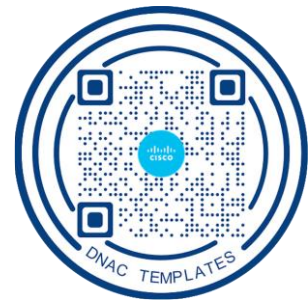


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GO BEYOND

#CiscoLiveAPJC



Deploy Catalyst Center with REST API in Seconds

DevNet Workshop Super Session

Keith Baldwin – Solutions Engineer
CCIE (RS,W) #35439 CCDE #20170057
DEVWKS-1004

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by way of Introduction ...

A **Technical Solutions Engineer** in the Network Transformation team.

I work with extremely large Customers covering the Design, Orchestration and Automation of Enterprise Network Architectures and have over 25 years of experience with Designing, Implementing, and Supporting solutions with many diverse network technologies.

Special interests include **Automation, Orchestration, Identity and Fabrics** and am an **SME in Design**, an **Author, Exam Content Author**. Focusing on customer requirements and helping integrate these into the products and solutions Cisco builds.

Keith Baldwin
Solutions Engineer
kealdwi@cisco.com
CCIE# 35439 CCDE# 2017::57



Cisco Webex App

Questions?

Use Cisco Webex App to chat with the speaker after the session

How

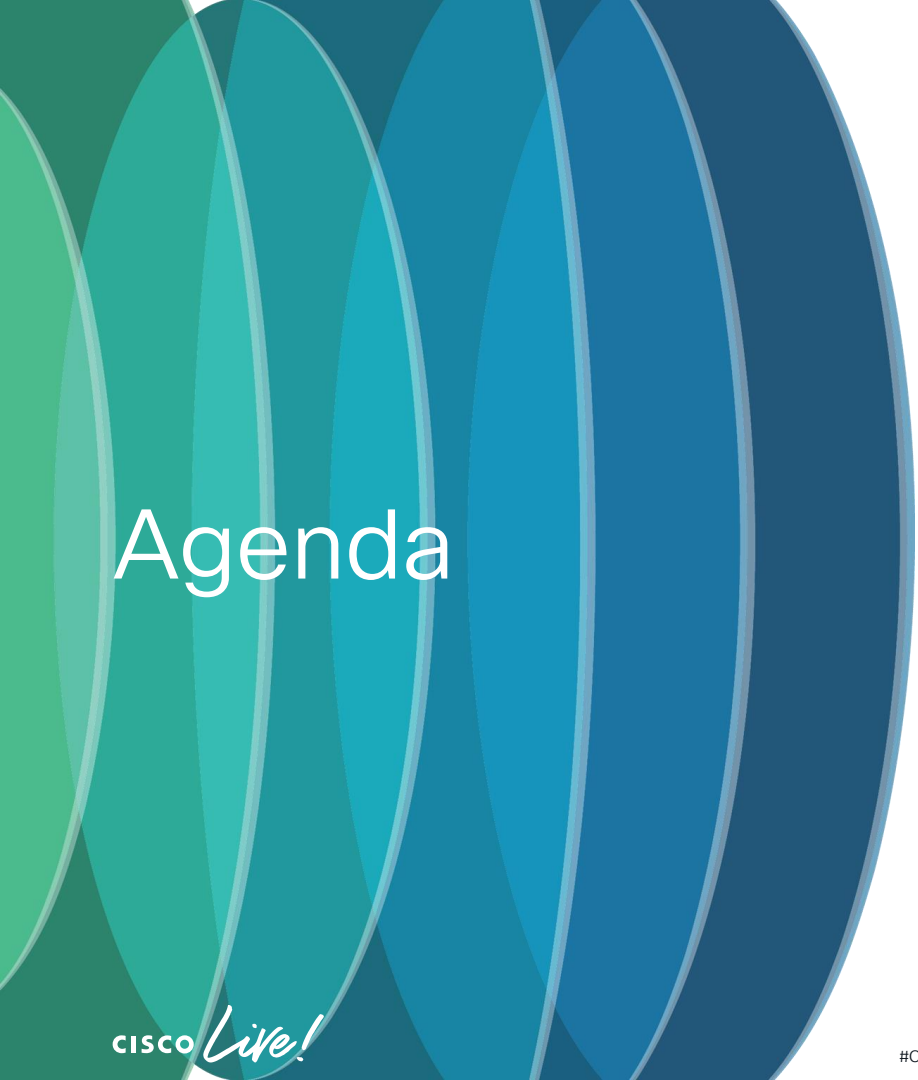
- 1 Find this session in the Cisco Live Mobile App
- 2 Click “Join the Discussion”
- 3 Install the Webex App or go directly to the Webex space
- 4 Enter messages/questions in the Webex space

