

EGI Services and Agreements for DRIHM

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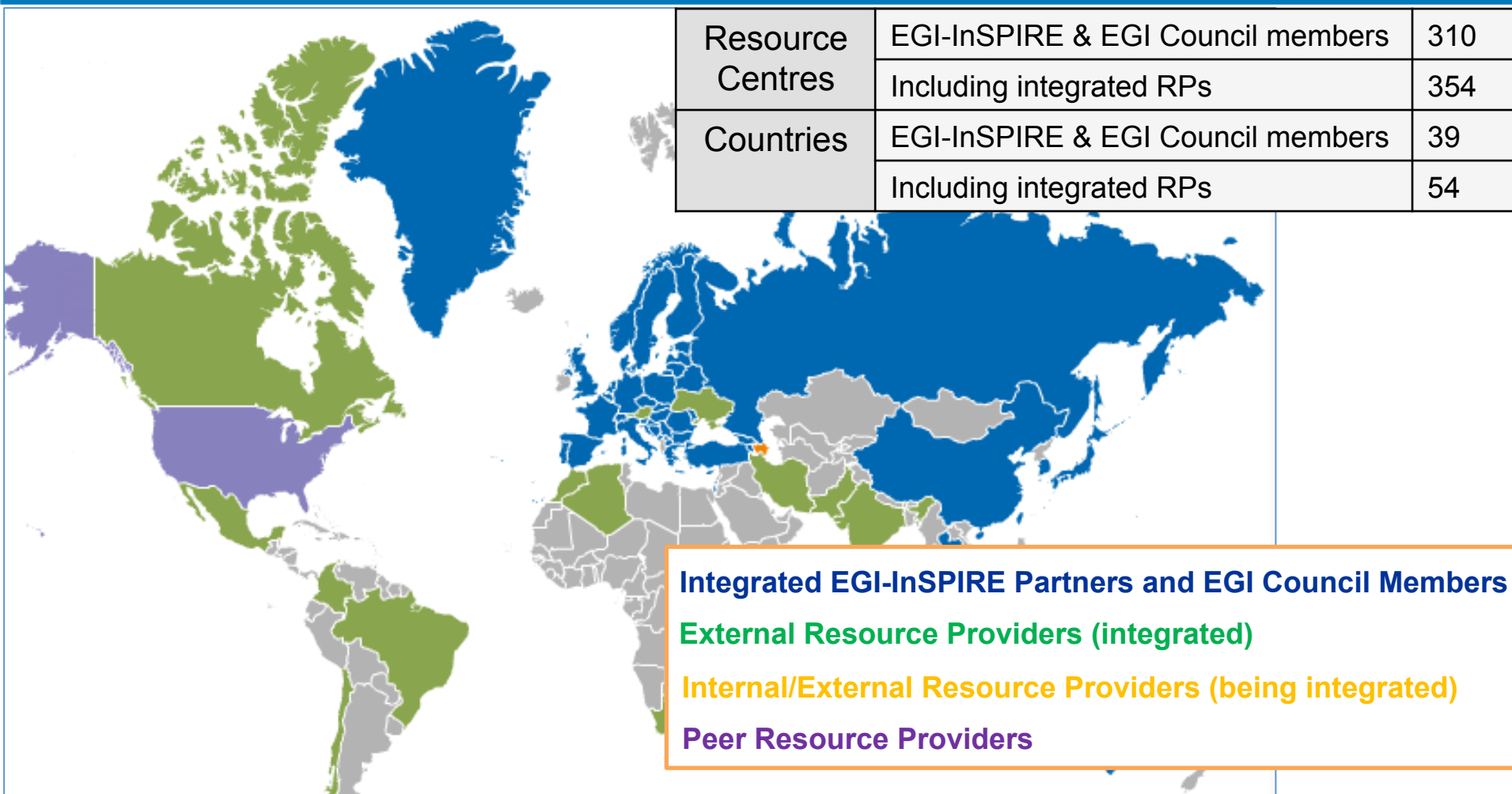
- What is EGI and value (services) provided?
- What agreements need to be established?
- How can EGI.eu support resource allocation and ensure service levels?
- What is EGI's long-term vision?

