

Above the net Global product & services workshop

Working with global providers
for global solutions

Utrecht, 20 October

Garvan McFeeley, HEAnet

Andres Steijaert, SURFnet





40 European
National Research and Education Networks
(NRENs)

Collaborate in their European association GÉANT
on

- Network
- Identity Management
- Online applications and clouds

78%

of GÉANT NRENs are
(planning to get) involved
with clouds*

* GÉANT Compendium 2015

Collective size
10.000 organisations = 1 community
50 million users = 1 market



The background features a dark blue sky with wispy white clouds. Overlaid on this are several glowing, curved lines in shades of teal and light blue, creating a sense of motion and digital connectivity.

Why?

Collective cloud service delivery efforts

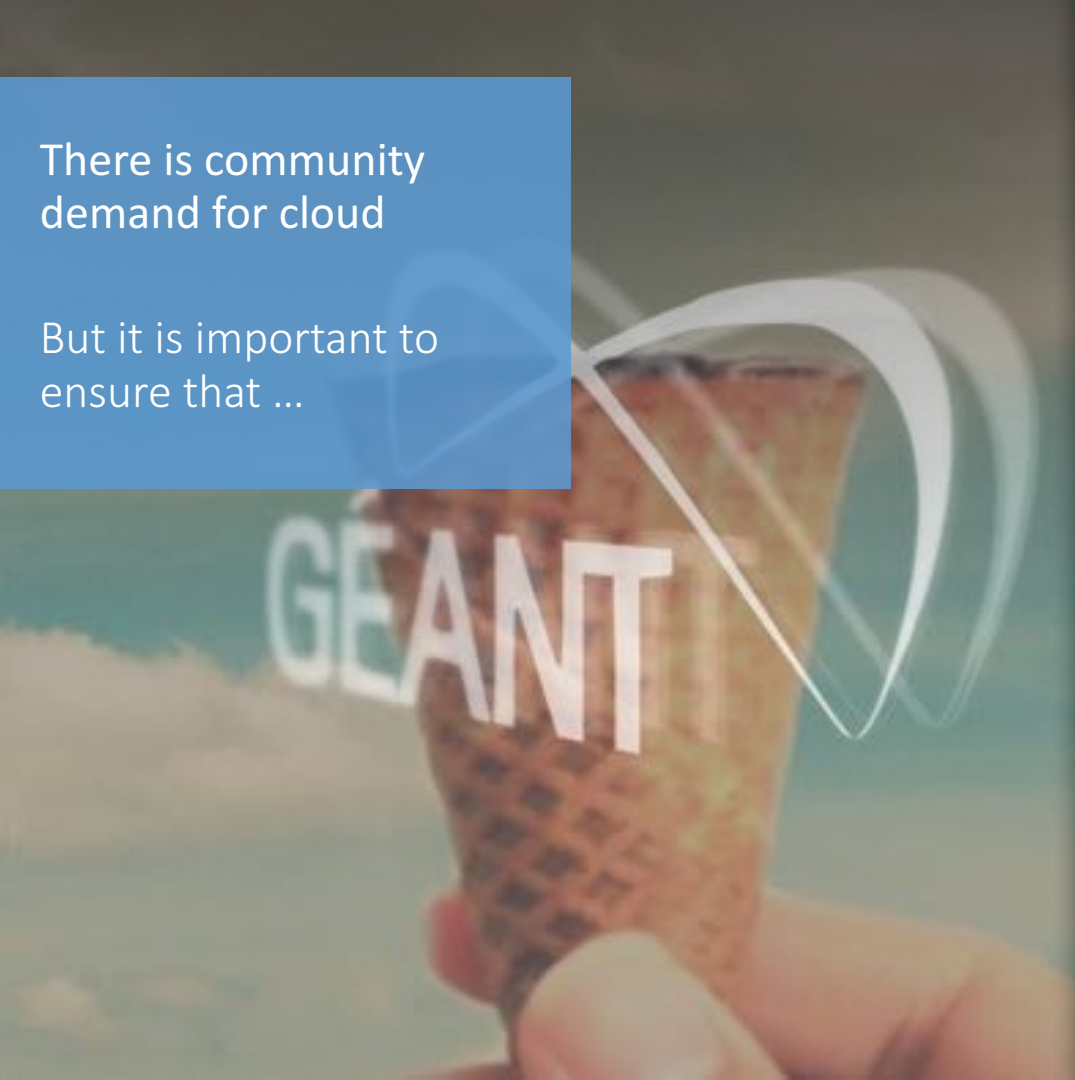


<https://www.chriswatterston.com/blog/my-there-no-cloud-sticker>



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)



Traditional supply chain ; cd-rom distribution, on-premise hosting



New supply chain ; cloud distribution model

Microsoft Board Mulls Sales Force Revamp to Speed Shift to Cloud

by Dina Bass
@dinabass

<http://www.bloomberg.com/news/articles/2016-06-02/microsoft-board-mulls-sales-force-revamp-to-speed-shift-to-cloud>

June 2, 2016 – 1:00 PM CEST



Board members at Microsoft Corp. are grappling with a growing concern: that the company's traditional software business, which makes up the majority of its sales, could evaporate in a matter of years -- and Chairman John Thompson is pushing for a more aggressive shift into newer cloud-based products.

Thompson said he and the board are pleased with a push by Chief Executive Officer Satya Nadella to make more money from software and services delivered over the internet, but want it to move much faster. They're considering ideas like increasing spending, overhauling the sales force and managing partnerships differently to step up the pace.



