



# Catalyst Center Management

# Driving business outcomes

Achieve your long-term IT business goals – today



Increase IT Team  
Agility (NetOps)

Improve User  
Experience (AIOps)



Deliver a Secure  
Network (SecOps)

Improve Service  
Delivery (DevOps)



# Agenda

- Catalyst Center use cases
- Catalyst Center preparation
- PnP
- Provision device
- SWIM
- Compliance
- Hvad nyt i Catalyst Center 2.3.7

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# Catalyst Center Use Cases

Increasing order of customer value

Categories



## Base Automation

*"Automate software image updates and network device onboarding, reducing time spent on provisioning"*



## Policy

*"Receive network performance insights and guided issue remediation"*



## Assurance

*"Receive network performance insights and guided issue remediation"*



## SD-Access

*"Get a single network fabric, from the edge to the cloud, using policy-based automation for users and devices"*

Use-cases

**1** **Network device onboarding (PnP):** Implement new network services quickly

**2** **Software Image Management (SWIM):** Roll out software patches and address security vulnerabilities automatically

**3** **Day0 & DayN Templates:** Applying configuration templates and network MACD

**4** **Security Advisories:** Improve visibility and response and regulate your security vulnerability policy

**5** **Application Visibility:** Improve application availability, reliability, and performance

**7** **Assurance:** Improve network availability, reliability, and performance

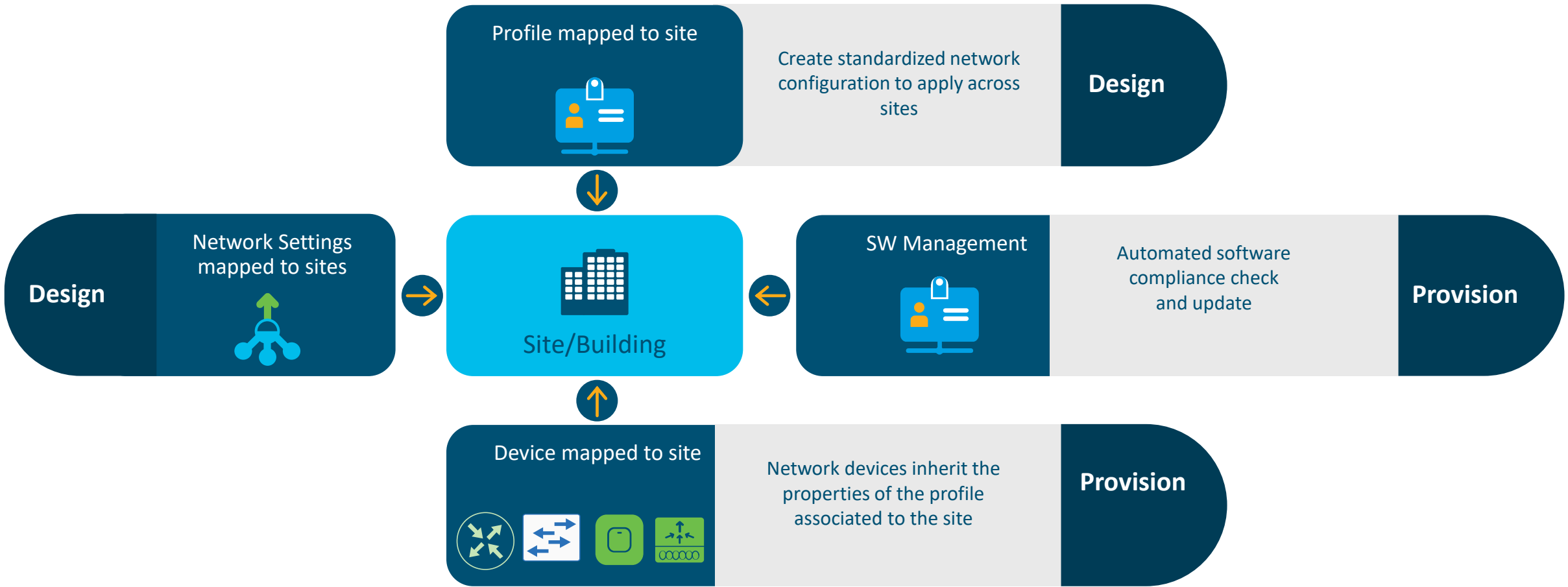
**5** **Segmentation:** Automatically segment users, devices, and things to maintain security posture

**6** **Policy:** Automatically recognize and apply policy quickly throughout the organization

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# Site in Cisco DNA Center- Heart of Simplified Deployment

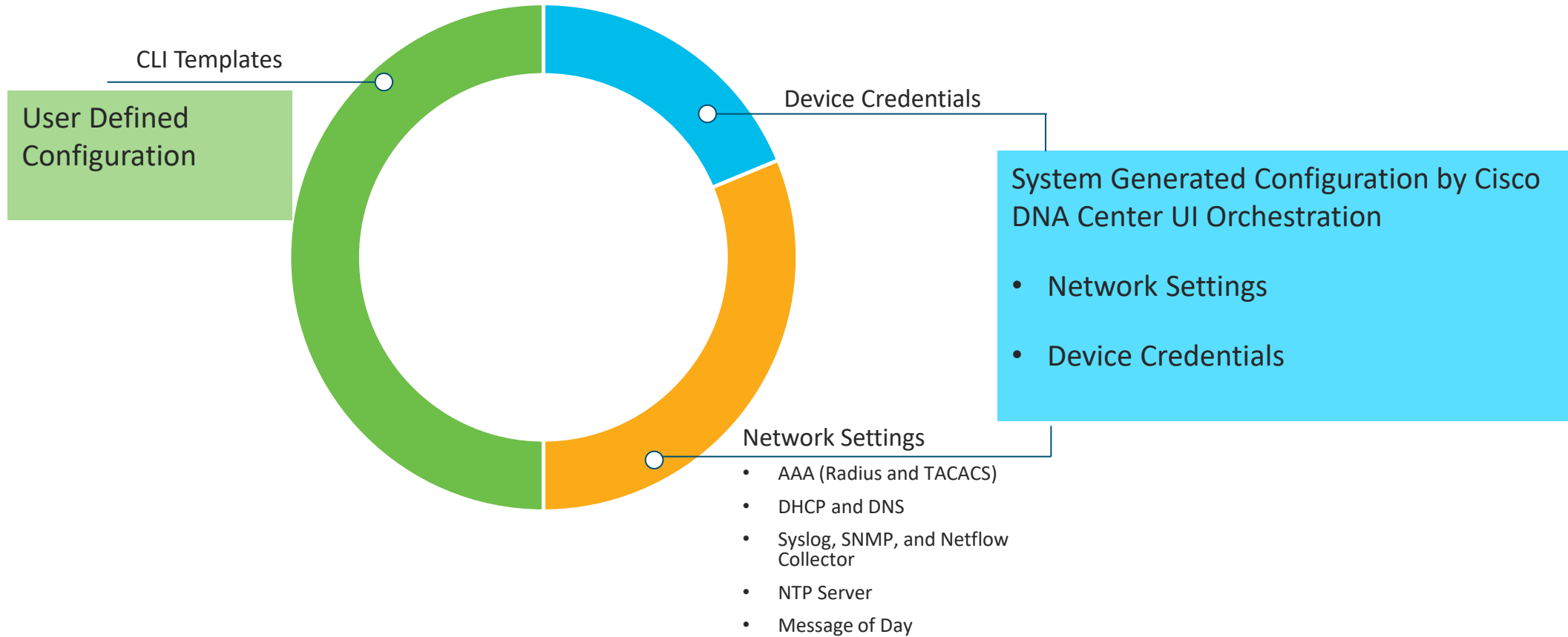


Intent-based workflows

Automated deployment

Cisco best practices

# Network Profile - Switching





# Device Onboarding Design Workflow

1

Create Sites

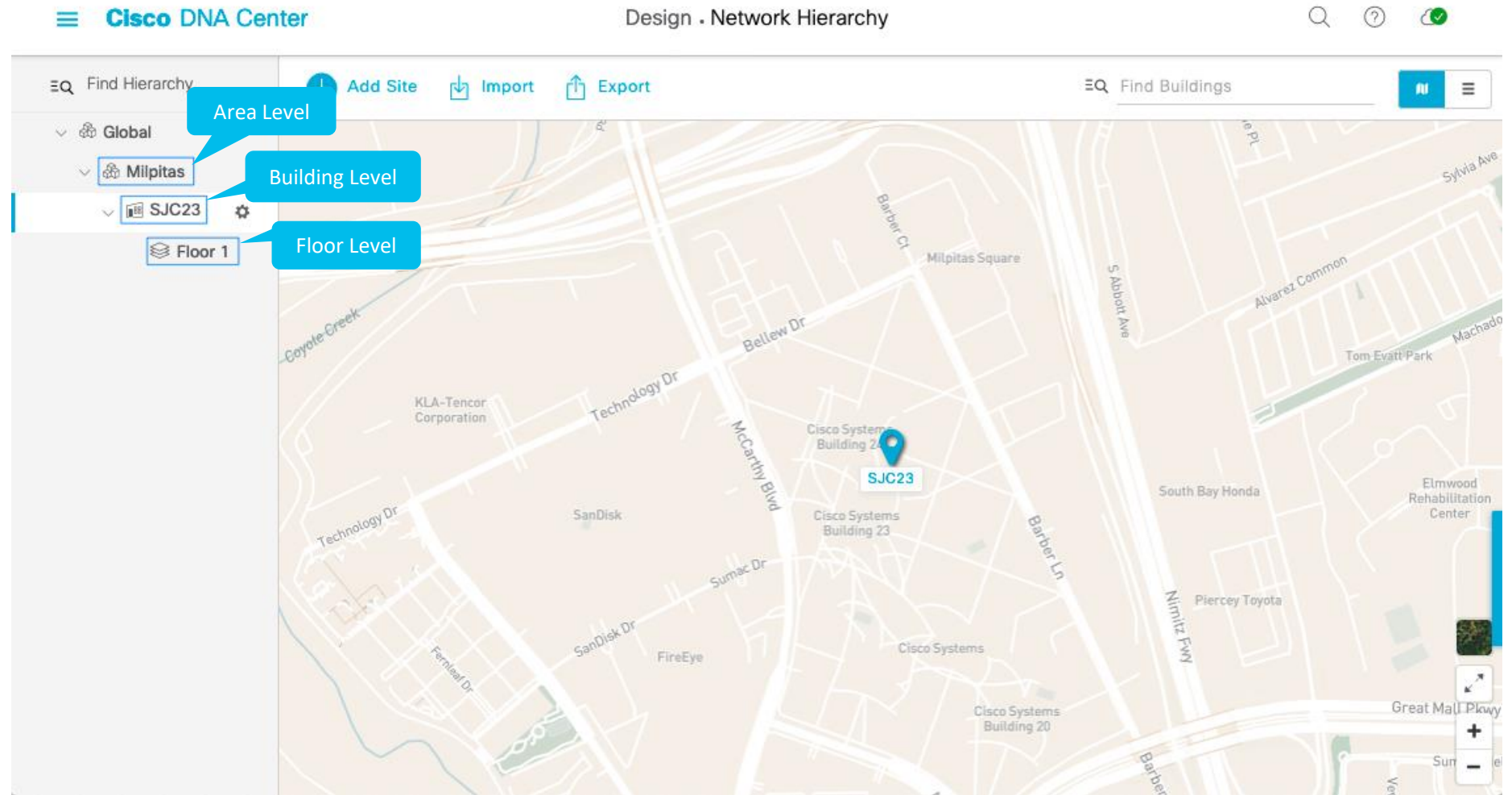
Define Network  
Settings

Define Golden  
Image (Optional)

