SI TOOLS 2
INFORMATION SYSTEM TOOL

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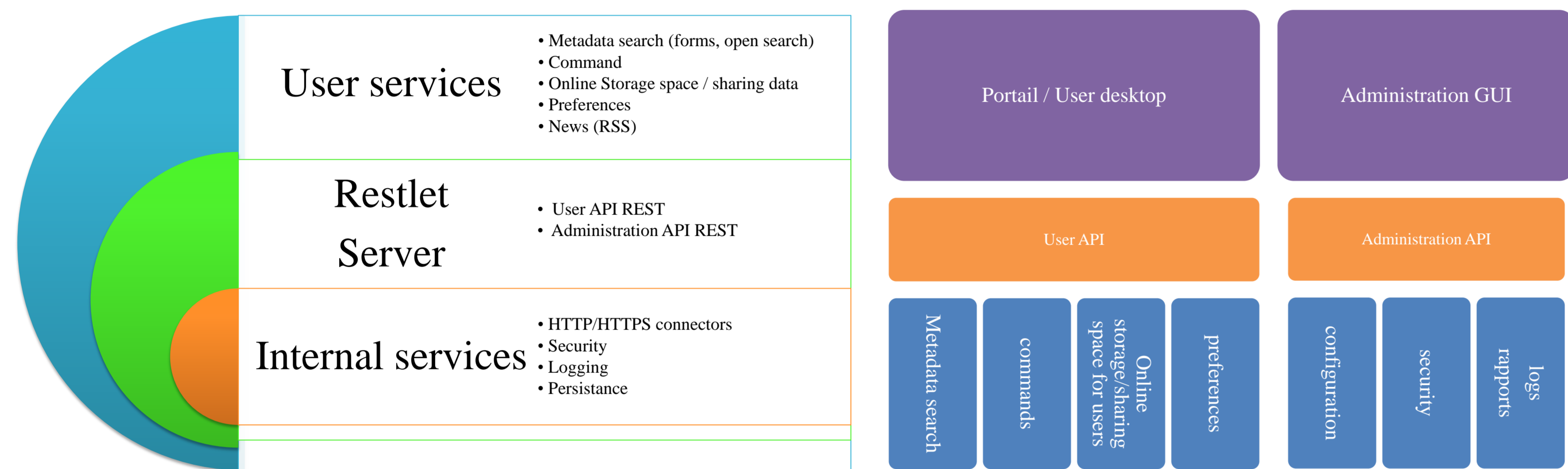CNES – DCT/PS/TVI, 18 avenue Edouard Belin 31401 Toulouse Cedex 9, France

Abstract: CNES and AKKA technology are currently developing a new Tool for Information System called SITools2. This version, with a new architecture, will succeed to the first one developed eight years ago. This new version of SITools is a JAVA-based framework, under open source license, that provides both administration and data access layer features by a set of APIs. This framework's purpose is to provide a portable archive system, highly configurable, easy to use by laboratories, with a plug-in mechanism so that developers can add their own applications. SITools2 uses new technologies such as Rich Internet Application, REST architecture and OSGI. In addition, interoperability services (virtual observatory and OGC) are foreseen and will be developed as plug-in.

