

# Netbox – DCIM / IPAM



# Agenda

- Wer sind wir
- Was ist IPAM
- Was ist DCIM
- Unser Weg zu Netbox
- Netbox ein Überblick

# Wer sind Wir

- DevOps Engineers
- FHE3
  - Managed Hosting
  - 24/7 Full Service
  - Beratung

# Was ist IPAM

- Zentrales IP Adressen Management
- Welches System hat welche IP Adresse
- Welche Adressen habe ich noch frei?
- Welche Arten von IP Adressen hab ich im Einsatz?
- Public IP Space, VLAN, VRF, Prefixe

# Was ist DCIM

- Wo ist was im RZ
- Inventar was hab ich denn
  - Racks
  - Server
  - Netzwerk
  - Kabel

# Unser Weg zu Netbox

- Racktables als DCIM
  - 10 Jahre bei uns im Einsatz
  - keine API
  - eigene Perl / MySQL Scripte

# Unser Weg zu Netbox

- IPAM vor Netbox
  - Verwaltung via DNS Zonefiles
  - IPMI Records in Racktables
  - VLAN / Subnet Zuordnung im CMS

# Netbox Überblick

- Short Facts
- Warum will ich so was haben?
- DCIM / IPAM in Netbox
- Was kann Netbox nicht!
- Was kann Netbox noch?
- Integration
- Migration

# Short Facts

- 3 Jahre alt / Aktive Community
- Ursprünglich von DigitalOcean
- REST/Swagger API
- Django / Python / PostgreSQL
- Apache License 2.0

# Warum will ich so was haben

- Zentrale Verwaltung (Single Source of Truth)
- Kapazitätsmanagement
- Planungssicherheit
- Inventar
- Status der Geräte
- Garantie / Wartungsverträge
- virtuelles Abbild des RZs

# DCIM in Netbox

- Alles was physikalisch verbaut wird
- Chassis / Linecards
- Templates:
  - Server, Anzahl Ports, etc
  - Netzwerk Hardware
  - Patchpanel
  - PDU's

# IPAM in Netbox

- Gruppierung von Adressen / Räumen
  - Zustände
  - Rollen
- Zuordnung zu Interfaces / Services
- Uplinks / Circuits zu Providern

# Was kann Netbox nicht?

- Energiemanagement (in Diskussion)
- Richtige Mandantenfähigkeit
- Simples Rechtemanagement
- LDAP, andere in Entwicklung

# Was kann Netbox noch?

- Secrets
- CSV Imports / Exports
- Changelog (History)
- Kabelverfolgung
- Reports
- virtuelle Maschinen

# Integration

- Webhooks
- API
- Napalm (Network Automation)
- Datenbasis für Saltstack, Ansible, ...

# Migration

- Jede Instanz ist unterschiedlich
- Datenmodell verstehen (SQL)
- Tags
- Attribute und Dictionary (Mappings)

# Screen Central View

netbox Organization Racks Devices IPAM Virtualization Circuits Secrets

Search hferber

Staging Environment

Search All Objects Search

**Organization**

- Sites** (3)  
Geographic locations
- Tenants** (10)  
Customers or departments

**DCIM**

- Racks** (63)  
Equipment racks, optionally organized by group
- Devices** (1)  
Rack-mounted network equipment, servers, and other devices

**Connections**

- Cables** (0)
- Interfaces** (0)
- Console** (0)
- Power** (0)

**Virtualization**

- Clusters** (0)  
Clusters of physical hosts in which VMs reside
- Virtual Machines** (0)  
Virtual compute instances running inside clusters

**IPAM**

- VRFs** (0)  
Virtual routing and forwarding tables
- Aggregates** (0)  
Top-level IP allocations
- Prefixes** (1)  
IPv4 and IPv6 network assignments
- IP Addresses** (1)  
Individual IPv4 and IPv6 addresses
- VLANs** (0)  
Layer two domains, identified by VLAN ID

**Circuits**

- Providers** (0)  
Organizations which provide circuit connectivity
- Circuits** (0)  
Communication links for Internet transit, peering, and other services

