



EUDAT

Data Services & Tools for Researchers and Communities



Dr. Per Öster
Director, Research Infrastructures
CSC – IT Center for Science Ltd

CSC – IT CENTER FOR SCIENCE

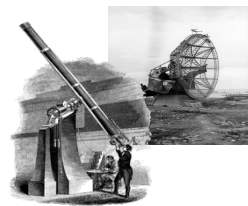
- Founded in 1971 as a technical support unit for Univac 1108
- Connected Finland to the Internet in 1988
- Reorganized as a company, CSC – Scientific Computing Ltd. in 1993
- All shares to the Ministry of Education and Culture of Finland in 1997
- Operates on a non-profit principle
- Facilities in Espoo, close to Otaniemi campus (of 15,000 students and 16,000 technology professionals) and Kajaani
- Staff >250
- Turnover 2013 31.2 million euros



Research, Where Is It Going?

Research Infrastructure trends:

- Internationalisation
- Diversification
- Increasingly relying on on ICT
- Data deluge is a common challenge



European RIs:

- Around 500
- € 100 billion investment

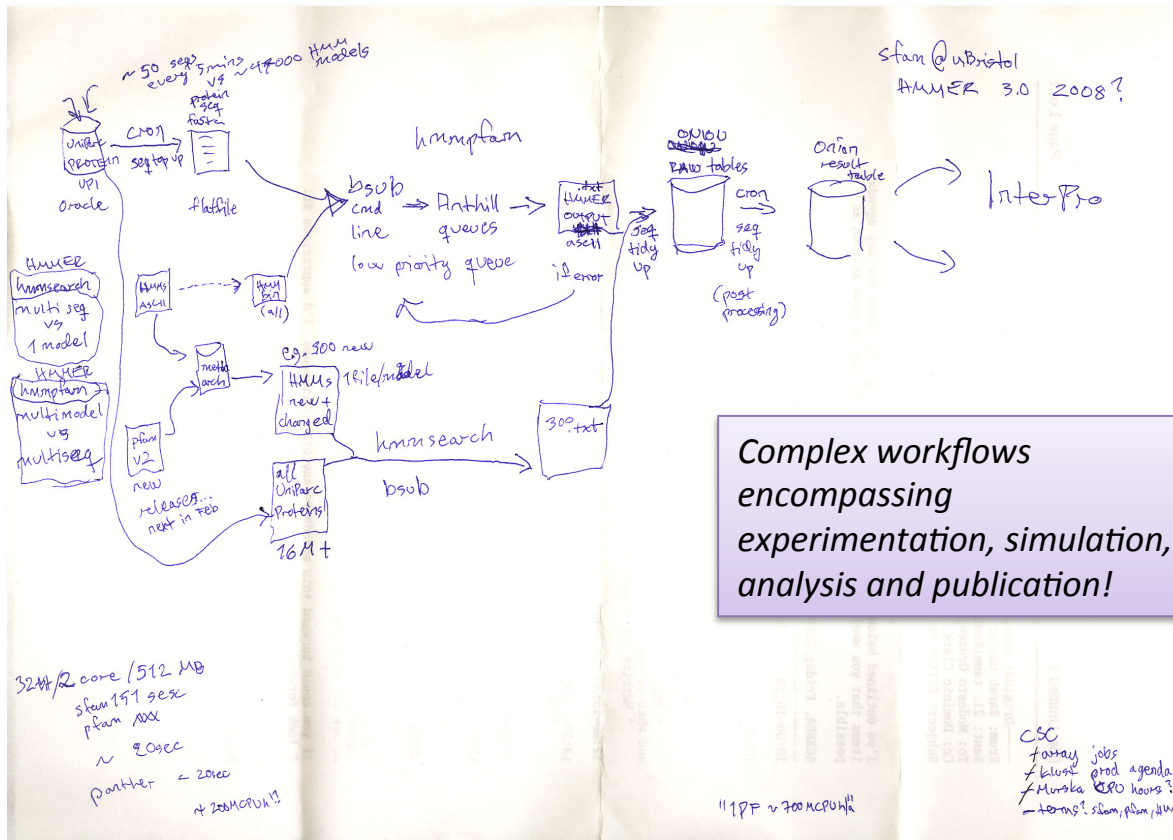
middle age

19th century

20th century

21st century

Complex Collaborations – Complex Workflows

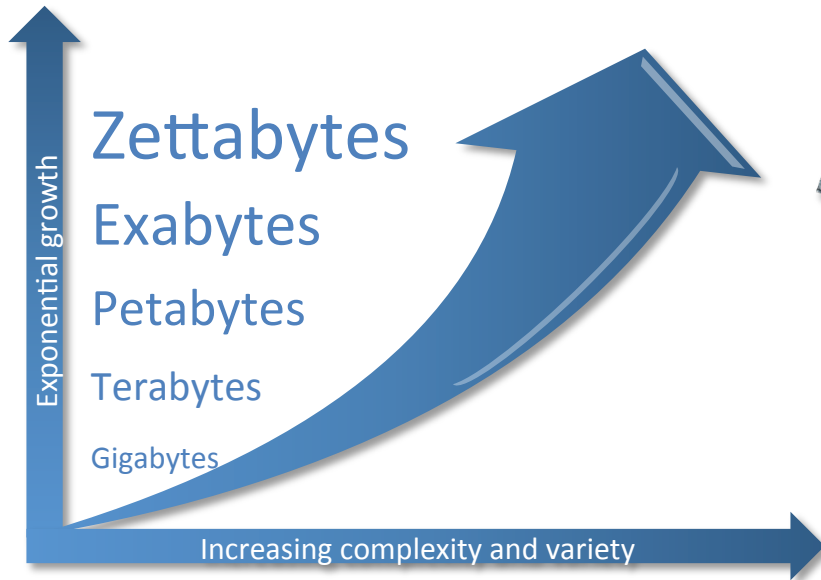


Complex workflows encompassing experimentation, simulation, analysis and publication!



Data is the asset

Data "Deluge"

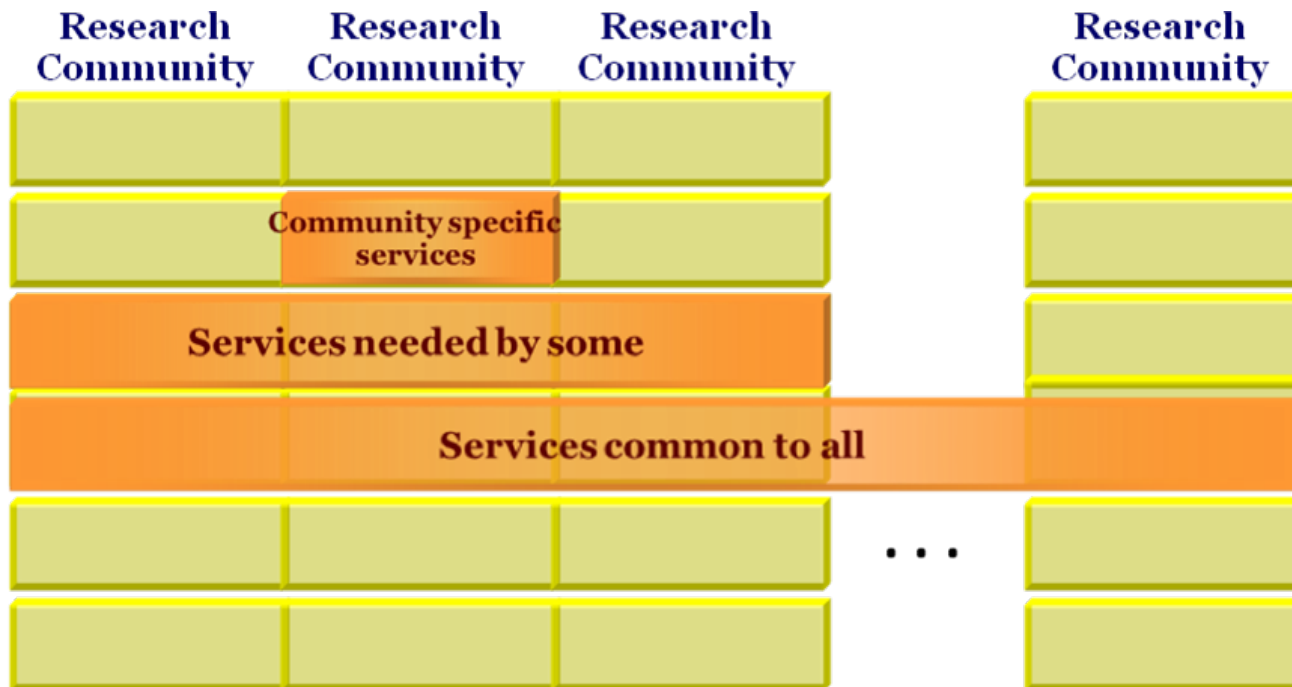


- Where to store it?
- How to find it?
- How to make the most of it?



