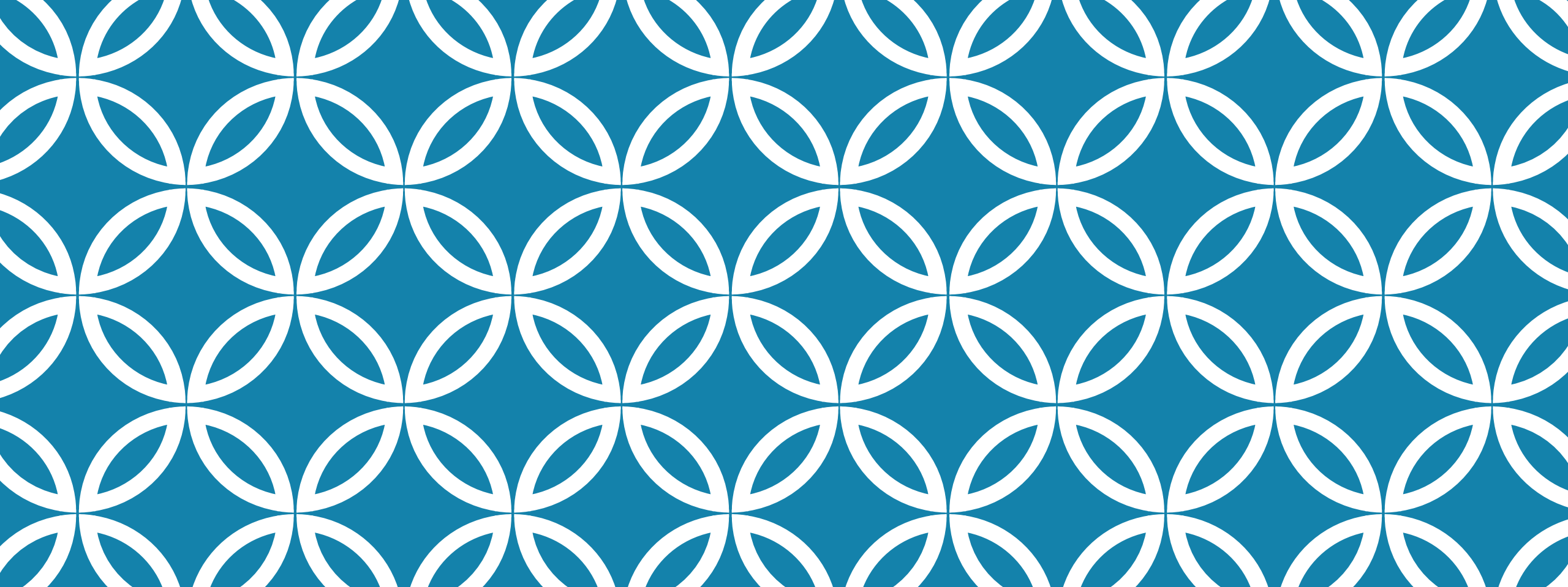




SUNET



CNaaS

Campus Network as a Service

David Heed
Johan Marcusson

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.”