EGI and the value offered

- **EGI = Infrastructure**
 - Federation of 350 Resource Centres across 50 countries
 - Provides distributed computing and storage resources to accelerate data-intensive research
- **EGI.eu = Coordination Body**
 - Non-profit foundation based in Amsterdam (~20 staff)
 - 38 members (e.g. NGLs, EIROs) form governing body (EGI Council)
- **EGI-InSPIRE = EC-funded project**
 - Supported the transition to sustainable service provision
 - 4-yr; €25M EC contribution (end Dec 2014)
- **EGI-Engage = Follow-up support project**
 - 30-mon; €8M EC contribution (EINFRA-2014-1) (start Mar 2015)

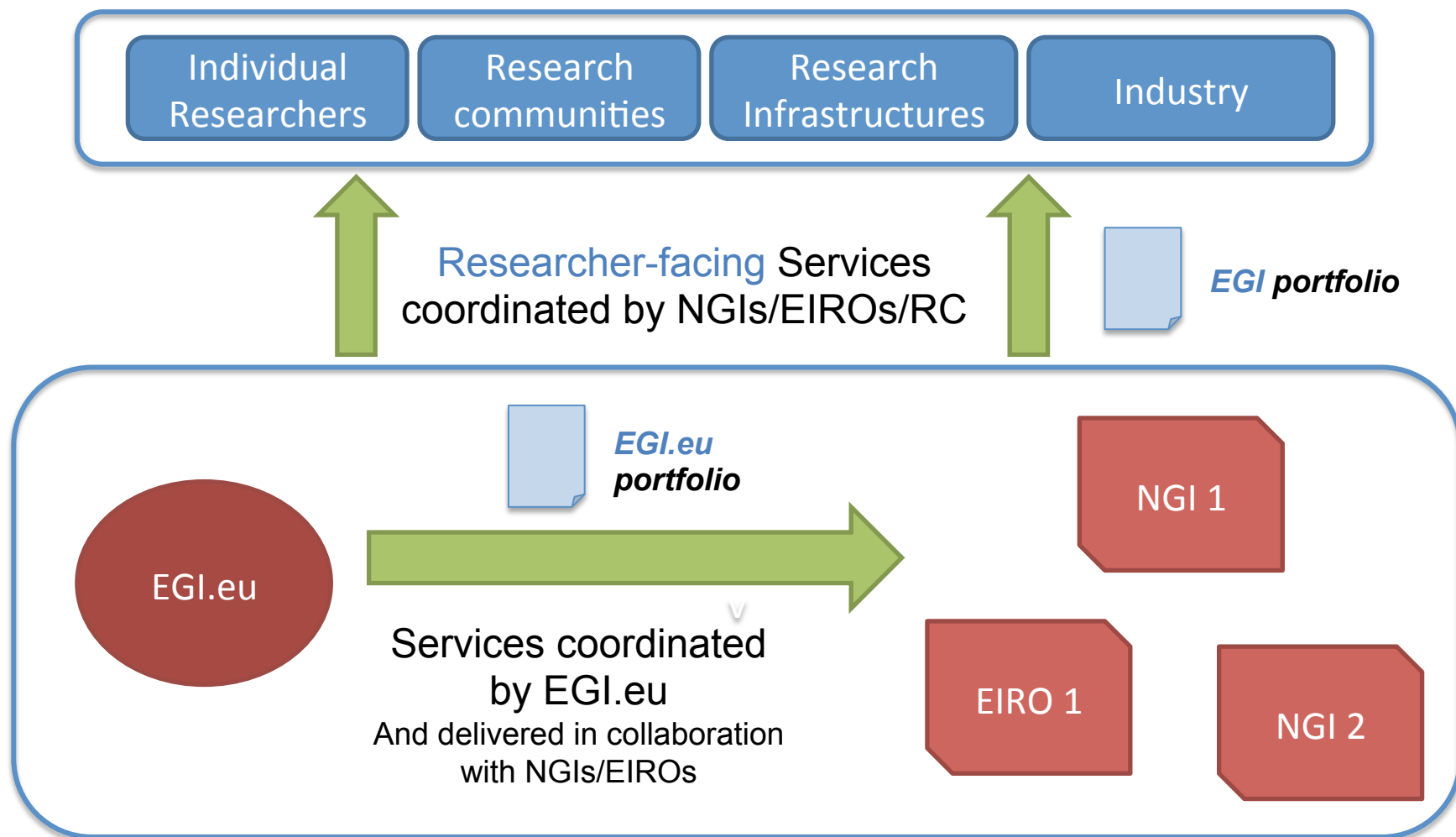


Operational Infrastructure



Users: 38,000 VOs: 250
 LCPUs: 531,000 Disk: 296PB Tape: 200PB
 1.5M jobs/day 3.75M wallclock hrs./day

EGI Organisational Model



The EGI Federation

Services coordinated by EGI.eu and delivered in collaboration with NGIs/EIROs

Services coordinated by NGIs/EIROs/RCs

Coordination

- Project and Programme Management
- Operations Coordination
- Technology Coordination
- Security Coordination

Consulting and Support

- Governance & Project Consultancy
- Strategy & Policy Decision Support
- Policy Development
- Technical Consultancy and Support
- Helpdesk Support

Marketing and Outreach

- Marketing
- Outreach

Software and Services

- Federated Operations
- Repository of Validated Software
- Applications Database
- Training Marketplace