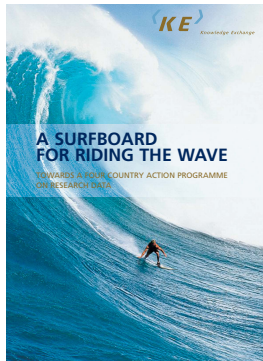
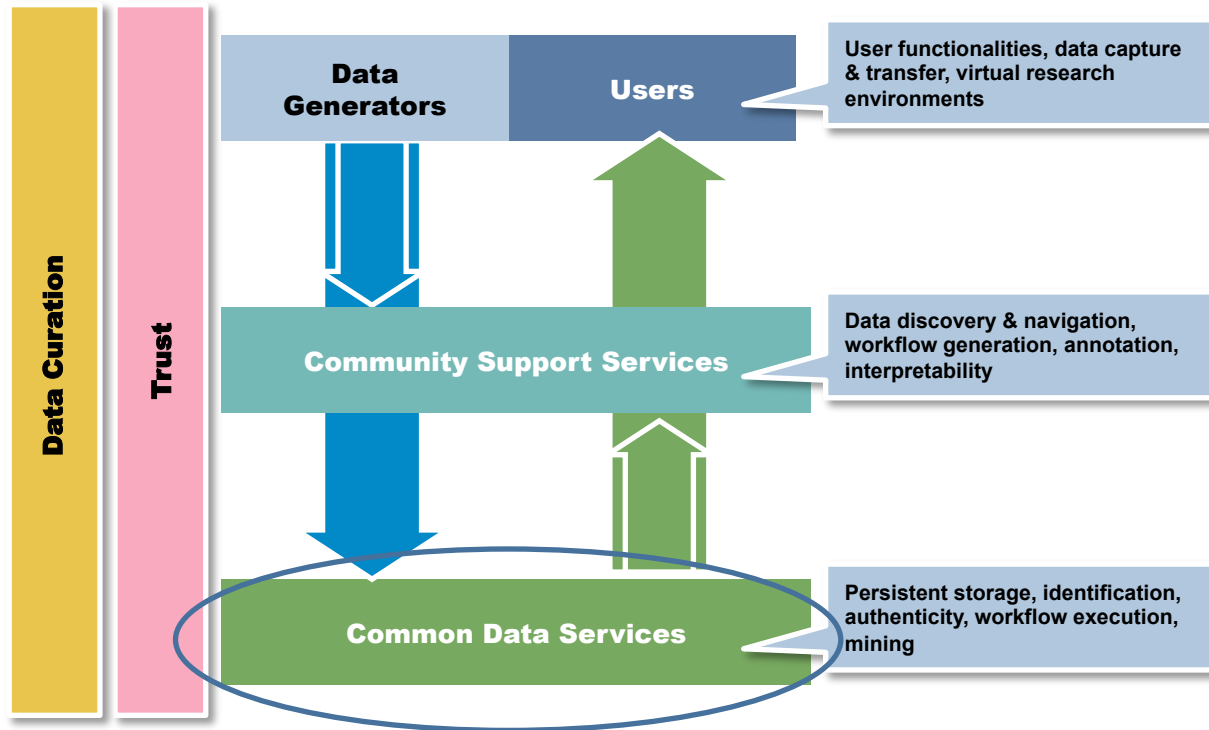
Synergies

If there are hundreds of Research Infrastructures, how many different data management systems can we sustain?



Common and Collaborative Data Infrastructure

- A framework for the future? -



Consortium

26 European partners



EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN



KIT
Karlsruhe Institute of Technology



INGV



BSC
Barcelona Supercomputing Center
Centro Nacional de Supercomputación

epcc



DKRZ
DEUTSCHES
KLIMARECHENZENTRUM



CINECA

INES
Centre Informatique National
de l'Enseignement Supérieur



CSC



Red IRIS



Max-Planck-Institut
für Meteorologie



JÜLICH
FORSCHUNGSZENTRUM

rzg
RECHEN-
ZENTRUM
GARCHING



Science & Technology
Facilities Council

maatG



umweltbundesamt^U
ENVIRONMENT AGENCY AUSTRIA



SNIC

Trust IT Trust-IT Services Ltd
Communicating ICT to markets

UNINETT
sigma

SURF SARA

UCL

EUDAT

European Data



Researchers, citizens,
industry and society...