Introduction: Raw data is archived at CNES and most of processed data is stored in the scientific laboratories. In order to insure the data long time preservation and to help the scientific laboratories in the data valorization, CNES offers a generic open source development framework to customize information systems. This development is currently realized using an AGILE method. This method consists mainly in the development of functionalities based on runs during three weeks. In addition, the developers of scientific laboratories are involved in this process so that they provide their feedback after each run.
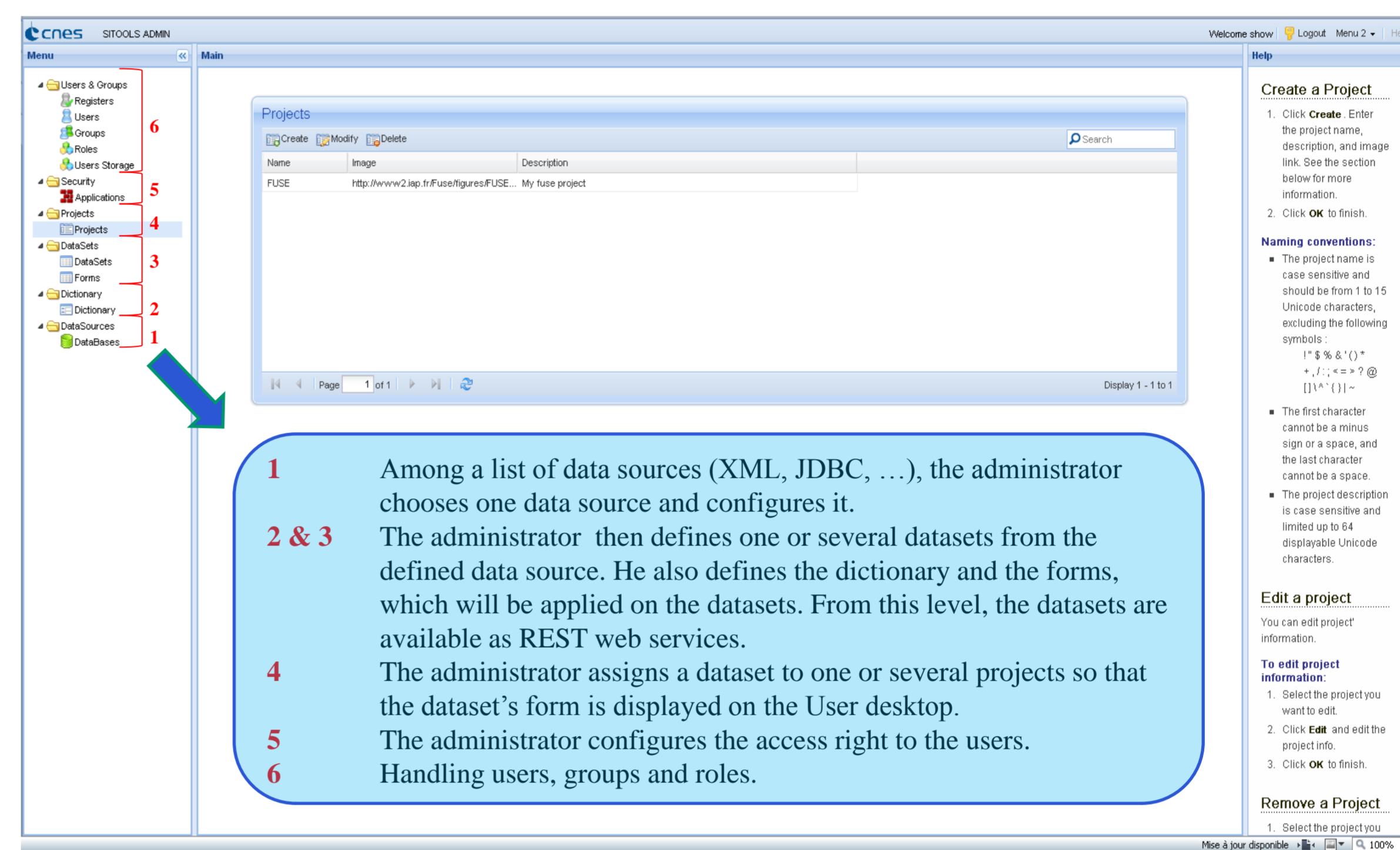
Objectives:
- ➤ Providing a development framework for data valorization and long time preservation
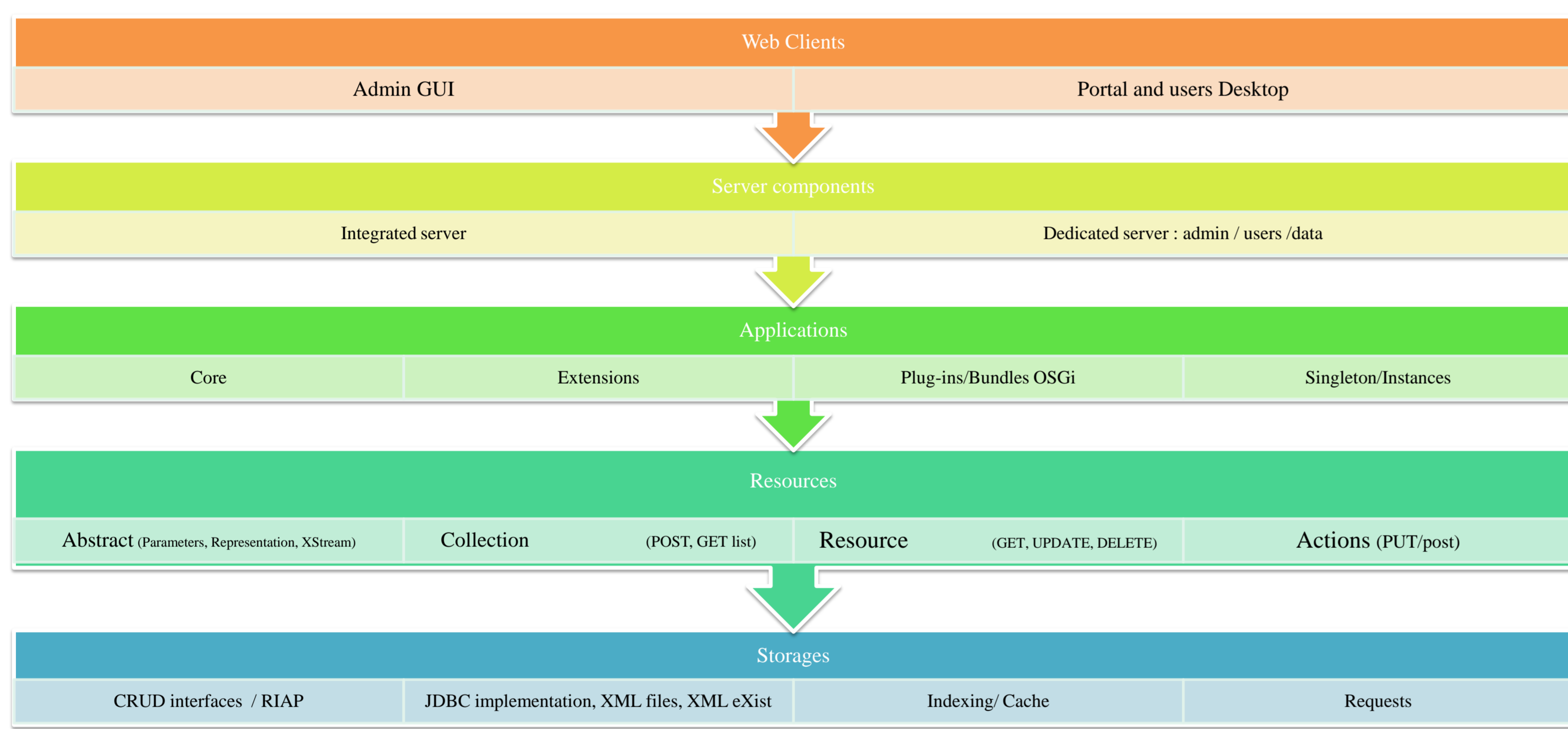- ➤ Federating scientific laboratories to share developments

