IBERGRID

14th Iberian grid conference - Santiago de Compostela 2026

IBERGRID status

Isabel Campos - CSIC
Jorge Gomes - LIP & CNCA

CSIC - Spanish National Research Council
LIP – Laboratório de Instrumentação e Partículas
CNCA - Centro Nacional de Computação Avançada

IBERGRID in a nutshell

- Federated infrastructure joining Iberian (PT+ES) research and academic organizations mainly focused:
  - Cloud Computing
  - Grid Computing
  - Data Processing
- Enables a joint participation in international research e-infrastructures and initiatives for the benefit of Iberian researchers
  - Provides regional services, operations coordination and integration
  - Supports the Iberian participation in EGI, WLCG, EOSC and ESFRIs
- Forum for common activities and sharing of knowledge
  - Participation in EU projects research, innovation and infrastructure oriented
  - IBERGRID conference series since 2007





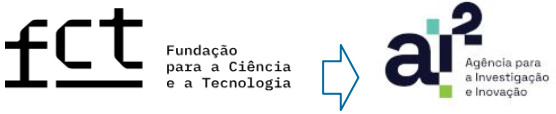
IBERGRID governance





Government





Agencies



Infrastructure



Coordination

Infrastructures



Infrastructure

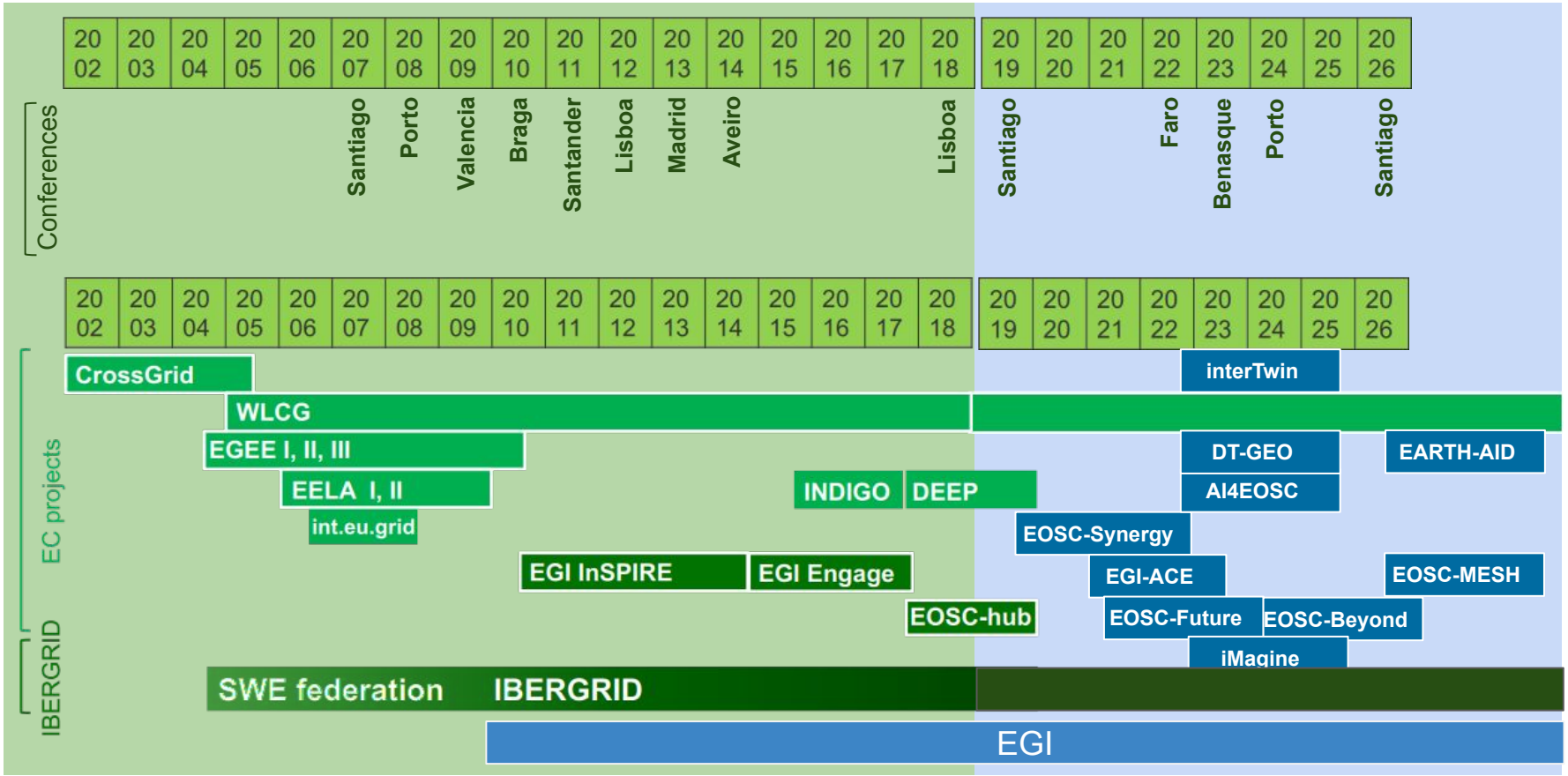


Coordination



Federation Level

IBERGRID timeline



IBERGRID agreements

8-Nov-2003 Scientific and Technology Cooperation Agreement between Portugal and Spain (Figueira da Foz)

19-Nov-2005 Memorandum of Understanding (Évora): Ministério da Ciência, Tecnologia e Ensino Superior + Ministerio de Educación y Ciencia

25-Nov-2006 Memorandum of Understanding (Badajoz): Ministério da Ciência, Tecnologia e Ensino Superior + Ministerio de Educación y Ciencia

22-Jan-2009 Memorandum of Understanding (Zamora): Ministério da Ciência, Tecnologia e Ensino Superior + Ministerio de Educación y Ciencia IBERGRID federated infrastructure



Valladolid, 21st November 2018

2. Na área de Computação Distribuída, os Signatários pretendem promover a colaboração nas seguintes áreas:

a) Apoiar a realização anual da conferência IBERGRID, realizada alternadamente no território de ambos os Estados dos Signatários;

b) Reforçar a colaboração entre os Signatários, com vista a otimizar e apoiar a participação da infraestrutura Ibérica IBERGRID em infraestruturas e iniciativas internacionais de computação distribuída e repositórios de dados, entre as quais se destaca o *European Open Science Cloud* (EOSC) e o *European Grid Infrastructure* (EGI);

c) Apoiar o desenvolvimento e integração de serviços temáticos de interesse para a comunidade científica a disponibilizar através da infraestrutura Ibérica IBERGRID;

d) Apoiar e fomentar a utilização da infraestrutura Ibérica IBERGRID no apoio à participação em projetos científicos estratégicos de interesse comum tais como a participação no CERN, o suporte aos ESFRIs e o AIR Center.

