

Uninett CNaas development

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UNINETT

CNaaS automation at Uninett

- ▶ Our CMDB is Excel, for the time being
 - CNaaS-NMS is our goal
 - Working on staffing
- ▶ ZTP for bootstrap
- ▶ Ansible + PyEZ for configuration
 - Homegrown Jinja2 templates
- ▶ Automagic LACP configuration based on LLDP neighbor discovery



First generation deployment is based on Juniper and Aruba equipment

Access port configuration

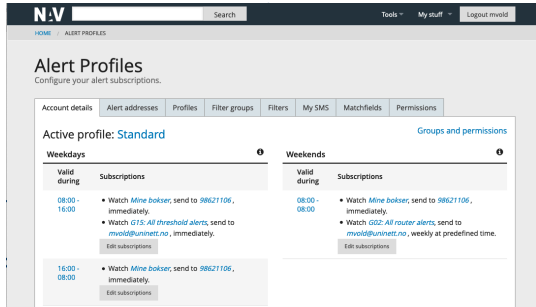
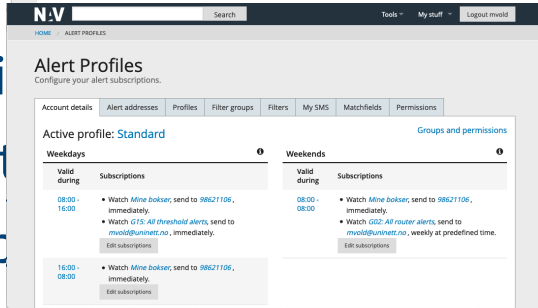
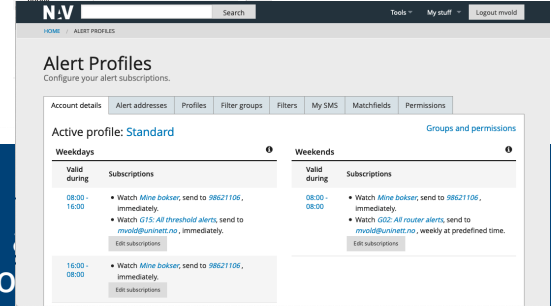
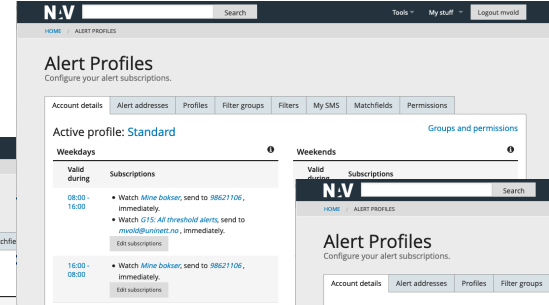
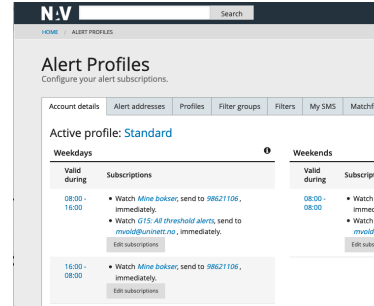
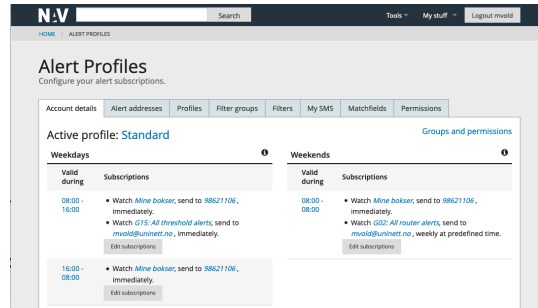
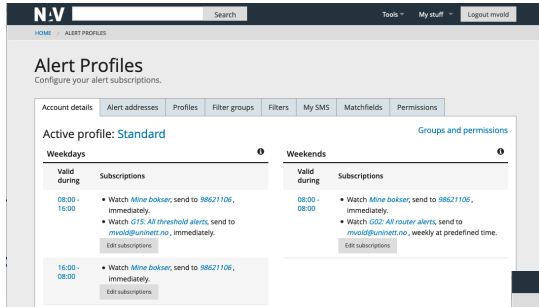
- ▶ Simple access port configuration can be delegated to local IT staff
 - Port description
 - Shutdown/enable
 - VLAN selection
 - Unless 802.1Q dictates VLAN choice
 - Voice VLAN enable
- ▶ This is supported by our NMS of choice: NAV
 - Juniper support has been added
- ▶ But, this means CMDB will **not** be a single point of truth
 - CNaaS-NMS will solve this

Alerts, alerts, alerts!

