



# DFN-Cloud and Research DevOps

GFZ Research Software Meet-up | September 14, 2022

Dr. Jakob Tendel



# Open Clouds for Research Environments

- Research computing at scale **benefits of public cloud**

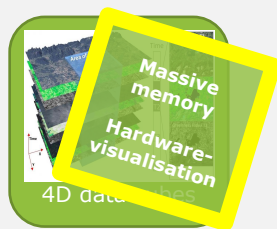


# Open Clouds for Research Environments

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## ► Benefits of public clouds

**Wait, there's more.**



**Flexibility  
Elasticity  
On-demand**

**AI integration**

**Time/cost-  
effectiveness  
Time to publish**

**Diverse  
pre-configured  
data science  
environments  
Open Source  
distros**



# Why Cloud-based 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 Regional Compute

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





Geospatial platform



EOxHub



Data analytics



EO based mapping & monitoring



detect more.

Shoreline Mapping

**Lobelia.**

Coastal Change Monitoring



AI4GEO Engine



agCelerant

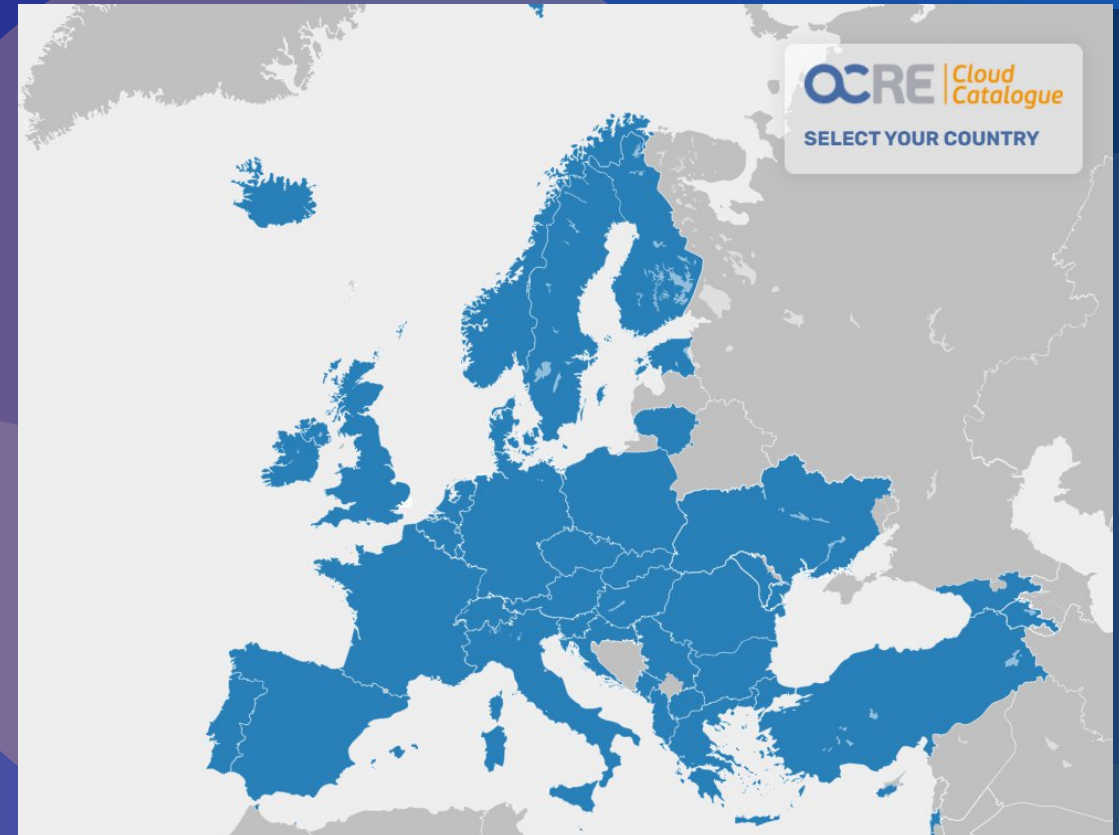


## GÉANT and the NRENS

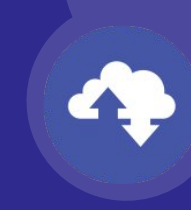
- ☐ Catalogue of Cloud and Digital Services
- ☐ Develop relationships with market in-country
- ☐ **Provide access to call-off agreements \*\*\***
- ☐ Support local cloud forums
- ☐ Evangelize services via conferences
- ☐ Host agreed upon supplier training
- ☐ Communicate funding calls for institutes
- ☐ Provide support for local buyer groups
- ☐ **Report on local consumption trends**
- ☐ **Drive strategy and relevance**

