DMCC+ Project Meeting

Conference Call by Goto Meeting
17:00-18:00, 14 Feb. 2018

EOSC-hub mobilises providers from 20 major digital infrastructures, EGI, EUDAT CDI and INDIGO-DataCloud jointly offering services, software and data for advanced data-driven research and innovation.
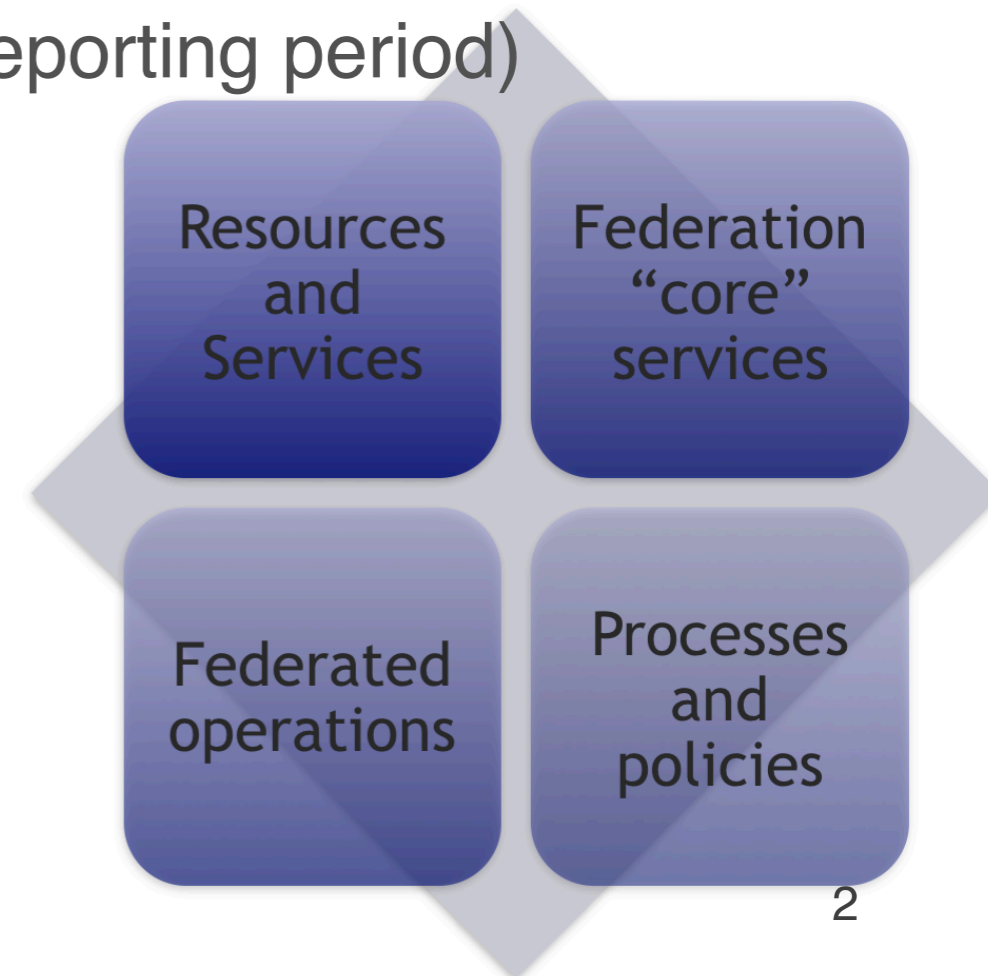
Project figures

- 100 Partners, 76 beneficiaries (75 funded)
- 3874 PMs, 108 FTEs, more than 150 technical and scientific staff involved
- 36 months: Jan 2018 – Dec 2020 (18 month reporting period)

Mission

The project will create the Hub a federated integration and management system for the future EOSC

**Details about EOSC-Hub could be found at
https://indico.egi.eu/indico/event/3548/overview**

Resources and Services	Federation "core" services
Federated operations	Processes and policies