**Global Topology Maps**

None

**Changelog**

- Manufacturer Dell**  
admin - 2019-04-02 11:56
- Device Type R730**  
admin - 2019-04-02 11:56
- Device testserver**  
admin - 2019-04-02 11:56
- Device Type R410**  
admin - 2019-04-02 11:55
- Device Type R710**  
admin - 2019-04-02 11:55
- Device Type PowerEdge 1950 III**  
admin - 2019-04-02 11:55
- Device Type PowerEdge 2950 III**

netbox-stage-7b46744c7-8tz4f (v2.5.8) 2019-04-03 13:26:09 UTC Docs API Code Help

# Rack Overview

## Racks

| Name      | Site    | Group | Status | Facility ID | Tenant | Role | Height | Devices | Utilization                |
|-----------|---------|-------|--------|-------------|--------|------|--------|---------|----------------------------|
| Lager FR4 | fra1-de | —     | Active | —           | —      | —    | 47U    | 2       | <div><div></div></div> 4%  |
| S0101     | fra1-de | —     | Active | —           | —      | —    | 46U    | 8       | <div><div></div></div> 19% |
| S0102     | fra1-de | —     | Active | —           | —      | —    | 46U    | 7       | <div><div></div></div> 15% |
| S0103     | fra1-de | —     | Active | —           | —      | —    | 46U    | 17      | <div><div></div></div> 36% |
| S0104     | fra1-de | —     | Active | —           | —      | —    | 46U    | 0       | <div><div></div></div> 0%  |
| S0105     | fra1-de | —     | Active | —           | —      | —    | 46U    | 1       | <div><div></div></div> 2%  |
| S0106     | fra1-de | —     | Active | —           | —      | —    | 46U    | 1       | <div><div></div></div> 2%  |
| S0107     | fra1-de | —     | Active | —           | —      | —    | 46U    | 17      | <div><div></div></div> 43% |
| S0108     | fra1-de | —     | Active | —           | —      | —    | 46U    | 16      | <div><div></div></div> 41% |
| S0109     | fra1-de | —     | Active | —           | —      | —    | 46U    | 20      | <div><div></div></div> 43% |
| S0110     | fra1-de | —     | Active | —           | —      | —    | 46U    | 20      | <div><div></div></div> 43% |
| S0111     | fra1-de | —     | Active | —           | —      | —    | 46U    | 11      | <div><div></div></div> 58% |
| S0112     | fra1-de | —     | Active | —           | —      | —    | 46U    | 11      | <div><div></div></div> 80% |
| S0113     | fra1-de | —     | Active | —           | —      | —    | 46U    | 18      | <div><div></div></div> 50% |
| S0114     | fra1-de | —     | Active | —           | —      | —    | 46U    | 19      | <div><div></div></div> 47% |
| S0115     | fra1-de | —     | Active | —           | —      | —    | 46U    | 13      | <div><div></div></div> 32% |
| S0116     | fra1-de | —     | Active | —           | —      | —    | 46U    | 15      | <div><div></div></div> 36% |
| S0117     | fra1-de | —     | Active | —           | —      | —    | 46U    | 3       | <div><div></div></div> 6%  |

# Rack Detailed View

## Rack S0212

Created March 20, 2019 · Updated 2 weeks, 5 days ago

[Rack](#) [Changelog](#)

### Rack

|               |                         |
|---------------|-------------------------|
| Site          | <a href="#">fra1-de</a> |
| Group         | None                    |
| Facility ID   | —                       |
| Tenant        | None                    |
| Status        | Active                  |
| Role          | None                    |
| Serial Number | —                       |
| Asset Tag     | —                       |
| Devices       | <a href="#">28</a>      |

### Dimensions

|             |                 |
|-------------|-----------------|
| Type        | None            |
| Width       | 19 inches       |
| Height      | 46U (ascending) |
| Outer Width | —               |
| Outer Depth | —               |

