Session on Procurement and financial schemes of digital services for research

1. Andres Steijaert (GEANT)
   Clouds on the ground - making clouds accessible through pan-European framework agreements
2. Garvan McFeeley (HEAnet)
   Case study: GEANT IaaS procurer
3. Dario Vianello (EMBL-EBI)
   Case study: procurer from the HNSciCloud project
4. Marc-Elian Begin (SixSq)
   Case study: SME cloud service provider in HNSciCloud PCP - *via video*
5. Jurry de la Mar (T-Systems)
   Case study: cloud service provider in GEANT IaaS and HNSciCloud PCP
6. Bob Jones (CERN)
   Cross-border procurement of e-Infrastructure services: Opportunities, Barriers, Use cases, Best Practices (based on the study supported by the EGI-Engage project)

CLOUD ON THE GROUND

Making cloud services accessible through pan-European framework agreements

Andres Steijaert

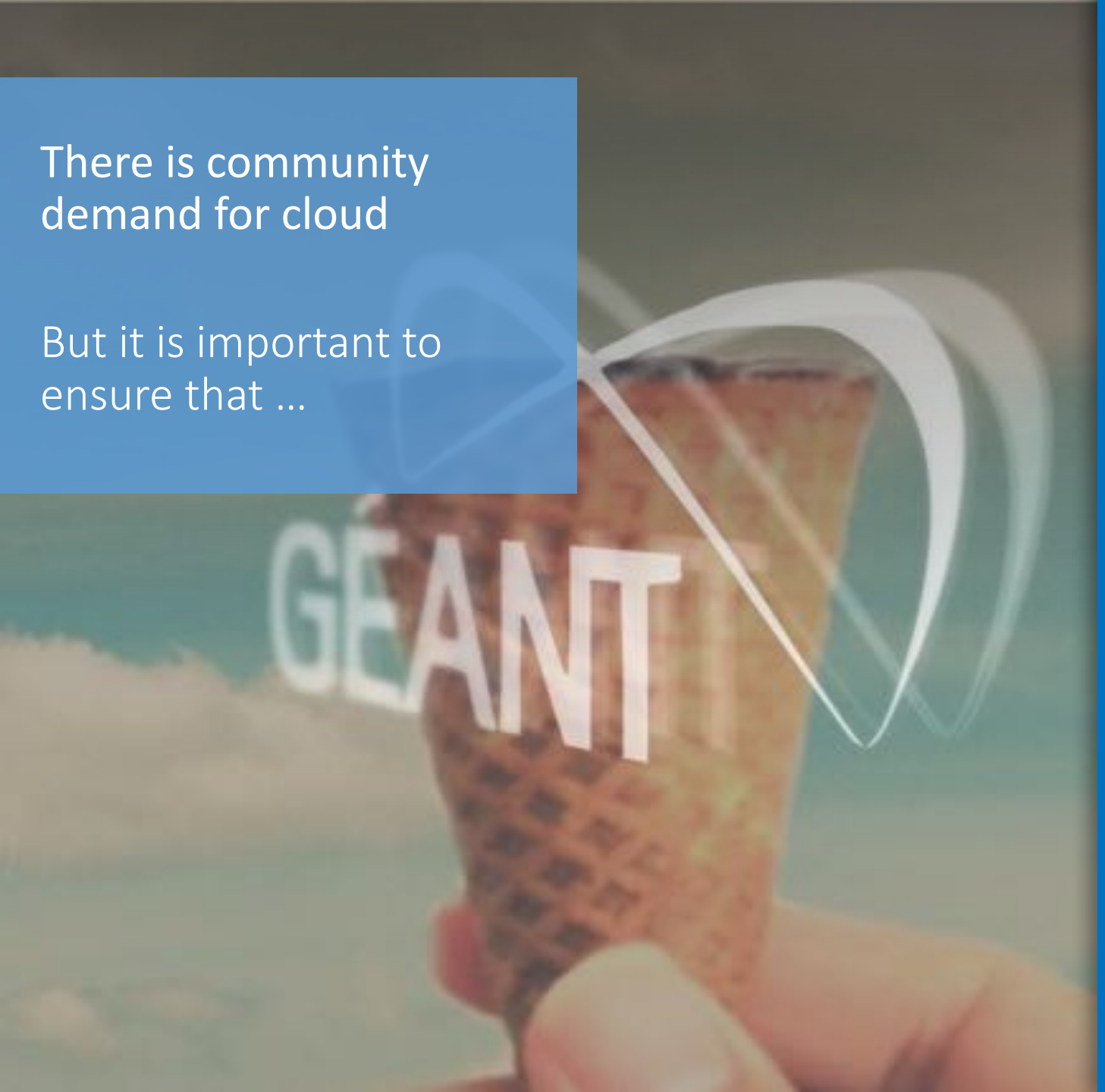
SURFnet
GÉANT cloud activity leader

Garvan McFeeley

HEAnet
Brokerage service manager

https://www.chriswatterston.com/blog/my-there-no-cloud-sticker

TO CLOUD OR NOT TO CLOUD? THAT IS THE QUESTION



There is community demand for cloud

But it is important to ensure that …

GET IN

Assure data is handled safely and meets European and national regulations

Acquire and use services through the institutions' structures:

- Affordable and predictable cost and purchasing models (prevent bill shock)
- Limit network traffic costs and provide network integration
- Log in with institutional account

GET OUT

Be able to move data (to another provider)

CLOUD SERVICES

Users are choosers

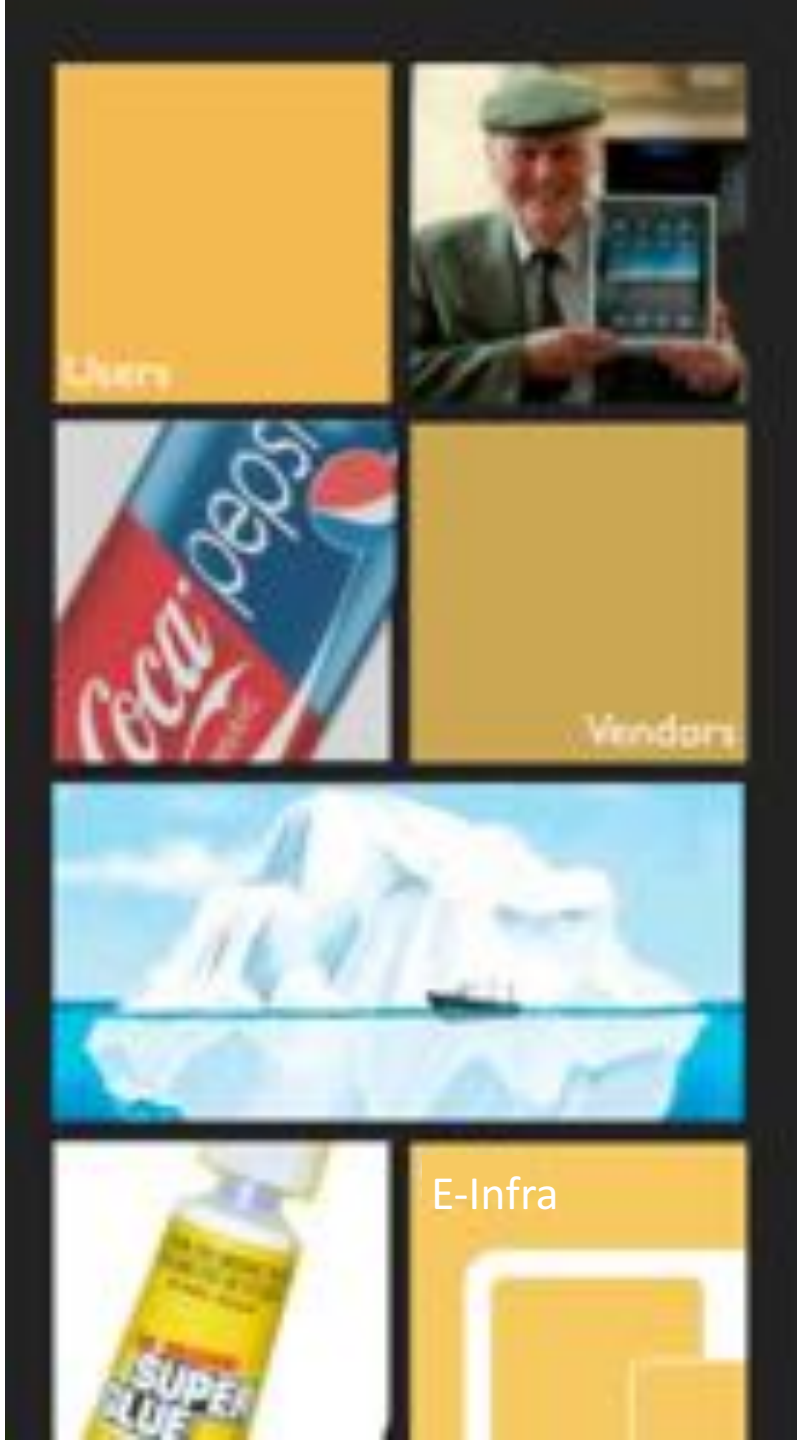
What do we

CONSUME from others

PRODUCE ourselves

INTEGRATE with our infrastructure

Hybrid multi-cloud



40 European
National Research and Education Networks (NRENs)

Collaborate in their European association GÉANT:
Network, Identity Management, Clouds

Deliver to 10.000 organisations with 50 million users

Collective hybrid multi-cloud approach

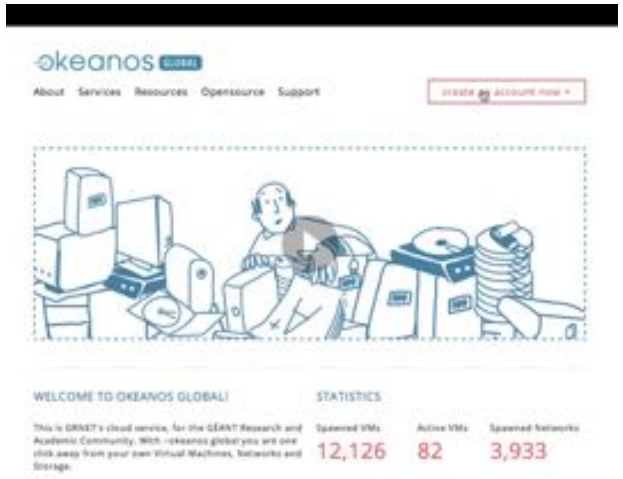
- Public clouds: procure from commercial suppliers
- Community clouds: build and operate sector specific solutions