Functional scope

The administration GUI

1. Among a list of data sources (XML, JDBC, …), the administrator chooses one data source and configures it.
2 & 3. The administrator then defines one or several datasets from the defined data source. He also defines the dictionary and the forms, which will be applied on the datasets. From this level, the datasets are available as REST web services.
4. The administrator assigns a dataset to one or several projects so that the dataset's form is displayed on the User desktop.
5. The administrator configures the access right to the users.
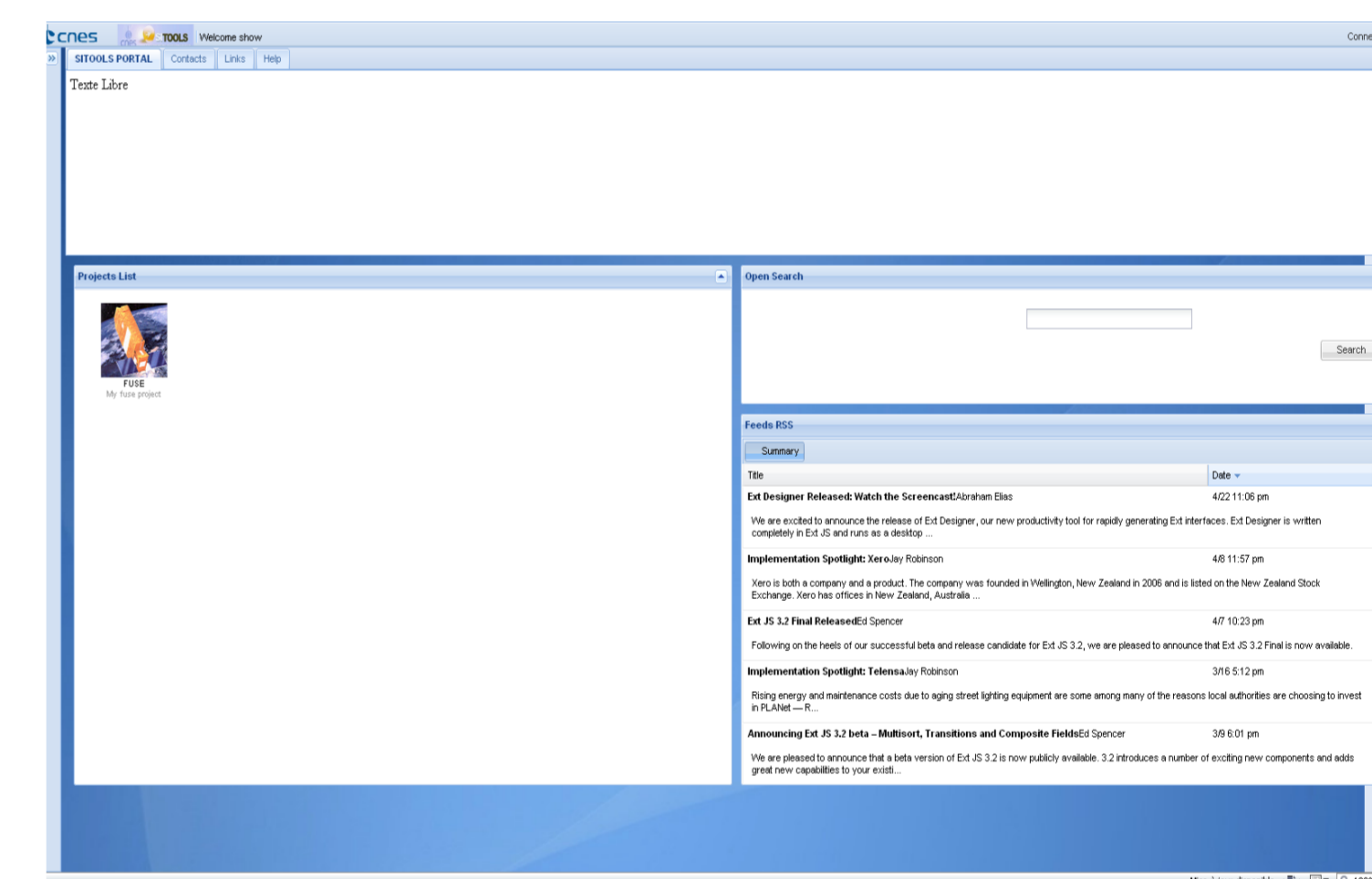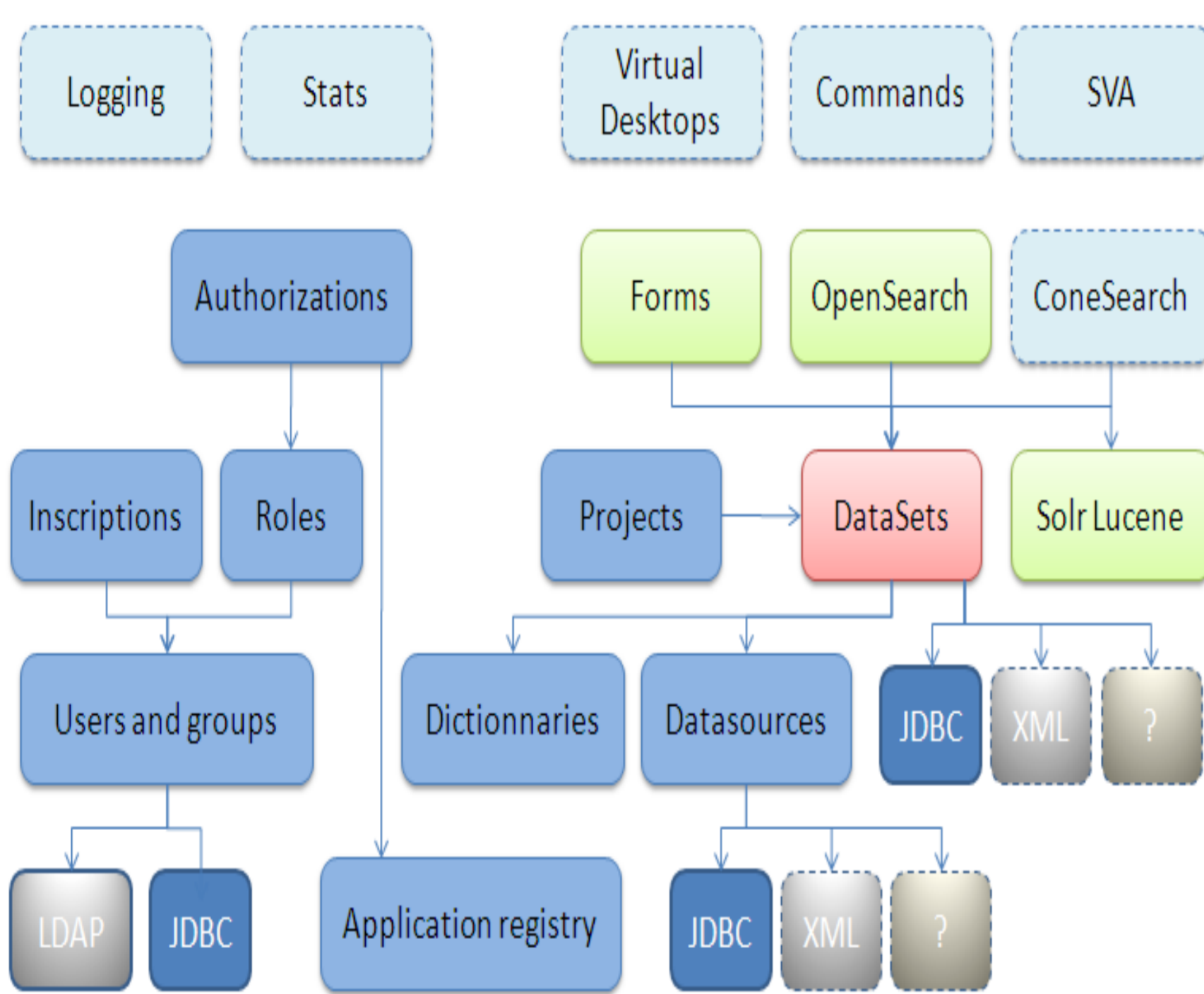6. Handling users, groups and roles.

