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)
Making cloud services accessible through pan-European framework agreements

Andres Steijaert
SURFnet
GÉANT cloud activity leader

Garvan McFeeley
HEAnet
Brokerage service manager
There is no cloud
it’s just someone else’s computer

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

What do we

- **CONSUME** from others
- **PRODUCE** ourselves
- **INTEGRATE** with our infrastructure

*users are choosers*

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. |
| 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. | Admin management portal. Customer self service portal. Order placement, reporting and group management. |
| | | API support. |
### Online cloud catalogue 'IaaS service matrix' to display results
<table>
<thead>
<tr>
<th>EU Data Secure</th>
<th>General Data Sec</th>
<th>Sensitive data</th>
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<tbody>
<tr>
<td>Arcus Global</td>
<td>Atea</td>
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<tr>
<td>CloudSigma</td>
<td>Comparex (MS)</td>
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<td>Comparex (AWS)</td>
<td>Dimension Data</td>
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<td>Infosoft Systems</td>
<td>Interoute</td>
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<td>Micromall</td>
<td>NTT Europe</td>
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<tr>
<td>SoftwareONE</td>
<td>com Italia (AWS)</td>
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</tbody>
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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 GEANT 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.
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 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.

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.

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.
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

Microsoft Azure

MICROMAIL

ATEA

software ONE

COMPAREX

SPARKLE

Telecom Italia Group

Comparex

Cloud Sigma

dimension data

Interoute

from the ground to the cloud
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
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.