

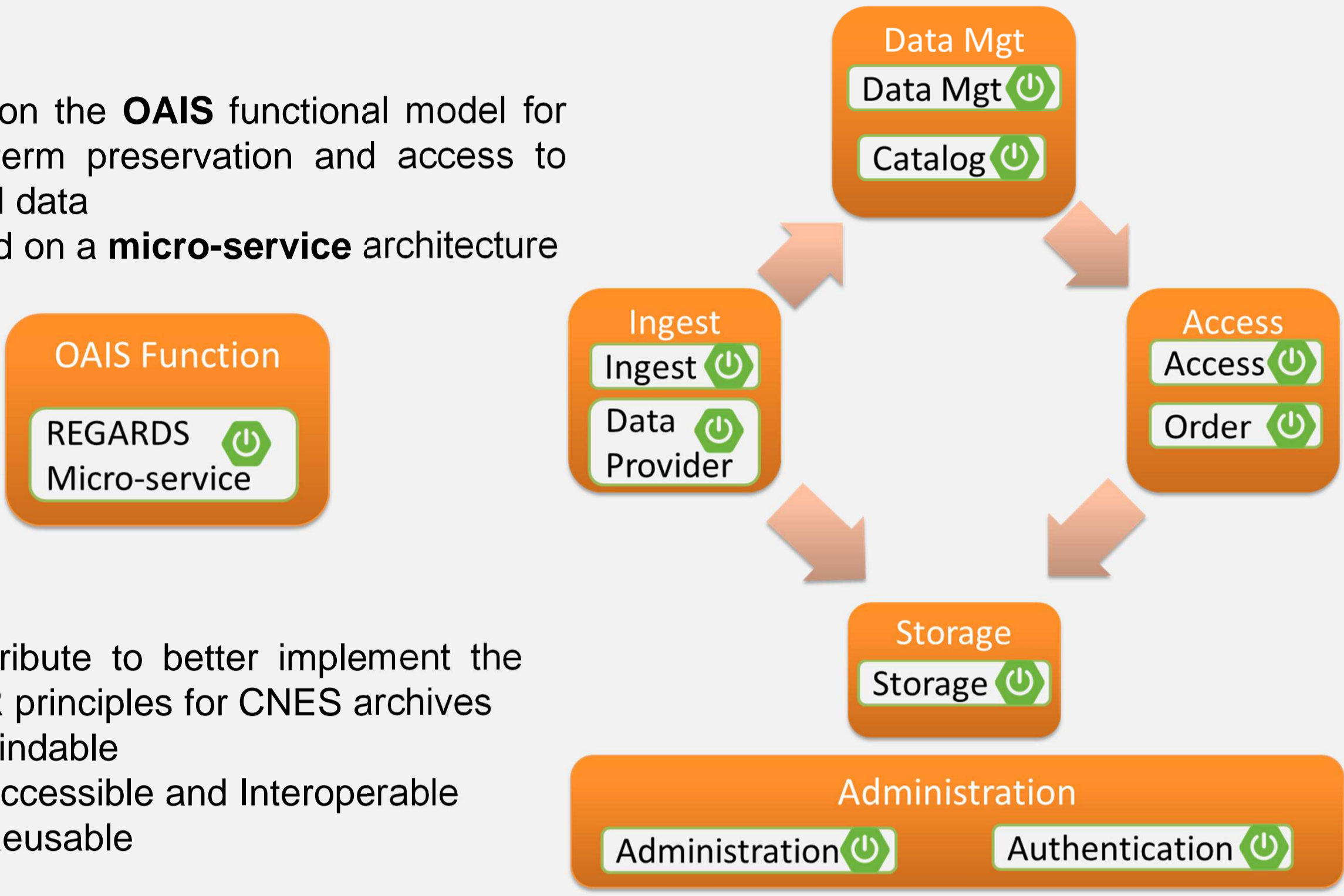
### Context

For CNES archives, SITools2 and SIPAD-NG are the current two main systems used to manage space mission data. However, the architecture of these tools are now becoming obsolete due to the new needs of long term data preservation:

- Have a unique tool to optimize development and maintenance costs,
- Be able to cope with huge data volumes expected from space missions in the 2020 and beyond,
- Address the interoperability needs,
- Meet the need to bring the processing as close as possible to the data,
- Make it an open source software (under GPLv3 license),
- Get a true ground segment product with high capabilities of configuration and adaptability aiming to be implemented in Mission or Data Centers located at CNES or in partner laboratories
- Be compatible with a cloud-type architecture

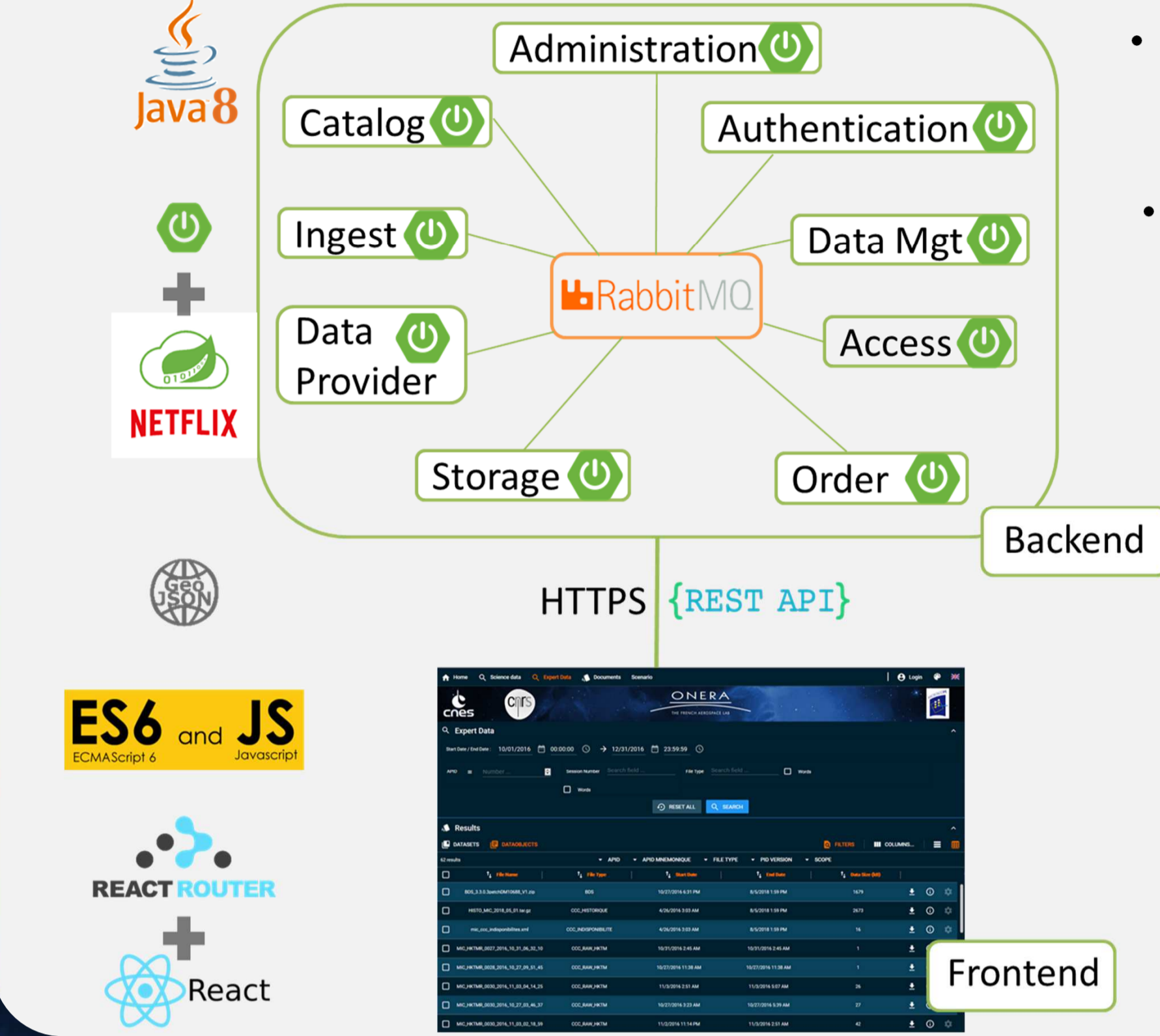
### OAIS Functional model and REGARDS Micro-services

