

Archivi IA2: il nuovo approccio ai dati

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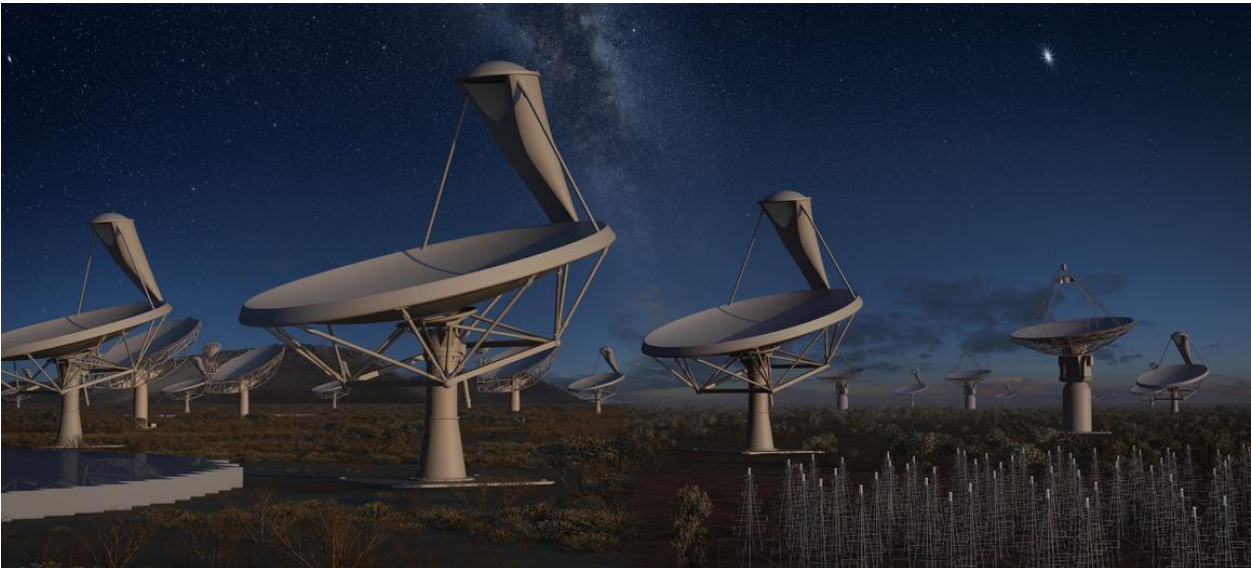
In behalf of the IA2 team



The Italian Astronomical Archives (IA2)

Aims to:

- Support the Italian (and International) community in the data storage, curation and preservation;
- Support the astronomical user community in the data retrieval (Web Interfaces and VO services);
- Support the astronomical user community in the data reduction and sharing (User Space)
- Support the user community in the collaboration tool usage.



“IA2 currently is the only e-infrastructure in INAF (from PT 2017-2019)”



The data storage, curation and preservation

Telescope's data handled/hosted:

- TNG : all instruments
- LBT : all instruments except LBTI
- Asiago Observatory : all instruments
 - Serra La Nave
 - ExoClimates (simulations)
 - Prisma
- Radio (Medicina, Noto, SRT)
 - BaSTI
 - MWA mirror (150 TB)



The data storage, curation and preservation

➤ Hardware IA2:

➤ on line :