Webex spaces will be moderated by the speaker until November 15, 2024.



<https://ciscolive.ciscoevents.com/ciscolivebot/#DEVWKS-1004>





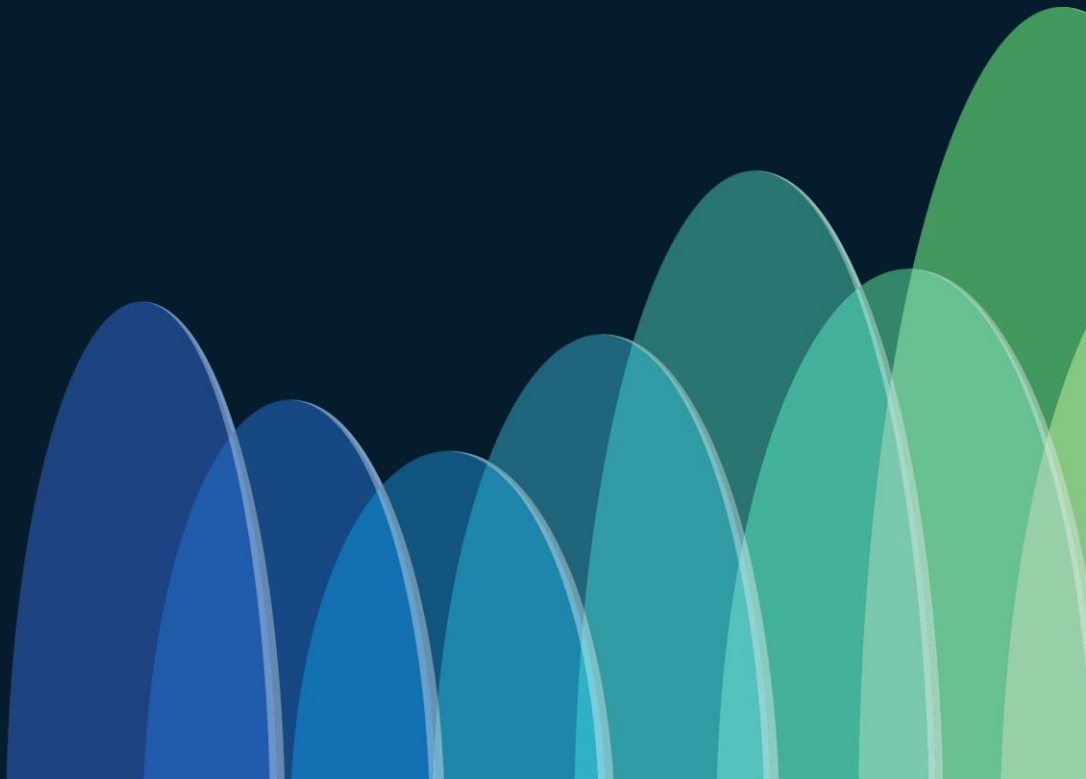
Agenda

- Catalyst Center REST API's
- LAB Overview
- Postman
- Labs
- Conclusion

*“Tell me and I forget.
Teach me and I remember.
Involve me and I learn.”*

Benjamin Franklin

Catalyst Center REST-API's



Catalyst Center Platform

Intent-based controller for the enterprise



Controller-based automation and analytics



Campus, branch, extended enterprise, wired and wireless



Fully integrated, distributed security



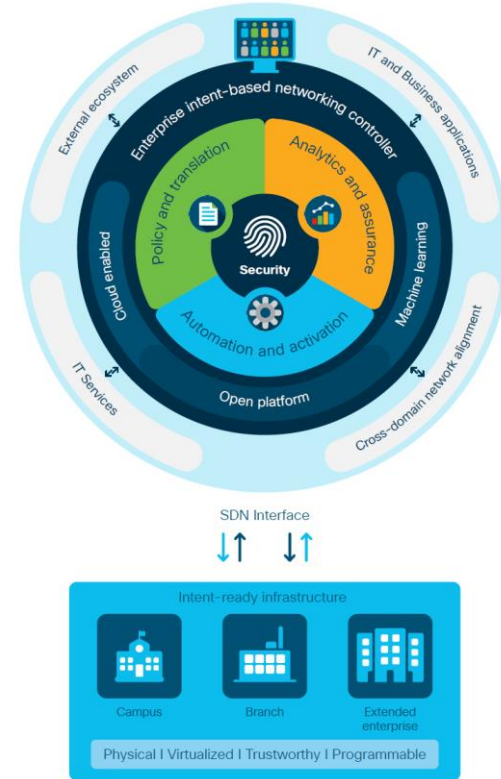
Cloud-enabled



Analytics, machine-learning driven



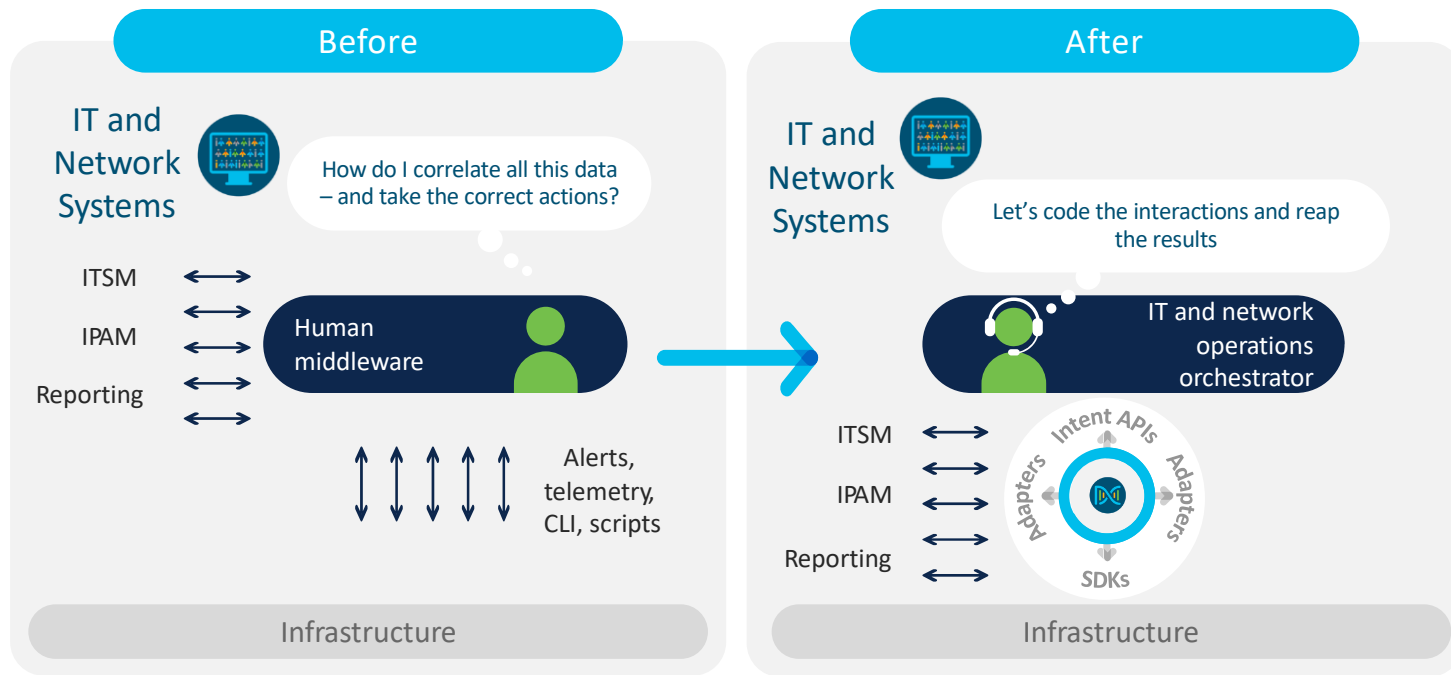
360-degree open platform



Cisco DNA Center

Digital-ready Infrastructure

Integration APIs: IT Processes



From “human middleware” to “IT orchestrator”

Catalyst Center Platform

APIs open for integrations

IT and network system processes

servicenow	ITSM
Infoblox	IPAM
BLUECAT	Reporting
tableau	

Non-Cisco network devices

Map 3rd Party Network Devices to Data Model

Level 1 Operations support:

Discovery, Inventory, Topology, Availability, Command Runner

Business integration APIs

- Assurance
- Path Trace
- Command Runner
- Template Programmer
- Network Inventory / Discovery
- Topology
- Plug-n-Play
- Software Image Management (SWIM)

Multidomain integrations



- SD-WAN
- Meraki
- ISE
- ACI via ISE
- Spaces
- ThousandEyes
- Webex

Catalyst Center partner solution

IT and network system processes



Problems

- Client or Device Issue Detected
- IP address monitoring & oversight
- Complete Network Dashboard
- Network performance visibility

Solution

Catalyst Center integrates with ServiceNow to quickly update configuration and images for ticket resolution

Catalyst Center integrates with Infoblox DNS, DHCP, enabling SDAVC, two-way management of the address space

Tableau integrates with Catalyst Center and other platforms to create a comprehensive view across operations

LiveAction provides in-depth visual analytics of the entire network by integrating with Catalyst Center thru API's