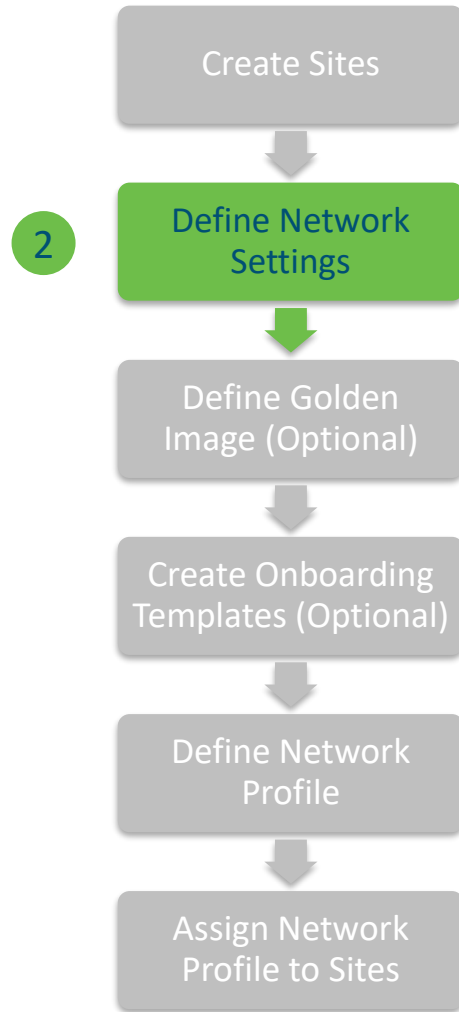
Create Onboarding  
Templates (Optional)

Define Network  
Profile

Assign Network  
Profile to Sites



# Device Onboarding Design Workflow



**Cisco DNA Center** Design - Network Settings

Network Device Credentials IP Address Pools SP Profiles Wireless Telemetry

Find Hierarchy

- Global
- Milpitas

Configure AAA, NTP, and Image Distribution (SFTP) servers using the "Add Servers" link. Once devices are discovered, DNA Center will deploy using these settings. [Add Servers](#)

### AAA Server

☒ Network ☒ Client/Endpoint

**TACACS**

**Policy Admin Node**

**Policy Service Node**

Servers: ☒ ISE ☐ AAA

Network: 10.4.48.24

Protocol: ☐ RADIUS ☒ TACACS

IP Address (Primary): 10.4.48.24 (Only device administration nodes)

### Change Shared Secret

**Radius**

☒ CLIENT/ENDPOINT

Servers: ☒ ISE ☐ AAA

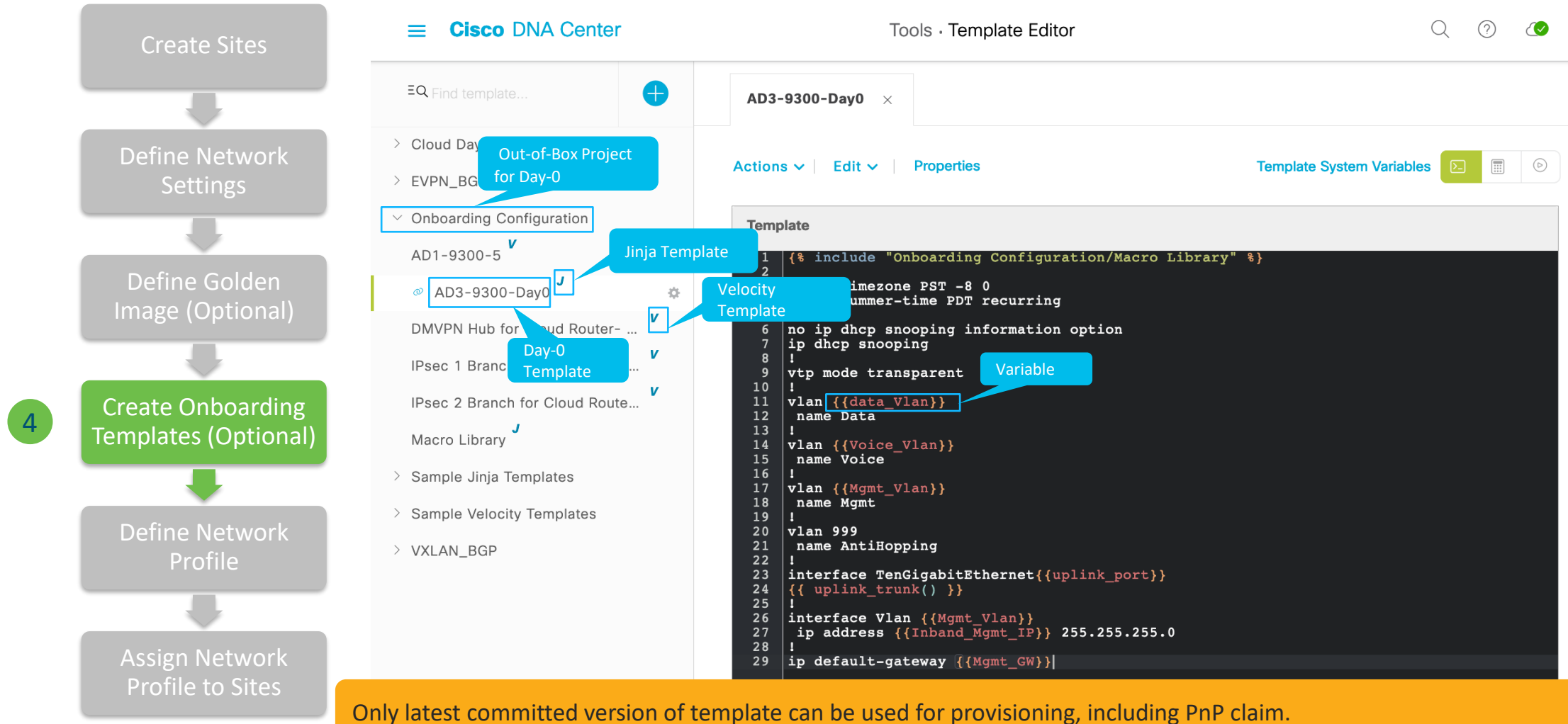
Client/Endpoint: 10.4.48.24

Protocol: ☒ RADIUS ☐ TACACS

IP Address (Primary): 10.4.48.24

[Reset](#) [Save](#)

# Device Onboarding Design Workflow



# PnP Provision Workflow Switch

## Step 0

### Plan for PnP Discovery

Plan DHCP Option 43 or DNS for devices to discover Cisco DNA Center

## Step 1

### Claim to Site via PnP

#### What are Provisioned?

- Part 1- PnP Claim
  - [Device Credentials](#) of Profile
  - Onboarding [CLI Template\(s\)](#) of Profile
- Part 2- Add to Inventory
  - [Device Controllability](#) if it is enabled

Profile

## Step 2

### Complete Profile Provisioning

#### What are Provisioned?

- [Network Settings](#) of Profile
- Full [CLI Template\(s\)](#) of Profile

Profile

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# Device Provision Workflow – Step 1 PnP Claim

☰ Cisco DNA Center

Provision · Network Devices · Plug and Play



Inventory

Plug and Play

DEVICE STATUS

Unclaimed (1)

Error (0)

Provisioned (6)

All (7)

Devices (1)

Last updated: 10:32 AM

↻ Refresh

+ Add Devices



Filter

Actions ▾

1 Selected

≡ Q Find



#

Claim

Edit

Reset

Delete



1

Stack icon



FJC2330S176

Product ID

C9300-24UX

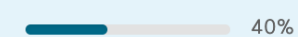
IP Address

10.4.79.20

Source

Network

Onboarding Progress



Site

N/A

Last Contact

Jan 20, 2021 10:31 AM



# Device Provision Workflow – Step 1 PnP Claim

Cisco DNA Center

Provision • Network Devices • Plug and Play

Inventory

Plug and Play

1 Assign Site

2 Assign Configuration

3 Provision Templates

4 Summary

From the Select a site drop-down list, choose a site to assign to the device.

Filter

Find

#	Device Name	Serial Number	Product ID	Site	Actions
1	AD2-9300-Stack	FJC2330S176	C9300-24UX	Global/San Jose/Building 4	<div><input type="checkbox"/> Apply Site to All</div> <div>Assign this Site to Other Devices</div>

Showing 1 of 1

Change device hostname, not required to define it as variable in template

Assign to Site

Cancel

Back

Next

# Device Provision Workflow – Step 1 PnP Claim

**Cisco DNA Center** Provision • Network Devices • Plug and Play

Inventory **Plug and Play**

1 Assign Site **2 Assign Configuration** 3 Provision Templates 4 Summary

Clear Images Clear Templates Clear License Levels

Filter Find

#	Device Name	Serial Number	Product ID	Assigned Site	Configuration	Actions
1	AD2-9300-Stack	FJC2330S176	C9300-24UX	Global/San Jose/Building 4	Image: cat9k_iosxe.17.03.02a.SPA.bin Template: AD2-9300#4 (Switching) Stack Details: Assign	...