- 500 TB (300 TB used and 200 TB coming soon)
- backup : 100 TB

➤ off line : 200 TB with expansion to 2 PB

➤ Bandwidth: 10Gb/s GARR

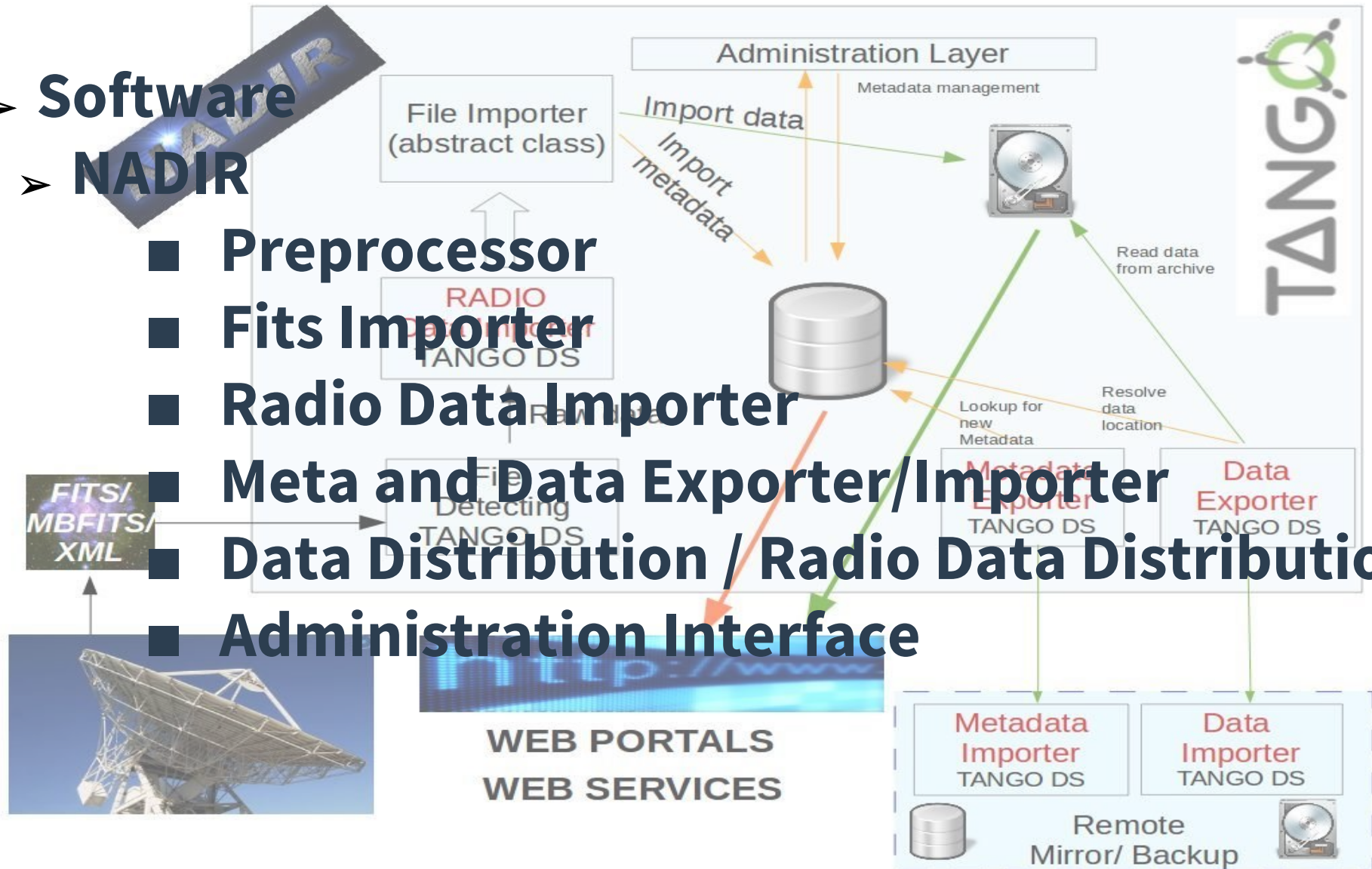
➤ Hardware owned by partners:

- IRA : 40 TB Radio Distributed Archive
- Serra La Nave : 500 GB on site
- LBT : 12 TB upgraded 1TB /y Full LBT Archive
- Asiago : 500 GB on site

The data storage, curation and preservation

➤ Software ➤ NADIR

- Preprocessor
- Fits Importer
- Radio Data Importer
- Meta and Data Exporter/Importer
- Data Distribution / Radio Data Distribution
- Administration Interface



The data storage, curation and preservation



➤ Software

➤ External tools (online):

- NGAS for MWA
- KAFE
- OwnCloud

➤ Archive Manager (TAPE)



