EGI Conference 2021

Report of Contributions

Contribution ID: **2**   Type: **Session/Workshop**

Session One: Overview of GOSC Activities

Friday, 22 October 2021 11:00 (1h 30m)

This session will review the GOSC objectives and report on existing activities in CODATA GOSC Working Groups and selected Case Study Groups. It will be the first time for them getting together to share group discussions and activities.

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Most suitable track

Collaborating across boundaries

Presenters: Prof. LI, Jianhui (CNIC/CAS); Dr HODSON, Simon (CODATA); Dr SITHOLE, Happy; OJSTERŠEK, Milan; HAGGSTROM, Ingemar (EISCAT); Mrs ZHANG, Lili (CNIC/CAS)

Session Classification: GOSC

Contribution ID: **3**

Type: **Demonstration**

Serverless computing across the Cloud continuum for Deep Learning Inference with OSCAR

Thursday, 21 October 2021 13:15 (10 minutes)

OSCAR is an open-source platform to support serverless computing for compute-intensive data-processing applications. OSCAR runs on dynamically provisioned auto-scaled Kubernetes clusters deployed through the Infrastructure Manager (IM), an open-source Infrastructure as Code (IaC) tool. These Kubernetes clusters include support for MinIO, an open-source object storage, which fires events in response to file uploads in order to trigger the file processing as Kubernetes jobs. The clusters can grow and shrink thanks to CLUES, an open-source elasticity manager that deploys additional nodes through the IM and terminates them whenever they are no longer needed.

OSCAR has evolved in the last years to tighten the integration with SCAR, an open-source tool to execute containers in AWS Lambda with automatic delegation into AWS Batch. The use of a Functions Definition Language (FDL) allows to define data-processing serverless workflows that can perform some processing in an on-premises Cloud while delegating the most computationally-intensive part in a public Cloud such as Amazon Web Services (AWS).

OSCAR is integrated with the IM Dashboard to facilitate the deployment of OSCAR clusters across a myriad of Cloud providers including major public clouds, widely used Cloud Management Platforms and federated infrastructure such as the EGI Federated Cloud. Thanks to the integration with EGI Check-In, users can seamlessly access the IM dashboard to self-provision these clusters.

In order to expand the variety of use cases supported, two additional features have been recently implemented. First, synchronous support with scale-to-zero capabilities. This allows synchronous data-processing functions packaged as Docker containers that can be invoked through both a REST API and the CLI. Second, OSCAR can run on minified Kubernetes distributions (such as K3s) in order to execute on low-powered devices such as Raspberry PIs. This is required for use cases that require executions in the edge, for lightweight processing, such as inference of previously trained Deep Learning (DL) models.

Together, the integration of OSCAR / SCAR provides an open-source platform that supports serverless computing across the Cloud continuum, where execution can take place in low-powered devices, in on-premises Clouds and in federated or public Clouds. In this contribution we will demonstrate how a user can seamlessly provision an OSCAR cluster using the IM Dashboard in the EGI Federated Cloud in order to create a serverless workflow for mask detection from a trained DL model in public crowds across different infrastructures and using EGI DataHub as one of the storage back-ends.

Speaker bio:

Sebastián Risco received a BSc degree in Computer Engineering from the Universitat Politècnica de València (UPV), Spain, in 2017. In 2017 he started his MSc degree in Information Management. He joined the Grid and High Performance Computing research group (GRyCAP) in 2018, while he worked on his Master's Thesis. His research interests are focused in Serverless Computing, Cloud Computing and Container Orchestration Systems.

Most suitable track

Delivering services and solutions

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Primary author: RISCO, Sebastián (UPVLC)

Co-authors: Dr NARANJO, Diana M. (UPVLC);   Dr CABALLER, Miguel (UPVLC);   Dr MOLTO, German (UPVLC)

Presenter: RISCO, Sebastián (UPVLC)

Session Classification: Demonstration

Contribution ID: 4   Type: **Presentation short (15 min)**

Implementation of FAIR principles in nuclear magnetic resonance (NMR) spectroscopy experimental workflows

Tuesday, 19 October 2021 11:45 (15 minutes)

Over the past decades, the scientific domain has seen an exponential growth of data generation. As expected, the storage, management and analysis requirements are growing proportionally, with a direct impact on the scientific output. Certain scientific communities like the astronomical one, have already organised and standardised computational workflows, whereas others can benefit from modern good practice principles. These are called FAIR principles and are currently actively supported by the ecosystem of the European Open Science Cloud (EOSC).

This contribution presents the ongoing activities regarding the implementation of FAIR principles in a Nuclear Magnetic Resonance (NMR) spectroscopy experimental workflow, performed at the CERIC-ERIC partner facility, NMR centre at the National Institute of Chemistry (Slovenia). The experiments carried out at this facility range from biological and pharmaceutical studies to studies in energy and basic matter research of high impact. The complete data life cycle has been upgraded, including new approaches to data and metadata acquisition, storage, archiving, processing and visualisation through web and cloud services, paving the way towards advanced data science on the measured datasets. Furthermore, integration of the entire pipeline into the open-source Jupyter web services is also in development. The goal is fostering cross-discipline open science while improving efficiency and accessibility. This is done in the context of a major EU project (PaNOSC) that connects six European large-scale research centres and two e-infrastructures, providing photon- and neutron-based analytical techniques.

The reported results outline certain challenges encountered during the conceptualization and implementation of the NMR workflow upgrade, e. g. handling experimental data from offline devices. At the same time, the aim for the results is to be useful to other scientific fields in the process of adopting FAIR principles and more efficient data handling, tracking and processing.

Speaker bio: https://www.linkedin.com/in/aljosa-hafner-99350b174/

Most suitable track

Collaborating across boundaries

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Primary author: HAFNER, Aljosa (CERIC-ERIC - Central European Research Infrastructure Consortium)

Co-authors: IPPOLITI, Matteo (Elettra Sincrotrone Trieste); DE SIMONE, Marco (CERIC-ERIC); COGHETTO, Emiliano (CERIC-ERIC); LORENZON, Andrea (CERIC-ERIC); OLIVO, Alessandro (CERIC-ERIC); POD-BEVSEK, Peter (Slovenian NMR Centre, National Institute of Chemistry); SKET, Primoz (Slovenian

NMR Centre, National Institute of Chemistry); KOUROUSIAS, George (Elettra Sincrotrone Trieste)

Presenter: HAFNER, Aljosa (CERIC-ERIC - Central European Research Infrastructure Consortium)

Session Classification: Collaboration Accross Boundaries - Presentations

Track Classification: Collaboration Accross Boundaries

Contribution ID: **5**   Type: **Presentation long (25 mins)**

EOSC-Performance: find most suitable EOSC site for your task

Tuesday, 19 October 2021 14:00 (25 minutes)

EOSC-Performance is a search-and-compare platform partially developed within the EOSC-Synergy project.

Users and service providers can upload, search, and visually compare results from benchmarks for very diverse computing resources including cloud and HPC. This allows universities and computing centers to increase their visibility and scientists to identify the ideal provider for specific tasks.

The EOSC-Performance service leverages OIDC and EGI-Check-In for authentication, Dynamic DNS service from EGI Federated cloud, provides API based on the OpenAPI 3 specification, and implies the SQAaaS approach from the EOSC- Synergy project. It is available in the EOSC Marketplace and it is going to be provided via the Infrastructure manager of Universitat Politècnica de València (UPV) for custom deployment.

The service and typical use cases will be be presented in this contribution.

Speaker bio:
Borja Esteban Sanchis: https://submit.isc-hpc.com/contributors/129
Valentin Kozlov: https://de.linkedin.com/in/valentin-kozlov-11b045b

Most suitable track

Delivering services and solutions

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Primary authors: Mr ESTEBAN SANCHIS, Borja (Karlsruhe Institute of Technology); Dr HARDT, Marcus (Karlsruhe Institute of Technology); KOZLOV, Valentin (Karlsruhe Institute of Technology); Mr LAURES, Christophe (Karlsruhe Institute of Technology)

Presenters: Mr ESTEBAN SANCHIS, Borja (Karlsruhe Institute of Technology); KOZLOV, Valentin (Karlsruhe Institute of Technology)

Session Classification: EOSC - Presentations

Track Classification: EOSC

Contribution ID: **6**   Type: **Session/Workshop**

The strategic landscape for EGI services

Thursday, 21 October 2021 11:15 (15 minutes)

Considering the landscape in which EGI services sit, and how it is evolving through EOSC and other intitiatives.

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Most suitable track

Innovating services together

Primary authors: APPLETON, Owen (EGI.eu); TESTA, Eleonora (EGI); SIPOS, Gergely (EGI.eu)

Presenters: APPLETON, Owen (EGI.eu); ANDREOZZI, Sergio (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: 7   Type: **Presentation short (15 min)**

F-UJI : A Tool for the automated assessment and improvement of the FAIRness of Research Data

Wednesday, 20 October 2021 11:30 (15 minutes)

Funders, publishers and scientific organizations have highly endorsed the adoption of FAIR principles (Findable, Accessible, Interoperable, and Reusable) to promote research data reusability and reproducibility.

However, FAIR principles are high-level guidelines without explicit requirements for their implementation. Several aspects should be taken into account to translate the principles into practice. Practical solutions such as metrics and associated tools are required to support the assessment of FAIR compliance of research artefacts such as services and datasets. FAIR assessment tools are important for many stakeholders to assess the reusability of data and -related services and thus their suitability for supporting science. For the individual researcher as well as research initiatives these tools can help to select for example appropriate data archives, but they can also be used by data service providers to iteratively improve their data offerings, e.g., as part of FAIR advisory processes. The FAIRsFAIR (Fostering Fair Data Practices in Europe) project aims at providing practical solutions for the application of the FAIR data principles throughout the research data life. One of the outcomes of the project is the development of an open-source tool named F-UJI to support trustworthy data repositories committed to FAIR data provision to programmatically measure datasets for their level of FAIRness over time. The tool supports a programmatic FAIR assessment of published research datasets based on the FAIRsFAIR object assessment metrics. For each of the metrics, we have designed and implemented practical tests based on existing standards and best practices for research data. This presentation gives an overview on the development and application of F-UJI and the underlying metrics and tests. We further demonstrate the use of the tool in a combined consultative approach applied to pilot data repositories. As part of iterative development of the tool, the automated assessment of multidisciplinary datasets was used to derive recommendations for improving the FAIRness of the datasets tested using the tool. We summarize the experience and lessons learned from the development, testing and application of F-UJI.

Speaker bio:
Robert Huber is a marine geologist and information specialist working in the PANGAEA working group at the Centre for Marine Environmental Sciences (MARUM, University of Bremen). Here he is responsible for projects in the fields of e.g. ontology development, marine observatory networks, scientific data management and FAIR data in general. In the context of the FAIRsFAIR project, Robert is leading Task 4.5 and responsible for the F-UJI FAIR assessment tool.

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Most suitable track

Delivering services and solutions

Primary authors: HUBER, Robert (Universität Bremen); Dr DEVARAJU, Anusuriya (Terrestrial

Ecosystem Research Network (TERN), University of Queensland, Australia)

Presenter: HUBER, Robert (Universität Bremen)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: **8**   Type: **Demonstration**

Notebook-as-a-VRE (NaaVRE): Scaling Jupyter Notebooks

Thursday, 21 October 2021 13:00 (10 minutes)

The study of many scientific problems concerning environmental challenges sets significant computational demands, such as large data volumes, advanced modeling techniques, and distributed computing facilitates. To conduct such investigations, a researcher often has to reuse virtual assets, e.g., observational data or images, AI models, operational workflows, and infrastructure services from different parties, for building computational experiments. Jupyter in such a scenario, allows researchers to effectively implement their experimental logic using scripting languages to document and share experiments with their necessary inputs and parameters.

In the case of ecological and biodiversity scientists, AI and statistical models are used to analyze a host of different observations, such as specimen records, citizen science observations, eDNA, and remote sensing imaging. For example, high-resolution Light Detection and Ranging (LiDAR) datasets are widely used to monitor changes in an ecosystem structure, and to predict that the distribution of species across space and time. Most often, Jupyter notebooks are used in this analysis, as they allow researchers to effectively implement an experimental logic using languages such as Python. However, Jupyter faces challenges of utilizing remote infrastructure:

Difficulty to find and reuse a notebook at the cell level. The lack of metadata hampers the discovery of useful fragments of code (namely Cells).

Lackingflexibility and portability to reuse a notebook as part of a workflow. The tightly coupled functions of a notebook, i.e. library dependencies make the reusability and portability of the code fragments difficult.

Difficulty to scale the notebook to remote infrastructures. Current notebook environments, like Jupyter Hub, use pre-configured infrastructures. When processing huge data volumes or computationally complex tasks, dynamically allocated cloud resources are needed for parallelizing distributed computing tasks.

To tackle those challenges, we propose a VRE solution that can be embedded into Jupyter as an extension that enables exporting individual cells as docker containers that can be composed as workflows. Our solution is composed of the following components:

Containerizer: It tracks the user's interactions with the notebook and in real-time updates the code and metadata based on the cell's modified content. When a user wishes to publish their cell, the containerizer builds a docker image off-premise with its metadata using our infrastructure automator called Software Defined Infrastructure Automator (SDIA).

Experiment manager: This component is responsible for loading and editing the cells'metadata catalog as well as for the submission and monitoring of workflows on the provisioned infrastructure.

Software-Defined Infrastructure Automator (SDIA). SDIA automates the planning, provisioning, monitoring, and adaptation of applications and their infrastructure on multi-cloud provider cloud offerings.

About the speakers:

Spiros Koulouzis is a researcher at the University of Amsterdam. His research interests include scientific workflows, as well as distributed and parallel systems. Spiros has a Ph.D. in computer science from the University of Amsterdam.

Zhiming Zhao is currently a senior researcher in the group of System and Network Engineering (SNE) at University of Amsterdam (UvA). He obtained his bachelor and master degrees in Computer Science from Nanjing Normal University (NJNU) and East China Normal University (ECNU) in 1993 and 1996 in China respectively. He obtained his Ph.D. in Computer Science from University of Amsterdam (UvA) in 2004. He has strong research interest in advanced computing and

network technologies, time critical and data intensive systems, Cloud computing, scientific work-flows and software agents. He coordinates research and development activities in the EU H2020 project SWITCH (Software Workbench for interactive time critical and highly self-adaptive cloud applications), and in the "Data for Science" theme in the EU H2020 environmental science cluster project ENVRIPlus. He also leads the research tasks of research sustainability in the EU H2020 VRE4EIC project, and of semantic linking in the EU FP7 ENVRI project.

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Most suitable track

Delivering services and solutions

Primary authors: KOULOUZIS, Spiros (University of Amsterdam); ZHAO, Zhiming (EGI.eu); Mr BIANCHI, Riccardo (Multiscale Networked Systems, University of Amsterdam 2LifeWatch ERIC, vLab&Innovation Center); Dr SIAMAK , Farshidi (Multiscale Networked Systems, University of Amsterdam); Ms RUYUE , Xin (Multiscale Networked Systems, University of Amsterdam); Ms WANG, Yuandou (Multiscale Networked Systems, University of Amsterdam); Mr NA , Li (Multiscale Networked Systems, University of Amsterdam); SHI, Yifang (2LifeWatch ERIC, vLab&Innovation Center 3Institute for Biodiversity and Ecosystem Dynamics (IBED)); TIMMERMANS, Joris (LifeWatch ERIC, vLab&Innovation Center 3Institute for Biodiversity and Ecosystem Dynamics (IBED)); KISSLING, W. Daniel (LifeWatch ERIC, vLab&Innovation Center 3Institute for Biodiversity and Ecosystem Dynamics (IBED))

Presenters: KOULOUZIS, Spiros (University of Amsterdam); ZHAO, Zhiming (EGI.eu)

Session Classification: Demonstration

Contribution ID: **9**

Type: **Session/Workshop**

Orchestrating Data-intensive Applications on Federated Hybrid Infrastructures with the SODALITE Framework

Tuesday, 19 October 2021 16:00 (1h 30m)

Data-intensive complex applications, which include microservices, computationally intensive batch jobs, and sophisticated interaction with the external environment, demand for heterogeneous computational infrastructures that range from (public, private, and federated) Cloud to HPC and Edge. In this context, a crucial problem is to facilitate the work of DevOps teams in 1) the conception of the right operational architecture for the application, 2) its transformation into infrastructural code that automates its deployment, taking into account the peculiarities of each of the diverse infrastructures involved in this, and 2) its operation. The SODALITE framework aims at addressing this scenario. In pursuit of that objective, the SODALITE meta-model is developed on top of the TOSCA standard, which enables the interoperable description of application and infrastructure components.

The goal of this tutorial is to provide a beginner level hands-on training of the SODALITE framework. The first phase of the tutorial will provide an overview of the SODALITE framework, focusing on its smart modeling environment (e.g., IDE and context-aware content-assistance services) and orchestration capabilities (e.g., deployment, monitoring, data management, and authentication/authorization). The second phase is a hands-on tutorial, which teaches the participants how to design a defect and error free deployment model with ease using the SODALITE smart IDE and orchestrate the designed model on the SODALITE testbed. Participants interested in conducting the hands-on session tutorial (i.e. the IDE demonstration) should install beforehand the SODALITE IDE (compatible with Windows, MacOS and Linux) by following the installation procedure described at:
https://github.com/SODALITE-EU/ide/blob/master/README.md

Presenters:
Jesús Gorroñogoitia, BS in Theoretical Physics from the Universidad Complutense de Madrid (UCM), with a Master in Condensed Matter and Statistics Physics by UNED. In Atos Research & Innovation (ARI), he is senior researcher and software architect in the Advance Parallel Computing Lab, specialized in HPC orchestration. Before, he was the ARI Research Line Expert on Software Engineering, working on Service Oriented Computing (SOC), Model Driven Development (MDD), Autonomous Computing, or Semantics.

Dragan Radolović graduated from University of Ljubljana in 1998 with a B.Sc. thesis titled "Image database queries based on color information". His background includes work in the financial field (banks, financial institutions) and other software industry as a software architect and project manager. His main points of interest are Cloud architectures. Currently he works at XLAB Research as a project manager and work package leader on the SODALITE H2020 project.

Zoe Vasileiou has attended the school of Computer and Computer Engineering of the University of Thessaly, Greece from which she graduated in 2013. She also received a Master's from the same department with the title "Science and Technology of Computer Engineering, Telecommunications and Networks". Next, she worked for 5 years as a Software Engineer in Scientific Games Corporation which provides gambling products across the globe. Now, she is a PhD student in the School of Informatics of the Aristotle University of Thessaloniki in the field of Explainable Artificial Intelligence. At the same time, she is working at CERTH research center in Greece where she mainly has engaged in research projects related with Semantic Web technologies and cloud computing. Her research interests include Explainable AI, Knowledge Representation, and Ontology Engineering.

Indika Kumara is a post-doctoral researcher at the Jheronimus Academy of Data Science and Tilburg University, the Netherlands. He received his PhD degree from Swinburne University of Technology, Australia. His research interests include service-oriented computing, cloud computing, software performance engineering, self-adaptive systems, and Quantum computing.

Most suitable track

Delivering services and solutions

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Primary authors: DEWAGE, Indika Priyantha Kumara (Tilburg University); Mr RADOLOVIĆ, Dragan (XLAB Research); Mr GORROÑOGOITIA, Jesús (ATOS); Mrs VASILEIOU, Zoe (Information Technologies Institute, Centre for Research and Technology Hellas); Mr TOKMAKOV, Kamil (High Performance Computing Center)

Presenters: DEWAGE, Indika Priyantha Kumara (Tilburg University); Mr RADOLOVIĆ, Dragan (XLAB Research); Mr GORROÑOGOITIA, Jesús (ATOS); Mrs VASILEIOU, Zoe (Information Technologies Institute, Centre for Research and Technology Hellas)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **10**   Type: **Session/Workshop**

EGI Data Transfer WG session

EGI launched a 'Data Transfer Working Group'to drive the technical evolution of Data Transfer services in the context of the EGI federation.
This workshop is organised to engage with scientific communities and technology/services providers of the domain to present use cases, pilots, state-of-the-art solutions.
The workshop is relevant for scientific users, scientific communities who need to transfer large amounts of data among institutes at national, international or inter-continental scale. The session is relevant for developers and operators of data transfer services who want to propose solutions for EGI providers and user communities.

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Most suitable track

Delivering services and solutions

Primary author: MANZI, Andrea (EGI.eu)

Presenter: MANZI, Andrea (EGI.eu)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **11**   Type: **Presentation short (15 min)**

mytoken - secure and long term authentication (without refresh tokens)

Tuesday, 19 October 2021 14:40 (15 minutes)

Background

OpenID Connect (OIDC) is the technological basis of many modern Authentication and Authorisation Infrastructures, which are currently being used and established in multiple European projects. Also, the non-academic sector (e.g. Microsoft, Google, Apple, IBM) moved to OIDC.

Despite OIDC being mostly used within web browser based applications, support for the command line and for API usage are required for complex workflows. The oidc-agent tool was our first step to enabling OIDC's "Access Tokens" on the command line. Access Tokens are short lived, with a life-time of usually one hour.

Use-cases that involve long running jobs, however, require authentication capabilities throughout their entire runtime, thereby challenging the security concept of short lived tokens.

Mytoken

This contribution addresses complex scenarios (e.g. compute jobs), in which access tokens need to be obtained over extended time spans, e.g. to load and store data or to access other resources.

We introduce a client-server solution and a new token type, called mytoken. Mytokens are easy to use, (can be) long lived, and allow limiting the functionality of the token, to address security concerns that arise from long living tokens.

The mytokens themselves are very flexible, as they can be
- used for easily obtaining access tokens on any device
- easily transferred to other devices
- created non-interactively from another mytoken
- easily passed around without giving up security
- restricted according to the use case.

Mytokens may have **capabilities** and **restrictions**. Capabilities define well-defined actions for which a mytoken may be used (e.g. obtain an Access Tokens, obtain another mytoken), while restrictions may be used for a fine grained access control, for example:

- Time range in which a mytoken may be used

- Location (IP, Geo-IP) from where the mytoken may be used

- OIDC (AT scope, audience) to specify what kind of Access Tokens may be obtained

- Number of usages for a specific action

Mytokens can contain lists of restrictions, which allows to easily define a mytoken, that could:
1. Allow job submission in the first hour after creation of the mytoken
2. Allow data access in the first two hours after creation
3. Allow nothing for one day
4. Allow data access (store output) between 24 and 36 hours after creation.

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Most suitable track

Delivering services and solutions

Primary authors: ZACHMANN, Gabriel (Karlsruhe Institute of Technology);   HARDT, Marcus (KIT-G)

Presenter: HARDT, Marcus (KIT-G)

Session Classification: Innovating Services Together - Presentations

Contribution ID: **13**　　　　　　　　　　　　　　　　Type: **Demonstration**

Using MATLAB on EGI for Open Science

Wednesday, 20 October 2021 13:30 (10 minutes)

This demonstration will provide users with a step-by-step tutorial for accessing data via the EGI Data Services and analyzing it with MATLAB on the EGI's Notebooks Service.

Users can connect with their own MATLAB licenses to analyze available datasets on the EGI's DataHub in the cloud on EGI resources. MATLAB live scripts allow users to build computational notebooks combining text, images, code and results which can be shared with their communities via the EGI cloud storage. To share research output between diverse user groups, users can call other languages (eg. Python) from MATLAB and save data in widely accessible, open formats.

In this demonstration, attendees will learn how to
• Access the EGI's Notebook Service
• Use their MATLAB licenses to run MATLAB on the EGI
• Connect to the EGI DataHub to access publicly available datasets
• Create a computational notebook containing images, text, code, and output, all in one document
• Apply interactive controls for users to tune notebook parameters during runtime
• Share their MATLAB code and data with other users using EGI cloud storage

Speaker bio:
Dr. Shubo Chakrabarti is the EMEA Science Gateway Strategist at MathWorks and helps researchers using and hosting online portals to effectively share and easily access MATLAB and Simulink for their research. Shubo earned his MSc at the Kings College London and his PhD in neuroscience at the Penn State University Medical College in the US. Before joining MathWorks, Shubo worked as a senior neuroscientist and project leader for several years at the Universities of Göttingen and Tübingen in Germany. He is an Alexander von Humboldt fellow and a reviewer for several scientific journals and the German Research Society (DFG).

Yona Baskharoun: https://www.linkedin.com/in/yona-baskharoun/

Nick Choi is a product manager at MathWorks focusing on integrations between MATLAB and a variety of popular online platforms.

Most suitable track

Delivering services and solutions

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Primary authors: CHAKRABARTI, Shubo (MathWorks); Ms BASKHAROUN, Yona (The MathWorks); Mr CHOI, Nick (The MathWorks)

Presenters: CHAKRABARTI, Shubo (MathWorks); Ms BASKHAROUN, Yona (The MathWorks); Mr CHOI, Nick (The MathWorks)

Session Classification: Demonstration

Contribution ID: **14**

Type: **Presentation long (25 mins)**

Federating and orchestrating resources across the EOSC infrastructures

Tuesday, 19 October 2021 14:25 (20 minutes)

The INDIGO PaaS is a middleware that allows to federate distributed computing and storage resources using a TOSCA-based orchestration system.

The development started during the H2020 INDIGO-DataCloud project (2015-2017) and then continued in the following projects: DEEP-HybridDatacloud, eXtreme-Datacloud and EOSC-Hub.

During these years, the stability, reliability and scalability of the core services have been greatly improved. Moreover, several new features have been added: for example, there's the possibility of deploying virtual computing environments (based on VM or container) with GPUs; the management of failures and timeouts has been improved; user management has been revised, introducing greater control over roles (regular user / admin). Another important update concerns the support for multi-tenancy and the integration with multiple authentication systems based on OpenID-Connect (in particular INDIGO-IAM and EGI-Checkin) to facilitate the adoption in different contexts, from INFN Cloud to EGI Federated Cloud. Moreover, it is now possible to federate not only private cloud infrastructures, such as Openstack, and public clouds such as Amazon AWS, and Mesos clusters, but also Kubernetes clusters: a plugin has in fact been added to manage Helm chart deployments. Finally, a web dashboard has been developed that greatly simplifies user interaction with PaaS services.