HTC Platform

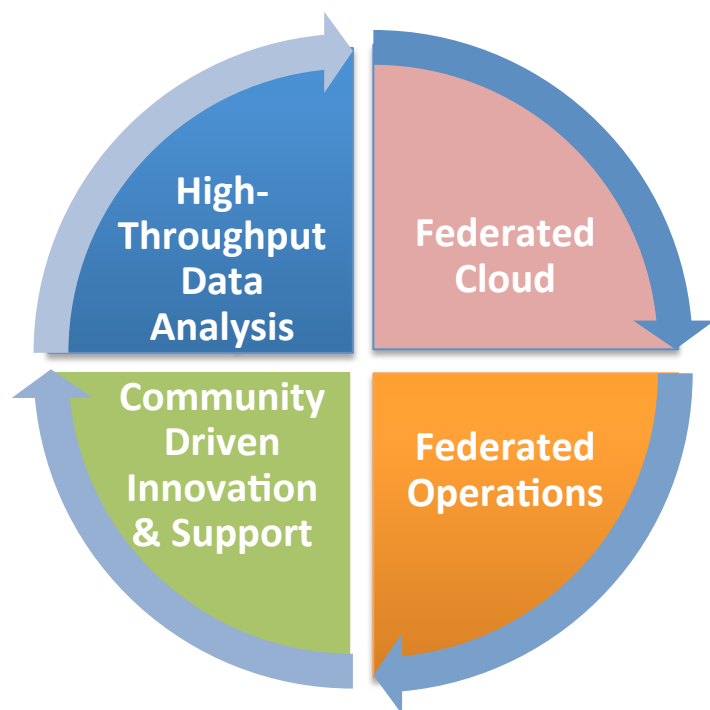
- Grid Compute
- Grid Storage
- File Transfer
- File Metadata Catalogue

Cloud Platform

- Cloud Compute
- Cloud Storage
- Virtual Appliance Marketplace

<http://www.egi.eu/services/>

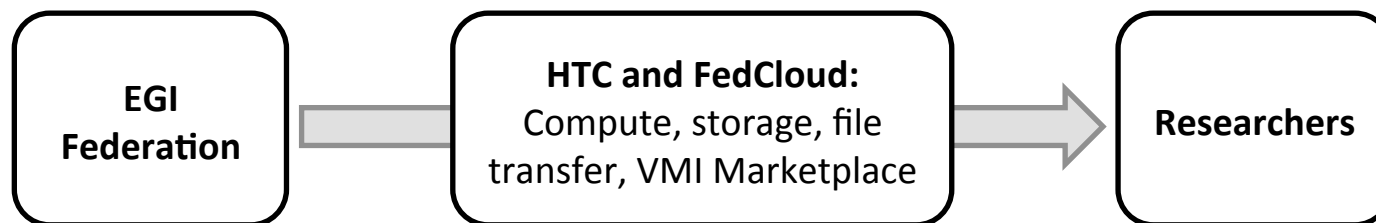
A *combination* of products, services, and intellectual property focused on *solving a problem* (opportunity) that *creates* and/or drives *value* (measurable) and *can be* significantly *standardised*



Ingredients from the EGI community:

- Services from EGI.eu
- Services from NGI/Resource Centres
- Software products from technology providers
- Data, knowledge, expertise from the community

Delivery Models: HTC and FedCloud



Value Prop:

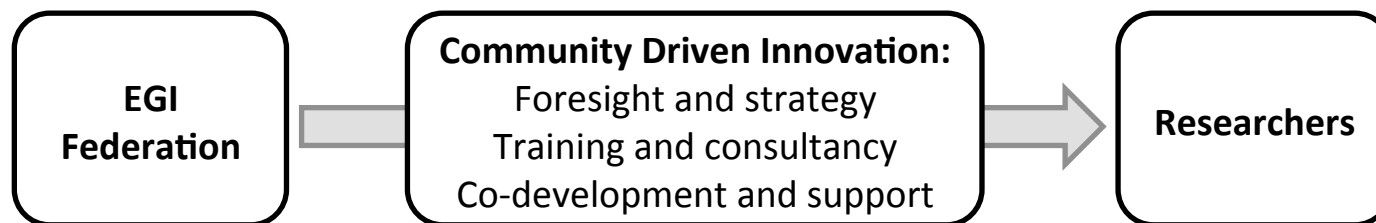
- Infrastructure to deploy on-demand services
- Ability to analyse large datasets or to execute thousands of computational tasks

Target:

- Users with not enough resources within their institution.
- Users with resources distributed in different centres (need uniform access)
- Users with distributed resources and datasets that must facilitate collaboration

Access Mode	Channel	Agreement
Ad-hoc	Individual Providers	n/a
Quota-based	Negotiated Grant	SLA
Quality-based	Scientific Review	SLA
Market-based	Direct Negotiation	SLA + Contract

Delivery Models: Community Driven Innovation



Value Prop:

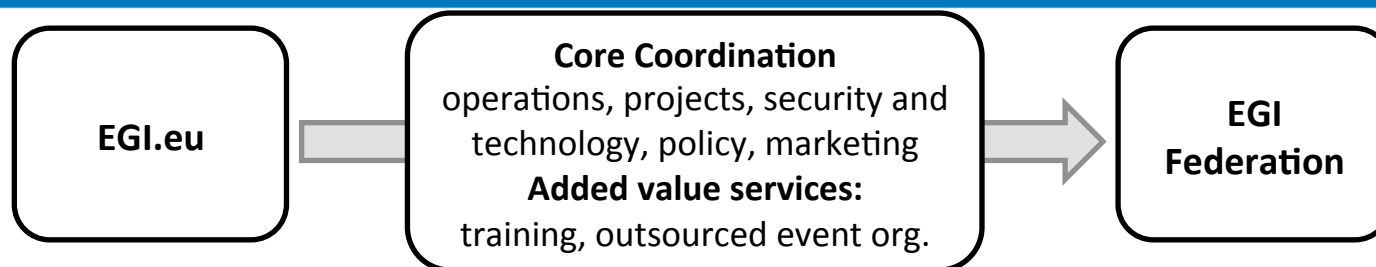
- Discover the best approach or develop new ways around data or compute-intensive research
- Knowledge-as-a-service (e.g. competence centres)

Target:

- Researchers that want to run their data- and computing-intensive experiments, but find obstacles or difficulties in accessing and running computing facilities

Access Mode	Channel	Agreement
Quota-based	EGI.eu Membership	Statutes
Quality-based	Collaboration Agreements	MoU
Quality-based	Projects	DoW/CA
Market-based	Consultancy	Contract

Delivery Models: Federated Operations



Value Prop:

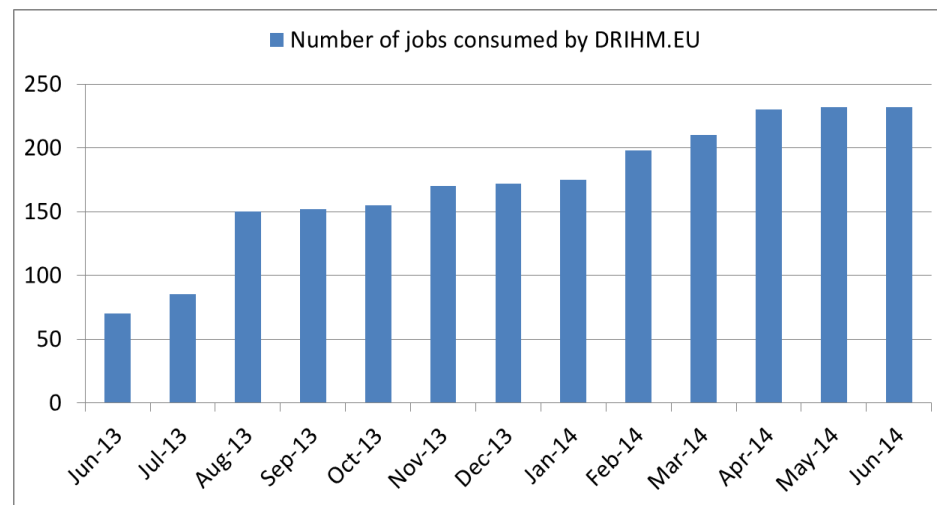
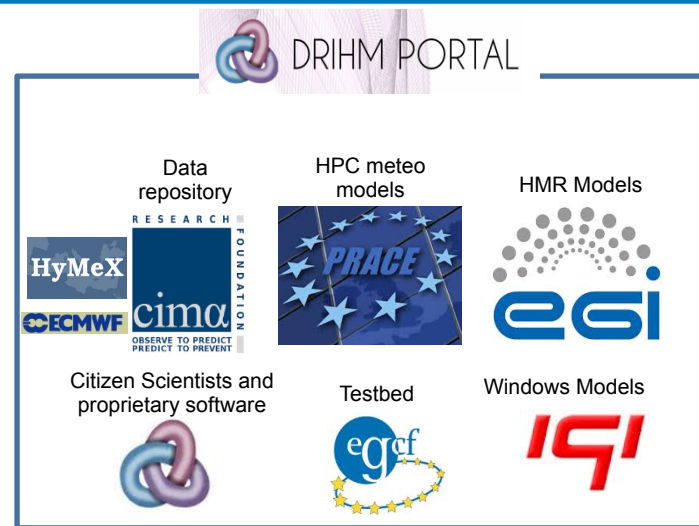
- A cost-efficient framework to manage operations within a federated environment, while retaining responsibility of local infrastructure

Target:

- (Primary) RCs and RIs already within the EGI community or wishing to become
- (Secondary) Other providers geographically and/or structurally dispersed, but plan to organise themselves for federated service provision

