

# CTO Forum - F2F - 25 October 2018

## Logistics

- date: 25.10.2018
- time: 10:00 - 16:00 CET
- venue: NORDUnet office Kastrup (tentative)
- VC room for remote participation:  
<https://nordunet.zoom.us/j/8804330816> or see below agenda for other options
- Dinner on 24 October, 19:30: restaurant [Fuego](#), [Holbergsgade 14](#), Copenhagen - 5 min walk from Kgs Nytorv metro station.

## Registration

Please [register for the meeting](#) in order that dinner, lunch, etc can be provided.

## Agenda (tentative)

1. Quick update on GN4-3 preparations and status (LF)
2. Quick update on EOSC-Nordic (LF)
3. Nordic Cloud Services Strategy
  - a. Intro (LF - 10 min)
  - b. SUNET perspective (30 min)
  - c. UNINETT perspective (30 min)
  - d. FUNET perspective (30 min)
  - e. Lunch (45 min)
  - f. DelC perspective (30 min)
  - g. RHnet perspective (30 min)
  - h. Cloud Services Delivery (JM - 30 Min)
  - i. Open discussion (2h)
4. NORDUnet Science Engagement perspective (30 min)
5. Next steps, Future workshops (15 min)
6. AoB

## Participants

- CSC / FUNET: Harri, Matti, Pekka
- UNINETT: Olav, Anders, Vidar, Olaf
- UNIT: Jan M
- DelC: Martin
- SUNET: Valter, Leif, Pelle
- RHnet: Marius

## Notes

- Round of Introductions
  - Intro from Pekka, stressing importance of Nordic collab and the importance of the CTO Forum for the bigger NDN picture
- GN4-3
  - Briefing on status. Shortening to 44 months
  - We got good resources in WP4, WP5
  - We were less successful on WP6
  - We have a strong role in WP8
  - Leif: the important thing is to have the foot in the door.
  - LF: The project will attempt to be more dynamic;
  - PN: limited resources for CNaaS
- EOSC-Nordic
  - LF give status of consortium and proposal preparatium
  - LJ reminds us about the dual-organisation e-Infra situation in Sweden
  - Pekka reminds everybody that going forward,
- Cloud strategy intro by Lars
  - 10.000 ft perspective today, identification of future joint activities, services, collaborations, actions
  - Possible lay the foundation for future workshops
- SUNET perspective
  - Out of scope: public cloud, HPC. SUNET focus is the long tail
  - SUNET strategic focus: edge computing; keep data close to users
  - The long tail is long and has really big volumes, They easily fly under the radar, and are therefore often underserved.
  - The analysis tool of choice is the laptop.
  - What they are asking for is "a national amazon".
  - SUNET want to re-use the existing national / campus hosting capabilities.
  - SUNET want to provide a local, distributed, long-tail service.
  - SUNET want to integrate this with data centre networking and the CNaaS initiative
  - SUNET will build a single platform
  - SUNET will own the facilities and will use a combination
  - Technologies: openstack, CEPH, Leaf-spine datacentre networks, possibly include campus eScience DMZ
  - Network implications: may change the network handover from "two fibres for network" to "Campus datacentre / DMZ + network"