Assinado em Valladolid, no dia 21 de novembro de 2018, em dois originais, nas línguas portuguesa e castelhana, sendo ambos os textos igualmente válidos.

Pelo Governo
da República Portuguesa

O Primeiro-Ministro

Antonio Costa

Pelo Governo
do Reino de Espanha

O Presidente do Governo

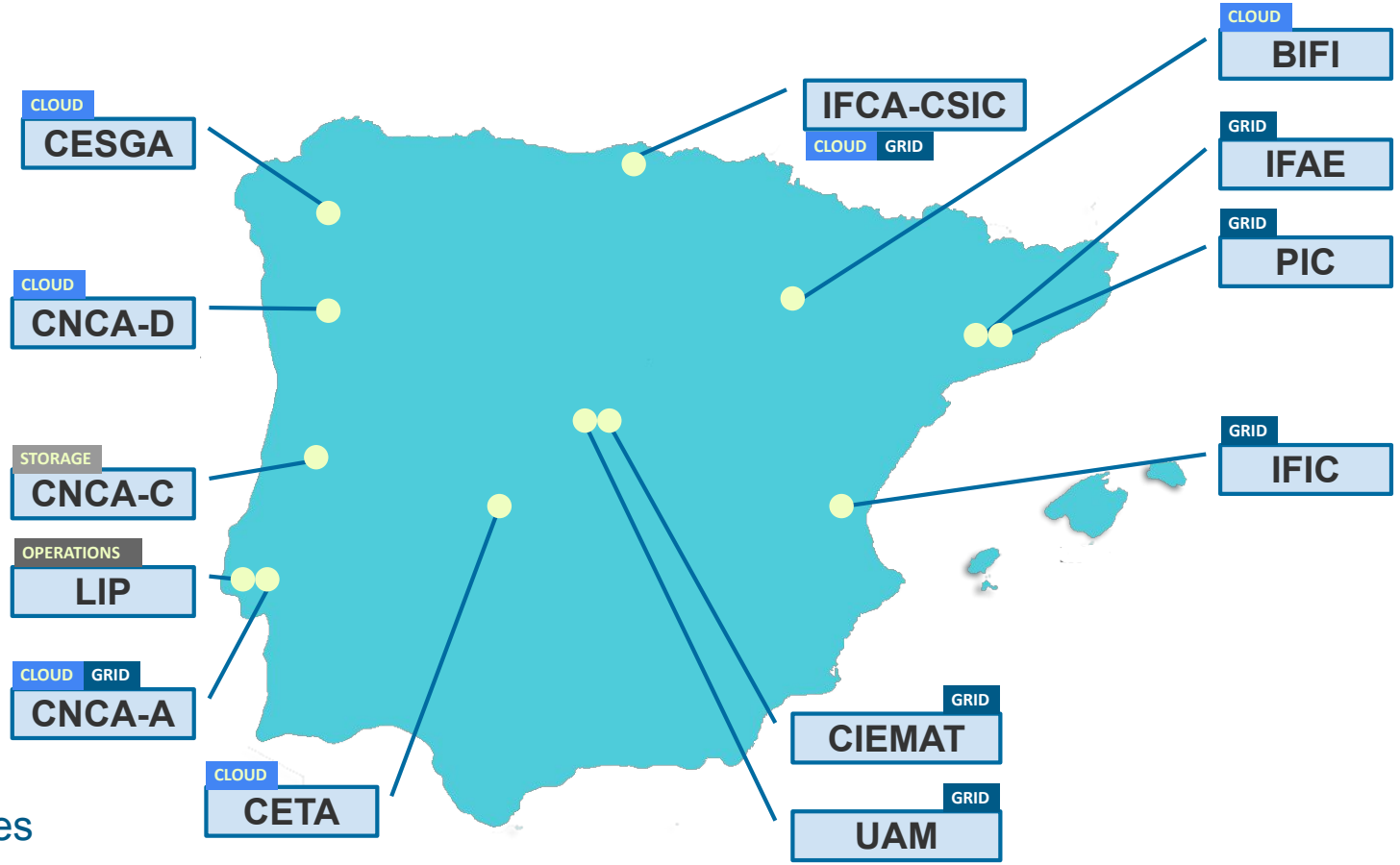
Pedro Sánchez Pérez-Castejón

Infrastructure

IBERGRID Infrastructure

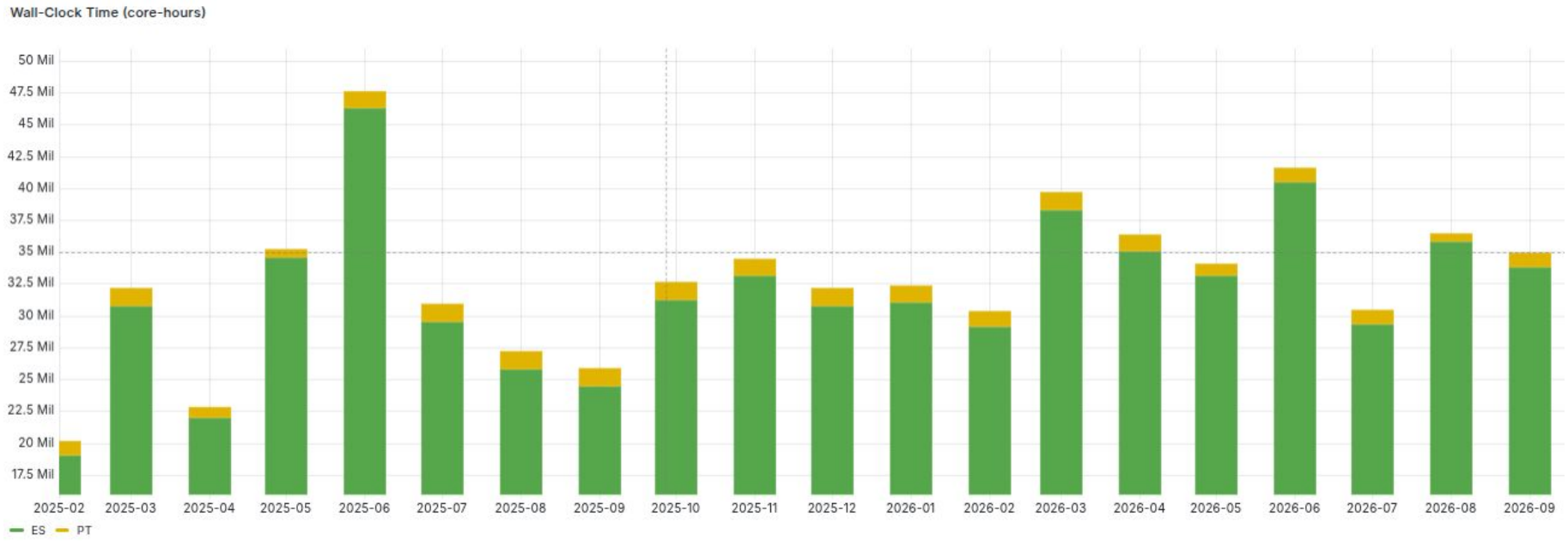
11 sites
- **2 Portugal**
- **9 Spain**

By type:
- **6 cloud**
- **7 grid/HTC**



Delivered capacity
> 50,000 CPU cores

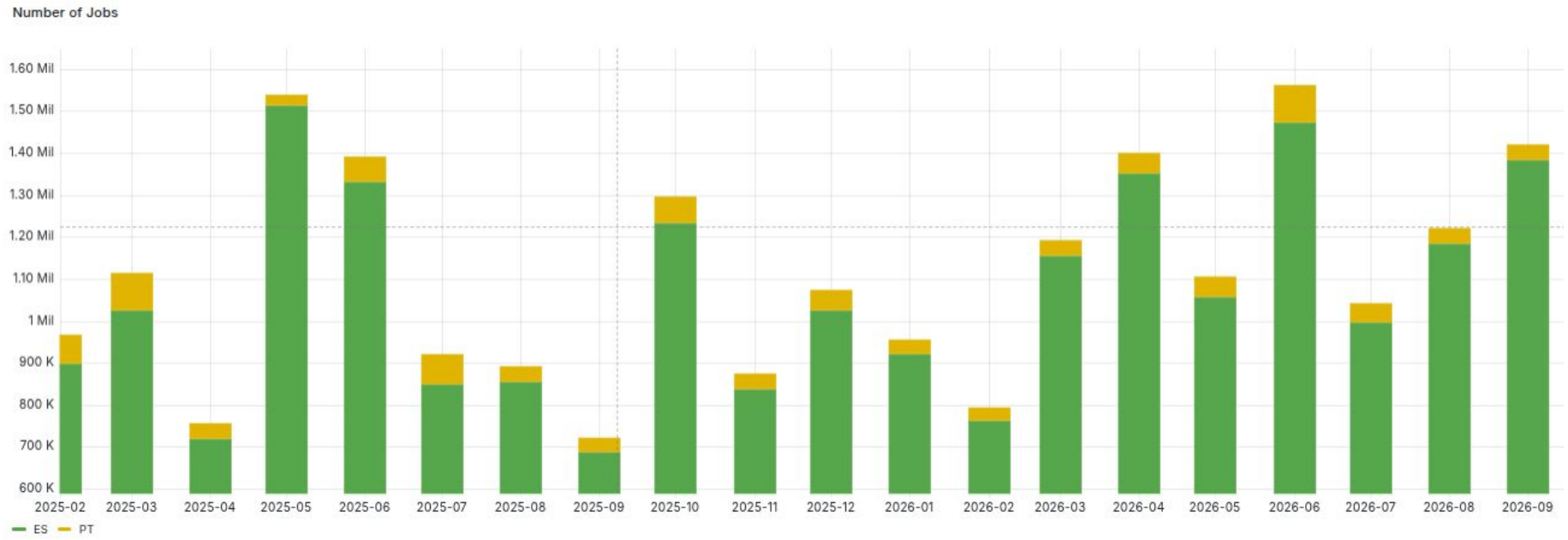
IBERGRID federated HTC computing hours



Federated HTC computing over last 22 months: 657,529,000 processing hours

Portugal: ~ 24.420.000 (4%), Spain: ~ 633.109.000 (96%)

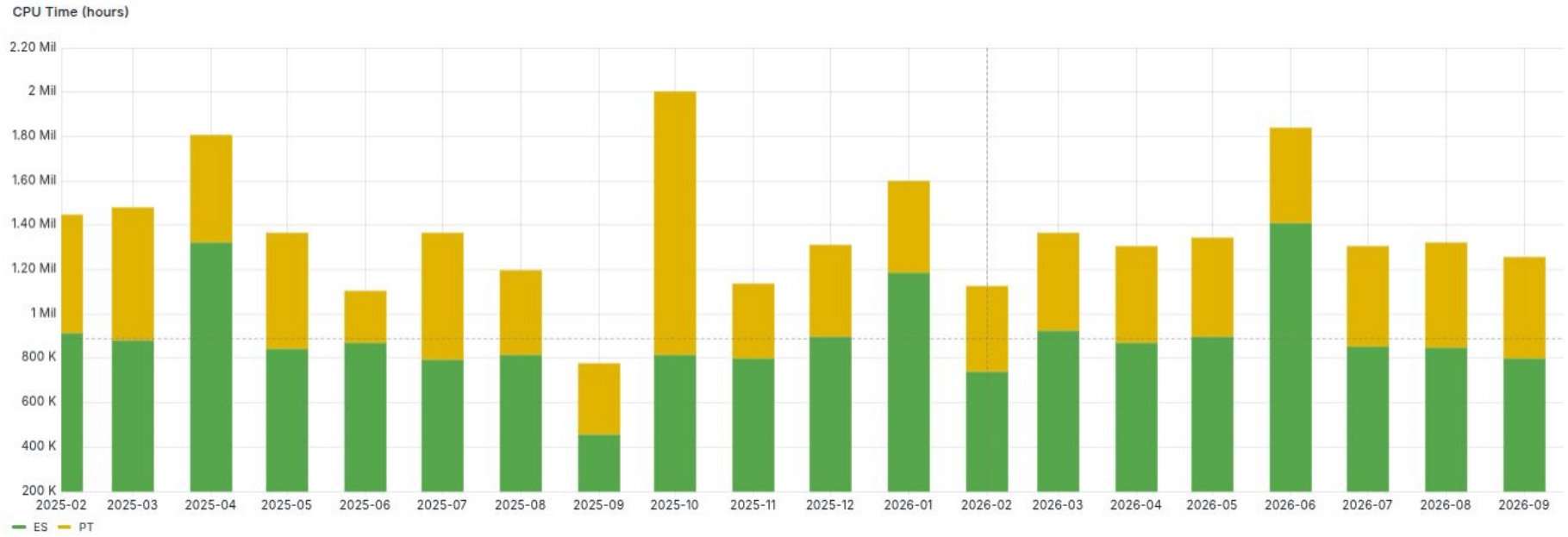
IBERGRID federated HTC computing jobs



Federated HTC computing over last 22 months: 21,300,000 jobs

Portugal: ~ 1.000.000 jobs (4%), Spain: ~ 21.200.000 jobs (96%)