REST by « layers »

The portal and user GUI

The portal displays the list of projects that the administrator has created. In addition, the elements in the portal are configurable by using portlet.
An open search query is also available on multiple projects.
And finally, a RSS flux (archive news, modification on the dataset, …) is available using the administration panel.

Once a project is selected, the user arrives on its own desktop. This desktop contains the list of datasets, forms, applications related to a project.
The search result is connected to a data source backend and renders large sets of data into a grid, without the need of paging. The filters are applied on the whole result.

Global architecture

Philosophy

- Open source project under GPL license
- Community via a forge

Extensibility of the system

Extension point for the server side:
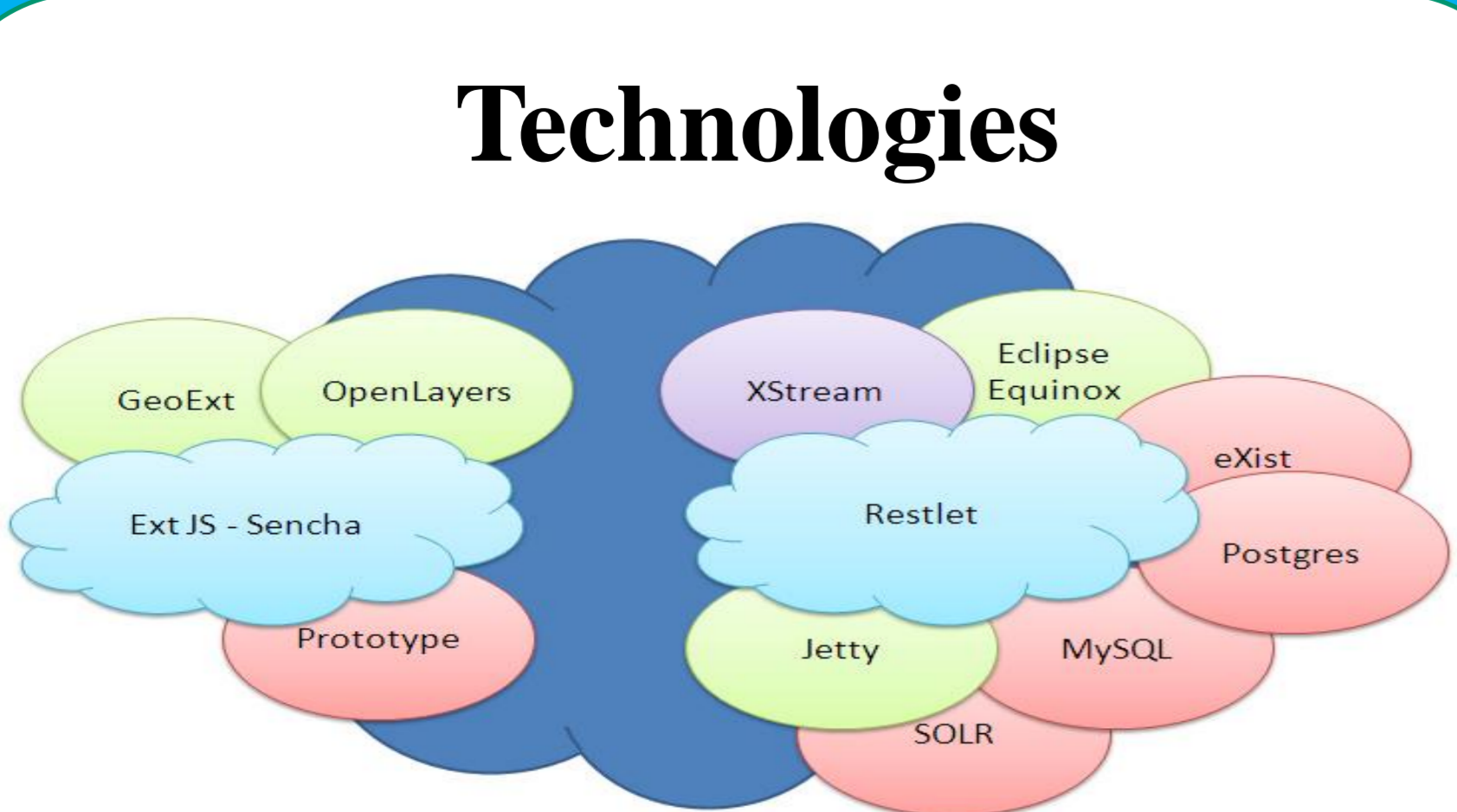- ➤ Adding a new application as a web service

