Why Cloud Services?

European Commission promotes

➢ Digital Economy for Research

➢ Consume not Build (where possible)

➢ IaaS/PaaS underpins e-Infra services

➢ Sustainable EOSC (Core)

➢ Develop Startups and SMEs

Green Compute Europe

Fewer Data Centers (energy consumption)

❖ Rate of Innovation (accelerating in Cloud)

❖ HPC supplementation (hyperscale compute)

❖ FAIR data (metadata creation and cold storage)

❖ EOSC White Labeled Commercial Services

Bespoke, enhanced **Compute** *and* **Storage** *solutions*

Everything consumable

NREN

SD-WAN

Commercial

5G   6G

2028

GÉANT

OCRE – GÉANT cloud services

- ✓ Catalogue of Cloud and Digital Services
- ✓ **Call-off contract under local law**
- ✓ In-country relationships with R&E market
- ✓ Provide access to call-off agreements ***
- ✓ **UNPRECEDENTED** aggregated pricing and **Global** concessions
- ✓ Host agreed upon supplier training
- ✓ **Reporting on local consumption trends**
- ✓ **Drive strategy and relevance**

* https://www.ocre-project.eu/services/cloud-suppliers

NO institute should **ever** run their own tenders ***

> - Market response to tender – 1100 bids
> - Result - 473 cloud contracts across 40 lots
> - 37 cloud platforms represented
> - Minimum of 9 platforms per country
> - Maximum 17 platforms per country
> - **GN4-3 WP4/CMG contract management**

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€100 Million
Anticipated growth
+120% YoY

40 NRENS (countries)
10,000 Institutes

OCRE – Adoption funding

Healthcare

The **University of Antwerp**'s Human Molecular Genetics (HMG) research group was successfully funded, and will use the OCRE cloud resources for genetic analysis and data storage. Their specific research is on newly identified biomarkers for diseases (such as forms of cancer) which can be detected through simple blood tests, and analysed to understand progression and responses to various treatments.

University of Burgundy has been funded for their project working to build a training solution for health professionals and students in the Metaverse, accessed either with VR technology or simply with a headset and device.

The **Università di Padova** along with the **Università Svizzera Italiana** have been funded in their project to study federated machine learning cloud systems for precision medicine/healthcare, by developing and implementing large-scale federated deep learning models that can be trained and deployed on high-performance cloud systems.

Princess Máxima Center for Pediatric Oncology has been funded in their project to use cloud services to create a Comprehensive Childhood Cancer Commons, harmonised data collection of childhood cancer genomes and perform state-of-the-art data analyses to support innovations in childhood cancer research, diagnostics and treatment.

Virtual Aorta by the **University of Galway** has been successfully funded which will develop patient-specific in silico test beds for aortic aneurysm and dissection to facilitate advanced diagnostics and accelerate the development of new therapeutics and medical devices.

Predictive Algorithms for Detection of Intimate Partner Violence (IPV) in the Healthcare System by **CESPU** has been funded. It will develop a predictive model for IPV based on latent risk factors that may exist in electronic health records regularly produced by healthcare professionals during routine care.

The **CODALIFE** project by **Cork University Maternity Hospital** (CUMH) and the **Coombe Women's Hospital** in Dublin has been funded and aims to bring radical improvement in clinical decision-making about the stabilisation of preterm babies by

Environment

Another funded project from the **National University of Ireland** is **StreamAIR**, which will upscale a Air Pollution monitoring application, moving it to cloud to solve architectural and scaling challenges, and allowing it to add new features only made possible by cloud, such as climate change-oriented models or even to add metrics covering air quality from volcanic ash clouds or indeed the air quality impact of geopolitical current events.

MATS_CLOUD project from a collaboration between **University of Twente** (The Netherlands), **University of Oslo** (Norway), and **EURAC Research** (Italy), funded by OCRE to map annual global glacier inventories and surface types, to better understand the impacts of climate change.