John Thompson Photographed: David Paul Morris/Bloomberg

The cloud growth isn't merely nice to have -- it's critical against the backdrop of declining demand for what's known as on-premise software programs, the more traditional approach that involves installing software on a company's own computers and networks. No one knows exactly how quickly sales of those legacy offerings will drop off, Thompson said, but it's "inevitable that part of our business will be under

continued pressure."

“On-premise software business could evaporate in a matter of years”

Minister Kamp continues to use private e-mail for business purposes

Published: May 13 2016 07:30

Last Updated: May 13, 2016 9:18

Minister Henk Kamp (Economic Affairs) continues to use his private e-mail for business purposes, despite a phishing attack and warnings from the Public Prosecutor.

"I continue to use my private mail for business because it's easier for me. So it is," said Kamp to Nieuwsuur.

This is contrary to the official guidelines. Kamp used his work email, but it happens that he receives commercial messages on his private mail, he explains. The minister was, moreover, a victim of a phishing attack in 2014, which he has reported. Whether the hackers have overtaken sensitive information is unknown.



https://translate.google.com/translate?sl=auto&tl=en&js=y&prev=_t&hl=en&ie=UTF-8&u=http%3A%2F%2Fwww.nu.nl%2Finternet%2F4261112%2Fminister-kamp-blijft-privemail-zakelijk-gebruiken.html&edit-text=&act=url



Europe

Largest producer of research data in the world.

But IT infrastructure is insufficient and too fragmented.

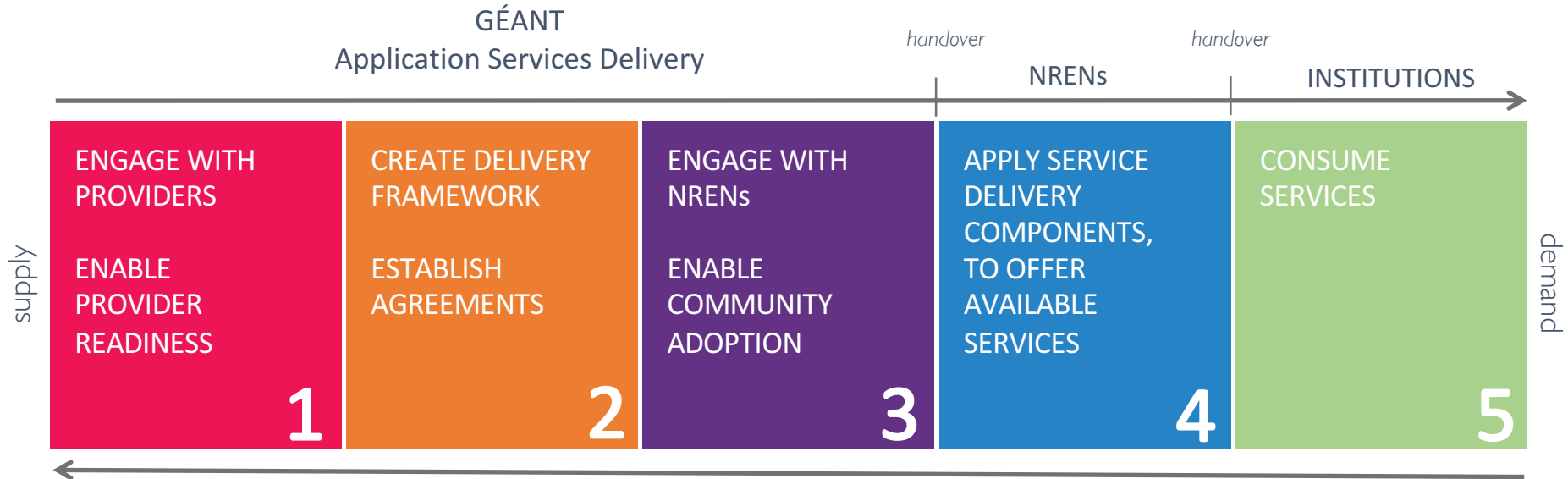
Which leads to an underutilisation of big data.

EC wants to strengthen and interconnect research IT infrastructure, through the **European Open Science Cloud**.

- We do not build application services ourselves.
- We are a **delivery vehicle** for application services from other organisations (both providers within the R&E community and commercial suppliers)
- Make these services fit the requirements of the R&E community, integrate them with the community's infrastructure and support NRENs to offer them to their institutions and users.
- **Best value; most favorable conditions of use.**
Only able to get those through a **collective** approach.



The delivery pipeline



Towards a repeatable, sustainable service delivery framework

Hybrid service delivery



IN-HOUSE
CLOUDS

OUTSOURCED
CLOUDS

NRENs as **trusted** advisors, brokers and providers
connect demand and supply
have the **reach**
and provide **choice**
to the research and education community

Hybrid: build (community clouds) & buy (public clouds commercial)