- Start date: 1st October 2011
- Duration: 36 Months
- Budget: 16.3 M€ (9.3M€ EC)
- EC Call: INFRA-2011-1.2.2
- Consortium: 25 partners from 13 countries
 - National data centers, technology providers, research
- Objectives:
 - Cost-efficient and high-quality CDI
 - Meeting users' needs in flexible and sustainable way
 - Across geographical and disciplinary boundaries

<http://www.eudat.eu>

Selected Services

Metadata Catalogue

Aggregated EUDAT metadata domain.
Data inventory



PID

Identity
Integrity
Authenticity
Locations



AAI

Network of trust
among
authentication
and
authorization
actors



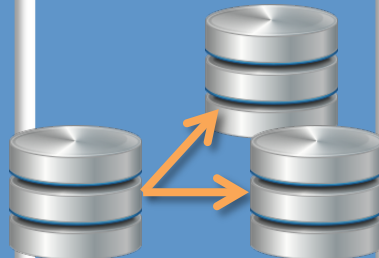
Data Staging

Dynamic replication
to HPC workspace
for processing



Safe Replication

Data curation and
access optimization

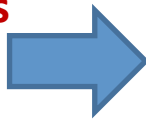


Simple Store

Researcher data
store (simple
upload, share and
access)



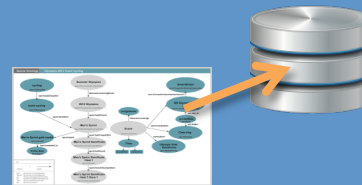
**New services
to come**



EUDAT Box
dropbox-like service
easy sharing
local syncing



Semantic Anno
checking & referencing



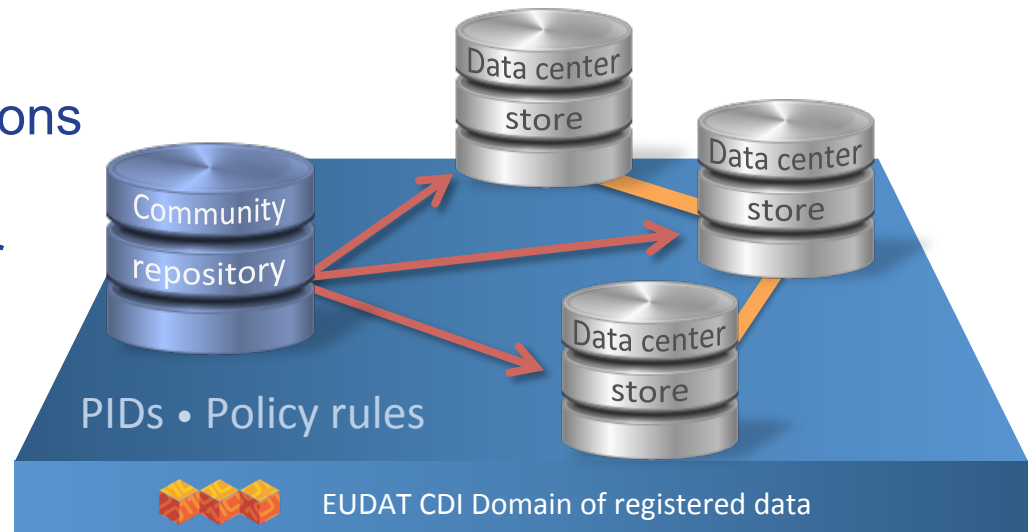
Dynamic Data
immediate handling



Safe Replication Service



- Robust, safe and highly available data replication service for small- and medium- sized repositories
 - To guard against data loss in long-term archiving and preservation
 - To optimize access for user from different regions
 - To bring data closer to powerful computers for compute-intensive analysis