Benefits

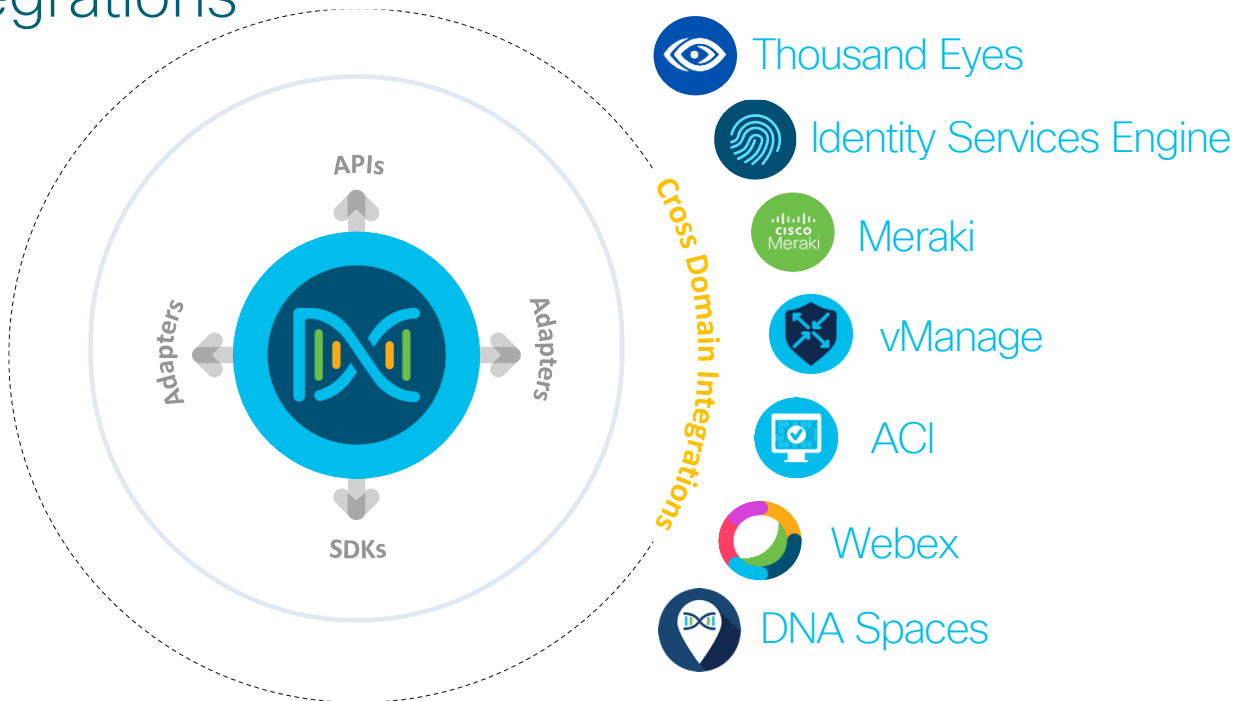
- Save 15-20 hours of manual workflow steps and errors
- Ensure complete visibility into your IP address usage
- Complete Dashboard allowing data trends, benchmarks, and analysis
- Unifies views for design verification, and operations