- Rely on the OAIS functional model for long-term preservation and access to digital data
- Based on a **micro-service** architecture

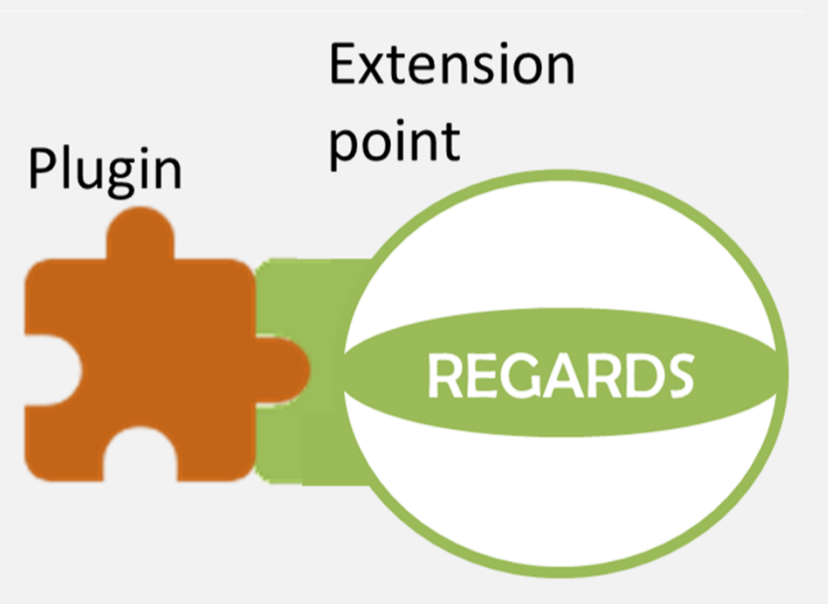


- Contribute to better implement the FAIR principles for CNES archives
  - Findable
  - Accessible and Interoperable
  - Reusable