Access Mode	Channel	Status
Quota-based	EGI.eu Membership	Statutes + OLA/SLA
Quality-based	Collaboration Agreements	MoU + OLA/SLA
Market-based	Service/Support contract	SLA + contract

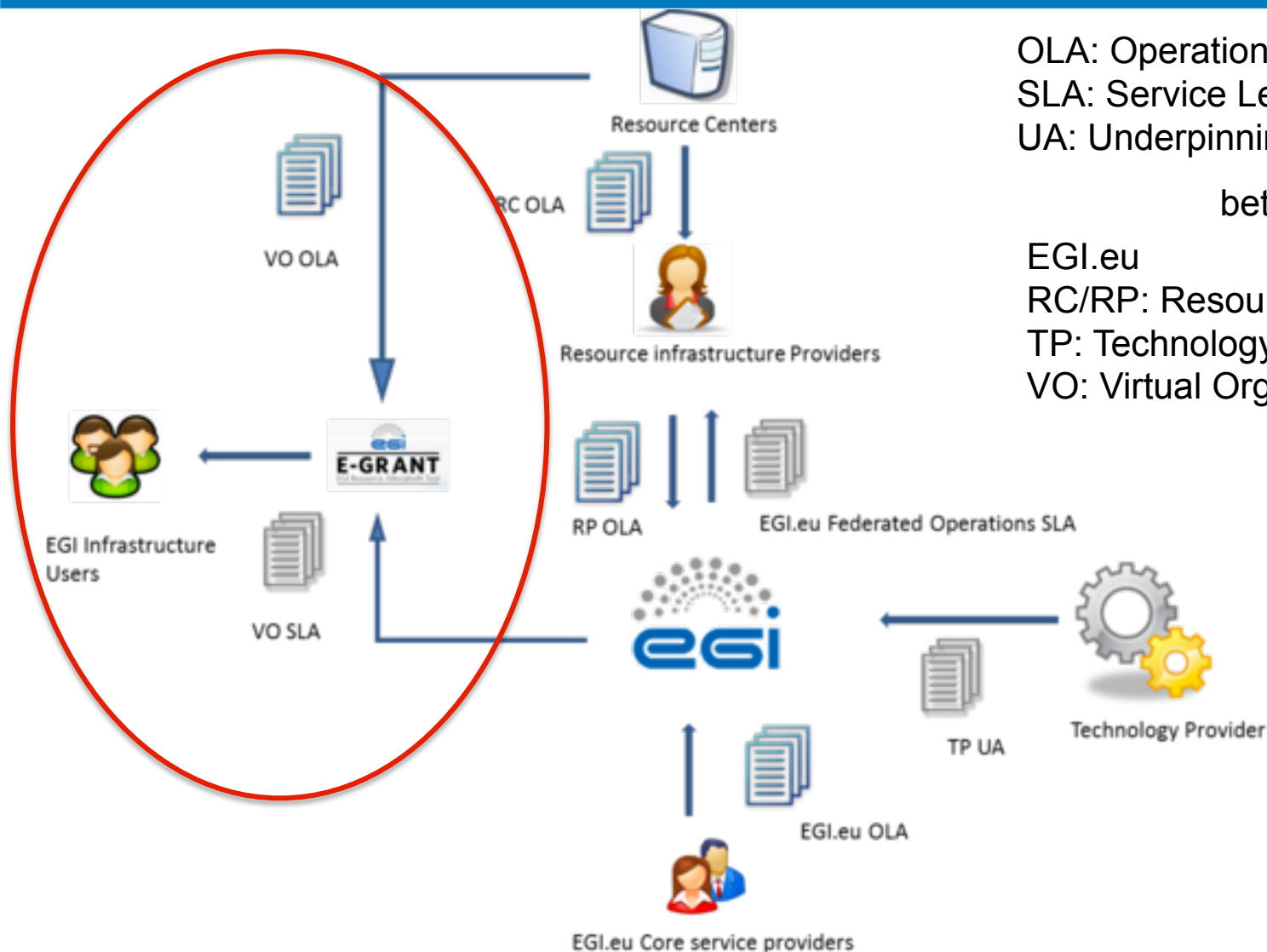
- DRIHM: Hydro-meteorology FP7 VRE project
 - To mitigate risks related to extreme weather
 - Scientific gateway with workflow applications
- EGI services used:
 - Coordination: IGE, EMI, SCI-BUS, ER-flow
 - VO membership services
 - FedCloud resources +
 - Added support for Windows VMs contextualization in OpenStack sites for DRIHM to use all the features of cloudbase-init
 - Model porting and integration support from several NGIs



Source: EGI Accounting Portal

Establishing Agreements

Agreement Framework



OLA: Operational Level Agreement
SLA: Service Level Agreement
UA: Underpinning Agreement