- ▶ Uninett CNaaS will use NAV for monitoring
- ▶ NAV is **not** multi-tenant
- ▶ One installation per customer is needed

- ▶ Gets unwieldy pretty quickly...

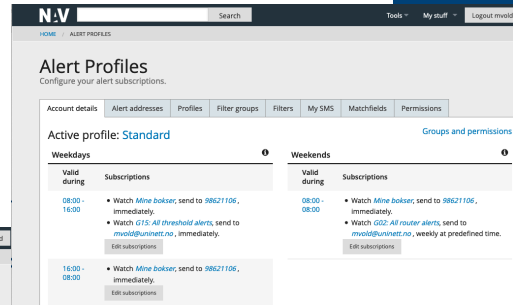
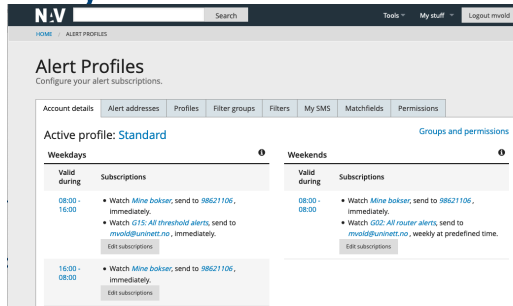
1. NAV is an open source campus network monitoring tool with a 21 year long history in the Norwegian HE sector.
2. NAV is developed by Uninett.
3. Uninett already provides customers with network management services based on NAV.



➤ Uninett CaaS with

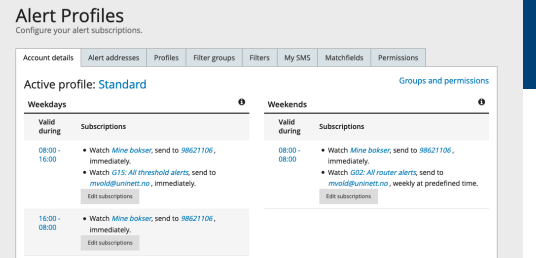
Multi-tenancy
on p

pretty quickly...