### Tags

No tags assigned

### Comments

None

### Non-Racked Devices

None

### Front

|    |                                 |
|----|---------------------------------|
| 46 |                                 |
| 45 |                                 |
| 44 |                                 |
| 43 | sw-lab1-de1                     |
| 42 |                                 |
| 41 | sw-lab3-de1                     |
| 40 |                                 |
| 39 |                                 |
| 38 |                                 |
| 37 |                                 |
| 36 |                                 |
| 35 | sw-leaf1-de1                    |
| 34 |                                 |
| 33 | sw-leaf2-de1                    |
| 32 |                                 |
| 31 |                                 |
| 30 |                                 |
| 29 |                                 |
| 28 |                                 |
| 27 | fhe3-switch-test5-de1           |
| 26 | fhe3-png-nfs-lab-1b             |
| 25 |                                 |
| 24 | fhe3-png-nfs-lab-1a             |
| 23 |                                 |
| 22 | fhe3-png-k8s-worker-lab3-1      |
| 21 | fhe3-png-k8s-worker-lab3-2      |
| 20 | fhe3-png-k8s-worker-lab3-3      |
| 19 | fhe3-switch-test4-de1           |
| 18 | fhe3-png-k8s-master-lab3-3      |
| 17 | fhe3-png-k8s-master-lab3-1      |
| 16 | fhe3-png-k8s-master-lab3-2      |
| 15 | fhe3-vi-glusterfs-lab-1         |
| 14 | fhe3-png-openstack-master-lab-1 |
| 13 | fhe3-png-lab2-4                 |
| 12 | fhe3-vi-ceph-lab-1              |
| 11 | fhe3-vi-ceph-lab-2              |
| 10 | fhe3-vi-ceph-lab-3              |
| 9  | fhe3-vi-xen-lab-1               |
| 8  | fhe3-vi-xen-lab-2               |
| 7  | fhe3-png-proxmox-lab-1          |
| 6  | fhe3-png-proxmox-lab-2          |
| 5  | fhe3-png-proxmox-lab-3          |
| 4  | fhe3-png-env1-lab-4             |
| 3  | nfsen1-mgt-de1-b                |
| 2  |                                 |
| 1  | fhe3-vi-xen-prod-27             |

### Rear

|    |                                 |
|----|---------------------------------|
| 46 |                                 |
| 45 |                                 |
| 44 |                                 |
| 43 | sw-lab1-de1                     |
| 42 |                                 |
| 41 | sw-lab3-de1                     |
| 40 |                                 |
| 39 |                                 |
| 38 |                                 |
| 37 |                                 |
| 36 |                                 |
| 35 | sw-leaf1-de1                    |
| 34 |                                 |
| 33 | sw-leaf2-de1                    |
| 32 |                                 |
| 31 |                                 |
| 30 |                                 |
| 29 |                                 |
| 28 |                                 |
| 27 | fhe3-switch-test5-de1           |
| 26 | fhe3-png-nfs-lab-1b             |
| 25 |                                 |
| 24 | fhe3-png-nfs-lab-1a             |
| 23 |                                 |
| 22 | fhe3-png-k8s-worker-lab3-1      |
| 21 | fhe3-png-k8s-worker-lab3-2      |
| 20 | fhe3-png-k8s-worker-lab3-3      |
| 19 | fhe3-switch-test4-de1           |
| 18 | fhe3-png-k8s-master-lab3-3      |
| 17 | fhe3-png-k8s-master-lab3-1      |
| 16 | fhe3-png-k8s-master-lab3-2      |
| 15 | fhe3-vi-glusterfs-lab-1         |
| 14 | fhe3-png-openstack-master-lab-1 |
| 13 | fhe3-png-lab2-4                 |
| 12 | fhe3-vi-ceph-lab-1              |
| 11 | fhe3-vi-ceph-lab-2              |
| 10 | fhe3-vi-ceph-lab-3              |
| 9  | fhe3-vi-xen-lab-1               |
| 8  | fhe3-vi-xen-lab-2               |
| 7  | fhe3-png-proxmox-lab-1          |
| 6  | fhe3-png-proxmox-lab-2          |
| 5  | fhe3-png-proxmox-lab-3          |
| 4  | fhe3-png-env1-lab-4             |
| 3  | nfsen1-mgt-de1-b                |
| 2  |                                 |
| 1  | fhe3-vi-xen-prod-27             |

Vielen Dank für Eure  
Aufmerksamkeit



Demo gibts bei uns -  
kommt auf uns zu



# Fragen?

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