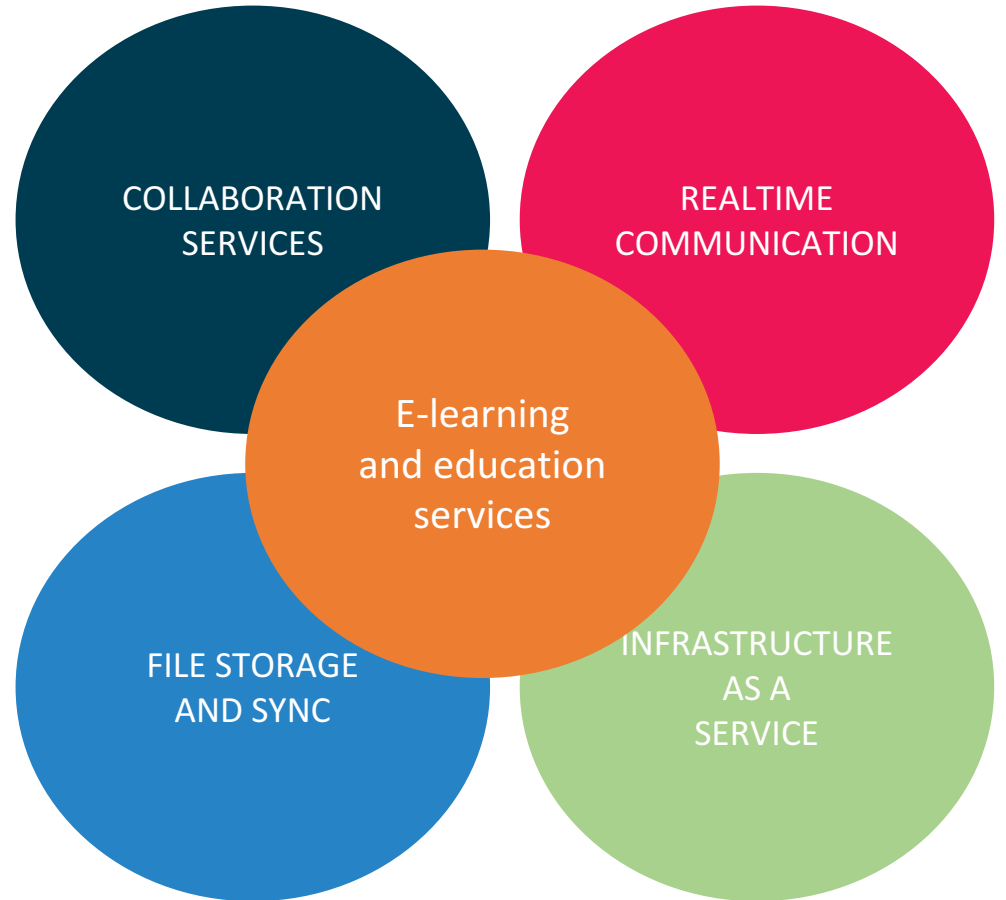
Baseline

Foundation for joint cloud delivery and adoption

Meeting user needs & Aligning cloud collaboration areas

Most popular providers
as mentioned by European NRENs
(in alphabetical order)

- Amazon Web Services
- BOX
- Google Apps
- Microsoft Azure
- Microsoft Office 365
- OwnCloud



Joint requirements one message to providers



GEANT

Requirements for Cloud Service Providers

The following sections contain a collection of technical, operational and contractual requirements of a provider with other requirements from the providers that are not covered by the following sections.

1.1 Intellectual Property Rights and Ownership

1.1.1 Intellectual Property Rights

All intellectual property rights, including but not limited to, patents, copyrights, trademarks, trade secrets, and other confidential information, shall remain the property of the provider.

1.1.2 Data Ownership

The CSP shall own and control all data processed or stored by the CSP on behalf of the customer. The CSP shall not use, disclose, or otherwise make available the data for any purpose other than the purpose for which it was provided.

1.1.3 Data Retention

The CSP shall retain data for the period specified in the contract. After the retention period expires, the CSP shall delete the data and shall not be able to reconstruct the data.

1.1.4 Legal Holds

The CSP shall cooperate with the customer in responding to legal holds, subpoenas, and other legal requests. The CSP shall not delete or alter data in response to such requests.

GEANT

Requirements for Cloud Service Providers

1.2 Confidentiality

1.2.1 Confidentiality

The CSP shall maintain the confidentiality of all information provided to the CSP by the customer. The CSP shall not disclose this information to any third party without the customer's prior written consent.

1.2.2 Data Protection

The CSP shall implement appropriate technical and organizational measures to protect the confidentiality, integrity, and availability of the customer's data.

1.2.3 Access to Data

The CSP shall not allow access to the customer's data to any third party, including the CSP's employees, contractors, and affiliates, without the customer's prior written consent.

1.2.4 Breach Notification

The CSP shall notify the customer of any data breach involving the customer's data as soon as the CSP becomes aware of the breach.

1.2.5 Penetration Testing

The CSP shall allow the customer to conduct penetration testing of the CSP's systems and services.

1.2.6 Security Audits

The CSP shall undergo regular security audits and provide the customer with the results of the audits.

1.3 Technical Requirements

1.3.1 Availability

The CSP shall ensure that the services are available to the customer for the uptime specified in the contract.

1.3.2 Performance

The CSP shall ensure that the services meet the performance requirements specified in the contract.

1.3.3 Scalability

The CSP shall be able to scale the services to meet the customer's needs.

1.3.4 Security

The CSP shall implement appropriate security measures to protect the customer's data and services.