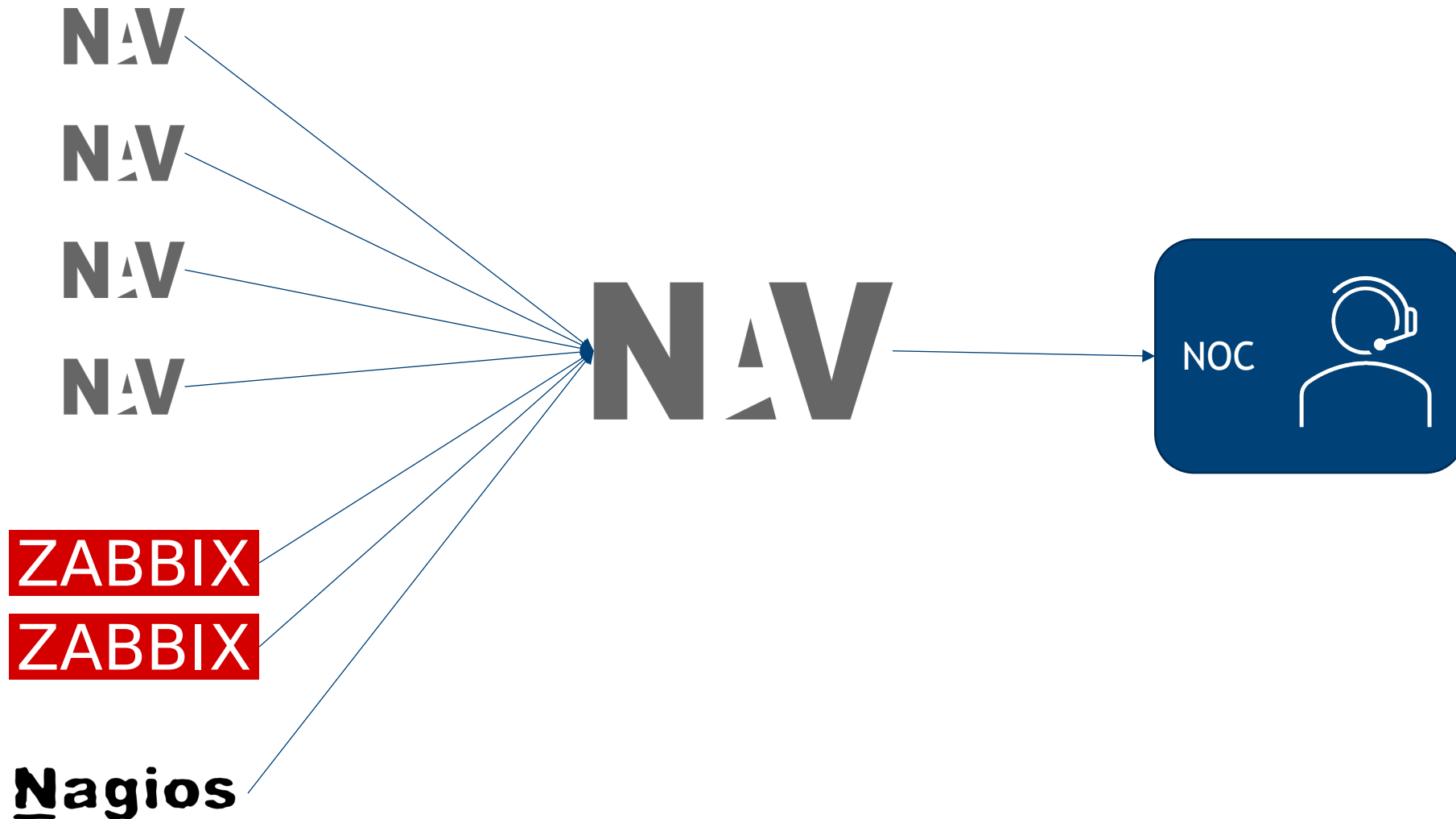


NAV is monitoring
history in the Norwegian HE sector.
NAV is developed by Uninett.

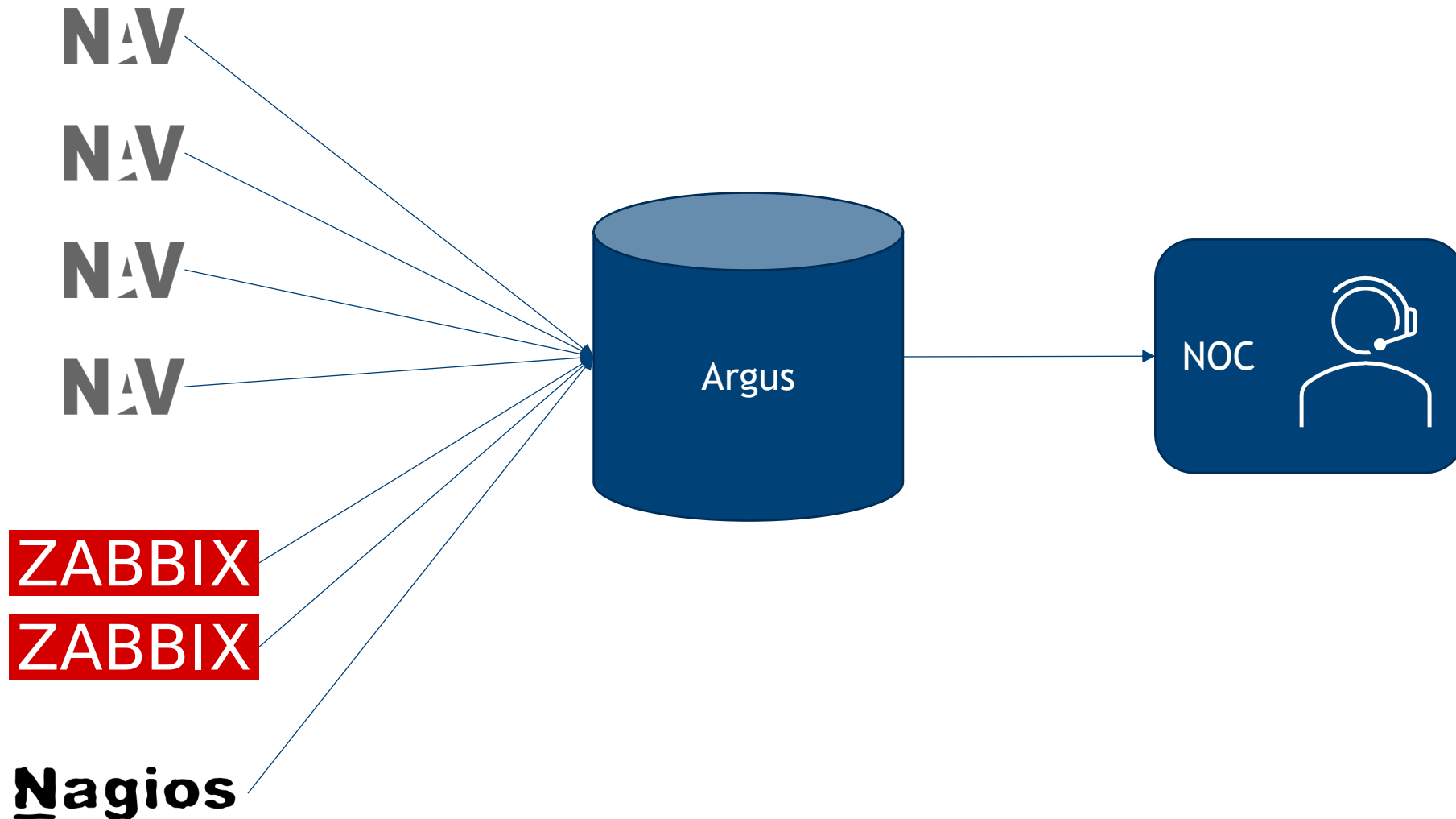
Uninett already provides customers with
based on

