

Virtual Research Environment (VRE)

SDC Kick-Off

31-Nov-2016
Merret Buurman
German Climate Computing
Centre (DKRZ) / EUDAT

www.eudat.eu



EUDAT What is a Virtual Research Environment (VRE)?

A VRE is a web-based workspace providing seamless access to all services a researcher needs to do his work and collaborate with his community.

This includes:

- Finding data
- (Centralized) access to data
- Processing of the data
- Visualisation of data/results
- Sharing of results with colleagues and/or with a wider public
- ...

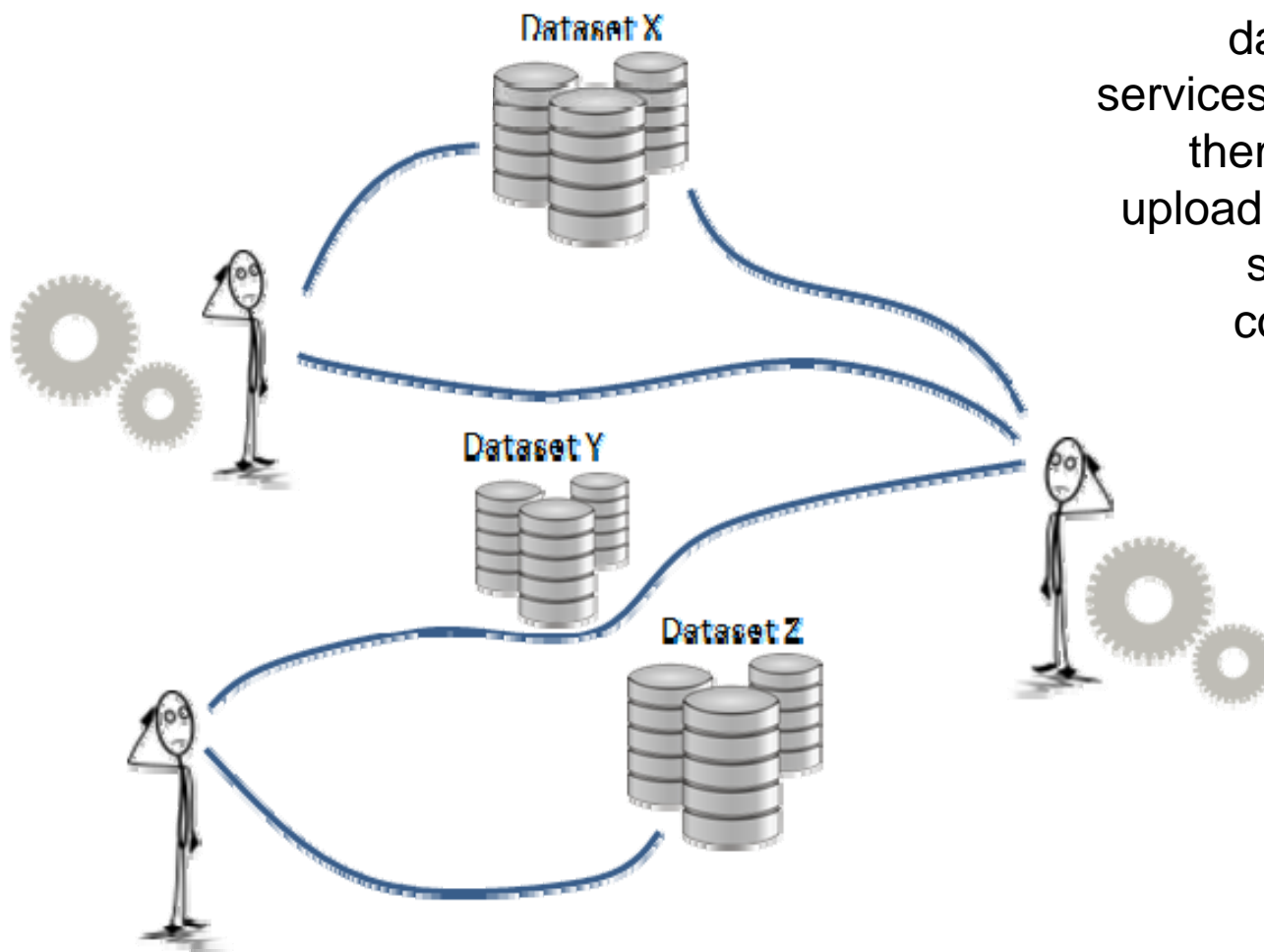
→ **Not on local machine**

→ **Integrated**



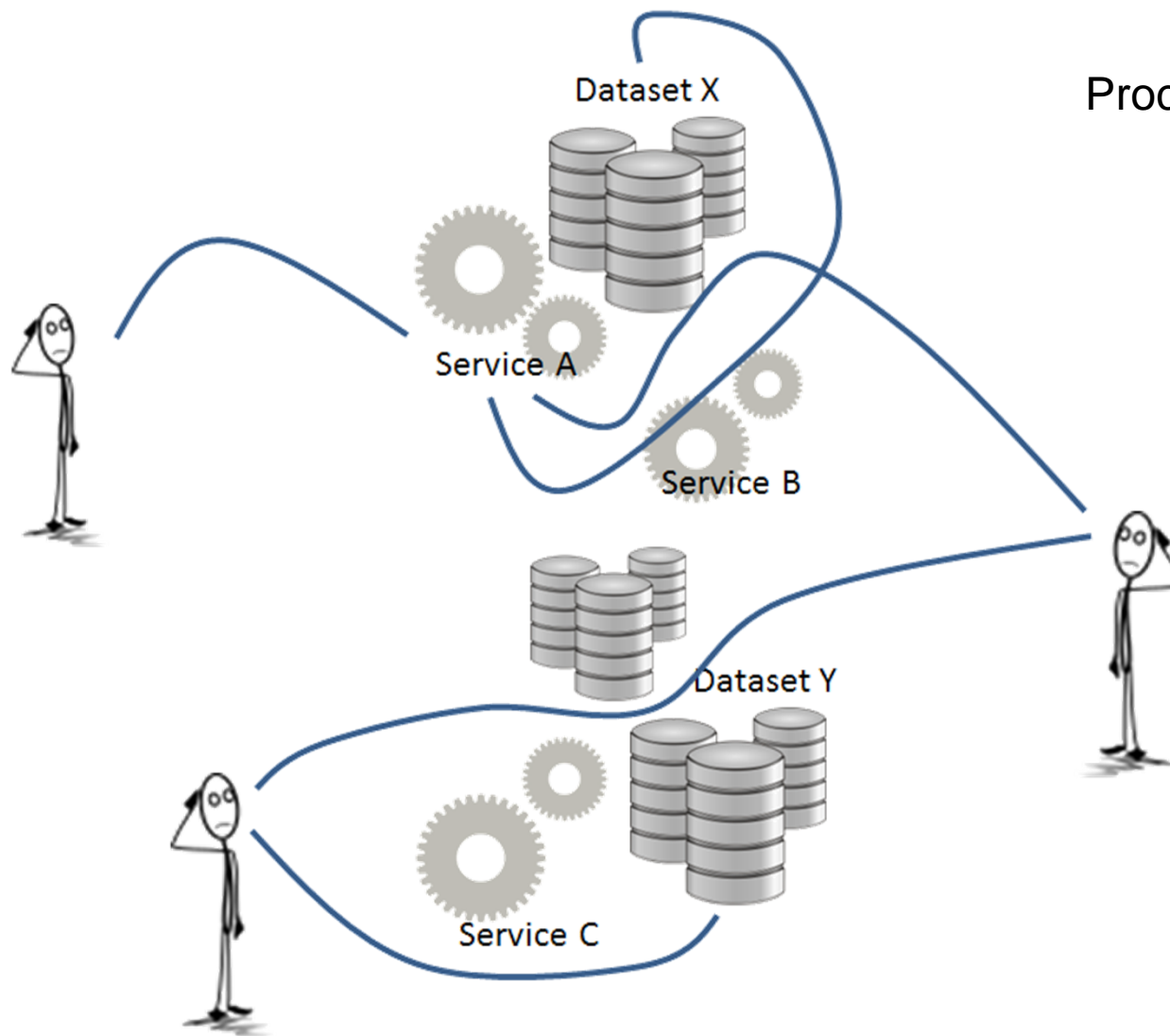
A VRE for SeaDataNet users...

Users have to find datasets and services, download them, process, upload the data to share it with colleagues...