Tasks and leaders

Task nb., title	Task leader	Deputy/ technical leader	Represented Research infrastructure
WP8.1 ELIXIR / EMBL-EBI	Steven Newhouse	Susheel Varma	ELIXIR
WP8.2 Fusion / CCFE	Shaun de Witt		ITER
WP8.3 Marine / IFREMER	Thierry Carval		Euro-Argo, SeaDataNet
WP8.4 EISCAT_3D / EISCAT	Ingemar Häggström	Carl-Fredrik Enell	EISCAT_3D
WP8.5 EPOS-ORFEUS / KNMI	Luca Trani	Javier Quinteros	EPOS
WP8.6 Radio astronomy / ASTRON (SurfSARA)	Hanno Holties	Rob van der Meer	LOFAR, SKA
WP8.7 ICOS / University of Uppsala	Alex Vermeulen		ICOS, eLTER
WP8.8 Disaster Mitigation Plus / Academia Sinica	Eric Yen	Simon Lin	

CC overview (WP8+WP11)

WP8 supports the design, integration and dissemination of new, community-specific e-Infrastructure service platforms. […] Activities are complemented by WP11 to deliver training to research communities and related relevant data providers and data scientists.
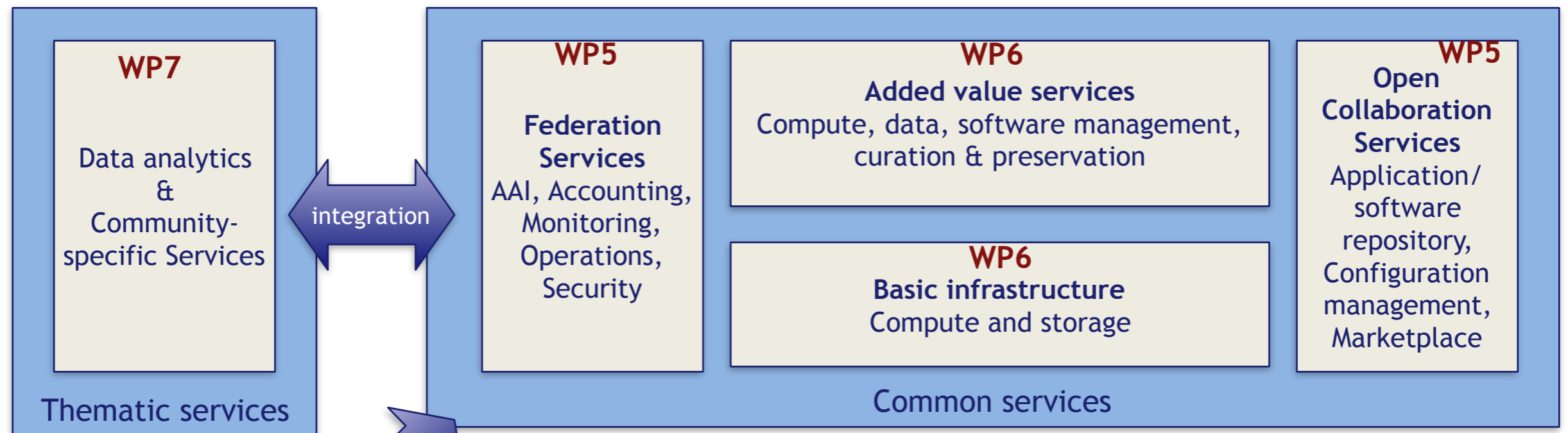
- Objectives
    - Running **proofs of concept** to test **the feasibility of use cases**, based on specific scientific and technical requirements defined by high impact research communities.
    - Conducting **pilots** to define and test the architecture of solutions.
    - Preparing the **production environments** to make platforms available to users beyond the CC.
    - Defining **business models to sustain the solutions** within EOSC after the end of the project.
- Members
    - **EGI Foundation**, CSC, ACK Cyfronet, ASTRON, CCFE (UKAEA), CEA, CESNET, CINECA, CNRS, EAA , EISCAT, EMBL, GFZ, GRNET, IFREMER, INGV, JUELICH, KIT, LUND, MARIS, MU, NOA, PSNC, SNIC (UU), STFC, SURFsara (ASTRON), ULG, AS (ASGC)
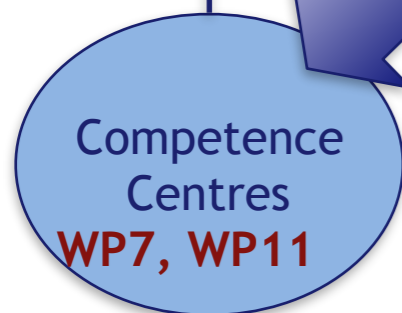
Competence Centres in EOSC-hub

