



WE MANAGE IT

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Building a Vendor-Agnostic Source of Truth with Ansible & NetBox



Red Hat
Ansible Automation
Platform



netbox

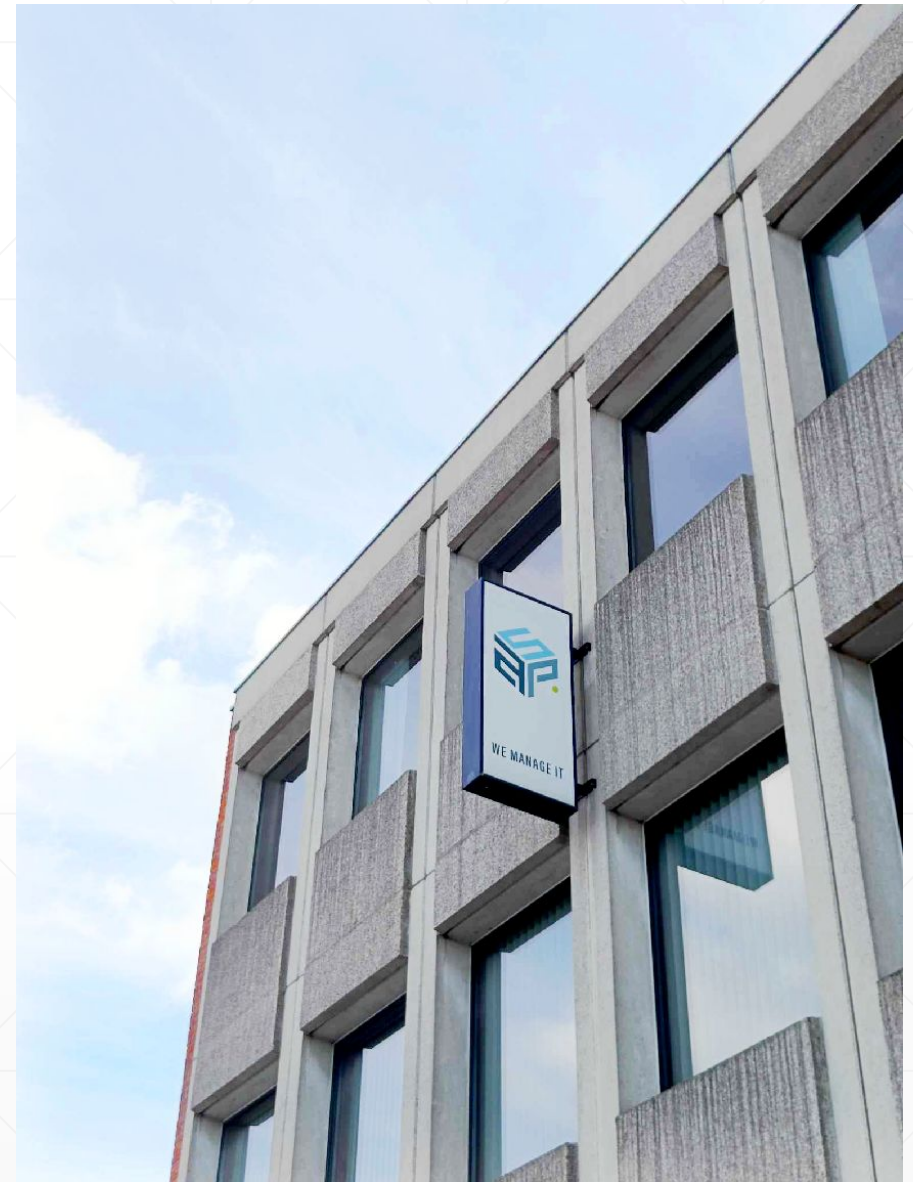
AGENDA

- ASP
- CMDB & Source of Truth
- Ansible facts & CDP/LLDP
- Live Demo
- AAP, Netbox
- Review Demo findings
- What's next
- Conclusion - Q&A



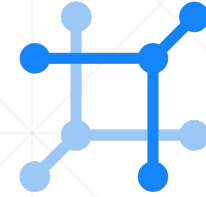
ASP – WHO WE ARE

- Advanced Service Provider
- Managed Service Provider based in Brussels
 - 15 Service-Now developers
 - +30 network, system, devops engineers
- Founded +25 years ago
- Red Hat partner, focussing on AAP & RHEL



servicenow

ITSM



netbox

Monitoring



checkmk



ASP - WE MANAGE IT

service
integrators

IT
Operations
Excellence

Automation



Red Hat
Ansible Automation
Platform

Security


Cisco
Umbrella




CROWDSTRIKE


CHECK POINT™


zscaler

Managed
Service

 **vmware**®  **DELL** Technologies
by Broadcom



Red Hat
Enterprise Linux

 **Windows**



AND WHAT ABOUT YOU? WHO ARE YOU?



