Web application prototypes for CTA

framework, modularity and standards

Mathieu Servillat & Catherine Boisson

l'Observatoire de Paris — LUTH
Laboratoire Univers et Théories

cnrs dépasser les frontières

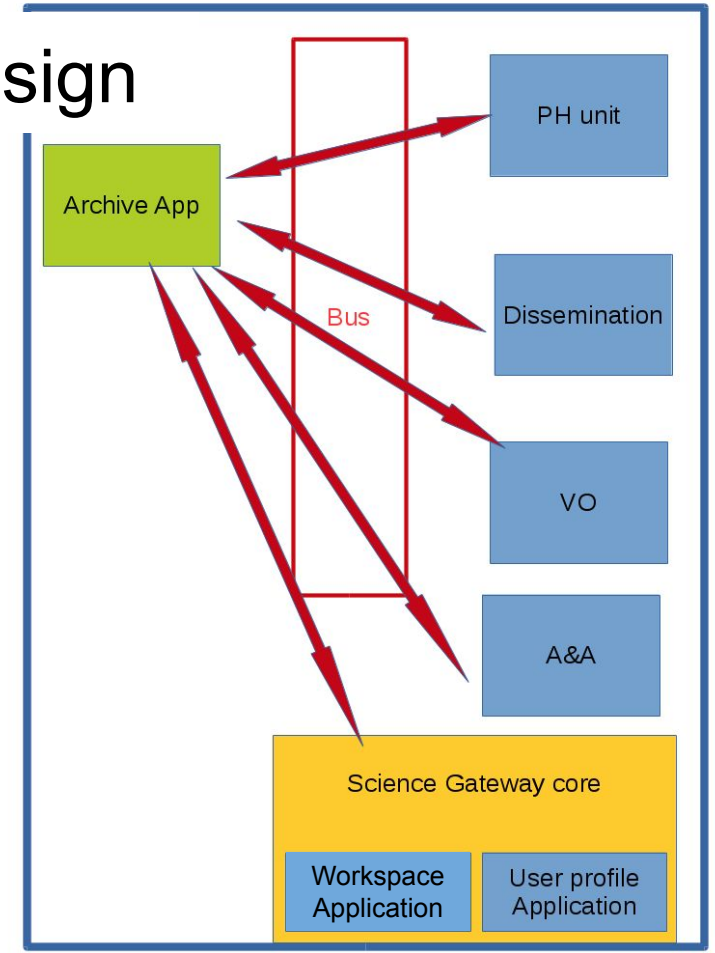
PSL RESEARCH UNIVERSITY PARIS

PADC Paris Astronomical Data Centre

CTA science portal preliminary design

- Modular design
  - core + various application
- Top Menu Bar
  - Visual integration for each application
  - Common menu, A&A status
- Message bus
  - Bus (Message Queue, e.g. RabbitMQ, ZeroMQ)
  - Formatted Messages (e.g. Protobuf)
- Authentication and Authorization (A&A)

- **Web app developed at Obs Paris:**
  - **VO Data Access and Distiller**
  - **Proposal Handling Platform**



CTA Science Gateway @ D. Sanchez

Development frameworks to do it fast and clean

- Django, Flask or Bottle
  - Python frameworks that follow the model–view–controller design pattern
  - Choice guided by the size and requirement of the application
    - Bottle: simple app with almost no user interface
    - Flask: small app
    - Django: advanced app (model part more advanced and linked to the database…)
- JQuery, Bootstrap3
  - simple javascript frameworks
  - reduce the work on the appearance of the web pages

CTA TAP Distiller https://voparis-cta-test.obspm.fr

Cone Search

Target Name: PKS 2155-304

Source RA (deg): 329.717

Source Dec (deg): -30.226

Search radius (deg): 0.001

Submit Reset

istiller Search Form Results Job List

Search Analyse

Authentication: Sign out Mathieu Servillat

IVOA Standards

SAMP

ADQL query

ObsCore fields

UWS

Results show/hide query

SELECT * FROM hess_dr.vo_obscore as o WHERE 1 = intersects(o.s_region, circle('ICRS', 329.717000, -30.226000, 0.001000)) Send

Search

	dataproduct_type	obs_collection	obs_id	target_name	s_ra (deg)	s_dec (deg)
☐	event	HESS-DR	33787	PKS 2155-304	329.717	-29.7256
☑	event	HESS-DR	33788	PKS 2155-304		
☐	event	HESS-DR	33789	PKS 2155-304		
☐	event	HESS-DR	33790	PKS 2155-304	329.717	-30.7256
☐	event	HESS-DR	33791	PKS 2155-304	329.717	-29.7256