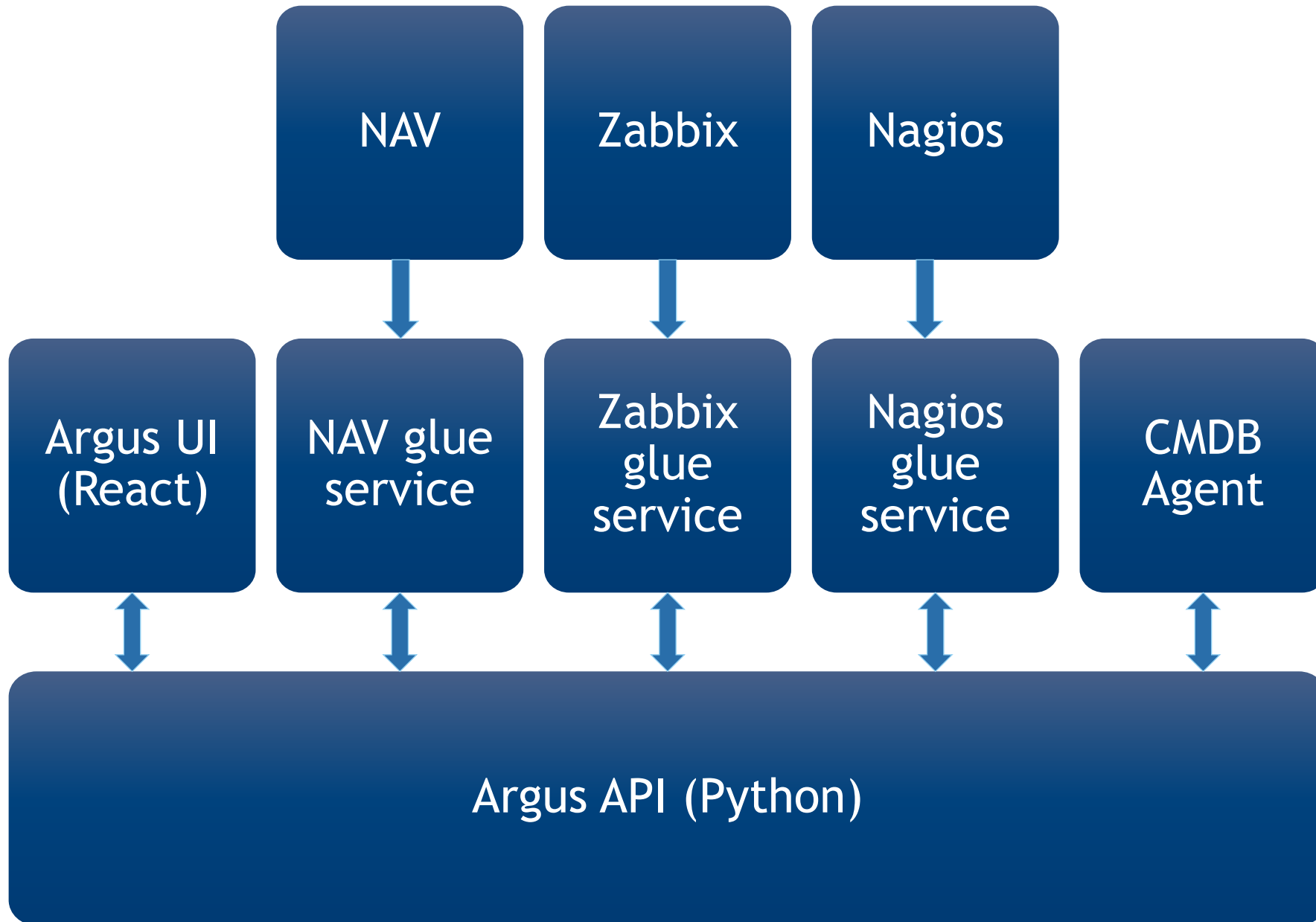


Idea 1: Re-use NAV



Idea 2: Something new!







Status

Closed

Unacknowledged

Ticket <https://example.com/tracker/42>

Tags

interface=ge-100/0/31

location=norge

event_type=linkState

alert_type=linkDown

host=tullin-gw1.uninett.no

room=tullin

Primary details

Description

Link DOWN on ge-100/0/31 at tullin-gw1 (UN000658 GC10711403, tullin-nupi)

Start time

9/30/2020, 9:33:59 AM

Source

uninav.uninett.no

Details URL

[More details](#)

Ticket

example.com/tracker/42

EDIT

REOPEN INCIDENT

Acknowledgements

CREATE ACKNOWLEDGMENT

Related events

Incident end

Link UP on ge-100/0/31 at tullin-gw1 (UN000658 GC10711403, tullin-nupi)

uninav.uninett.no

9/30/2020, 9:43:59 AM

Incident start

uninav.uninett.no

9/30/2020, 9:33:59 AM

Incidents

Show open/closed

Open ▾

Show acked events

Realtime

Sources to display

Tags filter

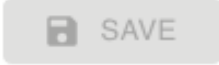

Realtime

Incidents



| <input type="checkbox"/> | Id | Timestamp | Status | Source | Description | Actions |
|--------------------------|-----|------------------------|--------------------------|-------------------|----------------------------------------------------------------------------------------------------|----------------|
| <input type="checkbox"/> | 166 | 9/24/2020, 4:04:27 PM | Open No ticket Non-acked | uninav.uninett.no | bergen-gw2 BGP session with 2001:700:0:8067::2 is DOWN | DETAILS TICKET |
| <input type="checkbox"/> | 165 | 9/24/2020, 4:04:27 PM | Open No ticket Non-acked | uninav.uninett.no | bergen-gw2 BGP session with 128.39.47.118 is DOWN | DETAILS TICKET |