CMDB & SOURCE OF TRUTH

They both have the same purpose  store IT infrastructure related information, **BUT :**

- **CMDB**

- Asynchronous
- Can contain manual input
- Somewhat reliable, information is usable but accuracy of the information should always be challenged

- **SOURCE OF TRUTH**

- Synchronous (polling, webhooks)
- Is automated
- Reliable, can be consumed by your automation as you trust the quality of the data





DAIN

MY EXPERIENCE → IT DOCUMENTATION IS A SOURCE OF

IFNAME	VLAN	VLAN NAME	GW-01	GW-02	CLUSTER	purpose
bond11.5	5	VOICE	127	10.5.96	10.5.96	VOICE
bond10.10	10	BRU-ServerVlan	10.0.96.252	10.0.96.253	10.0.96.99	Server VLAN
bond30	201	CP_HA_cluster	10.201.96.252	10.201.96.253	10.201.96.254	Check Point HeartBeat
bond20.104	104	BRU-DMZ-104	192.168.1.252	192.168.1.253	192.168.1.254	BRU DMZ
bond21.202	202	IX_Management	10.202.96.252	10.202.96.253	10.202.96.254	Check Point MGMT (SMS) - Switch Mar
bond21.203	203	IX_OOB	10.203.96.252	10.203.96.253	10.203.96.254	OOB servers/Checkpoint appliances/..
bond20.204	204	DMZTEL	192.168.204.252	192.168.204.253	192.168.204.254	DMZ TEL
bond11.230	230	MPLS_Routing_subnet	10.230.96.252	10.230.96.253	10.230.96.254	MPLS Routing Subnet
bond21.4	4	BRU-NetworkMgmt	10.4.96.252	10.4.96.253	10.4.96.254	Management network devices
-----	240	SSLVPNPOOL	10.240.96	10.240.96	10.240.96	SSLVPNPOOL



ip_plan_v2_NEW.bak.xlsx

February 19, 2019



ANSIBLE FACTS

```
"ansible_net_all_ipv4_addresses": [
  "172.24.0.36"
],
"ansible_net_all_ipv6_addresses": [],
"ansible_net_neighbors": {
  "TenGigabitEthernet1/1/3": [
    {
      "host": "ASP-IX-SWCORE-01.asp.local",
      "platform": "cisco WS-C3750G-24TS-1U",
      "port": "GigabitEthernet1/0/22",
      "ip": "172.24.0.37"
    }
  ],
  "TenGigabitEthernet2/1/3": [
    {
      "host": "ASP-IX-SWCORE-01.asp.local",
      "platform": "cisco WS-C3750G-24TS-1U",
      "port": "GigabitEthernet1/0/20",
      "ip": "172.24.0.37"
    }
  ]
}
```

```
"ansible_net_system": "ios",
"ansible_net_model": "WS-C4500X-16",
"ansible_net_image": "bootflash:cat4500e-universalk9
"ansible_net_version": "03.11.03a.E",
"ansible_net_hostname": "ASP-IX-SW4500X-01",
"ansible_net_api": "cliconf",
"ansible_net_python_version": "3.9.19",
"ansible_net_iostype": "IOS-XE",
"ansible_net_operatingmode": "controller",
"ansible_net_serialnum": "JAE212709TV",
```

- Facts are available for the entire ansible ecosystem
- Formatted in json, structure and keyword are consistent across vendors
- Perfect to be ingested in a CMDB!



Ansible Automation Platform

Overview

Learning Resources

Automation Hub ▾

Collections

Partners

Task Management

Connect to Hub

Automation Analytics >

Ansible Lightspeed >

Ansible Service on AWS >

Partners

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NetBox Labs and Red Hat collaborate to accelerate network automation with NetBox and Red Hat Ansible Automation Platform

June 3, 2024 | [Dafne Mendoza](#) | 4-minute read

[Automation and management](#) [Network automation](#) [Partners](#)