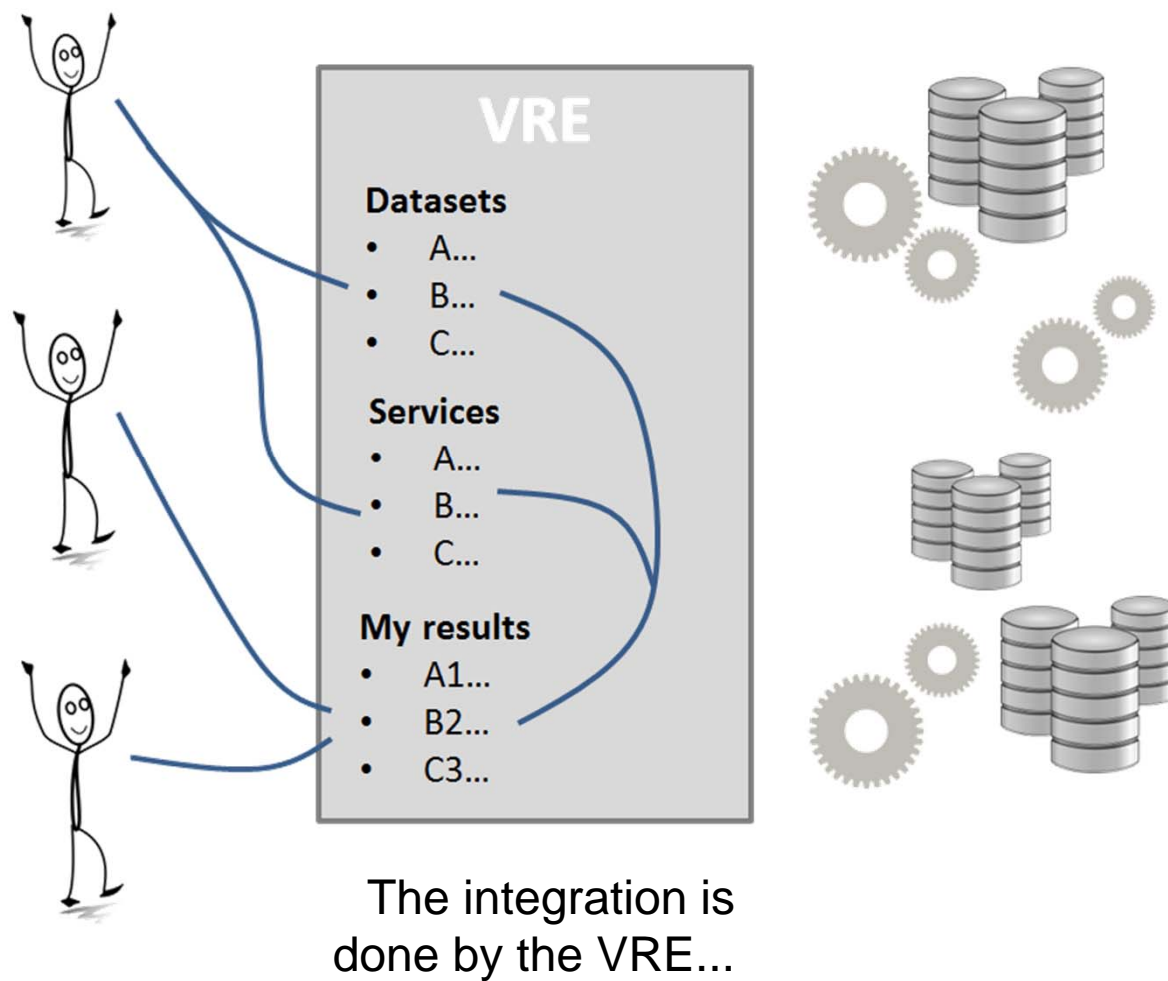


A VRE for SeaDataNet users...

Next step:
Processing in the
cloud..



A VRE for SeaDataNet users...



A VRE for SeaDataNet users...

The SeaDataCloud VRE will provide integrated access to various SDN services in the cloud.

These processes/services will be available:

- **Ocean Data View (ODV).** WP10.2.2
- **Data-Interpolating Variational Analysis software (DIVA).** WP10.2.3
- **Quality Control: Biology Data QC.** WP10.2.4
- **Upgraded Oceanotron.** WP10.2.6
- **Subsetting.** WP10.2.1
- **Visualisation of data**, incl. a SOS viewing service and other OGC/high-level visualisation services. WP10.2.5, WP10.2.7

How will the VRE be realized?

The VRE will be based on a set of SDN/EUDAT services, closely integrated and accessed through a common interface.

Main points:

- EUDAT provides copies of the SDN data at their data centres for easier and faster access. The data in this **data cache** can be accessed from inside the VRE.
- The various **processes** (ODV, DIVA, ...) can be executed on the EUDAT data centres' computing resources.
- Scientists get access to individual or collaborative **workspace** in the cloud, e.g. for analysis results or custom input data

How will the VRE be realized?