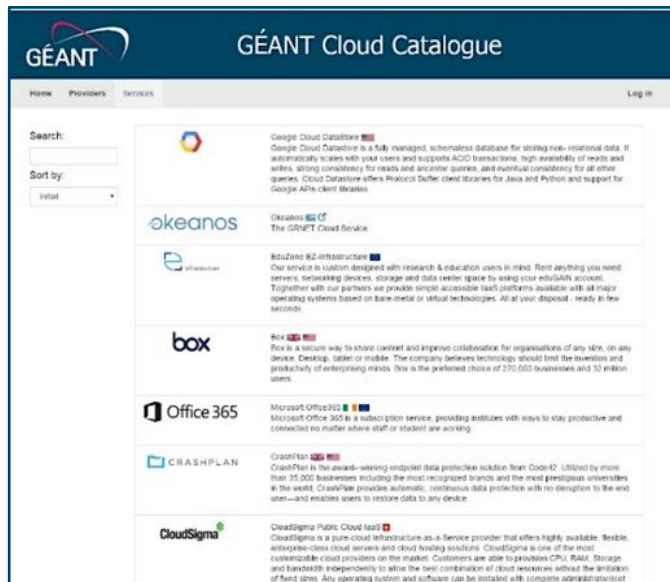
1.3.5 Interoperability

The CSP shall ensure that the services are interoperable with the customer's existing systems and services.

Intellectual property rights and ownership, legal aspects, security, continuity, confidentiality, communication, billing, technical requirements

Cloud requirements Six pages; easily readable

GÉANT Cloud Catalogue



28 services from 16 providers

A growing resource for the research and education community, with a structured listing of service providers and cloud services. It provides a quick and easy guide to clarify the capabilities of providers and helps in the procurement of cloud services



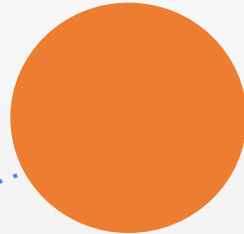
GÉANT Cloud Catalogue entries

Show provider capabilities to community



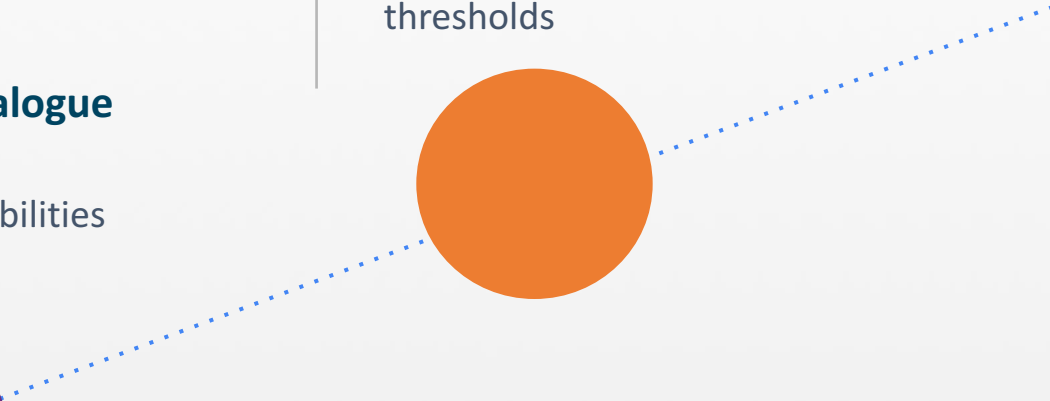
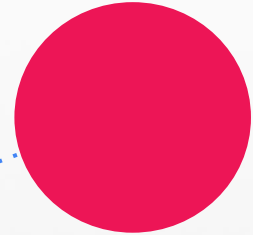
Provider quotation / Educational offers

For use below tender thresholds



Framework agreements

Results of a pan-European tender, tender compliant





File storage & sync



FILESENDER



zettabox

it's better in Europe.



The background features a dark blue gradient with several glowing, curved streaks in shades of teal and light blue. A prominent white horizontal line runs across the center of the image, serving as a backdrop for the text.

Realtime communication



rendez-vous
webconference en toute simplicité
par RENATER



&

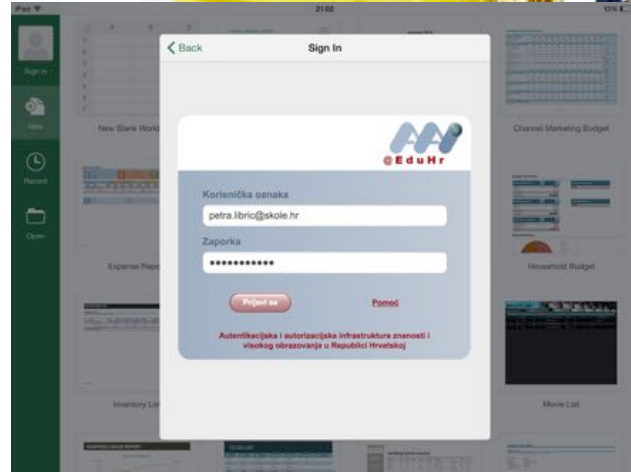
Video / web conferencing tender

The background features a dark blue gradient with several glowing, curved streaks in shades of teal and light blue. A prominent white horizontal line runs across the middle of the image, serving as a separator for the text.

Collaboration services



Slack



The background features a view of Earth from space, showing the curvature of the planet and scattered white clouds against a dark blue sky. Overlaid on this are several glowing, semi-transparent lines in shades of blue and green. These lines are curved and flow across the frame, suggesting a global network or data transmission. Two thin white horizontal lines intersect the glowing lines, one above and one below the word 'Network'.

Network



Amazon is waiving data egress charges on cloud services for research and education users.

This is the result of extensive discussions between Amazon and the NRENs

Global NREN collaboration

AWS Government, Education, & Nonprofits Blog

AWS Offers Data Egress Discount to Researchers

on 01 MAR 2016 | in Education | Permalink

AWS Makes Cloud and HPC Budgeting More Predictable for Scientists

The pace of research is no longer limited by the availability of computing resources. Researchers are beginning to rely on cloud computing to drive breakthrough science at breakneck speeds and AWS wants to fuel the pace of new discoveries by making it possible for all scientists to have their very own supercomputers in the cloud.