Showing 1 of 1

1 If any configuration update is required, click on the device

2 By default, golden image and template are populated automatically for device.

Cancel Back **Next**



# Device Provision Workflow – Step 1 PnP Claim

Cisco DNA Center

Provision · Network Devices · Inventory

Inventory

Plug and Play

Find Hierarchy

Global

Unassigned Devices (3)

Denver

Milpitas

New York

Richardson

Richfield

San Jose

DEVICES (47)

FOCUS: Inventory

Global

Filter | Add Device | Tag Device | Actions | Take a Tour

Last updated: 8:07 PM | Export | Refresh

	Device Name	IP Address	Device Family	Reachability	Manageability	Compliance	Health Score	Site	MAC Address	Device Role	Image Version	Uptime
	AD1-2960XR-1.cisco.local	10.4.15.8	Switches and Hubs	Reachable	Managed	Non-Compliant	10	.../Building 23/Floor 3	f8:4f:57:ee:9d:00	ACCESS	15.2(7)E0a	71 days 22
	AD1-3650.cisco.local	10.4.15.7	Switches and Hubs	Reachable	Managed	Non-Compliant	10	.../Building 23/Floor 2	00:35:1a:1d:f5:80	ACCESS	16.9.5	111 days 9
	AD1-3850-1.cisco.local 3850	10.4.15.5	Switches and Hubs	Reachable	Managed	Compliant	8	.../Building 23/Floor 2	1c:e8:5d:17:e7:80	ACCESS	16.12.4	61 days 11
	AD1-3850-2.cisco.local 3850	10.4.15.6	Switches and Hubs	Reachable	Managed	Non-Compliant	10	.../Building 23/Floor 1	bc:c4:93:b2:87:00	ACCESS	16.12.4	110 days 6
	AD2-3750X.cisco.local	10.4.79.6	Switches and Hubs	Reachable	Managed	N/A	10	.../Building 24/Floor 2	44:d3:ca:08:d0:80	ACCESS	15.2(4)E3	627 days 4
	AD2-4503.cisco.local	10.4.79.7	Switches and Hubs	Reachable	Managed	Compliant	10	.../Building 24/Floor 3	a8:9d:21:d7:70:80	ACCESS	03.10.01.E	627 days 4
	AD2-9200.cisco.local 9200	10.4.79.8	Switches and Hubs	Reachable	Managed	Non-Compliant	10	.../Building 24/Floor 3	dc:8c:37:ff:11:00	ACCESS	16.12.4	107 days 8
	AD2-9300-Stack	10.4.79.12	Switches and Hubs (WLC Capable)	Reachable	Managed	Non-Compliant	NA	.../San Jose/Building 4	10:b3:c6:58:66:00	ACCESS	17.3.1	63 days 2 h

Stack Switch

Static IP is used as management IP automatically.

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# Device Provision Workflow – Step 2 Complete Provisioning

**Cisco DNA Center** Provision · Network Devices · Inventory

Inventory Plug and Play

Find Hierarchy

Global

Unassigned Devices (3)

- Denver
- Milpitas
- New York
- Richardson
- Richfield
- San Jose


DEVICES (47)  
FOCUS: Inventory

Global




Filter Add Device Tag Device Actions 1 Take a Tour 1 Selected Last updated: 8:14 PM Export Refresh

Device Name	IP Address	Inventory	Reachability	Manageability	Compliance	Health Score	Site	MAC Address
AD1-2960XR-1.cisco.local	10.4.15.1	Inventory	Reachable	Managed	Non-Compliant	10	.../Building 23/Floor 3	f8:4f:57:ee:9d:00
AD1-3650.cisco.local	10.4.15.2	Provision			Non-Compliant	10	.../Building 23/Floor 2	00:35:1a:1d:f5:80
AD1-3850-1.cisco.local 3850	10.4.15.3	Assign Device to Site			Compliant	8	.../Building 23/Floor 2	1c:e8:5d:17:e7:80
AD1-3850-2.cisco.local 3850	10.4.15.4	Provision Device			Non-Compliant	10	.../Building 23/Floor 1	bc:c4:93:b2:87:00
AD2-3750X.cisco.local	10.4.79.5	LAN Automation			N/A	10	.../Building 24/Floor 2	44:d3:ca:08:d0:80
AD2-4503.cisco.local	10.4.79.5	LAN Automation Status			Compliant	10	.../Building 24/Floor 3	a8:9d:21:d7:70:80
AD2-9200.cisco.local AD2-9200	10.4.79.15	Learn Device Config	Reachable	Managed	Non-Compliant	10	.../Building 24/Floor 3	dc:8c:37:ff:11:00
AD2-9300-Stack	10.4.79.12	Configure WLC HA	Reachable	Managed	Compliant	8	.../San Jose/Building 4	10:b3:c6:58:66:00
AD2-9300.cisco.local	10.4.79.9		Reachable	Managed	Non-Compliant	10	.../Building 24/Floor 1	00:c1:b1:12:f0:80

# Device Provision Workflow – Step 2 Complete Provisioning

Cisco DNA Center

Provision · Network Devices · Inventory · Provision Devices



Inventory > Provision Devices

1 Assign Site

2 Advanced Configuration

3 Summary

Devices

Select devices to fill out provisioning parameters

Find

≡ Q Device

Show

All ▾

▾ Demo-9330-Template (1)

✓ AD2-9300-Stack

☒ Provision these templates even if they have been deployed before

☒ Copy running config to startup config

Export Import

Demo-9330-Template

> interfaces \* TenGigabitEthernet1/0/1, TenGigabitEthernet1/0/11, TenGigabitEthernet1/0/12, ...

data\_Vlan \*

170

Voice\_Vlan \*

171

Cancel

Next

# Device Provision Workflow – Step 2 Complete Provisioning

Cisco DNA Center

Provision · Network Devices · Inventory · Provision Devices

🔍 ? 🟢

Inventory > Provision Devices

1 Assign Site

2 Advanced Configuration

3 Summary

AD2-9300-Stack

> Device Details

Network Settings

AAA Network ISE Server	10.4.48.20
AAA Network Primary Server:	10.4.48.21
AAA Client ISE Server	10.4.48.20
AAA Client Primary Server:	10.4.48.21
WARNING: Do not use "admin" as the username for your device CLI credentials, if you are using ISE as your AAA server. If you do, this can result in you not being able to login to your devices.	
DHCP Server:	10.4.48.10
DNS Domain Name:	cisco.local
DNS Primary Server:	10.4.48.10
Syslog Server	Cisco DNA Center
Netflow Collector	Cisco DNA Center
IP Device Tracking <b>NEW</b>	Yes
IP Device Tracking per site can now be managed from Network Settings.	

Cancel

Deploy

# Device Provision Workflow – Step 2 Complete Provisioning

**Cisco DNA Center** Provision · Network Devices · Inventory

Inventory Plug and Play

Find Hierarchy

- Global
  - Unassigned Devices (3)
  - Denver
  - Milpitas
  - New York
  - Richardson
  - Richfield
  - San Jose

DEVICES (47)  
FOCUS: **Provision** ▾

Global

Filter | Add Device | Tag Device | Actions ▾ | Take a Tour

Last updated: 8:34 PM Export Refresh

	Device Name	IP Address	Device Family	Site	Reachability	Provision Status	Credential Status	Last Provisioned	
<input type="checkbox"/>	AD1-3650.cisco.local	10.4.15.7	Switches and Hubs	.../Building 23/Floor 2	Reachable	Success See Details Out of Sync	Success	7 months ago	
<input type="checkbox"/>	AD1-3850-1.cisco.local 3850	10.4.15.5	Switches and Hubs	.../Building 23/Floor 2	Reachable	Failed See Details Out of Sync	Failed	2 months ago	
<input type="checkbox"/>	AD1-3850-2.cisco.local 3850	10.4.15.6	Switches and Hubs	.../Building 23/Floor 1	Reachable	Success See Details Out of Sync	Not Provisioned	2 months ago	
<input type="checkbox"/>	AD2-3750X.cisco.local	10.4.79.6	Switches and Hubs	.../Building 24/Floor 2	Reachable	Success See Details	Not Applicable	7 months ago	
<input type="checkbox"/>	AD2-4503.cisco.local	10.4.79.5	Switches and Hubs	.../Building 24/Floor 3	Reachable	Success See Details	Not Applicable	7 months ago	
<input type="checkbox"/>	AD2-9200.cisco.local AD2-9200	10.4.79.15	Switches and Hubs	.../Building 24/Floor 3	Reachable	Success See Details Out of Sync	Not Applicable	3 months ago	
<input type="checkbox"/>	AD2-9300-Stack.cisco.local	10.4.79.12	Switches and Hubs (WLC Capable)	.../San Jose/Building 4	Reachable	Success See Details	Not Provisioned	a minute ago	

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- Compliance
- Hvad nyt i Catalyst Center 2.3.7

# Image Repository: Suggested Images- Automatic

- Automated image suggestions per device family
- Security advisory information by severity
- Automatic image download from cisco.com (for golden images)

< Image Repository

Cisco Catalyst 9300 Switch

<div>SUMMARY</div> <div><div>&gt; Roles &amp; Tags (6)</div><div>&gt; Major Versions (8)</div><div>&gt; Golden Images (2)</div></div>	Images (12) <div>Show Tasks</div>				
	<div>Search Table</div>				
	Image Name	Version	Devices	Advisories	Golden Image
	cat9k_iosxe.17.03.07.SPA.bin	Amsterdam-17.3.7 (Latest) Add On (1)	0	0 Critical 1 High	<div>Download</div>
	cat9k_iosxe.17.06.05.SPA.bin	Bengaluru-17.6.5 (Suggested, Latest) Add On (1)	0	0 Critical 0 High	<div>Download</div>
	cat9k_iosxe.17.08.01.SPA.bin	17.08.01.0.1490 Add On (N/A)	1	14 High 4 Medium	<div>Download</div>
	cat9k_iosxe.17.09.02.SPA.bin	17.09.02.0.3040 Add On (N/A)	1	0 Critical 1 High	<div>Download</div>



# Image Standardization - “Golden Images”

- Standardize Golden image by:
  - Platform (device family)
  - Device role
  - Location (overrides the other two)
- Automatic download of golden tagged images
- Automatic compliance check to indicate outdated images

< Image Repository

Cisco Catalyst 9300 Switch

SUMMARY

- > Roles & Tags (7)
- > Major Versions (16)
- > Golden Images (2)

Images (21) [Show Tasks](#) Cisco.com ID: sumnguye@cisco.com (Not me?)

