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Accelerate Cisco DNA SD-Access deployments through Business API orchestration

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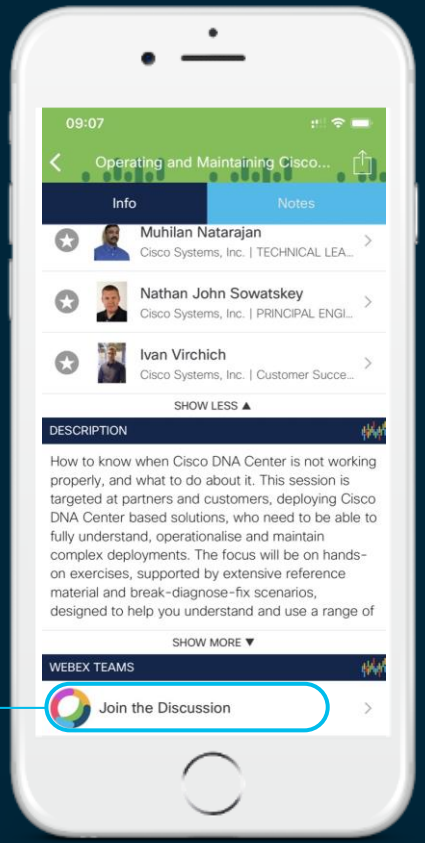
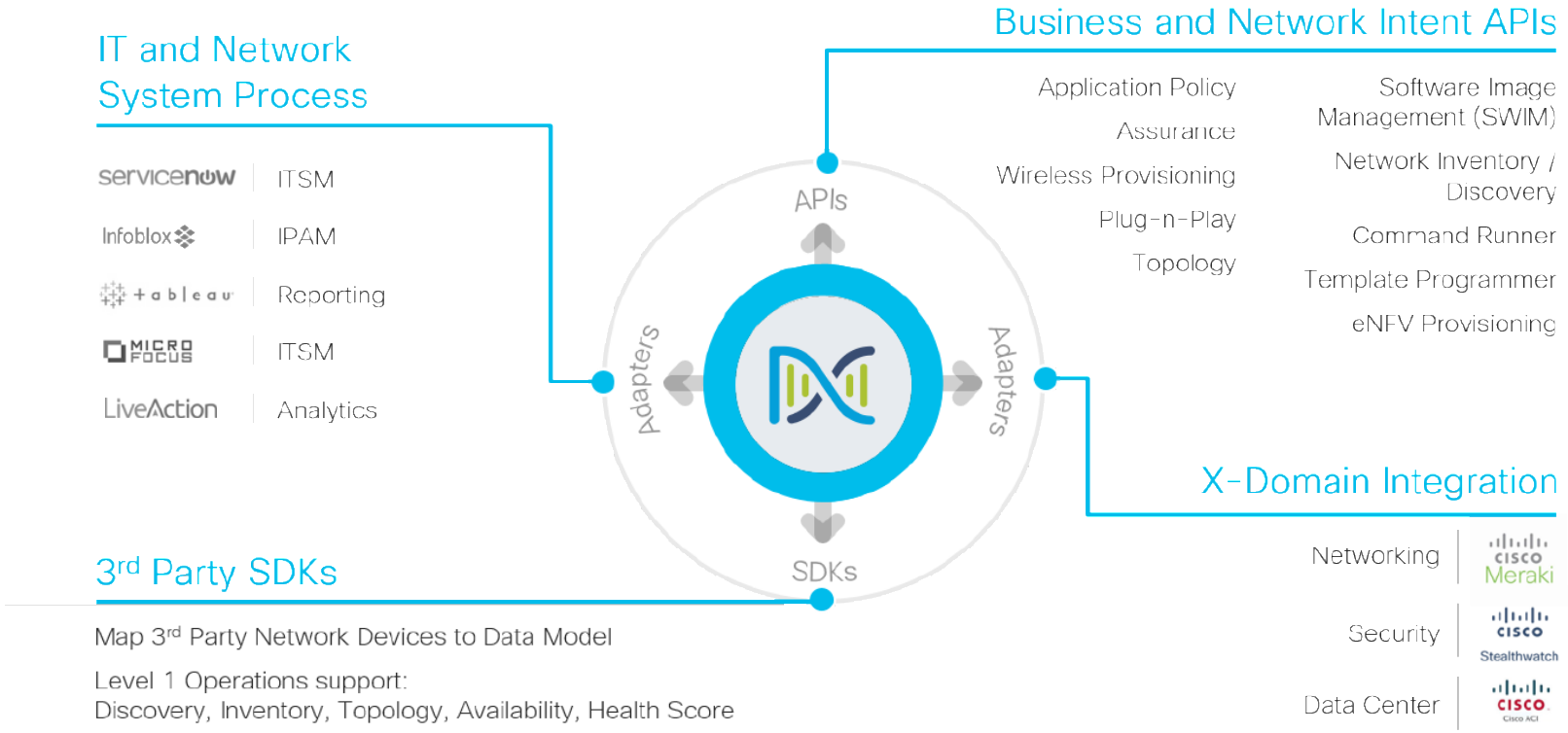