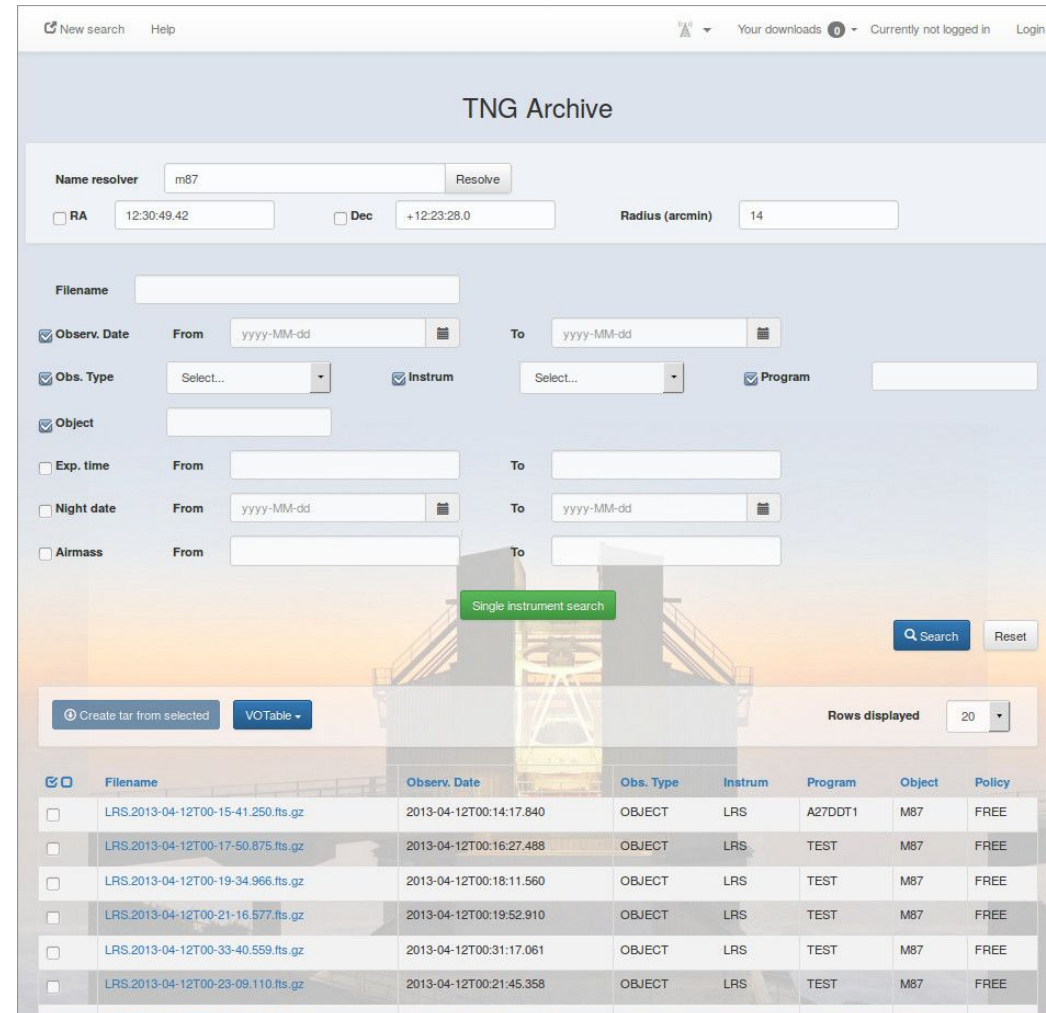


IA2 offer several services for the data retrieval:

- Web portals
- Virtual Observatory services
 - TAP
 - SSAP
 - SIAP
 - ConeSearch
- Help Desk
 - users help desk (~ 10 e/m)
 - provider help desk (~ 2 e/m)

IA2 is planning to offer the USER SPACE

the
VO SPACE



The screenshot shows the TNG Archive web interface. At the top, there's a header with 'New search', 'Help', 'Your downloads', 'Currently not logged in', and 'Login'. Below this is the 'TNG Archive' title. The main section contains various search filters: 'Name resolver' (m87), 'RA' (12:30:49.42), 'Dec' (+12:23:28.0), 'Radius (arcmin)' (14), 'Filename', 'Obsv. Date' (From/To), 'Obs. Type' (Select...), 'Instrum' (Select...), 'Program' (Select...), 'Object' (Select...), 'Exp. time' (From/To), 'Night date' (From/To), and 'Airmass' (From/To). There are checkboxes for 'Obsv. Date', 'Obs. Type', 'Object', 'Exp. time', 'Night date', and 'Airmass'. A 'Single instrument search' button is visible. At the bottom, there's a 'Create tar from selected' button, a 'VO Table' button, and a 'Rows displayed' dropdown set to 20. Below these is a table with columns: Filename, Obsv. Date, Obs. Type, Instrum, Program, Object, Policy. The table contains several rows of data, including filenames like 'LRS.2013-04-12T00-15-41.250.fits.gz' and 'LRS.2013-04-12T00-17-50.875.fits.gz', observation dates, observation types (OBJECT), instruments (LRS), programs (A27DDT1, TEST), objects (M87), and policies (FREE).

