

SUNET



CNaaS Campus Network as a Service

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CNaaS - Campus Network as a Service

Our goal with CNaaS

"Share staff and expertise for campus network and security operations by standardizing network architecture, tools and processes."

- □ More automation; easier replacement of equipment
- □ No need of senior network engineer always on-site
- Production at some campuses and growing service
- Open transparent project on our Wiki and Github, please collaborate on thoughts to improve



Common reference network architecture SUNET CNaaS

Utilizing best practise leaf-spine architecture

Redundant except access ports





Business advantages for local Campuses

- ★ Standardised processes tested and improved for multiple Campuses
- ★ Higher security and repeatable quality
- ★ Clear overview of cost and lowering TCO over time with shared procurement and support
- ★ Does not lock local staff and resources, development and integrations is done in parallel



Joint support organisation

| HELPDESK | 1 st Line End user support Simple mgmt | Hands and Feet |
|------------------------|---|----------------------------------|
| NOC | 2 nd Line Monitoring Documentation Incident/Problem Mgmt Configuration Mgmt Escalation/(Vendor mgt) | Suppliers |
| DEVOPS Engineerin g | 3rd Line Design Development Configuration Mgmt Escalation/(Vendor mgt) | University Contracts Sunet |



Service timeline and future

2019

Testing and requirements

- Q3 Finalise procurement
- Q4 Automated deployment at SUNET-office
- Q4 Initial deployment of core infrastructure at first campus

First year

• Q1 - Final testing and changes, monitoring

2020

- Q3 Delivery report for actual service in production
- Q4 NMS install project on second campus

2021

Established service

- Ongoing dialogue with new
 customers
- Start planning for new SUNET Core
- Add features

2022

Growing service

- Ongoing dialogue with new customers
- Start procurement for new SUNET Core
- Add features
- Restart referencegroup



Differences SUNET/SIKT(Uninett)

- Our procurement central lets customers choose and buy their own equipment. We don't own.
- □ Monthly service cost not upfront or yearly. (they finance their HW)
- □ Not really taking responsibility for local datacenter/SAN integrations
- □ Using both 25GbE and 10GbE not just 10 for dist (we got huge discounts)
- Automating with Zero touch provisioning from the start
- □ No strict SLA, more collaboration/escalation

Otherwise we are very similar =) and have open joint work





Growing one service (step by step)

- □ Initial contact and scope
- □ Planning architecture and infrastructure for price/volume estimate
- Buying equipment (lead times of 6+ months...)
- □ Configure basic functionality and core
- □ Implementing in existing infrastructure for replacing core network
- □ Handoff to NOC for 24/7 operations
- □ Followup meetings for leftover project items

Growing the service (organisationally)

- Adding 2 organisations in parallel continuously
- Bi-annual official open meetings with supplier to gain interest in technology
- □ Weekly meeting with alternating agenda
- □ Adding new services such as Firewall and Remote offices
- Restarting a reference group for joint procurement and requirements
- □ LTE/5G at campus or nationally ?

Adding customers had us break even



SUNET



CNaaS-NMS Network Automation System

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Goals of CNaaS-NMS

1. Zero-touch provisioning

2. Automation of change (VLAN/VXLAN, IP routing, port-config...)

3. Automated firmware upgrades



Design principles CNaaS-NMS

Multi-vendor

No per-device licensing

Open-source

Open API:s and plugins





Support system flow





References

- https://wiki.sunet.se/display/CNaaS
- https://cnaas-nms.readthedocs.io
- https://github.com/SUNET/cnaas-nms
- https://github.com/sunet/cnaas-nac



Questions