Search Table

As of: Aug 8, 2023 11:30 PM

Image Name	Version	Devices	Advisories	Golden Image	Device Roles & Tags
<a href="#">cat9k_iosxe.17.09.03.SPA.bin</a> Verified	17.09.03.0.4111 (Latest) <a href="#">Add On (1)</a>	0	0 Critical 0 High	★	<a href="#">Role: All</a>
<a href="#">cat9k_iosxe.17.11.01.SPA.bin</a>	Dublin-17.11.1 (Latest) <a href="#">Add On (1)</a>	0	0 Critical 1 High	↓	1
<a href="#">cat9k_iosxe_npe.17.03.06.SPA.bin</a>	Amsterdam-17.3.6 (Suggested) <a href="#">Add On (N/A)</a>	0	3 High 1 Medium	↓	1
<a href="#">cat9k_iosxe_npe.17.03.07.SPA.bin</a>	Amsterdam-17.3.7 (Latest) <a href="#">Add On (1)</a>	0	0 Critical 1 High	↓	1

# Golden Image Non-compliance

- Automated check for software image status
- Device without golden image tagging and those not running golden image are labeled

✓ All

Routers

Switches

Wireless Controllers

Access Points

Sensors

☰

☰

🔗

📍

Devices (27)

Focus: Software Images

Take a tour

Export

⚙️

🔍

Filter devices

🔍

0 Selected

Add Device

Tag

Actions

📄

As of: Aug 8, 2023 11:32 PM

🔄

<input type="checkbox"/>	Device Name	IP Address	Device Family	Site	Reachability	Software Image	Image Version	OS Update Status
<input type="checkbox"/>	<div><div>AD4-9404.pseudoco.com</div><div>Switch and Hub</div></div>	10.4.111.14	Switches and Hubs (WLC Capable)	.../England/London 2	🟢 Reachable	cat9k_iosxe.17.06.... <a href="#">Mark Golden</a>	17.6.1	NA
<input type="checkbox"/>	<div><div>AD4-9300-5.pseudoco.com</div><div>Switch and Hub</div></div>	10.4.111.25	Switches and Hubs (WLC Capable)	.../England/London 2	🟢 Reachable	CAT9K[17.6.5] 🟢 Needs Update	17.6.5	Distribution Pe
<input type="checkbox"/>	<div><div>C-6807-1.pseudoco.com</div><div>Switch and Hub</div></div>	10.4.40.254	Switches and Hubs	.../London/Floor 1	🟢 Reachable	s6t64-ipservicesk9... <a href="#">Mark Golden</a>	15.3(1)SY	NA
<input type="checkbox"/>	<div><div>AP005D.7344.5E08</div><div>APDEVICES, site ap</div></div>	10.4.96.20	Unified AP	.../London/Floor 1	🟢 Reachable	NA	17.9.2.52	NA
<input type="checkbox"/>	<div><div>AP4800_CD70</div><div>APDEVICES, site ap</div></div>	10.4.96.21	Unified AP	.../London/Floor 1	🟢 Reachable	NA	17.9.2.52	NA

# Image upgrade readiness checks

- Provision to device readiness for software upgrade
- Curated list of pre-checks:
  - Startup config check
  - Config register value
  - Flash memory
  - File transfer protocol
  - Service entitlement
- Supported file transfer protos:
  - HTTPS
  - SCP
  - SFTP (WLC)

Provision / Inventory

### Image Update Readiness Check

Devices (27) Focus: Software I

0 Selected [Add Device](#) [Tag](#)

Filter devices

<input type="checkbox"/>	Device Name
<input type="checkbox"/>	AD4-9404.pseudoco.com Switch and Hub
<input type="checkbox"/>	AD4-9300-5.pseudoco.com Switch and Hub
<input type="checkbox"/>	C-6807-1.pseudoco.com Switch and Hub
<input type="checkbox"/>	AP005D.7344.5E08 APDEVICES, site ap
<input type="checkbox"/>	AP4800_CD70 APDEVICES, site ap
<input type="checkbox"/>	AP7069.5A76.37FC APDEVICES, Check, Powe
<input type="checkbox"/>	AD4-9300-1.pseudoco.com

27 Records

DEVICE DETAILS

Device: AD4-9300-5.pseudoco.com (10.4.111.25)

Running Image: cat9k\_iosxe.17.06.05.SPA.bin

Golden Image: cat9k\_iosxe.17.03.06.SPA.bin

Reboot Required: Yes

Readiness Checks Results [Re-Execute Checks](#) [Export](#) As of: Aug 8, 2023 11:40 PM

Check Type	Description	Status	Last Checked
Startup config check	Startup configuration exist for this device	✓	Aug 8, 2023 11:30 PM
Config register check	Config-register verified successfully <b>Expected:</b> 0x102,0x2102 <b>Action:</b> No action required	✓	Aug 8, 2023 11:30 PM
Flash check	Flash check: SUCCESS <b>Expected:</b> 1903 MB Available Free space is: 7398 MB [Install mode needs free space to 2.2 times of Image size]	✓	Aug 8, 2023 11:30 PM
File Transfer Check	HTTPS/SCP is reachable :10.4.48.237	✓	Aug 8, 2023 11:30 PM
Service Entitlement Check	Could not validate license service contract <b>Actual:</b> Could not validate license service contract <b>Action:</b> Please check CCO Credentials/ Cisco DNA Center has CCO reachability to validate license	⚠	Aug 8, 2023 11:30 PM

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# Cisco DNA Center Configuration Compliance Workflow

## Step 1

DNA Center archives device(s) running configuration

## Step 3

Automatic/ manual compliance checks run

## Step 5

User can acknowledge, report and remediate violations

Configuration Archive

Config Drift

Compliance Check

Identify violation

Act on violation

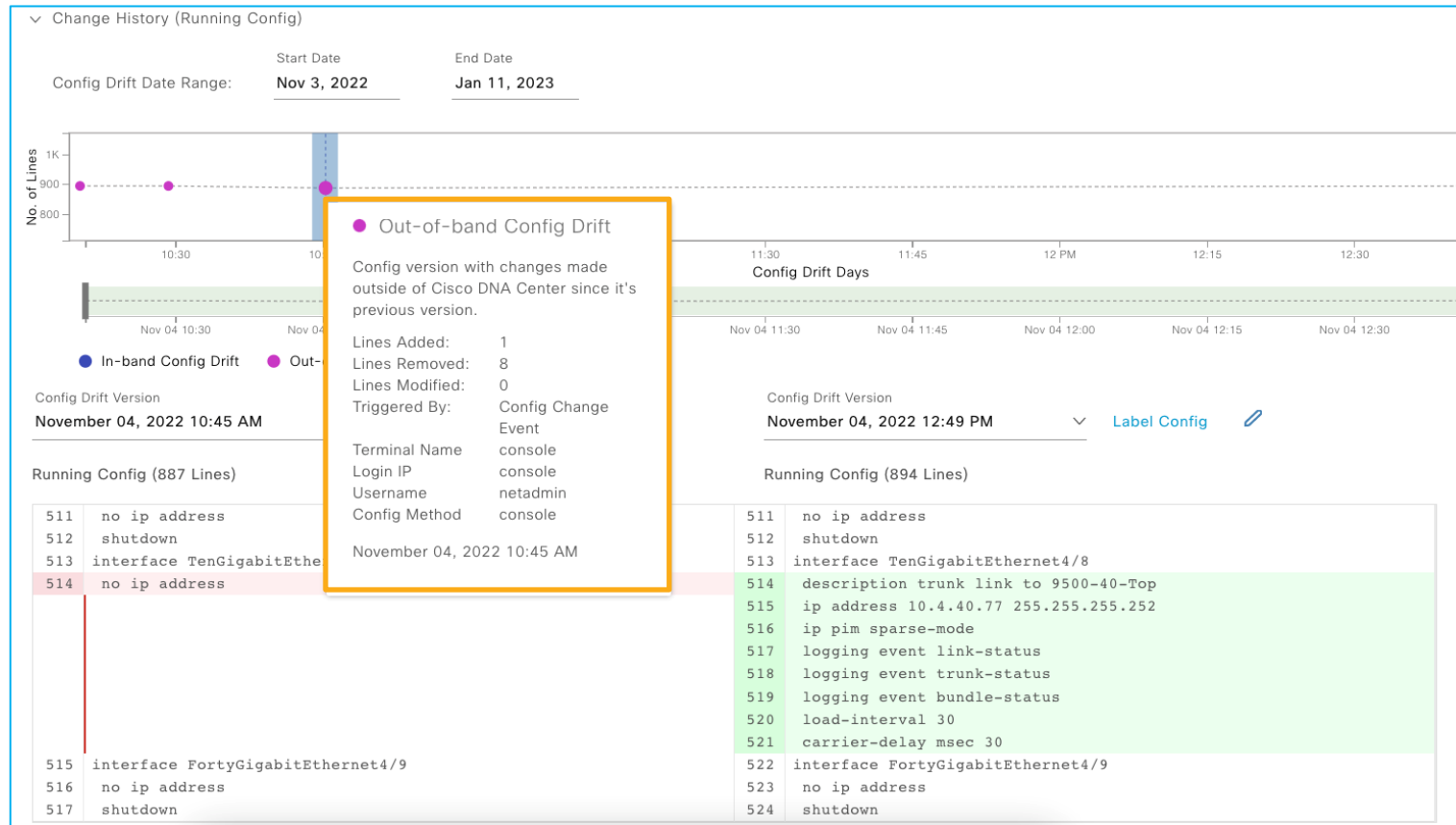
## Step 2

DNA Center compares & reports config diff between versions of archived config

## Step 4

DNA Center identifies violations against defined intent and flags them

# Configuration Drift – WHO, WHAT, WHEN



- Time graph for better visualization
- Differentiate In-band and out-of-band changes
- Side by side comparison of changes


# Network Profile Compliance

## Compliance Summary


[View Preference for Ad](#)

No events detected to trigger compliance check


[Run Compliance Check](#)





EoX - End of Life




Compliance last run on: Jan 9th, 2023, 07:32:08 AM


Software :  **Compliant**

Module :  **Compliant**

Hardware :  **Compliant**



Startup vs Running Configuration



Compliance last run on: Jan 9th, 2023, 04:30:00 AM


26 days

since in sync


Lines added: 0

Lines removed: 0

Lines modified: 0



Network Profiles




Non-Compliant since Oct 21st, 2022, 04:30:02 AM

Compliance last run on: Jan 9th, 2023, 04:30:00 AM


1

Open Violations

CLI Template: 1



Application Visibility




Non-Compliant since Jan 9th, 2023, 04:30:12 AM

Compliance last run on: Jan 9th, 2023, 04:30:12 AM


1

Open Violations

CBAR configuration - Protocol Discovery: 1



Software Image




Non-Compliant since Dec 6th, 2022, 06:25:19 AM

Compliance last run on: Jan 9th, 2023, 04:30:00 AM


17.03.01

Golden Image Version

Running Version: 17.3.5



Critical Security Advisories



Compliant since Jun 3rd, 2022, 05:31:25 AM

Compliance last run on: Jan 9th, 2023, 04:30:00 AM



0

# EoX Compliance


## Compliance Summary


Next Compliance check is scheduled on January 10, 2023 7:40 PM


[Run Compliance Check](#)