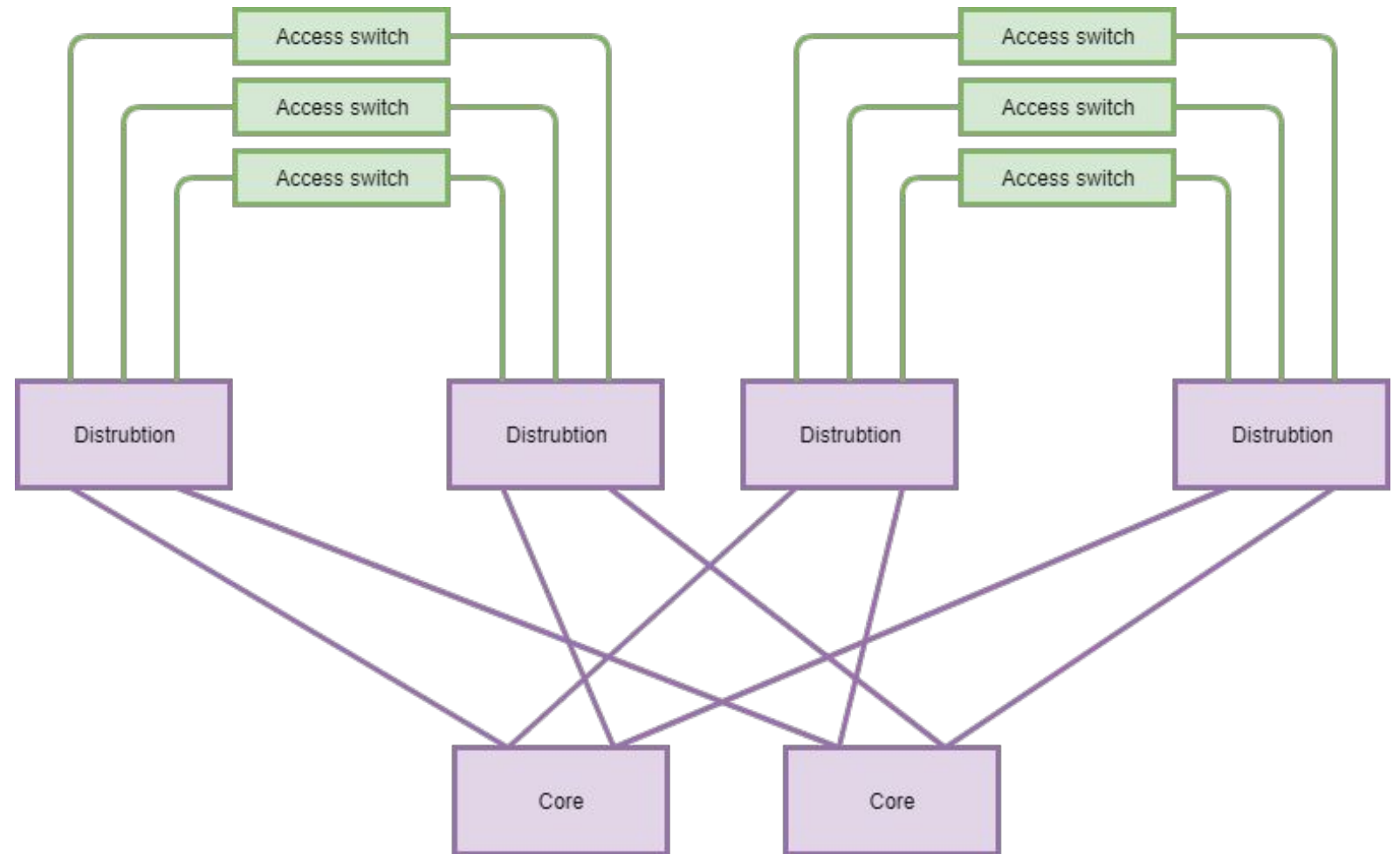
- ❑ More automation; easier replacement of equipment
- ❑ No need of senior network engineer always on-site
- ❑ Production at some campuses and growing service
- ❑ Open transparent project on our Wiki and Github, please collaborate on thoughts to improve

