

Samen in de cloud

Andres Steijaert

SURFnet

GÉANT cloud activity leader

@ SURF cloud event

11 oktober 2018

Utrecht







TO CLOUD
OR NOT
TO CLOUD?

THAT IS THE
QUESTION



Cloud adoption obstacles and concerns

| | | |
|---------------------------|---|---|
| Security and privacy | Lack of control and management tools (resources, costs) | Vendor and contract management |
| Performance & reliability | Technical integration | Vendor lock-in, data portability and interoperability |
| Internal expertise | ? | |

IN DE WOLKEN

SURF



University of California, Berkeley
University of Washington
Google
IBM
Microsoft

ledereen aan boord



Since 2011

A Cloud Times
Bestseller



THE CLOUD FIRST TRAVELLER

by Nathaniel Fitzgerald

Book One of the Tesseract Trilogy

VAN BEHEER NAAR REGIE



DOOR DE
BEKROONDE AUTEUR
J. WOLKERS

Samen bedienen we
1 miljoen studenten,
onderzoekers en medewerkers,
die de beste digitale diensten
willen gebruiken.



A photograph of a construction site. In the background, a red concrete mixer truck is parked. Behind it is a building with a white roof and several windows. The foreground shows a concrete foundation with rebar reinforcement. The scene is outdoors with trees and a clear sky.

Veel van die diensten
'leven in de cloud'.

We kunnen eenvoudigweg niet al die
diensten lokaal produceren.

Cloud is een onderlaag.



Do we have a choice?

Suppliers cloud focus: **all-in**

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 (Photograph: 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”

Major Microsoft Reorganization Shifts Focus to the Cloud

David E. Hayes, Subscription Insider • April 2, 2018

0 Comments

Tags: [Business Development](#) [Tech Software](#) [Software Product Development](#) [Software Models](#) [Subscription Sales](#) [Business 2018](#)
[Business 2018](#) [Tech Software](#) [Software Product Development](#) [Software Models](#)

Move over Windows, the cloud is taking over.



Source: Microsoft

In a memo to employees last Thursday, **Microsoft** (NASDAQ:MSFT) CEO Satya Nadella announced a **major company reorganization** that includes the formation of two new engineering teams: Experiences & Devices to be led by Rajesh Jha and Cloud + AI Platform to be led by Scott Guthrie. The reorganization shifts the company's focus away from the Windows operating system and into the company's strongest business units, office productivity software, artificial intelligence and cloud technology. This is the biggest reorganization at Microsoft since Nadella became CEO in 2014, according to **The Seattle Times**.

Over the past year, we have shared our vision for how the intelligent cloud and intelligent edge will shape the next phase of innovation. First, computing is more powerful and ubiquitous than the cloud to the edge. Second, AI capabilities are rapidly

enhancing senses perception and cognition fueled by data and knowledge of the world. Third, physical and virtual worlds are coming together to create richer experiences that understand the context surrounding people, the things they use, the places they go, and their activities and relationships," wrote Nadella in the **employee memo**.

<https://www.subscriptioninsider.com/news/major-microsoft-reorganization-shifts-focus-to-the-cloud-5970-1.html>