IBERGRID federated cloud

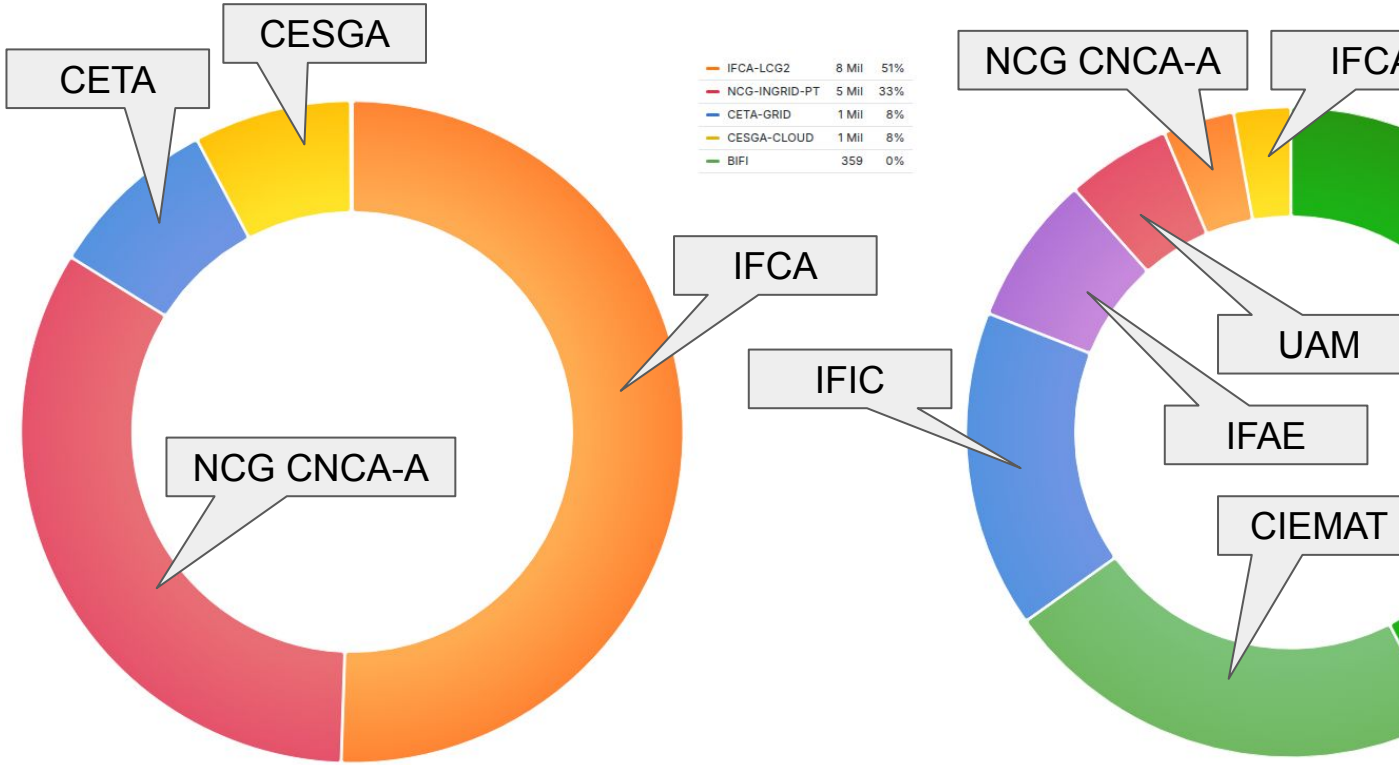


Federated cloud over last 20 months: 27,400,000 processing hours

Portugal: ~ 9.500.000 hours (35%), Spain: ~ 17.900.000 hours (65%)

Portugal: VMs (26%), Spain: VMs (74%)