EOSC hub

A federated integration and management system for EOSC

Service catalogue: https://wiki.eosc-hub.eu/display/EOSC/Service+catalogue

Thematic services

WP7

Data analytics & Community-specific Services

integration

Common services

WP5

Federation Services
AAI, Accounting, Monitoring, Operations, Security

WP6

Added value services
Compute, data, software management, curation & preservation

WP6

Basic infrastructure
Compute and storage

WP5

Open Collaboration Services
Application/ software repository, Configuration management, Marketplace

incubate

integration

WP10: Tech. support, Service roadmaps
WP11: Training

Competence Centres
WP7, WP11

Competence Centres

WHO:
- Research community experts
- Service providers
- Technology providers

WHAT:
- Run proof-of-concepts and pilots
- Service co-creation
- Bring new services into the catalogue
- Dissemination and training

10/01/18

5

Basic infrastructure and Added value services:

EGI HTC	High throughput computing service Elapsed time, M hours/year [45,000 – 60,000 - 75,000]]	9
EGI Cloud compute	Infrastructure as a service cloud computing Number of VM instantiated per year [320,000 – 400,000 – 450,000]	9
EGI Cloud container	Docker containers cloud computing Number of docker images instantiated [0 – 1,000 – 3,000]	8
DIRAC4EGI	Workload management service to distribute and manage centrally thousands of computational tasks both on cloud and HTC Number of computing tasks submitted per year, millions [6.8 - 9 - 12]	9
EGI Online storage	Store data in a reliable and high-quality environment and share it across distributed teams. Volume of data stored (PB) [200 – 250 – 300]	9
EGI Data Hub	Access selected public datasets and efficiently consume them from EGI compute services Number of datasets searchable [1 – 5 – 15]	7
B2HANDLE	Persistent Identifiers management Number of PIDs registered [30M – 100M – 200M]	8
B2FIND	Metadata based data-discovery service Number of harvested records [500K – 10M – 20M]	8
B2DROP	Secure and trusted data exchange service for researchers Number of users [1000 – 2000 – 3000]	8
B2SAFE	Distribute and store large volumes of data based on data policies Managed registered data (PB) [1 – 5 – 30]	8
B2STAGE	Transfer of data between data resources and external computational facilities Volume of data transferred (PB) [1 - 5 - 30]	8
B2SHARE	Store and publish research data Published data records [1K – 10K – 30K]	8
B2NOTE	Data annotation service Number of annotations [500 – 10K – 50K]	7
ETDR	European certified Trusted Digital Repository Number of certified data repository services [2 - 4 - 8]	9
Sensitive Data Service	European certified Trusted Digital Repository Number of projects hosted [150- 200 - 250]	9
Advanced IaaS	A set of common solutions ranging from Docker support for OpenStack and OpenNebula and on HPC clusters. Number of production site supporting docker on bare metal [5 - 10 - 15]	8
TOSCA for Heat	Support for the TOSCA templates in the OpenStack heat component Number of TOSCA Heat services up & running [3-5-10]	8
OPIE	Open source implementation of spot instance virtual machines for OpenStack Number of OPIE services in production [3-5-7]	8
Synergy	Open source advanced scheduler for multi-tenant IaaS Number of Synergy services in production [3-5-7]	8
BDII	Information system that collects information about distributed available resources Number of services published [3500 – 3500 - 4000]	9
IM	Infrastructure Manager is able to implement complex TOSCA Templates over heterogeneous cloud infrastructure. Number of TOSCA Templates deployed [1000 – 2000 - 3000]	8
PaaS Orchestrator	TOSCA-based deployment orchestration on multiple IaaS Number of TOSCA Templates deployed [1000 – 2000 - 3000]	8
CVMFS	Application software distribution service Number of communities using it [5 – 10 – 15]	9
IAM	AAI enabling service for user communities Number of users registered in the services [100 – 300 – 500]	8
WaTTS	Token translation service Number of instances of WaTTS running [10 – 20 – 30]	8

Open Collaboration services:

AppDB	Virtual appliances and application software repository and management Number of new virtual appliances registered per year [60 – 80 – 100]	9
Repositories	Repositories of verified software to be deployed by the SPs New products or updates released in the repositories [25 – 40 – 60]	8