Data Retrieval : the user space

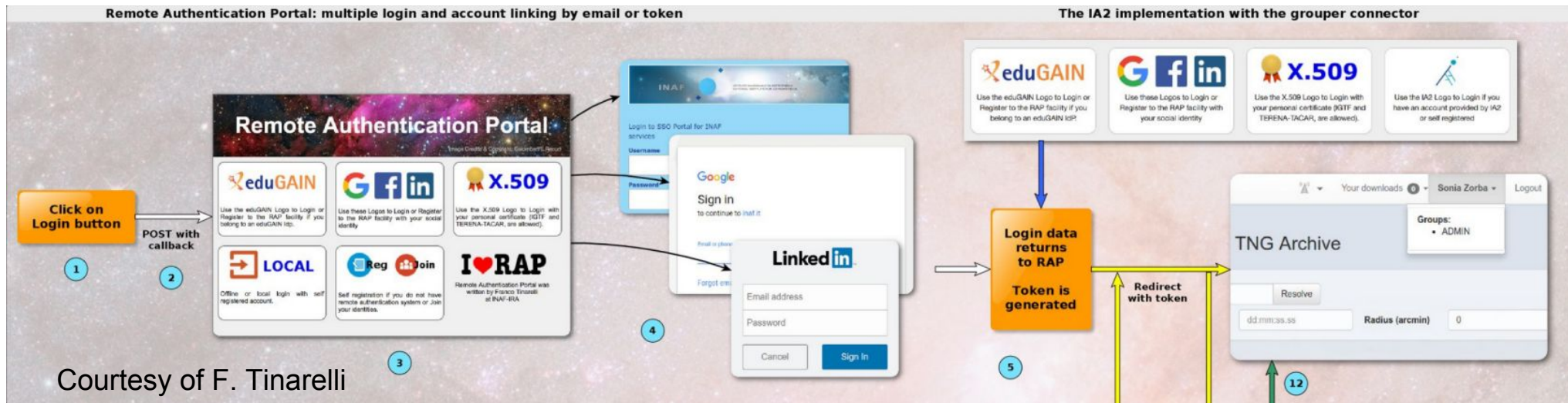
Prepare your user space

The diagram illustrates the preparation of a user space for data retrieval. A central red circle labeled **SSO** (Single Sign-On) acts as the hub, with arrows pointing to various services: ownCloud, yabi, REDMINE (flexible project management), TWiki (collaborate with), and VO Service & TopCat. These services are integrated into a **VO compliant User Space** (green oval). The SSO hub also has an arrow pointing to the **TNG Archive** interface.

The TNG Archive interface shows a search form with fields for Name resolver (m87), RA (12:30:49.42), Dec (+12:23:28.0), Radius (arcmin) (14), and a search button. Below the search form, there are filters for Observ. Date, Obs. Type, Instrument, Program, Object, Exp. time, Night date, and Airmass. A table of search results is displayed at the bottom, showing columns for Filename, Observ. Date, Obs. Type, Instrument, Program, Object, and Policy.

Filename	Observ. Date	Obs. Type	Instrument	Program	Object	Policy
LRS.2013-04-12T00:15:41.250.fs.gz	2013-04-12T00:14:17.840	OBJECT	LRS	A2/DOT1	M87	FREE
LRS.2013-04-12T00:17:50.675.fs.gz	2013-04-12T00:16:27.400	OBJECT	LRS	TEST	M87	FREE
LRS.2013-04-12T00:19:34.966.fs.gz	2013-04-12T00:18:11.560	OBJECT	LRS	TEST	M87	FREE
LRS.2013-04-12T00:21:18.577.fs.gz	2013-04-12T00:19:52.910	OBJECT	LRS	TEST	M87	FREE
LRS.2013-04-12T00:33:40.559.fs.gz	2013-04-12T00:31:17.081	OBJECT	LRS	TEST	M87	FREE
LRS.2013-04-12T00:33:09.110.fs.gz	2013-04-12T00:21:45.350	OBJECT	LRS	TEST	M87	FREE
LRS.2013-04-12T00:30:35.713.fs.gz	2013-04-12T00:34:15.910	OBJECT	LRS	TEST	M87	FREE

Data Retrieval : SSO



INTERNET

Home > Root > OATS > TNG_GROUPS

TNG_GROUPS

More

Folder contents Privileges More

Filter for: Folder, group, or attribute name Apply filter Reset

Name

- Up one folder
- A16TAC_1
- A16TAC_10
- A16TAC_11
- A16TAC_12
- A16TAC_13
- A16TAC_14
- A16TAC_15
- A16TAC_16
- A16TAC_17
- A16TAC_18
- A16TAC_19
- A16TAC_2
- A16TAC_20
- A16TAC_21
- A16TAC_22
- A16TAC_23
- A16TAC_24
- A16TAC_25
- A16TAC_26

Quick links

- My groups
- My folders
- My favorites
- My services
- My activity
- Miscellaneous
- Admin UI
- Lite UI

