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IA2 VO service/resource rebuild overview

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13-17 May 2019, Paris Observatory
DAL Session 2 – 16 May – 14:00-15:30**

Talk Goal

- Data Centres (may) encounter difficulties in adopting/adapting VO standards to distribute their Data Collections.
- IVOA should be the place to report them, DAL probably the most appropriate venue.
- Here's my (historical) report, please consider adding yours, periodically.

Outline

- IA2 managed data resources
- VO servicing history @ IA2
 - Initial, current, perspective
- To do & summary

IA2 managed data sources

- **Telescope archives**
 - LBT, TNG, Asiago, Radio Community, SVAS, ...
- **Projects, surveys, hosted data collections**
 - GAPS, VIALACTEA, VIPERS, ARTECS, WINGS, Prisma, ...
- **Not a terrific amount of bytes...**
- **... but a quite heterogeneous set of collections and requisites to focus upon**
- **Ingestion to the archive analogously mixed**
 - NADIR provided for dynamic telescope data collections and some project holdings
 - Dedicated flow for other static project collections (e.g. VIALACTEA)
 - Manual for small amounts
- **Publishing phase consequently driven**
 - Usually relying on dedicated second level databases or dynamic views

Data flow samples

LBT

- NADIR generated archive
- Basic internal TAP setup & configuration (TASMAN)
- Web portal
 - Query through ADQL
 - SAMP/VOTable capable
 - Dataset rights enforced through a FileServer
 - User AuthN&AuthZ enabled (browser)

TNG

- NADIR generated archive
- Publishing tool to postprocess the database and create the needed structure
- Basic internal TAP setup & configuration (TASMAN)
- Web portal
 - Query through ADQL
 - SAMP/VOTable capable
 - Dataset rights enforced through a FileServer
 - User AuthN&AuthZ enabled (browser)

VIALACTEA

- Dedicated ingestion tool
- DB directly used for
 - Unregistered TAP services
 - ObsCore/SIAP-2.0 setup
 - Under test
 - Custom discovery/access
 - To be brought to SODA
 - Custom cutout/merge
- Desktop tool consumes the TAP & custom services

- A “small” catalogue? Simple DB load, annotate and deploy interfaces (under refurbishment)
- Federated multi-standard authentication is provided on browser applications by RAP

First VO servicing attempts

note: this means looking back in time nearly 10 years!

- Messy... to be generous
- Old attempts: VO servicing raw datasets (from telescope data)
 - no WCS information
- Usually considered an extra layer
 - on top of the “real” archive
 - data usually published through *ad hoc* solutions
- A struggle to retrieve the metadata needed to put in place services with minimal interoperability
- Easier life (later) with hosted project/survey based collections
 - Science ready, different scope, ...

Resulting VO solutions

- **A couple of custom servlets for some basic telescope collections**
 - One integrated within the web app deploying the search form
- **Follow up: the development of VO-Dance**
 - (still in production today, see next slides)
 - Simple Cone Search, SIAP-1.0, ~SSAP-1.1
- **Attempt at developing a TAP tool with specific local requirements**
 - Forking (not current) openCADC libraries
 - A few deployments in place
- **(due to the) Few development/curation resources**
 - Trailed behind in following VO developments
 - Maintenance itself became an issue

Architecture: current

- **VO-Dance (ConeSearch-1.03, SIAP-1.0, SSAP-1.1)**
 - Deploying nearly 30 services/tables
 - under replacement by VOBall (ConeSearch) & VOSSIA (SIAP-2.0) + SSAPServer (SSAP-1.1)
- **IA2TAP (TAP-1.0) & TAPLib**
 - IA2TAP - old customized fork of openCADDC libraries
 - Few services, some internal or unregistered (e.g. VIALACTEA ones)
 - TAPLib (with small changes & through config) ~TAP-1.1
 - Used behind all “portals” ... but 1 TAP each...
 - Will replace internal®istered TAP – already started
- **Service-based resource registration**
 - With only 1 recent exception (Exo-MerCat, see next slide)
- **There are also specific custom services on galactic data collections (VIALACTEA)**
 - Structure built with a VO framework in mind
 - Never had actual time to port them to compliance, but now we’re slowly doing it

Architecture: current (support tools)

- **TASMAN**

- To manage TAP_SCHEMA(ta)
- Supporting obscure table structure check
- Attaches to a UCD ReST wrapper to consume CDS UCD tools
 - Had no time yet to add also GAVO solution
- Using ucidy for offline UCD validation
- Using unity for VO-Units validation

Architecture: in progress

- **Nearly all VO-Dance served resources have already been duplicated using VOBall & VOSSIA**
 - Need to make last checks/portings & modify resource endpoints
- **SSAPServer has been tested on VIPERS PDR2**
 - Waiting cross-check from researcher
 - Checking on having multiple SSAPServer instances on the same server (heritage reasons)
- **Move all TAP services to TAPLib (VOLLT)**
 - Requires also MySQL to PostgreSQL+PgSphere migration
 - Reducing the number of TAP services around
- **Move VIALACTEA to fully compliant VO scenario**
 - SIAP-2.0 nearly ready over an ObsCore porting of the project specific database
 - TAP porting to TAPLib ongoing
- **Registration based on Data Collections served-by Services**
 - First attempt (easy) on ExoMerCat + “projects” TAP (itself the first step in TAP number restriction)
- **Rebuilding some old services that “died” in the meantime**

Architecture: moving forward

- **VOBall & VOSSIA need to automate VOSI/DALI endpoints**
- **VIALACTEA cut/merge 2D/3D service to go SODA**
- **Resource registration shouldn't be manually (me) maintained**
- **DataLink solution for dataset bundles & their description**
 - **obs_publisher_did minting vs. current FileServer URL**
- **AuthN&AuthZ in place works for the browser based solutions, but will hardly work on VO services deployed**
 - **Or will work only restricting the authentication profiles**
- **Provide VO API for all the data collections of the archival facilities**

Summary

- **Overcommitment? Lack of resources?**
 - doesn't matter: we have to re-arrange our resources
 - It may take time; aim and purpose are clear
- **Items for discussion**
 - SIAP-1.0 ~> collection:service → 1:1. SIAP-2.0, like TAP, makes it different
 - Data Collection Discovery
 - Keeping heritage identifiers: does it matter?
 - Some providers press to keep URLs despite explaining IVOIDs role!
- **Try to have a better start with new challenges**
 - like radio community requirements
- **Many, many, many things to do and decreasing resources to reach the goal**
 - Note I haven't mentioned: time series resources, simulations interoperability, exoplanetary datasets, MOCs “inside” VIALACTEA, HiPS, CAOM, ...



Thank you!

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