Together, establish right conditions of use:
services that are safe and easy to use,
accessible, affordable and interoperable

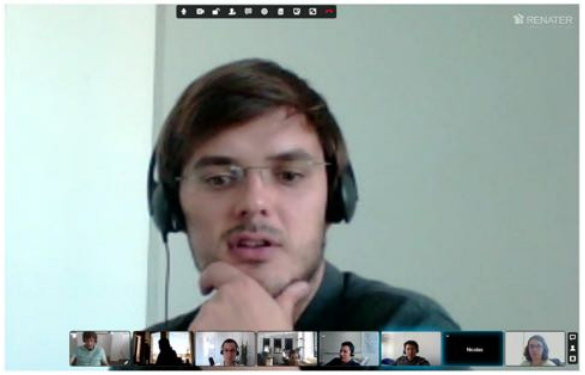
1 digital single market
with many cloud services

Scale up national community cloud solutions to a European level

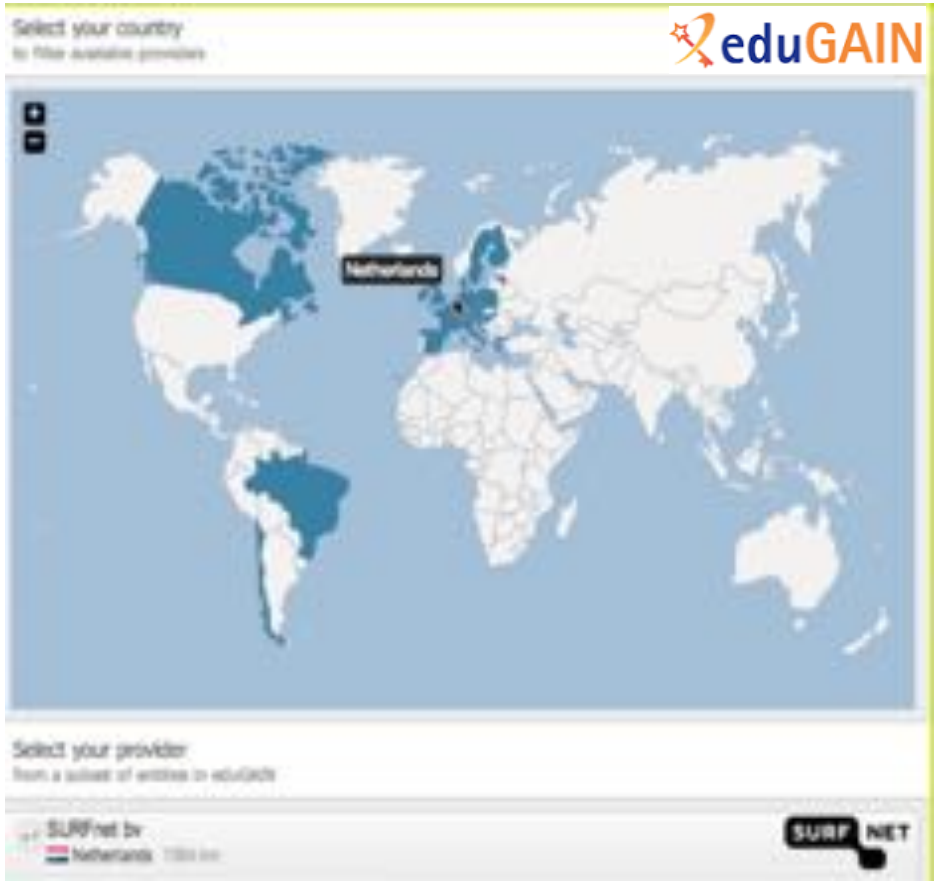
Greek IaaS cloud
built and operated by GRNET



French web conferencing service
built and operated by RENATER



Accessible by whole
European Research and Education community
Single sign-on
Log-in with institutional account