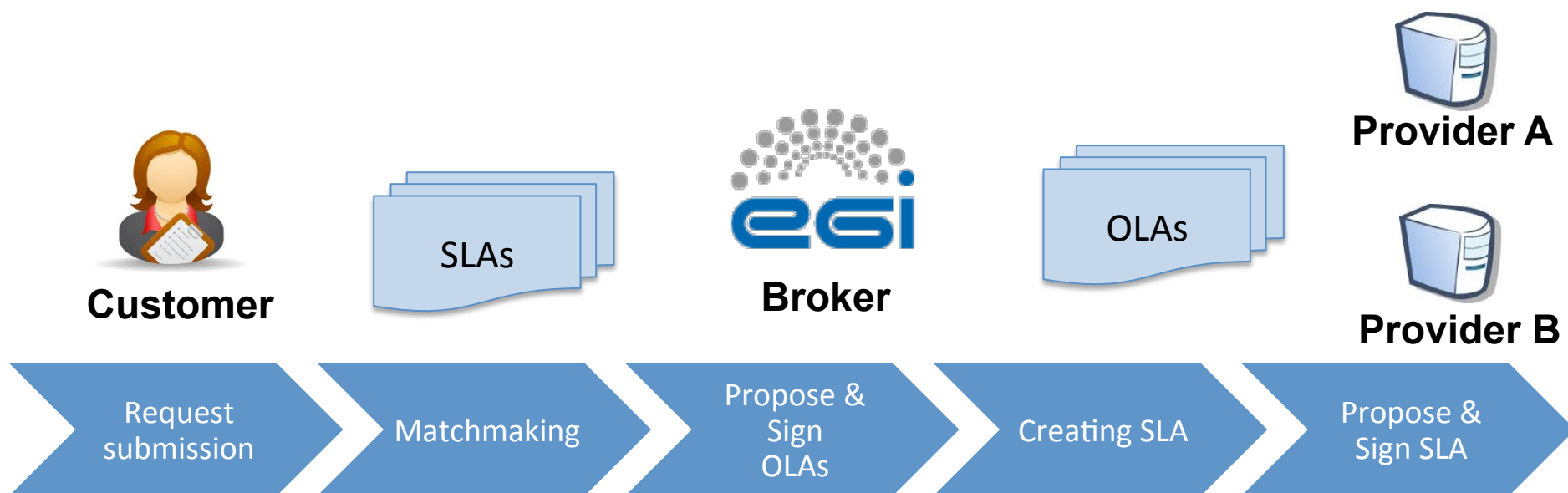
between

EGI.eu
RC/RP: Resource Centers/Providers
TP: Technology Providers
VO: Virtual Organisations



What is e-GRANT?

- Dedicated tool supporting **EGI Resource Allocation Process**
 - Allows researchers and research communities to request an amount of compute and storage resources, for a given amount of time



Pool Matching:

- Submit request
- Find pools with parameters adequate to Request's metrics
- Choose most suitable pools
- Create SLAs in which technical parameters are calculated based on customer choice

Defined Quality of Service:

- Level C1: Opportunistic
 - Resources are not guaranteed and are subject to availability
- Level C2: Time allocation
 - Resources are available in fair share-like mode for a fixed time period
- Level C3: Reserved allocation

Basic info

Start date * ⓘ

End date * ⓘ

User Community/Project * ⓘ

VO * ⓘ

Description of the activity * ⓘ

[Add resources and metrics ▾](#)

[HTC] Storage ⓘ

Total storage capacity [GB] * ⓘ

[HTC] Computing ⓘ

Total computing time [HEPSPEC-hours] * ⓘ

[Cloud] Storage ⓘ

Capacity [GB] *

High availability levels *

[Cloud] Computing ⓘ

VMs (maximum) * ⓘ

Small ⓘ

Medium ⓘ

Large ⓘ

Other ⓘ

CPU ⓘ

RAM ⓘ

Scratch/ephemeral storage ⓘ

Level of utilization *

Request mfilocha_101 ☆

Status info

Created at: 2014-05-13 15:37:05
Created by: mfilocha@egi.eu
SLA/Request id: 107
Version id: 235

Request state: IN NEGOTIATION
Initial acceptance: NO INITIAL ACCEPTANCE
Type: REQUEST
Campaign: EGI CALL 1

Targets and QoS parameters

Id	provider	type	other specification	Total computing time
1	CYFRONET-LCG2	free hand	show ⓘ	2568
2	BY-UIP	negotiation	show ⓘ	1232640
3	CYFRONET-LCG2	free hand	show ⓘ	544416
4	CYFRONET-LCG2	negotiation	show ⓘ	770400000
5	SZTAKI	free hand	show ⓘ	10272000
9	HG-OS-Okeanos	negotiation	show ⓘ	5136
10	HG-02-IASA	free hand	show ⓘ	5136