Catalyst Center Platform

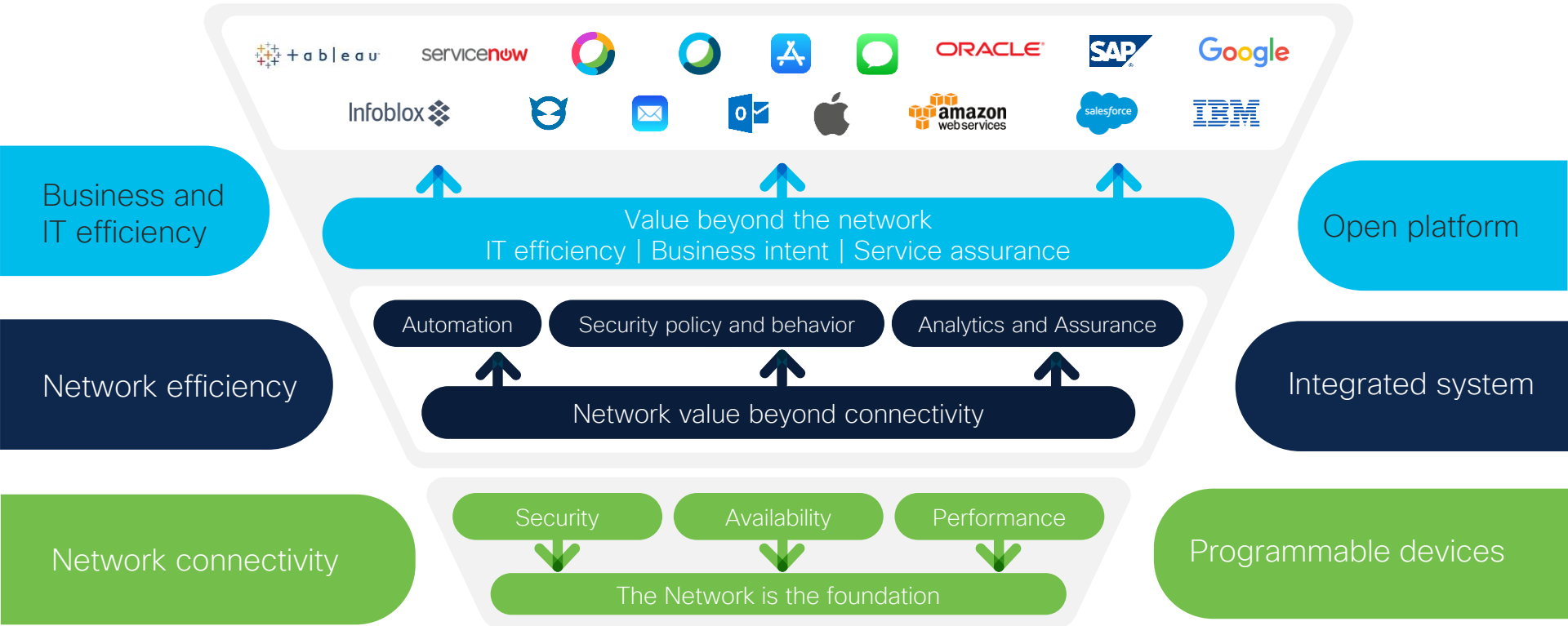
Cross Domain Integrations

Cross-domain integrations between Catalyst Center and adjacent domains:

- Data Center fabrics
- SD-WAN
- legacy Campus Networks
- Cloud workloads
- Thousand Eyes
- Collaboration
- Meraki
- Security



Realising Value from REST API



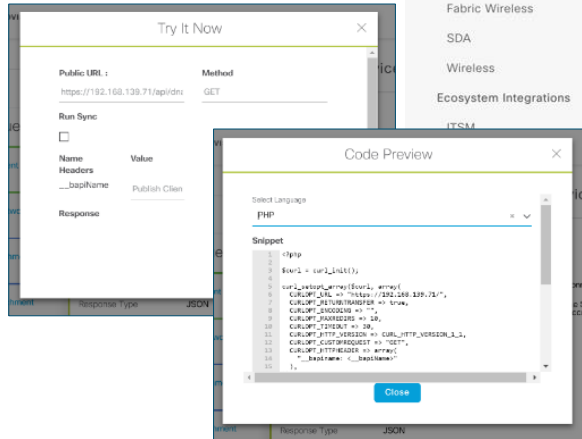
Catalyst Center – API Bundles

B	Basic ITSM (ServiceNow) CMDB synchronization Cisco Systems, Inc. v1.0.0 DNAC 1.2.5 + Version Dated Oct 25, 2018	NEW	You can schedule a synchronization or trigger an update between the DNA Center device inventory and your ITSM(ServiceNow) configuration management database(CMDB). These activities integrate DNA Center processes into the IT System Management processes of Incident, change and problem management. Note: If your network devices...
D	DNA Center REST API Cisco Systems, Inc. v1.0.1 DNAC 1.2.5 + Version Dated Oct 25, 2018	ACTIVE	This bundle contains the REST API supported by Cisco DNA Center. These REST APIs provide a rich set of capabilities, including the ability to discover network devices, query network health and provision network devices.
N	Network Events for REST API Endpoint Cisco Systems, Inc. v1.0.1 DNAC 1.2.5 + Version Dated Oct 25, 2018	NEW	You can use this bundle to publish DNA Center events to any REST API endpoint, as well as to receive updates about the event and its associated artifacts(incident , problem or request for change). The bundle then populates the Runtime Dashboard with this data.
N	Network Issue Monitor and Enrichment for ITSM (ServiceNow) Cisco Systems, Inc. v1.0.1 DNAC 1.2.5 + Version Dated Oct 25, 2018	NEW	You can use this bundle to monitor your network for assurance and maintenance issues, and then publish the event details about these issues to an ITSM(ServiceNow) system. This bundle also contains APIs that extract rich network context data. Please note that, if your network devices have not yet been synchronized between...
S	SWIM Events for ITSM (ServiceNow) Cisco Systems, Inc. v1.0.0 DNAC 1.2.5 + Version Dated Oct 25, 2018	NEW	You can use this bundle to monitor and publish events that require software image updates for compliance, security or any other operational triggers, to an ITSM(ServiceNow) system. Please note that, if your network devices have not been synchronized between DNA Center and the ITSM(ServiceNow CMDB) system, then activate the...
S	SWIM Events for REST API Endpoint Cisco Systems, Inc. v1.0.0 DNAC 1.2.5 + Version Dated Oct 25, 2018	NEW	You can use this bundle to monitor and publish events that require software image updates for compliance, security or any other operational triggers, to any REST API end-point system, as well as to receive updates about the event and its associated artifacts(incident, problem or request for change) and populates the Runtime...