The INDIGO PaaS Orchestrator is one of the services available in the EOSC marketplace (https://marketplace.eosc-portal.eu/services/infn.paas_orchestrator) and maintained by INFN.

Currently it is being exploited in further projects, in particular C-Scale and EGI-ACE. The latter is implementing the compute platform of the European Open Science Cloud; our ambitious goals are now 1) to enlarge as much as possible the number of sites federated by the INDIGO PaaS in order to provide users with a transparent access to the distributed compute resources; 2) to provide high-level services ready to be deployed on demand by the end-users (e.g. JupyterHub as a service, Spark, TensorFlow, etc.). While in C-Scale the PaaS Orchestrator will be leveraged for supporting the EO use cases.

Speaker bio:

From 2003 to 2012 Marica Antonacci worked as a Software Engineer for an Italian private company developing software and technologically advanced solutions in the field of Earth Observation. In 2013 she started to work for INFN (Istituto Nazionale di Fisica Nucleare) gaining experience and skills in cloud computing technologies. She has been contributing to several European projects, like INDIGO-DataCloud, DEEP Hybrid-DataCloud, eXtreme-DataCloud, EOSC-Hub, EOSC-Pillar, EGI-ACE, etc. She has the role of system administrator of the production cloud site at the ReCaS datacenter (INFN-CLOUD-BARI) and is responsible for its integration in the EGI Federated Cloud.

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Most suitable track

Delivering services and solutions

Primary author: ANTONACCI, Marica (INFN)

Co-authors: DONVITO, Giacinto (INFN);   PERNIOLA, Michele (UNIBA, INFN)

Presenter: ANTONACCI, Marica (INFN)

Session Classification: EOSC - Presentations

Track Classification: EOSC

Contribution ID: **15**   Type: **Presentation short (15 min)**

OIDC Support for Windows using Putty

Wednesday, 20 October 2021 11:45 (15 minutes)

OpenID Connect (OIDC) is an identity layer on top of the OAuth 2.0 protocol. Relying on OIDC for identity and access management can significantly simplify the process of providing access to users, especially for non-web applications where the management of typically used SSH keys is often laborious and error-prone.
This project aims to provide client-side support for OIDC access tokens for Putty - one of the most famous SSH clients for Windows. With the newly developed OIDC support for the server-side [https://github.com/EOSC-synergy/ssh-oidc], this effort fills the gap of the missing OIDC client functionality for Windows. Together, they provide a complete solution to manage users' access based on OIDC/OAuth2.

The project consists of two parts. The first part aims to port the oidc-agent to Windows. Oidc-agent is a set of command-line tools for Linux and macOS that enables users to manage and obtain OIDC access tokens. It follows the design of the ssh-agent and, as such, it can be easily integrated into the user's flow. The expected impact of this subtask is potentially huge. Users from many communities that may use this tool (such as HPC or any other community that needs constant access to computing and storage resources as part of their work) typically rely on Windows as their primary operating system.

In the second part of the project, we are going to integrate the oidc-agent with Putty. Users will be able to choose between using SSH with pageant - a Putty's ssh key manager or using SSH with OIDC-tokens against an OIDC-capable ssh-server.

Most suitable track

Delivering services and solutions

Primary authors: DEHTYAROV, Dmytro; STEVANOVIC, Uros (KIT-G); HARDT, Marcus (KIT-G)

Presenter: DEHTYAROV, Dmytro

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: **16**

Type: **Presentation short (15 min)**

Coping with growing demands by cooperation across universities on the IT service level

Tuesday, 19 October 2021 11:15 (15 minutes)

According to our observation, universities'IT service departments either get bogged down by the multiplicity of (valid) demands or simply is unable to fulfil a portion of these demands. On the other hand, users often do not even know about those services that exist. We learned that from a short survey conducted as part of a project. So, IT has to cope with the set union of all users'demands. In the meantime, the same users, due to this lack of information, add new demands. Often, IT's standard way to cope with this situation is to confine to "standardized"services. However, in the days of various cloud service offerings –public or private –such a confinement bears the risk that these standardized services compete directly with services available from the cloud. In the meanwhile, the individualization that has been avoided is now deeply missing since it could be the value to the academic users that IT could add to cloud services.

Our presentation shows examples of this and other recent user surveys that reveal parts of the expectations from IT, and real-world examples of cross-university collaborations infrastructure that allow to leverage the positive scaling effects of bundling and simultaneously create the freedom to engage in individualized service flavors.

The first example is the creation of a federated identity management. While cross-site or even global authentication is well known for stateless services like access to WiFi by eduroam, for true collaborative services we need persistent authentication that allows to tie group memberships and roles to an identifier. To our knowledge, the handling of groups –based on accounts or on identities - is still most often done within each particular IT service. This is perfect in the sense that the interpretation of a certain role depends on the particular service when it comes to granting special permissions etc. However, the definition of a project group has the same meaning, independently of a particular service. From our perspective an identity based, service-spanning authentication and authorization is inevitable either to build collaborating in IT systems as well as to run cross-site workflows that imply any sort of distinct roles. This the more since from a scientific perspective a separate view on resources and services like computing, data storage, collaboration etc. is outdated. Thus, the creation of a process infrastructure for the easy use of cross-university services is an essential building block that subsequently enables integration into higher-level infrastructures. Our "example service"is the newly created cross-university backup-service in a part of Germany, covering 42 universities. The support model as well as the role concept that is necessary to establish a tiered self-service architecture relies on federated identity management mentioned above.

We state that these examples show how IT can cope with current challenges to deliver services of high quality and make them accessible to a wide range of users. Simultaneously, by collaborative service delivery, IT regains free room to innovate services and to enhance the "standard"services by individual, user specific add-ons.

Most suitable track

Collaborating across boundaries

Primary author:　EIFERT, Thomas (RWTH Aachen University)

Co-authors:　Mrs DITTRICH, Denise (RWTH Aachen University);　Mrs GÜNDOGAN, Aylin (RWTH Aachen University);　Mrs FILLA, Nicole (RWTH Aachen University)

Presenter:　EIFERT, Thomas (RWTH Aachen University)

Session Classification:　Collaboration Accross Boundaries - Presentations

Track Classification:　Collaboration Accross Boundaries

Contribution ID: **17**   Type: **Session/Workshop**

EOSC: bridging from theory to practice with EOSC-Synergy

The project EOSC-Synergy is pushing the state-of-the-art to facilitate the adoption of EOSC for infrastructure managers and scientific application developers in a way that supports EOSC Core interoperability guidelines, fosters the development of quality software, and provides a comprehensive environment for Thematic Services to become a part of the EOSC Exchange ecosystem.

Our strategy to foster EOSC adoption is based on the development of a quality-based approach built upon the definition of a software and service quality baseline, that enables the safe deployment of scientific thematic services, in terms of security and safe data transfer across Europe. Following the EOSC core architecture, EOSC-Synergy has integrated national e-infrastructures and developed a portfolio of services to support 10 thematic services to support relevant scientific areas in Europe.

The purpose of this workshop is to share our vision on all the project developments from a pragmatic point of view, in the form of hands-on practical approach. The target audience includes service and infrastructure providers, research applications developers, and support software developers.

The sessions will cover the several steps of the life cycle, starting by the infrastructure approach, with a focus on federated access to such infrastructures such as Cloud and HPC mainframes. Here the project will present the developments, "HowTos", and demonstrations that streamline access to Clouds and HPC resources.

On the software quality side we will present the status of our quality assurance developments for software and services, organized around the implementation of the SQA as a Service (SQAaaS) platform, and data FAIRness, and how they fit in the framework of the EOSC Interest Group on "Infrastructure for Quality Research Software". This will be followed by a practical tutorial on how to use the SQAaaS platform to integrate automated quality assurance procedures in the development of research software.

We will also portray a selection of thematic services that have been integrated among our 10 pilot cases. On the use cases and applications side, we will count as well with invited presentations from cooperating projects to analyse the synergies and opportunities for cooperation aiming at integrating thematic services in EOSC.

The training portal of EOSC-Synergy will be used as a tool during the session to showcase the best practices approach to the development of training material, and collect feedback from the participants.

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Most suitable track

Innovating services together

Primary authors: CAMPOS, Isabel (CSIC); GOMES, Jorge (LIP); BLANQUER, Ignacio (UPVLC); PLOCI-
ENNIK, Marcin (ICBP)

Presenters: CAMPOS, Isabel (CSIC); BERNARDO, Samuel (LIP)

Session Classification: EOSC - Workshop

Track Classification: EOSC

Contribution ID: **18**

Type: **Presentation short (15 min)**

MSSEG-2: A medical imaging challenge on VIP

Thursday, 21 October 2021 11:45 (15 minutes)

Scientific challenges (competitions) bring together numerous research teams who work on solving a common scientific hard problem. During the challenge, their solutions are evaluated on a given set of data according to the guidelines given by the organizers.

The automatic segmentation of tissus, structures and lesions in MRI brain scans is a challenging task for improving medical decision making. This is particularly prominent for the quantitative follow-up of Multiple Sclerosis (MS) patients. Then, the automatic detection of MS brain lesion was selected as a topic for a scientific challenge at the MICCAI conference in 2016. Following its success, and to evaluate the progress of computerized solutions accomplished in the last five years, especially impulsed by machine learning techniques, a second similar challenge (MSSEG-2, https://portal.fli-iam.irisa.fr/msseg-2/) is being organized at MICCAI 2021, this time for the detection of new MS lesions appearing between two patient's visits. The challenge uses data provided by OFSEP (http://www.ofsep.org/en) and the data management and processing infrastructure promoted by France Life Imaging (https://portal.fli-iam.irisa.fr/) comprising Shanoir and VIP.

The Virtual Imaging Platform (VIP, https://vip.creatis.insa-lyon.fr) is a web portal for medical simulation and image data analysis. Hosted and provided by the Creatis laboratory, VIP is part of the FLI-IAM infrastructure and also a service of the EOSC (https://providers.eosc-portal.eu/service/creatis.virtual_imaging_plat participating in the EGI-ACE project. VIP leverages resources available in the Biomed Virtual Organisation of the EGI e-Infrastructure to offer an open service to academic researchers worldwide. VIP currently counts more than 1300 registered users. Shanoir is used to store the anonymized patients images, the corresponding annotated images indicating the lesions (the ground truth hidden to the challengers) and the automatic differential lesion maps provided by the challengers algorithms processed for the final comparison.

In the context of the MSSEG-2 challenge, the registered research teams provide their algorithms to the VIP team, who imports them into VIP and has them executed on the available resources. To facilitate the integration of new algorithms, we rely on containers and Boutiques descriptors, as described in the guidelines provided to the challengers : https://gitlab.inria.fr/amasson/lesion-segmentation-challenge-miccai21/-/blob/master/SUBMISSION_GUIDELINES.md

At the time of submitting the abstract, algorithm integration is work in progress. 46 research teams registered to the challenge, i.e. possibly more than 46 algorithms to integrate in VIP. Although the VIP team has extensive experience with deploying applications on EGI resources, the organization of such a scientific challenge brings new challenges for us, too. The presentation will give more details on these challenges and the solutions deployed to successfully execute the algorithms provided by the challengers, such as access to GPU ressources, as well as the use of CVMFS and udocker.

Speaker bio's:
Sorina Pop is a CNRS research engineer at Creatis, currently in charge of the Virtual Imaging Platform (VIP). Since her Ph.D. degree in 2013, her activity has been focused on optimizing the execution of medical image processing applications on heterogeneous distributed systems. In the last few years, she has been particularly interested in enhancing open and reproducible science through her VIP activities, but also through other projects such as the EU OpenAIRE-Connect and EGI-ACE projects and the France Life Imaging (FLI) platform, where she is also member of the steering committee of the Information Analysis and Management node.

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Most suitable track

Delivering services and solutions

Primary authors: Dr POP, Sorina (CNRS); BONNET, Axel (CNRS); Mr MASSON, Arthur (Inria); Mr KAIN, Michael (Inria); Dr DOJAT, Michel (INSERM); Dr COMMOWICK, Olivier (Inria); Dr CERVENANSKY, Frédéric (Creatis)

Presenters: Dr POP, Sorina (CNRS); BONNET, Axel (CNRS)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: **19**   Type: **Session/Workshop**

EGI Federation Tools and Services: Roadmaps for EGI and EOSC

This session will present the status and technical roadmaps of the EGI Federation tools and services. These underpin the federated compute platforms of EGI, as well as serve in the EOSC Core. The presentations will detail the upcoming features that these will implement in the coming year.
The following services will be covered: Accounting, Configuration DB, Monitoring and Messaging services, Helpdesk, Operations Portal, Software provisioning infrastructure

Most suitable track

Delivering services and solutions

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Primary authors: VILJOEN, Matthew (EGI.eu); PAOLINI, Alessandro (EGI.eu)

Presenter: PAOLINI, Alessandro (EGI.eu)

Session Classification: Delivering Services and Solutions

Contribution ID: **20**   Type: **Session/Workshop**

Solutions for local Data Management in replacement of DPM: requirements and migration experiences.

This session will cover solutions to replace DPM with support of DPM coming to an end, for example dCache, EOS and StoRM. It will also cover experiences from communities who have migrated from DPM to other solutions.

Most suitable track

Delivering services and solutions

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Primary authors: MANZI, Andrea (EGI.eu); VILJOEN, Matthew (EGI.eu)

Presenters: MANZI, Andrea (EGI.eu); VILJOEN, Matthew (EGI.eu)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: **21**

Type: **Presentation long (25 mins)**

Next-generation Green Computing

Wednesday, 20 October 2021 11:15 (25 minutes)

Green Computing is dedicated to the reduction of energy and material consumption in information and communication technologies. Although serious energy-saving measures are put in place already today, they are being overtaken by accelerated advances of digitization.

The steady rise of the Internet of Things (IoT) results in a drastic grow of the number of sensors. In the same way, the resolution of measuring devices continues to increase. As a result, not only industrial and scientific domains but also everyday life have to cope with ever-increasing data volumes that need to be processed and, thereby, lead to dramatic swells of the energy consumption. As published in Nature [1], the worldwide power consumption due to IT needs in 2030 will be approx. 20%.

In our contribution, we will emphasize that substantial data reduction is indispensable to cope with future power demands. Sooner or later, everyone comes to the point that almost no raw data can be stored in the long term anymore, but only a comparatively tiny fraction of "relevant information" that needs to be extracted automatically from huge data streams by applying suitable machine learning methods.

The observatory Square Kilometre Array (SKA) has to overcome all these challenges - its thousands of antennas will produce more data than the world-wide internet (see our last year's contribution [2]). "Traditional" data compression is not sufficient, but it is a matter of extracting "relevant information" already during data acquisition in near-realtime. Due to the time constraint, information loss is inevitable and not reversible. To minimize the resulting "data irreversibility", we propose a "Dynamic Life Cycle" (DLC) that extends existing Big Data life cycle models by introducing two feedback loops: one between the sensors and a nearby computing center, and one between world-wide distributed data archives and the sensors - both of which constantly optimize the sensors' control systems.

DLC may contribute significantly to sustainability in compute ecosystems. Realizing DLC, however, is technically extremely demanding. Its core, the data reduction processes, is to be described in detail by metadata to ensure the FAIR principles and, ultimately, reproducibility of scientific results in view of non-existent raw data. Hereby, the metadata can be larger in volume than the archived data itself, since the permanently changing parameters of the sensors' controls and the states of the workflows for extracting the "relevant information" must be constantly recorded. The understanding how data irreversibility affects data reduction changes over time, meaning that the quality of archives must be steadily monitored (by comparison with simulation data). Searching huge data for "rare events" or "unknown signals" needs an efficient massively parallel computing, which is in its infancy in image processing and machine learning.

Our presentation addresses the impact of DLC on Green Computing. New ways of working together are indicated for a machine learning-based "next-generation Green Computing".

[1] N. Jones: How to stop data centres from gobbling up the world's electricity, Nature 561, 163 (2018).
[2] H. Heßling, M. Kramer, S. Wagner: Data Challenges at the Square Kilometre Array (SKA), EGI Conference 2020.

Speaker bio:
Hermann Hessling studied Physics at the Universities of Münster, Goettingen, and Hamburg. He received the Ph.D. (Dr. rer. nat.) in Theoretical Physics and was appointed a postdoctoral research fellow at Deutsches Elektronen-Synchrotron (DESY) Hamburg (1993-1996). Since 2000 he has been Professor of Applied Informatics at the University of Applied Sciences (HTW) Berlin. His scientific

interests include distributed high-performance computing and, in particular, extracting knowledge out of large-scale data in real-time.

Most suitable track

Envisioning the future

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Primary authors: HESSLING, Hermann (Verein für datenintensive Radioastronomie (VdR), and University of Applied Sciences (HTW) Berlin); Prof. KRAMER, Michael (Verein für datenintensive Radioastronomie (VdR), and Max Planck Institute for Radio Astronomy (MPIfR) Bonn); Prof. WAGNER, Stefan (Verein für datenintensive Radioastronomie (VdR), and Zentrum für Astronomie Heidelberg (ZAH))

Presenter: HESSLING, Hermann (Verein für datenintensive Radioastronomie (VdR), and University of Applied Sciences (HTW) Berlin)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **22**   Type: **Presentation short (15 min)**

A high performance and real-time prototype for Anomaly Detection in a Datacenter

Wednesday, 20 October 2021 11:40 (25 minutes)

The amount of companies and DataCenters that handle large volumes of data using Computer Information Systems are constantly growing. Besides, the computing infrastructures become more complex integrating different types of architecture (HPC, Cloud Computing, GPU, low-latency networking, etc). In addition, hundreds or thousands of users sharing the same resources make the systems more vulnerable. Whenever a security issue arise due to an internal or external access, the consequences can be very serious for both suppliers and the customers sharing resources. In the worst case, this may cause the partial or total loss of data. Furthermore, the cybercriminals use new techniques that require complex security systems with many services involved, which become more difficult for the system administrators to manage. The use of monitoring systems and its continuous update are intended for controlling the network traffic at real time as well as avoiding the complex and unknown threats.

Intrusion Detection Systems (IDS) play an important role in a Datacenter with the purpose of generating alerts at the moment when a malicious event arises. By this way, the system administrator can immediately react to know what services are vulnerable. However, the system generates alerts based on known rules and it is not capable of detecting and classifying the anomaly traffic causing the administrator unaware of the attack. In recent research, the IDS are complemented with other tools and techniques of Machine Learning to allow the analysis and post-processing of those events. Supported by high-distributed and high-performance computing, the integration of those tools makes the processing of the data in real time as well as the detection of anomaly events as quickly as possible.

This presentation will introduce the most used IDS as well as a description of our current deployed architecture based on Suricata. Apart from that, a high-distributed and high-performance computing prototype architecture will be presented, where different tools of fault-tolerant message systems (like kafka) and processing systems like Spark Streaming, Hadoop and Data Lakehouses are integrated to collect the data from the IDS and transform it into a more efficient type of data automatically. This architecture will allow the post-processing of the traffic packets as well as the anomaly events using ML techniques to make a fast detection and correct classification of the anomaly events by the IDS.

Speaker bio: https://www.linkedin.com/in/aida-palacio-hoz-633bb45a/?originalSubdomain=es

Most suitable track

Innovating services together

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Primary author: Ms PALACIO HOZ, Aida (IFCA)

Co-author: Dr LÓPEZ GARCÍA, Álvaro

Presenter: Ms PALACIO HOZ, Aida (IFCA)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **23**   Type: **Presentation short (15 min)**

Identity management beyond a simple VO management

Tuesday, 19 October 2021 11:30 (15 minutes)

Federated authentication and authorization management represented by AARC Blueprint Architecture is naturally stressing out the importance of the part represented by the proxy component. Indeed, the proxy component has an essential role because it handles the connection to the home IdP or other authentication sources and processes all the attributes, which are consequently passed downstream.

Another crucial part of AARC Blueprint Architecture is an identity management system (IdM). Its role is sometimes perceived only as a tool for managing virtual organizations (VO) and groups. That is a logical first step when building new authentication and authorization infrastructure (AAI). Having the option to enrol new users and manage them in VOs and groups is often enough to support basic use-cases for AAI. But in reality, the role of IdM is much broader and utilizing its whole range enables pushing capabilities of AAI to an entirely new level.

The role of IdM is to provide storage and a centralized view of all identity-related data. It can also ensure that relevant data is provisioned (and deprovisioned) to any services that need them. Proxy is only one from many components that are governed by the IdM system. There are other systems and services where user accounts have to be created and maintained even though they do not access them using federated authentication through proxy. Good examples are directories services or mailing lists.

IdM is not only about provisioning but also about importing data from other sources. Therefore the IdM system can be used as a central component that gathers data from all relevant authorities, including data self-provided by users (e.g. during registration), processes them, applies policies, and then is able to provision them to targets. Furthermore, it maintains consistency among all the connected systems during the whole user-life cycle.

Except for the automated processes described before, IdM enables managing attributes, groups, roles and other entitlements. People having the manager role can decide who will be authorized to which service and configure other attributes to fine-tune authorization rules and properties of managed accounts. Then the automatic process of IdM takes over and makes sure the configuration is provisioned to proper targets.

This presentation will demonstrate a wide range of IdM features using the IdM system Perun, which is quite a known tool for federated identity management. The features will be explained on real-world use-cases gathered from existing instances of Perun and communities using it, like EGI, ELIXIR, BBMRI-ERIC or Czech national e-Infrastructure.

Speaker info: https://www.muni.cz/en/people/255920-slavek-licehammer

Most suitable track

Collaborating across boundaries

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Primary author: LICEHAMMER, Slavek (CESNET)

Presenter: LICEHAMMER, Slavek (CESNET)

Session Classification: Collaboration Accross Boundaries - Presentations

Track Classification: Collaboration Accross Boundaries

Contribution ID: **25** Type: **Session/Workshop**

HPC integration in EGI-ACE

Thursday, 21 October 2021 11:15 (10 minutes)

EGI-ACE aims at providing interoperability guidelines for HPC systems with the EOSC Cloud Compute platform. Four scientific pilot use cases with combined cloud and HPC needs will be used for exploring and identifying how HPC systems should be exposed to the EOSC portal and how users should interact with them.

This session will provide a status update with presentations from the scientific pilots, HPC centres and technology providers involved in the activity

Most suitable track

Innovating services together

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Primary author: FERNANDEZ, Enol (EGI.eu)

Presenter: FERNANDEZ, Enol (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **27**   Type: **Presentation long (25 mins)**

The EGI-ACE Cloud and HTC providers

Wednesday, 20 October 2021 12:00 (25 minutes)

EGI-ACE federates together a distributed set of 16 hosting centres that bring compute and storage capacity for data processing, hosting research data and tools and scale up data analytics environments, scientific gateways and other added value services. Over the 30 months of the project, the hosting sites will provide more than 82 M CPU hours and 250 K GPU hours, as well as 45 PB/month through the Cloud Compute (IaaS) and High Throughput Compute services of the EGI portfolio. They will support EGI-ACE platforms and data spaces and those users coming from the use cases calls of the project and the EOSC portal. Alongside with the baseline computing and storage infrastructure, a set of enabling components support the Cloud Compute service: AppDB, for resource discovery and software catalogue; Dynamic DNS, for user-managed DNS provision of domain names for VMs and services running on the e-Infrastructure; and Infrastructure Manager (IM) , for the basic orchestration of IaaS resources. This presentation will provide an overview of the hosting centres and the enabling services. It will also showcase the main use cases supported in the infrastructure and the current usage of the available resources from the project.

Speaker bio: Enol is Cloud Solutions Manager at the EGI Foundation working on the definition of the EGI Cloud federation architecture and its innovation roadmap. He also supports the EGI Community Team in the co-design and implementation of solutions for meeting the computing requirements of their research platforms and applications. Previously, he worked in the User Community Support Team of EGI and as middleware developer and providing support to user communities at UAB and CSIC in the context of distributed computing European projects. He holds a PhD in Computer Science from Universitat Autòmoma de Barcelona and a Computing Engineering Degree from Universidad de La Laguna.

Most suitable track

Delivering services and solutions

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Primary author: FERNANDEZ, Enol (EGI.eu)

Presenter: FERNANDEZ, Enol (EGI.eu)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: **28**   Type: **Presentation long (25 mins)**

Future Scientific Data Infrastructure: Towards Platform Research Infrastructure as a Service (PRIaaS)

Tuesday, 19 October 2021 11:20 (25 minutes)

Modern Science is becoming increasingly data driven and works with a large amount of data, which are heterogeneous, distributed and require special infrastructure for data collection, storage, processing, and visualisation. Science digitalization, likewise industry digitalization, is facilitated by the explosive development of digital technologies and cloud based infrastructure technologies and services.

Current development and establishment of the European Open Science Cloud (EOSC) provided a strong basis for creating federated data infrastructure for European research and bringing to practice the FAIR (Findable, Accessible, Interoperable, Reusable) data principles of the Open Science. EOSC allow for effective data exchange and integration across scientific domains, making scientific data a valuable resource and a growth factor for the whole digital economy and society. To uncover the potential of the future digital and data driven science, the future Scientific Data Infrastructure (SDI) must provide a platform for effective use of scientific data by providing functionality to automate creating specialized/customised ecosystems supporting full cycle of the value creation from data collection to model creation and knowledge acquisition and exchange. Shift of the focus from infrastructure operation to value creation will require new FutureSDI design approach, operation and evolution to respond to changing requirements and evolving technologies. Growing infrastructure complexity will require automation of the infrastructure provisioning and operation, allowing researchers to focus on problem solving. Responsibility and sustainability principles must be applied at all stages of the created instant infrastructure from the design to operation, monitoring and key performance indicators must be assessed continuously, presumably assisted by AI optimisation algorithms.

This paper presents two lines of analysis: one is retrospective analysis related to the European Research Infrastructure (RI) development stages and timeline from centralized to distributed and current Federated Interoperable; another storyline provides analysis of digital technologies trends and identifies what technologies will impact the future SDI.