netboxlabs

Certified

✓ Signed

netbox

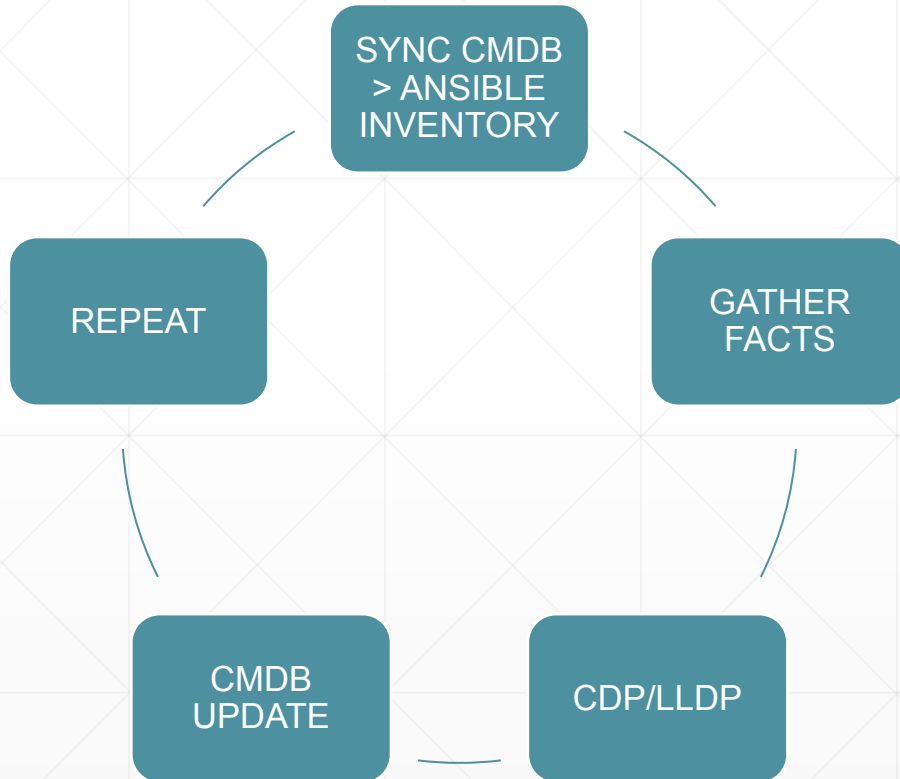
Provided by [Netbox Labs Inc.](#)

This is a collection of NetBox Ansible modules

87	0	14	0
Modules	Roles	Plugins	Dependencies



AUTOMATED DOCUMENTATION - DEMO RUN 1



- DEMO CONTEXT
 - ON PREM INFRA
 - CDP/LLDP info from facts
 - AAP (Ansible Automation Platform)
 - Almost empty CMDB (Netbox)
 - Initial dynamic inventory sourced from CMDB
- Expected outcome
 - Several devices discovered and documented in details in the CMDB
 - Automated network topology



AUTOMATED DOCUMENTATION - DEMO RUN 2

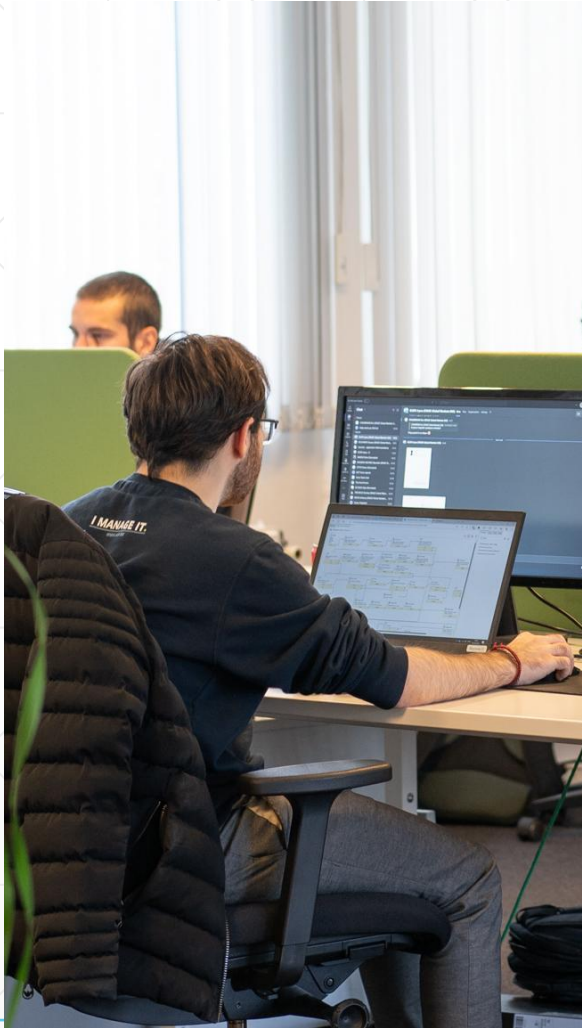
- New run of the same workflow, why :
 - Discovered hosts are now integrated in the dynamic inventory, meaning we can :
 - discover detailed information on these discovered hosts
 - discover new hosts from the initially discovered hosts
- **This workflow should be repeated until the entire infra is discovered and then scheduled regularly to be kept up to date**



REVIEW GATHERED INFORMATION

- FQDN
- OS/Platform version
- Device models
- Devices roles (switches, firewalls, servers, routers etc.)
- Serial numbers
- All interfaces
- Topology – cable connections
- All ip addresses
- Config is backed up





WHAT'S NEXT

- Automate as much as you can in the cmdb (vm's, ip plan, services, vpn tunnels)
- Integration with your ITSM
- Configuration context
 - Push a certain config only to devices matching certain conditions met in the CMDB



CONCLUSION

- Automated CMDB is possible (recommended)
- Network automation can just be read-only
- Ansible Automation Platform is a good vendor agnostic platform
- Ansible Automation Platform helps with delegation and collaboration