Infrastructure as a Service (IaaS) in high demand

Pan-European tender, conducted in 2016

Through GÉANT
as cross-border, central purchasing body

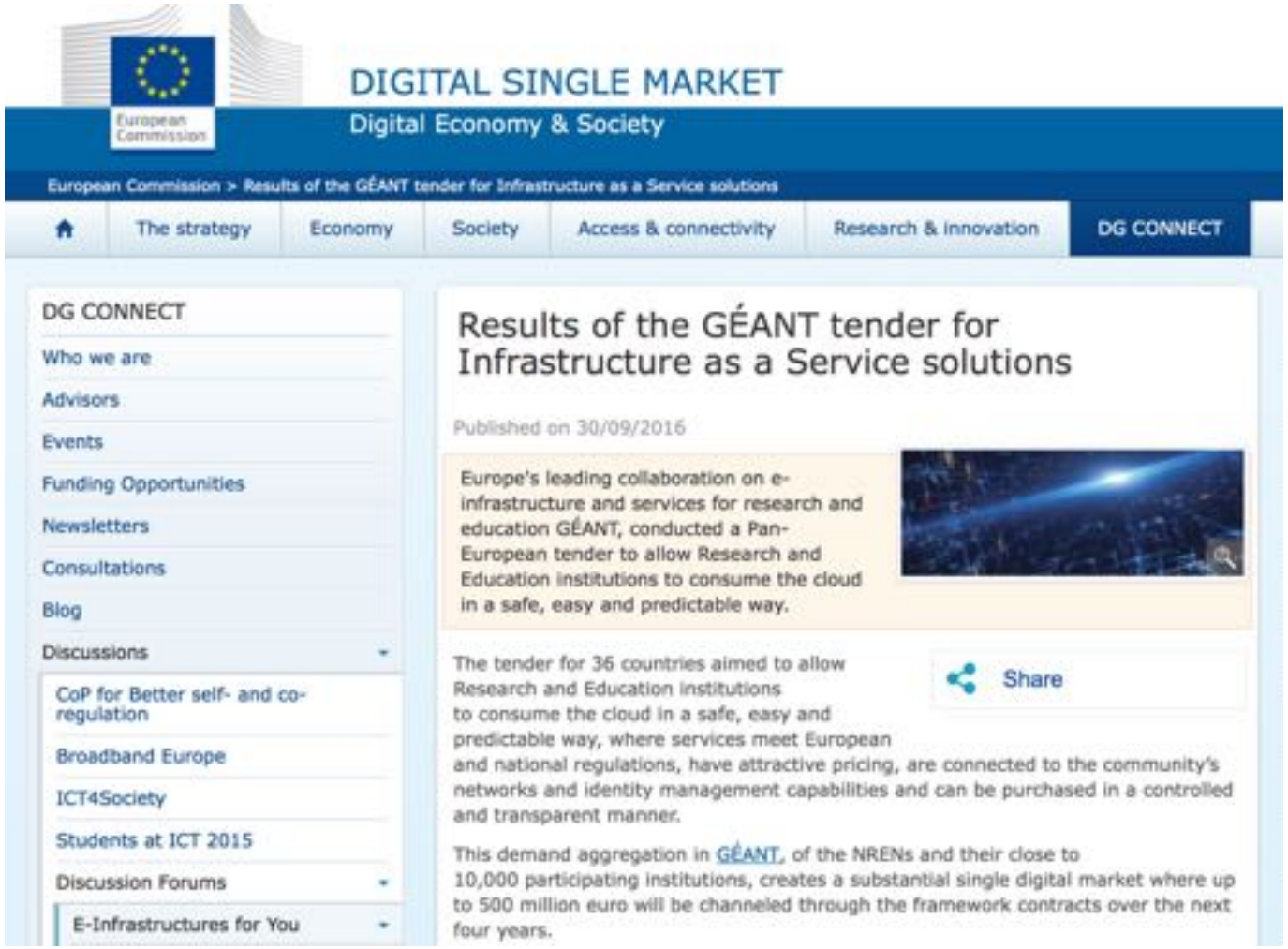
GÉANT –> member NRENs –> member institutions

Using EC Procurement Directive (2014/24/EU)

Results: framework agreements
with suitable suppliers

- Not winner takes all,
  but provide choice
- 11 different IaaS solutions,
  over 20 providers
- 4 year framework agreements
  starting January 2017

NRENs bring the agreements
to institutions for consumption



Adoption and service support.
Strategic collaboration.

Network: No data traffic charges.
Connect to GÉANT and NRENs networks over public IP.
Direct connect to institutions, Layer 2 point-to-point connections.

Exit support.
Data portability.

Identity Management: SAML2 and eduGAIN.

Compliance with EU Data Security Directives.
Ability to offer IaaS from inside the EC / EEA.

General security policies.
Handling of sensitive data (including public health or military research).
Certifications.