Showing 1 to 5 of 21 rows 5 records per page

<< < 1 2 3 4 5 > >>

Interop (SAMP)

Send Result Table

Send Selected Data

Analysis tools

Count Map(s)

Fit Spectrum

Plotting tools

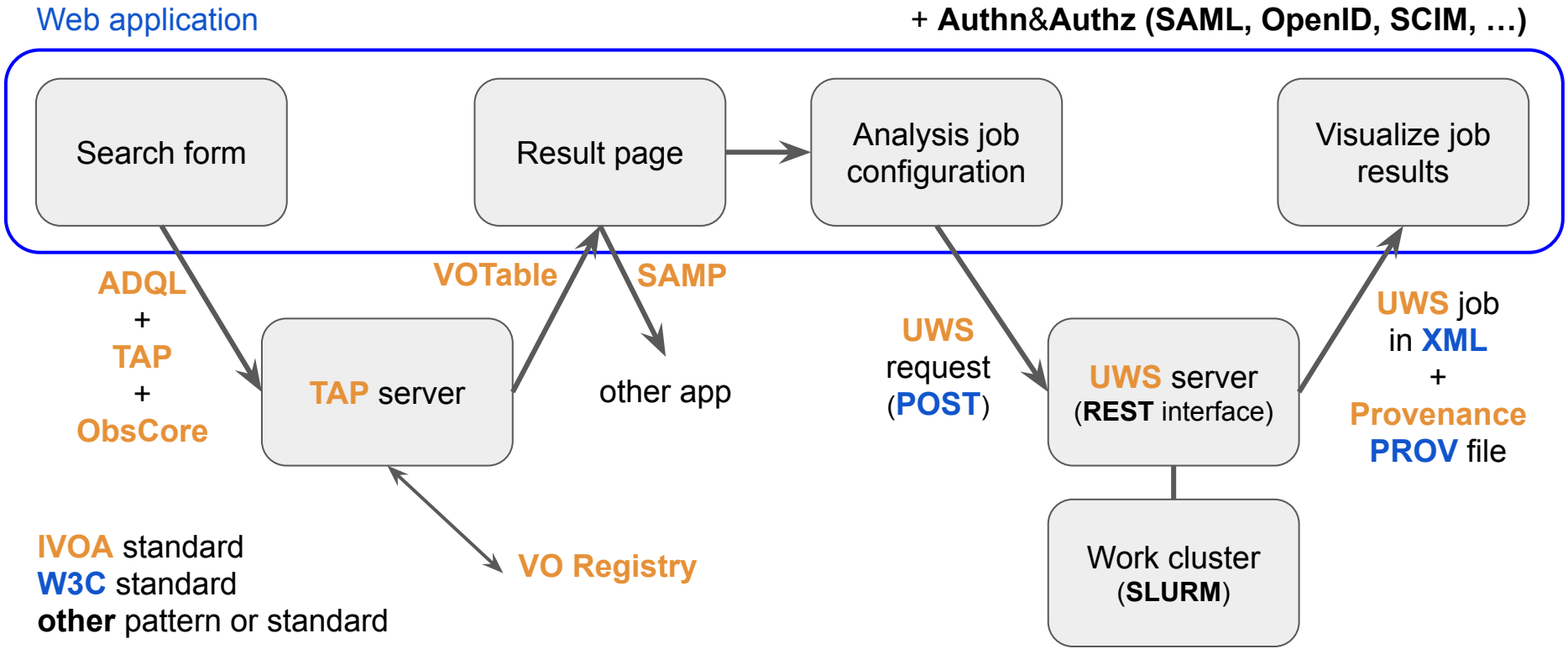
Aladin

VOSpec

SPLAT

OPUS https://voparis-uws-test.obspm.fr