Based on this analysis, the paper proposes a vision for the future RI Platform as a Service (PRIaaS) that incorporates recent digital technologies and enables platform and ecosystem model for future science. Notably the proposed PRIaaS adopts TMForum Digital Platform Reference Architecture (DPRA) that will simplify building and federating domain specific RIs while focusing on the domain specific data value chain with data protection and policy based management by design.
This research is a part of the SLICES-DS project that represents a design Study stage for the future SLICES Research Infrastructure for digital technologies that is a part of the ESFRI Roadmap.

About the speaker:
Yuri Demchenko is a Senior Researcher at the Complex Cyber Infrastructure Research Group of the University of Amsterdam. He is graduated from the National Technical University of Ukraine "Kiev Polytechnic Institute" where he also received his PhD degree. His main research areas include Data Science and Data Management, Big Data and Infrastructure and Technologies for Data Analytics and Artificial Intelligence, DevOps and cloud based software development, general security architectures and distributed access control infrastructure. He is currently involved in the European projects GEANT4, SLICES-DS where he develops different elements of cloud based infrastructures for scientific research and trusted data sharing, as well as projects MATES, FAIRsFAIR that address aspects of skills management and organizational capacity building.

Most suitable track

Innovating services together

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Primary authors: Dr DEMCHENKO, Yuri (University of Amsterdam); Dr JOSHI, Kishor (University of Amsterdam)

Presenter: Dr DEMCHENKO, Yuri (University of Amsterdam)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **29**

Type: **Presentation long (25 mins)**

Federated access for SSH with OpenID Connect

Wednesday, 20 October 2021 16:30 (25 minutes)

Federated Identity Management, as modelled in the AARC blueprint architecture, has established itself as a de-facto standard for authentication and authorisation in research infrastructures.

Yet, federated access to shell-based services comes with a number of challenges, since it typically requires local identities that need prior provisioning, as well as deprovisioning when no longer needed. Additionally, federated identities need to be securely mapped to local identities during authentication. Moreover, federated authorisation models based on Virtual Organisation (VO) membership, roles, and assurance levels need to be mapped as well to local privileges.

Here we present our solution to these challenges, with a focus on OpenID Connect and SSH. This solution is applicable to other services as well, and is similarly being implemented for a webDAV service.

In contrast to existing solutions for SSH that either require modified client and server software (GSI-based), or an additional step for obtaining additional credentials for the service (portal-based), the presented approach overcomes these limitations. Instead, we developed a set of client and server-side tools that complement but do not modify existing SSH software.

The client tool (mccli), is implemented as a command line wrapper around the Unix-based SSH client. It enables on-the-fly account provisioning and transparent local account management: the users can directly log into the service with their federated credentials, without any prior application for an account. The server-side software consists of a lightweight web server (motley_cue) and a PAM module (pam-ssh-oidc). The key features of motley_cue are the mapping of federated to local identities with respecting site-local policies, as well as support for federated authorisation (VOs). The service administrators have full control over who is allowed to access their service, with the ability to only support certain VOs, filter users based on levels of assurance, and even specify authorised users individually. Via a generic and extensible interface, motley_cue is able to forward provisioning events into the local user management system (support exists for Unix accounts, Pooled Unix accounts, LDAP, and KIT user management). Admins can extend this to plug in their custom systems or username policies. Due to its modular design, motley_cue does not need to run on the same host as the service. SSH authentication uses PAM to prompt for an OpenID Connect Access Token and validate it via the REST API exposed by motley_cue.

All software is free to use and is available on GitHub under MIT license, with support for the major Linux distributions. The software was tested with several major AAIs, such as EGI-Checkin, Helmholtz AAI, or DEEP IAM. Work is underway to enhance the service, including to add Windows support on the client side, deprovisioning, and extend support for other local user management systems.

speaker info:
https://www.linkedin.com/in/diana-gudu-aba07b10/?originalSubdomain=de

Most suitable track

Delivering services and solutions

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Primary authors: GUDU, Diana (KIT); HARDT, Marcus (KIT-G); KALISZAN, Damian (PSNC); WOL-NIEWICZ, Paweł (PSNC)

Presenter: GUDU, Diana (KIT)

Session Classification: Innovating Services Together: Presentations

Contribution ID: **30**   Type: **Presentation short (15 min)**

Continuous integration and deployment on VIP

Thursday, 21 October 2021 11:30 (15 minutes)

The Virtual Imaging Platform (VIP, https://vip.creatis.insa-lyon.fr) is a web portal for medical simulation and image data analysis. It has been running for more than 10 years and has grown over the years to provide more and better services to researchers worldwide by leveraging the computing and storage resources of the EGI federation within the biomed Virtual Organization. On the internal and technical side, it has also become increasingly complex and this has made it harder for the developing team to maintain and to produce new features. Consequently we decided to enrich VIP with new continuous integration (CI) and continuous deployment (CD) practices in order to improve the software quality and to be more efficient in our computing tasks.

The principle of CI/CD is to automate as much as possible to gain time and avoid human mistakes. For CI/CD on the VIP platform, we relied heavily on two dedicated tools : Jenkins (https://www.jenkins.io/) and Ansible (https://www.ansible.com/).

Jenkins takes care of the CI part: it scans all our github code repositories and does several actions on every change. Essentially it verifies that the software code base compiles and it builds the final artifact that can be a binary executable, a library or a web service. It also launches the project test suite to validate the last developments and verify they do not add a bug or a regression. Test suites are very important in CI to ensure a very high software quality and to avoid as much as possible human validations that take a lot of time and are generally limited. At the moment we do not have enough tests on the VIP platform, but it will be an important focus in the future.

Ansible takes care of the CD part, and allows to control perfectly how the different VIP software elements should be delivered and updated. The VIP architecture is complex, it has a web portal, a workflow engine with many plugins and it leverages resources from the Biomed Virtual Organisation of the EGI e-Infrastructure through Dirac. Before we set up Ansible, it was impossible to set up an environment independent and isolated from the production one to test new developments, making it difficult to test new features and to deliver new releases.
Now, Ansible can easily and quickly deploy a complete VIP and ready-to-test platform on a temporary Cloud VM. Ansible also takes care of our new pre-production environment updating it automatically every time a new feature is validated.

This presentation will explain why we set up new CI/CD tools and infrastructures in VIP, the important issues we had to deal with, and the benefits it brings. It is at the moment an internal and technical advancement making it easier and safer to add new features in VIP, but users will soon benefit from more frequent releases and a more reliable service.

Most suitable track

Delivering services and solutions

Primary authors: BONNET, Axel (CNRS); Mr MARTIN, Gaulthier (CREATIS); Dr CERVENANSKY, Frédéric (Creatis); POP, Sorina (CNRS)

Presenter: BONNET, Axel (CNRS)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: **31**   Type: **Presentation short (15 min)**

WORSICA, a Water Monitoring Cloud Platform using Sentinel Imagery.

Wednesday, 20 October 2021 16:00 (15 minutes)

WORSICA (Water Monitoring Sentinel Cloud Platform) is a one-stop-shop service that integrates remote sensing (Copernicus) and in-situ data for the determination of water presence in coastal and inland areas, applicable to a range of purposes from the determination of flooded areas (from rainfall, storms, hurricanes or tsunamis) to the detection of large water leaks in major water distribution networks. It is one of the thematic services developed under the EOSC-Synergy initiative. WORSICA provides access to customized remote sensing applications currently applied to three major water sub-services: Coastline Detection, Inland Water Bodies Detection, and Leak Detection in Irrigation networks.

In the Coastline Detection application, the user will obtain the coastline determined from Sentinel-2, UAV, or Pleiades imagery, for a given Region-Of-Interest. In the future, the coastline detection will be linked to the OPENCoastS service in order to produce a Digital Elevation Model. In the Inland Water Bodies Detection, the user will obtain layers of water bodies detected in inland regions (e.g., lakes or reservoirs) to characterize their volume and occupied/inundated areas. The Leak Detection in Irrigation networks application, the main goal of this sub-service, can automatically identify and detect possible water leaks in (remote) irrigation networks, obtained systematically from satellite and UAVs images.

This service is aimed at Partners, Companies, and the Scientific Community. It can provide tools to the Partners (e.g., coastal engineers, researchers, and water supply managers) to monitor and anticipate the impacts of eventual storm surges/inundations on the coast and water leaks in irrigation networks. In addition, it can provide all Companies (e.g., coastal managers) the historical morphology of the coastline for specific periods in time, supporting multiple uses such as water monitoring harbor activities, dredging works, and building works on the coast. Finally, these detections are also helpful for the Scientific Community, supporting, for instance, fieldwork and helping to understand the evolution of the coastline and erosion patterns in the coastal areas and other water systems.

WORSICA is a remarkably complex and computationally demanding service with several technological needs, from GRID and Cloud computing, storage and GPUs. As the service will serve the entire European scientific community, it must be efficient, scalable, and resilient. Thus, new automatic integration methodologies in the marketplace catalog and federated computational infrastructures of the EOSC network were implemented in the new architecture of the WORSICA service. WORSICA will use the available HPC computation resources of the EGI infrastructure to provide speedup, scalability, portability, flexibility, redundancy, and service interoperability. In addition, WORSICA takes advantage of several essential EGI services such as EGI CheckIn for federated authentication across IT services and infrastructures, Software Quality as a Service (SQAaaS) implemented using Jenkins pipelines for CI/CD in service integration automation, and Dataverse for logging metadata of processed products for FAIRness data.

This work will present the main architecture changes implemented in the scope of the EOSC-Synergy project to the WORSICA service.

Speaker info:

http://www.lnec.pt/hidraulica-ambiente/en/team/ricardo-jose-da-silva-martins/

Most suitable track

Delivering services and solutions

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Primary authors: MARTINS, Ricardo (Laboratório Nacional de Engenharia Civil); AZEVEDO, Alberto (LNEC - Laboratório Nacional de Engenharia Civil); OLIVEIRA, Anabela (National Laboratory for Civil Engineers); BERNARDO, Samuel (LIP)

Presenter: MARTINS, Ricardo (Laboratório Nacional de Engenharia Civil)

Session Classification: Innovating Services Together: Presentations

Contribution ID: **32** · Type: **Demonstration**

Demo: Automating infrastructure and service audits with Governify

Tuesday, 19 October 2021 13:45 (15 minutes)

In this demonstration we will present Governify (governify.io), a service agreement management framework that boosts the service governance by supporting audits in an automated way. It is composed of a set of integrated components that can be combined to create configurable architectures that adapt to each scenario. The governance platforms built with Governify gather evidences from multiple external sources in the organization (by means of their APIs) and provide visual dashboards to understand the current risks of not meeting the goals. The underlying agreeement model (iAgree) provides a uniform modelling approach in a wide range of domains: from Service Level Agreements in RESTful services, to Service Objective/Penalties and Rewards in IT Service Support Desks driven by humans, or Best Team Practices in Agile Development Teams. These holistic capabilities allow the definition of integrated metrics, goals and dashboards to create a common governance platform to drive the strategy of the organization. Governify provides a native micro-service architecture of RESTful Components that can be easily deployed and operated as containers in the infrastructure at choice.

Speaker bio:
Dr. Pablo Fernandez is Associate Professor at the University of Sevilla, Spain. He began his career as researcher in 2003 in the field of "automated contracting for web services" and has focused his research in the governance of services level agreements in organizations. He is member of the applied service engineering research group (ISA) publishing 50+ publications in conferences and journals and participating in different technology transfer and innovation projects to apply his research results to industrial settings in both the private and public sector. Since 2017 is a representative of the ISA Group at the governance board of the OpenAPI Initiative and has impulsed the creation of the SLA4OAI interest group to foster an extension to describe Service Level Agreement in RESTFul APIs integrated with the main OpenAPI Specification.

Most suitable track

Innovating services together

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Primary author: FERNANDEZ, Pablo (University of Sevilla)

Presenter: FERNANDEZ, Pablo (University of Sevilla)

Session Classification: Demonstration

Contribution ID: **33**   Type: **Presentation long (25 mins)**

Innovation Management in EGI Federation

Tuesday, 19 October 2021 14:00 (25 minutes)

Everybody talks about Innovation.. but what does it really mean? Everybody has a definition for innovation and quite often there is no commonality between these varied definitions. So it becomes even more difficult to put into practice Innovation Management which is the systematic promotion of innovations in organizations through planning, organization, management and control. To make it more difficult it becomes even more complicated with the scope of activities under Innovation Management which ranges from trend scouting to idea generation and all the way to IPR management.

The main objective of this session is to try to remove the fuzziness and messiness that surrounds Innovation Management and its implementation in a federated environment. The session will begin with delineating the differences between Innovation Management in collaborative projects and Innovation Management in an organization. The presentation will then discuss the practicalities of how the EGI Foundation is implementing Innovation Management. It will also discuss how the concept of Open Innovation will be exploited to involve the EGI community in the Innovation Management process. The presentation will also share learnings and best practices in implementing an Innovation Management process.

The session aims to increase the collaboration between the wider EGI community by discussing the approach of open innovation. By sharing best practices the session also provides inspiration and key learnings for participants to implement or improve their Innovation Management process.

Speaker bio:

Smitesh joined EGI Foundation in April 2021 as Innovation Management Specialist in the Strategy and Innovation Team. He has a MSc. in Management of Technology from the Technische Universiteit Delft, Netherlands. Smitesh is working on developing and evolving Innovation Management processes and systems at EGI alongside managing innovation in ongoing projects. Smitesh is a certified Design Thinking trainer and Lego Serious Play facilitator.

Most suitable track

Collaborating across boundaries

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Presenter: JAIN, Smitesh (EGI.eu)

Session Classification: Innovating Services Together - Presentations

Contribution ID: **34**   Type: **Presentation long (25 mins)**

Creativity in the Virtual Environment

It is often said that Creativity is not innate and that it can be cultivated like skill. That it is like a muscle, the more you train the stronger it becomes. But how do you train yourself to become more creative? Moreover, the COVID-19 virtual world has even made it difficult to develop and harness team and group creativity.

Drawing inspiration from the Innovator's DNA - a book by Clayton Christensen et al. - this session delves deeper into what is it that makes certain individuals successful inventors and innovators. This will be an interactive session where everybody participating will take part in a series of carefully curated exercises that are designed to help develop the skills necessary to move progressively from idea to impact. Each of the exercises is 5-10 minutes long and can be easily replicated by participants in their daily life to train their creative muscles.

Most suitable track

Envisioning the future

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Primary author: JAIN, Smitesh (EGI.eu)

Presenter: JAIN, Smitesh (EGI.eu)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **35**   Type: **Presentation short (15 min)**

User experiences with the EOSC Compute Platform after 9 months

Tuesday, 19 October 2021 15:00 (15 minutes)

The new EGI's flagship project started in January 2021 proposes to deliver the European Open Science Cloud Compute Platform and expand the supply-side, contribute to the implementation of the EU Data Strategy and the EOSC Data Commons to support the Green Deal, Health, Fundamental Research and Social Sciences and Humanities data spaces, integrate the EOSC Compute Platform in the EOSC Portal and the EOSC Core, contribute to the realization of a Global Open Science Cloud, and expand the demand-side and facilitate cross-domain sharing and exploitation of research datasets.

In this presentation we will focus more on how the project is contributing to facilitate cross-domain sharing and the exploitation of research datasets.

The cross-domain use cases supported by EGI-ACE included:

- 13 Data Spaces addressing the following disciplines: Health and Medicine (4); Climate Research (2); Energy and Physical Sciences (2); Environmental Sciences (4); and Social Sciences and Humanities (1).
- 7 international Early Adopters scientific communities aiming at expanding the initial capabilities offered by the project becoming new Data Space providers.

To support the 13 Thematic Data Spaces and the 7 Early Adopters cross-domain use cases the project created distributed Competence Centres across the NGIs, user communities, service and technology providers of the EGI Collaboration. Through these distributed Competence Centres the project provided the technical and the training support for supporting the integration of the scientific use cases in the EOSC Compute Platform.

To complement the engagement process and identify new emerging scientific areas and underrepresented disciplines, the project opened a call for use cases. By the time of writing of this abstract, during the first two cut-off dates of the EGI-ACE open call, more than 10 scientific use cases were selected and supported by the project. For each of the supported scientific use cases the project offered access to infrastructure and platform services, dedicated user support and training. The services and the resources offered to the use cases are sponsored by the European Commission and various national funding agencies and are free to access to the selected use cases.

In this presentation the status of the integration plans of the Thematic Data Space providers, Early Adopters and applications in the EOSC Compute Platform will be presented along with the lessons learnt after 9 months of project.

Speaker bio:
Giuseppe works as Community Team Lead at the EGI Foundation. One of his main activities is to establish strategies for the retention, development and growth of the network research projects and initiatives collaborating with EGI, of the community of users of EGI services, and for managing the EGI Engagement and Support Annual Plan and the Training Annual Plan.
Since 2004, both at National and European level, he has worked as technologist for the Italian National Institute of Nuclear Physics (INFN) division of Catania in distributed computing projects co-funded by the European Commission.

During these years, he has matured strong skills and competences on Grids and Clouds technologies, working on ICT scientific developments for supporting both emerging and already established

VRCs. Giuseppe holds a MSc in Computer Science Engineering from the University of Catania (Italy).

Most suitable track

Collaborating across boundaries

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Primary authors: LA ROCCA, Giuseppe (EGI.eu); SIPOS, Gergely (EGI.eu)

Presenter: LA ROCCA, Giuseppe (EGI.eu)

Session Classification: EOSC - Presentations

Track Classification: EOSC

Contribution ID: **36**   Type: **Session/Workshop**

EGI Business Model Innovation Programme

Thursday, 21 October 2021 13:35 (25 minutes)

Most suitable track

Envisioning the future

Primary author: HOLSINGER, Sy (EGI.eu)

Presenter: HOLSINGER, Sy (EGI.eu)

Session Classification: Envisioning the Future

Contribution ID: **38**   Type: **Session/Workshop**

The EGI Federated Cloud: benefit for service providers and customers

Tuesday, 19 October 2021 16:00 (15 minutes)

This session provides an overview of the computing services of EGI that deliver a distributed federated cloud infrastructure to perform any kind of data analytics for research and innovation.

The EGI service portfolio provides you various computing solutions to match your needs: Virtual Machine based computing for long-running services and for data analytics platforms; container orchestration powered by Kubernetes and Docker; facilities for massively parallel workloads. During this session we will describe the benefits the federation brings to both service providers and customers. The session will also feature research communities, including EGI-ACE thematic services, to report on their success stories in using these services in real-life research workflows.

Most suitable track

Delivering services and solutions

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Presenter: FERNANDEZ, Enol (EGI.eu)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: 39 Type: **Session/Workshop**

EGI Technical Architecture and roadmap

This session focuses on the presentation of the EGI Technical Annual Plan that includes all the planned activities related to the innovation of existing EGI services and the piloting of new services and solutions. The EGI Technical Annual Plan is developed by the Technical Solution Team in collaboration with technology providers and research & innovation projects for technology scouting and expert user groups for requirements gathering.

Innovation on the EGI services will be presented per technical area (Compute, Data Management, AAI, emerging technical areas) with relevant examples of use cases that will benefit of the evolution of the EGI service offer. Furthermore, current pilot activities to assess new services and technologies will be introduced.

Most suitable track

Innovating services together

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Primary authors: SCARDACI, Diego (EGI.eu); FERNANDEZ, Enol (EGI.eu); MANZI, Andrea (EGI.eu); TENHUNEN, Ville

Presenters: SCARDACI, Diego (EGI.eu); FERNANDEZ, Enol (EGI.eu); MANZI, Andrea (EGI.eu); TENHUNEN, Ville

Session Classification: Innovating Services Together - Workshop

Contribution ID: **40**   Type: **Session/Workshop**

Open Platforms for Digital Transformation of Earth Observation

The session presents the current state of the art of Digital Earth Observation by presenting the existing open platforms for processing Copernicus and other Earth Observation. The opportunities and limitations related to these Big Data solutions are discussed as background motivation of the federated C-SCALE approach that will help EOSC to play a role in the EO Digital Transformation. The architectural approach and service interfaces are illustrated through their use by example applications.

Speakers:
1. Christian Briese (EODC) - View from the orbit: initial analysis of EOSC observation data
2. Elevator pitches
3. Björn Backeberg (Deltares) - Assimilating EO data applications to EOSC
4. Zdeněk Šustr (CESNET) and Enol Fernández (EGI Foundation) - Mind the gap - federating national resources to process trans-national data
5. Panel discussion

Most suitable track

Delivering services and solutions

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Primary authors: SCARDACI, Diego (EGI.eu); BRIESE, Christian (EODC); BACKBERG, Björn (Deltares); SUSTR, Zdenek (CESNET); CHATZIKYRIAKOU, Charis (EODC)

Presenters: BRIESE, Christian (EODC); BACKBERG, Björn (Deltares); SUSTR, Zdenek (CESNET)

Session Classification: Workshop

Contribution ID: 41   Type: **Session/Workshop**

Initiatives for better evidence-based policies in the Public sector

Public authorities need innovative tools to develop better evidence-based policies. Citizens and Business should be involved in this process to better inform policy-making and to increase the trust in the authorities and the policies acceptance. Shared data, analytics and cloud improve policy making at all levels, national and local.

The main objective of this session is to bring together the 5 projects (PolicyCloud, AI4PP, Decido, DUET, Intelcomp)funded by the DT-GOV-12 call to share their experiences in the public sector. We also aim to increase the collaboration between the EGI researchers and the public authorities in the decision making with the use of research data and advanced tools for the benefit of society.

●The PolicyCloud project exploits the potential of digitisation, big data and cloud to improve the modelling, creation and implementation of policies. Delivering a unique, integrated environment of datasets, data management, and analytic tools it addresses the full lifecycle of policy management in four thematic-areas (radicalisation, food-value chain, city environment, city services),leveraging the data management capabilities of the EOSC Initiative. The Project empowers the Citizens to contribute to data and policies related to their everyday-life. The onboarding of these solutions in the EOSC Portal offers a great opportunity to reach a wide audience.

●AI4PP (AI for Public Policy) is a joint effort of policy makers and Cloud/AI experts to unveil AI's potential for automated,transparent and citizen-centric development of public policies. The project will deliver,validate and promote the AI4PublicPolicy Platform,offering innovative policy management on unique AI technologies. The AI4PublicPolicy Virtualized Policy Management Environment(VPME) integrated with EOSC facilitates access to the Cloud and HPC resources required to enable the project's AI tools and to a wider use of the project's developments.

●Decido project(eviDEnce and Cloud for more InformeD and effective pOlicies) aims to boost the use of EOSC by Public Authorities enabling innovation in the policy-making sector allowing cross-support and cross-collaboration,using secure compute and data intensive services. Decido involves citizens and local communities through co-creation activities for better targeted policies.

●DUET (Digital Urban European Twins) is a EU initiative which leverages the advanced capabilities of cloud, sensor data and analytics in Digital Twins,to develop more democratic and effective public sector decision-making.DUET Digital Twins provide virtual city replicas which simplifies the understanding of complex interrelation between traffic, air quality, noise and other urban factors. Powerful analytics predict the impacts of potential change to make better evidence-based operational decisions and long-term policy choices.

●Intelcomp develops a Competitive Intelligence Cloud/HPC Platform for AI-based Science, Technology and Innovation Policy-Making. Multi-disciplinary teams will co-develop analytics services, Natural Language Processing pipelines and AI workflows,exploiting EOSC open data and resources, HPC environments and federated operations at the EU, national and regional level. Ensuring a cooperative environment,different actors visualize, interact and analyze information. Through co-creation, IntelComp will adopt a living labs approach, engaging public policy makers, academia, industry, SMEs, local actors and citizens to explore, experiment with and evaluate STI policies. IntelComp is targeting domains aligned with the European Agenda and the Horizon Europe Missions:AI, Climate Change and Health.

Most suitable track

Innovating services together

Primary authors: TESTA, Eleonora (EGI); Mrs CAUHÉ, Elisa (EGI); Mrs WILLEMS, Marieke (Trust-IT)

Presenters: TESTA, Eleonora (EGI); Mrs CAUHÉ, Elisa (EGI); Mrs WILLEMS, Marieke (Trust-IT)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **42**   Type: **Poster**

• Building a prototype for Earth Science Data and HPC Services

Wednesday, 20 October 2021 15:30 (5 minutes)

In today's world, more and more data are constantly being generated, resulting in changing the nature of computing, with an increasing number of data-intensive critical applications.

As the Council adopted a regulation on establishing the European High Performance Computing Joint Undertaking (EuroHPC) in July 2021, the regulation paves the way for the development within Europe of the next generation of supercomputers, strengthens research and innovation capabilities, the development of a supercomputing infrastructure ecosystem and the acquisition of world-class supercomputers.

PHIDIAS (Prototype of HPC /Data Infrastructure for On-demand Services) will be building a prototype for Data/High Performance Computing services based on Earth sciences cases. The aim of the project is to enable the Earth science community to discover, manage and process spatial and environmental data spanning the Earth's surface, the atmosphere, and oceans. The project foresees the development of three use cases.

- Intelligent screening of a large amount of satellite data for detection and identification of anomalous atmospheric composition events;
- Processing on-demand services for environmental monitoring; and
- Improving the use of cloud services for marine data management.

In addition to developing datasets to be added into the EOSC catalogues, PHIDIAS will optimise workflows to facilitate data reuse, will provide open access to standardised HPC services, and will render the data FAIR.

PHIDIAS will explore a distributed model for data transfer and resource allocation between two European computing centres (CINES in France and CSC in Finland). The project will develop data post-processing methods coupled with HPC capabilities, which will be deployed as a service for several end-users (scientific communities/public authorities/private players/citizen scientists).

The data generated and services created will be available on the relevant EU portals (EU Open Data Portal/EUDAT/EOSC) and will be preserved using the long-term preservation services of the EOSC. This PHIDIAS project will then propose a generic workflow for massive scientific data by combining computing, dissemination and archiving resources in a single framework.