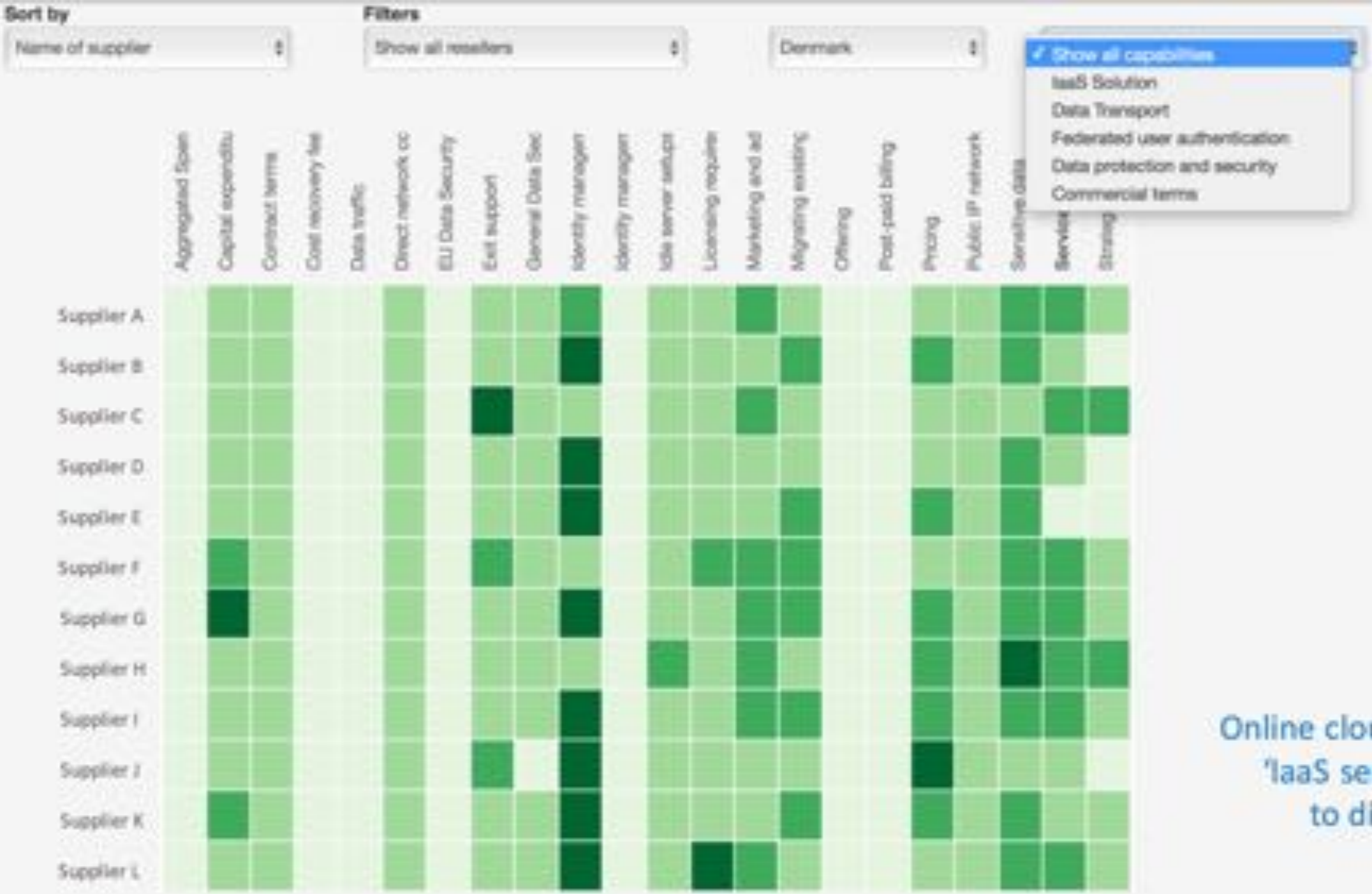
Admin management portal.
Customer self service portal.
Order placement, reporting and group management.

Volume discount (initial discount and additional tiered discounted pricing). No price increase.
Purchase order and post-paid billing.
Recognising aggregated spending, combined for all participating institutions.
Accommodating capital expenditure (upfront commitment).

Mechanisms to reduce costs for underutilised (or paused) cloud resources.
Support for Bring Your Own License (use existing educational licenses).
Migration of existing contracts.

API support.

IaaS Framework Agreements



Online cloud catalogue
'IaaS service matrix'
to display results

EU Data Securith
General Data Soc
Sensitive data
Arcus Global
Atea
CloudSigma
Comparex (MS)
Comparex (AWS)
Dimension Data
Infosoft Systems
Intercoute
Micromail
NTT Europe
SoftwareONE
com Italia (AWS)

AC8 – General Data Security (Awarding Criteria)

R. Providers need to ensure secure, reliable and a legally compliant treatment of customer's data.

Q. Please describe in detail the policies and processes to ensure data security and data privacy in relation to the proposed services.

Response Guidance

- "Describe mechanisms to protect data at rest and in transit. "
- *Describe how customer data transiting networks (Internet, inside your network, connection to 3rd parties) is protected against tampering and eavesdropping (e.g. network protection, use of*

How to use the available services?
Call-offs

OPTION 1

Use as is, via a
Direct award
default terms and conditions

Use the conditions as established via the GÉANT tender (no 'customisation')

Pick the supplier of your choice
Sign the call-off agreement
Use the service

OPTION 2

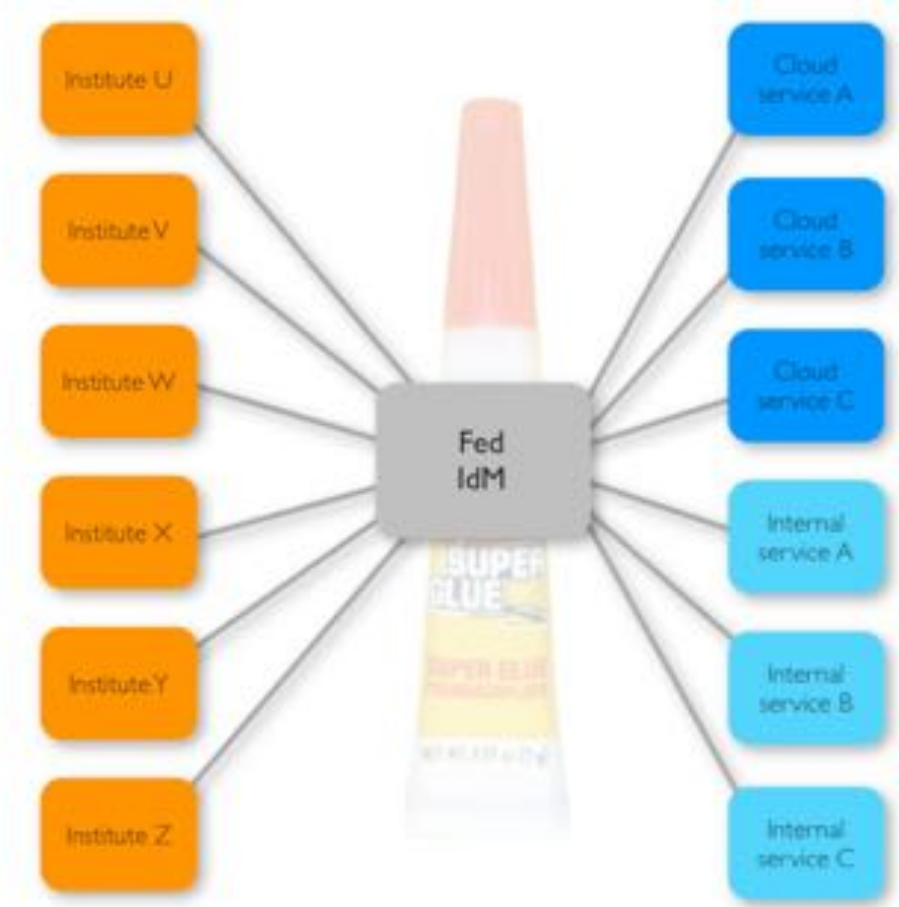
Customise, through a
Mini competition
apply 'add-ons'

