VESPA-Cloud
Update #1

Virtual European Solar and Planetary Access
Europlanet-20204-RI

Website: http://europlanet-vespa.eu

Main Query Portal: http://vespa.obspm.fr

Baptiste Cecconi (Obs. Paris) & Baptiste Grenier (EGI)

July 20th, 2020

VESPA-Cloud

Virtual European Solar and Planetary Access

A distributed Virtual Observatory for Solar System Sciences

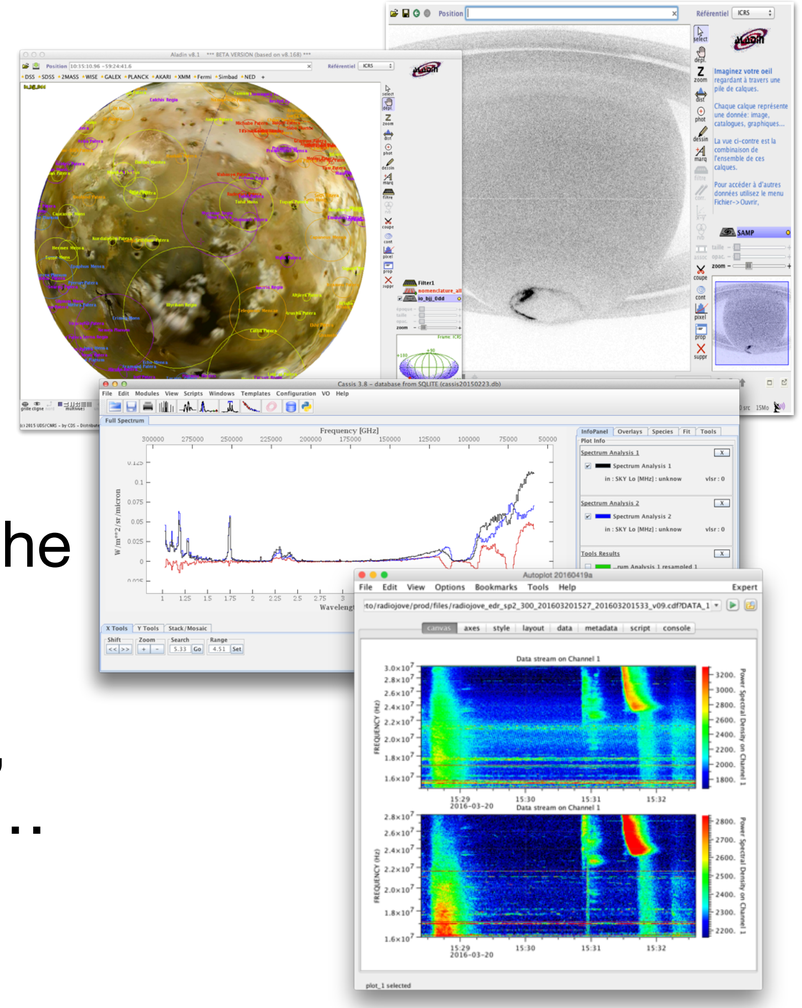
- **Sharing metadata for science data products** using relational databases and a standard metadata *(target, observer, location, spectral range, time range, physical parameter, product type…)*

- Distributed virtual research environment:

  - *Astronomy* interoperability framework (IVOA) and the tools developed by this community

  - Other interoperability standards from *heliophysics*, *planetary sciences* archives, and associated tools…

  - Community recommended data formats



- Strengths:
  - **Distributed:** No central single point failure, services are distributed among data providers
  - **Homogeneity:** all data providers use the metadata dictionary, and almost all use same data sharing framework, many running examples, tutorials…
  - **Sustainability:** Relying on larger groups interoperability layers and tools
- Weakness:
  - **No data replication:** Small data providers can't maintain server on the long term. If single server fails (or team stops operating), the hosted metadata is unreachable.

- **VESPA-Cloud:** Propose data-provider-ready (configurable and maintained) VESPA distribution service (using DaCHS, Data Centre Helper Suite)

- **VESPA-Cloud use case**

  - New VESPA data providers will be able to:
    - order a service running the DaCHS framework installed (PaaS)
    - configure the service for their science application (with git repository for versioning)
    - let the VESPA team administrate the server (maintainance, updates, package management)
    - update the science content and the metadata

  - The VM hosting the service has a static public DNS and public web http interfaces (IVOA APIs).

  - The service is registered in the IVOA Registry, and is reachable by any IVOA tools.

  - The services can be used (open access) by scientists within their science workflows.

- **VESPA VO Community AAI with eduTEAMS**
  - implemented and configured.
  - mapped to vo.europlanet-vespa.eu at EGI-CheckIn AAI for VM deployment authorization

- **VM resources at CESNET and CC-IN2P3**
  - access granted and tested (with manual deployment)
  - SLA in place

- **Storage resources**: ongoing.

- Minor issues:
  - Login and account management on with EOSC-Portal: solved
  - Discussion with marketplace provider: not easy and process not clear (no email copy, answers not forwarded correctly…)

Q1

1. Having **access to the VM** at the sites
2. Validating **access to storage** from VMs:
   iRODS and Object Storage
3. Being able to **manually deploy the full stack** on a VM:
   deployment of containers from git-managed repository

Q2

4. **Automate VM deployment and management** (cloud-init) + puppet or equivalent
5. Allow the **VESPA Hub teams to deploy services** by themselves:
   Observatoire de Paris (Paris, France), INAF/OATS (Trieste, Italy), Heidelberg Univ. (Heidelberg, Germany)
6. Test **harvesting of medata by B2FIND** (DaCHS exposing OAI-PMH endpoint)
7. Configure **eduTEAMS Community AAI** Service

Q3

8. **Document service deployment for data providers** external to VESPA community
9. Having a **VM template in appdb** to have VM available at all sites
10. Having access to **group management in eduTEAMS** Community AAI:
    implement OAuth and group authorization in DaCHS

Q4

11. **Document the process** required to deploy the service following an EOSC order, providing their SSH keys
12. **Onboard the service** to have it recorded and orderable in the EOSC marketplace
13. **Study technical follow up**
    - Doing computing on demand on batch resources using UWS
    - Study how to deploy an ElasticSearch solution in EOSC
    - Explore integration with Zenodo
    - Explore usage of INDIGO PaaS
14. **Explore sustainability** options after EOSC-hub
    - Discuss economic models allowing to provide the services
    - Prepare agreements to continue to operate the services deployed during the EAP