The Terradue’s Open Cloud Strategy: the case of leveraging the EGI Federated Cloud as a commodity for the EO communities

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Terradue’s Fact Sheet

We support Earth Sciences at many scales

16
Passionate People

5
EU Nationalities

1
DevOps Culture
Open Cloud Strategy

■ Open APIs

Embrace Cloud bursting APIs that can be easily plugged into the Platform’s codebase, so to expand the Platform offering with Providers offering complementary strategic advantages for different user communities.

■ Developers community

Support and nurture Cloud communities that collaborate on evolving open source technologies, including at the level of the Platform engineering team, when it comes to deliver modular extensions.

■ Self-service provisioning and management of resources

The Platform’s end-users are able to self-provision their required ICT resources and to work autonomously.

■ Users rights to move data as needed

By supporting distributed instances of its EO Data management layer, the Platform delivers the required level of data locality to ensure high performance processing with optimized costs.
User Communities

- **geohazards tep**
- **hydrology tep**
- **urban tep**
- **NEXTGEOSS**
  Contributing to the Vision of GEO
- **Copernicus**
  Europe's eyes on Earth

**DIGITAL INFRASTRUCTURES for RESEARCH 2017**
Serving the user base
Open Cloud Model of Operations

Poznań Supercomputing and Networking Center
Openstack API - powered by jclouds

PSNC

IPT
Openstack API - powered by libcloud

IPT.PL

Terradue
Opennebula registered partner

T2

Amazon Web Services
EC2 - powered by jclouds

AWS

EGI
EGI Federated Cloud
OCCI

Terradue is an Opennebula registered partner.
Project(s) sustainability
The partnership with EGI Foundation enhances the sustainability of the involved projects, helping in maintaining the systems operational beyond the life of the relative projects.

Reliable operations
We can rely on well-defined operational processes, having the EGI Foundation partner acting as single point of contact of the EGI Federated Cloud.

European cloud resources
We use Cloud resources within the European boundaries. In fact, it is mandatory for certain processing services due to their organisations’ policies.

Use of standard interfaces
The M2M communication is realised through the Open Cloud Computing Interface (OCCI), ensuring integration, portability, interoperability and innovation.
Integration Process

Analyzing the technical requirements

Assess

Integrating the OCCI interface

Develop

Evaluating functional and performance results

Validate

Supporting users to run near real-time processing

Operate
Scheduled **User Processing**

Growing season 2016-2017

24 processing nodes provided by EGI.eu (NextGEOSS partner)
Scheduled User Processing

It’s a data driven systematic processing. The service will follow a ramp-up period starting from September 2016 until end 2017:

- EU Tectonic area
- World tectonic area (40%)
- World tectonic area (70%)

It currently processes 150+ Sentinel-1 SLC pairs per day.
This service provides the coherence and intensity changes for Sentinel-1 TOPSAR IW data pairs performed through SNAP. SNAP is a common architecture for all Sentinel Toolboxes, which is ideal for Earth Observation processing and analysis.
User-Driven Processing

P-SBAS stands for Parallel Small Baseline Subset and it is a DInSAR processing chain for the generation of Earth deformation time series and mean velocity maps. Input: SLC (Level-1) Sentinel-1 data.
Thanks for Watching!

https://www.terradue.com