Ask additional questions to the suppliers selected by GEANT.

Evaluate their answers, select a winner

Use the call-off agreement from GEANT and add additional clauses as needed

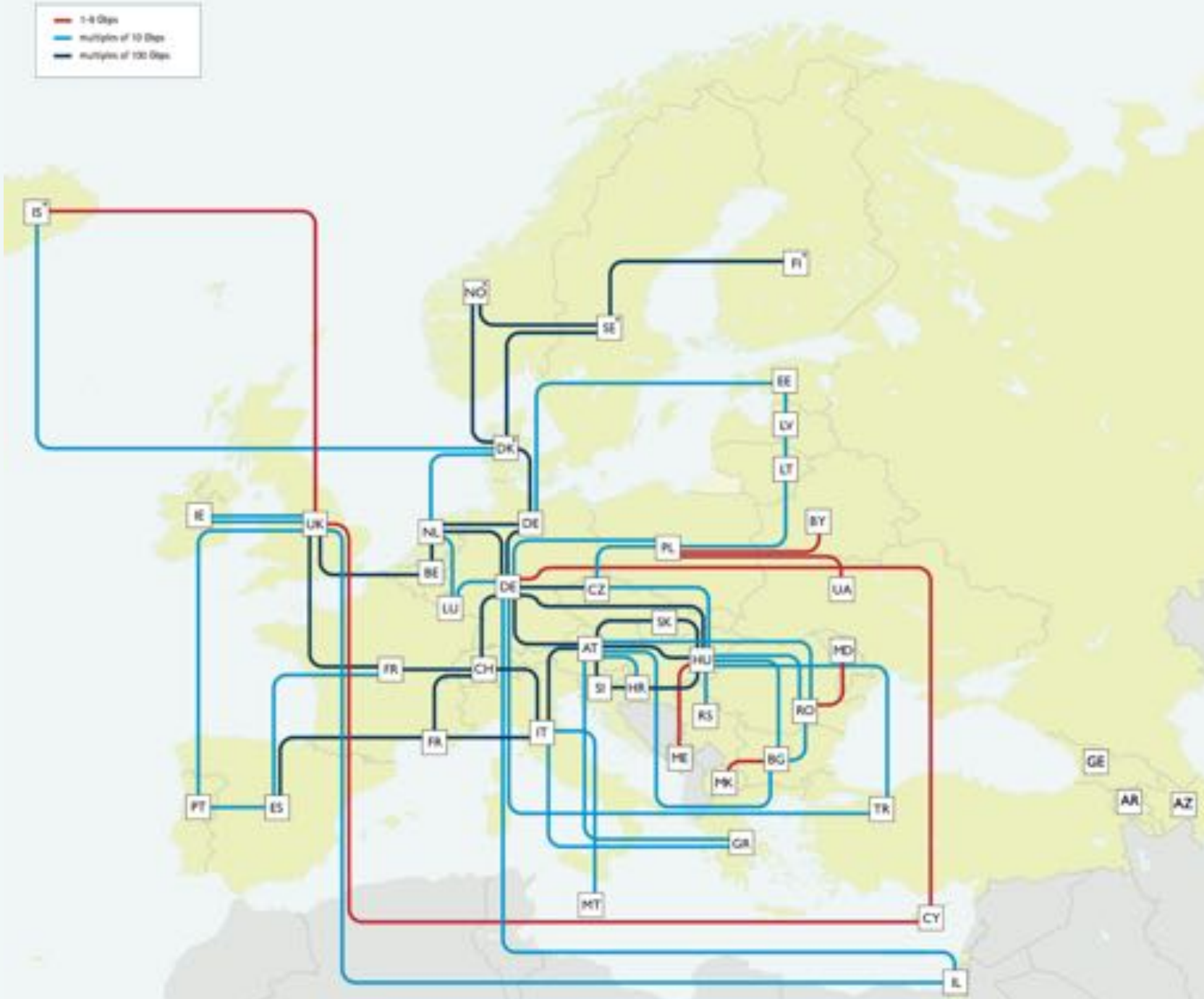
eduGAIN interconnects identity federations around the world



Over 40 federations worldwide support more than 1,500 Identity Providers and 1,000 Service Providers.