Today, AWS committed to making it easier for scientists to use its cloud storage, computing, and database services by waiving data egress fees for qualified researchers and academic customers; these are fees associated with "data transfer out from AWS to the Internet." The maximum discount is 15% of total monthly spending on AWS services, which is several times the usage we typically see among our research customers. However, there is no cost to upload data into AWS, or move data between [Amazon Simple Storage Service \(Amazon S3\)](#) and [Amazon Elastic Compute Cloud \(Amazon EC2\)](#).

The agreement has been supported through ongoing discussions with Jisc in the UK, GÉANT in Europe, and DLT in the United States, which provide network infrastructure and supporting cloud services to education and research institutions around the world.

"Having predictability and stability in costs is one of the major challenges for researchers in adopting cloud services, so it's welcome news that AWS is removing egress charges for academic customers. There's a real opportunity here for cloud computing to become as ubiquitous to research as it is in the commercial market, and with it bring a massive boon to the sector, supporting more efficient, collaborative and innovative research outputs," said Dan Perry, director of product and marketing at Jisc.

Professor Tony Hey, chief data scientist for the Science & Technology Facilities Council (STFC), said, "I am delighted that AWS is taking this step to remove uncertainty about egress charging for research use of their cloud infrastructure, following extensive discussions with Jisc and GÉANT. I often hear from researchers that the perception that they will receive large bills for data downloads has discouraged them from considering commercial cloud providers for their compute and data requirements. The cloud has a huge amount to offer in terms of agility and efficiency gains, and also unique capabilities in areas such as machine learning. This is a very welcome development from AWS, and I hope that other cloud providers will move swiftly to follow suit."

By reducing data egress fees, AWS will help scientists launch their first computing machine in minutes, analyze data pipelines, and store petabytes of data in the cloud, ultimately accelerating time-to-science.



Azure egress fee waiver for the academic community

Posted on Monday, May 2, 2016



 **Brian Hilliger**, Senior Director, C+E Business Planning

Based on Microsoft's extensive experience engaging and working with the academic community, we strongly believe educational institutions of all types and sizes can benefit from cloud services, for research as well as for teaching and learning environments. Microsoft also understands the need for academia to better manage costs when transitioning from traditional licensing to a consumption-based model, and we are always looking for ways to make the transition to the cloud easier for the community.

Academic customers constantly worry about unknown costs and their liability under variable financial structures. One of the concerns we hear most often, is the cost of data egress fees. In order to enable our educational customers to achieve even more with the cloud, we are excited to announce an **Internet egress fee waiver** for qualified customers¹ North America, Europe and APAC. This makes moving to the cloud a much more predictable expense. Even more importantly, it paves the way for researchers to accelerate the pace of the important work they're doing.

Microsoft partnerships: In addition to reducing the cost of moving to the cloud, Microsoft is working with key National Research and Education Network partners such as Internet² in the US, and Géant in Europe, to allow data to flow from our cloud services to our academic customers across this new connection, and to further strengthen our network. We have been working closely with these organizations along with Jisc in the UK, SURFnet in the Netherlands and HEAnet in Ireland to provide a superior cloud experience for our customers.

Microsoft is waiving data egress charges on cloud services for research and education users.

This is the result of extensive discussions between Microsoft and the NRENs

Global NREN collaboration



Microsoft ExpressRoutes

what

Dedicated, private L2 connection
between an institution and the Microsoft cloud
(Azure, Office 365)

Previously, required third parties:

- outside of NREN domain
- expensive

Now, GÉANT – Microsoft agreement in place
which allows NRENs to offer ExpressRoutes to
their institutions;
removing the third party cost component

why

Secure

Guaranteed bandwidth

Extend institutional
network into the Microsoft
cloud (IP addressing)

Strong demand from
institutions
and NRENs



laaS

Compute and storage IaaS

Developed by Greek NREN GRNET

100% Open Source

Compatible with OpenStack

Integrated with eduGAIN



In production for several years

Also adopted outside GRNET in Europe, US, Asia, ...

<http://oceanos-global.grnet.gr>

Joint NREN IaaS tender in GÉANT

IaaS in high demand by community

36 NRENs
establishing framework agreements with
suitable suppliers

Not winner takes all, but provide choice

EC Procurement Directive (2014/24/EU)

- *Framework Agreement use*
- *Cross-border procurements*
- *Centralised Purchasing Bodies*

NRENs bring the agreements
to institutions for consumption



GEANT, the NRENs and their Institutions that are part of this tender can use its outcomes without any additional procurement being required.

There is no obligation whatsoever on the Customers to purchase and they are entitled to run their own procurement to purchase any products covered within this contract.