Computing: Total computing time

neg. with sites

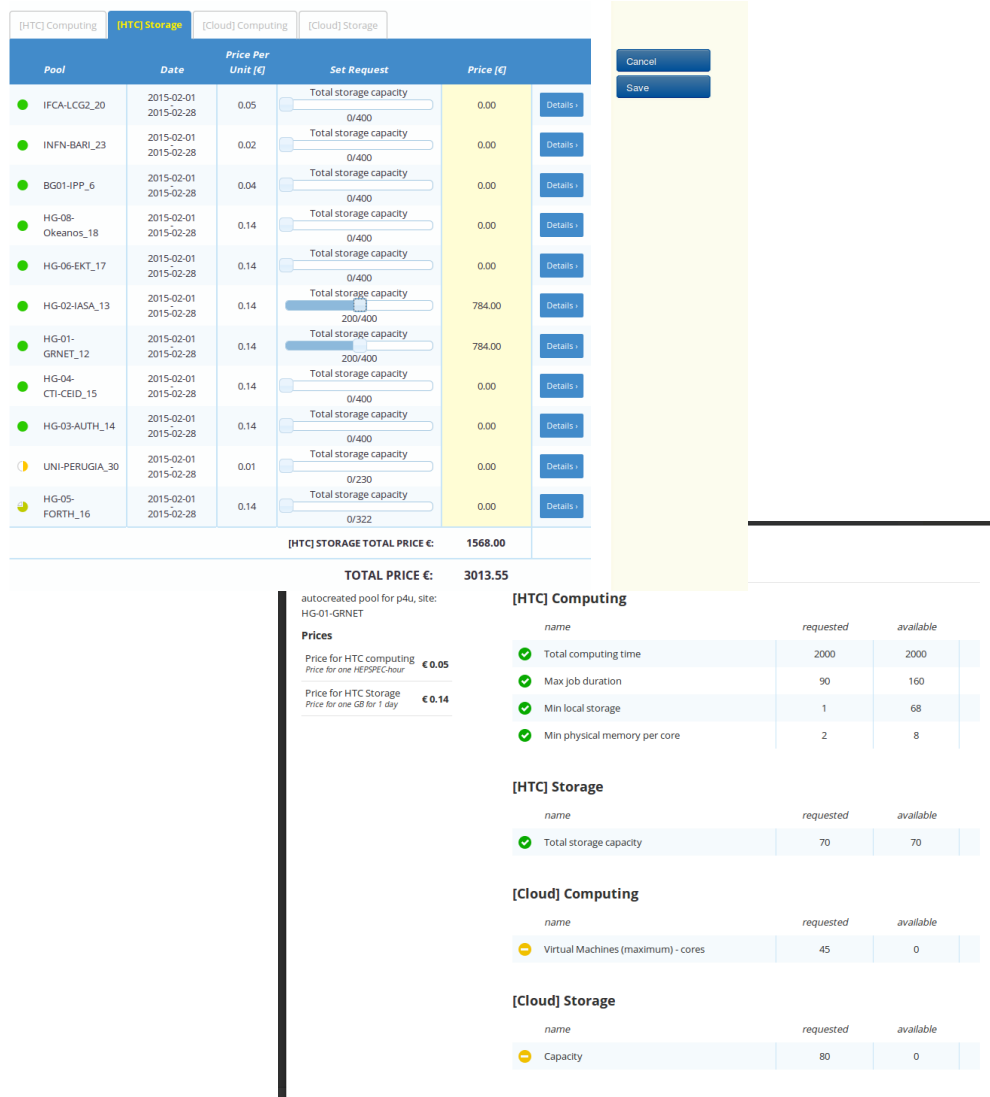
Request 1000 HEPSPER	Missing 1000 HEPSPER-hours

neg. with user

Request 1000 HEPSPER	Missing 1000 HEPSPER-hours

e-GRANT: Development for Pay-for-Use

- Completed
 - Special pool type: pay-for-use (w/ price)
 - Importing prices from Registry
 - **User self-allocation**: supported matching pools enabled for customers (existing broker functionality)
 - **Automatic finding and presenting the cheapest allocation** that suited requested parameters
 - Presenting cost of overall allocation
- Planned
 - Proper SLA created based on template and negotiated metrics
 - Billing according contract/SLA (integration with accounting needed)



The screenshot displays the e-GRANT interface for pool selection and allocation. It includes tabs for [HTC] Computing, [HTC] Storage, [Cloud] Computing, and [Cloud] Storage. The main table lists various pools with columns for Pool, Date, Price Per Unit (€), Set Request, and Price (€). A summary row shows the [HTC] STORAGE TOTAL PRICE €: 1568.00. Below this, a section for autocrated pool for p4u, site: HG-01-GRNET, shows prices for HTC computing (€ 0.05) and HTC Storage (€ 0.14). On the right, a sidebar shows the [HTC] Computing and [HTC] Storage allocation details, including requested and available resources.