 EoX - End of Life 

Compliance last run on: Jan 10th, 2023, 02:34:33 PM

Software :  **Compliant**

Hardware :  **Compliant**



Module :  **Compliant**

 Startup vs Running Configuration 

Compliance last run on: Jan 10th, 2023, 02:34:33 PM



**418 days** since in sync

Lines added: **0**  
Lines removed: **0**  
Lines modified: **0**

 Software Image 

Non-Compliant since Jun 22nd, 2022, 12:11:19 AM  
Compliance last run on: Jan 10th, 2023, 02:34:33 PM

**17.03.01** Running Version: **17.6.1**  
Golden Image Stack Member Status: **Up to Date**  
Version

 Critical Security Advisories 

Compliant since Nov 19th, 2021, 05:30:09 AM  
Compliance last run on: Jan 10th, 2023, 02:34:33 PM

**0**


[Compliance Summary](#) / EoX - End of Life


## Compliance - End of Life

Compliance Status :  **Compliant**


 Hardware  **Software**  Module

 **Announcement**  
Oct 1, 2022

 **End of Sale**  
Apr 1, 2023

 **Last Ship**  
Apr 1, 2023

 **End of Vulnerability / Security Support**  
Sep 30, 2024

 **Last Date of Support**  
Mar 31, 2026

- Alerts for various End of Life milestones
- Based on hardware, module and software info
- Alerts for milestones in near future
- Violations for past milestone
- Helps plan device refresh or upgrades



# Acknowledge Compliance Violations

[Compliance Summary](#) / [Network Profiles](#)View Preference for Acknowledged Violations

CLI Template (1)

CLI Deviations

As of: Jan 10, 2023 7:44 PM

Search Table

Open Violations (1)Acknowledged Violations (0)

Template	Action
AD4-9300-DayN	Acknowledge

1 Records

Show Records: 101 - 1

Realize Template: AD4-9300-DayN

7	7	switchport port-security aging time 2
8	8	switchport port-security aging type inactivity
9	9	switchport port-security
10		ip arp inspection limit rate 100
11		load-interval 30
12	10	ip verify source
13	11	ip dhcp snooping limit rate 100
14		spanning-tree portfast
15	12	spanning-tree bpduguard enable
16	13	!
17	14	interface GigabitEthernet1/0/5

## Acknowledge Violation Preferences

Following are all the list of Acknowledged Violation Preference for this device. Any violations against these attributes will not be reported as open violations. To see such violations as open, you can unlist these from here.

### List of Acknowledged Violation Attributes (1)

Models **Templates**

1 Selected [Unlist](#)

<input checked="" type="checkbox"/>	Template	Action
<input checked="" type="checkbox"/>	AD4-9300-DayN	<a href="#">Unlist</a>

1 Records

Show Records: 251 - 1

- Support for Model based template and CLI Template violations
- Acknowledge insignificant violation to suppress reporting
- Un-list the acknowledged violation to resume reporting
- History of acknowledged violations

# Compliance Remediation

AD4-9300-5.pseudoco.com [Run Commands](#) [View 360](#)

Switch and Hub

Reachable Managed IP Address: 10.4.111.25 Device Model: Cisco Catalyst 9300 Switch Device Role: ACCESS Uptime: 116 days 14 hrs 38 mins Site: Global/En

**DETAILS**

- Interfaces
- Hardware & Software
- Configuration
- Power
- Fans
- SFP Modules
- User Defined Fields
- Config Drift
- REP Rings

**SECURITY**

- Advisories

**COMPLIANCE**

- Summary

You can now fix all configuration compliance issues on this device. You will be able to review before the fix is applied. [Fix All Configuration Compliance Issues](#)

**Compliance Summary**

Next Compliance check is scheduled on Aug 31, 2023 07:38 PM [Run Compliance Check](#)

Compliance Item	Status	Compliance last run on	Open Violations
EoX - End of Life	Compliant	Aug 31st, 2023, 02:29:18 PM	0
Network Settings	Compliant	Aug 31st, 2023, 02:29:18 PM	0
Startup vs Running Configuration	Out of Sync	Aug 31st, 2023, 02:29:18 PM	106 days since out of sync
Network Profiles	Non-Compliant	Aug 31st, 2023, 02:29:18 PM	1
Software Image	Non-Compliant	Aug 31st, 2023, 02:29:18 PM	17.03.06
Critical Security Advisories	Compliant	Aug 31st, 2023, 02:29:18 PM	0

- One click fix for reported non-compliance
- Remediation for
  - Network Profile
  - Network Settings
  - Model Config Templates
  - CLI Templates
  - App Visibility
- Remediate open and acknowledged violations
- Preview configuration prior to remediation
- On-demand and scheduled remediation

# Agenda

- Catalyst Center use cases
- Catalyst Center preparation
- PnP
- Provision device
- SWIM
- Compliance
- Hvad nyt i Catalyst Center 2.3.7

# Catalyst Center 2.3.7 – Hulk

## Key New Features & Enhancements



### AI Ops

#### Improve Performance

- Event Analytics
- Client 360- Latency per Client data
- SSID Monitoring
- Site Analytics Enhancement
- PoE Visibility – AP Power Savings
- OTA Sniffer



### NetOps

#### Enhance Efficiency

- 3rd Party Device/Generic MIB2 “Visibility”
- Device refresh for IOS-XE
- Visibility and Control
- NETCONF during Day-0 PnP
- C9800 Day-0 onboarding template support
- AVC & QoS Auto Enablement
- Individual AP Maintenance mode



### SecOps

#### Manage Security and Policy

- Security Service Insertion
- LAN Automation Enhancements
- SD-Access UI 2.0
- SD-Access API updates



### DevOps

#### Accelerate Service Delivery

- Cisco-First APIs
- External API support for import/export floor map, export AP-related info
- LAN Automation with IPAM
- Service Now integration with Catalyst Center



#### PLATFORM/ SYSTEM

• VA ESXi

• VA AWS Launchpad Updates

• Flexible Reports

• Virtual Airgap



# Automation (NetOps) Assurance (AIOps)

# Generic MIB2 Device Visibility

Innovation

NetOps



## Challenge/Pain Points

- As a network administrator, monitoring a multi-vendor estate using various management platforms is challenging and forces customers to use multiple tools
- Not having a single pane to view the entire network estate can lead to longer MTTR as the admin need to go to multiple tools.

## Feature Capability

- Generic MIB2 visibility will provide a set of visibility capabilities for a multi-vendor network using Catalyst Center:
  - Discovery and Inventory support
  - Device Uptime
  - Limited visibility of device in topology
  - Interface up/down status
  - Name of the Vendor e.g., "Cisco", "HP" etc.
  - Device 360 limited view

## Platform/Dependency

- Device must be capable of populating SNMP MIB2 data

Provision -> Inventory -> Add Device -> Third Party Device(Type)

Global

Devices (1) Focus: Inventory

deviceFamily: (third party device)

0 Selected Tag Add Device Edit Device Delete Device Actions

Device Name	IP Address	Vendor	Reachability	EoX Status	Manageability
PA-820	10.106.24.76	Palo Alto Networks	Reachable	Not Scanned	Managed

PA-820 (REDACTED)

Reachable Uptime: 145 days 2 hrs 1 min Device Role: CORE

View 360 Last updated: 8 minutes ago Refresh

Details Advisories Field Notices Potential Field Notices Interfaces

**HARDWARE**

Device Type	Third Party Device	Series	Third Party Device
Platform	PA-820	Serial Number	012001067283
MAC Address	NA	Vendor	Palo Alto Networks

**SOFTWARE**

Image	NA	Version	NA
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**OPERATIONAL SUMMARY**

Uptime	145 days 2 hrs 1 min	Resync Interval	24 hours
Last Synced	8 minutes ago		



\*\* Functionality will vary based on device capability

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# Device Refresh for IOS-XE

Innovation

NetOps



## Challenge/Pain Points

- As a network administrator, identifying and replacing End-of-life devices and replace those with their newer models is laborious and cumbersome
- Device upgrades involves many time-consuming and error-prone manual steps to ensure appropriate usage of device configurations, licenses, software images etc.

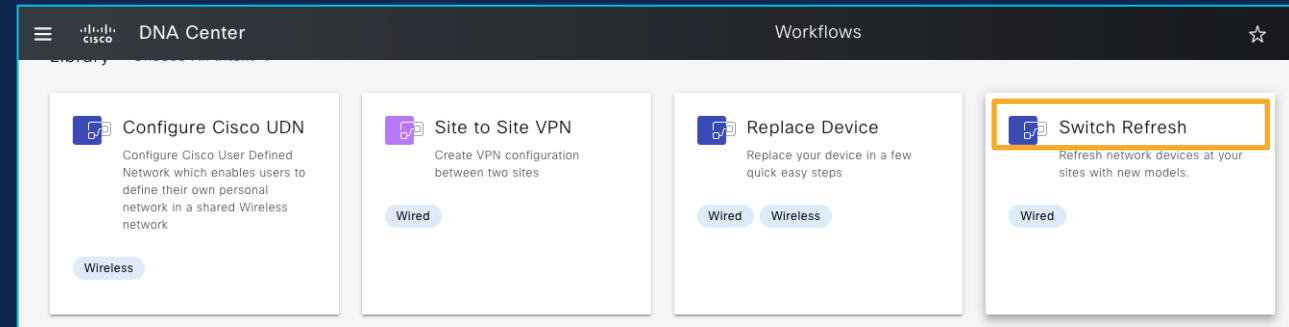
## Feature Capability

- Ability to replace End-of-life and/or older devices in inventory with recommended replacement devices
- Guided workflow to seamlessly handle device configuration, software image and license replacements for replacement device
- Choice of adding replacement devices either through discovery or PnP process

## Platform/Dependency

- Support for C3650 and C3850 only
- Older and replacement devices must have identical port structures

