Centralized network management at Arnes

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Needs

- ~1.600 members
- Majority of those are small
- No or less experienced IT staff

Centrally managed

- Long tradition at Arnes

- Managing the last mile circuit

- ~1.600 members, 650 routers, 1.300 switches

Centralized network services

- Member's routing device and aggregation L2 switch

- Security filters (ACLs)

- Traffic prioritization (QoS for videoconferencing)

- LAN provisioning

- Coordinating circuit provisioning and troubleshooting for member

Other self-service applications

- Identity management portal

- DNS record management

- E-mail

- Web hosting

- VMs

eduroam

- Offered as a managed service
- Includes:
  - DHCPaaS
  - RADIUSaaS
  - Service portal for local admins
  - Must manage APs themselves

WLAN2020 project

- Centrally managed WiFi in every primary and secondary school

- Need to manage local network from router to APs

- Procurement by Arnes, single vendor for each equipment type (wireless system, L2 PoE switches, routers)

- Building physical infrastructure

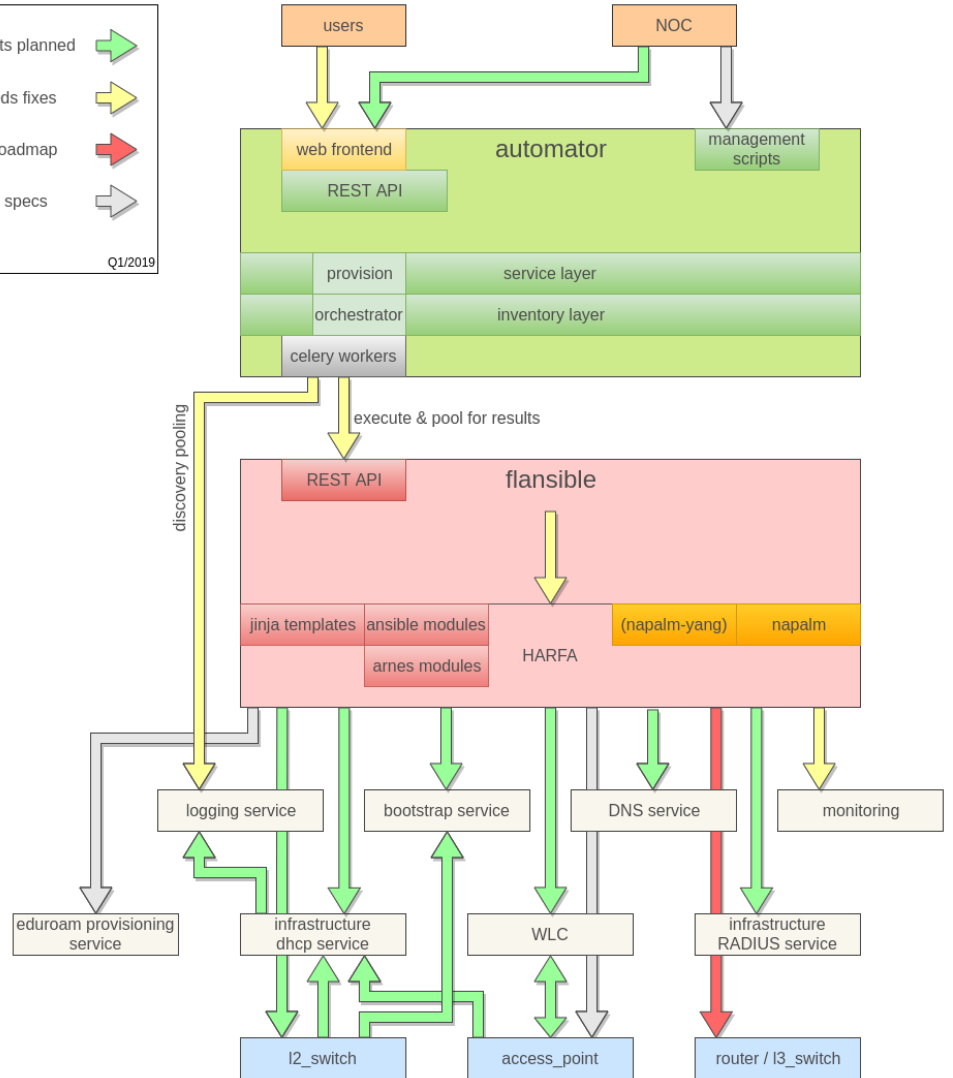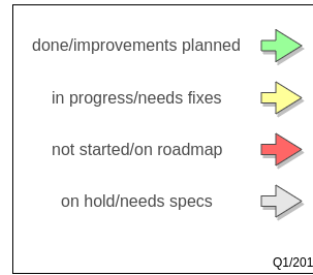- Going deeper into member's local networks

WLAN2020 in numbers

	as of April 2019	as of October 2019	by end of 2020 (estimated)
WLCs	14	20	~25
Access points	10.500	15.550	~20.000
Switches	1.200	1.700	~2.000
Routers (TSPs)	270 (65)	323 (65)	~450 (65)
Campus networks	470	711	~955

ANSO stack

People

- Operations by existing NOC team (5 people)
- 2 people manage and review techincal docs
- Tools development by 4 person team
- Equipment owned by member
- Contractors build infrastructure and install equipment, turn-up under Arnes supervision

Challenges

- Brownfield deployment at most members

- Building and integrating monitoring into a centralized multi-tenant system takes huge development efforts. Doing one instance per tenant seems easier.

- Hosted of self-managed services?

- Hosted for only some service components

Thank you.
Questions, comments?

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