7.	Bulgaria	BREN	https://wiki.geant.org/display/gn41sa7/1aa5+tender+institutions%3A+BREN
8.	Croatia	CARNET	http://www.carnet.hr/member-institutions/list
9.	Cyprus	CYNET	https://wiki.geant.org/display/gn41sa7/1aa5+tender+institutions%3A+CYNET
10.	Czech Republic	CESNET	https://wiki.geant.org/display/gn41sa7/1aa5+tender+institutions%3A+CESNET
11.	Denmark	DeIC	http://www.deic.dk/tilsluttedeInstitutioner



Hjem > Netforbindelse > Tilslutning > Tilsluttede institutioner

Tilsluttede institutioner

Følgende institutioner er tilsluttet forskningsnettet:

- Capnova A/S
- Carlsberg Research Center
- CBS Copenhagen Business School
- Danmarks Medie og Journalist Højskole
- Danmarks Tekniske Universitet
- Danish Science Factory
- Dansk Dekommissionering
- Delta
- Det Nationale Forskningscenter for Arbejdsmiljø
- Det Jyske Musikkonservatorium
- Det Kongelige Bibliotek
- Det Kongelige Danske Kunstakademi Billedkunstskolerne

11. Denmark



<http://www.deic.dk/tilsluttedeInstitutioner>

13.	Finland	CSC – IT Center for Science Ltd.	https://info.funet.fi/wiki/pages/viewpage.action?pageId=17760390
14.	France	RENATER	https://wiki.geant.org/display/gn41sa7/1aa5+Tender+Institutions%3A+RENATER
15.	Georgia	GRENA	https://wiki.geant.org/display/gn41sa7/1aa5+tender+institutions%3A+GRENA
16.	Germany	DFN	https://www.dfn.de/77231/
17.	Greece	GRNET	https://www.grnet.gr/en/node/69
18.	Hungary	NIIF	https://wiki.geant.org/display/gn41sa7/1aa5+Tender+Institutions%3A+NIIF
19.	Ireland	HEAnet	http://www.heanet.ie/about/client-list

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.

DG CONNECT

Who we are

Advisors

Events

Funding Opportunities

Newsletters

Consultations

Blog

Discussions

CoP for Better self- and co-regulation

Broadband Europe

ICT4Society

Students at ICT 2015

Discussion Forums

E-Infrastructures for You

Results of the GÉANT tender for Infrastructure as a Service solutions

Published on 30/09/2016

Europe's leading collaboration on e-infrastructure and services for research and education GÉANT, conducted a Pan-European tender to allow Research and Education institutions to consume the cloud in a safe, easy and predictable way.



The tender for 36 countries aimed to allow Research and Education institutions to consume the cloud in a safe, easy and predictable way, where services meet European and national regulations, have attractive pricing, are connected to the community's networks and identity management capabilities and can be purchased in a controlled and transparent manner.

This demand aggregation in [GÉANT](#), of the NRENs and their close to 10,000 participating institutions, creates a substantial single digital market where up to 500 million euro will be channeled through the framework contracts over the next four years.



Share

12 different IaaS solutions

23 providers

4 year framework agreements

NRENs offer the contracts in their country

Research and Education institutions can consume these IaaS offerings *without the need to run a tender themselves.*

Evaluation completed

GÉANT intends to award a framework agreement to the following suppliers



- Amazon, through resellers: Arcus, Comparex, Telecom Italia,
- Cloudsigma
- Dimension Data
- Interoute
- itSoft
- KPN
- Lattelecom
- Microsoft, through resellers: Atea, Cactus, Comparex, Dom-Daniel, Infsoft, Micromail, Nextsense, Novabase, SoftwareOne, Span and Ymens
- NTT Europe
- T-Systems
- Telecom Italia
- Vancis

Sort by

Name of supplier

Filters

Show all resellers

Denmark

- Show all capabilities
- IaaS Solution
- Data Transport
- Federated user authentication
- Data protection and security
- Commercial terms

- Aggregated Spain
- Capital expenditure
- Contract terms
- Cost recovery fee
- Data traffic
- Direct network cc
- EU Data Security
- Exit support
- General Data Sec
- Identity manager
- Identity manager
- Idle server setups
- Licensing require
- Marketing and ad
- Migrating existing
- Offering
- Post-paid billing
- Pricing
- Public IP network
- Sensitive data
- Service
- Strategic

- Arcus Global
- Atea
- CloudSigma
- Comparex (AWS)
- Comparex (MS)
- Dimension Data
- Infosoft Systems
- Interoute
- Micromail
- NTT Europe
- SoftwareONE
- com Italia (AWS)

Online cloud catalogue
'IaaS service matrix'
to display results

- **Referer**

The NREN acts as intermediary by making the Framework Agreements available in its respective country and facilitating connected institutions in purchasing from Suppliers. (Direct delivery model).

- **Reseller**

Expanding on the referrer role, the NREN is responsible for more activities and also involved in the contracting and billing of (some of) its Institutions' service orders. The Supplier interfaces primarily with the NREN and the NREN may provide additional value added services to the end-user institution.

- **Underwriter**

The NREN makes purchases from Suppliers (on behalf of its connected institutions) and distributes the acquired resources across its community (institutions and end users).

1. Direct call off – if happy with GÉANT requirements and ranking
2. Mini-competition – for tailor-made solutions;
 - Technical
 - Operational (reporting requirements, etc.)
 - Legal (e.g. specific legal terms needed in the service agreement)
 - Financial