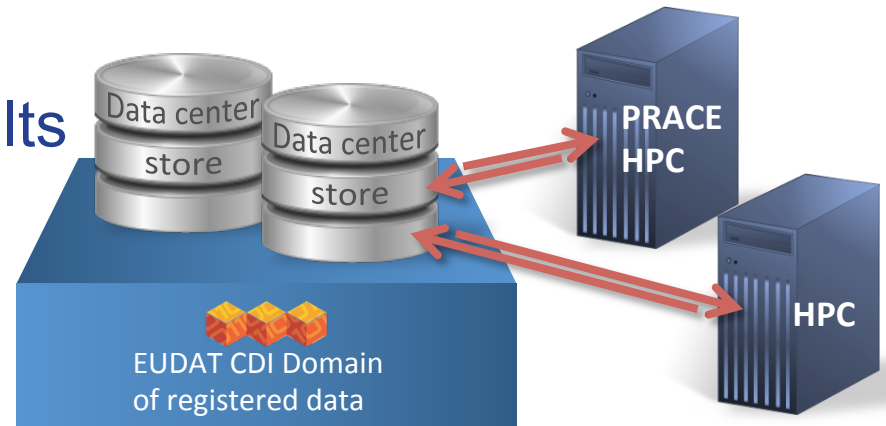
<http://eudat.eu/safe-replication> | eudat-safereplication@postit.csc.fi

Data Staging Service



B2STAGE
Get Data to Computation

- Support researchers in transferring large data collections from EUDAT storage to HPC facilities
- Reliable, efficient, and easy-to-use tools to manage data transfers
- Provide the means to re-ingest computational results back into the EUDAT infrastructure

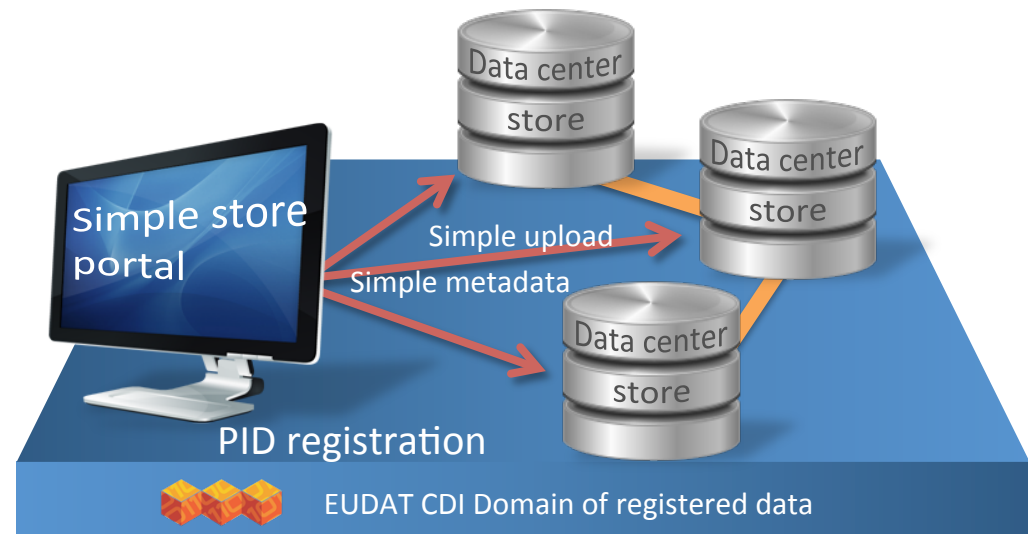


<http://eudat.eu/datastaging> | eudat-datastaging@postit.csc.fi

Simple Store Service



- Allow registered users to upload "long tail" data into the EUDAT store
- Enable sharing objects and collections with other researchers
- Utilise other EUDAT services to provide reliability and data retention