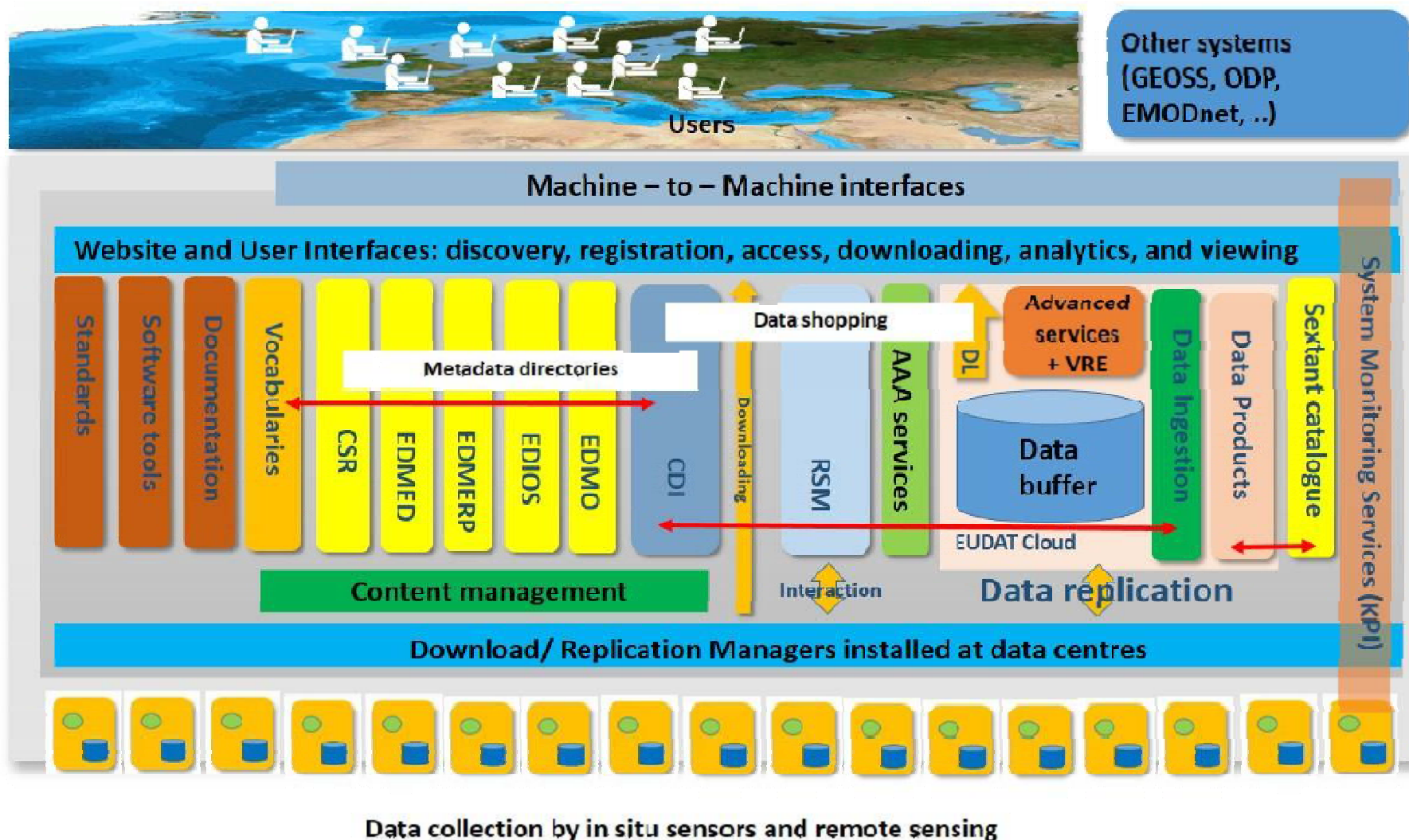
The VRE will be based on a set of SDN/EUDAT services, closely integrated and accessed through a common interface.

Advantages:

- Scientists need less computing resources locally
- No more need to install / upgrade the softwares
- No more need to download data from various centres
- Easy to share data/results

- → Working with data is easier and more efficient
- → Better collaboration between scientists

How will the VRE be realized?



How will the VRE be realized?

The VRE will be based on a set of SDN/EUDAT services, closely integrated and accessed through a common interface.

A bit more technical...

- B2HOST service allows managing and deploying the applications as VMs or docker images
- Cloud workspace: B2DROP
- Bringing data and processing together: Workflow engine (such as Taverna)
- Sharing findings with colleagues and/or the wider public: B2SHARE
- OGC standards may be used for accessing processes (WPS) and/or results (e.g. WMS)
- B2ACCESS for authentication
- Integration with personalized MySeaDataCloud?

Timeline

Next steps...

- Bring together developers of various components (EUDAT/SDN)
- Gather requirements for the VRE
- Agree on interfaces between services
- Evaluate suitability of various VRE frameworks for integration of services

M12: Specification of the VRE and development plan

- Integration of SDC/EUDAT services
- Iterative testing and development

M30: VRE is operational in the cloud, including subsetting, DIVA, ODV, visualisation.

Thank you!

31-Nov-2016
Merret Buurman
German Climate Computing Centre
(DKRZ) / EUDAT
buurman@dkrz.de