CLOUD SERVICES

Users are choosers

What do we



CONSUME from others

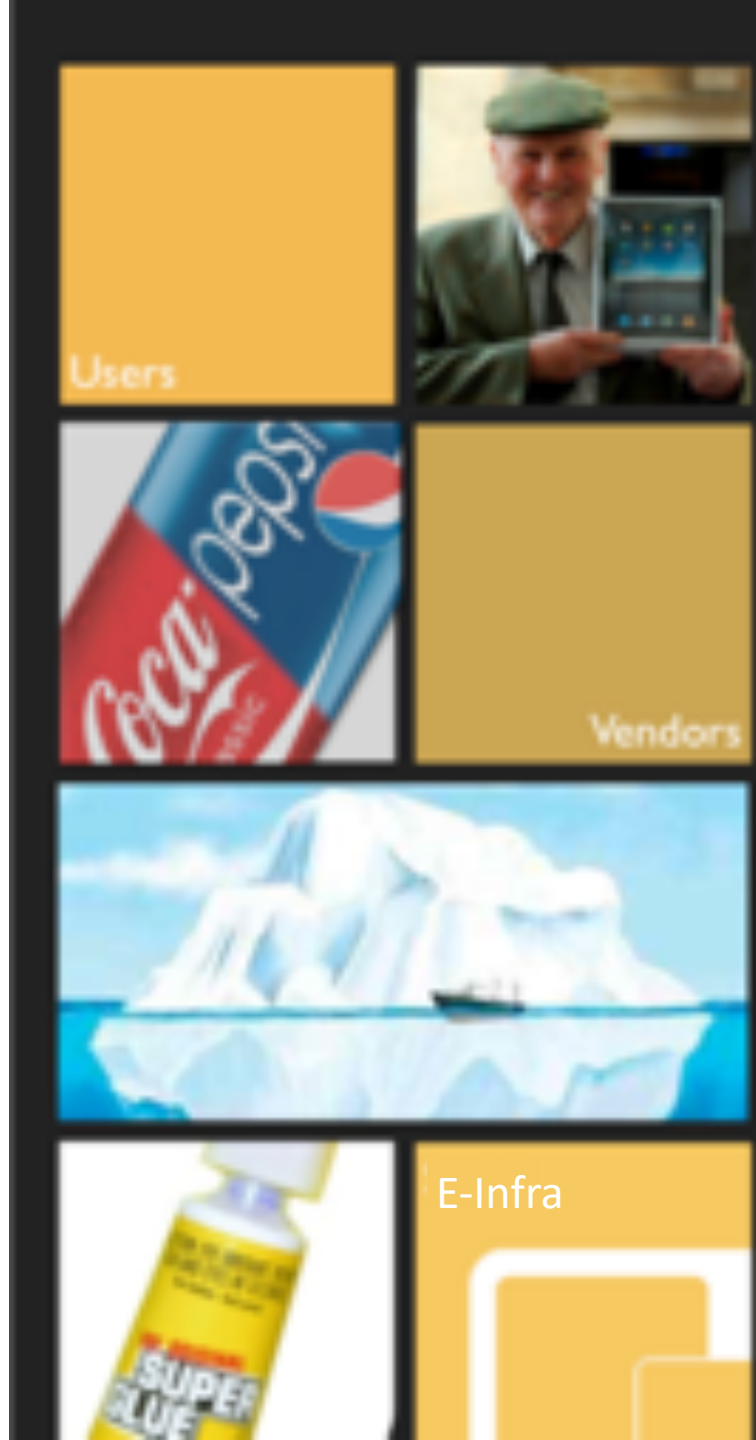


PRODUCE ourselves



INTEGRATE with our infrastructure

Hybrid multi-cloud

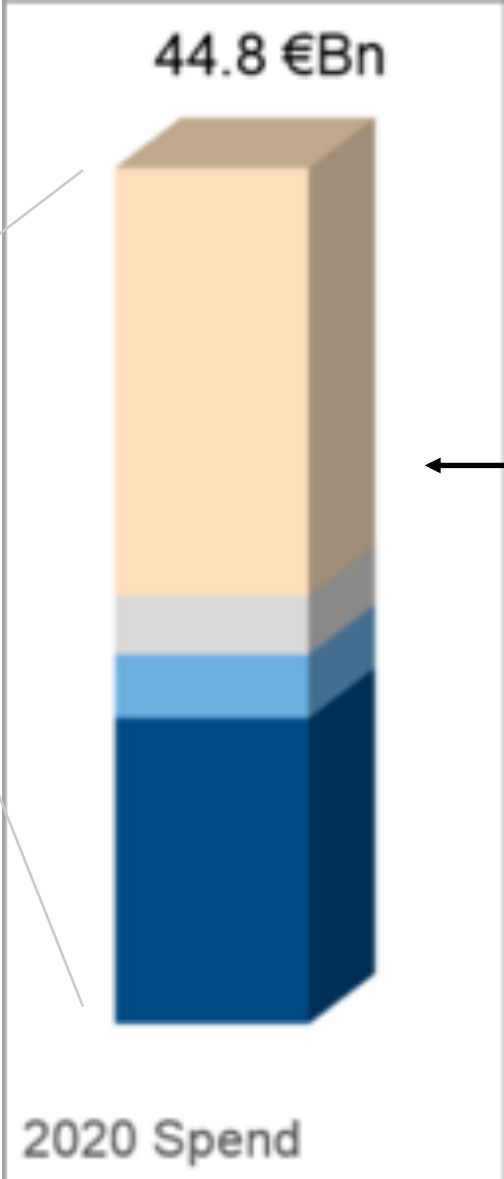


EU spending on clouds

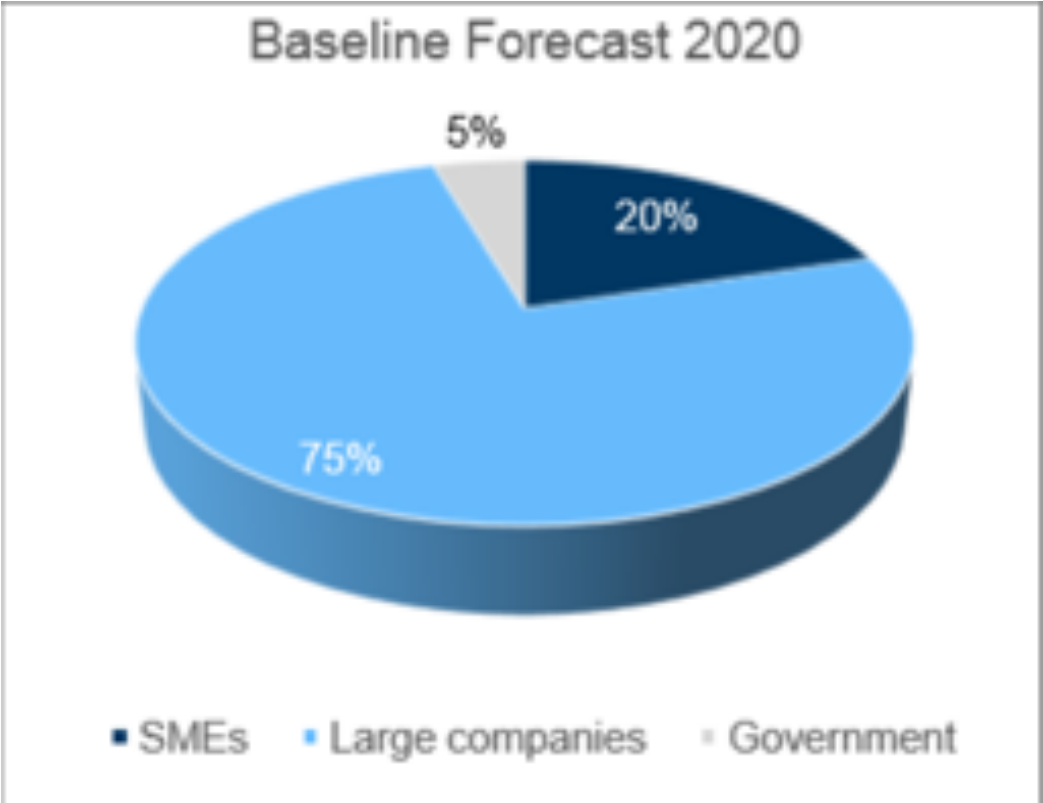
2013: 2.8 billion euro (2.6% of total IT spending)

2015: 5.9 billion euro (4.5% of total IT spending)

2020: 44.8 billion euro (10.8% of total IT spending)



Is this cloud...?



■ SaaS ■ PaaS ■ IaaS ■ Private Cloud - IaaS only

Ondanks het grote belang van de publieke cloud voor grote Nederlandse organisaties, is slechts op beperkte schaal sprake van een **strategische wisselwerking** met de grote aanbieders. Enerzijds kiezen IT-verantwoordelijken zelf voor vrijblijvendheid en het **voorkomen van lock-in**. Anderzijds staat de **grote schaal** en internationale oriëntatie van deze leveranciers zo'n partnership in de weg.



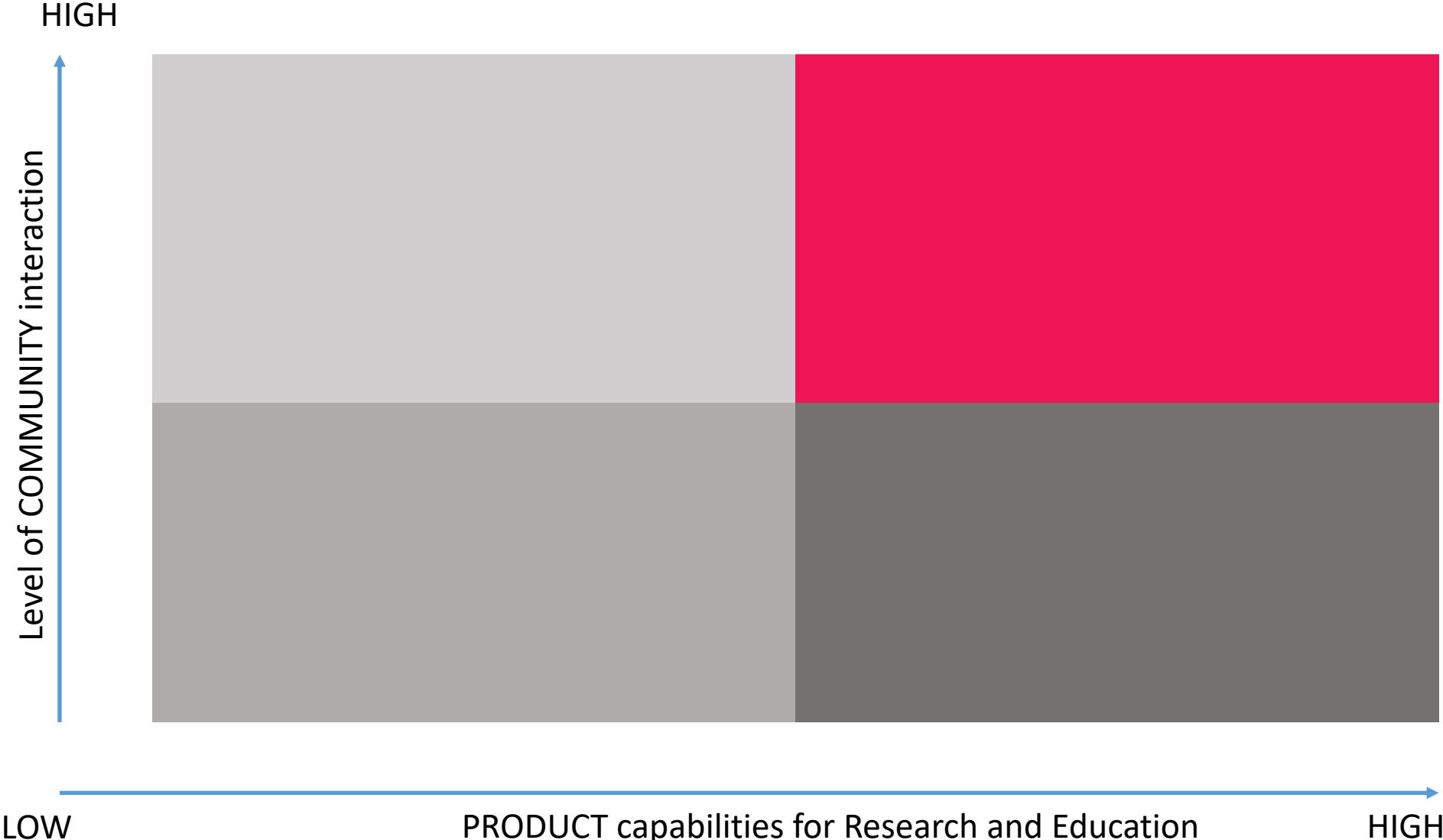
Nagenoeg alle organisaties maken gebruik van de publieke cloud of overwegen dit te gaan doen. Voordelen worden breed onderkend. Denk aan een grote mate van schaalbaarheid, time-to-market, wendbaarheid, integratie, flexibiliteit, snelheid, lagere tco, robuustheid, redundantie, veiligheid, altijd technisch 'up to date', beheer- en gebruiksgemak . De IT-functie is hierdoor beter in staat om zich te richten op de voor de business en het bedrijf onderscheidende zaken. Bovendien is de cloud direct of indirect van positieve invloed op medewerkerstevredenheid en -betrokkenheid.