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

**OCRE** | Open Clouds  
for Research  
Environments

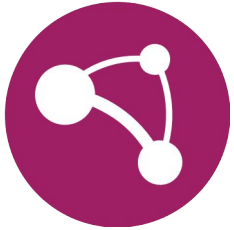






## Compliance

- ✓ Platform tested using HNSciCloud workload
- ✓ All suppliers bound by GDPR regulations
- ✓ In-country support and call-off



## Networks

- ❖ Peering POPs under review (GÉANT)
- ❖ Data ingress/egress waivers in place
- ❖ Cloud Interconnect/Expressroute/Direct Connect



## Trust, Identity and Security –

All platforms support SAML2/OIDC protocol  
eduGAIN onboarding (GÉANT federation)  
Supplier SOC's – threat surveillance and response

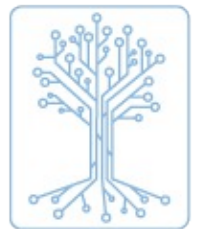


## Community support

- 3 annual supplier workshop commitment
- Additional discounting
- GÉANT WP4/CMG support



green  
computing

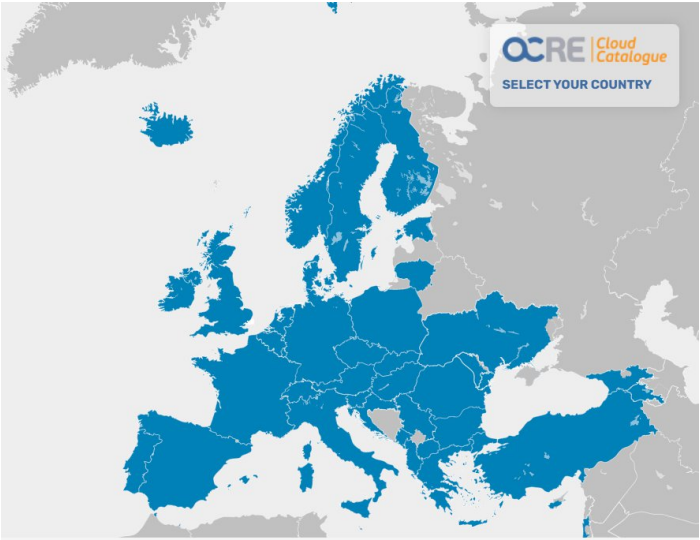


GAIA-X

agility  
SLA

# DFN-Cloud: OCRE Services

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| IaaS                        | PaaS                  | SaaS                  |
|-----------------------------|-----------------------|-----------------------|
| Infrastructure as a Service | Platform as a Service | Software as a Service |
| Anwendung                   | Anwendung             | Anwendung             |
| Daten                       | Daten                 | Daten                 |
| Laufzeitumgebung            | Laufzeitumgebung      | Laufzeitumgebung      |
| Middleware                  | Middleware            | Middleware            |
| Betriebssystem              | Betriebssystem        | Betriebssystem        |
| Virtualisierung             | Virtualisierung       | Virtualisierung       |
| Server                      | Server                | Server                |
| Speicher                    | Speicher              | Speicher              |
| Netzwerk                    | Netzwerk              | Netzwerk              |

Lurch den **Kunden** vs **Anbieter** verwaltet für seine Kunden.

|              |                |            |             |
|--------------|----------------|------------|-------------|
|              |                |            |             |
| OVHcloud     | Logicalis      | VSHN       | CloudFerro  |
|              |                |            |             |
| Safespring   | Sparkle        | Proact     | SoftwareONE |
|              |                |            |             |
| Orange       | T-Systems      | Bechtle    | Bechtle     |
|              |                |            |             |
| City Network | Cloud and Heat | CloudSigma | Rackspace   |
|              |                |            |             |
| Setcor       | x-ion          |            |             |

Publicly  
procured

Compliant

Framework  
Contracts



# FYI

## OCRE cloud information

- ▶ Success stories (growing)
  - ▶ <https://www.ocre-project.eu/success-story>
- ▶ EO Services
  - ▶ <https://www.ocre-project.eu/eo-catalogue>
- ▶ Cloud Catalogue
  - ▶ <https://www.ocre-project.eu/services/cloud-suppliers>
- ▶ Institutional purchasing (infrastructure cloud)
  - ▶ <https://dfn.de/dienste/cloud/>

## Other community services

- ▶ eduGAIN / DFN-AAI
  - ▶ Identity federation
  - ▶ <https://edugain.org/> | [aai@dfn.de](mailto:aai@dfn.de)
- ▶ eduTEAMS
  - ▶ Managing virtual teams made easy
  - ▶ <https://eduteams.org/>
- ▶ FileSender
  - ▶ Send large files securely
  - ▶ <https://filesender.org/>
- ▶ GÉANT Cloud Flow
  - ▶ Containerised workflow autom. Software
  - ▶ <https://clouds.geant.org/community-cloud/>

# Any Questions?

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## ► Contact

### ► Jakob Tendel

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