Most suitable track

Delivering services and solutions

Primary authors: Mr OSIMANTI, Francesco (Trust-IT Services); ARTEZA, Julie (Trust-IT Services); Mr PIFFET, Florian (CINES); Mr LEFEVRE, Corentin (Neovia Innovation); Ms GERMETZ, Emilie (Neovia Innovation)

Presenters: Mr OSIMANTI, Francesco (Trust-IT Services); ARTEZA, Julie (Trust-IT Services)

Session Classification: Poster Session

Contribution ID: **43**   Type: **Poster**

Making data-driven policy management a reality across Europe

Wednesday, 20 October 2021 15:35 (5 minutes)

Digitisation and big data are revolutionising the way we live, think and make decisions. With the constant proliferation of devices and networks, more and more of the data being created from a variety of sources is able to be stored, transmitted and processed efficiently in large amounts. Increasingly, cloud environments, big data and other innovative data-driven approaches are enabling policy makers to deliver evidence-based policies which impact economic growth and contribute to modernising the public sector and improving the lives of citizens across Europe.

However, new technologies and big data also bring new challenges. With so much data now available to policymakers, the search is on for ways to effectively access, make sense of, and use data to model, create and implement policy successfully. The Policy Cloud project addresses these challenges by using the European cloud infrastructure for public administrations. The 15-partner-strong consortium will deliver a unique integrated environment addressing the full lifecycle of policy management. Policy Cloud will use the capabilities offered by the European Open Science Cloud Initiative, especially concerning data analysis, in order to facilitate evidence-based policy making.

Policy Cloud runs four pilot cases in different fields which will serve as demonstrators for data-driven policy management and leverage methodologies for user participation from citizens and communities. The results will be evaluated in heterogeneous environments and settings, demonstrating the applicability and re-usability of the developed models and tools in different countries, contexts, and sectors.

1. **Policies against radicalisation**: will focus on collecting and analysing data from social media and message boards, in order to provide policy makers with effective data-driven tools for addressing the issue of radicalisation.

2. **Intelligent policies for the food value chain**: will exploit the Policy Cloud platform as a support tool to facilitate collaborative decision making for the various actors in the agrifood value chain in Aragon, Spain.

3. **Urban policy making through analysis of crowdsourced data**: the Municipality of Sofia will seek to improve urban environments by crowdsourcing data analysis, specifically via an interactive map of the city on which citizens can signal issues to the administration in real-time.

4. **Open Data Policies for Citizens**: will build upon the work initiated in London on predictive analysis to identify unemployment risk.

The final solutions and tools developed by Policy Cloud will eventually become available as public cloud services, contributing to the development of the European Open Science Cloud (EOSC), a core element in the European Commission's vision of making Europe a global leader in data management. Policy Cloud's work for the registration of the cloud-based environment for data-driven policy management in EOSC, as lead by EGI, will provide the grounds for the provisioning of the required EOSC cloud environments and services to policy makers in the scope of the integrated Policy Cloud platform.

Most suitable track

Collaborating across boundaries

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Primary authors: WILLEMS, Marieke (Trust-IT); SMITH, Zach (Trust-IT)

Presenters: WILLEMS, Marieke (Trust-IT); SMITH, Zach (Trust-IT)

Session Classification: Poster Session

Contribution ID: 44   Type: **Presentation short (15 min)**

A HPC as a Service solution for climate data analytics on the EGI infrastructure

Thursday, 21 October 2021 12:25 (15 minutes)

The deluge of data started at the beginning of this century has caused a profound transformation in the way scientific discovery is carried out. In several domains, such as climate science, scientific advances now rely on technologies and software solutions from both the HPC and Big Data landscapes. However, being able to efficiently exploit HPC infrastructures for running scientific data analysis is not easy. A unified model that also allows the deployment on HPC of the same services already exploited in the cloud can pave the way for a wider range of opportunities in the scientific community, further fueling the adoption of the HPC as a Service (HPCaaS) paradigm.

In this respect, software containers are good candidates for supporting portability and deployment of data analytics frameworks over multiple platforms. Thanks to the recent development of HPC-friendly container technologies (e.g., udocker, Singularity, Sarus), it has now become possible for scientists to exploit the benefits of this model also on HPC infrastructures.

Containers can allow encapsulation of the application, together with its dependencies, into a single and portable image file. Nevertheless, several issues must be addressed to effectively exploit these technologies for operational scientific services and applications. Specifically, some of the main issues concern possible performance degradation and the integration with services, including those distributed across different infrastructures.

In the European Open Science Cloud (EOSC) context, the ENES Climate Analytics Service (ECAS) is a central component of the ENES Data Space set up in the EGI-ACE project, which aims to provide an open and cloud-enabled data science environment for climate scientists. In this environment, the Ophidia HPDA framework represents the core computing engine of the ECAS service and it can greatly benefit from the exploitation of HPC resources for running data analysis applications and workflows.

This work presents the container-based approach investigated in the EGI-ACE project, for transparent and portable deployment of ECAS on top of the HPC resources made available in the EGI infrastructure.

"Fabrizio Antonio was awarded a Master's Degree with first-class honors in Computer Engineering from the University of Salento, Faculty of Engineering, in April 2016, with a thesis on High Performance Computing and Big Data. In May 2016, he joined the Data Science and Learning Research Team within the Advanced Scientific Computing (ASC) Division of CMCC.
His research activities focus on distributed data management and high-performance data analytics and mining for eScience in the context of climate change."

Most suitable track

Innovating services together

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Presenter: Mr ANTONIO, Fabrizio (CMCC Foundation, Lecce, Italy)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **45**   Type: **Presentation short (15 min)**

The EGI Software Vulnerability Group (SVG) - what we do and how we are evolving.

Wednesday, 20 October 2021 15:15 (15 minutes)

The main purpose of the EGI Software Vulnerability Group can be summarized as "To minimize the risk of security incidents due to software vulnerabilities."

The EGI SVG and its predecessors have been active since 2006, helping sites and VOs avoid incidents due to software vulnerabilities across the distributed computing infrastructure in a consistent manner.
Initially the focus was on Grid computing and on software enabling Grid computing largely developed by our collaborators, but SVG has been handling a wider range of software which is used across the EGI infrastructure. Most of the work has been carried out by the SVG Risk Assessment Team (RAT), who assess the relevance of any reported vulnerability and the risk to the infrastructure. If a vulnerability has not been fixed yet, the RAT then asks the software provider to fix on a timescale according to the risk.

In recent years the EGI infrastructure has become much less homogenous, there has been a proliferation of software used, and it is no longer possible for the SVG RAT to be experts in all the software used and how it is set up. So we are having to evolve to cope just like the world is evolving.

This talk will describe the basic vulnerability handling procedure, and how the procedure is gradually being extended to deal with the less homogenous EGI infrastructure. This will include the concept of the "Deployment Expert Group" or "DEG", which consists of people who either run relevant services or are involved in the design or configuration of such services, to help handle vulnerabilities in this much less homogenous infrastructure. We will describe progress on evolving this procedure to date, and plans for the coming months and beyond. In particular, the DEG is open for more people to join and contribute to the continued security of EGI!

Most suitable track

Delivering services and solutions

Primary author: CORNWALL, Linda (STFC)

Presenter: CORNWALL, Linda (STFC)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: 46

Type: **Presentation short (15 min)**

StairwAI - A new service layer

Wednesday, 20 October 2021 14:10 (15 minutes)

Aims

The StairwAI project aims to create a bridge between users in a low-tech level to the higher-level AI resources. The project will do this by facilitating low-tech users' engagement on the AI on-demand Platform. This will be achieved through a new service layer enriching the functionalities of the on-demand platform and containing:

(1) a multi-lingual interaction layer enabling conversations with the Platform in the user's own language,

(2) a horizontal matchmaking service for the automatic discovery of AI assets (tools, data sets, AI experts, consultants, papers, courses etc.) meeting the user requirements and,

(3) a vertical matchmaking service that will dimension and provision hardware resources through a proper hardware provider (HPC, Cloud and Edge infrastructures).

Objectives of the StairwAI project

Societal:

- To provide a framework compliant with the principles of ethical AI use

Technological:

- To ease the access to the AI-on-demand platform through natural language interaction
- To satisfy the end user needs through horizontal matchmaking services
- To dimension the physical resources of the AI on demand platform with end user requirements

Economic:

- To contribute to strengthen the European SMEs –including low tech SMEs –and DIH
- To promote the sustainability of the AI on-demand platform
- To reduce fragmentation of AI research and development

AI techniques in use

- Natural language processing (NLP) in different languages for easing low-tech users'interaction
- Knowledge representation for organizing the platform AI assets, reputation and fairness mechanisms
- Constraint solving, optimization and machine learning to satisfy users'business needs

Open calls

60 SMEs in low-tech sectors will be funded.

Pilot calls:

28 low tech SMEs will be selected in two different Open Calls: StaiwAI will support the preparation of the feasibility plan for the adoption of AI solutions by the low-tech sector SMEs and delivering a pilot for the adoption of AI.

Call for adopters:

32 low tech SMEs will be selected in one Open Call: StairwAI will support just the feasibility plan for the adoption of previously piloted AI solutions by low-tech sector SMEs.

Most suitable track

Envisioning the future

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Primary authors: Prof. MILANO, Michela (University of Bologna); Dr CASTAÑE, Gabriel G. (University College Cork)

Presenters: Prof. MILANO, Michela (University of Bologna); Dr CASTAÑE, Gabriel G. (University College Cork)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **47**   Type: **Presentation short (15 min)**

AI experiences on EGI

Wednesday, 20 October 2021 14:00 (10 minutes)

Nowadays, artificial intelligence (AI), machine learning, deep learning and data science are an essential part of the scientific research toolbox in most disciplines. These are also present in a number of projects, research initiatives and infrastructures. These new tools are also changing the traditional research ICT landscape. The EGI Federation as an international infrastructure - that provides advanced computing and data analytics services for research and innovation - has also faced these challenges and winds of change in the landscape.

In this short presentation we describe AI experiences on EGI to the research infrastructure landscape and project landscape. How have these evolved and what are next steps?

Most suitable track

Envisioning the future

Primary author: TENHUNEN, Ville

Presenter: TENHUNEN, Ville

Session Classification: Envisioning the Future - Presentations

Contribution ID: 48

Type: **Poster**

ScienceMesh –Federated Collaboration Platform for Researchers

Wednesday, 20 October 2021 15:45 (5 minutes)

The usage of EFSS (Enterprise File Sync&Share) platforms for sharing files is increasing, with a global market expected to reach $17 billion by 2025. Within the research and education sector, the Cloud Storage Services for Synchronisation and Sharing (CS3) community brings together vendors, service providers and users of EFSS platforms. CS3 provides services that are indispensable for the daily user workflows, allowing researchers, scientists and engineers to backup, share, transfer and synchronise data in seamless yet powerful ways. However, these services are largely disconnected and deployed in isolation from one another and other research services, preventing an effective global collaboration and exploitation of data towards scientific and economic progress. Users need to be able to globally share and collaborate on datasets, as well as use higher-level services, such as computing services for data analysis. This is where Science Mesh comes into play.

Science Mesh will provide the aforementioned users with an interoperable platform with data, applications and computation combined, enabling them to easily synchronise, share and collaborate through applications and software components across Mesh-powered sites.

Science Mesh allows the best of both worlds: users do not need to leave the well-known interfaces of their institutional services to be able to efficiently collaborate with users in other institutions. Its unique functionalities may be easily customised to the needs of particular research disciplines. And it is leveraging a fully-Open-Source development model in close collaboration with the Open-Source software industry while improving the Technology Readiness Level of contributing technologies (e.g. OpenCloudMesh). Another added value is the possibility for users to contribute in developing application plugins or easily set-up federations in their own scope and develop their own activities on top of them.

Science Mesh users (researchers, educators, data curators and analysts) will gain the ability to share their datasets widely according to FAIR principles and respecting the GDPR , without losing control over them. It will be an integral part of the European Open Science Cloud (EOSC), offering researchers opportunities to assemble an efficient, reliable, collaborative and transparent research toolchain.

Bob Jones, Director of EOSC Association adds, "The project has the potential to deliver a collaborative cloud-based data-sharing service for Europe, linking different communities and enabling cross-disciplinary research." Science Mesh is being developed in close contact with pilot research communities, including Earth Observation (JRC), High Energy Physics (LHC), Astronomy (LOFAR) and Cultural Heritage Studies (PARADISEC). Science Mesh can reach a wide audience of stakeholders interested in collaborating for increasing scientific knowledge, coming from both the academia and the research industry.

Future market opportunities for its commercial use are under study with global IT service companies (e.g Ailleron/SoftwareMind). The federated testbed already exists, connecting eight initial sites.

Speaker bio: https://www.linkedin.com/in/ritasofiameneses/

Most suitable track

Delivering services and solutions

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Primary author: MENESES, rita sofia (trust-it services)

Presenter: MENESES, rita sofia (trust-it services)

Session Classification: Poster Session

Contribution ID: 49   Type: **Presentation short (15 min)**

CloudBank EU

Wednesday, 20 October 2021 16:15 (15 minutes)

The vast amounts of data generated by scientific research pose enormous challenges for capturing, managing and processing this data. Many trials have been made in different projects (such as HNSciCloud and OCRE), but today, commercial cloud services do not yet play a major role in the production computing environments of the publicly funded research sector in Europe. Funded by the Next Generation Internet programme (NGI-Atlantic) from the EC, in partnership with the University California San Diego (UCSD), CERN is piloting the use of CloudBank in Europe. CloudBank has been developed by the UCSD, University of Washington and University of California, Berkeley with NSF grant support, to provide a set of managed services simplifying access to multi-cloud services for research and education, specialised in cost management and optimisation, that supports diversification of sources of funding, in a scalable "bring your own contract"model, across diverse research projects and multiple organisations. The European NGI experiment is provisioning cloud services from multiple vendors and deploying a series of use-cases in the domain of Machine Learning, HPCaaS, QCaaS and DBaaS, contributing to the scientific programme of the Large Hadron Collider. The main objective is to address technical, financial and legal challenges to determine whether CloudBank can be successfully used by Europe's research community as part of its global research activity.

Speaker bio:
Apostolos' background lies at the intersection between computer science, data science, statistics and management. He has recently completed his master program in Business Analytics in University of Geneva while he also holds a bachelor in Computer Science. He has previously worked in the software industry in Greece and Italy as well as in International Organizations in Geneva on data processing, analysis and web development. He is currently working at CERN's IT department on data exportation, processing, analysis and visualization to provide metrics and analytics for optimizing processes and costs.

Most suitable track

Delivering services and solutions

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Primary authors: FERNANDES, Joao (CERN); JONES, Bob (CERN)

Presenter: THEODORIDIS, Apostolos

Session Classification: Innovating Services Together: Presentations

Contribution ID: **50**   Type: **Presentation long (25 mins)**

CCP4 Cloud: Potential for a European-Wide Resource in Computational Crystallography

Wednesday, 20 October 2021 12:05 (25 minutes)

Collaborative Computational Project Number 4 in Protein Crystallography (CCP4 UK), founded in 1979, has a mission to produce, maintain and distribute a world-leading, integrated suite of programs for the determination of biological macromolecular structures in 3d by means of X-ray crystallography and other biophysical techniques. Today, CCP4 Software Suite, used by estimated 25,000 researchers worldwide, represents an enabling technology and underpins academic and industrial research in structural biology on world-wide scale.

Nowadays, experimental part of structural studies is represented by high-throughput lines at synchrotrons, producing tens of TBs of data on daily basis. The data are usually utilised in local research labs with own computational resources and software setups.

Following general trends in modern computing, CCP4 have developed a framework for distributed data processing and structure solution in crystallography, the CCP4 Cloud. The development was released in 2019, and since that adopted by several crystallography centres in the UK and continental Europe. An instance of CCP4 Cloud, capable of satisfying UK's needs in crystallographic computing, is maintained by CCP4 at STFC UK.

The many advantages of online computing: centrally maintained software, databases and project data, geographically agnostic access to considerable computational resources, became particularly obvious during the COVID-19 pandemic. In this presentation, I will reflect on the advantages, desirability and feasibility of making a global, cloud-based resource for computational macromolecular crystallography in Europe, which could combine data streams from experimental facilities, software and computing services, and a uniform user experience based on an interactive, graphical, online access from all modern client platforms.

Speaker bio:
Dr Krissinel leads the Core Group of CCP4, which is responsible for the maintenance, development and distribution of the CCP4 Software Suite in protein crystallography. In 2000-2009, Dr Krissinel worked in the PDBe (former Macromolecular Structure Database, MSD) at the European Bioinformatics Institute, UK, where he became known to the structural biology community for his works in the field of protein-protein interactions (PPI) and protein structure analysis. His software for the PPI and oligomeric state analysis and prediction (PISA), and protein structure alignment (SSM/Gesamt) are widely used and regarded as de-facto standard tools in the field. Before his career in structural bioinformatics and crystallography, Dr Krissinel worked on the theory of time-resolved diffusion and spin control in radical reactions, quantum kinetics (1997-2000 Humboldt Fellow, University of Konstanz, Germany, 1989-1995 Russian Academy of Sciences), and molecular dynamics of metallic alloy microclusters (1995-1997 Argonne National Laboratory, USA). Weblinks: https://www.scd.stfc.ac.uk/Pages/Eugene-Krissinel.aspx

Most suitable track

Envisioning the future

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Primary author: Dr KRISSINEL, Eugene (STFC)

Presenter: Dr KRISSINEL, Eugene (STFC)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **51**   Type: **Session/Workshop**

Strategies for Processing Sensitive Research Data in the EU

The FAIR Guiding Principles are sometimes interpreted as "as open as possible, as closed as necessary", but more and more research data is "sensitive" and requires special treatment. The definition of "sensitive" is expanding, starting from traditional areas of personal health information and social science data, to data about commercial enterprises, endangered species, indigenous culture and knowledge and more. This session will start with an overview of legal and regulatory requirements for sensitive data (including definitions and changing landscape), and then explore the landscape of technologies and infrastructures designed to work with sensitive research data.

Presentations from/on:

- Policy perspective: EUSD, Data Governance Act, forthcoming Data Act and Digital Europe initiatives
- HealthyCloud
- Fair4Health
- FairPlus & Innovative Medicines Initiative (IMI) (present "FAIR Cookbook"?)
- GA4GH
- RDA Sensitive Data Interest Group
- CESSDA
- GBIF (endangered species)
- SeaDataNet (?) – sensitive ocean data (e.g. ocean floor topography around harbours, archipelagoes)

Workshop will conclude with open discussion of approaches, architectures and solutions that could provide a common foundation for the secure processing of sensitive data in the EU.

Most suitable track

Innovating services together

Primary author: Mr DIETRICH, Mark (EGI.eu)

Presenter: Mr DIETRICH, Mark (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **52**   Type: **Session/Workshop**

Data Spaces and Data Ecosystems in Practice

Terms such as "data ecosystem" and "data space" are being used more and more in business and by policymakers, but it is unclear how these terms relate to the research world, where data sharing and exchange, and creating open data, are common objectives of most research projects. This session will define data ecosystems and data spaces by their key characteristics and explore the data exchange approaches being used in several international research communities. The session will explore how these research data initiatives map to the "data spaces" that have been proposed by the European Commission in a number of sectors and identify key challenges for the research community in responding to EC funding calls for the creation of data spaces.

• IS-ENES (climate modelling data)
• GBIF (biodiversity data)
• SeaDataNet (ocean and marine data)

Most suitable track

Collaborating across boundaries

Primary authors: Mr DIETRICH, Mark (EGI.eu); FIORE, Sandro (University of Trento, Trento, Italy)

Presenter: Mr DIETRICH, Mark (EGI.eu)

Session Classification: Collaboration accross Boundaries - Workshop

Contribution ID: 53

Type: **Session/Workshop**

Gaia-X Architecture and Development: Implications for EOSC and the research community.

The Gaia-X project has grown from a community-based development to a formal AISBL that intends to take a strong role in EU cloud computing and EU data sharing initiatives. Synergies with EOSC are frequently cited, but to realize those synergies, the research community needs to understand the Gaia-X approach and its similarities, differences with EOSC, and the points of collaboration and coordination that are needed.

Most suitable track

Collaborating across boundaries

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Primary author: Mr DIETRICH, Mark (EGI.eu)

Co-author: SCARDACI, Diego (EGI.eu)

Presenter: SCARDACI, Diego (EGI.eu)

Session Classification: EOSC - Workshop

Track Classification: EOSC

Contribution ID: **54**   Type: **Presentation short (15 min)**

On demand data analysis tools for the EOSC Resource Catalogue

Tuesday, 19 October 2021 14:25 (15 minutes)

OpenAIRE (www.openaire.eu) aims to establish an open and sustainable scholarly communication infrastructure responsible for the overall management, analysis, manipulation, provision, monitoring and cross-linking of all research outcomes. One of the contributions of OpenAIRE to the European Open Science Cloud (EOSC) is its research graph (https://graph.openaire.eu), one of the largest open scholarly record collections worldwide, which constitutes the EOSC Resource Catalogue. Conceived as a public and transparent good, populated out of data sources trusted by scientists, the EOSC Resource Catalogue aims at bringing discovery, monitoring, and assessment of science back in the hands of the scientific community.

It includes metadata records and links (i) collected from 70k+ scholarly communication sources from all over the world, including Open Access institutional repositories, data archives, journals; (ii) inferred by data mining algorithms, and (iii) provided by users of the OpenAIRE portals thanks to the Link functionality.

OpenAIRE is already using the catalogue to power its portals and to support researchers, funders, organisations, research communities and infrastructures at discovering and tracking research products. The catalogue is also openly accessible via data dumps and APIs (https://develop.openaire.eu), so that its content can be used by any researchers for their own research activities.

In order to ease the usage and analysis of the EOSC Resource Catalogue, this presentation proposes an integration with the EGI notebooks on demand (https://marketplace.egi.eu/44-notebooks).

EGI Notebooks is a browser-based tool for interactive analysis of data using EGI storage and compute services based on the JupyterHub technology. Notebooks are offered on-demand to single researchers or research communities.

The idea is to offer EGI notebooks capable of requesting "slices"of the EOSC Resource Catalogue that are relevant for the end user and support the definition of functions for the analysis of such slices.

Thanks to the EGI Notebook, the end users will be able to analyse the EOSC Resource Catalogue on top of the stable and scalable infrastructure of EGI.

For example, if the end users want to analyse the outputs of H2020 projects, the notebook will download the dump of H2020 research outputs from Zenodo (https://doi.org/10.5281/zenodo.4559725) and execute a number of predefined functions to give an overview of the data to the end-users.

The EGI notebook should also be able to address requests for slices of the catalogue that are not already published on Zenodo by OpenAIRE. In such cases, the users should be able to define the selection criteria that will be applied to the full dump (https://doi.org/10.5281/zenodo.3516917) or used to build a query to the OpenAIRE or EOSC discovery API.

Speaker:

Michele De Bonis is born in Italy. Computer Engineer and PhD student at ISTI-CNR aiming to study Deep Learning techniques for graph processing. Currently responsible for the implementation and the maintenance of the OpenAIRE services.

Most suitable track

Innovating services together

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Primary authors: DE BONIS, Michele (CNR-ISTI); BARDI, Alessia (CNR-ISTI); MANGHI, Paolo (OpenAIRE)

Presenter: DE BONIS, Michele (CNR-ISTI)

Session Classification: Innovating Services Together - Presentations

Contribution ID: 55 Type: **Session/Workshop**

EGI Workload Manager Service

The EGI Workload Manager service provides an easy access to the EGI computing and storage resources for users from various scientific domains. It helps to increase the efficiency of grid and cloud computations for individual users with moderate requirements as well as for large user communities needing a powerful workflow management system.

The Service is built with the software provided by the DIRAC Interware project. The software is rapidly evolving in order to accommodate new technologies in grid and cloud computing including new types of resources, new security frameworks, etc. Users can access the service with a variety of interfaces, including the Web interface. The DIRAC API's allow creation of specific application portals taking a full advantage of the workflows management by the EGI Workload Manager.

During the proposed session we will provide an overview of the service main features and capabilities, user interfaces and the overall status of the project evolution. Recent developments in the EGI cloud integration, OAuth/OIDC AAI frameworks and others will be discussed. Examples of the service practical usage by several user communities will be presented. In particular, we envisage reports from the WeNMR and Biomed communities which have a long-lasting experience with the use of the EGI Workload Manager.

The goal of the session is to attract new users by showing advantages offered by the service and to demonstrate how to get started quickly with its usage. We will discuss typical problems of new user communities and will propose appropriate solutions

Most suitable track

Delivering services and solutions

Primary authors: TSAREGORODTSEV, Andrei (Aix Marseille Univ, CNRS/IN2P3, CPPM, Marseille, France); POP, Sorina (CNRS); BONVIN, Alexandre (eNMR/WeNMR (via Dutch NGI)); Dr MARCHETTI, Gino (CNRS / CC-IN2P3)

Presenters: TSAREGORODTSEV, Andrei (Aix Marseille Univ, CNRS/IN2P3, CPPM, Marseille, France); BONVIN, Alexandre (eNMR/WeNMR (via Dutch NGI)); Dr MARCHETTI, Gino (CNRS / CC-IN2P3); BONNET, Axel (CNRS)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **56**　　　　　　　　　　　　　　　　　　　　　　　　　Type: **Poster**

Enhancing collaborative ocean science with the Blue-Cloud services

Wednesday, 20 October 2021 15:40 (5 minutes)

Blue-Cloud is the thematic EOSC for the marine domain supporting FAIR and Open Science by developing a web-based environment to provide scientists & researchers with enhanced analytical capabilities and cloud-computing resources, underpinned by simplified access to a wealth of multidisciplinary and interoperable marine data services.

The project builds on existing European marine data infrastructures and e-infrastructures federating their services within the Blue-Cloud framework, enabling researchers to find, access, share, combine and reuse quality data across disciplines and countries. These infrastructures include key players such as EMODnet, Copernicus, SeaDataNet, Euro-Argo, D4Science, EUDAT, and more.