SAMEN komen is een **begin**, **SAMEN** blijven is **voortgang**.
SAMEN werken is **succes**.

Samen Leven

Supplier analysis matrix





BRING THE CLOUD ON THE GROUND

Making cloud services accessible: easy and safe to use through pan-European collaboration and agreements





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, build and buy

Public clouds: procure from commercial suppliers

Community clouds: develop and operate sector
specific solutions

One digital single market, with many cloud services



Interview Andrus Ansip

Zijn thuisland geeft het goede voorbeeld. Nu probeert eurocommissaris Andrus Ansip, voormalig premier van Estland, alle 28 Europese lidstaten samen te smeden tot één digitale markt. „Het is nodig om economisch te overleven.”

„We hebben in de Europese Unie al decennialang één markt in de fysieke wereld en daar profiteert iedereen van. De digitale markt bestaat nog niet, al telt Europa meer dan 500 miljoen gebruikers. Ons leven, onze economie, wordt elke dag digitaal en toch worden de barrières tussen de lidstaten hoger. Die barrières moeten we afbreken.”

Dus de fysieke locatie van de data of datacentra speelt geen rol meer?

„Nee. Datalocalisatie is volgens mij een doodlopende weg: het is geen oplossing en heeft geen toekomst. Onze strategie is gericht op een vrije en veilige datastroom binnen de Europese Unie En die moet ook buiten Europa gelden, zoals in de VS.

Waarom kost het 13 euro om een pakketje van Nederland naar Spanje te sturen en 32 euro als je een pakketje van Spanje naar Nederland stuurt? Waarom werkt Uitzending Gemist niet in het buitenland en weigert een Italiaanse webwinkel je Nederlandse creditcard?



EU
Digital Single Market

The background of the slide is the flag of the European Union, featuring a circle of twelve gold stars on a blue field. The stars are arranged in a circle, with some appearing slightly blurred or out of focus, giving a sense of depth. The text is centered in the middle of the flag.

Europa

Grootste producent van
onderzoeksgegevens ter wereld
Maar infrastructuur
onvoldoende en
gefragmenteerd
Daarmee 'big data'
onvoldoende benut

EC wil bestaande infrastructuur
voor onderzoek
versterken en meer
verbinden,
via de European Open Science
Cloud.

PREPARATION

USER &
ORGANISATIONAL
REQUIREMENTS

DATA &
RISK
CLASSIFICATION

SOURCING DECISION
(on-premise,
community cloud,
public cloud)

EXECUTION

PROCUREMENT
(tender, legal,
contract- & vendor
management)

INTEGRATION
network- & IdM
connection,
multi-cloud portal

USER & WORKLOAD
MANAGEMENT
COST CONTROL



We willen
naar de cloud
maar.....

IN DE CLOUD

Data veilig

Leverancier moet zich houden aan
Europese en nationale wet- en regelgeving

Dienst afnemen via
instellings-inkoop-processen

Dienst betaalbaar
met voorspelbare kosten

Niet betalen voor netwerkverkeer

Netwerk koppeling

Inloggen met instellingsaccount;
Identity Management integratie

UIT DE CLOUD

Data terughalen

of verplaatsen naar andere leverancier

Benefits of the pan-European GEANT framework agreements

Discounted prices for all institutions, large and small

Ready-to-use agreements which comply with EU data protection law, including GDPR

Invoice billing, no credit card needed, accommodating capital expenditure through upfront commitments

Transfer existing educational licenses to the cloud

Manage usage and spending

Sign your contract under local law

Reduced traffic costs, through suppliers' connections to the GÉANT network

Single sign-on support (SAML2)



EU institutions can buy the offerings directly
There is no need to run your own tender

GÉANT cloud catalogue, IaaS offerings



Amazon Web Services

via resellers

dimension
data



Microsoft Azure

via resellers

ITsoft

Vancis

CloudSigma



interoute



la **telecom**

SPARKLE

T · · · Systems · · ·

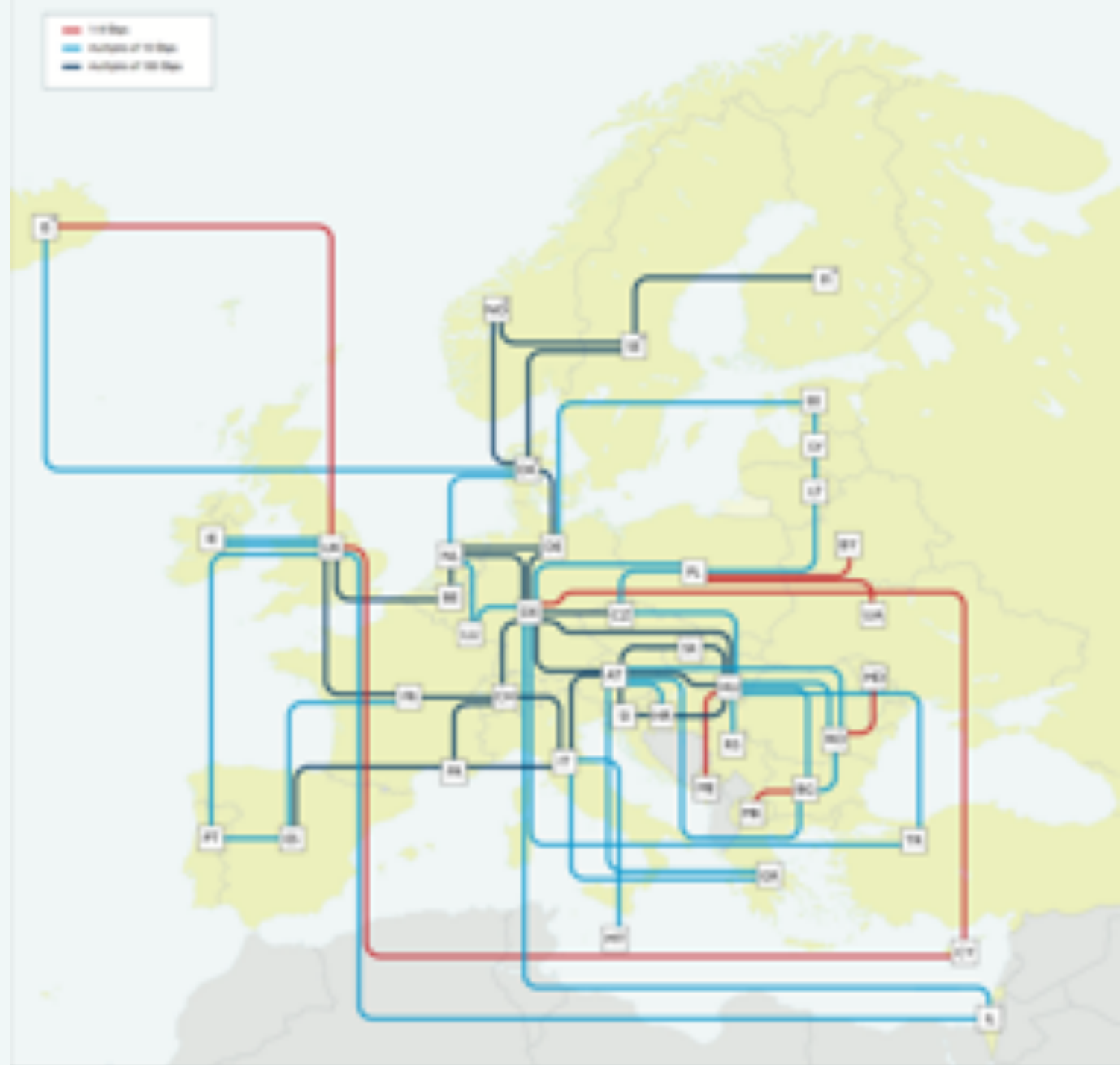


Advanced pan-European backbone network connecting National Research and Education Networks (NRENs) across Europe
More than 50,000 km in length.