Use of standards and modularity to increase development speed



H.E.S.S. DL3 public DR1

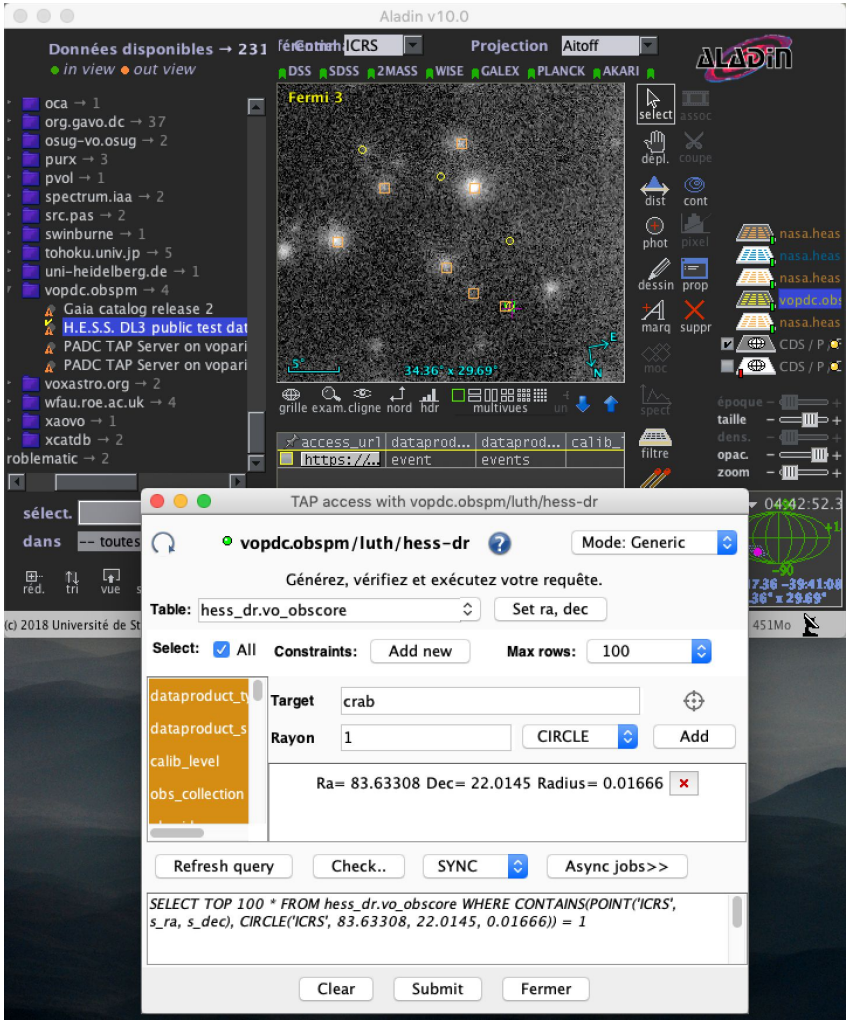
- Service referenced in **VO Registry**
- DaCHS software behind
- **TAP** + **ObsCore** table
  - obs_id, s_ra, s_dec...
  - access_url
  - + H.E.S.S. metadata
- Enables blind discovery of the H.E.S.S. data