| <input type="checkbox"/> | 144 | 9/23/2020, 8:49:29 AM | Open No ticket Non-acked | uninav.uninett.no | Link DOWN on TenGigE0/1/0/2 at bergen-gw2 (UN000201 GC11310537, bergen-oslo, ifi2-gw) | DETAILS TICKET |
| <input type="checkbox"/> | 143 | 9/23/2020, 8:44:27 AM | Open No ticket Non-acked | uninav.uninett.no | Link DOWN on HundredGigE0/3/0/0 at bergen-gw2 (UN000167 GC10304010/GC10711007, bergen-tullin) | DETAILS TICKET |
| <input type="checkbox"/> | 139 | 9/22/2020, 2:24:27 PM | Open No ticket Non-acked | uninav.uninett.no | Link DOWN on TenGigE0/1/0/15 at bergen-gw2 (UN000193 GC10910531, bergen-stavanger2, stavanger-gw1) | DETAILS TICKET |
| <input type="checkbox"/> | 138 | 9/22/2020, 2:19:31 PM | Open No ticket Non-acked | uninav.uninett.no | Link DOWN on TenGigE0/1/0/14 at bergen-gw2 (UN000192 GC10910529, bergen-stavanger, stavanger-gw1) | DETAILS TICKET |
| <input type="checkbox"/> | 136 | 9/22/2020, 1:34:28 PM | Open No ticket Non-acked | uninav.uninett.no | Link DOWN on TenGigE0/1/0/8 at bergen-gw2 (UN000147 GC10300238, bergen-sogndal, sogndal-gw2) | DETAILS TICKET |
| <input type="checkbox"/> | 134 | 9/22/2020, 10:23:24 AM | Open No ticket Non-acked | uninav.uninett.no | bergen-gw1 BGP session with 2001:700:0:4303::ca53 is DOWN | DETAILS TICKET |
| <input type="checkbox"/> | 133 | 9/22/2020, 10:23:24 AM | Open No ticket Non-acked | uninav.uninett.no | bergen-gw1 BGP session with 158.37.2.38 is DOWN | DETAILS TICKET |
| <input type="checkbox"/> | 132 | 9/22/2020, 10:23:24 AM | Open No ticket Non-acked | uninav.uninett.no | bergen-gw1 BGP session with 158.37.2.39 is DOWN | DETAILS TICKET |