DATA VOLUME

Over 1000 terabytes of data are transferred every day

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





Federated Identity Management and single sign-on





SURFconext - the cloud integrator for higher education and research



Blackboard



130+ services connected
agreements, including privacy & security

eduGAIN interconnects identity federations
around the world



Using SAML2
protocol

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

Risk classification for sourcing decisions

LOW RISK

Data for public use

Loss of confidentiality, integrity, or availability of the data or system has no significant impact

MEDIUM RISK

Personally Identifiable data
Data is not generally available to the public

Loss of the data or system could have a mildly adverse impact

HIGH RISK

Sensitive (Personally Identifiable) data

Loss of the data or system could have a significant adverse impact on our mission, safety, finances or reputation.

| Data type | On-premise (at the institute) | In country | In EU + EEA | Anywhere, In non-EU non-EEA |
|--------------|-------------------------------|------------|--------------------------------|-----------------------------|
| public | Y | Y | Y | Y |
| unrestricted | Y | Y | Y | Y |
| restricted | Y | Y | Y | N |
| confidential | Y | Y | Y, but only in community cloud | N |
| secret | Y | Y | Y, but only in community cloud | N |

| DATA CLASSIFICATION QUESTIONS | <data type> |
|---|-------------|
| | (y/n) |
| Confidentiality [1 - Open, 2 - Restricted, 3 - Confidential] | |
| Can data be accessed publicly without special access rights (user credentials)? | |
| If not, does the data considered contain: | |
| data related to research projects shared with the project participants | |
| financial data (e.g. budget planning, accounting reports) | |
| personal identifiable data (e.g. customer data, employee data, mail, accounting data, disciplinary matters, qualifications...) | |
| sensitive personal data (e.g. physical or mental health data, ethnic, political...) | |
| Data related to corporate secrets (e.g. formulas, procedure descriptions, contracts, finance, exam questions...) | |
| Is the data confidentiality directly associated with mission-critical business process, legal requirements or contractual obligations to the users? | |
| Integrity [1 - Low, 2 - Medium, 3 - High] | |
| if the data is considered primary or unique: | |
| can it be re-created/reproduced identically with acceptable cost or reputation loss? | |
| if the data is NOT considered primary or unique (secondary data): | |
| can it be restored identically with no or low cost or reputation loss (e.g. backup data)? | |
| can it be restored identically with acceptable cost or reputation loss (e.g. recalculating primary data)? | |
| Can data changes or destruction be promptly/automatically detected? | |
| Is the data integrity directly associated with mission-critical business process, legal requirements or contractual obligations to the users? | |
| Availability [1 - Low, 2 - Medium, 3 - High] | |
| Is data processed permanently in real-time, so the maximum down-time must count in seconds or minutes (e.g. log archiving)? | |
| if not, is data processed occasionally: | |
| periodically in fixed intervals (e.g. hourly, daily, monthly) or on scheduled dates (e.g. 3:00 a.m., | |

| Gevolg schade | Schadecategorieën | | | |
|---------------|--|--|--|---|
| | financieel | imago | onderwijs | certificatie |
| klein | Directe schade ligt tussen 0 en €50.000 | Een klein aantal negatieve berichten in lokale media (inclusief sociale media) | Hooguit verstoring van een beperkt aantal activiteiten op een instituut of vakgroep | Geen invloed op onderwijscertificatie |
| middel | Directe schade tussen €50.000 en €250.000 | Negatieve berichtgeving in de media gedurende een paar dagen (inclusief sociale media) | Verstoring van een deel van het onderwijs (zoals een deel van instituut of vakgroep) | Extra toezicht op onderwijscertificatie |
| groot | Directe schade tussen €250.000 en €1.500.000 | Aanhoudende negatieve berichtgeving in de lokale media (inclusief sociale media) | Verstoring van een groot deel van het onderwijs op een of meer instituten. | Beperking van onderwijscertificatie |
| catastrofaal | Directe schade is groter dan €1.500.000 | Aanhoudende negatieve berichtgeving in de landelijke media (inclusief sociale media) | Mere deel van het onderwijs wordt onmogelijk op een of meer instituten | Verlies van onderwijscertificatie |

| Gevolg schade | B, I of V classificatie |
|---------------|--|
| Klein | L (laag) |
| Middel | M (midden) |
| Groot | M of H (hoog) |
| Catastrofaal | H grote hoeveelheden of continuïteit in gevaar |

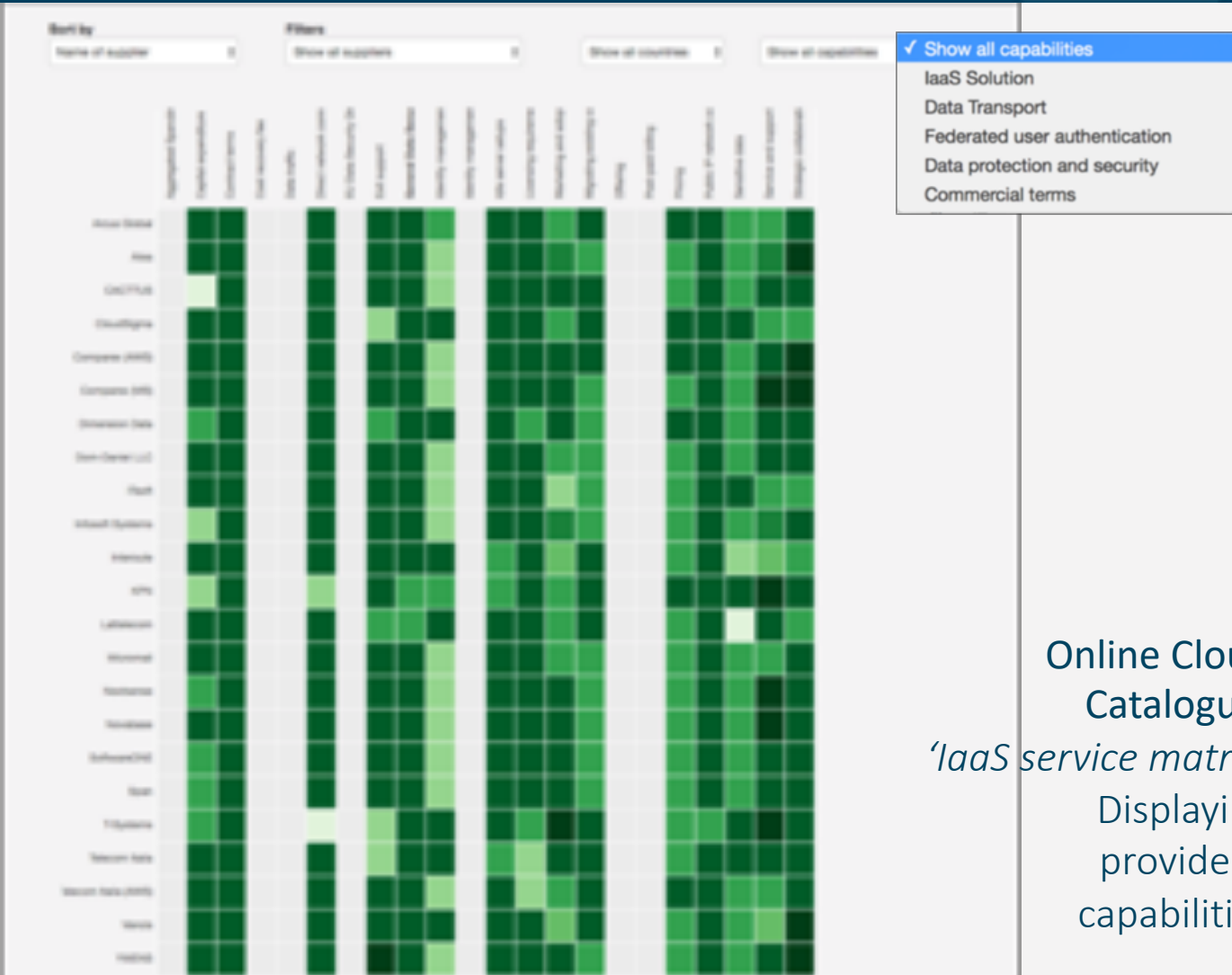
| Risico | Gevolg schade | | | |
|-----------------|-------------------|---------------------|---------------------|--|
| | klein | middel | groot | catastrofaal |
| Kans op inbreuk | | | | |
| dagelijks | acceptabel risico | bespreekbaar risico | ontelaatbaar risico | Risico valt onder Business Continuity Management |
| maandelijks | acceptabel risico | bespreekbaar risico | ontelaatbaar risico | Risico valt onder Business Continuity Management |
| jaarlijks | acceptabel risico | bespreekbaar risico | ontelaatbaar risico | Risico valt onder Business Continuity Management |
| zelden | acceptabel risico | bespreekbaar risico | ontelaatbaar risico | Risico valt onder Business Continuity Management |

