



# Realising Spatial Data Infrastructure Solutions in ENVRI

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## Abstract

ENVRI is an FP7 EU project specifically conceived to provide a cluster of Environmental Research Infrastructures (EISCAT 3D, EMSO, EPOS, Euro-Argo, ICOS, and LifeWatch) with a collaborative framework to develop common components and services.

The ENVRI services contribute to realise a Spatial Data Infrastructure offering facilities to publish, discover, access, visualize, and process large geospatial datasets. **State-of-the-art technologies and standards** have been largely used, including OGC CSW, WCS, WPS, WMS.

For the data discovery and access, the results of the GENESI-DEC project have been re-used and enhanced to realise an approach for easily discovering geospatial data across a federation of distributed catalogues.

For geospatial data processing and visualisation, a number of components have been developed by relying on the gCube open source technology, a comprehensive software system supporting the creation and management of an HDI. In particular, a service supporting data analytics has been developed to offer a rich yet open set of algorithms to process geospatial data. All these components have been integrated in a dedicated **Virtual Research Environment**, a web-based environment aggregating the services.

ESFRI RIs can exploit the set of components according to three exploitation models:

- **Software as a Service;**
- **Platform as a Service;**
- **Open Source.**

The two as a Service models are for free to the ENVRI partners via the D4Science Infrastructure and the GENESI-DEC.

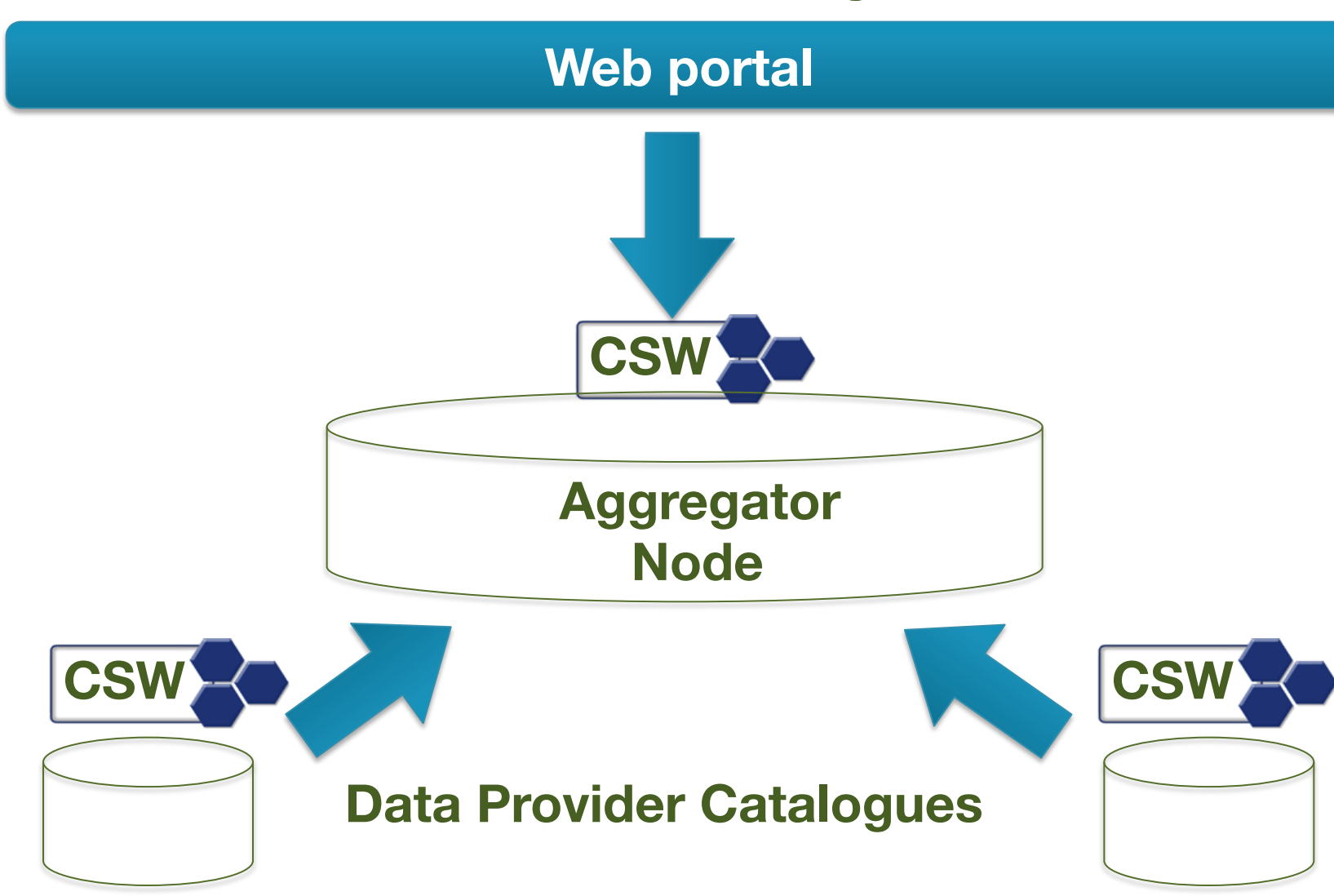
The benefits are evident, the management is outsourced to expert operators that can leverage economies of scale and use elastic approaches to scale.