## Workflows -> Switch Refresh



Devices (5) Focus: Device Refresh

Click here to apply basic or advanced filters or view recently applied filters

0 Selected Tag Add Device Actions

	Device Name	Inventory	New Platform	Refresh Status	IP Address	Serial Number	New Serial Number
<input type="checkbox"/>	C9300_24_R17_30	Software Image	NA	NA	8.18.18.22	FCW2304DHH5	NA
<input type="checkbox"/>	C3650_R17_24	Provision	NA	Marked for Refresh	8.18.18.24	FDO2307Q00F	NA
<input type="checkbox"/>	C3650_R17_23.cisco.co	Telemetry	NA	NA	8.18.18.25	FCW2304AHFM	NA
<input type="checkbox"/>	C9300_R16_74	Device Replacement	NA	Mark for Refresh	8.18.18.74	FOC2340U09Q	NA
<input type="checkbox"/>	C9300_R16_75.cisco.co	Switch Refresh	NA	Refresh Device(s)	8.18.18.75	FCW2327BH0Z	NA
		Compliance		Unmark for Refresh			
		More		Refresh History			

# Visibility and Control

Innovation

NetOps



## Challenge/Pain Points

- As a network administrator, visualizing/validating and approving the configuration changes made by Catalyst Center on network devices is important

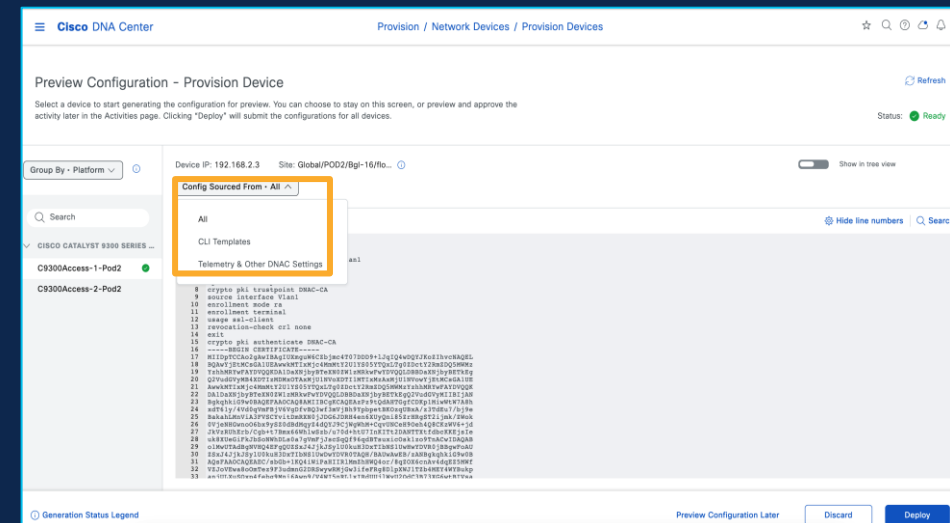
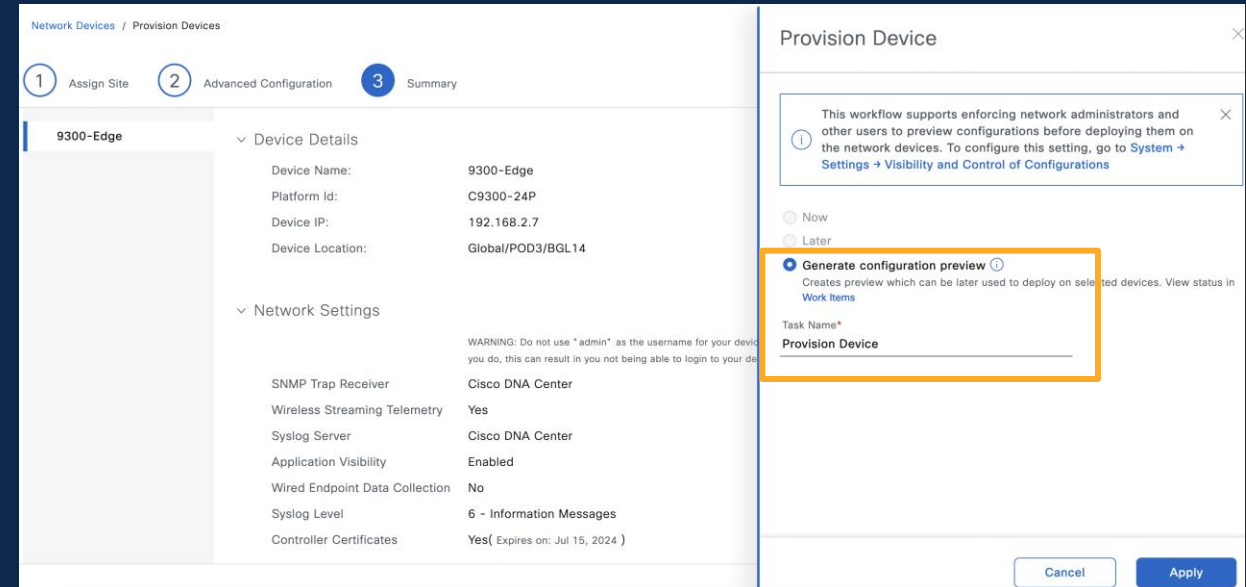
## Feature Capability

- This feature will provide visibility into exact CLI's going to get provisioned on the devices for all pre and post provisioning operations
- Generate Config Preview is a mandatory part of workflow
- CLI's for Template and Intent can be viewed before provisioning for multiple devices
- CLI preview is available for Templates, Appx, Intent, Rogue Containment and Compliance Remediation

## Platform/Dependency

- Make sure "Configuration Preview" is enabled under Settings > system configuration > Visibility and control of configurations

### System -> Settings -> Visibility of Configurations





# NETCONF during Day-0 PnP

Innovation

NetOps



## Challenge/Pain Points

- For a better telemetry, Catalyst Center has started migrating from SNMP to TDL based collector and as a network administrator, I would like NETCONF to be enabled on all my supported devices during Day-0 Onboarding

## Feature Capability

- For a Green Field PnP process, enabling NETCONF during the flow will help with onboarding process
- NETCONF enablement will improve Telemetry Collection
- As part of Day-0 configuration, NETCONF and AAA will be pushed during the PnP claim process
- Day-0 NETCONF and AAA configuration can be viewed on the summary page under Preview Configuration at the end of PnP Claim workflow

## Platform/Dependency

- NETCONF Day 0 support is available for switching platform

### Provision -> Plug and Play

The Cisco Network Plug and Play provides a simple, secure and The solution provides a unified approach to provision enterprise

Assign Site Assign Configuration Provision Template

### Summary

Devices (1)

Search Table

Device Name	Serial Number	Product ID
Switch	FCW2403DHFH	C9300-2

### Template CLI Preview

### Network Settings

### Day-0 CLI Configuration Preview

```
1
2 archive
3 log config
4 logging enable
5 logging size 500
6 hidekeys
7 !
8 !
9 !
10 service timestamps debug datetime msec
11 !
12 service timestamps log datetime msec
13 !
14 service password-encryption
15 !
16 service sequence-numbers
17 !
18 netconf-yang
19 !
20 netconf-yang ssh port 830
```

# AVC & QoS Auto Enablement

## Challenge/Pain Points

- As a network administrator, I need to go through multiple steps to enable Application Visibility and QoS on network devices to see application data on assurance.

## Feature Capability

- Ability to auto enable Application Visibility and QoS during site assignment if Telemetry settings are enabled for Catalyst Center as NetFlow receiver on a specific site
- Application Visibility and Application QoS will be enabled by default on Cat9K switches during the site assignment workflow
- This will be done during the site assignment workflow

## Platform/Dependency

- Only available for Cat9K wired platform
- Requires Network Advantage license

Provision -> Inventory -> Assign Device to site

Global

DEVICE WORK ITEMS

☐ Unreachable

☐ Unassigned

☐ Failed Provision

☐ Non Compliant

☐ Outdated Software Image

☐ No Golden Image

☐ Failed Image Prechecks

☐ Under Maintenance

☐ Security Advisories

☐ Marked for Decommission

Devices (2)

Click here to apply

1 Selected

Tag

C9300Access-1-Pod2

Assign Device to Site

GLOBAL/BANGALORE/BGL17

C9300Access-1-Pod2

The following settings will be deployed during assignment to site.

Wireless Streaming Telemetry

Yes

Syslog Server

Cisco DNA Center

Application Visibility

Enabled

Wired Endpoint Data Collection

No

SNMP Trap Receiver

Cisco DNA Center

Syslog Level

6 - Information Messages

Controller Certificates

Yes( Expires on: Jul 19, 2024 )

Application Policies

Queuing Profiles

☒ Deploy by default on wired devices ⓘ

Filter

Actions ▾

Policy Name ▴

Version

Policy Status

Deployment Status ⓘ

No data to display

# Individual AP Maintenance mode

Innovation

NetOps



## Challenge/Pain Points

- As a network administrator, I would like to suppress issues generated from an AP during AP maintenance activity, thereby reducing the noise and not to degrade overall health of the site

## Feature Capability

- Individual AP in maintenance mode helps customers move one/more APs into maintenance
- Helps customer perform AP maintenance activity like AP refresh/RMA without impacting overall health of the sites

## Platform/Dependency

- AP's can be placed in maintenance mode from Inventory
- No Issues will be generated for AP's and clients connected to the AP's in maintenance
- Health score will not be calculated for AP's and clients connected to the AP's in maintenance

## Provision->Inventory->Actions->Maintenance Mode

The screenshot shows the Cisco CX Cloud Inventory page. The top navigation bar includes 'Global' and 'Provision / Inventory'. A warning message at the top states: 'To provision subscriptions on devices that have not been discovered with NETCONF, rediscover the devices with NETCONF, and update the Telemetry Settings with the Force Configuration Push option.' Below this, a message indicates that the Cisco CX Cloud EULA is required to initiate EoX scans. The main content area is divided into two sections. On the left, under 'DEVICE WORK ITEMS', there is a list of checkboxes for various device states: Unreachable, Unassigned, Failed Provision, Non Compliant, Outdated Software Image, No Golden Image, Failed Image Prechecks, Under Maintenance, Security Advisories, and Marked for Replacement. On the right, the 'Access Points' tab is selected, showing a table of 3 devices. The table has columns for Device Name, IP Address, Device Family, Manageability, Reachability, Health Score, and EoX Stat. The first device, BGL11\_Floor3\_AP5, is highlighted with an orange box and has a status of 'Under Maintenance an hour'. The other two devices, BGL11\_Floor3\_AP7 and Brownfield\_floor1, are in 'Managed' status.