| | |
|---|--|
|  | Risico valt onder Business Continuity Management |
|  | ontelaatbaar risico |
|  | bespreekbaar risico |
|  | acceptabel risico |

<https://www.surf.nl/themas/beveiliging/beveiligingsdiensten-en-tools/informatiebeveiliging/index.html>

Online Cloud Catalogue:

'IaaS service matrix' - Displaying providers' capabilities



Online Cloud Catalogue: 'IaaS service matrix' Displaying providers' capabilities

Sort by

Name of supplier

Filters

Show all suppliers

Belgium

Commercial terms

| | Agreement number | Capital expenditure | Contract terms | Cost recovery fee | Site access settings | Licensing requirements | Required working in | Asset write-offing | Asseting |
|-----------|------------------|---------------------|----------------|-------------------|----------------------|------------------------|---------------------|--------------------|-------------|
| 2024-0001 | | Dark Green | Dark Green | | Dark Green | Dark Green | Dark Green | | Dark Green |
| 2024-0002 | | Dark Green | Dark Green | | Dark Green | Dark Green | Light Green | | Light Green |
| 2024-0003 | | Dark Green | Dark Green | | Dark Green | Dark Green | Dark Green | | Dark Green |
| 2024-0004 | | Dark Green | Dark Green | | Dark Green | Dark Green | Light Green | | Light Green |
| 2024-0005 | | Light Green | Dark Green | | Dark Green | Light Green | Light Green | | Dark Green |
| 2024-0006 | | Dark Green | Dark Green | | Light Green | Dark Green | Dark Green | | Light Green |
| 2024-0007 | | Dark Green | Dark Green | | Dark Green | Dark Green | Light Green | | Light Green |
| 2024-0008 | | Light Green | Dark Green | | Dark Green | Dark Green | Light Green | | Light Green |
| 2024-0009 | | Dark Green | Dark Green | | Dark Green | Light Green | Dark Green | | Dark Green |
| 2024-0010 | | Dark Green | Dark Green | | Dark Green | Dark Green | Dark Green | | Light Green |



AC14 – Migration of existing contracts (Awarding Criteria)

Institutions may already have running contracts with Tenderers who also may be awarded framework agreements under this tender. These institutions are likely to be interested in migrating their existing contracts in order to be able to make use of the (expected) improved conditions and avoid future discussions on conditions resulting from two contracts.

Q. Please provide information on the following:

A. Will you accept or facilitate customers who are entitled to procure the services via their country's NREN to migrate their existing contracts into this GÉANT framework agreement? Thereby pricing and conditions of the existing contracts are effectively replaced by the pricing and conditions from the GÉANT framework agreement.

B. If so, please describe the procedure and expected duration to have this completed.

Positionering IaaS aanbieders

| Lift & shift | Hyperscale clouds; rearchitecture | Enterprise application support |
|--------------|--------------------------------------|-----------------------------------|
| Vancis | Microsoft | Dimension Data |
| KPN | Amazon AWS | |
| SURFnet SVP | | |



CLASSIC MODEL





VIRTUAL MACHINES



CONTAINERS, micro-applications
SERVERLESS, micro-functions

*Containers as a Service (CaaS)
Docker Cloud, Amazon ECS*

*Function as a Service (FaaS), Serverless
AWS Lambda, Google Cloud Functions,
Azure functions*

 Provided by vendor
 Managed by customer

Rehosting: Lift-and-shift; replicate in-house apps in the cloud without re-design.

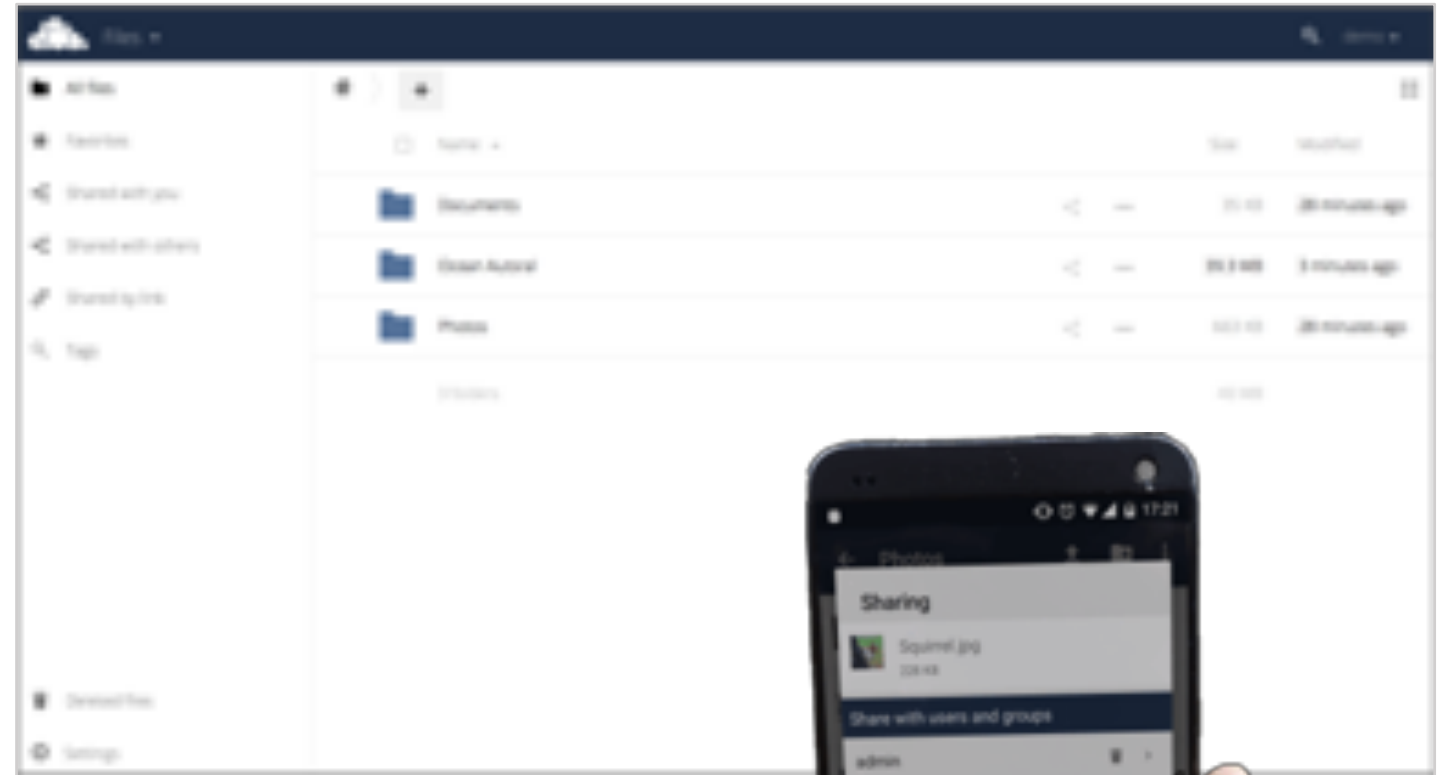
Re-platforming: do not change the core of the application but optimise

Repurchasing: move to a new product (from in-house to SaaS)

Re-architecting: develop from the ground up

Retire: sunset the service

Retain: do nothing



SURF DRIVE



POWERED BY **SURF**



Cloud Orchestration Cloud Management Platforms

The ability to control and move virtual machine workloads across different suppliers.