The federation is taking place at the levels of (meta)data resources, computing resources and analytical service resources, driven by collaboration across research, data and e-infrastructures.

- A Blue-Cloud Data Discovery and Access Service (DDAS) is being finalised to facilitate access to multi-disciplinary datasets. The overall concept is that the DDAS functions as a broker both for metadata and for data access, interacting with web services and APIs from each of the blue data infrastructures (BDIs) as federated in the Blue-Cloud. This way, it facilitates users to discover first at the collection level which BDIs might have data sets, interesting for their use case, and next, to identify and download relevant data sets at granule level from those selected BDIs, by means of a common interface.

- A Blue Cloud-Virtual Research Environment (VRE) has been established to enable collaborative research. Services include Data Analytics (Data Miner, Software and Algorithms Importer (SAI), RStudio, JupyterHub), Spatial Data Infrastructure to store, discover, access, and manage vectorial and raster georeferenced datasets, and services and components enabling users to document and then either share with selected colleagues or make available online any generated product (e.g. analytical methods, workflows, processes, notebooks).

- This innovation potential is explored and unlocked by a series of Virtual Labs developed by five real-life demonstrators, addressing societal challenges in the domains of genomics, fishery, aquaculture, biodiversity and environment.

The demonstrators are showcasing how Blue-Cloud can enhance collaborative research in support of the EU Green Deal and key international initiatives, such as the United Nations Decade of Ocean Science for Sustainable Development.

The poster highlights the key services developed within the Blue-Cloud technical framework and their potential impact on marine research towards tackling global challenges.

Federico Drago is a Copywriter and Digital Marketing Specialist, currently involved in projects related to the European Open Science Cloud (EOSC) and to ocean sustainability. Holding a Master's degree in English and Chinese from the University of Naples "L'Orientale", I have worked in a range of international environments between Italy and China, including education, tourism, and culture at large. Outside of Trust-IT, I write about metal music & the climate crisis.

Most suitable track

Collaborating across boundaries

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Primary author: DRAGO, Federico (Trust-IT Services)

Presenter: DRAGO, Federico (Trust-IT Services)

Session Classification: Poster Session

Contribution ID: **57**   Type: **Session/Workshop**

Joining forces for a robust digital landscape: European Cloud open source and standardization effort

Tuesday, 19 October 2021 14:00 (1h 30m)

Cloud technologies are key enablers to unleash the potential of the European data economy and ensure its industrial competitiveness. The current cloud ecosystem needs to be reinforced and enlarged to embrace initiatives and efforts beyond the core European Cloud Computing community for aligning on a common strategy, while coordinating on its implementation.

Roadmapping, outreach and community building activities lay an essential foundation for exploring and strengthening the European Cloud Computing ecosystem, however unifying support activities that facilitate the uptake and deployment of next generation cloud computing technologies also prove to be crucial to advance in the shorter-term the digital transformation of Europe. Opensource and (pre-)standardisation activities are pivotal enablers of technology and solution adoption and even ecosystem development. There are nevertheless multiple challenges to overcome on the path to exploitation, uptake and deployment of cloud computing technologies.

In this session, the panel of experts from public and private organisations will discuss these potential roadblocks and cite their recommendations especially for SMEs and entrepreneurs, to help them identify acceleration paths to support their exploitation plans, speeding up their cloud offering to reach the market. The session will delve deep into discussions on the legal, contractual, financial, and business enablers that must be in place and known before
being able to conceive and plan a sustainable value proposition.

Draft agenda:
14:00-14:10 - Introduction: Dr. Giovanni Rimassa, Coordinator HUB4CLOUD, CIO Martel Innovate
14:15- 15:05 - Expert Panel on the session topic
15:10- 15:20 - Guest talk - European OpenSource efforts and activities (tbd)
15:20- 15:30 - Q and A and closing

Name of our panelists:
Luca Bolognini, ICT Legal Consulting
Brian King, Cloud Development Tools Community Manager, ECLIPSE FOUNDATION
Alberto P. Marti, VP, Open Source Community Relations, OpenNebula
Dr. Arne Berre, Chief Scientist, Software and Service Innovation Division, SINTEF

The panel will be moderated by Dr. Giovanni Rimassa.

Most suitable track

Envisioning the future

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Primary authors: ECLIPSE FOUNDATION; CNCF; OPENSTACK FOUNDATION; STARTUP AC-

CELERATOR; Dr RIMASSA, Giovanni (Martel Innovate GmbH); LEGAL EXPERT IN TECHNOLOGY
CONTRACTS

Presenters: ECLIPSE FOUNDATION; CNCF; OPENSTACK FOUNDATION; STARTUP ACCELER-
ATOR; Dr RIMASSA, Giovanni (Martel Innovate GmbH); LEGAL EXPERT IN TECHNOLOGY CON-
TRACTS; PRASAD, Amrita (Martel Innovate)

Session Classification: Envisioning the Future - Workshop

Contribution ID: **59**　　　　　　　　　　　　　　　　　Type: **Demonstration**

Demo: EOSC Portal - Onboard your resources and contribute to creating Europe's trusted digital environment for research

Tuesday, 19 October 2021 13:30 (15 minutes)

EOSC will become Europe's virtual environment for all researchers to store, manage, analyse and re-use data for research, innovation and educational purposes. EOSC is intended to set off the ground by federating existing scientific data infrastructures and digital infrastructures for data exploitation that are now spread across disciplines and EU member states. This will make access to scientific data and other scientific outputs easier and more efficient.

The EOSC Portal is part of the European Open Science Cloud implementation roadmap as one of the expected "federating core"services contributing to the implementation of the "Access and interface"action line. It provides a European delivery channel connecting the demand and supply sides of EOSC and its different stakeholders.

The EOSC Portal is a gateway to information and resources in EOSC, providing updates on its governance and players, the projects contributing to its realisation, funding opportunities for EOSC stakeholders, relevant European and national policies, documents, and recent developments. The Portal welcomes the participation of providers that contribute to develop EOSC into a rich environment offering a wide range of services and resources for researchers through the EOSC Portal Catalogue & Marketplace.

Onboarding and maintaining quality resources for research on the EOSC Portal is a great chance for providers to reach out to researchers across Europe and beyond. Providers receive support in the onboarding process, visibility on an evolving platform, updated statistics about usage and user feedback.

This demonstration given by the EOSC Enhance team will present the benefits that providers get by uploading their services and resources into the EOSC Portal and will offer a tutorial to introduce its various features, such as the steps of the onboarding process, how to navigate the elements of the provider dashboard, how to add new resources or update existing resources and how to use the EOSC Portal API.

Dr. George Papastefanatos is a senior researcher at Athena Research Center and affiliated with University of Athens- Department of Informatics & Telecommunications. He holds a Diploma in Electrical and Computer Engineering (2000) and PhD in Computer Science from the National Technical

University of Athens (2009). George has more than 15 years of active involvement as a researcher and technical

and project manager in several RTD projects, including projects related to Big Data engineering, big data

visualization and analytics and the European Open Science Cloud activities. George was a member of the

Architecture Working group of the European Open Science Cloud and he participates as a technical manager

and researcher in a series of research projects which are developing EOSC (EOSC Future and EOSC-ENHANCE which develop

and improve the functionality of the EOSC Portal for providers, eInfraCentral project, which offered the service catalogue

functionality in the newly launched EOSC portal, CatRIS, which built the catalogue of services of Research

Infrastructures and Neanias, whose goal is to develop and deliver sustainable services from the Atmosphere,

Underwater & Space Communities). Also, George's expertise is in the area of big data management, data

services on the cloud and data analytics and specifically in issues related to the web data and linked data

modelling, data integration, archiving and preservation, information visualization and exploration. He has coauthored

more than 60 papers in these areas, 1 book and 3 chapters in books, and 3 of his articles have been awarded best paper prizes in conferences.

Most suitable track

Delivering services and solutions

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Primary authors: DRAGO, Federico (Trust-IT Services); SANCHEZ, Jorge (JNP); PAPASTE-FANATOS, George (University of Athens); Mr COLUCCI, Luigi (Trust-IT Services); SPILIOTOPOULOU, Athanasia (JNP)

Presenter: PAPASTEFANATOS, George (University of Athens)

Session Classification: EOSC - Demonstration

Track Classification: EOSC

Contribution ID: **60**   Type: **Presentation short (15 min)**

The ESCAPE Data Lake as the bridgehead for the EOSC

Tuesday, 19 October 2021 14:45 (15 minutes)

Experiments and scientists, whether in the process of designing and building up a data management system or managing multi-petabyte data historically, gather in the European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures (ESCAPE) project to address computing challenges by developing common solutions in the context of the EOSC.
A modular ecosystem of services and tools constitutes the ESCAPE Data Lake, which is exploited by flagship ESFRIs in Astro-particle Physics, Electromagnetic and Gravitational-Wave Astronomy, Particle Physics, and Nuclear Physics to pursue together the FAIR and open-access data principles. This infrastructure fulfils the needs of the ESCAPE community in terms of data organisation, management, and access, and dedicated assessment exercises demonstrated its robustness.
As a result, collaborating sciences are choosing their reference implementations of the various technologies among the proposed solutions.
A variety of challenges and specific use cases boost ESCAPE to carefully take into account both user and infrastructure perspectives, and contributed to successfully conclude the pilot phase beyond expectations, embarking on a like-production prototype stage.
The ongoing phase of the project aims at consolidating the functionalities of the services, e.g. integrating token-based AuthN/Z or deploying a tailored content delivery and caching layer, and at simplifying the user experience. Specifically for this reason, a considerable effort is being devoted towards a DataLake-as-a-Service whose goal is to provide the end-user with a Notebook ready-to-be-used and fully integrated with the Data Lake.
ESCAPE milestones achieved during the length of the project represent a fundamental accomplishment under both sociological and computing model aspects for different scientific communities that should address upcoming data management and computing challenges in the next decade.

Speaker bio:
Riccardo Di Maria is leading the effort on novel data access technologies for future distributed storage infrastructures, referred to as the Data Lake, being prototyped in the ESCAPE European-funded project and leveraging Worldwide LHC Computing Grid (WLCG) technologies. ESCAPE aims to integrate research facilities of Astro-particle and Particle Physics, Electromagnetic and Gravitational-Wave Astronomy, and Nuclear Physics into a common data infrastructure in the context of the European Open Science Cloud (EOSC), pursuing the FAIR and open-access data principles.

Most suitable track

Delivering services and solutions

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Primary author: DI MARIA, Riccardo (CERN)

Co-author: Mr DONA, Rizart (CERN)

Presenter: DI MARIA, Riccardo (CERN)

Session Classification: EOSC - Presentations

Track Classification: EOSC

Contribution ID: **61**　　　　　　　　　　　　　Type: **Presentation long (25 mins)**

AI4PublicPolicy will bring AI to support decision making

Wednesday, 20 October 2021 14:25 (15 minutes)

AI4PublicPolicy is a joint effort of policy makers and Cloud/AI experts to unveil AI's potential for automated, transparent and citizen-centric development of public policies. To this end, the project will deliver, validate, demonstrate and promote a novel Open Cloud platform (i.e. AI4PublicPolicy platform) for automated, scalable, transparent and citizen-centric policy management based on unique AI technologies.

The AI4PublicPolicy platform will be an Open Virtualized Policy Management Environment (VPME) that will provide fully-fledged policy development/management functionalities based on AI technologies such as Machine Learning (ML), Deep Learning (DL), NLP and chatbots, while leveraging citizens' participation and feedback. It will support the entire policy development lifecycle, based on technologies for the extraction, simulation, evaluation and optimization of interoperable and reusable public policies, with emphasis on citizen-centric policies development and optimization through the realization of citizen-oriented feedback loops.

AI4PublicPolicy will complement public policy development functionalities with the ever-important process re-engineering and organization transformation activities towards ensuring the effective transition from legacy policy development models to emerging AI-based policy making.

The AI4PublicPolicy VPME will be integrated with European Open Science Cloud (EOSC) with a dual objective. First to facilitate access to the Cloud and High Performance Computing (HPC) resources of EOSC/EGI that are required to enable the project's AI tools, second to boost the sustainability and wider use of the project's developments.

AI4PublicPolicy's business plan for sustaining, expanding and commercializing the AI tools and the VPME is based on the development of a community of interested and engaged stakeholders (i.e. public authorities and other policy makers) around the project's platform.

In this presentation we focus on the idea of the Open Virtualized Policy Management Environment (VPME), its' architecture and solutions.

Most suitable track

Envisioning the future

Primary authors: AMICONE, Alessandro (GFT); Dr CHRISTOU, Ioannis (Intrasoft); Dr CRISTO-FORI, Andrea (EGI Foundation)

Presenters: AMICONE, Alessandro (GFT); Dr CHRISTOU, Ioannis (Intrasoft); Dr CRISTOFORI, Andrea (EGI Foundation)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **62**   Type: **Presentation short (15 min)**

Full utilization of grid site computing resources using BOINC

Thursday, 21 October 2021 11:15 (15 minutes)

The CESNET grid site prague_cesnet_lcg2 supports several virtual organisations. These VOs use computing resources mostly intermittently and there were periods when CPUs were idle. We considered to add support to some LHC VOs, which submit jobs almost continuously. Since the size of resources is relatively small (1200 cores after the last upgrade) and the fraction for LHC VOs would be small when other VOs have running jobs, the overhead of fully supported WLCG site was high. LHC@Home project provides a convenient solution to this problem. ATLAS simulation jobs are run under CZ national BOINC account and the CPU contribution is accounted to the Czech Tier-2 site. We describe several setups tested and discuss experience with the final solution.

Speaker info: https://www.fzu.cz/en/people/rndr-jiri-chudoba-phd

Most suitable track

Delivering services and solutions

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Primary authors: Dr CHUDOBA, Jiri (CESNET);   PRCHAL, Aleš (CESNET);   MIKULA, Alexandr (CESNET)

Presenter: Dr CHUDOBA, Jiri (CESNET)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: **63**   Type: **Presentation long (25 mins)**

LETHE - A personalized prediction and intervention model for early detection and reduction of risk factors causing dementia, based on AI and distributed Machine Learning

Wednesday, 20 October 2021 14:40 (15 minutes)

Aim of the LETHE project is to create a personalized prediction and intervention model for early detection and reduction of risk factors causing dementia, based on artificial intelligence (AI) and distributed machine learning (ML).

The roots of LETHE project are deep and based on the result of research, studies and clinical data collected over the past 10 years. Memento, PredictND and the FINGER Study (Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability) are among the past projects and studies whose knowledge have become an integral part of LETHE project over time.

Thanks to the heritage of the FINGER study, now widespread worldwide, it has been possible to demonstrate that prevention of cognitive decline in individuals at risk, by intervening on various aspects of lifestyle, is an effective health strategy. The LETHE project sets out to evolve the results of this impressive clinical study into a digital model - FINGER - based on the Internet of things, Mobile, Big Data and Artificial Intelligence (AI) technologies. The strategies for the prevention of cognitive decline will therefore be directed towards technological horizons usable and accessible to the ageing European population.

LETHE will establish novel digital biomarkers, for early detection of risk factors, based on unobtrusive ICT-based passive and active monitoring. The aim is to establish a digital-enabled intervention for cognitive decline prevention based on the evolution of a successful protocol (FINGER) evolving into an ICT-based preventive lifestyle intervention through individualized profiling, personalized recommendations, feedback and support (FINGER), well targeted on a population stratified by cost-effective biological biomarkers.

The LETHE solution will be tested in a feasibility study validating the achieved improvements. Upon success LETHE will provide individual-related, specific biomarkers enabling a more personalized risk factor prevention for persons with beginning cognitive decline, thereby empowering people to an active and healthy lifestyle. Expansions of prevention trials on large scale by an a multimodal intervention approach, reaching out to large populations, could save future costs on expensive traditional interventions and confer benefits for the wider society.

In the LETHE project 15 partners from 9 European countries build a platform to store, integrate, analyse and share this sensitive data by nature within the consortium. Data sensitivity affects to all parts of the data pipeline of this platform like data ingestion, unstructured and structured data storing, data processing, AI/ML model processing, AI/ML OPS and data presentation. The LETHE project will also integrate tools and services released by European Open Science Cloud (EOSC).

In this presentation we focus on conceptual architecture of the LETHE, AI solutions as a part of it and secure data management.

Most suitable track

Envisioning the future

Primary authors: TENHUNEN, Ville; Mr CONDURACHE, Catalin (EGI Foundation); Mr PAS-
CIUTI, Roberto (Extra Red);   BALATRESI, Monica (Extra Red);   Dr ALIPRANDI, Carlo (Extra Red)

Presenters: TENHUNEN, Ville; Mr CONDURACHE, Catalin (EGI Foundation); Mr PASCIUTI,
Roberto (Extra Red); BALATRESI, Monica (Extra Red); Dr ALIPRANDI, Carlo (Extra Red)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **64**   Type: **Session/Workshop**

EOSC Future session/ presentation

The aim and plan for the session at the EGI Conference 2021 is to have a workshop focusing on ongoing and upcoming EOSC Future activities. Depending on whether there will be an EOSC specific session, the project members will decide whether it will be a long presentation (25 mins) or whether a dedicated workshop will be organised. As EGI, in particular through the EGI-ACE project, has collaborative efforts with the EOSC Future project, the importance of including an EOSC Future related presentation/workshop will be highly valuable for the audience of the conference.

Further information on the session and specifications will be provided by the relevant colleagues from EGI once they return from holidays.

EOSC Future

Through co-design with scientists and stakeholders, EOSC Future will establish a trusted platform with open and FAIR data, resources and services for all scientific disciplines. The platform will also seamlessly integrate existing data and services from science communities, research infrastructures and e-infrastructures. Via a single sign-on system, European researchers will thus have access to interoperable resources and support to manage the full lifecycle of their data.

The platform will support diverse scientific workflows with services that facilitate such workflows and that help users discover, manage, process and analyse data.

Most suitable track

Collaborating across boundaries

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Primary authors: LIINAMAA, Iiris; SPEAKERS WILL BE SPECIFIED ONCE AVAILABLE

Presenter: SPEAKERS WILL BE SPECIFIED ONCE AVAILABLE

Session Classification: EOSC - Workshop

Track Classification: EOSC

Contribution ID: **65**   Type: **Demonstration**

Using Dynamic DNS service in EGI Cloud infrastructure

Wednesday, 20 October 2021 13:00 (15 minutes)

Nowadays, more and more services are dynamically deployed in Cloud environments. Usually, the services hosted on virtual machines in Cloud are accessible only via IP addresses or pre-configured hostnames given by the target Cloud providers, making it difficult to provide them with meaningful domain names.

The Dynamic DNS service provides a unified, federation-wide Dynamic DNS support for VMs in EGI infrastructure. Users can register their chosen meaningful and memorable DNS host names in given domains (e.g. my-server.vo.fedcloud.eu) and assign to public IPs of their servers. By using Dynamic DNS, users can host services in EGI Cloud with their meaningful service names, can freely move VMs from sites to sites without modifying server/client configurations (federated approach), and can request valid server certificates in advance (critical for security).

The tutorial will provide live demonstration and practical advice on using Dynamic DNS service in realistic user scenarios.

References:

- Dynamic DNS service portal: https://nsupdate.fedcloud.eu/
- Documentation: https://docs.egi.eu/users/cloud-compute/dynamic-dns/

Speaker bio:
Dr. Viet Tran is a senior researcher of the Institute of Informatics, Slovak Academy of Sciences (IISAS). His primary research fields are complex distributed information processing, grid and cloud computing, system deployment and security. He received M.Sc. degree in Informatics and Information Technology, Ph.D. degree in Applied Informatics from the Slovak University of Technology (STU) in Bratislava, Slovakia. He actively participates in preparations and solving a number of EU IST RTD 4th, 5th, 6th, 7th FP and EU~H2020 projects such as PROCESS, DEEP-HybridDataCloud, EOSC-Hub and EOSC-Synergy. He is the author or co-author of over 100 scientific publications.

Most suitable track

Delivering services and solutions

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Primary author: TRAN, Viet (IISAS)

Presenter: TRAN, Viet (IISAS)

Session Classification: Demonstration

Contribution ID: **66**   Type: **Demonstration**

Demo: Using EGI Cloud infrastructure with fedcloudclient

Wednesday, 20 October 2021 12:45 (15 minutes)

fedcloudclient is a command-line client and high-level Python package for interaction with EGI Federated Cloud. The client will allow users to perform the various OpenStack operations in EGI Federated Cloud. Executing any OpenStack command on any site with fedcloudclient is very simple: it requires only three options: site, VO and the command. For example:

- Listing images in fedcloud.egi.eu VO on CYFRONET-CLOUD site:

    fedcloud openstack image list –vo fedcloud.egi.eu –site CYFRONET-CLOUD'

- Listing all VMs in eosc-synergy.eu VO on all sites in EGI Federated Cloud:

    fedcloud openstack server list –vo eosc-synergy.eu –site ALL_SITES'

Four modules are included in fedcloudclient:

- fedcloudclient.checkin for operation with EGI Check-in like getting tokens,
- fedcloudclient.endpoint for searching endpoints via GOCDB, getting unscoped/scoped token from OpenStack keystone,
- fedcloudclient.sites manages site configurations
- and finally fedcloudclient.openstack for performing OpenStack operations.

The demonstration will provide tutorial of using fedcloudclient in EGI Cloud infrastructure, from simple examples to more complex scripting and programming with fedcloudclient.

References

- fedcloudclient reppository: https://github.com/tdviet/fedcloudclient
- Documentation: https://fedcloudclient.fedcloud.eu/

Speaker bio: Dr. Viet Tran is a senior researcher of the Institute of Informatics, Slovak Academy of Sciences (IISAS). His primary research fields are complex distributed information processing, grid and cloud computing, system deployment and security. He received M.Sc. degree in Informatics and Information Technology, Ph.D. degree in Applied Informatics from the Slovak University of Technology (STU) in Bratislava, Slovakia. He actively participates in preparations and solving a number of EU IST RTD 4th, 5th, 6th, 7th FP and EU~H2020 projects such as PROCESS, DEEP-HybridDataCloud, EOSC-Hub and EOSC-Synergy. He is the author or co-author of over 100 scientific publications.

Most suitable track

Delivering services and solutions

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Primary author: TRAN, Viet (IISAS)

Presenter: TRAN, Viet (IISAS)

Session Classification: Demonstration

Contribution ID: **67**   Type: **Session/Workshop**

Bridging the Gap Between Research and the Market in Cloud and Edge Computing in Europe

Session Description:

Cloud technologies, and the Cloud-edge continuum, are key enablers to unleash the potential of the European data economy and digital sovereignty. They can ensure industrial and research competitiveness, providing secure data storage and sharing, as well as empowering applications and solutions ranging from artificial intelligence to simulation, modelling, digital twins, and high performance computing. The session will provide an overview of the European Union's (EU) Cloud research projects landscape and discuss how research can support in overcoming the EU Cloud industry's challenges. Different experts from the European Cloud Community will be on stage to discuss the needs of the Cloud industry. More specifically, the session aims to:

- Understand, in different verticals, what are adoption challenges toward Cloud Computing.

- Emphasise what have been so far good practises to Cloud adoption.

- Elicit requirements future Cloud technologies should satisfy to support distributed data sharing and processing in the Cloud-continuum in different verticals.

- Investigate how to better bridge the gap between research and commercialisation of Cloud innovative solutions.

Invited Speakers and their Affiliations:

- Dr Federico M. Facca, H-CLOUD Coordinator, CTO Martel Innovate

- Mark Dietrich, H-CLOUD, Consultant EGI Foundation

- Representatives of the European Alliance for Industrial Cloud Data and Edge

- Representatives of European Cloud Service Providers

- Researchers/Innovators from running EU Projects and Cloud-focussed SMEs

Most suitable track

Envisioning the future

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Primary authors: DIETRICH, Mark (EGI.eu); Dr FACCA, Federico (Martel Innovate)

Presenter: WOTTRICH, Verena (H-CLOUD)

Session Classification: Envisioning the Future - Workshop

Contribution ID: **68**   Type: **Presentation long (25 mins)**

Welcome

Tuesday, 19 October 2021 11:15 (5 minutes)

Introduce the methodology used by EGI to support Thematic Services (with technical services and w. Competence Centres)

Most suitable track

Delivering services and solutions

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I agree

Presenter: LA ROCCA, Giuseppe (EGI.eu)

Session Classification: EOSC Workshop

Track Classification: EOSC

Contribution ID: **69** Type: **Session/Workshop**

EGI-ACE Federated data access services

The session will describe the different services available in EGI-ACE for Federated Data access, including the detailed roadmap for each service, example of data space integrations and achievements.
The session will be chaired by Andrea Manzi (EGI Foundation), with contributions from the different service responsibles from UKRI-STFC, Cyfronet, ETH Zurich

Most suitable track

Delivering services and solutions

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Primary author: MANZI, Andrea (EGI.eu)

Presenter: MANZI, Andrea (EGI.eu)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **70**   Type: **Demonstration**

Demo: EOSC Test Suite - Cloud Benchmarking and Validation

Tuesday, 19 October 2021 12:45 (15 minutes)

In recent years, multiple EC funded projects are contributing to the adoption of cloud services in the European research sector. Helix Nebula Science Cloud (HNSciCloud) pioneered the development of a hybrid cloud model linking commercial cloud service providers and research organisations on-premises resources through the GÉANT network. Currently, projects like the Open Clouds for Research Environments (OCRE) leverage HNSciCloud experience in the exploitation of commercial cloud. Another project, CloudBank EU, proposes a model to monitor usage, scaling impact and broadening access of cloud in science, supporting multiple cloud contracts via a comprehensive set of user-facing and business operations functions. In more specific applications, initiatives such as ARCHIVER (Archiving and Preservation for Research Environments) promote FAIR through multiple technologies such as extreme data-scaling, network connectivity, service interoperability and business models, in a hybrid cloud environment to deliver end-to-end archival and preservation services covering the full research data management lifecycle.