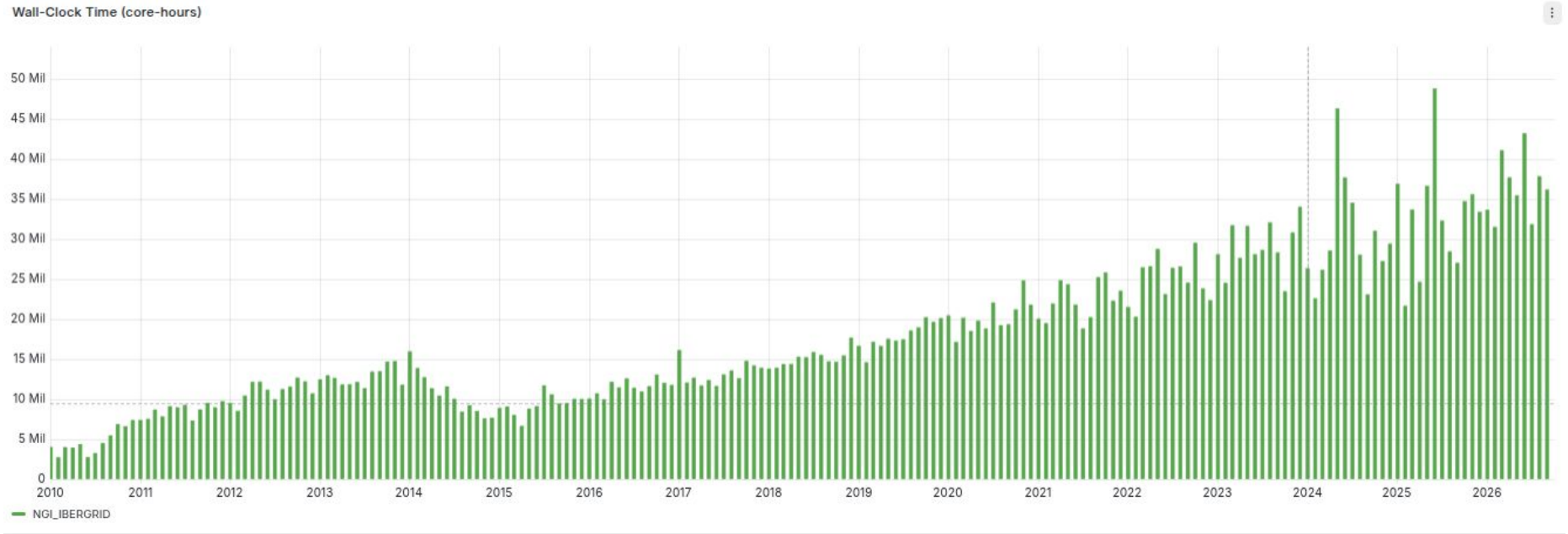
IBERGRID cloud and HTC per site



Cloud Computing

HTC Computing

IBERGRID since 2010



Wall clock hours: 3,611,168,206

CPU efficiency: 78.3%

Normalized core-hours (HS23): 38,464,412,487

Virtual Organisations active in last 20 months

ATLAS

CMS

LHCb

access.egi.eu

aquamonitor.c-scale.eu

auger

bioisi

biomed

cesga.es

cloud.egi.eu

training

cryoem.instruct-eric.eu

cta/ctao

deep-hybrid-datacloud.eu

dune

ec-meloa.eu

eosc-synergy.eu

fedcloud.egi.eu

igwn

lagoproject.net

opencoast.eosc-hub.eu

priocms

snoplus.snolab.ca

training.egi.eu

virgo

vo.access.egi.eu

vo.ai4eosc.eu

vo.aneris.eu

vo.cta.in2p3.fr

vo.deltares.nl

vo.envrihub.eu

vo.imagine-ai.eu

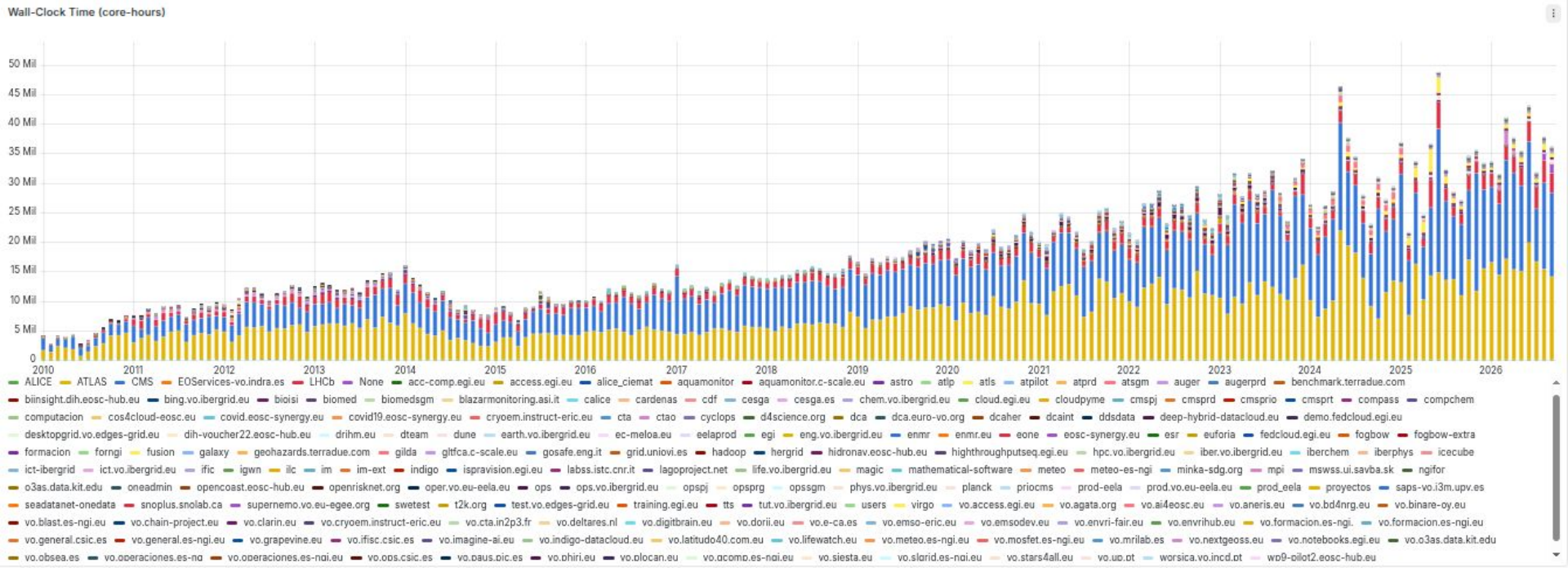
vo.lifewatch.eu

vo.obsea.es

vo.siesta.eu

worsica.vo.incd.pt

Virtual Organisations since 2010



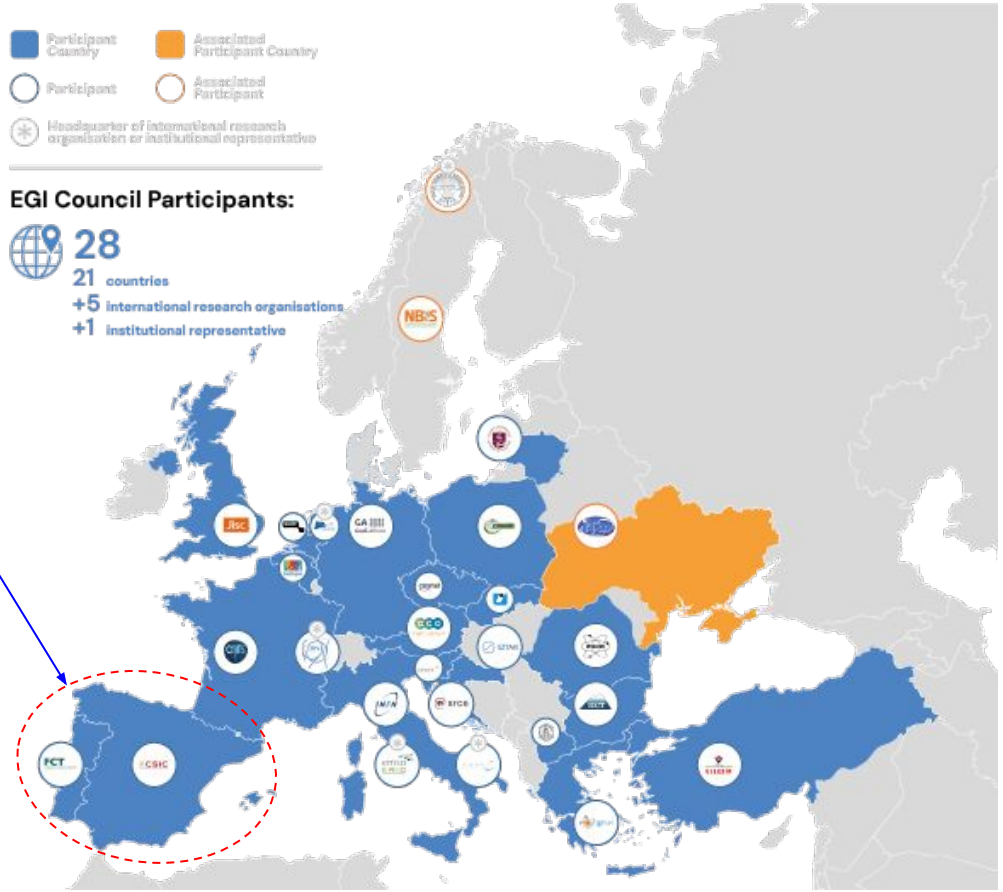
Supported 137 VOs with significant activity since 2010

IBERGRID in EGI

IBERGRID is a regional infrastructure within EGI since 2010 ⇒ NGI_IBERGRID

EGI in numbers:

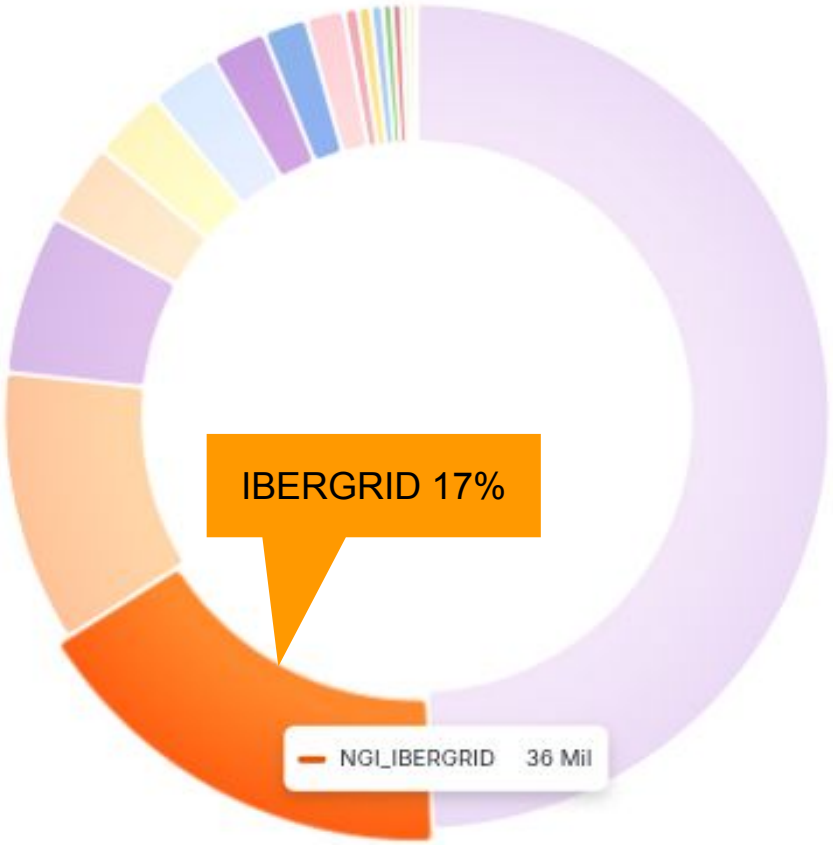
- ~ 300 centres
- 163K users
- 62.7M cloud hours
- 7.4B HTC hours
- 540 PB storage



IBERGRID software and services in EGI, EOSC and EU projects

- Resource provider
  - EGI cloud compute provider
  - EGI HTC provider
  - User support
  - Regional operations coordination
  - Regional security coordination
- Technology provider
  - Infrastructure Manager
  - OSCAR
  - EC3
  - UMD+CMD Software distribution
  - Software infrastructure for QA
  - SQAaaS
  - udocker
  - DEEP platform
- Community support
  - Enabling usage
  - Helpdesk
  - Liaison
- Thematic services
  - OPENCoastS
  - Worsica
  - GBIF
  - Scipion
  - etc

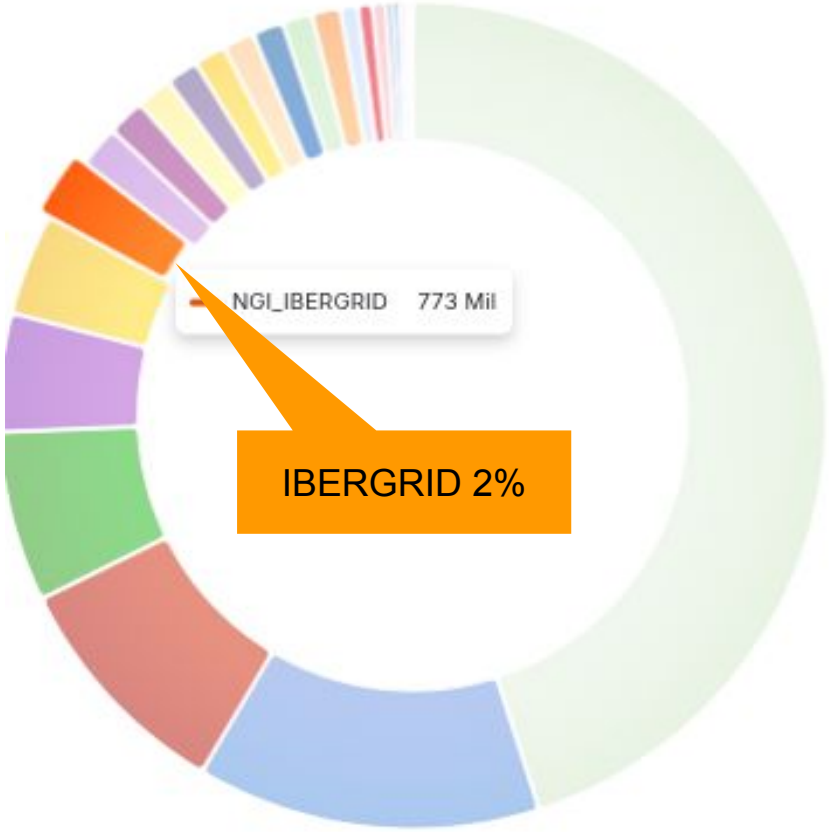
IBERGRID federated cloud in EGI



UNKNOWN	107 Mil	50%
NGI_IBERGRID	36 Mil	17%
NGI_CZ	23 Mil	11%
NGI_FRANCE	13 Mil	6%
NGI_TR	7 Mil	3%
NGI_RO	6 Mil	3%
NGI_SK	6 Mil	3%
NGI_IT	5 Mil	2%
NGI_HU	4 Mil	2%
NGI_UA	3 Mil	1%
NGI_DE	1 Mil	0%
NGI_HR	912 K	0%
NGI_CHINA	830 K	0%
NGI_GRNET	632 K	0%
NGI_IE	625 K	0%
NGI_PL	462 K	0%
EGI.eu	313 K	0%
AfricaArabia	11 K	0%

Wall clock time
Over last 2 years
by NGI

IBERGRID federated HTC computing in EGI



Wall clock time
Over last 2 years
by NGI

UNKNOWN	14 Bil	46%
CERN	4 Bil	14%
NGI_UK	3 Bil	9%
NGI_DE	2 Bil	7%
NGI_IT	1 Bil	5%
NGI_FRANCE	1 Bil	4%
NGI_IBERGRID	773 Mil	2%
NGI_CZ	498 Mil	2%
ROC_LA	446 Mil	1%
NGI_NL	421 Mil	1%
Russia	383 Mil	1%
AsiaPacific	375 Mil	1%
NGI_RO	367 Mil	1%
ROC_Canada	364 Mil	1%
NGI_NDGF	351 Mil	1%
NGI_CH	332 Mil	1%
NGI_PL	194 Mil	1%
NGI_IL	158 Mil	1%
NGI_SI	137 Mil	0%
NGI_TR	65 Mil	0%

Projects

EARTH-AID

Agentic AI for Trustworthy Impact Simulations Integrating Digital Twins and Data Lakes for Geohazards & Georesources within Destination Earth