- LJ: would like to federate with HPC (SNIC) infra, offering a single end-user portal and essentially a series of regions.
  - Hybrid cloud storage: different vendors, local storage, public / commercial cloud as "regions" in the storage portal.
  - Timeline: First on-prem hybrid storage deployment in Q1-2019.
  - In the future, to support this, SUNET would like to primarily tender for managed on-prem. Includes tendering for hw / service management (say, OpenStack)
  - SUNET is seeing, say, OpenStack
  - Compute resources are in this are so far limited - i.e., an OpenStack compute cluster next to the storage cluster. Eventually may be
  - Pelle: politically, part of the attraction is the local data centre network, storage and compute node. This has made it a easier sell at the campus level.
  - Will make it easy for SUNET to offer a ScienceDMZ as a managed service
  - Martin: can you circulate documentation.
  - LJ: whitepaper / service description document is possible. Data centre
  - LF: Possible joint action on how to sell something like this
  - PN: documentation, communication is on the list of things to work on
  - Olaf: this makes a lot of sense. Short travelled data is important. LJ: not clear how this will evolve over time. PN: people may be moving away from massive cloud. There's a natural cycle.
  - LF: down the line, integrating over HPC-like, local-long-tail and commercial cloud is an interesting topic / challenge.
  - LJ: at AARNET, the approach is to make all data appear local
- UNINETT Perspective
  - AL: where UNINETT is at the moment, and where we are exploring
  - UNINETT focus on offering lightweight containers in a distributed setup. Have chosen K8s at the four
  - Having a consistent API for the platform is key. K8s API allow the creation of an abstraction from the specifics of in-house, AWS,
  - Want the system to act as a swarm, not a single large resource.
  - Is looking at federation of K8s clusters.
  - Want to exploit a combination of the NO higher-ed resources and commercial cloud, and have it be perceived as a single infra
  - Challenges:
    - Want the development experience to be more smooth
    - Want better security and vulnerability detection
    - L4 services require manual intervention
    - Accounting, centralized is a real challenge, and is needed for a comprehensive service offering
    - Today mostly offering services that do not have a lot of persistent storage
  - Currently have two clusters running. One running on top of a IaaS cluster, one running on a UNINETT Sigma cluster in Tromsø
  - LJ: what kind of components are offered? OK, AL: core K8s, orchestration, a few extra services. More complex services not there yet
  - UH-Sky project is ending this year. Final stages of program lives with UH-Sky
  - One UH-Sky experience is that a cloudification initiative is needed, to help community take up cloud services
  - Question: should UNINETT act more as a single point of contact for infrastructure, or a be a broker. Similar questions exist w FUNET, SUNET
  - AL: users are interested in the service, not the hardware or platform. It's really software-as-a-service we want to do.
  - UNINETT Sigma has built a GPU cluster that can be used for these types of services
  - UNINETT: customers want abstractions. Pekka: FI users are pushing for same thing. JM: there's a Dutch project that is now in production.
  - Lots of discussion of tendering and the implications of IaaS vs on-prem
  - Question:
    - should uninett be a cluster federation provider
    - What kind of ecosystem around the cluster can UNINETT provide (T&I, logging, monitoring, accounting, app-store, ...)
  - LF: PRP / NRP in the US have chosen K8s, and a doing a lot with federating smaller clusters etc. We can connect with them and share experience.
  - Olaf: UNINETT is further developing the Application-as-a-Service / data-analytics-as-a-Service as a portal. Now allows multiple cluster of execution and a hybrid execution platform.
  - Being used also for classes and universities.
  - UNINETT has developed a proof-of-concept, that is now being run by Sigma as a trial service.
  - Development is being shared as part of the GLEMMA project (with CSC, NeIC). Collaboration with CERN. Hope to inject it into GN4-3 WP4T3.
  - Next step will be to integrate with IaaS backends.
  - Pekka: how are we handling accounting / invoicing. OK: in development
  - LF: so UNINETT has two layers of service (for long tail): a K8S-based federated cluster infra service, and a data analytics as a service at a layer above.
  - OK: next evolution step will be to offer machine learning services
  - OK: something like this is a big thing for a single NREN to do, so collaborating would be useful
  - OK, JM: there's items in the GN4.-3 Work Program that could support this
  - OK: you can log in with federated login and try this. Maybe.
- FUNET - CSC cloud strategy
  - CSC cloud roadmap developed some years ago
  - Compute services strategy, CSC compute services portfolio
  - A range of "ssS service models for cloud computing provided by CSC
    - Includes a container-based K8s infra service platform, similar to UNINETT service, to go into full service soon
  - CSC offers a reasonable-sized K8s cluster, and one for sensitive data services
  - There general use cluster is a slice of the HPC platform. The sensitive data cluster is separate.
  - Pekka: CSC is in tender for new HPC platform. So far unknown if the new platform will also be used for cloud services, or if that will be separate.
  - Pekka: billing / accounting is a challenge. This is not built in. LJ: the SUNET service have the accounting built in from the start.
  - LF: the European ideas for Cloud Coins may be something to look into
  - OK: accounting should go hand-in-hand with monitoring, to understand real availability
  - FUNET service evolution
    - FUNET Kampus (CNaaS) - in pilot
    - FUNET Capacity Services - backup in pilot, data centre hosting in planning. Similar to Swedish ideas
    - When FUNET CNaaS was initiated, it was envisioned that it would be the small campuses wanting this. Turns out the large universities are signing up.
    - It is so far not clear if this will be mostly focused on the border management, or will evolve into campus LAN / wifi management.