The aforementioned projects must integrate validation of services, in aspects such as performance, data sovereignty and cost in order for the cloud adoption to consolidate and become sustainable.

In this context, CERN developed a tool that expanded the necessary testing and validation activities to help benchmarking services across vendors, providing working examples for researchers of their workloads, in multiple scientific domains. The approach consists of a modular and autonomous suite, based on open source technologies such as Terraform, Ansible, Kubernetes, Docker and CEPHS3 for results storing, that runs a set of benchmarks across multiple heterogeneous cloud stacks. The current test catalog offers validation tests on domains such as compute, storage, HPC, Machine Learning and network connectivity.

The development of the suite started in early 2019, being improved continuously. The proposed demonstration will showcase the complete workflow, including configuration steps and results gathering. It will also discuss new developments and features foressen in the roadmap including flexible automated approaches with broader configuration options, increasing efficiency and resilience.

Speaker bio's:
Ignacio Peluaga Lozada: https://www.linkedin.com/in/ignacio-peluaga-lozada/?originalSubdomain=ch

Shreyasvi Natraj: https://www.linkedin.com/in/nshreyasvi/?originalSubdomain=ch

Most suitable track

Delivering services and solutions

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Primary authors: Mr PELUAGA LOZADA, Ignacio (CERN); Mr FERNANDES, Joao (CERN); Mr NATRAJ, Shreyasvi (CERN)

Presenters: Mr PELUAGA LOZADA, Ignacio (CERN); Mr NATRAJ, Shreyasvi (CERN)

Session Classification: EOSC - Demonstration

Track Classification: EOSC

Contribution ID: **71** Type: **Presentation long (25 mins)**

AI4EU Funding opportunities for AI experts and infrastructure providers

Wednesday, 20 October 2021 14:55 (15 minutes)

Europe's AI4EU community brings together all individuals and organisations that are interested in using or benefitting from today's AI capabilities. Researchers, developers, entrepreneurs, citizens, civil servants and AI experts are invited to engage with the AI Ecosystem stakeholders and access multiple resources and solutions.

Some of the ongoing projects under the AI4EU initiative are using the Financial Support to Third Parties (FSTP) scheme to identify disruptive bottom-up experiments contributing to the adoption of AI by SMEs. To this end, different Open Calls are going to be launched in the upcoming months and at the same time, parallel Open Calls for providers will onboard infrastructure and AI experts to support such experiments.

The main purpose of this session is to share the AI4EU funding opportunities for the EGI community, mainly as infrastructure providers and AI experts to contribute and support the AI adoption by SMEs. The description of the objectives, the technical requirements, the funding conditions, the expected contribution and the application process will be presented in this session followed by a Q&A space to solve the doubts from the audience.

It is expected that AI experts and EGI infrastructure providers willing to work with SMEs will participate in this session.

Most suitable track

Envisioning the future

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Primary authors: CAUHE, Elisa (EGI.eu); TENHUNEN, Ville

Presenters: CAUHE, Elisa (EGI.eu); ZRAZINSKA, Izabela

Session Classification: Envisioning the Future - Presentations

Contribution ID: **73**

Type: **Session/Workshop**

The EGI DIH, a new space for the engagement with Industry

Tuesday, 19 October 2021 16:05 (15 minutes)

The EGI Digital Innovation Hub ("EGI DIH") is a virtual space where companies and technical service providers meet to test solutions before investing, offering different services on advanced computing to help companies in digitalization and improving productivity. The main focus of the DIH is the coordination and development of both human and technical support for business-oriented pilots and collaborations.

The EGI DIH acts as a one-stop-shop to provide technical assets, knowledge, expertise and support on business, market, and finance to implement innovation. It aims at 1)Help and support companies in the adoption/ test/validation of advanced computing technologies to become more competitive, 2) Provide an open and innovative environment for experimentation and innovation, increasing the innovation among the EGI Federation members and facilitating their relationship with business sectors for a wider economic and societal impact.

This session will introduce the EGI DIH as one of the business models of the EGI Business Model Innovation Program with the participation of several use cases to share their experiences working with computing services and the knowledge generated, as well as strategic partnerships with other innovative initiatives to collaborate.

The session is oriented to the EGI community, Industry, DIH networks and other innovation agents with interest in innovation and collaborative networks for digital transformation.

Most suitable track

Envisioning the future

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Primary author: CAUHE, Elisa (EGI.eu)

Presenter: CAUHE, Elisa (EGI.eu)

Session Classification: Innovating Services Together - Presentations

Contribution ID: 74   Type: **Demonstration**

Knowledge sharing and discovery across heterogeneous research infrastructures

Wednesday, 20 October 2021 13:50 (10 minutes)

Research infrastructures play an increasingly essential role in scientific research. They provide rich data sources for scientists, such as services and software packages, via catalog and virtual research environments. However, such research infrastructures are typically domain-specific and often not connected. Accordingly, researchers and practitioners face fundamental challenges introduced by fragmented knowledge from heterogeneous, autonomous sources with complicated and uncertain relations in particular research domains. Additionally, the exponential growth rate of knowledge in a specific domain surpasses human experts' ability to formalize and capture tacit and explicit knowledge efficiently. Thus, a knowledge management system is required to discover knowledge effectively, automate the knowledge acquisition based on artificial intelligence approaches, integrate the captured knowledge, and deliver consistent knowledge to agents, research communities, and end-users. In this study, we present a knowledge management system, called ENVRI-KMS, for ENVironmental Research Infrastructures, which are crucial pillars for environmental scientists in their quest for understanding and interpreting the complex Earth System.

The ENVRI-KMS is a Knowledge-as-a-Service for ENVRI-FAIR research communities to document the development and operation processes of RIs and support them with their engineering and design decisions. In general, the ENVRI-KMS should (1) ingest technical results from ENVRIplus, FAIR assessment, the key sub-domains, and other tasks using a formal language for knowledge representation and proven semantic technologies; (2) provide services and tools to enable RI developers and data managers to browse, search, retrieve and compare RI technical statuses and technical solutions to development problems via available content; (3) provide content management tools for specialists in the ENVRI community to ingest new knowledge and control the quality of content; (4) also provide interfaces to other existing semantic resources, e.g., the service catalog of a future ENVRI-HUB to enhance knowledge discovery and cross-RI search, between knowledge services and the online presence of ENVRI resources.

In the next phase, the development effort will mainly focus on the following aspects: (1) Continuous content ingestion and curation. The ENVRI-KMS team will improve the knowledge ingestion tool and continuously ingest the description (metadata) of high-quality results from the ENVRI community (e.g., sub-domain or RI developers), including development results (e.g., best practices, software technologies, recommendations, updated FAIRness assessment possibly generated by new tools) in the ENVRI-KMS, and make those descriptions FAIR for the community.
(2) Continuous improvement of the ENVRI-KMS based on the feedback is received from the community. Extra features, e.g., for ENVRI-KMS discovery and recommendation, will be further explored. (3) The development and operation of the ENVRI-KMS will also follow the software engineering DevOps practices. The continuous testing, integration, and deployment pipeline will be established. (4) We will also extend the content maintenance to community specialists. In this way, we hope the community will play a key role in the ENVRI-KMS.

Speaker bio's:
Siamak Farshidi: https://siamakfarshidi.nl/
Na Li: https://www.uva.nl/en/profile/l/i/n.li/n.li.html
Zhiming Zhao is currently a senior researcher in the group of System and Network Engineering (SNE) at University of Amsterdam (UvA). He obtained his bachelor and master degrees in Computer Science from Nanjing Normal University (NJNU) and East China Normal University (ECNU) in 1993 and 1996 in China respectively. He obtained his Ph.D. in Computer Science from University of Amsterdam (UvA) in 2004. He has strong research interest in advanced computing and

network technologies, time critical and data intensive systems, Cloud computing, scientific work-flows and software agents. He coordinates research and development activities in the EU H2020 project SWITCH (Software Workbench for interactive time critical and highly self-adaptive cloud applications), and in the "Data for Science"theme in the EU H2020 environmental science cluster project ENVRIPlus. He also leads the research tasks of research sustainability in the EU H2020 VRE4EIC project, and of semantic linking in the EU FP7 ENVRI project.

Most suitable track

Delivering services and solutions

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Primary authors: FARSHIDI, Siamak (University of Amsterdam); Ms LI, Na (University of Amsterdam); ZHAO, Zhiming (EGI.eu)

Presenters: FARSHIDI, Siamak (University of Amsterdam); Ms LI, Na (University of Amsterdam); ZHAO, Zhiming (EGI.eu)

Session Classification: Demonstration

Contribution ID: 75

Type: **Presentation short (15 min)**

Connecting research data workflows with Argos: Embedding services and scientific outputs in data management plans

Wednesday, 20 October 2021 12:25 (15 minutes)

Planning Research Data Management (RDM) activities is crucial as it effectively lays the foundations for successful research conduct according to Research, Technology and Development (RTD) best practices and requirements. Additionally, it leads to validated and quality research outcomes at the end of the scientific project / endeavour. Data Management Plans (DMPs) implement RDM policies and describe the activities, means and effort needed to manage data generated, collected and / or re-used by researchers. Moreover, they are seen as outputs that enable data reproducibility, continuously updated with new data as "living documents" of ongoing research. Hence, DMPs have rapidly entered Research Data Management Lifecycles (RDML), included at the beginning of the research process, and have been standardized in structure and content to be easily adoptable by research funders, institutions and communities.

Following the scientific demand, unravels the necessity for flexible and action-capable tools to deal with data management plans that enable research links and information contextualization while also steering compliance with the FAIR data concept. Considering that an important factor to enabling FAIRness of data are the practices followed by research infrastructures and service providers, it poses the possibility for better communication and integrations among various service providers in support of diverse RDM settings (e.g. discipline-specific, multi- or inter-disciplinary, inter-institutional, cross-country and trans-national purposes). Research data services offer a complementary and fine-grained view to addressing concrete actions for the access, sharing and management of data handled as input and/or output in their workflows. Thus, services should become more prominent components of DMP outputs and clearly link to the FAIR and RDM aspects corresponding to their use by researchers.

The presentation is about Argos, OpenAIRE's machine actionable DMP service, also available as an EOSC (European Open Science Cloud) resource. Argos is a ready-to-use RDA compliant service for creating and publishing DMP outputs. It provides the scientific community with an open source, configurable and extensible instrument for the handling, validation and dissemination of their data management plans, in line with policies settled by a variety of funding agencies, institutions, research communities and other initiatives. Argos is hooked into the OpenAIRE ecosystem and interconnects with its underlying services and the OpenAIRE Research Graph to offer maximum capabilities for metadata contextualisation, integration with diverse research workflows, and validation of input data comprising DMPs. The presentation brings attention to the full DMP lifecycle supported by Argos and highlights collaborations, integrations and out-of-the-box links with OpenAIRE and EOSC services. Finally, it reflects on the role of DMPs from the perspective of service providers and communicates possibilities for embedding services in DMPs, while complementing and automating current RDML practices.

Speaker bios:
George Kakaletris https://gr.linkedin.com/in/gkakas

Elli Papadopoulou has a BSc in Library Science and Information Systems. Master's in Public Policy and Public Administration (Athens University of Business and Economics). Special training in Research Data Management and work experience in academic and research environments: cataloging, classification, management of information systems, user requirements (University of Bath Library, United Kingdom and International Hellenic University Library), and management, preservation and archiving of digital documents (coordination of a digitization project at the CERN Library, Switzerland), For the past four years she has been working for ATHENA Research Center

in Greece. In OpenAIRE, she undertakes the coordination of the National Open Access Desk in Greece (OpenAIRE Greek NOAD) along with the management of the Argos tool for the preparation and publishing of Data Management Plans. She also contributes to Open Science oriented projects at both national and european levels, such as the NI4OS-Europe (National Initiatives for Open Science in Europe) and HELIX (Hellenic Data Service). She has been volunteering at DOAJ since 2015 (associate editor) and at the RDA since 2016 (co-chair of the Early Career and Engagement Interest Group and of the Engaging Researchers with Data Management Interest Group). Her research activities revolve around Research Data Management, Open Science, Public Services and Policy Analysis.

Most suitable track

Delivering services and solutions

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Primary authors: PAPADOPOULOU, Elli (Athena Research & Innovation Center in Information Communication & Knowledge Technologies); Dr KAKALETRIS, George (CITE)

Presenters: PAPADOPOULOU, Elli (Athena Research & Innovation Center in Information Communication & Knowledge Technologies); Dr KAKALETRIS, George (CITE)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: 76   Type: **Presentation short (15 min)**

ScienceMesh + JupyterLab: Collaborative Data Science services in scientific use cases and in business across different fields of study

Tuesday, 19 October 2021 15:10 (15 minutes)

Data Science became famous in main stream about a decade ago: after Harvard Business Review article which coined Data Scientist as "The Sexiest Job of the 21st Century". In business it is defined as "using data to increase competitive advantage".

ScienceMesh, developed in CS3MESH4EOSC project, creates the Federated Scientific Mesh providing federated sharing of data across different sync-and-share services, federated use of applications (such as collaborative document editing, data archiving, and data publishing), fast transfer of large datasets and remote data analysis (distributed Data Science environments).

As all scientific disciplines nowadays are based on data analysis and Distributed Data Science Environments can support research in all fields of study. It will also support Data Science in the business context in all sectors. In recent report **Critical Capabilities for Data Science and Machine Learning Platforms** (March 2021) Gartner predicts, that in near future **collective intelligence in Data Science** and **cloud-based AI infrastructure** will be among key factors for competitive advantage.

For ScienceMesh Distributed Data Science Environments, **along with** Software Mind (part of Ailleron group, a global IT service provider based in Poland, delivering skilful managed teams for even most demanding projects), **it was developed the JupyterLab extension**, integrating with ScienceMesh –file browsing and additional share and collaboration functionalities for notebooks and resources across federated cloud are now possible in JupyterLab environment. Collaborative Data Science is being now used in products from Finance, IoT, Earth Observation, SmartCities and Pharma, but it is present in virtually every business.

Jupyter Notebook has become No1 platform used by data scientists to build interactive applications and to work with big data and AI. It is a free, open-source, interactive web-based tool which researchers can use to combine software code, computational output, explanatory text and multimedia resources in a single document. Jupyter has exploded in popularity over the past couple of years, with an enthusiastic community of user–developers.

In this talk, the relevance and benefits of ScienceMesh Distributed Data Science Environments will be presented, starting from **two scientific use cases** (High Energy Physics and Earth Observation), along with various **business-related scenarios**.

In CS3MESH4EOSC project, SoftwareMind is supporting science innovation by providing the expertise on microservices architecture, integration, DevOps, agile software development process and Data Science. It leads tasks on Reference interoperability platform and distributed Data Science environments. In this talk, the speaker will show also how this is as a part of the strategy of growing the usage of application services in the cloud, microservice-based architectures, Data Science, Big Data integration and analytics.

Speaker bio:

Experienced System Architect and R&D Project Manager with 20+ years of enterprise software design and development. Founder and leader of Big Data Lab, focused on R&D, Data Science, data driven innovation and high quality agile software development. He is now involved in CS3MESH4EOSC project (https://cs3mesh4eosc.eu/), leading tasks on Reference cloud interoperability platform and distributed Data Science environments (the project creates Science Mesh integrated with EOSC: https://cs3mesh4eosc.eu/index.php/science-mesh). He developed Big Data solutions before it became mainstream. In the years 2005-2008 he was involved in development of technology for the first web-scale Semantic Web startup: garlik.com - from R&D in alpha phase to commercial launch browsing 4billion web pages. Software Mind's team he was a part of - and finally he lead - started

using Hadoop in February 2006, as one of the first companies in the world. He participated in and lead many commercial projects which included Big Data, high volume and high velocity solutions, in various sectors: telco operators, international telco interoperability hubs, banks and financial institutions or Content Delivery Network providers. He was a Work Package leader and provided Big Data architecture in in a number of EU-funded research projects. He was Chief Software Engineer and integration WP leader in ROBUST (2010-2013). He was a WP leader on technological infrastructure in EU IP WeSenseIt (2012-2016), responsible for designing and implementing a scalable architecture of sensor/IoT platform, management of huge scale geospatial data, scalable backend for mobile apps and cloud-based infrastructure. In Seta (2016-2019) he leads a Work Package on creating Big Data infrastructure for organizing, monitoring and planning multimodal mobility in large metropolitan areas. His current focus in Big Data innovation is state of the art solution for management of geo-located data and low-latency services, including GPU-based acceleration of geospatial indexes. He has experience in all phases of project lifecycle including requirements gathering and analysis, architectural analysis and design, data modelling, implementation, deployment, coordinating and mentoring.

Most suitable track

Innovating services together

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Primary author: SIEPRAWSKI, Marcin (Software Mind)

Presenter: SIEPRAWSKI, Marcin (Software Mind)

Session Classification: Innovating Services Together - Presentations

Contribution ID: **78**   Type: **not specified**

Keynote: Computing for Gravitational-wave research: now and tomorrow (Stefano Bagnasco, INFN)

Wednesday, 20 October 2021 10:00 (1 hour)

Stefano Bagnasco is a senior Technology Researcher with the Istituto Nazionale di Fisica Nucleare in Torino, Italy. He has 20 years of experience in designing, maintaining and operating large-scale distributed infrastructures for scientific computing, first for HEP experiments and now in the field of Gravitational Waves research. He is currently serving as Computing and Data Processing Coordinator for the VIRGO experience and co-chair of the e-Infrastructure Board of the Einstein Telescope initiative.

Presenters: BAGNASCO, Stefano (INFN); FERRARI, Tiziana (EGI.eu)

Contribution ID: **81**   Type: **Presentation long (25 mins)**

White paper: Good practices of coordination within and across e-Infrastructures and thematic Research Infrastructures (RIs)

Tuesday, 19 October 2021 11:45 (25 minutes)

The presentation will provide insights on the first iteration of new e-IRG White Paper 2021 that is entitled "Good practices of coordination within and across e-Infrastructures and thematic Research Infrastructures (RIs)", while the overall White Paper (with more iterations planned later in 2021) is entitled "Vision for an inclusive and holistic e-Infrastructure ecosystem for the European Research Area".

Following a series of efforts on national coordination (e-IRG Roadmap 2016, e-IRG National Nodes paper in 2019), the e-IRG has worked further on coordination practices at institutional, national and regional (cross-country) levels.

Coordination paradigms and practices are presented around Europe within e-Infrastructures, across e-Infrastructures and thematic RIs and on open science, covering aspects like ownership/governance, organisation (top down/bottom up, distributed/centralised), funding/cost sharing, resource sharing/access policies and the impact of national RI roadmaps in the country organisation.

Hybrid models of incentivising both e-Infrastructures and thematic RIs are presented, so that the latter requirements (eNeeds) are well captured by the e-Infrastructures. The first iteration is expected to be finalised in October 2021. The presentation will be made by a relevant e-IRG Working Group member. This document is relevant to the EOSC Secretariat study on NOSCIs, although e-IRG remit is broader covering also other areas such as networking and HPC.

Impact: European structures such as EOSC are based on a chain of institutional/national/regional structures. The paper highlights this federation chain and the importance of institutions being well represented by their national structures at EU level. The e-IRG paper is thus relevant to NOSCIs. Although no one size fits all, the different paradigms presented and the analysis performed can inspire other countries to use models that may be relevant for them and help NOSCs to be better prepared for EOSC.

About the speaker
Dr. Fotis Karayannis is an international vendor with more than 25 years of experience in the Information and Communication Technologies domain, focusing mainly on research infrastructures, and in particular on networking, computing and data electronic infrastructures.
He received his PhD in 1998 in the fields of Integrated Communications and Management of Broadband Networks from National Technical University of Athens, Greece. He has worked for major commercial or research entities such as OTEPlus (ex-incumbent telecom operator consulting company), the Greek Research and Technology Network GRNET (GR) for 8 years, the IT department of the European Organisation for Nuclear Research CERN (CH) for 2 years, the Czech Research Network CESNET (CZ) for 2 years, Trust-IT Services for 2 years, Microsoft Research Cambridge (UK) and Microsoft Innovation Center Greece for 8 years, The Netherlands Organisation for Scientific Research - NWO (NL) for 5 years, ATHENA Research Center for 10 years, Athens University of Economics and Business (GR) for 3 years and the UK Research and Innovation/Science and Technology Facilities Council (UK) for 8 years.
He has worked for major research/electronic infrastructure initiatives such as the Pan-European Research Network GEANT, The Advanced Computing Infrastructure for Research EGI, the PRACE Supercomputing Research Infrastructure, the e-Infrastructure policy body e-Infrastructure Reflection Group (e-IRG), both as a delegate (5 years) and a member of its secretariat (15 years), the

Support to the Reinforcement of the European Strategy Forum For Research Infrastructures (StR-ESFRI and StR-ESFRI2) and the Research Data Alliance Europe (RDA-Europe) project series (RDA Europe-RDA-Europe 4). He served as the coordinator of the e-FISCAL project on estimating computing costs of major e-Infrastructures and also of the ICRI2014 project, responsible for organising the International Conference on Research Infrastructures in 2014. He has also acted as an expert and deputy national delegate in the FP7 Program Committee on Research Infrastructures (2 years). He endeavoured entrepreneurial activities in the area of big data analytics and cloud computing brokerage as the founder and director of Uranus Computing Limited and shareholder of Innov-Acts Limited.

He authored the document "A Marketplace for e-Infrastructure services", which constituted the basis for the definition of the European Open Science Cloud (EOSC). He also acted as a member of the evaluation committee for the assessment of the EOSC first phase in June 2020.

Most suitable track

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Presenter: KARAGIANNIS, Fotis (Independent)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **82**   Type: **Presentation long (25 mins)**

Envisioning the future of Open Science by focusing on fundamental rights

Tuesday, 19 October 2021 12:10 (25 minutes)

In the current era of the digital revolution, the impact of new technologies and ICTs on scientific research is clearly significant. The radical transformation that the use of technology has determined in science urges a rethinking of the way science is done: the emergence of the Open Science paradigm is a step in this direction. Open Science does not only aim at promoting the openness of science: the goal is to support good science, in a broad sense, based on communication, cooperation, minimising waste of effort, ensuring transparency and taking advantage of the most innovative technologies. An interdisciplinary approach is needed to pursue this aim. The ongoing debate on science requires a collective effort from multiple disciplines and multiple areas of knowledge. Although the development of technology and technical skills is crucial, on the other hand, it is also important to pay attention to the legal aspects involved in the emergence of these new technologies, which –as such –pose novel legal challenges. It should not be forgotten that the openness of science is grounded in the "right to science", enshrined in Article 27 of the Declaration of Human Rights. This presentation aims to investigate the future of Open Science, starting with the fundamental rights on which it is rooted.

About the speaker:

Ludovica Paseri is a PhD candidate at LAST-JD Joint International Doctoral degree program in "Law, Science and Technology", at the Alma Mater Studiorum, University of Bologna, in cotutelle with the University of Luxembourg, faculty of Computer Science. She graduated in Law at the University of Turin and attended a postgraduate Master in Data Protection Law, at the Department of Law, University of Turin. Ludovica has completed the internship as trainee lawyer in an Administrative Law firm and her main research interests are Cloud Computing, EU Open Science policies, scientific data governance, privacy and data protection law.

Most suitable track

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Presenter: Ms PASERI, Ludovica (University of Bologna)

Session Classification: Envisioning the Future - Presentations

Contribution ID: **84**   Type: **not specified**

DIGITbrain –a new approach to deliver Digital Twin technologies

Tuesday, 19 October 2021 14:55 (15 minutes)

DIGITbrain –a new approach to deliver Digital Twin technologies
The goal of the DIGITbrain Project (funded by the EC, grant Nr. 952071) is to enable
customised Industrial Products, means manufacturing machines and processes, and facilitate
cost-effective distributed and localised production for manufacturing SMEs by applying
modelling, simulation, optimisation, analytics, and machine learning tools and augmenting
the concept of Digital Twins with a memorising capacity.
Building on the CloudiFacturing Solution (and the Digital Agora, publicly known as emGORA
Workspace), a platform for offering and consumption of digital services, the DIGITbrain
Platform will extend the CloudiFacturing solution with new capabilities, like publishing,
composing and orchestration of data, models, algorithms, and resources. The new solution
integrates technologies like Clouds, FIWARE, co-simulation, Machine Learning, etc., in order
to develop a MaaS (Manufacturing as a Service) business model to be implemented by the
Digital Innovation Hubs (DIHs) later on.
During the lifetime of the DIGITbrain project, two Open Calls are focused on attracting third
Parties (especially manufacturing and ISV SMEs and mid-caps) to perform their experiments
and to make SMEs more competitive by transferring innovative solutions into the wider
manufacturing community. Experiments will be implemented in close collaboration with
Digital Innovation Hubs. Currently the first Open Call is in evaluation; the next Open Call will
be launched in July 2022.
Technically DIGITbrain is based on the previous mentioned Digital Agora
(workspace/marketplace), additionally further services are developed, like automated
deployment, execution on Edge and Cloud, HPC resources and the memorising capability of
the "Digital Product Brain"in order to monitor, explore and learn from the implemented
Digital Twins. The "Digital Product Brain"itself is the coordinating building block of the
DIGITbrain Solution and it aims to configure, manage, and monitor Digital Twins and their
DMA (Data, Model, Algorithm) Tuples (representation of individual behaviours of Industrial
Products).
Practically as a user, you just have to author, publish, and compose your assets (Data,
Model, Algorithm) for using them or offering them as a service on the DIGITbrain solution.
Main advantages of the DIGITbrain concept are
• The clear separation of Data, Model and Algorithms (Assets) in the DIGITbrain
Concept offers reusable building blocks to compose Digital Twins more rapidly.
• For transparency, analysis and further usage, those assets are described and
published by metadata as well
• Provision of authoring tools and algorithms should lower the barriers and ease the
access to the DIGITbrain solution for the involved SME's and DIHs.
Together with the DIHs, innovative services will be developed, published on the Digital Agora
and delivered to European SMEs. Additional consulting services, provided by the involved
DIHs, the contributing SMEs and core partners in the project, supports the adaption of the new
technical services and are core of the envisaged community building process. Together
with the DIHs and based on the DIGITbrain solution, the new business model
"Manufacturing as a Service"MaaS will be explored, investigated, and established later.