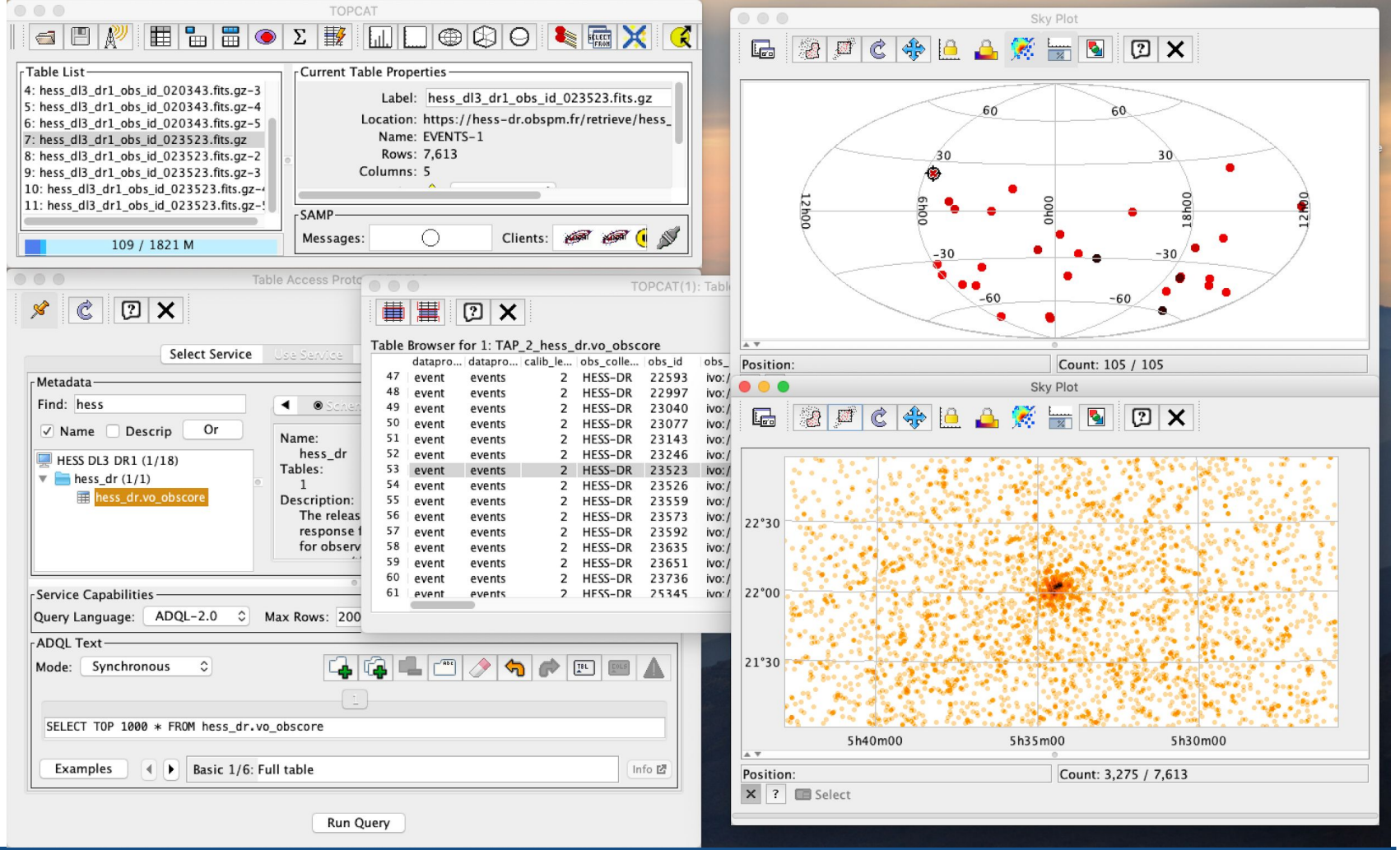
  See: https://hess-dr.obspm.fr/

VO Data Access tools

VO standards become transparent once used through VO compliant tools such as

- Aladin
- TOPCAT
- a dedicated web service




TOPCAT
Table List
4: hess_dl3_dr1_obs_id_020343.fits.gz-3
5: hess_dl3_dr1_obs_id_020343.fits.gz-4
6: hess_dl3_dr1_obs_id_020343.fits.gz-5
7: hess_dl3_dr1_obs_id_023523.fits.gz
8: hess_dl3_dr1_obs_id_023523.fits.gz-2
9: hess_dl3_dr1_obs_id_023523.fits.gz-3
10: hess_dl3_dr1_obs_id_023523.fits.gz-
11: hess_dl3_dr1_obs_id_023523.fits.gz-
109 / 1821 M
Current Table Properties
Label: hess_dl3_dr1_obs_id_023523.fits.gz
Location: https://hess-dr.obspm.fr/retrieve/hess_
Name: EVENTS-1
Rows: 7,613
Columns: 5
SAMP
Messages:
Clients:
Sky Plot
60
30
-30
-60
12h00
6h00
0h00
18h00
Position:
Count: 105 / 105
Table Access Proto
Select Service
Use Service
Metadata
Find: hess
Name
Descrip
Or
HESS DL3 DR1 (1/18)
hess_dr (1/1)
hess_dr.vo_obscore
Name:
hess_dr
Tables:
1
Description:
The releas
response
for observ
Service Capabilities
Query Language: ADQL-2.0
Max Rows: 200
ADQL Text
Mode: Synchronous
SELECT TOP 1000 * FROM hess_dr.vo_obscore
Examples
Basic 1/6: Full table
Info
Run Query
TOPCAT(1): Tabl
Table Browser for 1: TAP_2_hess_dr.vo_obscore
datapro... datapro... calib_le... obs_colle... obs_id obs_
47 event events 2 HESS-DR 22593 ivo:/
48 event events 2 HESS-DR 22997 ivo:/
49 event events 2 HESS-DR 23040 ivo:/
50 event events 2 HESS-DR 23077 ivo:/
51 event events 2 HESS-DR 23143 ivo:/
52 event events 2 HESS-DR 23246 ivo:/
53 event events 2 HESS-DR 23523 ivo:/
54 event events 2 HESS-DR 23526 ivo:/
55 event events 2 HESS-DR 23559 ivo:/
56 event events 2 HESS-DR 23573 ivo:/
57 event events 2 HESS-DR 23592 ivo:/
58 event events 2 HESS-DR 23635 ivo:/
59 event events 2 HESS-DR 23651 ivo:/
60 event events 2 HESS-DR 23736 ivo:/
61 event events 2 HESS-DR 25345 ivo:/
Sky Plot
22°30
22°00
21°30
5h40m00
5h35m00
5h30m00
Position:
Count: 3,275 / 7,613
Select