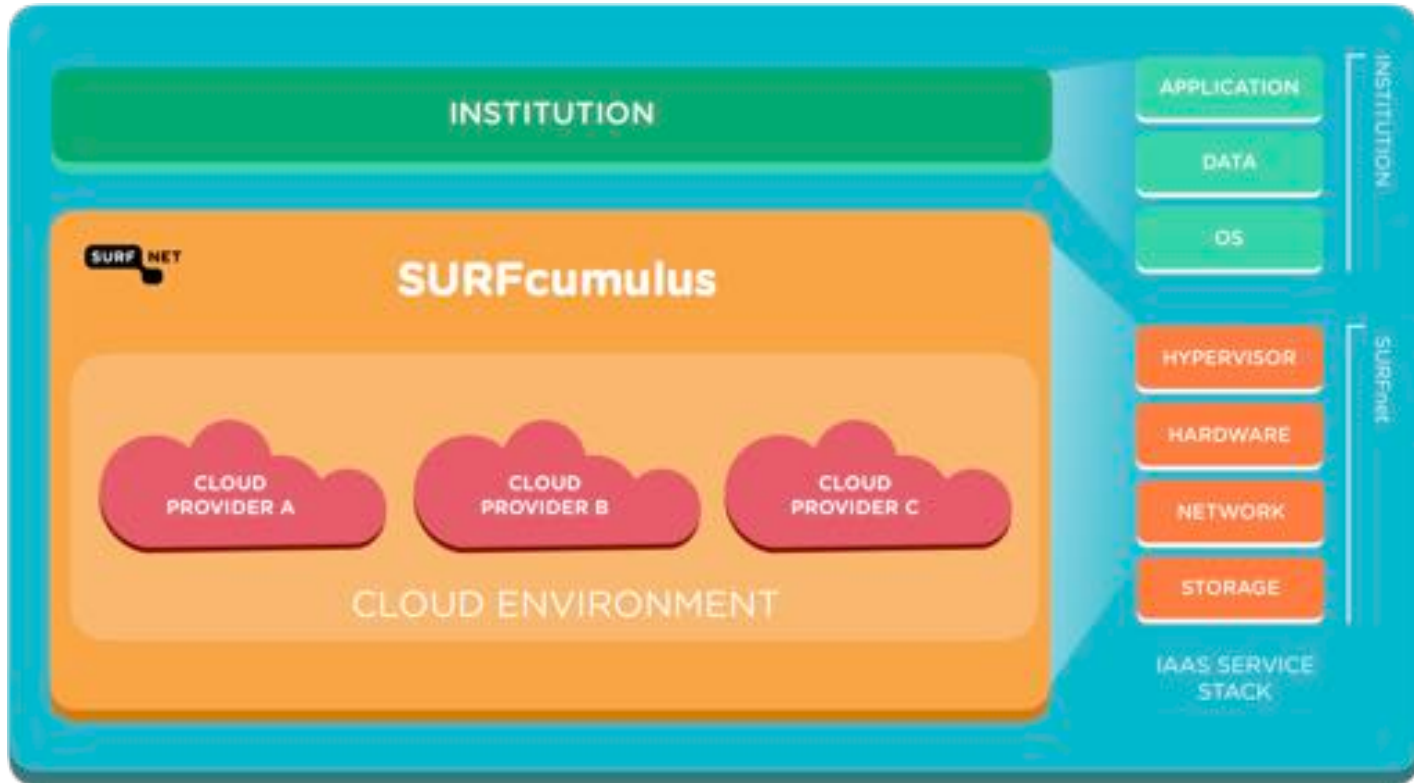


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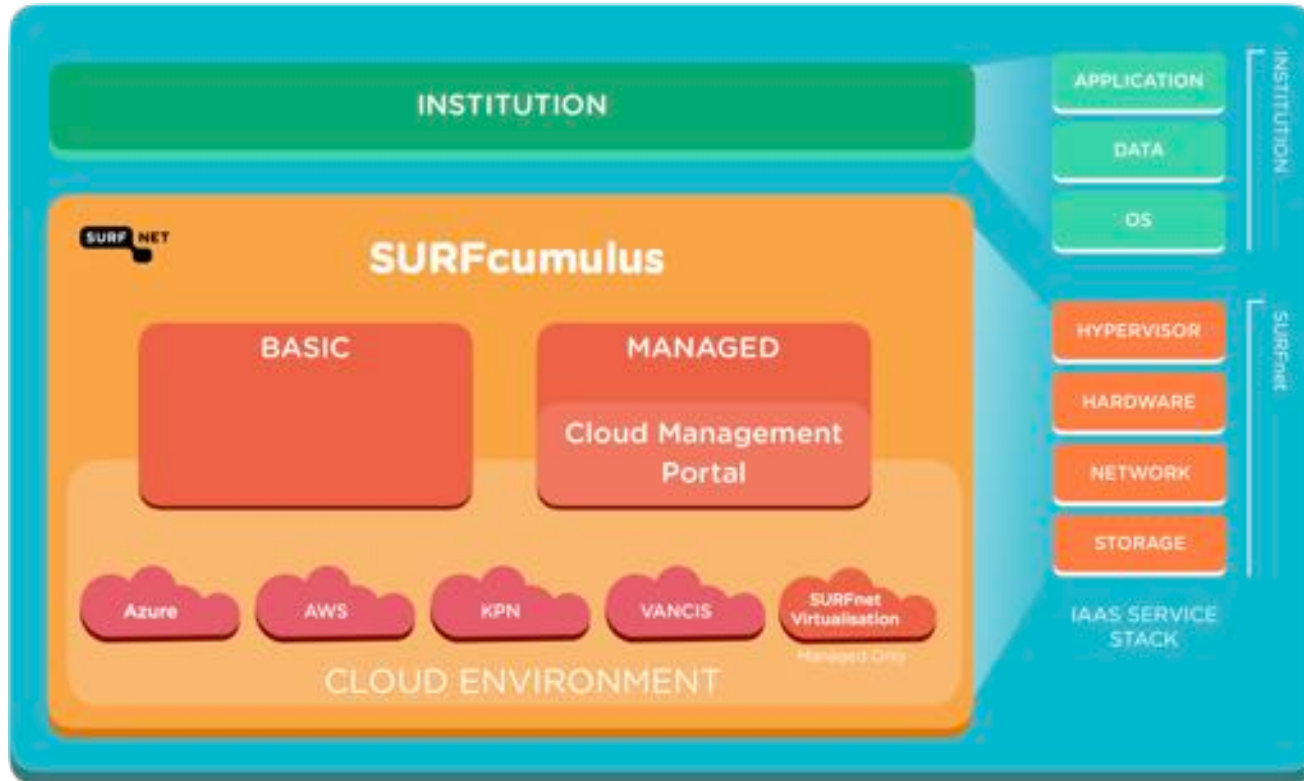
Adoption