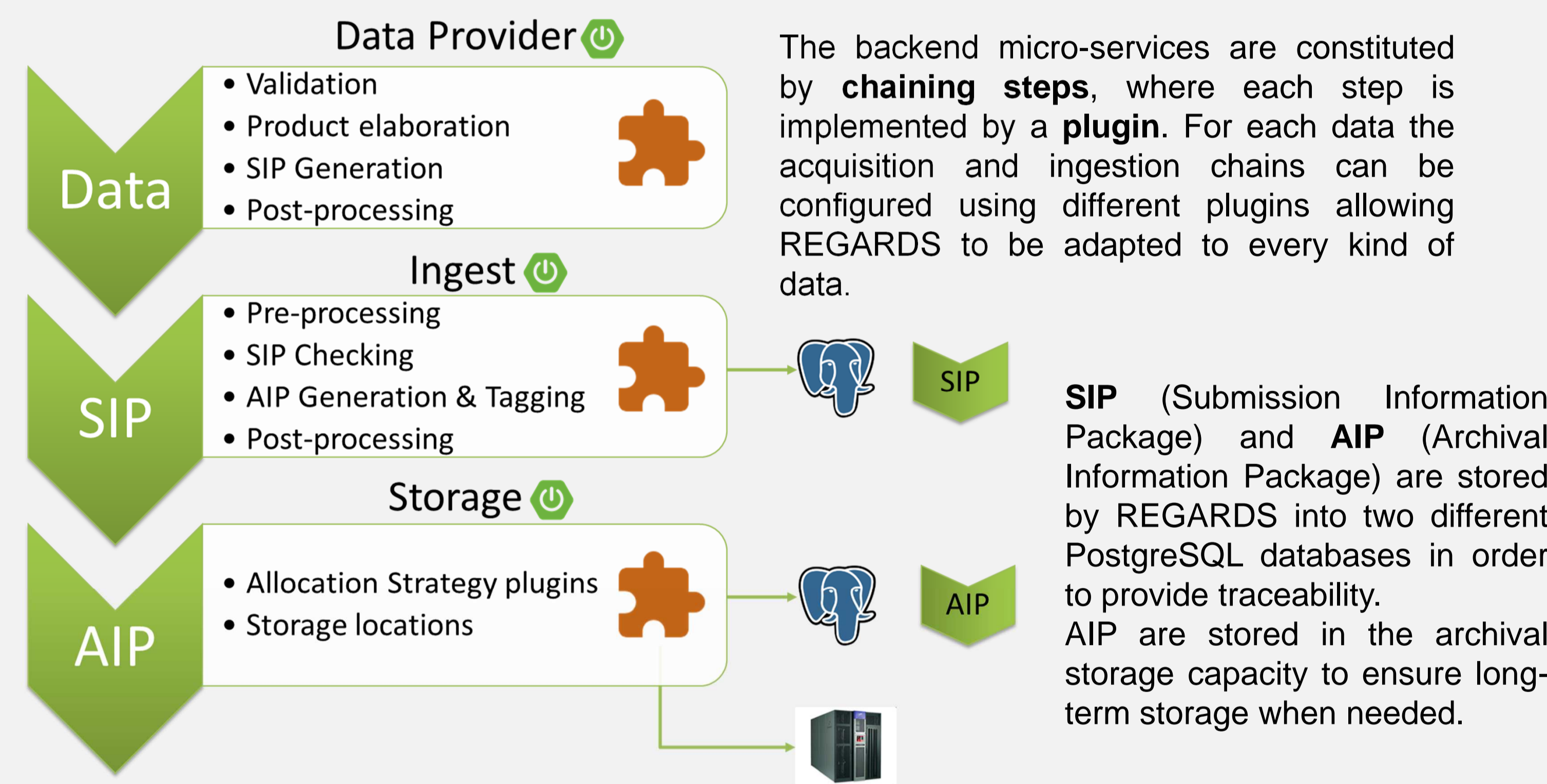
### REGARDS Architecture as a framework



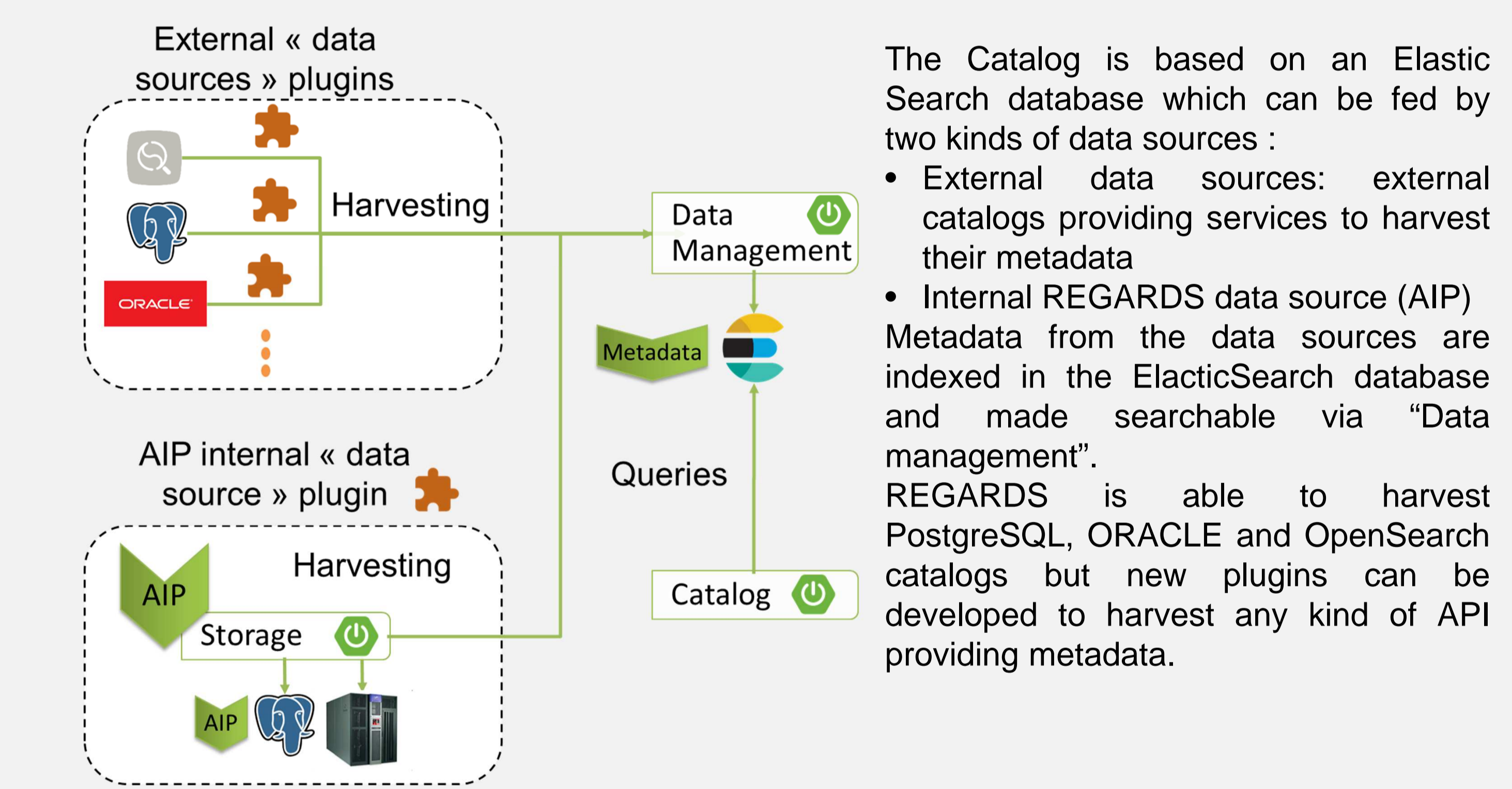
- Each micro-service matches an **elementary** REGARDS function and has its own context of execution and its own configuration
- **High horizontal scalability**: several instances of a micro-service can be deployed to absorb load spin-up
- **Extension point** are used to develop new plugins for specific needs