Speaker bio: https://www.westminster.ac.uk/about-us/our-people/directory/kiss-tamas

Most suitable track

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Presenter: KISS, Tamas (University of Westminster, London, UK)

Session Classification: Innovating Services Together - Presentations

Contribution ID: 85 — Type: **Presentation short (15 min)**

DIH Collaborations: emGORA Workspace –A community-based approach to deliver software services for manufacturing engineering

Tuesday, 19 October 2021 16:50 (15 minutes)

emGORA workspace –a community-based approach to deliver software services for manufacturing engineering
In the past 10 years, the community-based approach is enjoying increasing popularity. The European Single Market offers many opportunities for large companies that are well
equipped with financial and human resources, but where small and individual players unfortunately fall by the wayside. But how can the small and medium-sized ones be supported?
The emGORA workspace is an execution and collaboration platform driven by a community-based approach and is democratising access to advanced ICT solutions to accelerate the digitisation of manufacturing SMEs in an enriched environment. The Digital Agora was achieved in more than 7 years of European funded research and innovation actions –
means, emGORA workspace has been nudged loose by the European Commission's efforts to build up economic strengths in a sustainable way.
To cover all the nations in Europe, emGORA workspace is joining forces with Digital Innovation Hubs (DIH) to offer economic opportunities for all in the manufacturing
technology sector and beyond. emGORA workspace is aiming to play an essential part in the European Commission's sustainability strategy - for our Europe of tomorrow. The divers and open work environment respects and embraces differences, recognises the unique contributions that people with many types of differences can make, and most important
maximises the potential of all those members who actively involve themselves.
The newly created modular delivery-as-a-service platform combines the secure software marketplace powered with Cloud and HPC resources and stands out from others by offering
a place for a human-centric community activities, which is focused on facilitating Pan-European collaborations.
The marketplace of emGORA workspace focuses on the private and secure delivery of advanced software solutions for manufacturing and engineering by various providers and
allows on the go execution, comparison, and testing of software tools, like CAx, Data analytics, simulations, AI and many more. Software services can be proprietary or open-
source software and provided by any provider/company.
The community area is all about networking and collaboration and aims to deliver a lot of the benefits from real manufacturing networks. SMEs, providers, and other members can interact with each other, explore tools and seek for help to tackle a certain challenge or digitise their production. The community is driven by exchange, every emGORA workspace
member can host their own discussion roundtable, launch "Call for Solutions", as well as to publish content (articles, success stories, use cases, insights, news) and share their
perspective.
Next to the delivery of software services via the marketplace, experts around advanced ICT solutions (providers and consultants) can propose their solution. They can challenge each other with the solution or can create joint forces to serve with the most suitable solution.

By sustaining emGORA workspace as a result of publicly funded research in Europe, it offers the exchange of knowledge while protecting intellectual property rights of individuals.

Most suitable track

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Presenter: OCKLENBURG, Andreas (cloudSME)

Session Classification: Innovating Services Together - Presentations

Contribution ID: **86**   Type: **not specified**

Keynote: 50 years of IN2P3 - support for scientific ground breaking discoveries and future perspectives (Pierre-Etienne Macchi, Director IN2P3 Computing Center)

Tuesday, 19 October 2021 10:00 (30 minutes)

Former EGI.eu Executive Board member, Pierre-Etienne Macchi is the director of the IN2P3 Computing Center, a thematic computing center dedicated to research in high energy physics, nuclear physics and astroparticles.
He acts as the IN2P3 representative at the CNRS e-infrastructures committee and he participates, in close coordination with the IN2P3 management, to the policy definition of the Institute regarding computing. He attends the Group Council of France Grilles, to which IN2P3 is the main resource provider. He is also the CNRS representative at the French NREN (RENATER) board of users, and participates in various reflection groups set up by the French research ministry about data centers and research data organization.

Most suitable track

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Presenters: VAN RIJN, Arjen (NIKHEF); MACCHI, Pierre-Etienne (CNRS-IN2P3)

Contribution ID: **87**   Type: **not specified**

Keynote: Climate modelling: data and computing challenges (Sylvie Joussaume, CNRS)

Thursday, 21 October 2021 10:00 (1 hour)

Sylvie Joussaume is an expert in climate modelling within CNRS. She has been involved in several assessment reports of the Intergovernmental Panel on Climate. Change. She coordinates since 2009 the European infrastructure project, IS-ENES, which integrates the European climate models in a common research infrastructure dealing with models, model data and high-performance computing for climate (http://is.enes.org), and which has integrated the EGI federation in 2020. She has been chair of the PRACE scientific committee in 2015. She also chairs the scientific evaluation committee of GENCI, the French national HPC facilities, and the scientific committee of ORAP that promotes high-performance computing in France.

Most suitable track

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Presenters: SIPOS, Gergely (EGI.eu); JOUSSAUME, Sylvie

Contribution ID: **88**

Type: **not specified**

Keynote: 50 years of SRCE - achievements and future perspectives for scientific computing of SRCE (Ivan Marić, SRCE)

Tuesday, 19 October 2021 10:30 (30 minutes)

Ivan Marić is the Director of University Computing Centre - SRCE, where he began his career in 1990. During his time in SRCE, he played an important role in the creation and construction of the Croatian academic and research network at the beginning of 1990's and has since then participated in numerous national initiatives related to building Croatian e-infrastructure. Currently, he leads the national strategic project Croatian Scientific and Educational Cloud (HR-ZOO), which aims to build a new generation of e-infrastructure for advanced science and modern education.

On the international level, he is actively involved in building and governing major pan-European e-infrastructures like GEANT and EGI. Mr. Maric holds several positions in international organizations as national representative for Croatia - he is an official Croatian delegate in the EOSC Steering Board and in EOSC Association General Assembly. He is the Croatian representative in the Future Internet Forum (FIF) from 2016, and an e-IRG delegate from 2006.

He is also the Croatian representative in Horizon Europe Research Infrastructure Programme Committee.

Most suitable track

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Presenters: VAN RIJN, Arjen (NIKHEF); Mr MARIC, Ivan (Director of University Computing Centre - SRCE)

Contribution ID: **89**   Type: **not specified**

Keynote: Scientific Computing with EGI: Current Status and Future Outlook

Tuesday, 19 October 2021 09:30 (30 minutes)

What is the impact of EGI on science and how are researchers' needs transforming scientific computing solutions in the coming decade? The EGI Foundation Director, Dr. Tiziana Ferrari will present the latest status of the EGI Federation and its contribution to EOSC focusing on its scientific impact.

Most suitable track

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Presenter: FERRARI, Tiziana (EGI.eu)

Contribution ID: **90**   Type: **not specified**

Security considerations in the container-based environments.

Wednesday, 20 October 2021 16:55 (15 minutes)

In the last years, the use of containers has expanded drastically. Many organisations are running containerised applications in cloud native environments. And since containers can encapsulate complex software
stack with all the dependecies in an isolated enviroment (making the applications portable among clusters), they are widely used at many grid and HPC sites. How to know if these deployments are secure or how can a
security expert or sysadmin, experienced in traditional server and VM based environments adapt to the container based deployments? In this talk EGI CSIRT will point out some of the most common security threats in the container-based environments together with the guidelines on how
to prevent them.

Speaker info:
https://www.muni.cz/en/people/1388-daniel-kouril

Most suitable track

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Presenter: KOURIL, Daniel (CESNET)

Session Classification: Innovating Services Together: Presentations

Contribution ID: **91**   Type: **not specified**

Resource Trust Evolution and Cloud-based Provisioning

Wednesday, 20 October 2021 15:00 (15 minutes)

Increasing use of cloud resources, and other developments in new workflows, has raised the question of which providers of host certificates are appropriate for different use cases - with particular focus on the provisioning of dynamic compute resources. Any discussion of updating our trust model to include the use of new certificate authorities must include the perspectives of all stakeholders, including experiments and operations, sites, identity management and security. We present here a summary of the challenge facing our community and the current status of work to clarify the needs of our stakeholders and identify a path forward that meets our requirements

Most suitable track

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Primary author: KELSEY, David (STFC)

Presenter: KELSEY, David (STFC)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: **92**   Type: **not specified**

Overview of incidents we are dealing with and how to improve the response readiness.

Tuesday, 19 October 2021 12:00 (15 minutes)

So far year 2021 has shown to the EGI CSIRT team that the services for research and science are not immune to the dark side of the web. Compromised platforms can be used to malicious activities and EGI infrastructure surely has interesting targets for potential abuse. It is ever more obvious that information security must be constantly cared for. More complex layered services spanning to multiple vendors, platforms and services bring additional challenges to deployment and operations, which require our special attention

Most suitable track

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Presenter: KOSKINEN, Pinja

Session Classification: Collaboration Accross Boundaries - Presentations

Contribution ID: **93**
Type: **Poster**

The future of Open Science asks for a common understanding

Wednesday, 20 October 2021 15:50 (5 minutes)

Abstract:
The goal of this poster is to contribute to a common understanding of the concept of "Open Science".

Indeed, it is widely recognized nowadays that there is no single, accepted, unified definition of Open Science. This motivates our proposal of an Open Science definition as a political and legal framework where research outputs are shared and disseminated in order to be rendered visible, accessible, reusable.

Our contribution is developed standing over the concepts enhanced by the Budapest Open Science Initiative (BOAI), and by the Free/Open
Source Software (FOSS) and Open data movements. We have elaborated this
definition proposal through a detailed analysis of some selected EC policies and laws as well as of the function of research evaluation practices. The legal aspects considered in our examination include, in particular, the study of the role of licenses in the context of the dissemination of research outputs.

This poster summarizes the content of our recent paper entitled: "Towards an Open Science definition as a political and legal framework: on the sharing and dissemination of research outputs"
Teresa Gomez-Diaz, Tomas Recio,
Version 2 published on POLIS N. 19, 2020,
http://uet.edu.al/polis/images/Teresa_Gomez-Diaz.pdf,
and Version 3 dated 28/02/2021 with minor corrections available on Zenodo, https://zenodo.org/record/4577066

T. Gomez-Diaz is a CNRS Research Engineer at the Gaspard-Monge Computer Science laboratory (LIGM) at the University Gustave Eiffel (Est of Paris), where her mission is, since 2006, to render the research software production visible and accessible. This mission has been recently extended to an Open Science mission.

She has been involved on the PLUME Project (2007–2013), where she has participated to launch and build a national catalogue of (French) research software. She has also participate to propose Software Management Plan tools. In collaboration with Prof T. Recio (University of Nebrija, Spain), she has proposed the CDUR research software evaluation procedure and an Open Science definition as the political and legal framework where research outputs are shared and disseminated in order to be rendered visible, accessible and reusable.

Most suitable track

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Presenter: GOMEZ-DIAZ, Teresa (CNRS)

Session Classification: Poster Session

Contribution ID: **94**   Type: **Presentation short (15 min)**

Incident Response in multiple Service-User-Relation layers and threat intel sharing in challenging environments.

Tuesday, 19 October 2021 12:15 (15 minutes)

Incident Response in complex governance environments requires an additional level of responsibility awareness and clear agreements on the roles in Incident Response.
We will look at two scenarios to illustrate the problem.
1. Multiple layers of Service-User-Relations in cloud environments. Here we have the Resource Center providing the virtualization enabling technologies as a service, the users can then run another IAAS on the VM provided by the User, who then in turn provides a service to his users, that can run services for another layer of users. To keep track of who is responsible for what and has sufficient information to act on reported problems is getting hazy the more such layers exist. A similar problem exist in environments like a federation of
federations, which may have different policies and procedures in effect. Information sharing, in particular Threat Intel sharing in these set ups are an additional challenge, possible solutions will for this be presented here.

Speaker bio: https://nl.linkedin.com/in/sven-gabriel-a3296227

Most suitable track

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Presenter: GABRIEL, Sven (NIKHEF)

Session Classification: Collaboration Accross Boundaries - Presentations

Contribution ID: **95**   Type: **not specified**

EGI101 - Introduction to EGI

Monday, 18 October 2021 16:00 (1 hour)

Are you new to EGI? And maybe a bit confused about what EGI is, what we do, how we are structured and how you can collaborate with us? Then this is the session for you!

The EGI Federation is an international e-Infrastructure to provide advanced computing and data analytics services for research and innovation. EGI federates compute resources, data management services, support teams and various online, thematic services from over 30 countries and international institutes, to make those available for researchers, innovators and educators. Since 2021 EGI delivers a compute platform in the European Open Science Cloud through the H2020 EGI-ACE project. This session will provide a basic introduction to EGI, covering all the fundamental topics that you need to know before deep-diving into the EGI'21 conference. The session will include a presentation and a Q&A slot.

Most suitable track

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Presenter: SIPOS, Gergely (EGI.eu)

Contribution ID: **96**
Type: **Presentation short (15 min)**

EOSC DIH: Bridging Industry with the EOSC

Tuesday, 19 October 2021 15:15 (15 minutes)

The EOSC DIH is an international and multi-partner cooperation that supports private companies in easily accessing the digital technologies, services and human capital offered by the EOSC. It combines four pillars to help companies become more competitive:
Piloting and co-design: where products or services are designed and/or tested.
Technical access: High-throughput, High-performance and cloud computing; machine learning; research data; data management services, as well as several tools and applications available for re-use.
Training and support: technical consultancy, business coaching and funding search.
Visibility: inclusion of company solutions in the EOSC Marketplace, print and online material and exploitation of the EOSC networking and ecosystem opportunities such as joining online communities, event attendance and potential future projects.

There are already several EOSC DIH pilots developing innovative solutions and bringing them to market in different domains such as sport and biomedicine, cybersecurity, manufacturing, transport, agriculture or environment. More information about current pilot and success stories can be found here.

Speaker bio: https://www.linkedin.com/in/marcinplociennik/?originalSubdomain=uk

Most suitable track

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Presenter: PLOCIENNIK, Marcin (ICBP)

Session Classification: EOSC - Presentations

Track Classification: EOSC

Contribution ID: **97**   Type: **Presentation short (15 min)**

Running containers in advanced computing environments with udocker

Thursday, 21 October 2021 11:40 (15 minutes)

udocker is a tool to enable execution of Linux containers in user space. Distinctively from other tools, udocker is meant for easy deployment, and provides multiple execution engines to cope with different host environments. udocker does not require privileges and can execute containers with or without Linux namespaces making it suitable to execute containers across a wide range of Linux computing environments such as HPC resources.

Presenter: GOMES, Jorge (LIP)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **98** Type: **Presentation short (15 min)**

ssh-oidc at TUBITAK

Thursday, 21 October 2021 11:25 (15 minutes)

Hakan Bayindir (Male) is working as a senior researcher at TUBITAK ULAKBIM since 2006. He has worked in many European Projects such as EGI, EGI-InSpire, EOSC-hub, and EGI-ACE. He has many hats ranging from system administration to managing projects themselves and has experience in cluster and cloud system design & administration, high performance programming, development of simulation systems, and project management. He completed both FitSM Advanced Certifications, and currently oversees EGI-ACE project for TUBITAK ULAKBIM.

Most suitable track

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Presenter: BAYINDIR, Hakan (TUBITAK)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **99**   Type: **Presentation short (15 min)**

Experiences in integration with HPC @ INFN

Thursday, 21 October 2021 11:55 (15 minutes)

The talk will provide information about the activities going on at INFN to leverage some HPC compute clusters: Cineca, CNAF and ReCaS-Bari. There will be few details about which approach, solutions and technologies are used currently to include also HPC resources in the Compute Infrastructure used at INFN

Most suitable track

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Primary authors: DONVITO, Giacinto (INFN); BOCCALI, Tommaso (INFN)

Presenter: BOCCALI, Tommaso (INFN)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **100**   Type: **Presentation short (15 min)**

HPC benchmarking pilot

Thursday, 21 October 2021 12:10 (15 minutes)

This presentation will show progress on benchmarking, containerization, and investigations on data access performed over the past months to enable heterogeneous support for HEP workloads at HPC sites.

Most suitable track

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Presenter: SOUTHWICK, David

Session Classification: Innovating Services Together - Workshop

Contribution ID: **101** Type: **not specified**

EGI Check-in for the Federated Cloud

Tuesday, 19 October 2021 16:15 (15 minutes)

This session will provide an overview of the EGI Federation Registry tool that allows service providers to manage the connection of their OpenID Connect and SAML based services to Check-in, the authentication, authorisation and user management service for the EGI infrastructure. The EGI Federation Registry provides a web interface which covers the whole service lifecycle, including the initial registration, reconfiguration and deregistration of a service. Cloud resource owners can use the Federation Registry to connect their compute services to the EGI Check-in authentication and authorisation service in order to join the Federated Cloud as providers and enable research communities to access their resources.

Most suitable track

By submitting my abstract, I agree that my personal data is being stored in accordance to conference Privacy Policy

Primary authors: KOZADINOS, Andreas (GRNET); LIAMPOTIS, Nicolas (GRNET)

Presenters: KOZADINOS, Andreas (GRNET); LIAMPOTIS, Nicolas (GRNET); ARDIZZONE, Valeria (EGI.eu)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **102**   Type: **not specified**

Deploying virtual elastic clusters on the EGI Cloud Compute

Tuesday, 19 October 2021 16:30 (15 minutes)

In this presentation, we will introduce you EC3, a tool able to deploy virtual elastic clusters (i.e. Kubernetes or SLURM clusters, among others) on top of the EGI Cloud Compute. You will know more details about the tool, its main capabilities, its interfaces (both CLI and Web portal) and how to start using it. Don't miss the session!

Most suitable track

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Presenters: Dr CALATRAVA, Amanda (UPVLC); CABALLER, Miguel (UPVLC)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **103**   Type: **not specified**

Experience with commercial clouds in Science

Tuesday, 19 October 2021 16:45 (15 minutes)

T-Systems was able to collect various experience working with the science community through e.g. Helix Nebula, Indigo-Datacloud, Copernicus and currently the OCRE framework.
The presentation will share some interesting findings and lessons learned, what is required to make good use of and in which scenarios science can benefit from commercial clouds.

Most suitable track

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Presenter: MAR, DE LA, Jurry (T-Systems International GmbH)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **104**   Type: **not specified**

Towards an e-infrastructure for plant phenotyping

Tuesday, 19 October 2021 17:00 (15 minutes)

Various initiatives have helped to structure the european phenotyping landscape (EMPHASIS, EPPN) and enable researchers to use facilities, resources and services for plant phenotyping across Europe. Among these services there is a need to build a federated and interoperable e-infrastructure allowing researchers to share and analyze phenotyping data. The European Network Infrastructure (EGI) can greatly contribute to the deployment of such an e-infrastructure, as demonstrated by the EAP program.

Most suitable track

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Presenter: NEGRE, Vincent (INRA)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **105**　　　　　　　　　　　　　　　Type: **not specified**

Discussion

Tuesday, 19 October 2021 17:15 (15 minutes)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **106**　　　　　　　　　　　　　　　Type: **not specified**

Introduction to the workshop

Tuesday, 19 October 2021 11:15 (5 minutes)

Presenter: CAMPOS, Isabel (CSIC)

Session Classification: EOSC - Workshop

Contribution ID: **107**   Type: **not specified**

Keynote: 25 years of CESNET –history and future challenges (Helmut Sverenyák, CESNET)

Thursday, 21 October 2021 15:00 (30 minutes)

In this presentation Helmut will present the development and achievements of the CESNET from NREN to national e-infrastructure provider through the past 25 years.

Helmut Sverenyák, Research and Development Manager –has a Dipl. Ing. (1991) from the Faculty of Nuclear Sciences and Physical Engineering at the Czech Technical University in Prague. He joined CESNET in 1998 as a member of the Research and Development department. In 2004, he was made head of Research and Development, responsible for the coordination and support of R&D activities and projects managed by CESNET. In the period 2012–2014 Helmut was a member of TERENA Executive Committee. Since 2015 he has been the Vice Chair of the ELIXIR CZ (Czech national ELIXIR infrastructure node) board.

Most suitable track

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Presenter: SVERENYÁK, Helmut (CESNET)

Contribution ID: **108**   Type: **not specified**

EGI Federation looking forward: a summary of the Conference outcomes

Thursday, 21 October 2021 15:30 (30 minutes)

The EGI Conference gives the voice to research communities, technology and infrastructure providers to steer the evolution of scientific computing and the EGI Federation in Europe.
Gergely Sipos, Head of Services Solutions and Support at the EGI Foundation, will summarize the conference outcomes with the help of rapporteurs.

Most suitable track

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Presenter: SIPOS, Gergely (EGI.eu)

Contribution ID: **109**   Type: **not specified**

Closing ceremony

Thursday, 21 October 2021 16:00 (30 minutes)

Most suitable track

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Presenter: FERRARI, Tiziana (EGI.eu)

Contribution ID: **110**   Type: **not specified**

Welcome

Presenter: LA ROCCA, Giuseppe (EGI.eu)

Session Classification: EOSC Workshop

Contribution ID: **111**   Type: **Presentation short (15 min)**

OPENCoastS+ - moving from on-demand coastal circulation to water quality forecasts

Tuesday, 19 October 2021 11:20 (20 minutes)

Presenter: OLIVEIRA, Anabela (National Laboratory for Civil Engineers)

Session Classification: EOSC Workshop

Contribution ID: **112**   Type: **Presentation short (15 min)**

How AiiDAlab makes complex scientific workflows accessible and shareable

Tuesday, 19 October 2021 11:40 (20 minutes)

Presenter: Dr ADORF, Carl Simon (EPFL)

Session Classification: EOSC Workshop

Contribution ID: **113**
Type: **Presentation short (15 min)**

Status of the LOFAR radio-astronomy Thematic service

Tuesday, 19 October 2021 12:00 (20 minutes)

Speaker bio: https://www.linkedin.com/in/agnesmika/

Most suitable track

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Presenter: MIKA, Agnes (ASTRON)

Session Classification: EOSC Workshop

Contribution ID: **114**   Type: **Presentation short (15 min)**

WeNMR under EGI: A 10+ years happy symbiosis

Tuesday, 19 October 2021 12:20 (20 minutes)

Presenter: BONVIN, Alexandre (eNMR/WeNMR (via Dutch NGI))

Session Classification: EOSC Workshop

Contribution ID: **115**　　　　　　　　　　　　　　Type: **not specified**

Closing and wrap-up

Tuesday, 19 October 2021 12:40 (5 minutes)

Presenter:　LA ROCCA, Giuseppe (EGI.eu)

Session Classification:　EOSC Workshop

Contribution ID: **116** Type: **Presentation short (15 min)**

Intro

Presenter: MANZI, Andrea (EGI.eu)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **117**   Type: **not specified**

EGI Federation Tools and Services: ARGO Message and Monitoring Services

Wednesday, 20 October 2021 14:05 (15 minutes)

Most suitable track

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Presenters: KOUMANTAROS, Kostas (GRNET); ZAMANI, Themis (GRNET)

Session Classification: Delivering Services and Solutions

Contribution ID: **118**   Type: **not specified**

EGI Federation Tools and Services: Accounting portal

Wednesday, 20 October 2021 14:20 (10 minutes)

Most suitable track

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Presenter: ALVAREZ, Ivan (CESGA)

Session Classification: Delivering Services and Solutions

Contribution ID: **119**   Type: **not specified**

EGI Federation Tools and Services: Accounting repository / APEL

Wednesday, 20 October 2021 14:30 (10 minutes)

Most suitable track

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Presenter: COVENEY, Adrian (UKRI STFC)

Session Classification: Delivering Services and Solutions

Contribution ID: **120**   Type: **not specified**

EGI Federation Tools and Services: GGUS Helpdesk

Wednesday, 20 October 2021 14:40 (10 minutes)

Most suitable track

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Presenter: GREIN, Guenter (KIT-G)

Session Classification: Delivering Services and Solutions

Contribution ID: **121**   Type: **not specified**

EGI Federation Tools and Services: GOCDB

Wednesday, 20 October 2021 14:50 (10 minutes)

Most suitable track

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Presenter: CORBETT, Greg (STFC)

Session Classification: Delivering Services and Solutions

Contribution ID: **122**   Type: **not specified**

EGI Federation Tools and Services: Operations Portal

Wednesday, 20 October 2021 15:00 (10 minutes)

Most suitable track

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Presenter: LORPHELIN, Cyril (CNRS)

Session Classification: Delivering Services and Solutions

Contribution ID: **123**   Type: **not specified**

EGI Federation Tools and Services: Software Provisioning Infrastructure

Wednesday, 20 October 2021 15:10 (10 minutes)

João Pina [M], is a computing researcher at LIP. He has a Ph.D. in Physics with research work in the ATLAS detector at the CERN Large Hadron Collider (LHC). Currently, he is the responsible for the coordination of the EGI software stack and liaising between the several international development teams. In EGI he is the Regional Contact Point for the Iberian federation (IBERGRID) and National Infrastructure Liaison for Portugal.