Available at <https://www.d4science.org/group/envri>

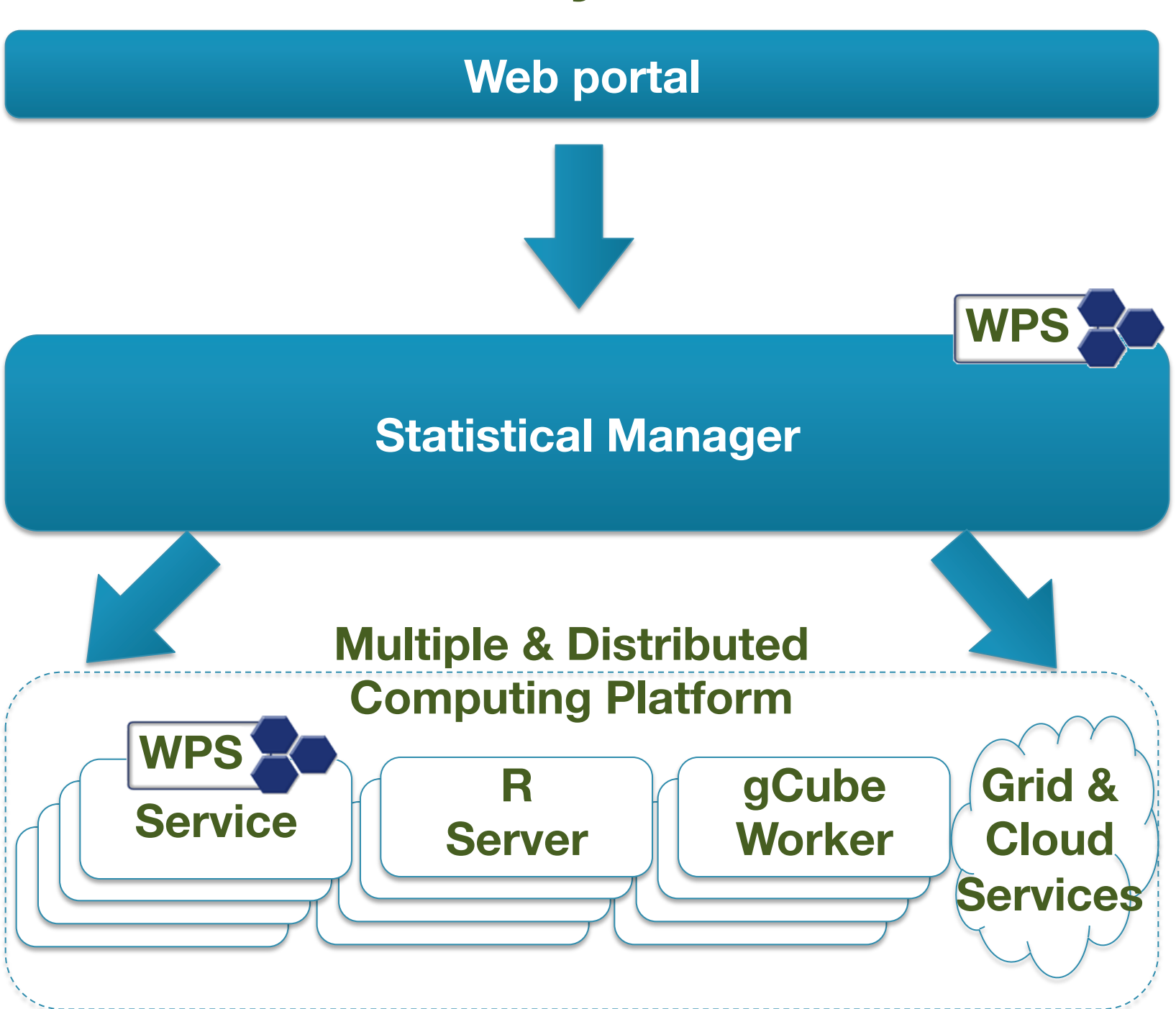
## Solutions are part of the gCube system ([www.gcube-system.org](http://www.gcube-system.org))