Common reference network architecture

SUNET CNaaS

Utilizing best practise
leaf-spine architecture

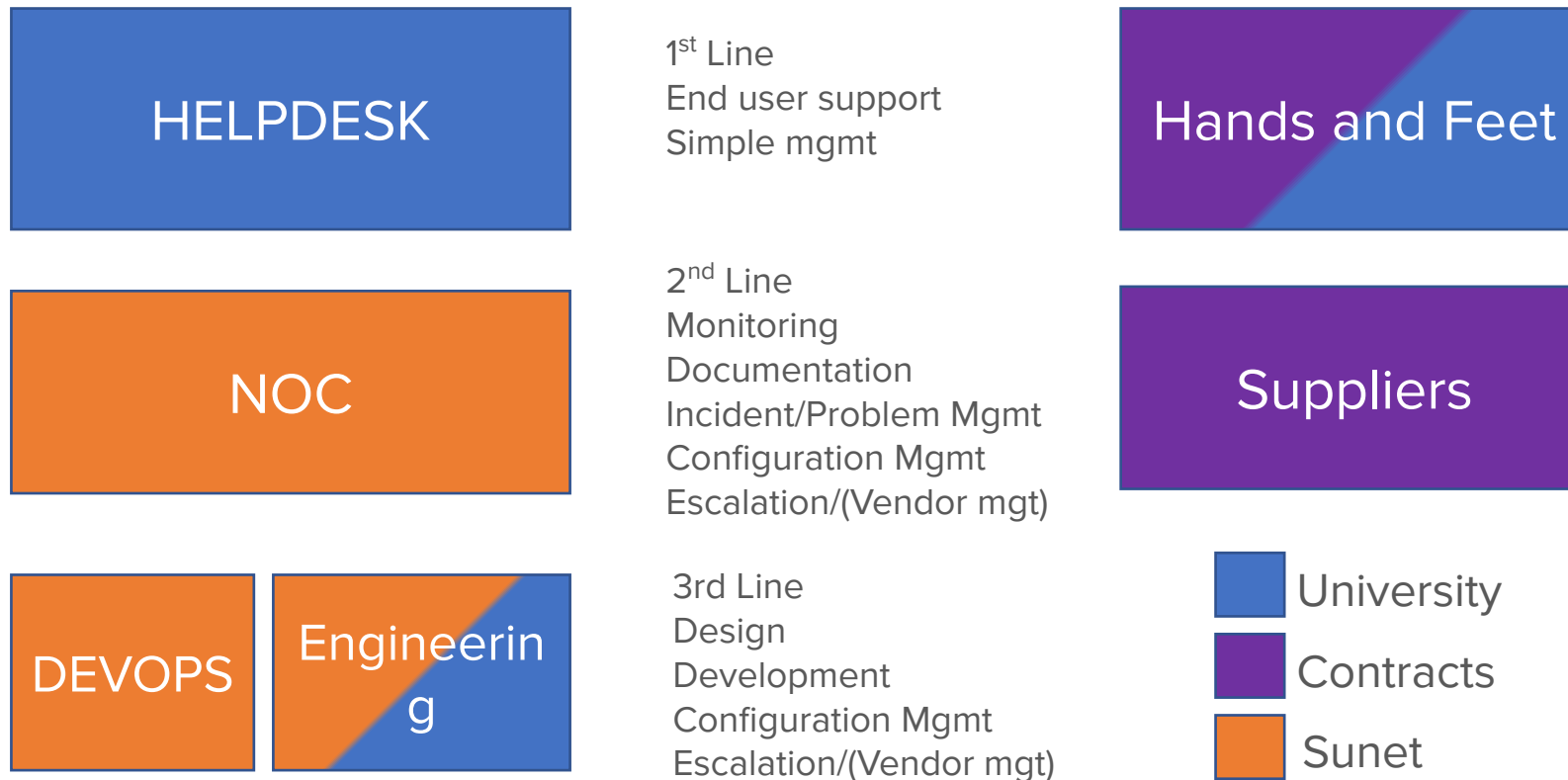
Redundant except