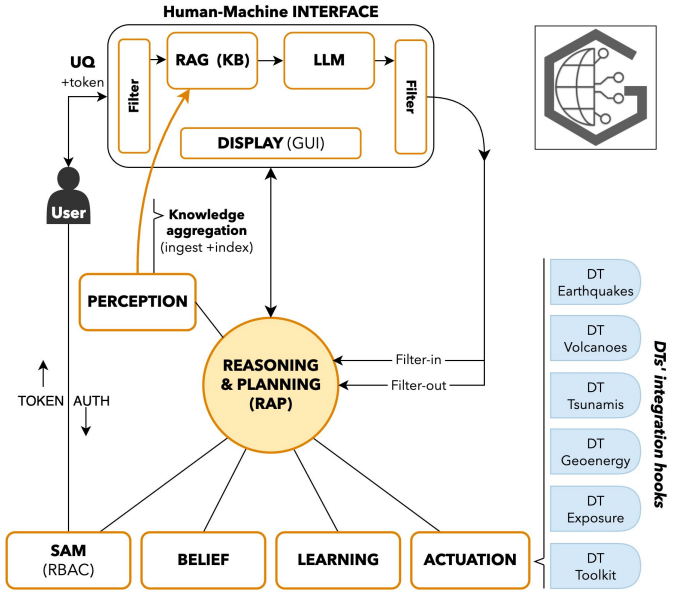
- Moving European geohazard management from reactive disaster response to anticipatory prediction
- Building a next-generation AGENTIC decision-support system integrated into Europe's Destination Earth (DestinE) ecosystem

Contributions:

- Workflow lifecycle and Quality validation
- Integration of containers and HPC
- Module integration for training/inference pipelines with CI/CD
- Evaluate models

- Started September 2026
- 36 months
- 19 partners / 10 countries
- ~ 10 M€ total budget

Funded by the European Union



EOSC-Mesh

Connecting Nodes to Advance the EOSC Federation

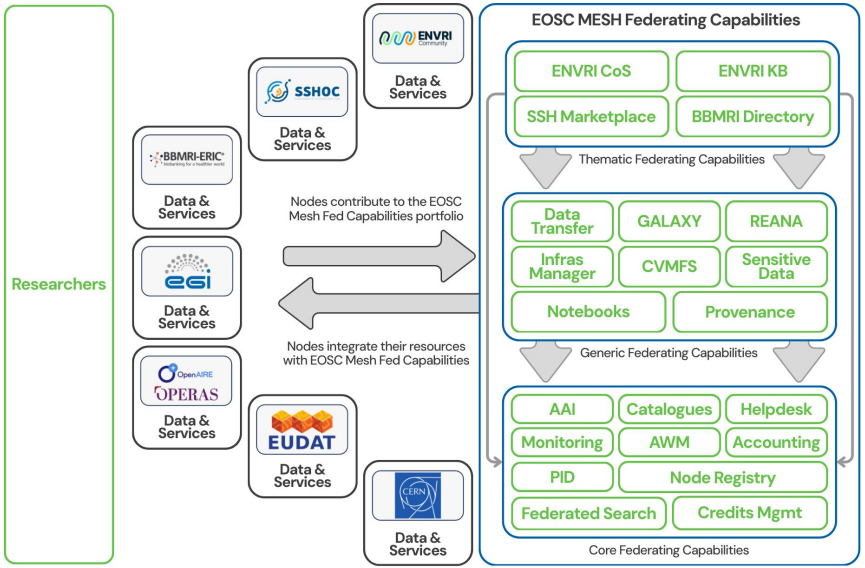
Establish a distributed, federated networkby deploying and integrating seven interoperable Nodes with the central EU-level infrastructure (EOSC EU Node).

Contributions:

- Piloting an Iberian node
- Enhancement of services
- Onboarding of services
- Providing use cases
- Supporting use cases

- Started September 2026
- 36 months
- 46 partners / 18 countries
- ~ 9 M€ total budget

Funded by the European Union



FLUID-AI 4 EOSC

FLUID-AI: Facilitating Liquidity and Usability of Data and AI models in EOSC

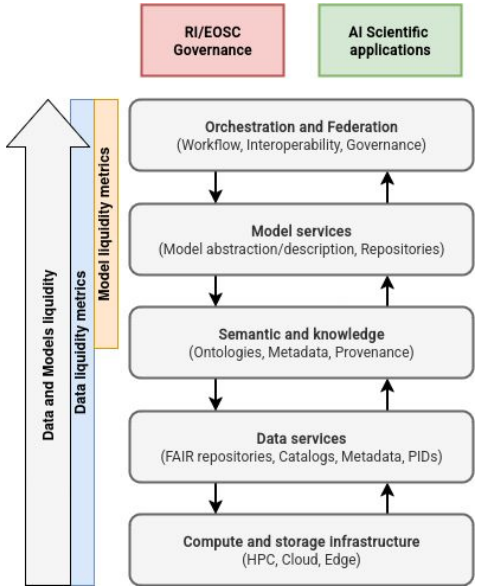
New approach to firstly (re-)define the Data and Models Liquidity concept within the RIs and EOSC ecosystem, to use it as a vehicle to tackle the lack interoperability between AI/ML solutions and data providers.

Contributions:

- Data and Models Liquidity definition and QA
- Architecture and services definition
- Communication, dissemination and exploitation
- Technical support for research use cases
- Trustworthy AI-ready repositories

- Started September 2026
- 36 months
- 28 partners / 12 countries
- ~ 7.5 M€ total budget

Funded by the European Union



EOSC-Beyond

EOSC- Beyond: Advancing innovation and collaboration for research

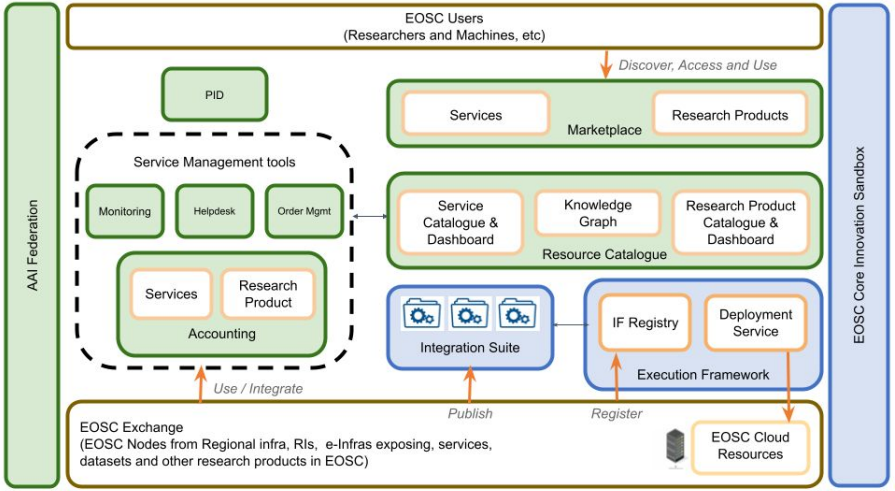
- Advance Open Science and innovation in research by providing new EOSC Core capabilities
- that allow scientific applications to integrate and compose multiple EOSC Resources from national, regional and thematic EOSC Nodes.