Digital Technologies

The **iCANDID** project from the **Katholieke Universiteit Leuven** has received OCRE Adoption funding to develop a FAIR (Findable, Accessible, Interoperable Reusable) data hub for the Social Sciences and Humanities to assist researchers in the otherwise tedious and time-consuming data collection- and preprocessing process.

Computer Laboratory of Burgundy has been funded for their project **DEEP LEARNING for GRAPHS** which aims to automate the use of semantic content to make it accessible without further processing. This would make it possible to interact in natural language with content in multiple languages, while querying it in natural language and obtaining answers of a quality equivalent to their sources.

The **Università di Padova** along with the **Università Svizzera Italiana** have also successfully been funded for a second project with a different research team focusing on a Machine Learning paradigm called Incremental Learning, or more specifically a subclass of this called Lifelong Learning, which allows the model to continuously adapt while still remembering previously learned tasks.

€9.5M

EOSC - Service distribution

Funding to be used to build and test service delivery chains from supplier to end user -

- EOSC as underwriter (direct delivery model)
  - o Service consumption through service aggregators like NRENs, GÉANT, EGI, EUDAT, ERICs etc ***.
  - o Easier access to commodity services (1 million compute hours, 1 PB long term storage etc.) and subscription-based datasets

- EOSC as referrer (indirect delivery model, institution contracts with supplier for service procured by EOSC)

- Funding made available using single purpose vouchers

- Funding allocation based on value for testing service delivery chain and impact of commercial services on research

- Calls for project proposals from both research projects and suppliers (mini-competitions)

*** COLLABORATION

https://marketplace.eosc-portal.eu/services?object_id=&type=&anchor=&sort=_score&q=OCRE

EUROPEAN OPEN SCIENCE CLOUD

GÉANT
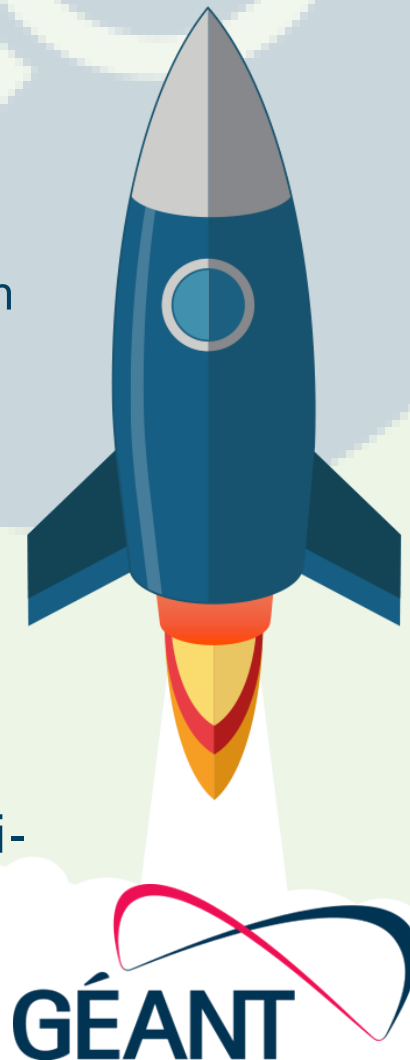
NREN Support Services

Compliance
- ✓ Assistance with verification of service
- ✓ Support of regional/national regulations and data sovereignty
- ✓ In-country support and call-off

Networks
- ❖ Peering POPs with service provider/platform
- ❖ Data routing analysis (latency)
- ❖ Data Ingress/Egress negotiation (WAIVER)

Trust, Identity and Security –

All solutions support SAML2/OIDC protocol?
eduGAIN onboarding (GÉANT federation)
Supplier/NREN SOCs – threat surveillance and response

Community Support
- ➤ Training and webinars
- ➤ Procurement frameworks (Commercial)
- ➤ **Best pricing**
- ➤ Contract management

Cloud Workshop

GÉANT/AC3 Support

- Market engagement
- Tender/Contract doc
- Global T&Cs R&E
- Security/Sovereignty

GÉANT