Browse folders

- Root
- OATS
- ASIAGO_GROUPS
- TNG_GROUPS

Search

Logged in as GrouperSysAdmin · Log out

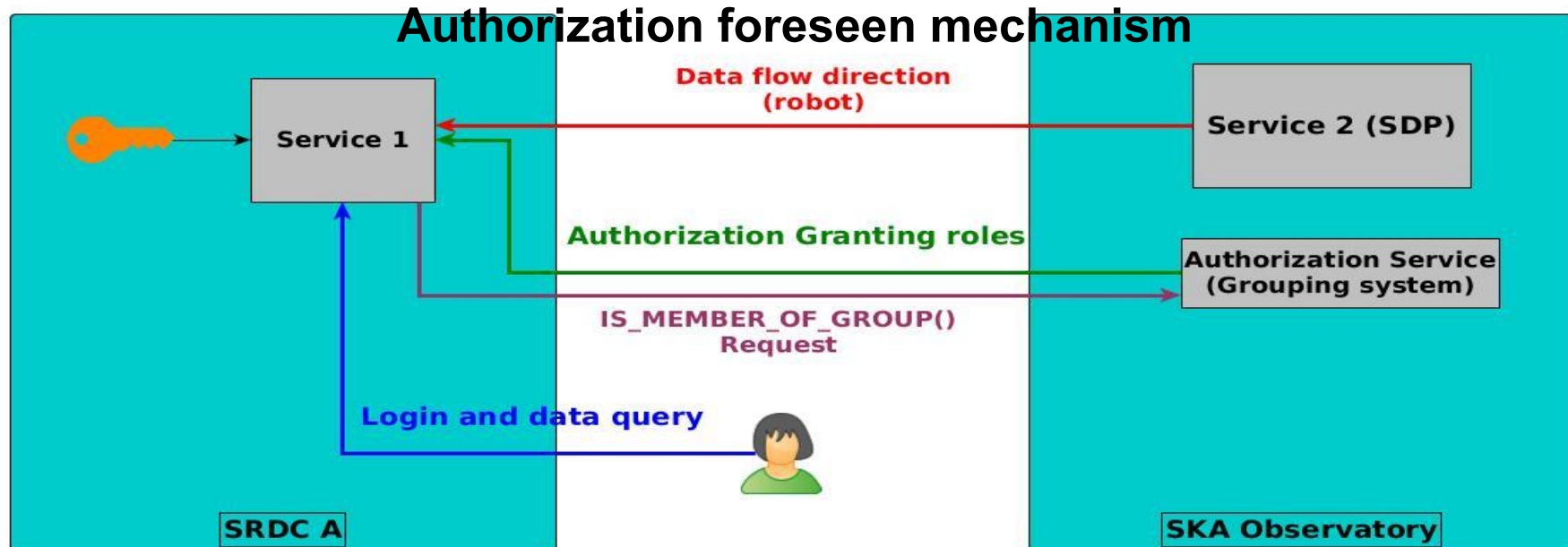
Data Retrieval and re -processing : the (VO) user space



- TAP Service
 - IA2 implementation
 - custom User Defined Functions to improve query performance
 - `get_table = f(pos, freq,...) ;`
 - `pos= f(ra,dec,rad,...);`
- ObsCore [and CAOM?] deployment
- UDF at TAP capability level or transparently mapped behind
 - yet to decide
- Datalink access to datasets
 - Access to the atomic datasets
 - planned to provide additional metadata description
 - probably requires an addition to Datalink semantics vocabulary
- VOSpace : VO Compatible user space where the users could upload, reduce, share data



Data Retrieval and re-processing : the (VO) user space



Interoperable Authorization Requirements

- 1) To allow for restricted access certain resources
Only a certain set of individuals may access certain resources
- 2) To allow certain individuals to set the access rules on resources
The owner(s) of the resources need to manage the access rules
- 3) To be able to re-use granting rules between resources
Projects must authorize access to a variety of proprietary resources
- 4) To be able manage granting rules at a single location
Projects should not have to update each resource on a change to a re-used grant
- 5) To be able to reference remote granting rules
Proprietary resources should not be confined to a single institution





REDMINE

flexible project management



Google Calendar



Google Drive



Google Forms



Google Sheets

G Suite



Google Docs



Google Slides



Gmail



Google Hangouts



Conclusions



- Data storage, curation and preservation:
 - 2PB @ 10Gb/s
 - data providers can store Telescope data and users can store their own data (Yabi, Owncloud, Google, KAFE) both in IA2 Data Center and their own facilities;
 - DOI for the dataset identification available for INAF;
- Data Retrieval:
 - users can access data via web interfaces or via VO clients and services
 - SSO;
 - authorization administration demanded to the PIs;
- Data re-processing, sharing and collaborative tools:
 - yabi for interactive pipelines;
 - collaborative tools
 - user VO Space will come soon!!