Contributions:

- Release management
- Software Quality Assurance
- Service Management System

- Started April 2024
- 36 months
- 33 partners / 16 countries
- ~ 10 M€ total budget

Funded by the European Union



ENVRI-HUB-Next

ENVironmental Research Infrastructures delivering an open access Hub and NEXT-level interdisciplinary research framework providing services for advancing science and society

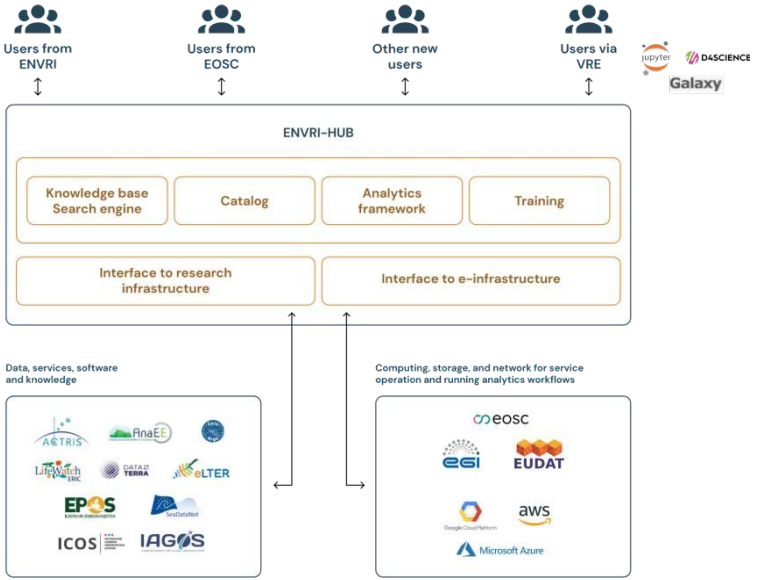
- Create a robust conceptual and technical framework that will empower the ENVRI Science Cluster to provide interdisciplinary science-based services.

Contributions:

- Software Quality assurance
- Testing & feedback collection
- CI/CD integration and agile software development

- Started February 2024
- 36 months
- 21 partners / 11 countries
- ~ 5 M€ total budget

Funded by the European Union



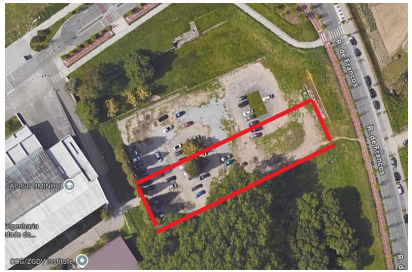
Improvements

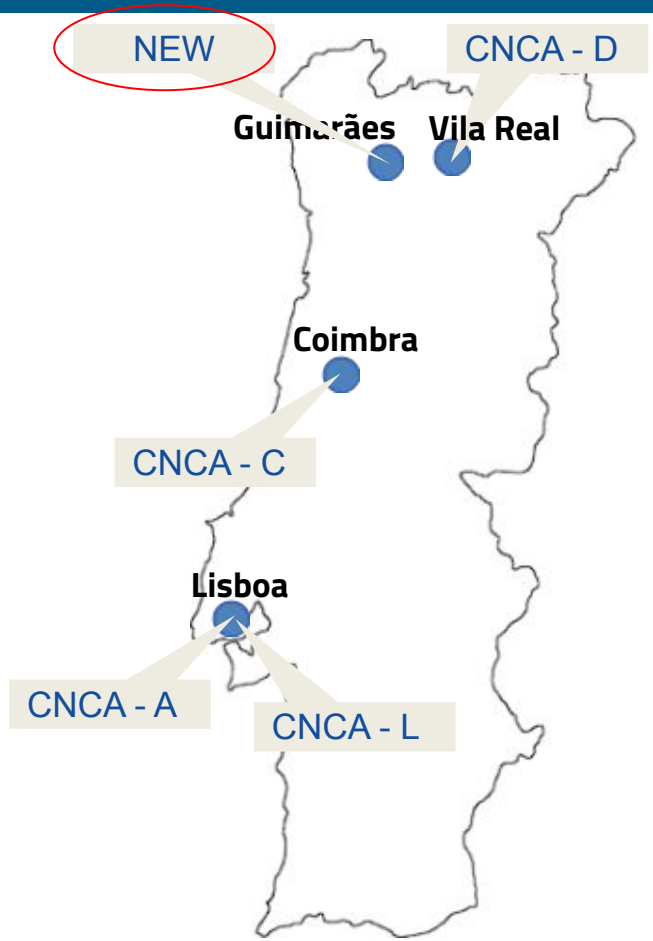
Portugal - CNCA

A new CNCA site in Guimarães will become operational in the first quarter of 2027.

- Hosted at the new FCT-FCCN datacenter
  - University of Minho Campus @ Azurém
- Tender finished
  - Equipment about to be delivered
- Cloud infrastructure manly oriented to Kubernetes
  - CPU capacity
  - GPU capacity
  - Storage capacity







Conclusions

- IBERGRID
  - the infrastructure continues growing and evolving
  - is a major regional infrastructure within the wider EGI federation
  - supports a wide range of users from different communities and domains
  - is a collaboration with very active participation in European projects
  - is developing software components that are being actively used
  - is continuously adapting to the technology evolution
  - has well established expertise in software management and quality assurance
  - has well established expertise in software for orchestration of workloads
  - has well established expertise in data processing and data management
  - exploiting developments in ML/AI at the infrastructure, platform and application level

Thank you !

www.ibergrid.eu

GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES
Agência para a Investigação e Inovação
CSIC Consejo Superior de Investigaciones Científicas
LIP
CNCA
CESGA Centro de Supercomputación de Galicia

Portugal - CNCA

- CPU servers
  - 2x AMD Epyc 96 CPU cores
  - 1536 GB RAM
  - 3x NVMe 3.84TB
  - 2x 100GbE
- Support servers
  - AMD EPYC 9135
  - 64 RGB RAM
  - 2 x SSD 1.92TB NVME
  - 2x 100GbE
- Storage HDD
  - 2x XEON Silver 4510
  - 128 GB RAM
  - 2x SSD M.2
  - 22x HDD SATA 22TB
  - 2x 25GbE
- Network equipment
  - Switches NVIDIA with 400GbE ports
- GPU servers (A)
  - 2x AMD Epyc EPYC 9575F
  - 3 TB RAM
  - NVIDIA HGX B300 (8x GPUs)
  - 2x SSD M.2
  - 8x NVMe 3.8TB
  - 2x 200GbE + B300 interfaces
- GPU servers (B)
  - 2x AMD Epyc 9455
  - 384 GB RAM
  - 2x NVIDIA RTX PRO 6000 Blackwell Server Edition
  - 3x NVMe 3.8TB
  - 2x 100GbE
- Storage NVME
  - 2x AMD Epyc 9255
  - 128 GB RAM
  - 2x SSD M.2
  - 10x NVMe 3.2TB
  - 2x 200GbE