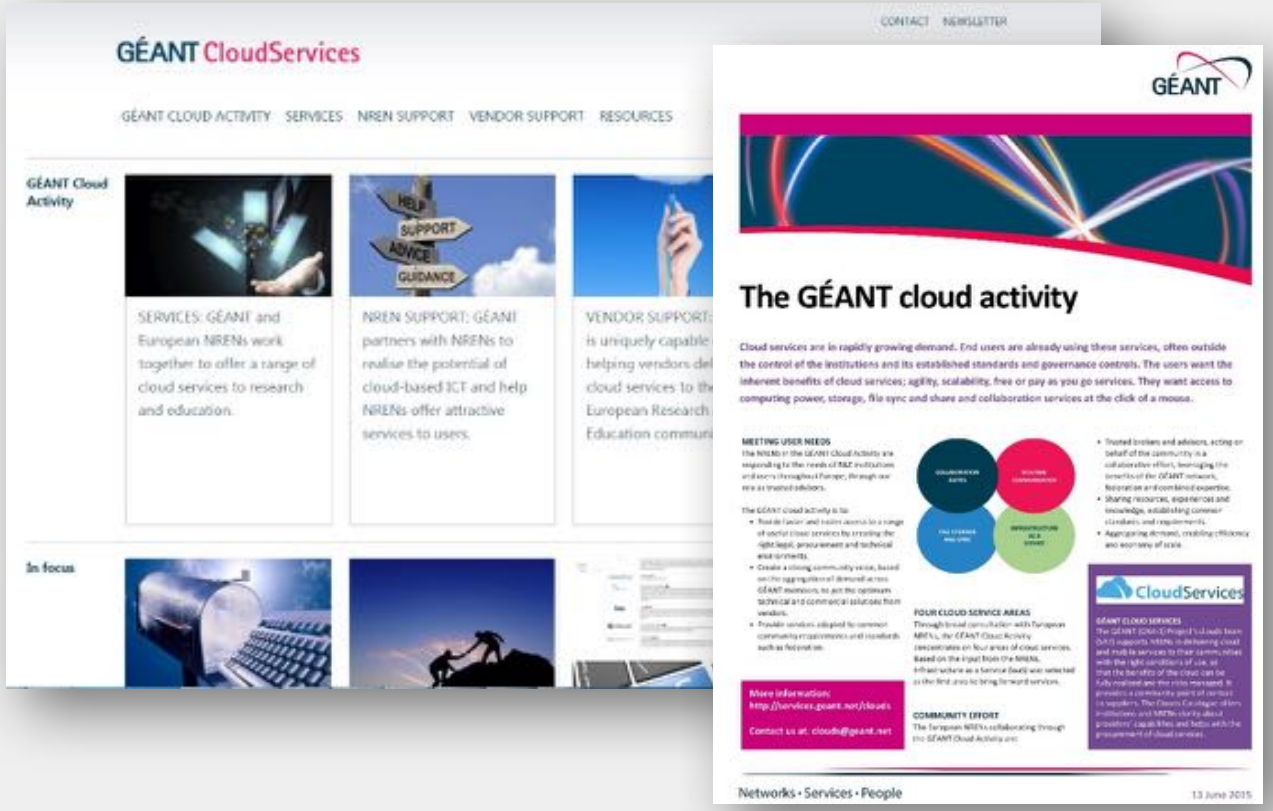
GÉANT

CONNECTING SUPPLIERS TO THE GÉANT & NRENs' NETWORKS, THROUGH PRIVATE PEERINGS



Cloud adoption support to institutions

organisational changes
workshops (skills advancement)
workload migration (technical)
contract and license aspects
multi-cloud management portals



aws educate

AWS Educate provides an academic gateway for the next generation of IT and cloud professionals.
AWS Educate is Amazon's global initiative to provide students and educators with the resources needed to accelerate cloud-related learning endeavors.

GÉANT InAcademia ONLINE STUDENT VALIDATION

InAcademia is a simple online validation service in a privacy preserving way. It allows online retailers to validate if a customer is a student or has any other affiliation to an education institute.

AWS and GÉANT are bringing the AWS Educate program to the European Research and Education community.

AWS will make available free AWS credits (vouchers) to students and educators, for hands-on experience of AWS cloud, access to AWS technology, open content for courses, training resources, and a community of cloud evangelists.
Access to AWS Educate takes place through the GÉANT InAcademia service.