Centralised metering, alerts, billing, usage caps, cost control, reporting and workload optimisation.

SURFcumulus



Navigation: Servers, Catalog, Groups, Reports, Docs, Profile, Notifications, Settings

My Servers

All Servers

| Server | Group | Environment |
|--|-------|-------------|
| You have no active servers at this time. | | |

My Groups

All Groups

| Group | Count |
|--------------------|-------|
| SURF-DOWD | 4 |
| surfnet.nl/SURF-ET | 10 |
| surfnet.nl | 645 |

My Orders

Showing 1 of 4 Orders

| Order ID | Order Type | Status | Group |
|----------|------------|---------|--------------------|
| W075 | Hybrid | Success | SURF-DOWD |
| W076 | Hybrid | Success | SURF-DOWD |
| W028 | Hybrid | Warning | surfnet.nl/SURF-ET |
| W185 | Hybrid | Warning | SURF-DOWD |
| W110 | Hybrid | Success | surfnet.nl/SURF-ET |

Top Blueprints

Showing 5 of 10 Catalog

- Hybrid server
- GenOS 4
- GenOS 7
- CloudBet
- Custom Server

Reports

Showing 10 of 16 All Reports

- Cost Dashboard
- Group Cost Details
- Custom Server Report
- Detailed Allocation Trends

Recent Activity

- new! surfnet.nl Console access requested by Ruger Tromp
- new! W028 Console access requested by Ruger Tromp

Servers

Show Filters

3 selected

| Hostname | IP | OS | Status | Owner | Group | Environment | Labels | Added |
|---|----------------|----|--------|----------------------|-----------|-------------------------------------|-----------|------------------|
| CMF-SW4ED-Debian6.1-template-v44-2017005-rental | | | Active | None | SURF-DOWD | SURF-DOWD Environment | | 10/2/17 1:00 PM |
| cumula08 | 1.1.1.51 | | Active | None | SURF-DOWD | SURF-DOWD Environment | | 3/29/17 12:00 PM |
| cumula0 | 1.1.1.50 | | Active | None | SURF-DOWD | SURF-DOWD Environment | | 9/19/16 11:00 AM |
| surfnet.nl | 145.100.17.227 | | Active | nl.vogels@surfnet.nl | SURF-ET | SIP Amsterdam voor SURFnet-ET (M30) | nl.vogels | 8/28/17 4:30 PM |

Servers / Server frp007



Powered Off

- Refresh info
- Change Attributes
- Change Resources
- Create Snapshot
- Delete Snapshot
- Force Power-Down VM
- Mount ISO
- Unmount ISO

Details | Disks | Networks | Parameters | Jobs | History | Stats | Power Schedule

Organization

Owner: Frank Pirost
 Group: sub-0007
 Environment: changed
 Resource: vmrk5-subnet7
 Name: frp007
 Label: None

Hardware

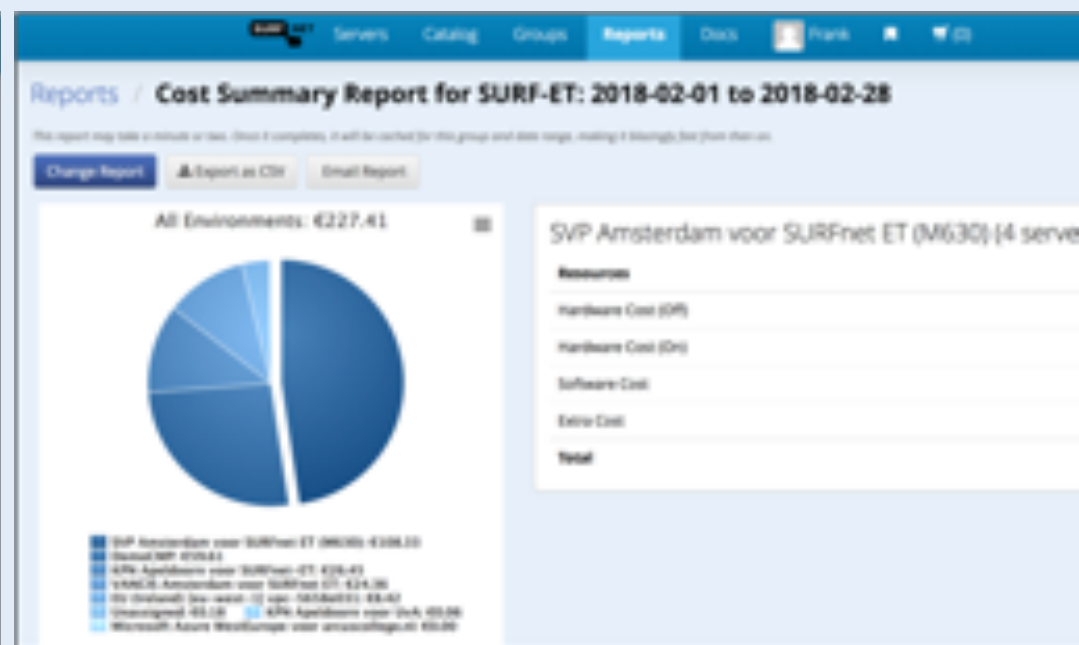
RAM: 16
 CPU: 16 vCPU
 Disk: 80 GB

Configuration

Status: Historical
 Hostname: frp007
 IP Address: 142.101.124.8
 Date Added: 9/29/17 10:57 AM

Details | Disks | Networks | Parameters | Jobs | History | Stats | Power Schedule

| Date | Type | Owner | Event | Job |
|------------------|---------------------------|--------------|---|-------------------------------|
| 9/29/17 5:56 PM | Server Deletion Event | Frank Pirost | Server was decommissioned | Delete Server Job 676797 ✓ |
| 9/29/17 5:51 PM | Server Notification Event | Frank Pirost | Console access requested by Frank Pirost | None |
| 9/29/17 2:00 PM | Server Change Event | None | vmrk path of disk 'Hard disk 1' changed to '(CloudServices_092_095) frp007/frp007.vmrk'. Datastore of disk 'Hard disk 1' changed to 'CloudServices_092_095' | None |
| 9/29/17 10:55 AM | Server Creation Event | Frank Pirost | Server record created by a provisioning job | Provision Server Job 669901 ✓ |



Reports / Highest Cost Servers

Includes all servers in groups you have permission to view

| Server | Rate | Owner | Group | Environment |
|---------------|---------------|----------------|----------------------|--|
| vmwarevcenter | €116.87/month | Nils Vaght | surfnet.nl / SURF-ET | SVP Amsterdam voor SURFnet ET (M630) (4 servers) |
| vmwarevcenter | €68.73/month | None | SURF-DEMO | SURF-DEMO Environment |
| vmwarevcenter | €68.24/month | Vergil Pijpers | surfnet.nl / SURF-ET | DemoCMP |
| vmwarevcenter | €41.78/month | None | SURF-DEMO | SURF-DEMO Environment |
| vmwarevcenter | €40.39/month | None | surfnet.nl / SURF-ET | KPN Apeldoorn voor SURFnet ET (M630) (4 servers) |
| vmwarevcenter | €40.39/month | Bart Boema | surfnet.nl / SURF-ET | KPN Apeldoorn voor SURFnet ET (M630) (4 servers) |
| vmwarevcenter | €31.68/month | Nils Vaght | SURF-DEMO | SURF-DEMO Environment |



