Interaction with NMS
SUNET lab
How to use CNaaS-NMS

- Source code available on https://github.com/SUNET/cnaas-nms
- Pre-built docker containers available on docker.sunet.se/cnaas/api:latest
- Some experience with git and docker helps
- Virtual test env using vEOS in VirtualBox
Thanks for listening! Questions?

SUNET wiki documentation: https://wiki.sunet.se/display/CNaaS

Source code available at GitHub: https://github.com/SUNET/cnaas-nms

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#automation @ NREN slack
Reference slides
ZTP workflow

User Input

Device State

CNaaS components/containers

DHCP Server

HTTP Server
Static template

DHCP Server

API
init_device

INIT
Moving to separate management VLAN, apply base config

MANAGED
Device is now managed by CNaaS-NMS

Finished
Demo: Zero-touch deployment (MLAG pair)

https://play.sunet.se/media/CNaaS+NMS+WebUI+ZTP+demo/0_ff0I8enk
Demo: Firmware upgrade

2-step process:

1. Download & activate firmware
2. Reboot devices (can be scheduled for a later time)

https://play.sunet.se/media/CNaaS-NMS+Firmware+Upgrade+via+WebUI/0_jf424rq1
Demo: Config change

https://play.sunet.se/media/CNaaS+NMS+change+workflow%2C+VScode+%2B+WebUI/0_4a34tciw
Demo: Config change
Demo: Config change

Refresh repositories (1/4)

Latest settings repo commit: Commit: cba58d27 master by Johan Marcusson at 2021-04-23 10:24:59
Latest templates repo commit: Commit: 826ac57f master by Johan Marcusson at 2021-04-23 14:54:39

Dry run (2/4)

Step 2 of 4: Sending generated configuration to devices to calculate diff and check sanity

- Re-sync devices (check for local changes made outside of REPS)

Start config dry run
Start over

3/7 devices finished
status: FINISHED (job #185457)
finish time: 2021-04-26T13:51:35.02400

run sync Devices Job #185457: change impact score: 27.8 (dry_run: true, selected devices: 11, changed devices: 11)
## Demo: Config change

### Verify difference (3/4)

Step 3 of 4: Look through and verify diff
Total devices affected: 11
Total change score: 27

<table>
<thead>
<tr>
<th>all diffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>gnp - 2022.7.19.9.10</td>
</tr>
<tr>
<td>ip access-list standard smp-clients</td>
</tr>
<tr>
<td>ip route 10.10.1.1</td>
</tr>
</tbody>
</table>

### Commit configuration (4/4)

Step 4 of 4: Final step

- Confirm commit

- Device finished
- Status: (job fina)
Config generation

- Git settings (YAML)
- Database (SQL)

Git templates (Jinja)

Generates full device config

Replace config

Network device
Change workflow

1. Update settings or templates
2. Commit and push to git
3. Ask API to pull changes from git (API-call)
4. Dry run on devices (API-call)
5. Verify diff
6. Live run (API-call)
NAV portadmin for helpdesk

<table>
<thead>
<tr>
<th>Port</th>
<th>Enabled</th>
<th>Linked</th>
<th>Port description</th>
<th>Vlan</th>
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<tbody>
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<td>Ethernet1</td>
<td></td>
<td></td>
<td>DOT1X TESTING TESTING 123</td>
<td>13 (ACCESS, AUTO)</td>
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<tr>
<td>Ethernet2</td>
<td></td>
<td></td>
<td>DOT1X TESTING TESTING 123</td>
<td>13 (ACCESS, AUTO)</td>
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<td>DOT1X</td>
<td>13 (ACCESS, AUTO)</td>
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<td>DOT1X</td>
<td>13 (ACCESS, AUTO)</td>
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