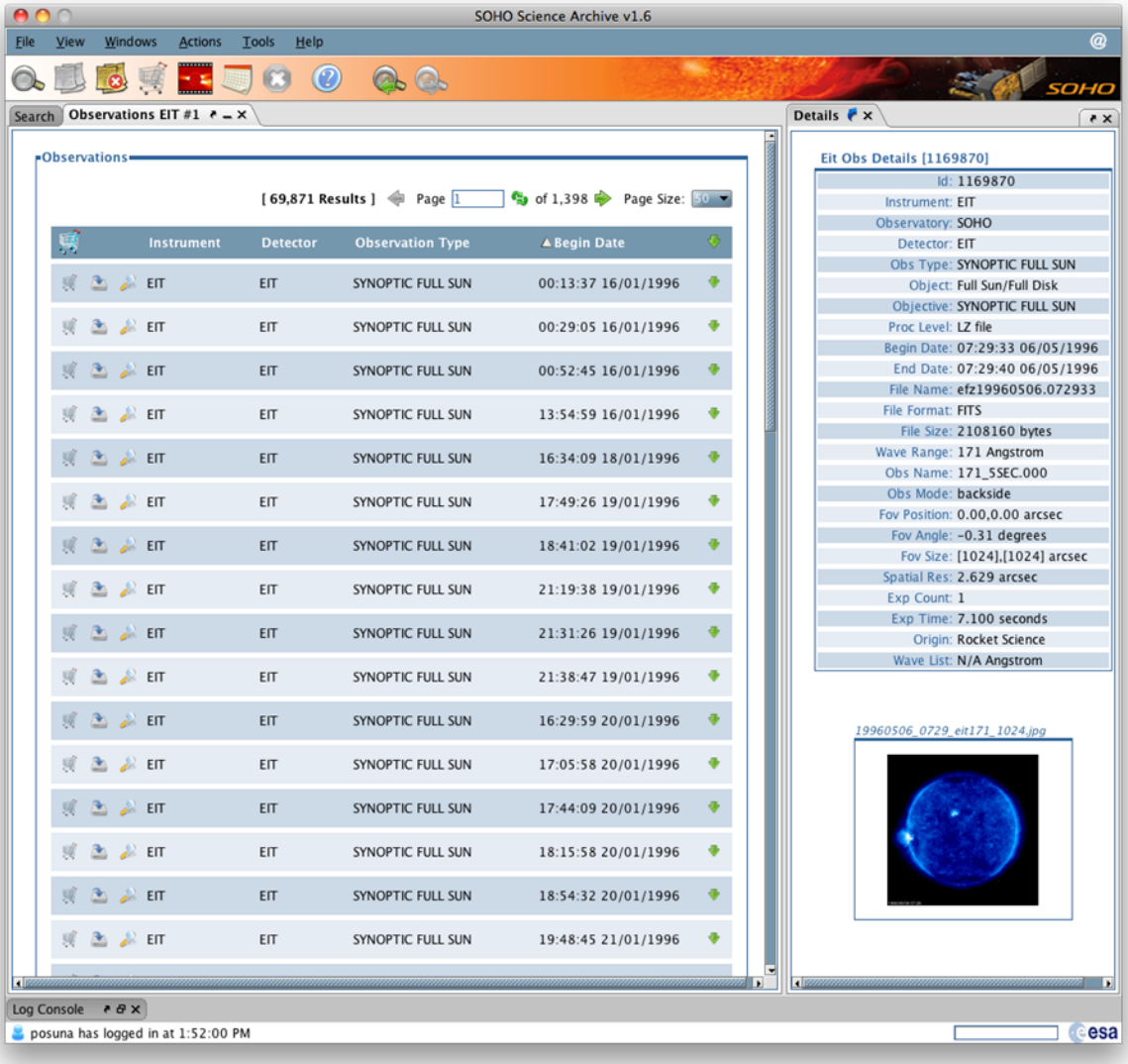
seleste : VAO TAP Client Application

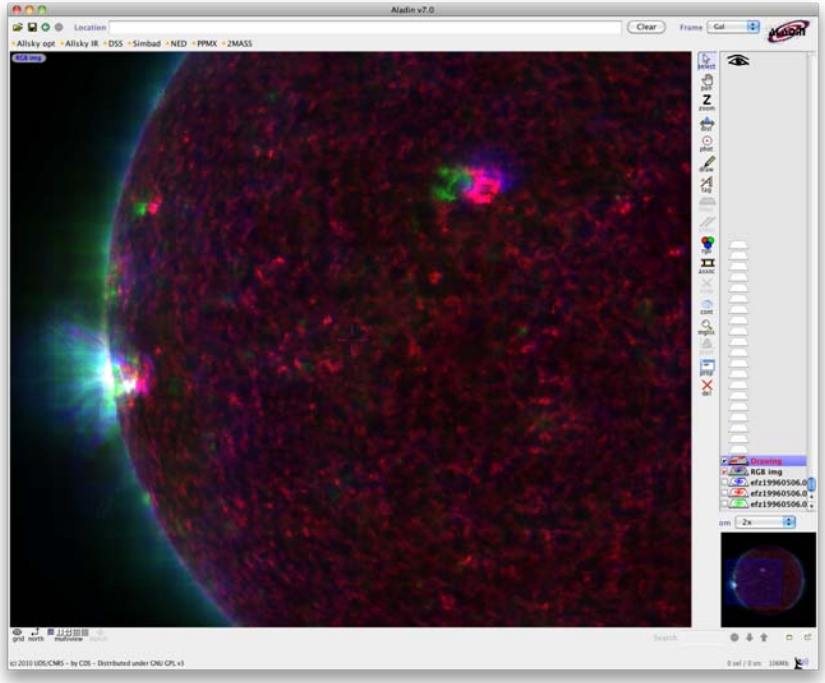


VIRTUAL ASTRONOMICAL OBSERVATORY

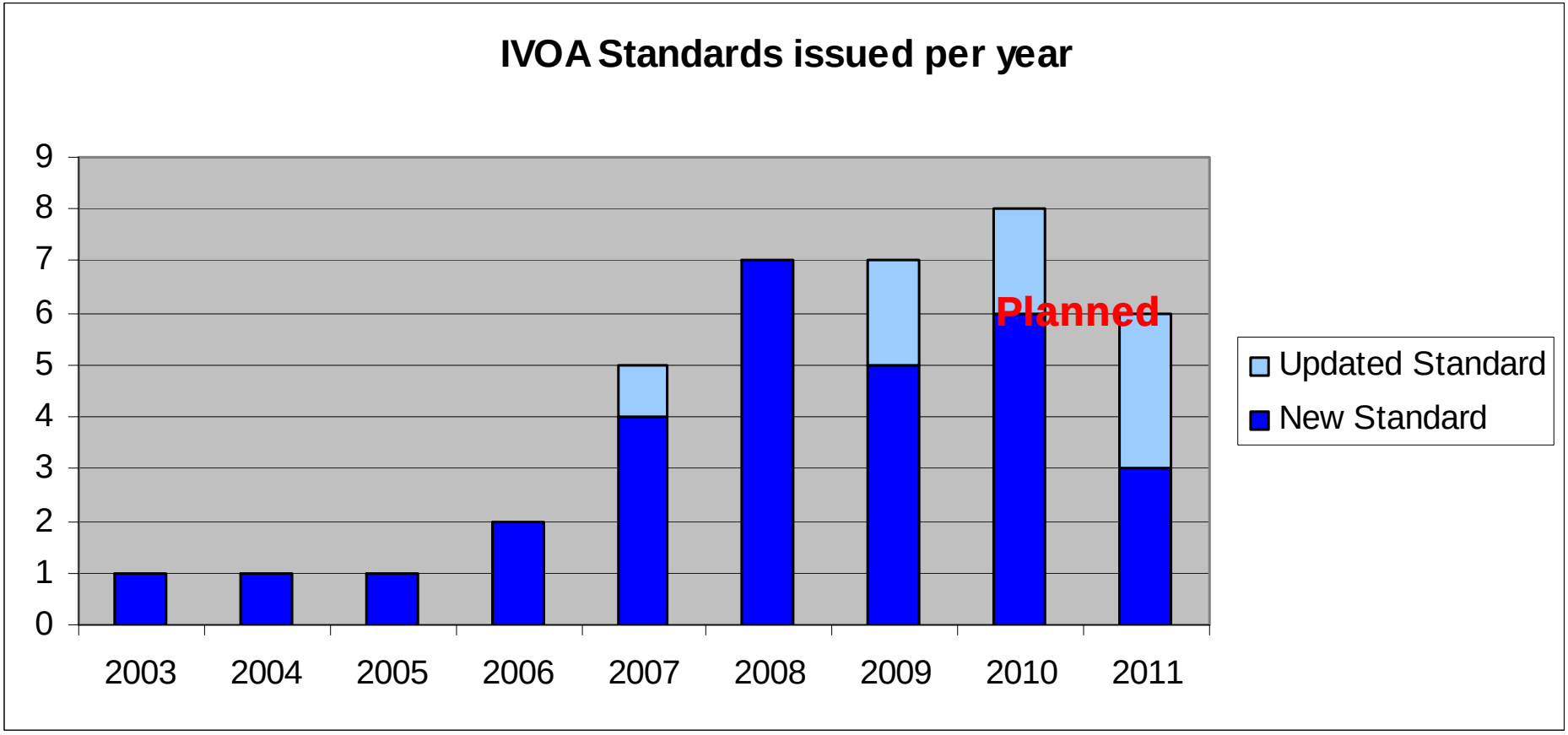
seleste
A TAP Client Application

SAMP used in other discipline: Soho Science Archive and Aladin





IVOA standards release through time



30 endorsed standards

http://www.ivoa.net/Documents/

Reference and acknowledgements

- The IVOA Architecture (Oct 2010)
  - http://www.ivoa.net/Documents/Notes/IVOAArchitecture/

- Stable since 1st version (Oct. 2010)
- Update foreseen in 2012

- Thanks to all the people who have participated to the definition and the writing of IVOA standards

- Thanks to all the people who are developing VO services and applications

International Virtual Observatory Alliance

IVOA Architecture

Version 1.0

IVOA Note 2010-11-23

This version:
Version 1.0- 23rd of November 2010

Latest versions:

Previous version(s):

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