Most suitable track

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Presenter: PINA, Joao (LIP)

Session Classification: Delivering Services and Solutions

Contribution ID: **124** Type: **Presentation short (15 min)**

EGI-ACE intro

Thursday, 21 October 2021 11:15 (10 minutes)

Most suitable track

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Primary author: MANZI, Andrea (EGI.eu)

Presenter: MANZI, Andrea (EGI.eu)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **125** Type: **not specified**

DataHub

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **126** Type: **not specified**

EGI DataHub/Onedata

Thursday, 21 October 2021 11:25 (13 minutes)

Most suitable track

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Primary author: DUTKA, Lukasz (CYFRONET)

Presenter: DUTKA, Lukasz (CYFRONET)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **127**   Type: **not specified**

EGI Data Transfer/FTS

Thursday, 21 October 2021 11:38 (13 minutes)

Most suitable track

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Primary author: COOPER, Rose (URKI-STFC)

Presenter: COOPER, Rose (URKI-STFC)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **129**   Type: **not specified**

Rucio

Thursday, 21 October 2021 11:51 (13 minutes)

Most suitable track

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Primary author: NOBLE, Tim (STFC)

Presenter: NOBLE, Tim (STFC)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **132**   Type: **not specified**

openRDM

Thursday, 21 October 2021 12:04 (13 minutes)

Most suitable track

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Primary author: BHOUMIK, Priyasma

Presenter: BHOUMIK, Priyasma

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **134**   Type: **not specified**

CVMFS

Thursday, 21 October 2021 12:17 (13 minutes)

Most suitable track

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Primary author: CABALLERO BEJAR, Jose (STFC)

Presenter: CABALLERO BEJAR, Jose (STFC)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **136**   Type: **not specified**

The Prominence Data Space

Thursday, 21 October 2021 12:30 (15 minutes)

Most suitable track

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Primary author: LAHIFF, Andrew (CCFE / UK Atomic Energy Authority)

Presenter: LAHIFF, Andrew (CCFE / UK Atomic Energy Authority)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **137**   Type: **not specified**

Increasing Quality and Capacity of Thematic Services in EOSC-SYNERGY

Tuesday, 19 October 2021 11:20 (20 minutes)

"Ignacio Blanquer is full professor in the Computer Systems department. Since 2015, he leads the Grid and High Performance Computing Research group and since 2019 he is the vice-director of the Institute of Instrumentation for Molecular Imaging. Ignacio Blanquer has participated in over 60 European and National projects, and he has been the coordinator of 3 European Projects in the area of cloud computing and data analysis. Ignacio Blanquer is the coordinator of the Spanish Network for e-Science and he serves as an expert to the General Secretary of Research in the Spanish Ministry of Science and Innovation.

He is the author and co-author of nearly 55 articles in indexed journals and over 100 publications in book chapters, non-indexed journals and international congress proceedings."

Most suitable track

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Presenter: BLANQUER, Ignacio (UPVLC)

Session Classification: EOSC - Workshop

Contribution ID: **138**   Type: **not specified**

Service Quality Assurance as a Service: Fostering Service Integration in EOSC

Tuesday, 19 October 2021 11:40 (10 minutes)

Speaker bio: https://www.lip.pt/?section=about&page=person-details&details&id=839

Most suitable track

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Presenter: BERNARDO, Samuel (LIP)

Session Classification: EOSC - Workshop

Contribution ID: **139**   Type: **not specified**

SQAaaS Web Demo: so simple that you can't miss it

Tuesday, 19 October 2021 11:50 (15 minutes)

Session Classification: EOSC - Workshop

Contribution ID: **140** Type: **not specified**

Invited presentation and discussion: EXPANDS use cases and quality approach

Tuesday, 19 October 2021 12:05 (25 minutes)

Presenter: FUHRMANN, Patrick (DESY)

Session Classification: EOSC - Workshop

Contribution ID: **141**   Type: **not specified**

Best practices in tutorials development: the EOSC-Synergy learning portal

Tuesday, 19 October 2021 12:30 (15 minutes)

Presenter: CLARE, Helen (JISC)

Session Classification: EOSC - Workshop

Contribution ID: **142** Type: **not specified**

EGI Data Transfer WG session intro

Wednesday, 20 October 2021 16:00 (10 minutes)

Most suitable track

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Primary author: MANZI, Andrea (EGI.eu)

Presenter: MANZI, Andrea (EGI.eu)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **143**   Type: **not specified**

Data Transfer in the Science Mesh - CS3MESH4EOSC

Wednesday, 20 October 2021 16:10 (15 minutes)

Most suitable track

By submitting my abstract, I agree that my personal data is being stored in accordance to conference Privacy Policy

Primary authors: PRINS, Antoon; TROMPERT, Ron (SURFsara BV)

Presenters: PRINS, Antoon; TROMPERT, Ron (SURFsara BV)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **144**   Type: **not specified**

Sharing Data while Keeping Data Ownership

Wednesday, 20 October 2021 16:25 (15 minutes)

The session is an introduction to the EUHubs4data project (https://euhubs4data.eu/), and presents one of the challenges data owners face when publishing their datasets, by being unable to safeguard, share or monetize their data. The session covers the solutions adopted in the project to address this challenge, and how an architecture based on the IDSA ecosystem empowers Digital Innovation Hubs (DIHs) to achieve a FAIR usage of their datasets. A short demo about how data from EGI DataHub can be published through an IDSA connector rounds up the session.

Most suitable track

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Primary author: FARKAS, Levente

Presenter: FARKAS, Levente

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: 145
Type: **not specified**

C-SCALE: Enabling Copernicus Big Data Analytics through EOSC –Vision and mission

Wednesday, 20 October 2021 16:00 (5 minutes)

Presenter: BRIESE, Christian (EODC)

Session Classification: Workshop

Contribution ID: **146**   Type: **not specified**

Chasing EO data around Europe

Wednesday, 20 October 2021 16:05 (20 minutes)

Presenter: SUSTR, Zdenek (CESNET)

Session Classification: Workshop

Contribution ID: **147**　　　　　　　　　　　　　　　　Type: **not specified**

Federating national resources to process trans-national data

Wednesday, 20 October 2021 16:25 (10 minutes)

Presenter: FERNANDEZ, Enol (EGI.eu)

Session Classification: Workshop

Contribution ID: **148**   Type: **not specified**

A new HPC and HTC federation for Earth Observation

Wednesday, 20 October 2021 16:35 (15 minutes)

Presenter: OONK, Raymond (SURFsara BV)

Session Classification: Workshop

Contribution ID: **149**   Type: **not specified**

On user-driven co-design: Approach and Challenges

Wednesday, 20 October 2021 16:50 (20 minutes)

Speaker bio: https://www.linkedin.com/in/backeb/

Most suitable track

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Presenter: BACKBERG, Björn (Deltares)

Session Classification: Workshop

Contribution ID: **150**   Type: **not specified**

Open Platforms for Digital Transformation of Earth Observation: Panel discussion

Wednesday, 20 October 2021 17:10 (20 minutes)

Session Classification: Workshop

Contribution ID: **151** Type: **not specified**

FTS development updates

Wednesday, 20 October 2021 16:40 (15 minutes)

Most suitable track

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Primary author: PATRASCOIU, Mihai (CERN)

Presenter: PATRASCOIU, Mihai (CERN)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **152** Type: **not specified**

HIFIS transfer service

Wednesday, 20 October 2021 16:55 (15 minutes)

Most suitable track

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Primary author: WETZEL, Tim

Presenter: WETZEL, Tim

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **153**
Type: **not specified**

What's New in Globus

Wednesday, 20 October 2021 17:10 (15 minutes)

Most suitable track

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Primary author: VASILIADIS, Vas (University of Chicago)

Presenter: VASILIADIS, Vas (University of Chicago)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **154** Type: **not specified**

DPM status and migration tools

Wednesday, 20 October 2021 14:00 (15 minutes)

Most suitable track

By submitting my abstract, I agree that my personal data is being stored in accordance to conference Privacy Policy

Primary author: Mr VOKAC, Peter

Presenter: Mr VOKAC, Peter

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: 155 Type: **not specified**

dCache evolution

Wednesday, 20 October 2021 14:15 (15 minutes)

Most suitable track

By submitting my abstract, I agree that my personal data is being stored in accordance to conference Privacy Policy

Primary author: MKRTCHYAN, Tigran (DESY)

Presenter: MKRTCHYAN, Tigran (DESY)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: 156　　　　　　　　　　　　　　　　　Type: **not specified**

EOS Open Storage for Science

Wednesday, 20 October 2021 14:30 (15 minutes)

Most suitable track

By submitting my abstract, I agree that my personal data is being stored in accordance to conference Privacy Policy

Primary authors: PETERS, Andreas Joachim (CERN); SINDRILARU, Elvin (CERN); MASCETTI, Luca (CERN)

Presenter: MASCETTI, Luca (CERN)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: 157 Type: **not specified**

StoRM

Wednesday, 20 October 2021 14:45 (15 minutes)

Most suitable track

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Primary author: VIANELLO, Enrico (INFN)

Presenter: VIANELLO, Enrico (INFN)

Session Classification: Delivering Services and Solutions - Presentations

Contribution ID: **158**   Type: **not specified**

Opening and Welcome

Tuesday, 19 October 2021 09:15 (15 minutes)

Presenter: VAN RIJN, Arjen (NIKHEF)

Contribution ID: **159** Type: **not specified**

EGI Technical Architecture and roadmap

Thursday, 21 October 2021 13:30 (15 minutes)

Presenters: SCARDACI, Diego (INFN); SCARDACI, Diego (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **160** Type: **not specified**

EGI Authentication and Authorisation Infrastructure

Thursday, 21 October 2021 13:45 (25 minutes)

Presenter: ARDIZZONE, Valeria (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **161** Type: **not specified**

EGI Compute Service

Thursday, 21 October 2021 14:10 (25 minutes)

Presenter: FERNANDEZ, Enol (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **162** Type: **not specified**

EGI Data Management Services

Thursday, 21 October 2021 14:35 (25 minutes)

Presenter: MANZI, Andrea (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **163**   Type: **not specified**

70 years of discoveries with the Italian Institute for Nuclear Physics. Interview with Prof. Antonio Zoccoli, INFN President

Wednesday, 20 October 2021 09:45 (15 minutes)

Prof. Antonio Zoccoli will walk us through 70 years of discoveries in Physics with INFN, the Italian National Institute of High Energy Physics, member of the EGI Federation. With Antonio we will learn how innovation in ICT from broadband communications to distributed computing have been key enablers of scientific excellence.

Most suitable track

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Presenter: FERRARI, Tiziana (EGI.eu)

Contribution ID: **164**   Type: **not specified**

EOSC Future Overview

Tuesday, 19 October 2021 16:00 (20 minutes)

Most suitable track

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Presenter: DEKKER, Ron (CESSDA)

Session Classification: EOSC - Workshop

Contribution ID: **165**   Type: **not specified**

EOSC Architecture - The EOSC Future Overview

Tuesday, 19 October 2021 16:20 (20 minutes)

Most suitable track

By submitting my abstract, I agree that my personal data is being stored in accordance to conference Privacy Policy

Presenters: SCARDACI, Diego (EGI.eu); WIERENGA, Klaas (GEANT)

Session Classification: EOSC - Workshop

Contribution ID: **166**   Type: **not specified**

EOSC Core: Current status and planned developments

Tuesday, 19 October 2021 16:40 (20 minutes)

Presenter: MANGHI, Paolo (Istituto di Scienza e Tecnologie dell'Informazione - CNR)

Session Classification: EOSC - Workshop

Contribution ID: **167**   Type: **not specified**

Onboarding to EOSC - Current status and planned evolution

Tuesday, 19 October 2021 17:00 (20 minutes)

Presenter: APPLETON, Owen (EGI.eu)

Session Classification: EOSC - Workshop

Contribution ID: **168** Type: **not specified**

Selected BMI Project: EGI Procurement

Thursday, 21 October 2021 14:00 (15 minutes)

Presenter: ANDREOZZI, Sergio (EGI.eu)

Session Classification: Envisioning the Future

Contribution ID: **169** Type: **not specified**

Session Intro and Overview

Thursday, 21 October 2021 13:30 (5 minutes)

Presenter: HOLSINGER, Sy (EGI.eu)

Session Classification: Envisioning the Future

Contribution ID: **170**   Type: **not specified**

Selected BMI Project: EGI Check-in (AAI)

Thursday, 21 October 2021 14:30 (15 minutes)

Presenter: ARDIZZONE, Valeria (EGI.eu)

Session Classification: Envisioning the Future

Contribution ID: **171**   Type: **not specified**

Selected BMI Pattern: Broker/Reseller

Thursday, 21 October 2021 14:15 (15 minutes)

Most suitable track

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Presenter: CRISTOFORI, Andrea

Session Classification: Envisioning the Future

Contribution ID: **172** Type: **not specified**

Q&A/New Ideas/Wrap-up

Thursday, 21 October 2021 14:45 (15 minutes)

Presenter: HOLSINGER, Sy (EGI.eu)

Session Classification: Envisioning the Future

Contribution ID: 173 Type: **not specified**

Session Intro and Overview

Tuesday, 19 October 2021 16:00 (5 minutes)

Presenter: CAUHE, Elisa (EGI.eu)

Session Classification: Innovating Services Together - Presentations

Contribution ID: **174**   Type: **not specified**

Selected EGI DIH Business Case: Mathworks

Tuesday, 19 October 2021 16:20 (10 minutes)

Presenter: CHAKRABARTI, Shubo (MathWorks)

Session Classification: Innovating Services Together - Presentations

Contribution ID: **175**　　　　　　　　　　　　　　Type: **not specified**

Selected DIH Business Case: Sixsq

Session Classification:　Innovating Services Together - Presentations

Contribution ID: **176**   Type: **not specified**

Business Pilots via Projects: EUH4D Pilot - ioT SESOD Binary Oy

Tuesday, 19 October 2021 16:30 (10 minutes)

Most suitable track

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Presenter: COSTIN, Andrei

Session Classification: Innovating Services Together - Presentations

Contribution ID: **177**   Type: **not specified**

Business Pilots via Projects: EOSC DIH Pilot supported by EGI-ACE - Trango

Tuesday, 19 October 2021 16:40 (10 minutes)

Most suitable track

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Presenter: RUBIA, Carlos

Session Classification: Innovating Services Together - Presentations

Contribution ID: **178**   Type: **not specified**

Business Pilots via Projects: EOSC DIH Pilot supported by EGI-ACE - DigiFarm

Session Classification: Innovating Services Together - Presentations

Contribution ID: **179** Type: **not specified**

Q&A Buffer + Summary Wrap-up

Tuesday, 19 October 2021 17:05 (25 minutes)

Presenter: CAUHE, Elisa (EGI.eu)

Session Classification: Innovating Services Together - Presentations

Contribution ID: **180**   Type: **not specified**

Session Two: Collaboration through GOSC

Friday, 22 October 2021 12:45 (1h 30m)

This session invites global digital Infrastructures and Cloud resources in different countries, regions, and continents including, ARDC (Australia), OSG(US), CSTCloud(China), MOSP(Malaysia), AOSP (Africa), in order to discuss potential collaborations. This will be an extension of EOSC discussion that is the main focus of the conference, and a unique opportunity to review the global open science infrastructure landscape, share experiences, and identify concrete collaborations.

Most suitable track

By submitting my abstract, I agree that my personal data is being stored in accordance to conference Privacy Policy

Presenters: DIETRICH, Mark (EGI.eu); Dr WALSH, Carmel; Dr ZHANG, Haiming; Dr GUO, Zuliang; Dr LIEW, CheeSun; Dr VAHED, Anwar; LIVNY, Miron (University of Wisconsin-Madison)

Session Classification: GOSC

Contribution ID: **181**   Type: **not specified**

Intro

Wednesday, 20 October 2021 11:15 (5 minutes)

Most suitable track

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Presenter: WILLEMS, Marieke (Trust-IT)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **182**
Type: **not specified**

Roadmap Data Driven Policy Cluster

Wednesday, 20 October 2021 11:20 (5 minutes)

Most suitable track

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Presenter: WILLEMS, Marieke (Trust-IT)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **183**   Type: **not specified**

PolicyCloud

Wednesday, 20 October 2021 11:25 (10 minutes)

The PolicyCloud project exploits the potential of digitisation, big data and cloud to improve the modelling, creation and implementation of policies. Delivering a unique, integrated environment of datasets, data management, and analytic tools it addresses the full lifecycle of policy management in four thematic-areas (radicalisation, food-value chain, city environment, city services),leveraging the data management capabilities of the EOSC Initiative. The Project empowers the Citizens to contribute to data and policies related to their everyday-life. The onboarding of these solutions in the EOSC Portal offers a great opportunity to reach a wide audience.

Presenter: MUNE, Ricard

Session Classification: Innovating Services Together - Workshop

Contribution ID: **184**   Type: **not specified**

Intelcomp

Wednesday, 20 October 2021 11:35 (10 minutes)

Intelcomp develops a Competitive Intelligence Cloud/HPC Platform for AI-based Science, Technology and Innovation Policy-Making. Multi-disciplinary teams will co-develop analytics services, Natural Language Processing pipelines and AI workflows,exploiting EOSC open data and resources, HPC environments and federated operations at the EU, national and regional level. Ensuring a cooperative environment,different actors visualize, interact and analyze information. Through co-creation, IntelComp will adopt a living labs approach, engaging public policy makers, academia, industry, SMEs, local actors and citizens to explore, experiment with and evaluate STI policies. IntelComp is targeting domains aligned with the European Agenda and the Horizon Europe Missions:AI, Climate Change and Health.

Presenter: CABELLO, Cecilia

Session Classification: Innovating Services Together - Workshop

Contribution ID: **185** Type: **not specified**

DUET

Wednesday, 20 October 2021 11:45 (10 minutes)

DUET (Digital Urban European Twins) is a EU initiative which leverages the advanced capabilities of cloud, sensor data and analytics in Digital Twins,to develop more democratic and effective public sector decision-making.DUET Digital Twins provide virtual city replicas which simplifies the understanding of complex interrelation between traffic, air quality, noise and other urban factors. Powerful analytics predict the impacts of potential change to make better evidence-based operational decisions and long-term policy choices.

Presenter: RAES, Lieven

Session Classification: Innovating Services Together - Workshop

Contribution ID: **186**   Type: **not specified**

DECIDO

Wednesday, 20 October 2021 11:55 (10 minutes)

Decido project(eviDEnce and Cloud for more InformeD and effective pOlicies) aims to boost the use of EOSC by Public Authorities enabling innovation in the policy-making sector allowing cross-support and cross-collaboration,using secure compute and data intensive services. Decido involves citizens and local communities through co-creation activities for better targeted policies.

Presenter: FILOGRANA, Antonio

Session Classification: Innovating Services Together - Workshop

Contribution ID: **187** Type: **not specified**

AI4PublicPolicy

Wednesday, 20 October 2021 12:05 (10 minutes)

AI4PP (AI for Public Policy) is a joint effort of policy makers and Cloud/AI experts to unveil AI's potential for automated,transparent and citizen-centric development of public policies. The project will deliver,validate and promote the AI4PublicPolicy Platform,offering innovative policy management on unique AI technologies. The AI4PublicPolicy Virtualized Policy Management Environment(VPME) integrated with EOSC facilitates access to the Cloud and HPC resources required to enable the project's AI tools and to a wider use of the project's developments.

Presenter: AMICONE, Alessandro

Session Classification: Innovating Services Together - Workshop

Contribution ID: **188**   Type: **not specified**

Panel: Connection to EOSC

Wednesday, 20 October 2021 12:15 (25 minutes)

Presenters: CRISTOFORI, Andrea;   DEKKER, Ron (CESSDA)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **189**	Type: **not specified**

Wrap up

Wednesday, 20 October 2021 12:40 (5 minutes)

Presenter:	WILLEMS, Marieke (Trust-IT)

Session Classification:	Innovating Services Together - Workshop

Contribution ID: **190** Type: **not specified**

DIRAC Interware Project Status

Thursday, 21 October 2021 13:30 (20 minutes)

The DIRAC Interware Project provides a software framework and develops ready to use components to build distributed computing systems of arbitrary complexity. The solution is universal and covers both workload and data management tasks. The Project was originally developed for LHCb −one of the 4 experiments at the LHC collider which stays its principal user. Therefore, a special care is taken to ensure massive operations with user computational tasks and data.

In this contribution we will give an overview of the Project, its main components and interfaces. We will present recent updates of the DIRAC software such as migration to Python3, new service APIs, software deployment, support for new authentication and authorization frameworks and other topics. We will focus on practical aspects to help users in finding the most efficient way interaction with the DIRAC services provided by the EGI infrastructure.

Presenter: TSAREGORODTSEV, Andrei (CNRS)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **191**   Type: **not specified**

EGI Workload Manager service

Thursday, 21 October 2021 13:50 (15 minutes)

The EGI Grid Infrastructure Workload Manager Service (EGI-WMS) is based on the DIRAC Interware distributed computing framework. It allows, through pilot jobs, to provide diverse scientific communities with a generic access to heterogeneous computing and storage resources.

This presentation will describe the service platform and the hosting site migration that was performed at the beginning of the EGI-ACE project (during 2021-Q1) and the resulting changes for the user communities. We will then briefly explain how a new user may start submitting jobs on the WMS, and finally some use cases will be described giving some examples of the different computing models managed and specific workflow needs satisfied by the service.

Presenter: MARCHETTI, Gino (CNRS / CC-IN2P3)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **192**　　　　　　　　　　　　　　　　　　　　Type: **not specified**

WeNMR project: boosting structural biology research with DIRAC services

Thursday, 21 October 2021 14:05 (15 minutes)

The WeNMR Collaboration is a virtual research community which brings together several research teams in structural biology providing a common platform for data analysis and modelling. WeNMR is one of the most active users of the EGI Workload Manager service. User tasks prepared by the WeNMR application portals are submitted to the Workload Manager service which then dispatches them to the currently available grid sites. The pilot job based workload scheduling architecture allows to easily add new resources transparently for the users. It also makes it easy to apply usage policies by defining fine grained priorities to certain activities.

In this contribution we will describe how the WeNMR application portals are interfaced to the DIRAC services and provide examples of usage including allocation and accounting of resources for the COVID'19 related studies.

Presenter: BONVIN, Alexandre (eNMR/WeNMR (via Dutch NGI))

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **193**   Type: **not specified**

Biomedical community accessing grid resources via the EGI Workload Manager

Thursday, 21 October 2021 14:20 (15 minutes)

The biomed Virtual Organization (VO) is a large scale international and multi-disciplinary VO supporting communities from the Life Sciences sector, with three main thematic groups: medical image analysis, bioinformatics and drug discovery. The VO is operated on the EGI infrastructure and supported by more than 50 sites, delivering access to a large number of heterogeneous resources.

The Virtual Imaging Platform (VIP, https://vip.creatis.insa-lyon.fr/) is a web portal enabling biomed researchers worldwide to access multiple applications, as well as important amounts of storage and computing simply through their web browser. VIP relies on Dirac for both job submission and data management on EGI biomed resources. VIP currently counts more than 1300 registered users, some 20 applications and 61 publications with results computed with VIP since 2011.

Based on our experience, we will present the Virtual Imaging Platform, one of its latest success stories and the way it is interfaced with Dirac and EGI.

Presenters: BONNET, Axel (CNRS); POP, Sorina (CNRS)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **194**   Type: **not specified**

Demonstration, Question and Answers

Thursday, 21 October 2021 14:35 (25 minutes)

In this contribution we will make a demonstration of typical user tasks when working with the EGI Workload Manager service. This is an interactive session when all the necessary explanations will be given and user's questions will be answered.

Presenter: TSAREGORODTSEV, Andrei (CNRS)

Session Classification: Delivering Services and Solutions - Workshop

Contribution ID: **195**
Type: **not specified**

Common Approach to Data Ecosystems and Data Spaces

Wednesday, 20 October 2021 11:15 (30 minutes)

Presenter: DIETRICH, Mark (EGI.eu)

Session Classification: Collaboration accross Boundaries - Workshop

Contribution ID: **196** Type: **not specified**

The IS-ENES use case

Wednesday, 20 October 2021 11:45 (20 minutes)

Most suitable track

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Presenter: PAGE, Christian (CERFACS)

Session Classification: Collaboration accross Boundaries - Workshop

Contribution ID: **197** Type: **not specified**

The GBIF use case

Wednesday, 20 October 2021 12:05 (20 minutes)

Presenter: FIGUEIRA, Rui (ULISBOA)

Session Classification: Collaboration accross Boundaries - Workshop

Contribution ID: **198**   Type: **not specified**

The SeaDataNet use case

Wednesday, 20 October 2021 12:25 (20 minutes)

Most suitable track

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Presenter: SCHAAP, Dick (Mariene Informatie Service MARIS BV)

Session Classification: Collaboration accross Boundaries - Workshop

Contribution ID: **199**
Type: **not specified**

The strategic landscape for EGI services

Presenter: APPLETON, Owen (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **200**

Type: **not specified**

Community Services from EGI-ACE and Beyond

Thursday, 21 October 2021 11:30 (20 minutes)

Introducing the wider services from the EGI federation being drawn into the broader EGI Portfolio

Presenter: SIPOS, Gergely (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **201**   Type: **not specified**

Introduction to the Strategic Objectives and breakouts

Thursday, 21 October 2021 11:50 (10 minutes)

Introducing the new Service Strategy draft and the breakouts

Presenter: ANDREOZZI, Sergio (EGI.eu)

Session Classification: Innovating Services Together - Workshop

Contribution ID: **202**   Type: **not specified**

Breakout sessions

Thursday, 21 October 2021 12:00 (25 minutes)

There will be 4 breakout sessions to discuss 4 draft strategic objectives for the EGI Service Strategy.

Breakout session 1:
Facilitator: Gergely Sipos
SO1: Federate and deliver a compute continuum from edge, through cloud and cluster to HPC together

Breakout session 2:
Facilitator: Mark Dietrich
SO2: Implement and deliver research 'Data Spaces'as a joint effort with Research Infrastructures

Breaksession 3:
Facilitator: Ville Tenhunen
SO3: Make the EGI platform AI/ML-ready and lower barriers to entry for researcher using AI/ML

Breakout session 4:
Facilitator: Owen Appleton
SO4: Deliver a federated trusted computing platform for sensitive data

After a short introduction to the SO, participants will have the opportunity to provide feedback in a collaborative way using Mural.

Most suitable track

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Presenters: SIPOS, Gergely (EGI.eu); DIETRICH, Mark (EGI.eu); APPLETON, Owen (EGI.eu); AN-DREOZZI, Sergio (EGI.eu); TENHUNEN, Ville

Session Classification: Innovating Services Together - Workshop

Contribution ID: **203**   Type: **not specified**

Open Discussion: changes and additions to strategic objectives

Thursday, 21 October 2021 12:25 (20 minutes)

Presenter: APPLETON, Owen (EGI.eu)

Session Classification: Innovating Services Together - Workshop