Competence Centres

integration

integration

integration
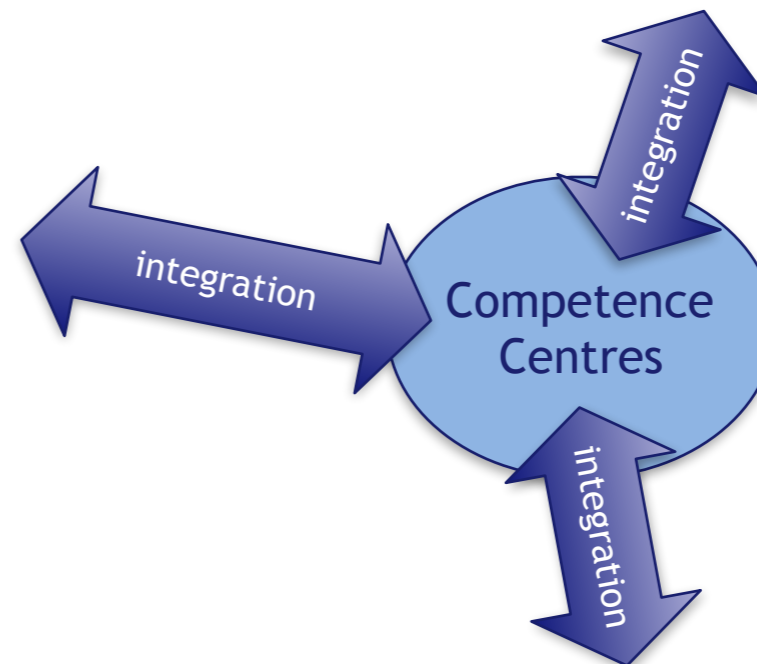
Federation services

Accounting	Infrastructure composed by repositories and portal to collect usage statistics of the EOSC-hub services and present them to the stakeholders Number of usage records collected, millions [850 – 880 – 1050]	9
ARGO	Monitoring infrastructure to track services status and collect statistics Number of service providers monitored [240 – 270 - 280]	9
CheckIn	AAI platform for federated authentication to EGI services Number of user accessing the services every year [50 – 200 – 500]	8
GGUS	Helpdesk platform for the EGI infrastructure Number of tickets opened every year [6000 – 0 - 6200]	9
GOCDB	Configuration database, service registry Number of services registered [4100 – 4150 - 4250]	9
Marketplace	User facing tool exposing the service catalogue and collecting service orders Numbers of orders submitted [0 – 50 – 100]	7
Ops Portal	Operational tools to manage distributed infrastructures Number of users visits [15,000 – 15,000 – 17,00]	9
RC Auth	Online CA for the translation of credentials to X.509 certificates Number of certificates released a year [0 – 100 – 200]	8
SPMT	Service portfolio management tool Number of service version descriptions registered [10 – 30 – 50]	8
DPMT	Configuration management & data management tool for the users Number of projects managed [50 - 150 - 500]	8
B2ACCESS	AAI platform for federated authentication to EUDAT services Number of users registered [1000 – 3000 – 20000]	8
TTS	RT-based helpdesk service for the EUDAT infrastructure % of tickets closed per year [91% – 95% - %98]	9
SVMON	Service to monitor the deployed service versions Number of service instances monitored [50 – 200 – 1000]	8

EC Milestones and deliverables

Nb.	Title	Description	Lead beneficiary	Type	Due date
M35	Technology assessment, architecture integration & validation plan for CCs		EGI Foundation	Report	PM13 (Feb 2019)
M36	Online platforms from Competence Centres are available		EGI Foundation	Other	PM18 (Aug 2019)
D8.1	Report on progress, achievements and plans of the Competence Centres	Status report about the prototypes, pilots and production services that were setup by the Competence Centres, together with their further development plans to EOSC services.	EGI Foundation	Report	PM18 (Aug 2019)
D8.2	Final report on Competence Centre key results and exploitation status and plans	Final report about the achievements of the Competence Centres, and plans for evolving, operating and exploiting the CC prototypes/pilots/services beyond the project.	EGI Foundation	Report	PM36 (Dec 2020)