Device Name	IP Address	Device Family	Manageability	Reachability	Health Score	EoX Stat
BGL11_Floor3_AP5	172.100.1.56	Unified AP	Under Maintenance an hour	Reachable	NA	Not t
BGL11_Floor3_AP7	172.100.1.57	Unified AP	Managed	Reachable	6	Not t
Brownfield_floor1	172.100.1.249	Unified AP	Managed	Reachable	6	Not t



# Automation (NetOps)

## Assurance (AIOps)

# Event Analytics

Innovation

AI Ops



## Challenge/Pain Points

- As a network administrator I would like the events dashboard to be more interactive and provide comprehensive analytics and powerful visualisation of the network events. It should provide valuable insights into network performance, security, and troubleshooting

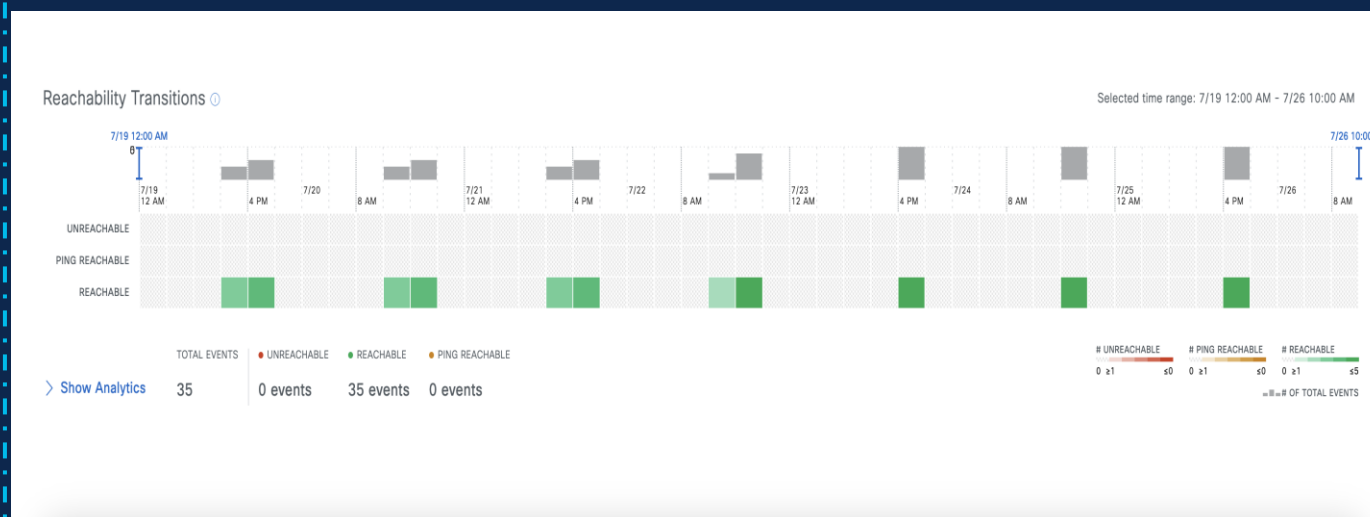
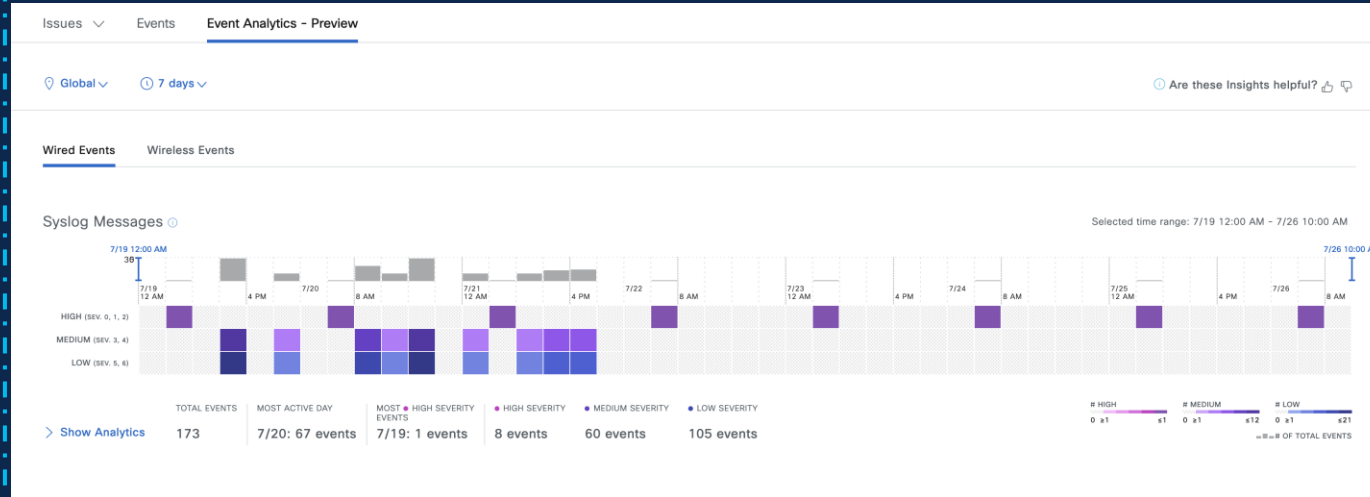
## Feature Capability

- Event Analytics aggregates and processes event data, extracting relevant metrics and generating insightful analytics.
- It offers a user-friendly interface that allows users to explore data visually through intuitive graphs and charts to allow specific focus on areas of the network, time periods and event types of interest
- Type of events supported are Syslog and Reachability

## Platform/Dependency

- Event Analytics needs to be enabled under AI Analytics
- Requires DNA Advantage License

## Assurance -> Issues and Events -> Event Analytics - Preview



# Client 360- Latency per Client data

Evolution

AIOps



## Challenge/Pain Points

- When Client reports Connectivity or Slowness issue, as a Network admin I should be able to view and understand overall experience of that client for a given time range and check its Latency across access categories and correlate if this issue is because of any problem in Network Devices or Network Services.

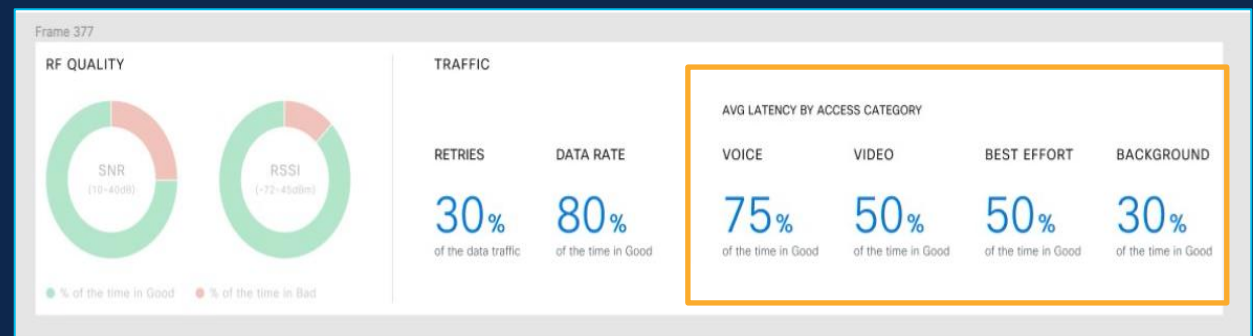
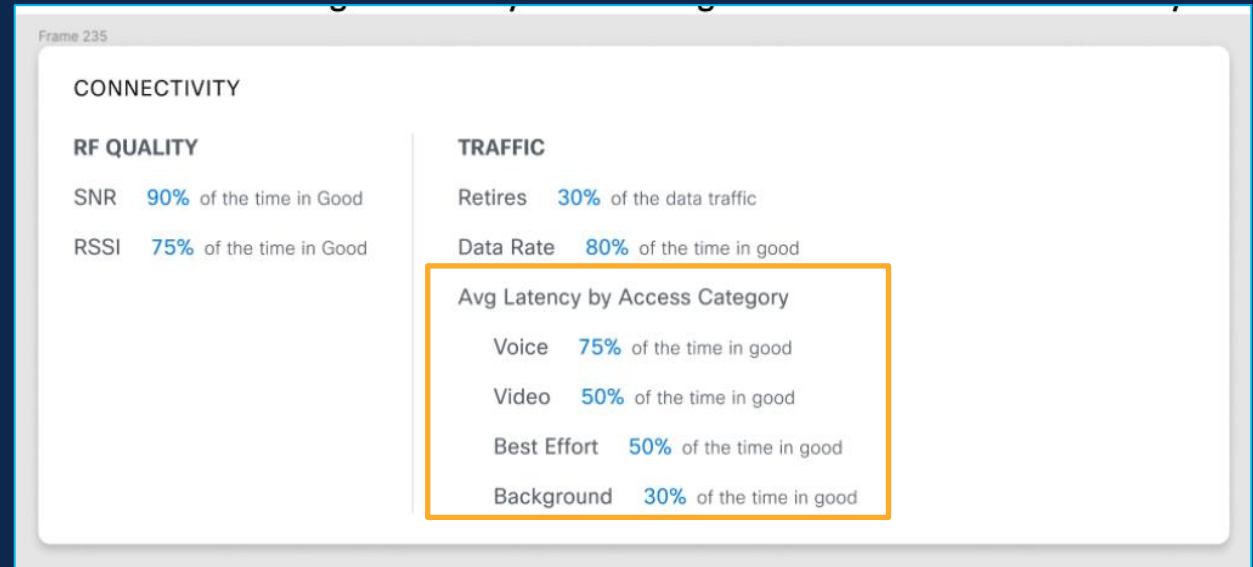
## Feature Capability

- New Client latency Stats added to Client360 page under overall Summary. This will help customer to debug and correlate the Client connectivity and slowness issue.
- Trendline to view the latency per client by category and band
- Client Latency stats comes every 5mins from AP to Controller and Catalyst Center receives the data using "ClientRfStats" event

## Platform/Dependency

- Supported on IOS XE starting from 17.11
- Requires DNA Advantage License

### Assurance -> Dashboard -> Health -> Client



# SSID Monitoring on C9800

## Challenge/Pain Points

- As a network administrator, I want to see assurance data only for specific critical SSID's like corporate SSID's and Catalyst Center should filter out data for non-critical SSID's.