InA I'm a student

ONLINE GÉANT CLOUD CATALOGUE

PAN-EUROPEAN CLOUD FRAMEWORK AGREEMENTS

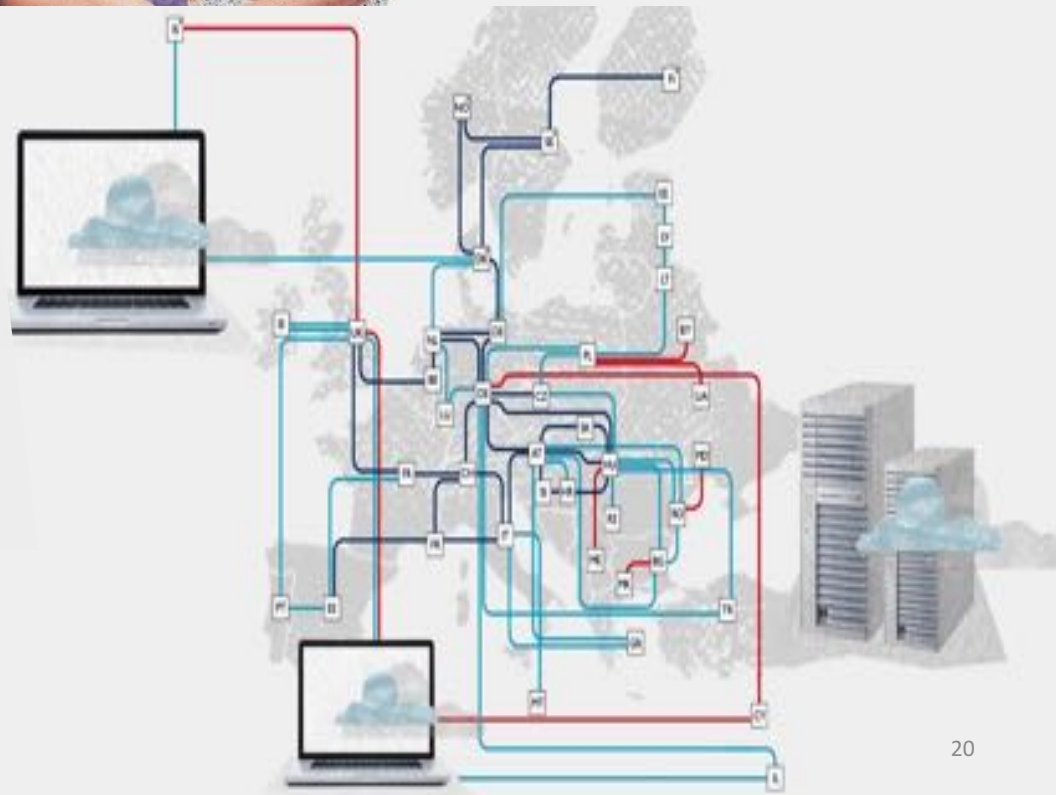
- ✓ PROCUREMENT
- ✓ CONTRACTING
- ✓ DATA PRIVACY
- ✓ DATA INTEGRATION

LOCAL CONTRACT

DATA SECURITY

PRIVACY

TRUST



HEAnet

- Main Focus - Higher Education Sector
- 21 Main Clients
- 70 Clients in total
- Schools Broadband

- Students in HE 210K
- Students in K-12 800K

- Provide a range of services on top of the core national network
  - Schools Filtering
  - Hosting
  - Managed Services
  - Co-location
  - Brokerage

HEAnet and its Institutions

Cloud Vendors for Ireland

Provider offerings

IaaS Preparation – 2016

- Decided on procurement approach
- Marketing & Communications
  - Press release – October
  - Cloud SIG - October
  - HEAnet conference – November

IaaS Adoption – 2017

- Comprehended the provider offerings
- March launch workshop
- Procurement exercises in progress
- Initial consumption has taken place
- Interesting questions

- To Do
  - Quickstart guide / FAQ for clients

Main Questions So Far

- What can I…
  - buy
  - buy without limits?
  - buy that is limited
  - not buy

- IaaS looks expensive
- I can only spend capital, is this for me?
- Will my bill look complicated

- Is Direct Award really that simple?
- Is Direct Award really that simple?
- Is Direct Award really that simple?

What can I buy

- Compute
- Storage
- Networking
- Professional services

How much can I buy?

- Unlimited
  - IaaS
  - Onboarding
  - Architecture supports
  - Related support services
- Limited
  - Managed Services
  - Implementation services
  - License based services (e.g. VMs with applications pre-installed from a vendor's cloud "marketplace")
  - 50% of the contract value

What can I NOT buy

- Private Cloud
- Co-location
- SaaS
- BUT
  - You can tender for SaaS and possibly bring your own IaaS
  - Just like you did with servers and software licensing

This looks expensive

- Do you know the true costs of onsite hosting?
- Who pays your electricity bill currently
  - Facilities?
  - You?
  - Someone else?
- Who pays support and maintenance on HVAC systems?
- Do you have a ‘sinking fund’ in your budget cycles?

Capex / Opex

- Handling Capex is supported by ALL framework participants
- Will take Capex payment and drip feed to Opex bill
- Multi-year obviously!
- This brings interesting benefits
  - Price drops over time, the framework supports this
  - Economies of scale
  - Service evolution

My bill is complicated!

- Pricing is complex
- What you can consume is broad
- Expect that ANYTHING can be metered
- Discounts can be multifactorial
- This will make your head hurt on occasion
- Software licensing can be
  - Confusing
  - Complicated
  - Bizarre

There is no silver bullet

Demand aggregation works

This solves many problems

Easy to consume

Future proof

Europe

Largest producer of research data in the world.
But IT infrastructure is insufficient and too fragmented.
Which leads to an underutilisation of big data.
EC wants to strengthen and interconnect
research IT infrastructure, through the **European Open Science Cloud**.