access ports



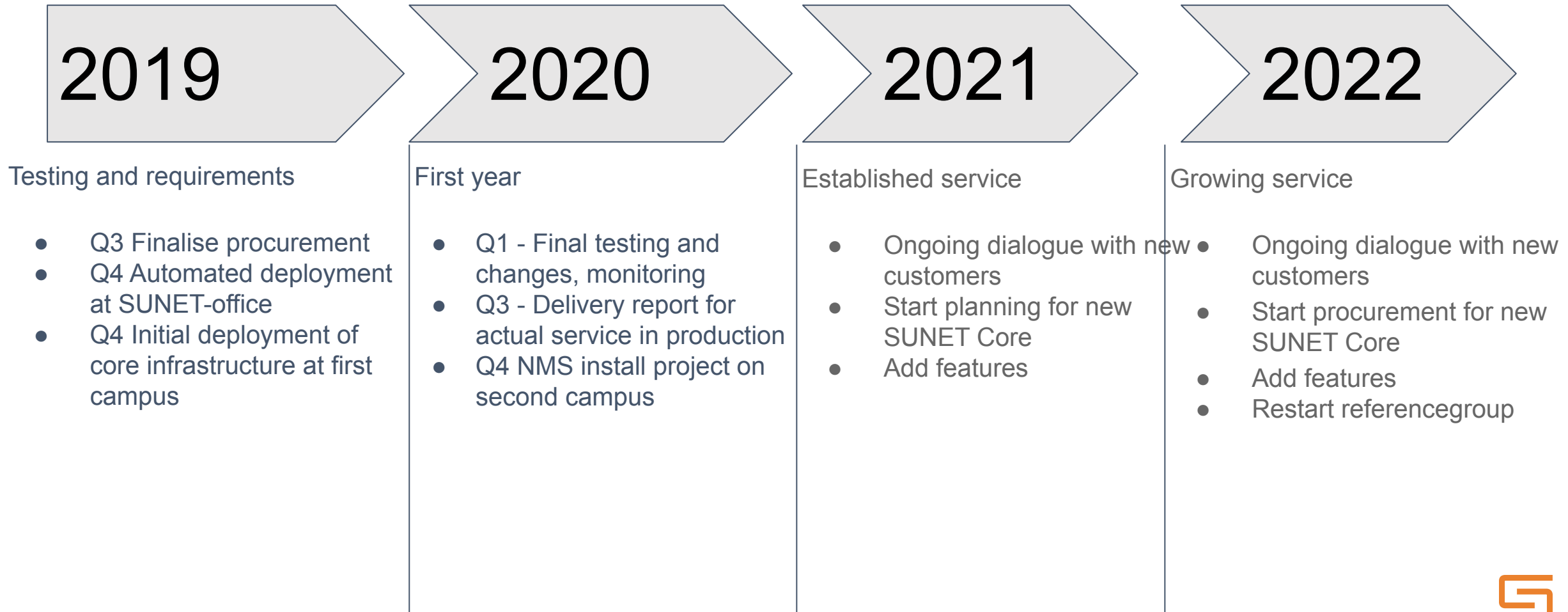
Business advantages for local Campuses

- ★ 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