Pool	Date	Price Per Unit (€)	Set Request	Price (€)
IFCA-LCG2_20	2015-02-01 2015-02-28	0.05	Total storage capacity 0/400	0.00
INFN-BARI_23	2015-02-01 2015-02-28	0.02	Total storage capacity 0/400	0.00
BGO1-IPP_6	2015-02-01 2015-02-28	0.04	Total storage capacity 0/400	0.00
HG-08-Okeanos_18	2015-02-01 2015-02-28	0.14	Total storage capacity 0/400	0.00
HG-06-EKT_17	2015-02-01 2015-02-28	0.14	Total storage capacity 0/400	0.00
HG-02-IASA_13	2015-02-01 2015-02-28	0.14	Total storage capacity 200/400	784.00
HG-01-GRNET_12	2015-02-01 2015-02-28	0.14	Total storage capacity 200/400	784.00
HG-04-CTI-CEID_15	2015-02-01 2015-02-28	0.14	Total storage capacity 0/400	0.00
HG-03-AUTH_14	2015-02-01 2015-02-28	0.14	Total storage capacity 0/400	0.00
UNI-PERUGIA_30	2015-02-01 2015-02-28	0.01	Total storage capacity 0/230	0.00
HG-05-FORTH_16	2015-02-01 2015-02-28	0.14	Total storage capacity 0/322	0.00
[HTC] STORAGE TOTAL PRICE €:				1568.00
TOTAL PRICE €:				3013.55

autocrated pool for p4u, site: HG-01-GRNET

Prices

Price for HTC computing
Price for one HEPSPC-hour € 0.05

Price for HTC Storage
Price for one GB for 1 day € 0.14

[HTC] Computing

name	requested	available
Total computing time	2000	2000
Max job duration	90	160
Min local storage	1	68
Min physical memory per core	2	8

[HTC] Storage

name	requested	available
Total storage capacity	70	70

[Cloud] Computing

name	requested	available
Virtual Machines (maximum) - cores	45	0

[Cloud] Storage

name	requested	available
Capacity	80	0

- Having clearly defined service levels and responsibilities ensuring mutually agreement expectations, comprising:
 - Scope and description of service
 - Service hours and exceptions
 - Service components and dependencies
 - Support (e.g. priorities and response times)
 - Service level targets
 - Limitations and constraints
 - Communication, reporting and escalation
 - Information Security
 - Responsibilities (both provider and customer)
 - Review



Long-term vision



*Researchers from **all disciplines** have easy, integrated and open access to the advanced **digital services**, **scientific instruments**, **data**, **knowledge** and **expertise** they need to collaborate to achieve **excellence in science, research and innovation***

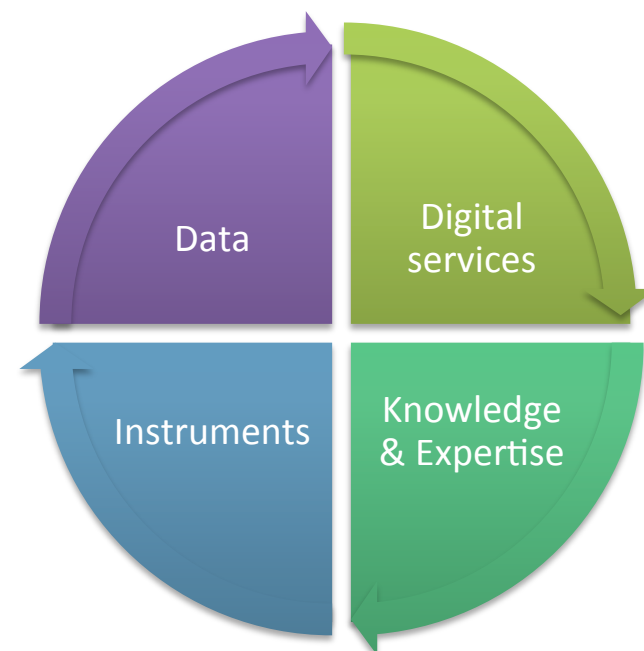
www.opensciencecommons.org



@OpenSciCommons

*based on e-IRG white paper

- *A new approach to digital research, tackling **policy challenges** and coupling the “**open science**” and the “**commons**” economy as a new paradigm for knowledge creation and collaboration in research*
- *Requiring the involvement of*
 - *E-Infrastructures*
 - *Data providers*
 - *Research Infrastructures*
 - *Competence Centres*



www.opensciencecommons.org

- EGI offers a number of solutions to support science and research
 - Both technical and human services
- Broker mechanisms put in place to facilitate easier access
- Structured SLAs according to industry best practices
 - Clarifying customer expectations and improving service quality
- Long-term strategy through the Open Science Commons
 - Relies on participation from all e-Infrastructures and research communities



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