Dropbox



Google
Cloud Platform

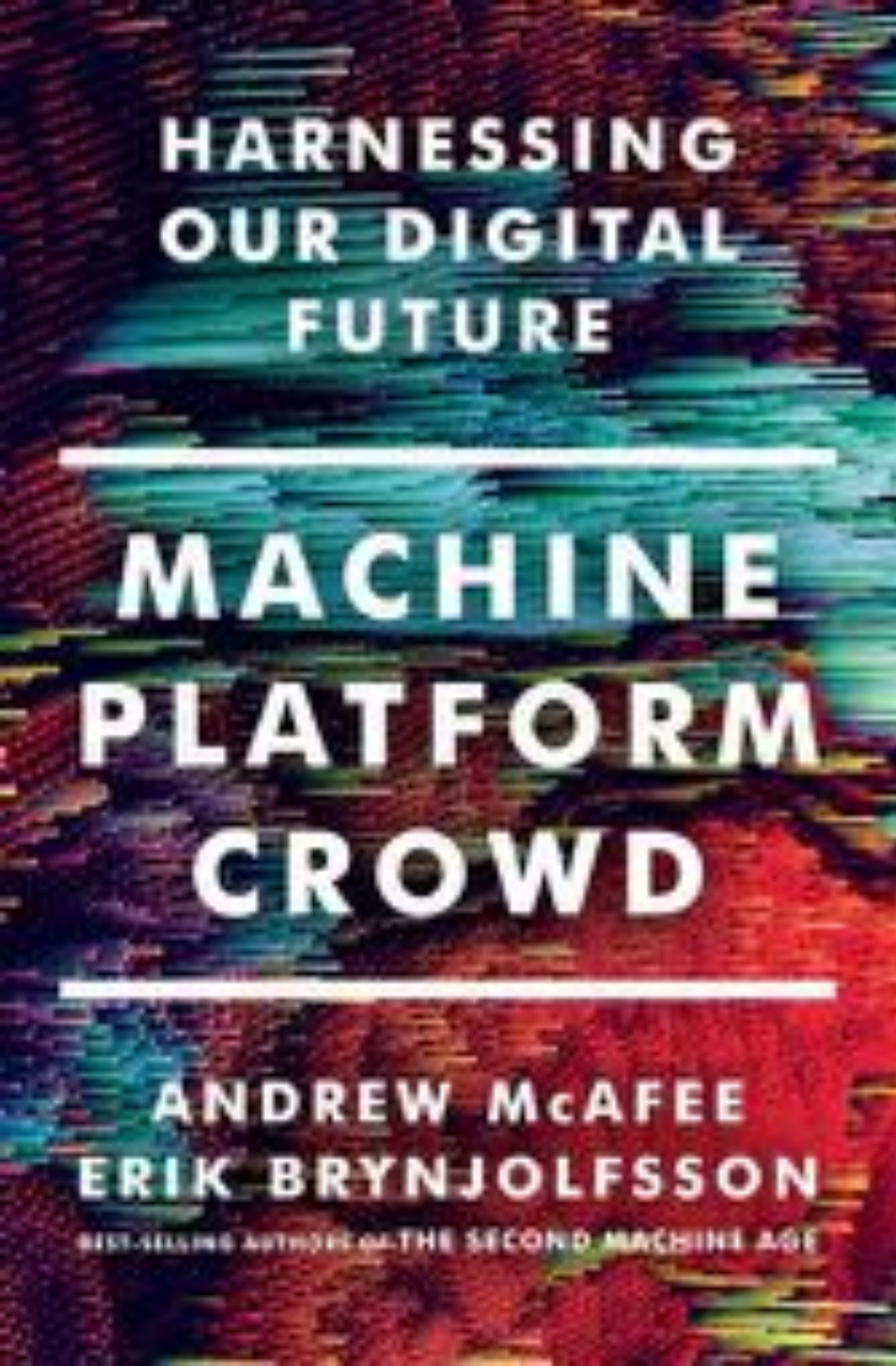
Google Cloud Platform & Dropbox
dedicated offers for the European
research and education community

Ready to use agreements for institutions
Consume up to national tender threshold

Compliant with EU data
protection regulation (GDPR)

Single sign-on support (SAML2)

Special educational prices



We must rethink the integration of minds and machines, of products and platforms, and of the core and the crowd

McAfee, Andrew; Brynjolfsson, Erik.

Machine, Platform, Crowd:
Harnessing Our Digital Future



Google's AlphaGo AI beats the world's best human Go player

Google DeepMind supercomputer learns 3,000 years of human knowledge in 40 days

Jie said that AlphaGo's performance left him "shocked" and "deeply impressed" in post-match statements, noting that the moves the computer played "would never happen in a human-to-human match."



<http://www.telegraph.co.uk/science/2017/10/18/alphago-zero-google-deepmind-supercomputer-learns-3000-years/>

<https://techcrunch.com/2017/05/23/googles-alphago-ai-beats-the-worlds-best-human-go-player/>

Drones will watch Australian beaches for sharks with AI help

They'll spot sharks with greater accuracy than humans alone.



Jonny Dwyer
14.07.17 in [Australia](#)

9
Comments

124
Shares



Photo: Shutterstock via Getty Images

Humans aren't particularly good at spotting sharks using aerial data. At best, they'll accurately pinpoint sharks 50 percent of the time — not very helpful for swimmers worried about stepping into the water. Australia, however, is about to get a more reliable way of spotting these underwater predators. As of September, little Zipper drones will monitor some Australian beaches for signs of sharks, and pass along their imagery to an AI system that can identify sharks in real time with 90 percent accuracy. Humans will still run the software (someone has to verify the results), but this highly automated system could be quick and reliable enough to save lives.

The detection AI is a governmental machine-learning system. The team trains the system to both look for sharks based on aerial videos as well as distinguish them from other life on the water. That approach doesn't just help it identify sharks, though. It can also flag dolphins, whales and other sea creatures of interest, which could give researchers an additional way to track populations.

Artificial intelligence identifies plant species by looking at them



Machine learning algorithms have successfully identified plant species in massive herbaria just by looking at the dried specimens. According to researchers, similar AI approaches could also be used identify the larvae of fly larvae and plant fossils. [From Nature](#)

There are roughly 1,000 herbaria in the world, housing an estimated 850 million specimens — only a fraction of which has been digitized. But the swelling data sets, along with advances in computing techniques, excited computer scientist Erick Mata-Montero of the Costa Rica Institute of Technology in Cartago and botanist Pierre Bonnet of the French Agricultural Research Centre for International Development in Montpellier, to see what they could make of the data.

Researchers trained... algorithms on more than 200,000 scans of herbarium sheets, encompassing more than 1,000 species. The computer program eventually identified species with nearly 80% accuracy: the correct answer was within the algorithms' top 5 picks 90% of the time. That, says Penn State paleobotanist Peter Wil, probably outperforms a human taxonomist by quite a bit.

Such results often worry botanists, Bonnet says, many of whom already feel that their field is undervalued. "People feel this kind of technology could be something that will decrease the value of botanical expertise," he says. "But this approach is only possible because it is based on the human expertise. It will never remove the human expertise." People would also still need to verify the results, he adds.

['Going deeper in the automated identification of Herbarium specimens'](#)
(BBC Evolutionary Biology)



Analyse audio, pictures and video with machine learning algorithms from IBM, Google and Microsoft

A screenshot of a video player interface. On the left is a sidebar menu with icons for Home, Search, Recent, and a list of users. The main area shows a video player with a video frame depicting a woman smiling. The video player includes a progress bar at the bottom and a 'Download' button in the top right corner. The video frame shows a close-up of a woman with dark hair, smiling broadly, with another person's shoulder visible in the foreground.



Online machine learning chat bot

The QnA Maker lets you create a knowledge base of questions and answers from online and editorial sources.

Microsoft QnA Maker is a free, easy-to-use, REST API and web-based service that trains AI to respond to user's questions in a more natural, conversational way.