- PN: SUNET is planning to run one campus network in 2019, in order to test the toolset development.
  - Strategic position
- DelC
  - DelC is doing HPC; those services are not really related to cloud services
  - DelC is also offering the GÉANT IaaS services. However, it has very little uptake
  - a single shared service based on nextCloud - sciencedata.dk
  - DelC would like to do a service similar to sciencedata.dk for computing - an open, free VM service. No backing from campuses so far.
  - At a single Danish campus, individual researchers are procuring VM with their individual credit cards in fairly large quantities, probably above EC procurement limits
  - DelC is working with NeIC in Nordic cloud service project.
  - VN, LF, JM: we have a challenge w/ ensuring communications lines for research support, and not just the business process view.
- RHnet
  - Interested in the services that are being developed
  - Iceland government has contracted with MS for a cloud service for all public sector including education & research. As a result, MS has a lock-in on the Icelandic R&E cloud market.
  - LJ: the challenge of vendor lock-in for basic collaboration tools is massive at the moment.
  - PN: we (NRENs) should be careful promoting these services that can lead to lock-in
  - MO: the above is the reason there's no RHnet cloud strategy
- Cloud Service Delivery
  - GÉANT cloud service delivery framework - it's there, how do the Nordics relate to it
  - Consumption of commercial cloud services may be direct, but the responsibility is still with the institutions
  - Trends
    - our community likes hyperscale / global providers
    - our community appear to like SaaS
    - Hyperscale providers are getting bigger,
    - R&E is falling behind on adoption, our fraction of revenue with providers with them is declining
  - Introduction to the GÉANT activities
    - Leverage joint effort, scale over many NRENs, save (human) resources
    - pan-European procurement
    - light-weight collaboration with providers
  - Jan M want to turn this in to a repeatable process
  - GÉANT IaaS
    - Provider / service catalogue ready
    - 2018 pan-European revenue is about 7 M€; not a lot of that from the Nordic region
    - Currently 300 consuming institutions, 18 of 36 countries
    - There's fast uptake in some countries, in others not.
    - In Sweden, Finland, campus legal departments is often the blocker for uptake
    - large consumption happens in Spain, Ireland, Netherlands. These countries had the business processes in place already
    - Most of the consumption is Azure
  - Next steps
    - continue IaaS
    - HPC-focus in OCRE. Tender in September 2019. Will try to do the tender so it's not just for HPC, but essentially v2 of the IaaS tender
    - Private cloud, possible using K8s containers
  - What will the Nordic do
    - JM: if we collaborate for exploiting the delivery framework, we can achieve more
    - JM: Do DK, SE, FI, IS want to build on the Nordic position / reputation, or just be "any other NREN"
    - HEAnet, SURFnet, DFN are showing ways to benefit from, and to let members benefit from, the IaaS framework
  - Ideas for Nordic way forward
    - create a coordinated nordic process for demand aggregation
    - Coordinated input to requirements for next IaaS iteration
  - Martin: given the disappointing uptake, what are the chances of getting a good deal in the next iteration; JM: uptake is growing, vendors are so far reasonably happy. Vendors w good local representation have an advantage
- Next?
  - How do we participate in the next GÉANT IaaS. Valter: do we do GÉANT or Nordic? PN: we should do an independent workshop. Pekka: we need a champion, NDN should coordinate
  - Qvist: maybe people need more platform or application or HPC as a service, and less plain Infra-as-a-Service
  - LF: topics to take away: 1) data centre / CNassS / SUNET distributed cloud storage services, 2) K8s-based federated community clouds
  - 3) Participation in GÉANT IaaS Framework
  - Qvist: why are people so afraid of firewall-as-a-service?
  - Steps:
    - Learn about what we are doing
    - Learn if Nordic NRENs have joint objectives and / or a joint strategy
    - identify how NORDUnet can support that
  - AL: strategy must also look at how to deal with public cloud providers, Office360, and how institutions cope with that.

**You are invited to a Video Conference meeting by Jørgen Qvist, NORDUnet**

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Note: Mobile Apps is available on Apple app store and Google Play.

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## Notes

## Actions