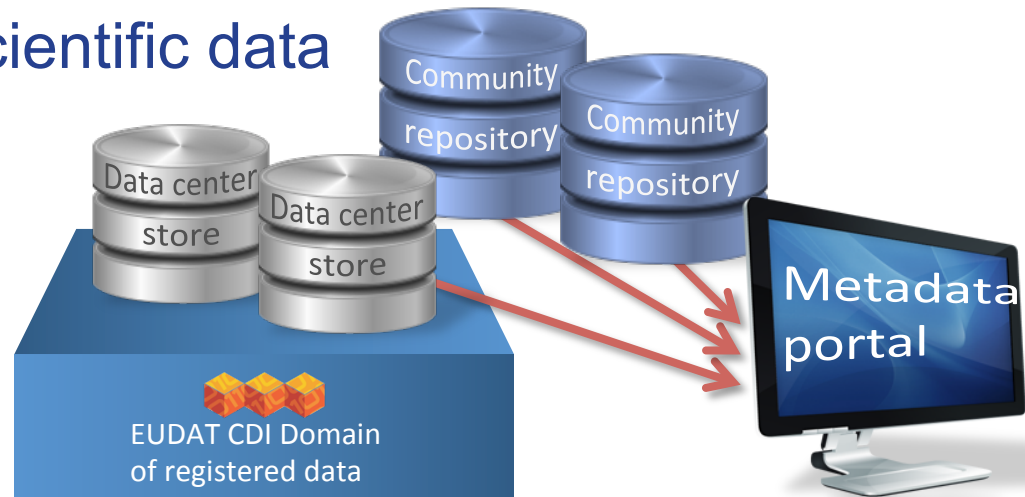


<http://eudat.eu/simplestore> | eudat-simplestore@postit.csc.fi

Metadata Service



- Easily find collections of scientific data – generated either by various communities or via EUDAT services
- Access those data collections through the given references in the metadata to the relevant data stores
- “Europeana” of scientific data



<http://eudat.eu/metadata> | eudat-metadata@postit.csc.fi

www.eudat.eu



European Data Infrastructure

[Home](#) [Services & Support](#) [EUDAT Communities](#) [EUDAT Events](#) [Working Groups](#) [News & Publications](#)