Service timeline and future



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



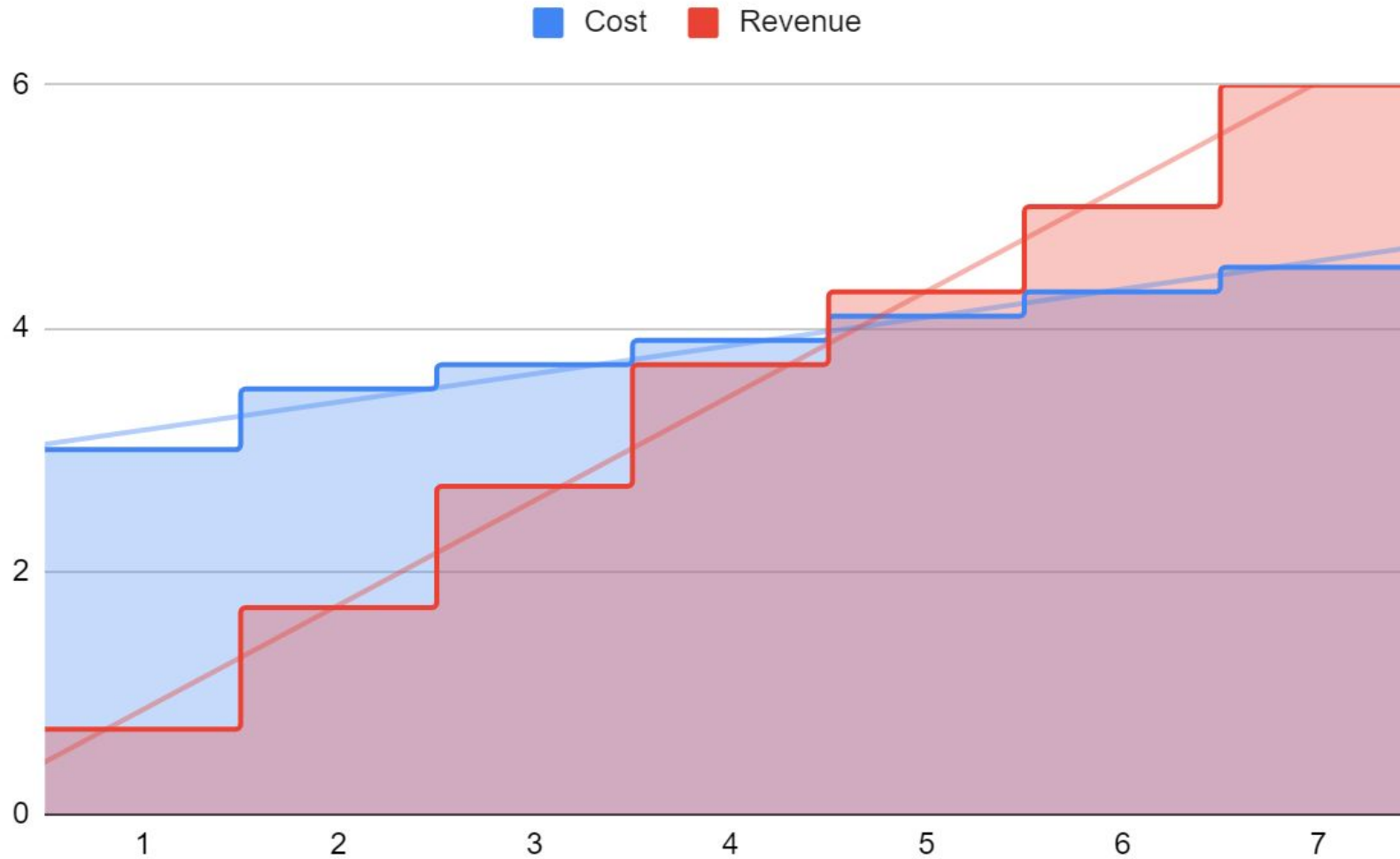
Growing one service (step by step)