10/01/18

Tasks of DMCC+

- **DMCC+ will establish a regional collaboration platform of disaster mitigation by using numerical simulation and data management services. DMCC+ will:**
  - **Develop simulation models and scientific gateways to support workflows for hazard analysis.**
  - **Make existing regional e-Infrastructure compatible with EOSC framework, and expand those based on the latest technologies.**
  - **Make data, online services and derived science results available in EOSC.**
  - **Reach out to and support the user base in Asia and in partnership with EOSC-hub in Europe.**

DMCC+ Activities

- **8.8.1 Develop simulation models and scientific gateways to support workflows for hazard analysis**
  - R&D an improved model for Storm Surge based on case study of Typhoon Haiyan [PM1-PM6]
  - Develop storm surge simulation facility with improved accuracy by combining atmospheric and oceanic model [PM3-PM9] [M6]
  - First Storm Surge simulation portal is online [PM10-PM12] [M12]
- **8.8.2 Make existing regional e-Infrastructure compatible with EOSC framework, and expand those based on the latest technologies**
  - Testbed construction for required EOSC components or services [PM4-PM20]
  - Interoperable and integration testing with EOSC framework [PM4-PM20]
  - Develop integration plan for iCOMCOT and Storm Surge applications with EOSC framework [PM3-PM9] [M9]
- **8.8.3 Make data, online services and derived science results available in EOSC**
  - Enhance the Science Gateway to provide data, simulation and case study reproduction services [PM9-PM21]: metadata, data search & access, AAI, etc.
  - Support reproducible case studies by Jupyter framework [PM13-PM24]
  - Publish the science gateway and online services to EOSC [PM13-PM30]
- **8.8.4 Reach out to and support the user base in Asia and in partnership with EOSC-hub in Europe.**
  - Dissemination and Training activities in APAN, ISGC, and local events in partner countries: at least 6 events are in schedule - APAN (Singapore and New Zealand in March and August 2018; Jan and August in 2019); ISGC in Taiwan (2019, 2020) [PM3-PM35]
  - Case studies on floods (VN, TH, BD, MM), storm surge (VN, BD, MM), dust transportation (TH, ID) will be conducted by working together with local user communities [PM3-PM30]

Planned Case Studies of DMCC+

Case Studies	Goal	Duration	Partners & Tasks	Outcome (Science Gateway)
Typhoon Haiyan	Accurate modeling and simulation of storm surge by combining atmospheric and oceanic models	12M (M1-M12)	PH, TW	Storm Surge Simulation Portal
Flood	Accurate modeling and simulation on the weather event of the flood	18M (M1-M18)	TH, MY, VN, TW	WRF Simulation on extreme weather event
Smoke & Haze Impact from Biomass Burning	Accurate modeling and simulation on the dust transportation	20M (M7-M26)	TH, ID, TW	WRF Chem Simulation on dust transportation
Tsunami	Tsunami Impact Analysis on Potential Tsunami Sources in South China Sea and Indian Ocean	24M (M3-M26)	JP, PH, VN, ID, IN, TW	iCOMCOT-based Simulation Facility
EOSC Service Integration	AAI, OPS, Jupyter, Cloud, Data Management, Storage, …	27M (M3-M30)	CZ, TW, …	EOSC-compatible DMCC infrastructure
Regional Infrastructure	Distributed Cloud with container support	27M (M3-M30)	All	

Activities

- **19 March 2018: Environmental Computing Workshop at ISGC 2018, Taiwan (2 sessions reserved for DMCC+ partners)**
  - **Please all partners provide the title and name of speaker**
  - **It's definitely welcomed if CESNET likes to share**
- **28 March 2018: Disaster Mitigation Workshop at APAN45, Singapore**
  - **All DMCC+ partners will present their case studies**
  - **Collaboration with APAN and UND (Asi@Connect project)**
- **Routine Meeting: (tentatively) 16:00-17:00 on last Tue/Wed/Thur afternoon of every month**
- **16-20 April 2019: EOSC-Hub Week, Malaga, Spain**
- **6-10 Aug. 2018: Disaster Mitigation Workshop at APAN46, Auckland, New Zealand**
- **Oct. 2018: Digital Infrastructures for Research**
- **Training & Dissemination**
  - **EGI/EOSC-Hub Jupyter Service Meeting on 15th at 11.00 CET**
  - **https://global.gotomeeting.com/join/711450957**