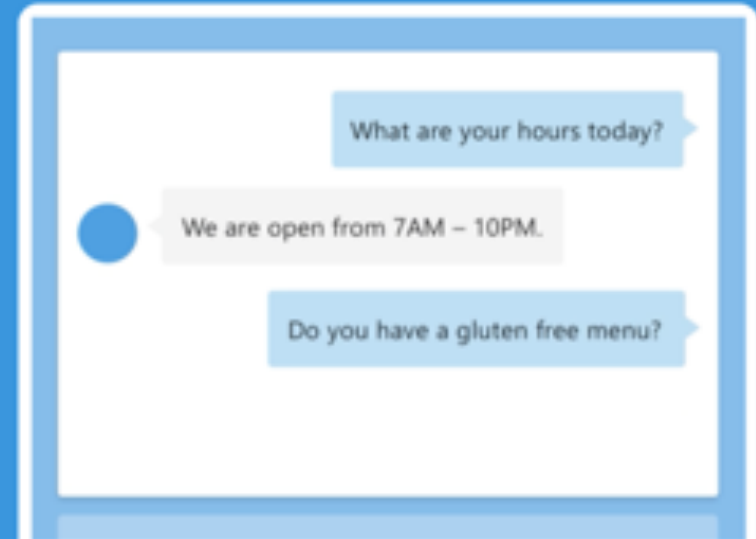
Integrate Microsoft Cognitive Services to enable your bot to see, hear, interpret and interact in more human ways.

QnA Maker

PREVIEW

From FAQ to Bot in minutes.

Build, train and publish a simple question and answer bot based on FAQ URLs, structured documents or editorial content in minutes.



<https://qnamaker.ai>

SURFacademy - blijven over actuele ICT-thema's

Workshop SURF Cloud voor beslissers en beleidsmakers

Datum: 16 NOV 2017

Op 16 november 2017 organiseert SURFacademy een eendaagse (SURF) Cloud training samen met haar partner Weolcan.

| Datum | Tijdstip | Locatie | Kosten |
|-------------|----------|---------|--------|
| 16 nov 2017 | 09:00 | | |

Voor kennis nodig? Nee

SURFacademy - blijven over actuele ICT-thema's

Cloud workshop van 22 NOV 2017 tot 23 NOV 2017

Op 22 en 23 november 2017 organiseert SURFacademy samen met Weolcan een (tweedaagse) Cloud workshop.

| Datum | Tijdstip | Locatie | Kosten |
|-------------|-------------|---------------|---------------------------|
| 22 nov 2017 | 09:00-17:00 | SURF, Utrecht | Euro 500,- p.p. Excl. BTW |
| 23 nov 2017 | 09:00-17:00 | | |

Voor kennis nodig? Nee

Naast een aantal theoretische onderwerpen doe je hands-on ervaring op met:

- het bedienen van Amazon, Azure en VMware Cloud
- het geautomatiseerd provisionen van workloads naar deze clouds
- het implementeren van een geavanceerd cloudontwerp

De workshop bestaat uit een 5-tal modules, waarin onderwerpen als Cloud Strategie, Cloud Architectuur, Governance & Compliance en de laatste trends worden behandeld. Ook ga je zelf aan de slag met verschillende SaaS-toepassingen en software tools in Microsoft Azure.

SURFacademy - blijven over actuele ICT-thema's

Bijeenkomst SURFcumulus

Datum: 21 NOV 2017

Wil je weten wat de hybride SaaS-dienstverlening SURFcumulus voor jouw instelling kan betekenen, wil je meer weten over de use-cases en ben je benieuwd naar de nieuwe functionaliteiten? Kom naar de bijeenkomst op 21 november.

| Datum | Tijdstip | Locatie | Kosten |
|-------------|----------|---------|--------|
| 21 nov 2017 | | | |

Voor kennis nodig? Nee

Over SURFcumulus

Seminar Dimension Data: De weg naar hybride IT

Datum: 28 NOV 2017

Hoe moet je als instelling je datacenter en architectuur aanpassen om optimaal gebruik te maken van hybride IT? Tijdens de bijeenkomst 'De weg naar hybride IT' op 28 november 2017 krijg je antwoord op deze vraag en laten we voorbeelden van verschillende instellingen zien.

| Datum | Tijdstip | Locatie | Kosten |
|-------------|-------------|---------------|--------|
| 28 nov 2017 | 14:00-16:00 | SURF, Utrecht | Geen |

Voor kennis nodig? Nee

Hoe pak je de overgang naar hybride IT aan?

Waarschijnlijk maakt jouw instelling al op verschillende manieren gebruik van hybride IT: een combinatie van verschillende infrastructuur- en rekentechnologieën, bijvoorbeeld:

- je eigen technologieën in een on-premises datacenter met diverse netwerk- en beveiligingsystemen
- een gehoste omgeving of een managed service bij een (lokale) private-cloudleverancier
- public cloud in combinatie met private cloud en je eigen datacenter
- SaaS-diensten zoals Office 365, Learning Platforms, ServiceNow of andere SaaS-toepassingen.

Workshop COMPAREX

Datum: 27 NOV 2017

Benieuwd naar het SURFcumulus-aanbod van Microsoft Azure? Of moet het bestaande Azure-contract van jouw instelling worden overgezet naar COMPAREX? Kom naar de workshop COMPAREX op 27 november 2017.

| Datum | Tijdstip | Locatie | Kosten |
|-------------|-------------|---------------|--------|
| 27 nov 2017 | 10:00-12:00 | SURF, Utrecht | Geen |

Voor kennis nodig? Nee

Type onderwerp: Beleidsmatig onderwerp

Soort bijeenkomst: Workshop

voor bestaande Azure-afnemers...

Seminar Digitale transformatie in het onderwijs

Datum: 12 DEC 2017

Hoe ver is het onderwijs met digitale transformatie: de overgang van on-premises IT-diensten naar de cloud? Ontdek tijdens deze bijeenkomst de inspirerende visie van IT-visionair Marco Gianotten hierop. En maak kennis met de verschillende ervaringen van instellingen die met SURFcumulus de weg naar digitale transformatie zijn ingegaan.

| Datum | Tijdstip | Locatie | Kosten |
|-------------|-------------|---------------|--------|
| 12 dec 2017 | 12:30-16:00 | SURF, Utrecht | Geen |

Voor kennis nodig? Ja

Type onderwerp: Beleidsmatig onderwerp

Soort bijeenkomst: Seminar

Keynote: empathie toepassen bij digitalisering

De allerbelangrijkste competentie voor succesvolle digitalisering is empathie. Hoe pas je emotionele onderwerpen toe? Wat is experience design? IT-visionair [Marco Gianotten](#) laat in zijn keynote zien hoe soft innovation het verschil maakt voor de digitale transformatie van het onderwijs. Hij is auteur van het boek 'Digital Empathy: When Tech Meets Touch'.

GÉANT clouds Website

<https://clouds.geant.org/support-for-institutions/>

NREN Cloud Contacts

Use this contact list to get help, cloud access to resources, or for your organization's cloud strategy. Please refer to the cloud access management page.

Search

- Albania (B4Net)
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Support for institutions

Thanks to a range of European institutions, GÉANT and its allies around Europe can offer you a range of services that are available as a service to institutional computing services, infrastructure, or systems.

What services are available?

Leading global cloud providers like Amazon Web Services, Microsoft Azure and a range of other infrastructure providers.

Why should you use the cloud framework?

Quite simply to save money over time. There are discounted prices available, which apply to all members, large and small, across the country using the framework. You can also use the framework to help you with your infrastructure using the IaaS, PaaS and SaaS models. The framework also offers you the ability to use the services directly, without having your own hardware and its associated costs.

Being and providing a multi-tenant designed to build financial structures in research and education institutions so that you can manage usage and control spending. In addition, there are a range of additional benefits.

• Network traffic costs are significantly lower than in a traditional environment. The support is for NREN's high...

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Find out More



How the data preservation service works

Watch the video

Need help?

Find your country's help information

What services are available?

GÉANT Cloud Catalog

GÉANT Cloud Data Classification Tool

What are the data storage services?



Cloud Security Myths & Opportunities - Amazon Web Services Webinar

There are many myths relating to cloud security which can deter using considering the advantages of cloud computing for their operations or research. This webinar will address these concerns and identify the opportunities that cloud services bring. Tim Rains is Amazon Web Services' Regional Leader for Security and Compliance in Europe, Africa, and helps federal, regional and local governments understand the security requirements of cloud services.

17 oktober

<https://eventr.geant.org/events/2993>

Samen in de cloud

andres@surfnet.nl

<https://clouds.geant.org>