- GÉANT supports the NRENs in their delivery efforts: to let the community adopt and use application cloud services
 - Ensure the outcomes of the service delivery activity have the required shape and form, to be adopted by the NRENs for 'local use, customization and delivery'
 - Organise and facilitate adoption pilots, webinars, workshops, meetings and conferences

From Push to Pull to Service Delivery



Two flavours — DIY and Fully Managed



Functionality Cloud Management Portal

- One point of entry for all connected cloud vendors
- Delegation of rights
- Quota handling
- Automatic provisioning / deprovisioning
- Reporting and cost control
- Web UI and API



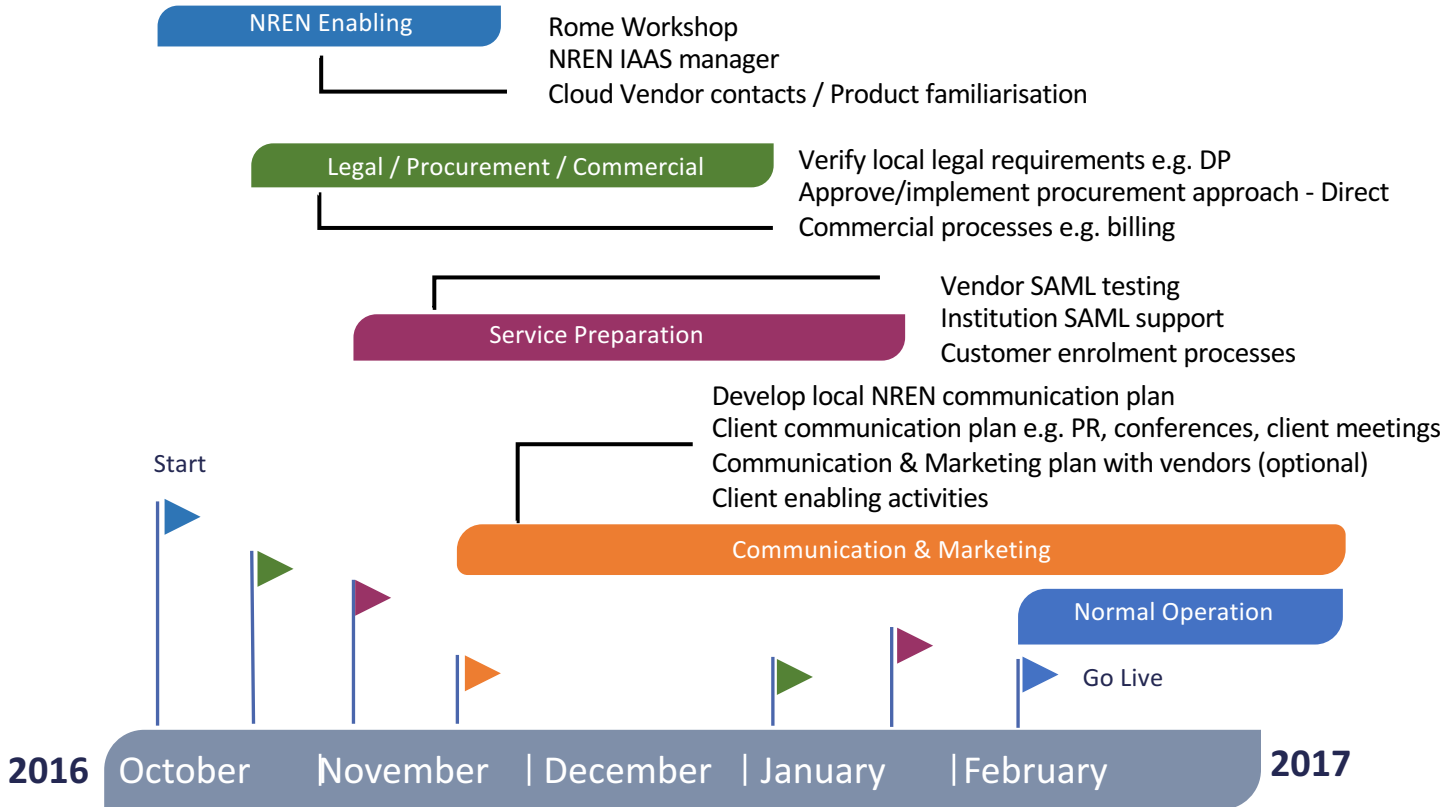
HEAnet and its Institutions



Cloud Vendors for Ireland



IAAS Startup – an NREN Roadmap



- HEAnet role – Referrer
- Legal – EU Directive, no special local requirements
- Procurement – direct awards, => no client mini-competitions 🤖
- Marketing & Communications
 - Press release – October
 - Cloud SIG - October
 - HEAnet conference – November 😊
 - Client meetings
 - Joint vendor activities – webinars, workshops, whitepapers
- But first
 - Federation – vendor SAML/eduGAIN testing pilots
 - Setup of first customers/accounts
 - Quickstart guide / FAQ for clients

Online shop





Towards the clouds together

Global NREN collaboration on service delivery and adoption