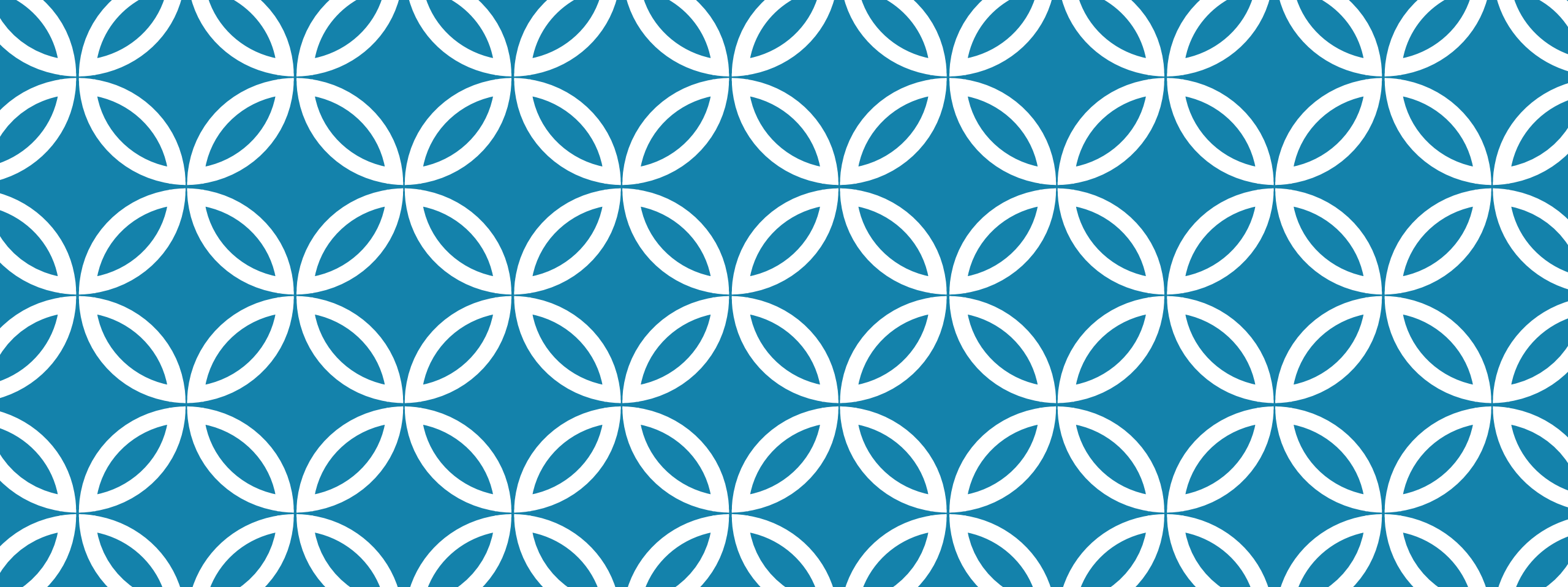
- ❑ Initial contact and scope
- ❑ Planning architecture and infrastructure for price/volume estimate
- ❑ Buying equipment (lead times of 6+ months...)
- ❑ Configure basic functionality and core
- ❑ Implementing in existing infrastructure for replacing core network
- ❑ Handoff to NOC for 24/7 operations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





CNaaS-NMS Network Automation System

David Heed
Johan Marcusson

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

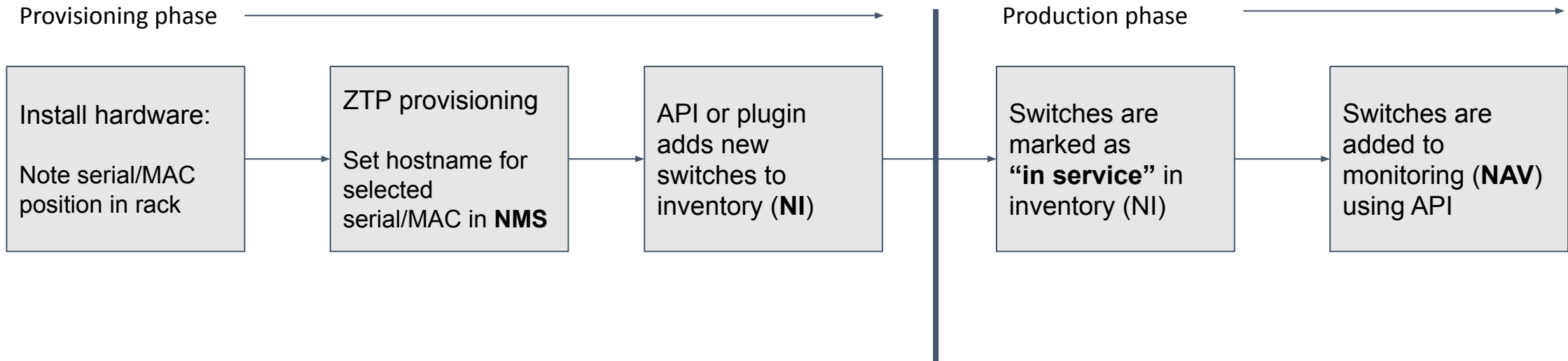
No per-device licensing

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