## Feature Capability

- New capabilities added to WLC to send WSA data per SSID and update Catalyst Center with all clients present on WLC
- Ability from Catalyst Center Assurance settings to Disable/Enable SSID filtering

## Platform/Dependency

- Supported on IOS XE starting from 17.11



## Assurance -> Settings -> SSID Monitoring Settings

The screenshot shows the 'SSID Monitoring' configuration page in the Cisco DNA Center Assurance settings. The page includes a search bar, a table of monitored SSIDs, and a 'Show Records' dropdown.

**SSID Monitoring**

By default, Cisco DNA Assurance monitors all SSIDs. However, you can enable or disable SSID monitoring of specific SSIDs without impacting the SSID configuration or wireless connection to these SSIDs.

What is impacted: When an SSID isn't monitored, Cisco DNA Assurance doesn't collect its client data. So, detailed data and charts for these clients aren't available on the Client 360 page. Also, other data like client health, client-specific issues, and intelligent capture isn't available for these clients. In addition, the dashlets on the Client Health page don't include data from clients on unmonitored SSIDs.

What is NOT impacted: There's no impact on SSID functionality on the APs. Wireless clients continue to connect to these SSIDs and all other SSIDs, as configured. Clients on monitored SSIDs continue to have detailed data available on their Client 360 pages.

To see the scheduled actions, check the [Activity Page](#).

Network Name (SSID)	Client Count	DNAC Monitoring Status	Action	Controller Config Status	Last Modified
TME_live_psk	61	Enabled	<a href="#">Disable</a>	--	--

1 Records

Show Records: 10

# Site Analytics Enhancement

Evolution

AI Ops



## Challenge/Pain Points

- As a network administrator, I need an option to identify my best and worst performing sites based on client KPI metrics

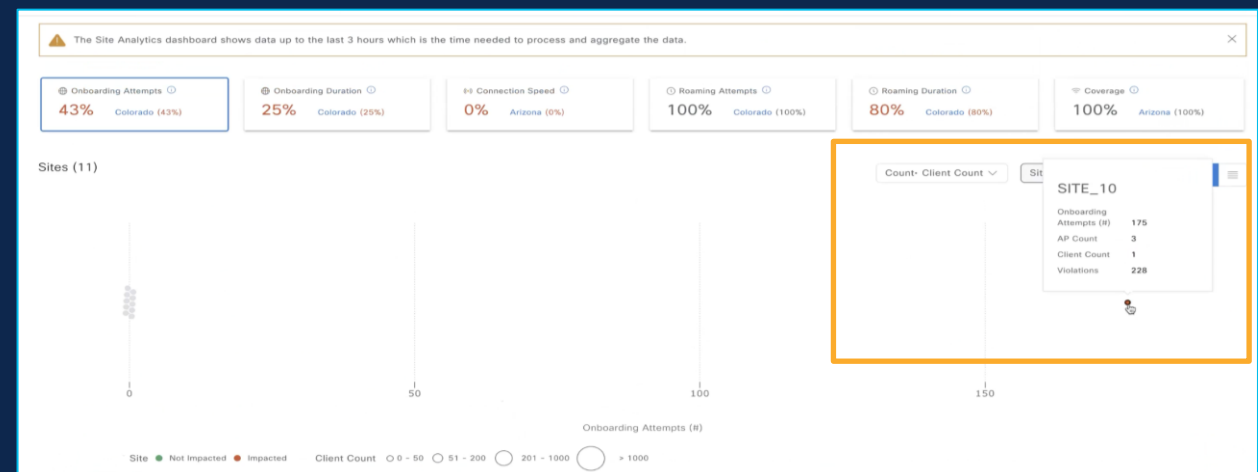
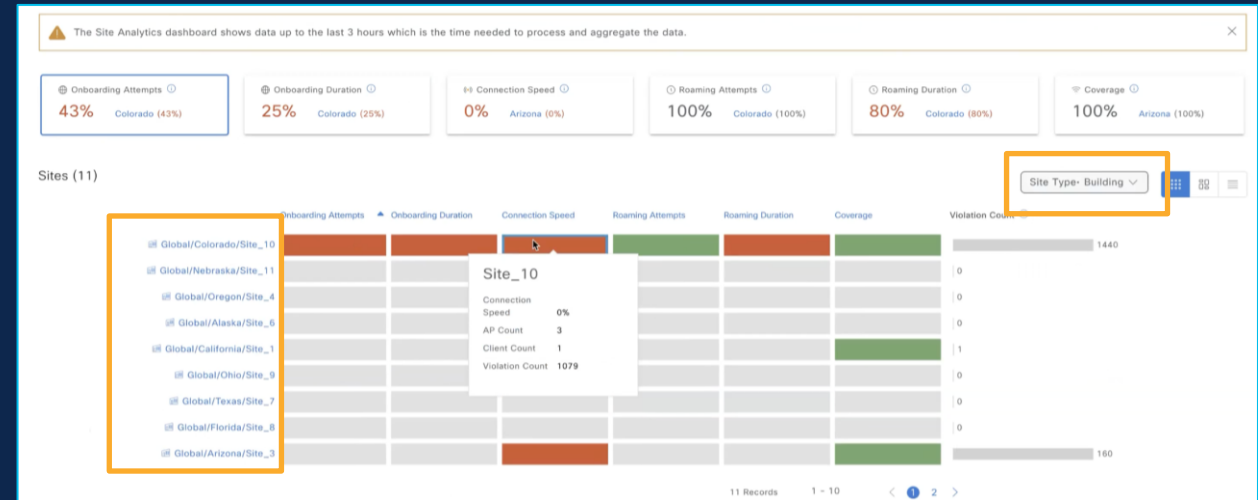
## Feature Capability

- Site Analytics dashboard introduces new KPI trends based on site hierarchy which will provide insights into best and worst performing sites in the network.
- New capabilities introduced in site analytics dashboard include
  - Overall Site SLA distribution Analysis - To identify the Top(Worst) Impacted Sites
  - Site 360 – Site Analytics SLA Dashboard
  - SSID and Band Filtering
  - Bubble Charts to better identify high client count sites with failed SLAs and drill down.

## Platform/Dependency

- AI Network Analytics should be enabled
- Requires DNA Advantage License

Assurance -> Dashboard -> Health – AI Analytics -> Site Analytics





# PoE visibility – AP Power Savings

Evolution

AI Ops



## Challenge/Pain Points

- As a part of the ongoing green initiative, customers would like to save power when the offices are empty and also have visibility into how much power is saved.

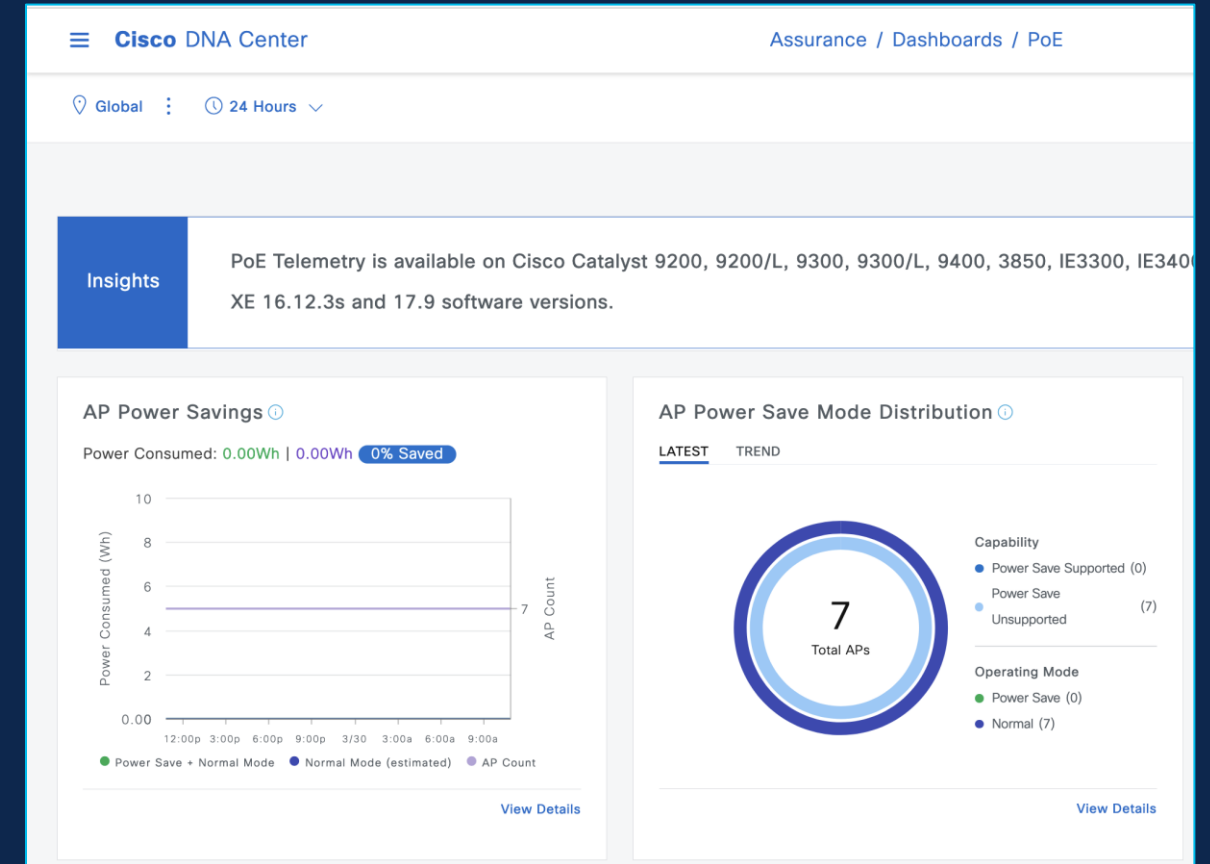
## Feature Capability

- Provide customers visibility into AP Power savings when AP power profiles are configured/applied to save power.
- A new dashlet to show value of power consumption savings with new power save mode enabled on AP's
- Show amount of power saved when AP is in power save mode for given site or all site over time
- Show # of AP in power save mode and those that are not

## Platform/Dependency

- Power profile should have been configured and mapped to AP join profile
- Power Profile is supported on 9800 WLC 17.8.1 onwards
- Requires DNA Advantage License

Assurance -> Dashboard -> PoE



# Takeaways



CATALYST CENTER IS  
SIMPLE AND INTUITIVE



AND



INTENT-BASED



[cisco.com/go/dnacenter](https://cisco.com/go/dnacenter)