Agenda

- Business and Network Intent API
- Cisco DNA SD-Access
- Demo
- References

Business and Network Intent API

Cisco DNA Center – platform overview



Business and Network Intent API

Intent API:

- exposes specific capabilities of Cisco DNA Center Platform (Northbound REST API),
- provides standard network-based resource operations such as create/update/delete on objects,
- supports the standard HTTP verbs GET, POST, PUT and DELETE,
- simplifies the process of creating workflows that consolidate multiple network actions.

Traditional API vs Intent API

Traditional / „Atomic” API:

- configure VLAN
- configure IP address
- configure routing protocol

etc.

a lot of API calls
(NETCONF/YANG)

device

Intent API:

- configure device as edge node

single intent API call

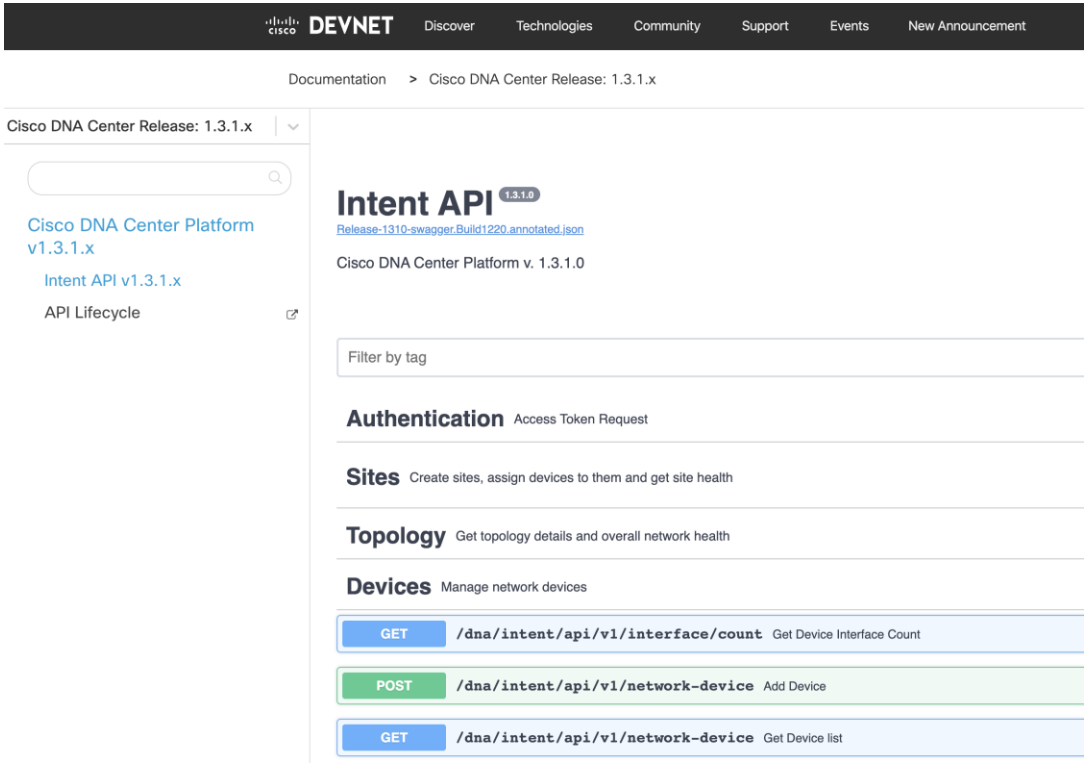
DNA Center

translation of intent

device

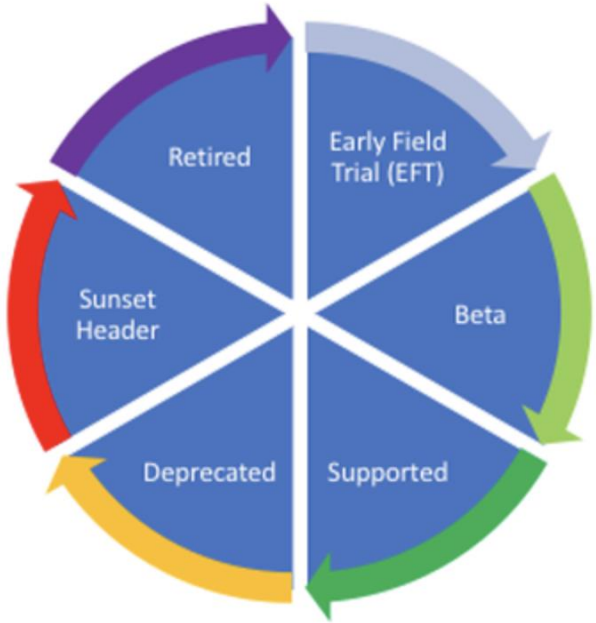
Cisco DNA Center
Supported Intent APIs

https://developer.cisco.com/docs/dna-center/api/1-3-1-x/#!intent-api-v1-3-1-x



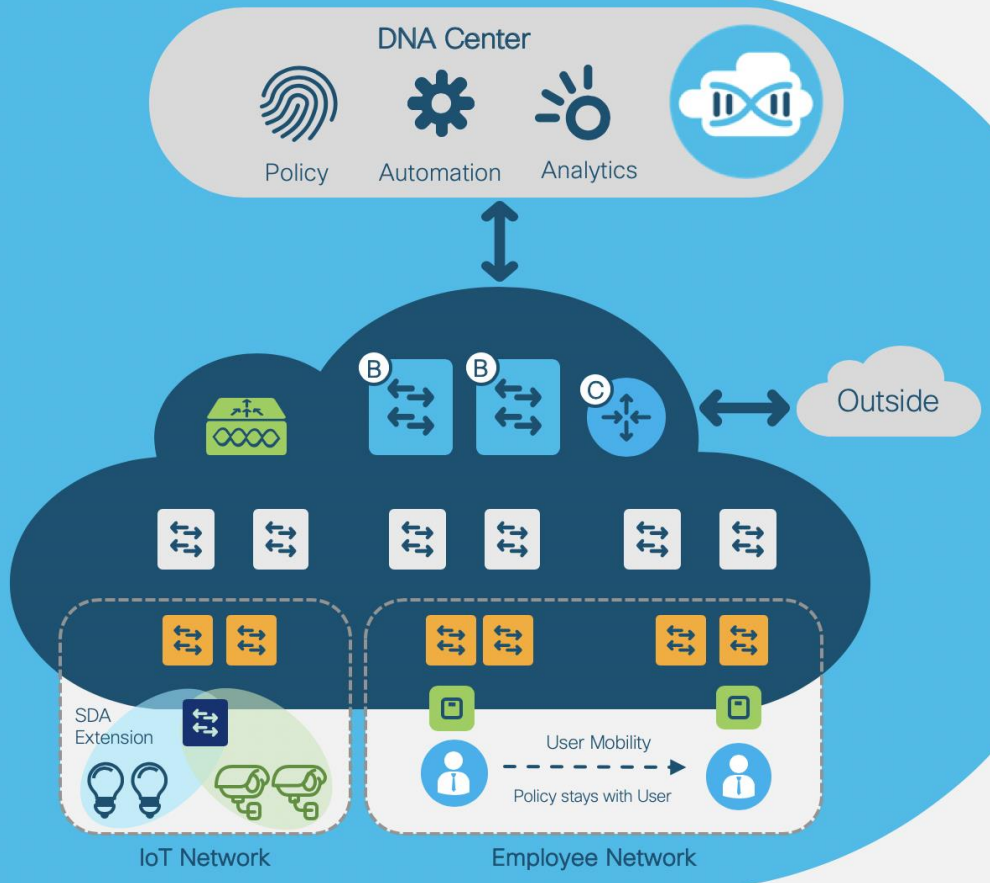
Cisco DNA Center – API Lifecycle

The Cisco DNA Center platform deploys and supports APIs according to Cisco Secure Development Lifecycle (CSDL) best practices:



Cisco DNA SD-Access

Cisco DNA and SD-Access



Automated Network Fabric

Single Fabric for Wired & Wireless with simple Automation

Identity-Based Policy & Segmentation

Decouples Security & QoS from VLAN and IP Address

Insights & Telemetry

Analytics and Insights into User and Application behavior

SD-Access – device scale

Parameters	DN2-HW-APL	DN2-HW-APL-L	DN2-HW-APL-XL
No of Devices (Switch/Route/WLC)	1000	2000	5000
No of Access Points	4000	6000	12000
No of Endpoints (Concurrent)	25,000	40,000	100,000
No of Endpoints (Unique/Transient) over 14 days	75,000	120,000	250,000
No of endpoints – wired: wireless ratio	Any	Any	Wired: 40,000 Wireless: 60,000
Number of Site Elements	500	1000	2000
No of WLC	500	1000	2000
API rate limit	50 APIs/min	50 APIs/min	50 APIs/min

SD-Access

Problem statement:

How to effectively deploy a lot of sites in an automated way without „a lot of clicking” in Graphical User Interface and potential human errors?

SD-Access

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How to effectively deploy a lot of sites in an automated way without „a lot of clicking” in Graphical User Interface and potential human errors?

Solution:

Use Intent APIs to automate site deployment.

SD-Access – building a site

1. Device enablement

Intent API a) Plug and Play

-or-

Intent API b) Device discovery

2. Design

Intent API a) Create network hierarchy (site / building / floor)

Intent API *b) (optional) Assign device credentials*

c) (optional) Assign network services to site (AAA, NTP, Syslog, ...)

Intent API d) Create and reserve IP Pools

SD-Access – provisioning

3. Provisioning

Intent API a) Assign devices to newly created site

b) Provision basic network services (AAA, NTP, Syslog, ...)

4. Policy

a) Create VN (Virtual Network)

5. Fabric

Intent API a) Create a new fabric

Intent API b) Assign proper roles (edge, border,) to devices

Intent API c) Configure default auth profile (dot1x, MAB, no-auth)

Intent API d) Associate IP pools to the fabric

Intent API e) Assign interfaces to end-hosts

Demo

How to start?

1) I have Cisco DNA-Center

- Install Cisco DNA-Center Platform
- Enable REST API bundle
- FUN TIME ☺

How to start?

1) I have Cisco DNA-Center

- Install Cisco DNA-Center Platform
- Enable REST API bundle
- FUN TIME ☺

2) I do not have Cisco DNA-Center

- Reservation-based sandboxes (dedicated)
- FUN TIME ☺

Cisco DNA-Center
reservation-based sandboxes

REQUIRES RESERVATION

Cisco DNA Center v.1.2.10 Lab 1

- Requires a reservation and setup of VPN
- Provides your own private lab environment for the duration of the reservation, and you can allow other users to access the lab by invitation.
- Perfect for working on lighter-weight application development projects that do not require a large network
- Provides access to pre-configured network topologies running on genuine Cisco hardware
- You can configure the hardware and network topology.
- Provides a Linux VM development machine that resides on the lab network.
- Supports automated discovery of the hardware by Cisco DNA Center as well as enforcement of policy

REQUIRES RESERVATION

Cisco DNA Center v.1.2.10 Lab 2

- Requires a reservation and setup of VPN
- Provides your own private lab environment for the duration of the reservation, and you can allow other users to access the lab by invitation.
- Perfect for working on lighter-weight application development projects that do not require a large network
- Provides access to pre-configured network topologies running on genuine Cisco hardware
- You can configure the hardware and network topology.
- Provides a Linux VM development machine that resides on the lab network.
- Supports automated discovery of the hardware by Cisco DNA Center as well as enforcement of policy

https://developer.cisco.com/docs/dna-center/#!sandboxes/cisco-dna-center-sandboxes

Reference materials

1) DevNet – Cisco DNA-Center:

   https://developer.cisco.com/docs/dna-center/

2) DevNet – Intent API - overview:

   https://developer.cisco.com/docs/dna-center/#!cisco-dna-center-v-1-2-6-and-later

3) DevNet – Cisco DNA-Center – Intent API (docs):

   https://developer.cisco.com/docs/dna-center/api/1-3-1-x/

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