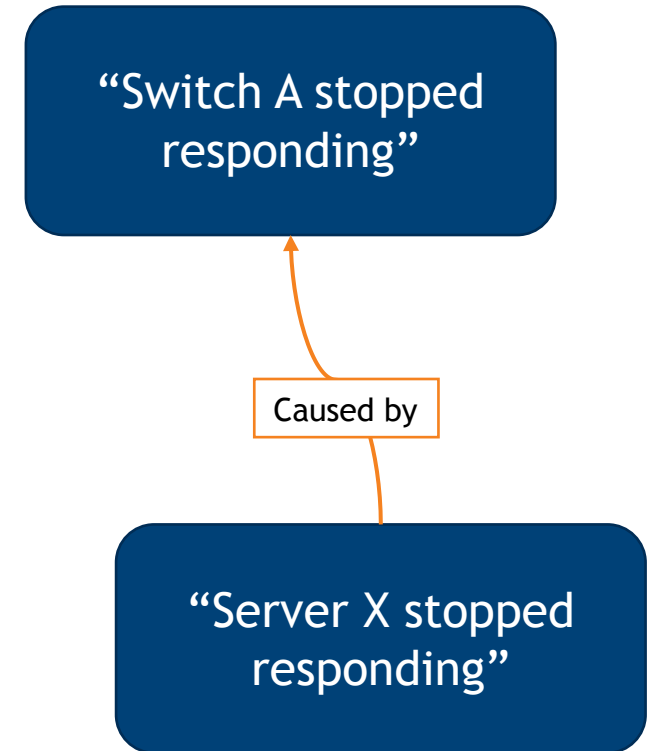
Notification Profiles

| | | | | | |
|-------------------------------------|------------------|------------------|-------------------|----------------|-------------------------------------------------------------------------------------|
| Active: | Timeslots: | Filtername: | Media: | Phone number: |  |
| <input checked="" type="checkbox"/> | All the time v | BGP errors x v | Email x SMS x v | +479999... v |  |

- Each user can configure a personal notification profile
 - Filters define which alerts are interesting
 - Timeslots decide **when** notifications are desirable
- E-Mail and SMS notifications are supported
- More mediums will come:
 - Slack
 - Teams

Incident relationships

- ◆ Incidents may be related, somehow...
 - "Same root cause"
 - "Same issue reported by two separate source systems"
 - "One issue is caused by the other"
- ◆ These relations can be added
 - Manually (although, not quite yet)
 - By an external agent



Argus going forward...

- ▶ Uninett Service Center will start testing v1.0 next week
 - Important to get real world feedback
- ▶ NAV is already integrated
 - Our three CNaas customers ship incidents to Argus ATM.
- ▶ We will shortly write glue services for our other monitoring tools:
 - Zabbix
 - Zino
- ▶ We will write a Python library for API access
 - Will be used by all our glue services

References

- <https://github.com/Uninett/Argus>
- <https://github.com/Uninett/Argus-frontend>
- <https://nav.uninett.no/>



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