### Ingest and Storage functions

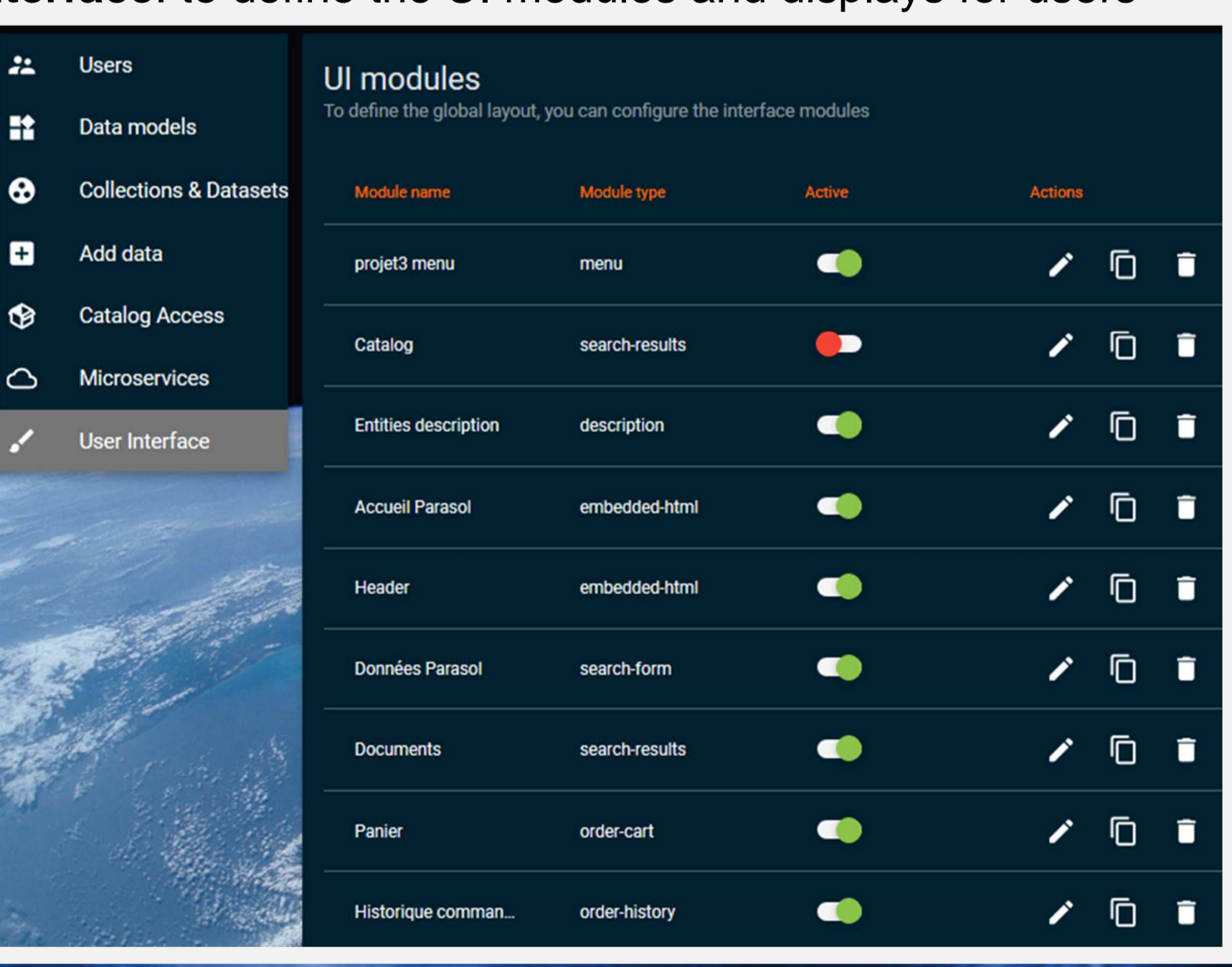


### Data Management function



### Administration function

- Highly configurable :**
- **Users**: access control and roles
  - **Data models**: to define specific metadata depending on each mission
  - **Collections and datasets**
  - **Add data**: data collects from external catalogs or data ingestion
  - **Catalog access**: to configure access rights at dataset level
  - **Microservices**: to control and configure micro-services and plugins
  - **User Interface**: to define the UI modules and displays for users



### Access function

- Two types of data access:
- **Direct download** (synchronous) of the data through the web user interface of REGARDS Restful API.
  - **Data order** (asynchronous) through the order micro-service. Can be useful in case of data near-line storage (tapes for instance) or in case of data processing before download. A metalink file is provided to the user so he can download the data when it is available on REGARDS local storage.

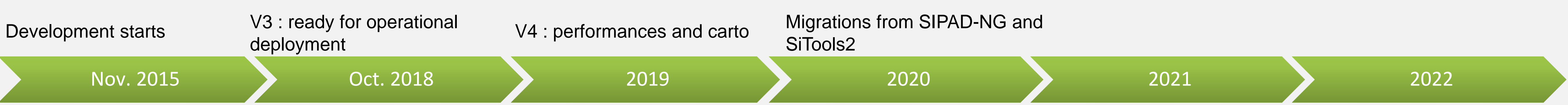
Provides **Web standardized API** (OpenSearch standard) to access data

Number	Progress	Creation	Expiration	Objects count	Total
104	0%	1/8/2019 8:49 AM	1/11/2019 8:49 AM	1	20.5
103	100%	12/21/2018 7:58 AM	12/24/2018 7:58 AM	8	123.
102	100%	12/21/2018 7:44 AM	12/24/2018 7:44 AM	1	113.
52	100%	12/18/2018 5:03 PM	12/21/2018 5:03 PM	1	113.
2	100%	12/13/2018 1:54 PM	12/16/2018 1:54 PM	1	20
1	100%	12/13/2018 9:44 AM	12/16/2018 9:44 AM	1	35



Example of MIZAR cartographic component that can be embedded in the REGARDS GUI and be connected to REGARDS catalog using the exposed OpenSearch web services

### REGARDS deployment and planning



- MICROSCOPE
- Spot World Heritage (SWH)
- MICROCARB SWOT
- Pleiades World Heritage