- an open source technology for building and operating Hybrid Data Infrastructures resulting from a series of EU Projects
- offering a rich array of services and facilities well beyond SDI
- 500+ software components
- enabling the creation of Virtual Research Environments, i.e. collaborative working environments dynamically built by acquiring sw, hw, data and services from the underlying infrastructure

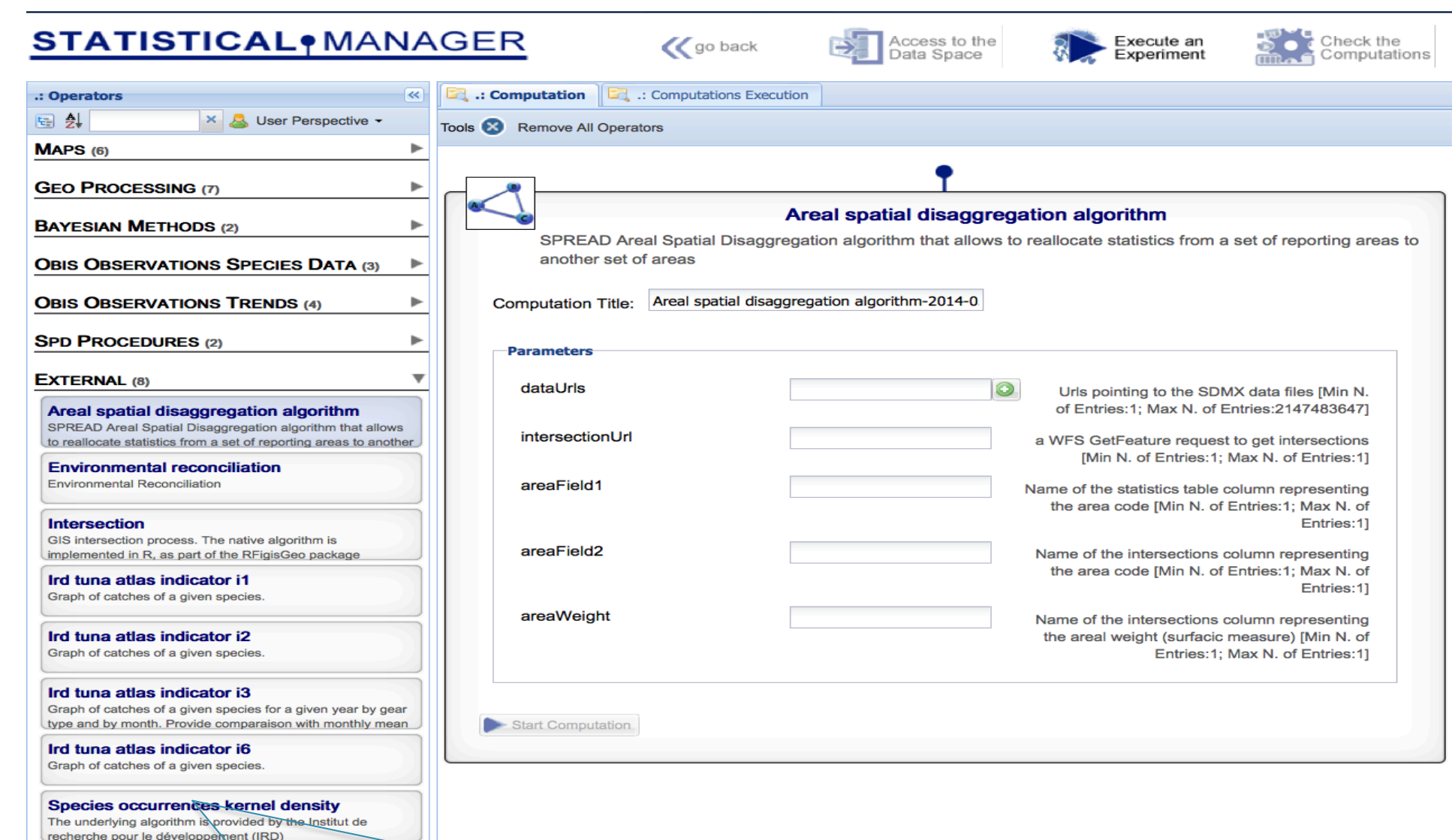
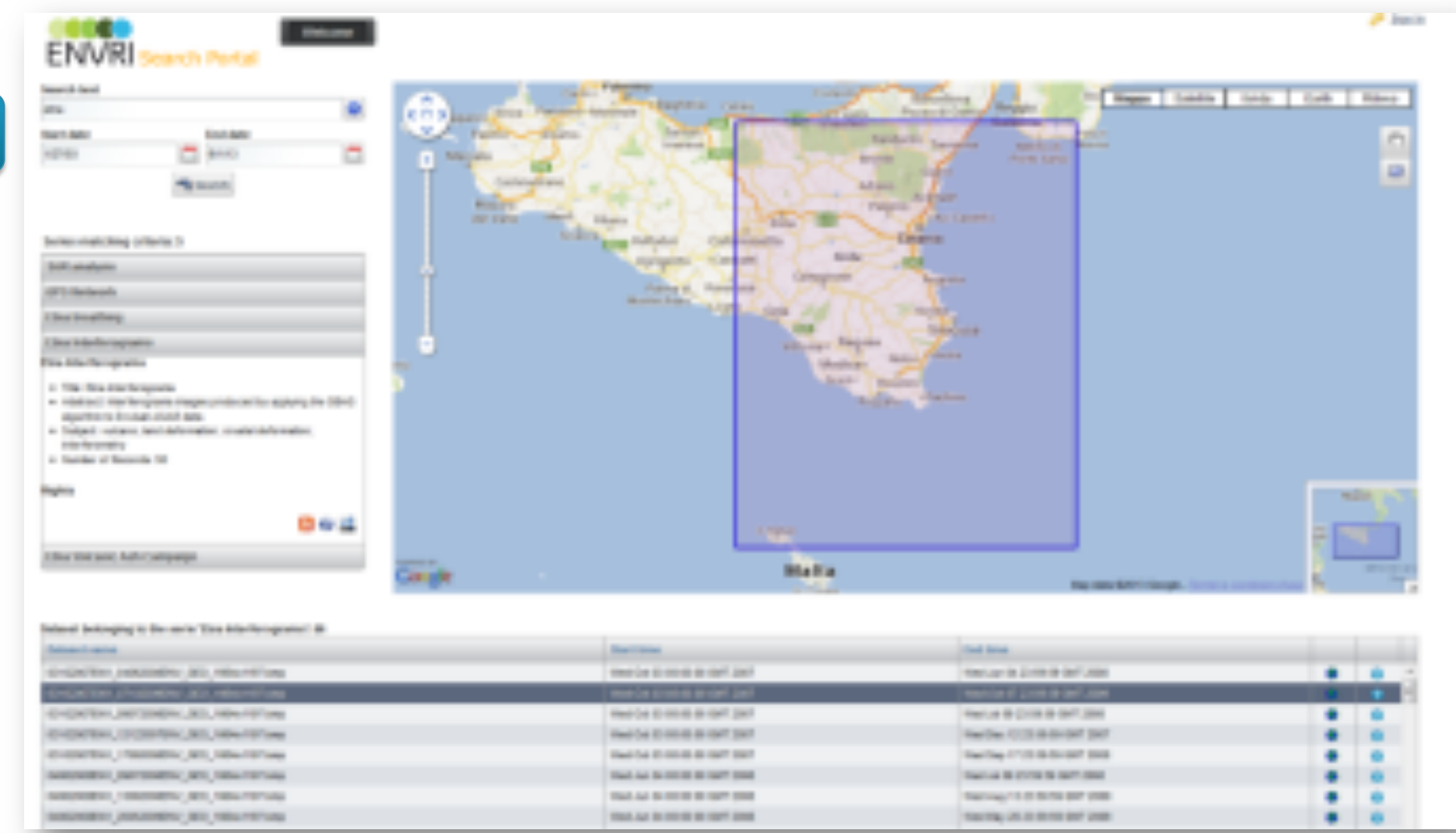
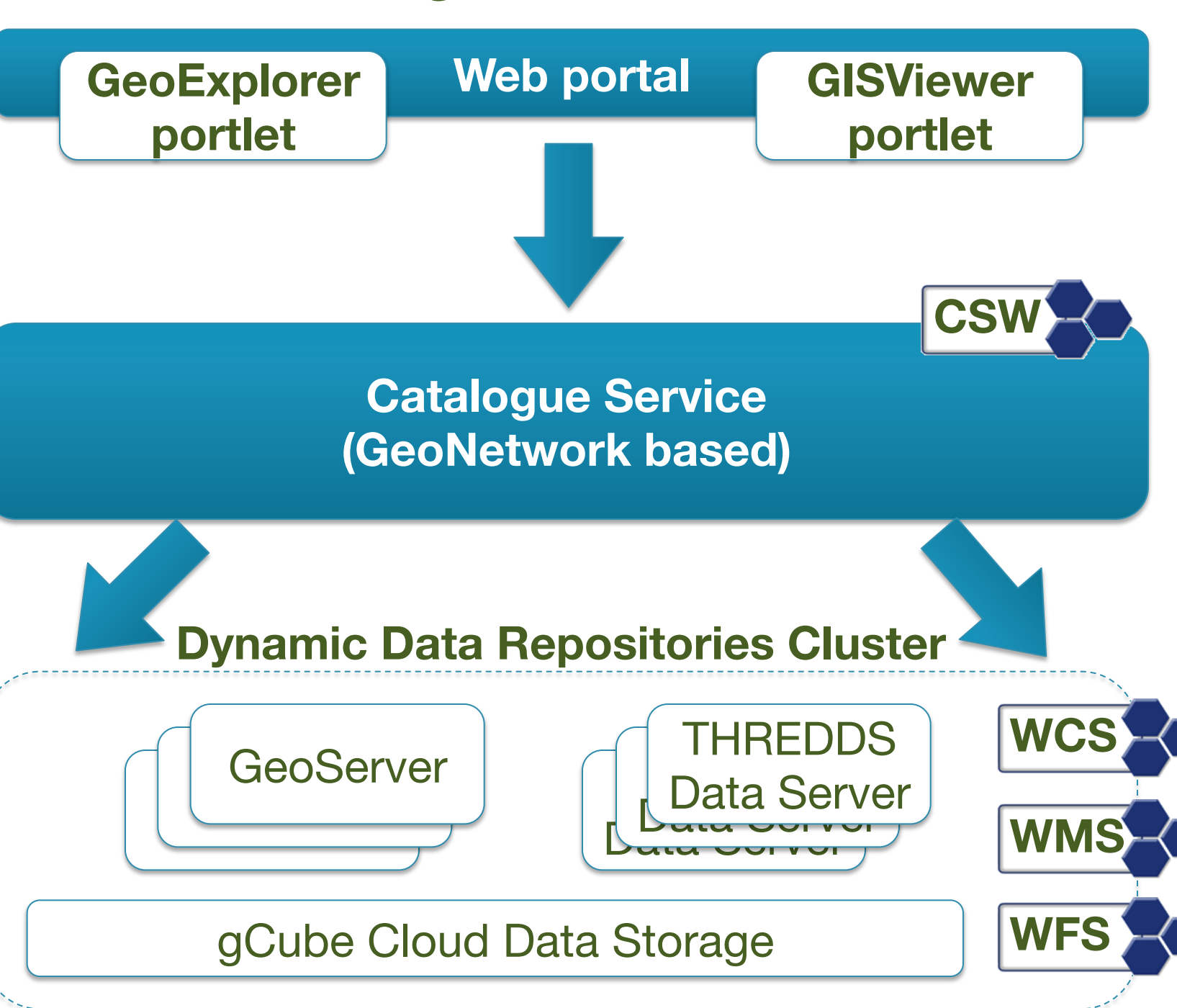
## Federated Data Discovery



## Scalable Data Analytics



## Data Publishing & Visualisation



## Rich, open and configurable array Algorithms

R scripts, WPS processes, signal processing facilities, maps comparison, data extraction features, etc.