Extension points for the client side:
- ➤ Administration of new applications using the administration GUI
- ➤ Adding new component in the Portal GUI
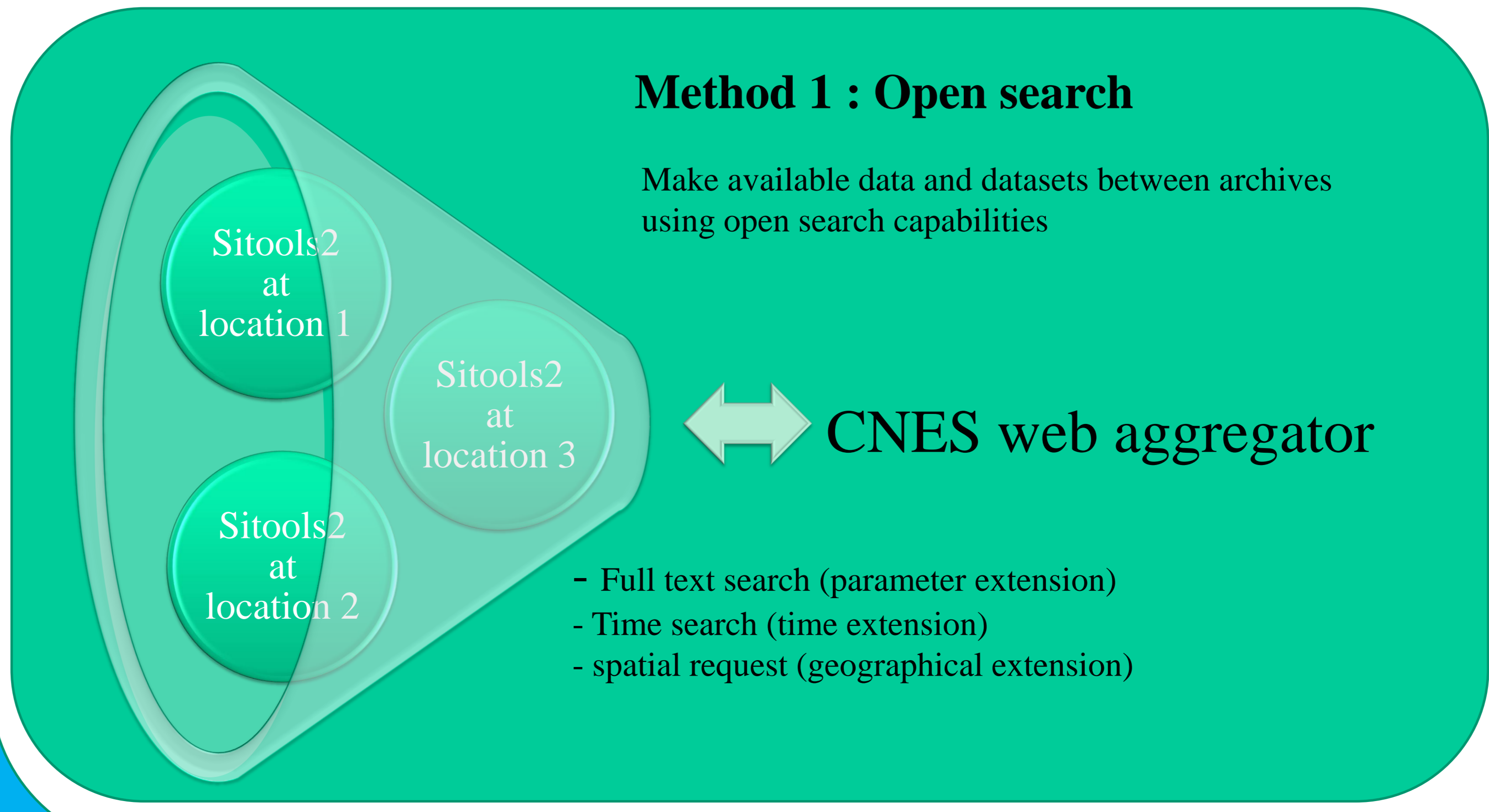- ➤ Adding new applications on the user desktop.

Architecture for the server extension point :
- ➤ OSGI

Technologies

Supported interoperability systems for end of 2011

Method 1 : Open search

Make available data and datasets between archives using open search capabilities

Sitools2 at location 1
Sitools2 at location 3
Sitools2 at location 2

CNES web aggregator

- Full text search (parameter extension)
- Time search (time extension)
- spatial request (geographical extension)

Method 2 : Virtual Obs.

Supported protocols:
- Cone search
- Simple Image Access Protocol

Method 3 : Earth Obs.

Supported protocols:
- WMS (Web Map Service)
- WFS (Web Feature Service)