Search



B2FIND

Find Research Data

- What is B2FIND
- Use B2FIND
- Contact



B2SAFE

Replicate Research Data Safely

- What is B2SAFE
- Contact



B2SHARE

Store and Share Research Data

- What is B2SHARE
- Use B2SHARE
- Contact



B2STAGE

Get Data to Computation

- What is B2STAGE
- Contact



B2 Users Support Service




B2SUPPORT

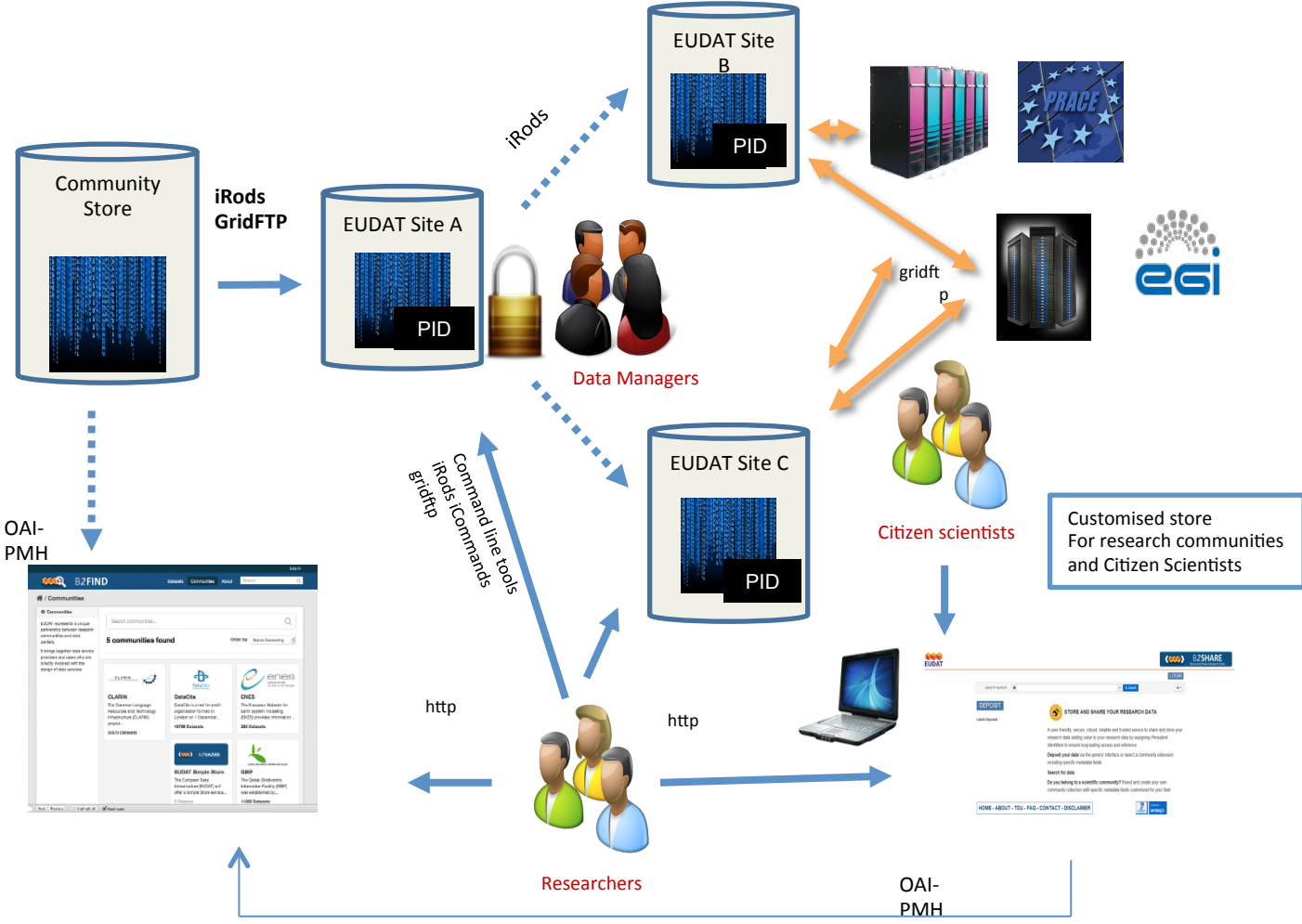




B2SAFE
Replicate Research Data Safely



B2STAGE
Get Data to Computation

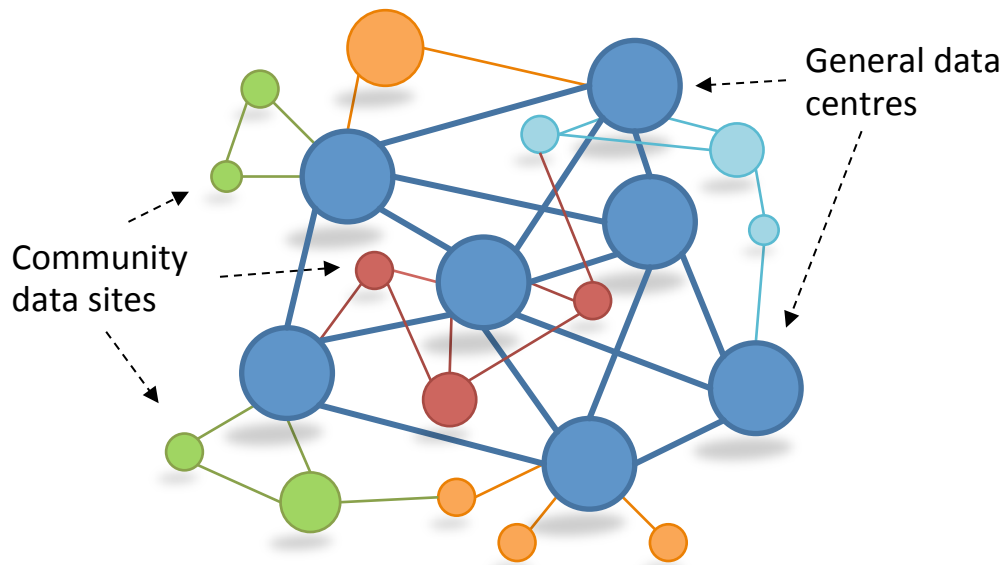



B2FIND
Find Research Data



B2SHARE
Store and Share Research Data

Sustainable



- Independent and sustainable centers working within a common framework to develop shared services & policies
- EUDAT is about providing solutions in a federated environment
- Partnerships between legal entities relying on OLAs and SLAs

What EUDAT Can Offer to a (Virtual) Research Community

- Additional storage capacities located at selected centers in Europe to keep pace with an accelerated generation of data
 - Based on clear service offerings and SLAs
- Interoperability with European computing e-Infrastructures:
 - HPC (PRACE) and Federated Cloud for Data Analysis (EGI)
- Open Data Sharing platform tailored for VRC stakeholders (researchers, citizen scientists,...)
- Dissemination and discoverability of the data through specific solutions to access the data and metadata catalogue

European General e-Infrastructure

Open Data
Services

Open
Publication
and
Discovery

Data



Computing



High-
performance
Computing

Federated
Cloud for Data
Analysis

Federated
Cloud Service
Marketplace

Contact Us



<http://www.eudat.eu>



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Acknowledgments

- European Commission: Riding the Wave, <http://cordis.europa.eu/fp7/ict/e-infrastructure/docs/hlg-sdi-report.pdf>
- Knowledge Exchange: Surfboard for Riding the Wave, <http://www.knowledge-exchange.info/>