Catalyst Center Platform – Developer Toolkit

API Catalog

Code Preview API Exploration



Authentication

Authentication APIs provide an authorized token for accessing any REST API.

***Prerequisite*:** Add the request header 'x-auth-token' with the generated authorized token to get a successful API response.

Method	Name	Description	URL
POST	importCertificate	This method is used to upload a certificate	/certifici
POST	importCertificateP12	This method is used to upload a PKCS#12 file	/certifici
POST	Authentication API	API to obtain an access token, which remains valid for 1 hour. The token obtained using this API is required to be set as value to the X-Auth-Token HTTP...	/auth/to

Cisco DNA Center System

Cisco DNA Center System

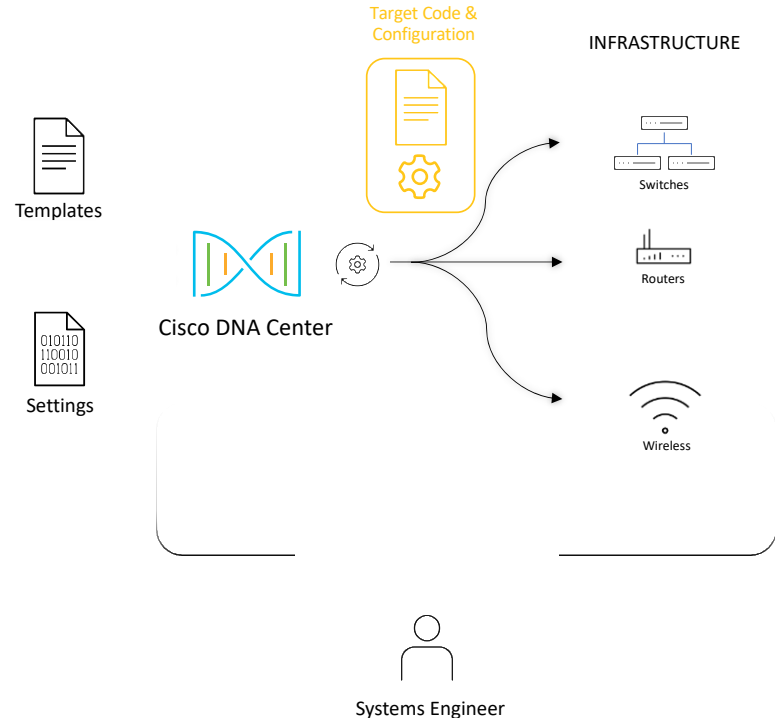
Method	Name	Description	URL
POST	Authorize Device	Authorizes one or more devices. A device can only be authorized if Authorization is set in Device Settings.	/onboar

Health and Performance

Catalyst Center with REST API towards CI/CD

BUILDING

DEPLOYING



LAB Overview



Lab Format – IMPORTANT

1

The intention is that you will log into the **desktop provided**

You are **connected** to **DCLOUD**

Although the **Lab Guide** is provided
We will walk you through this...

All files **ALREADY** downloaded to
Home/Workshop/DEVWKS-1004
folder from **cs.co/DEVWKS-1004**

2

Credentials

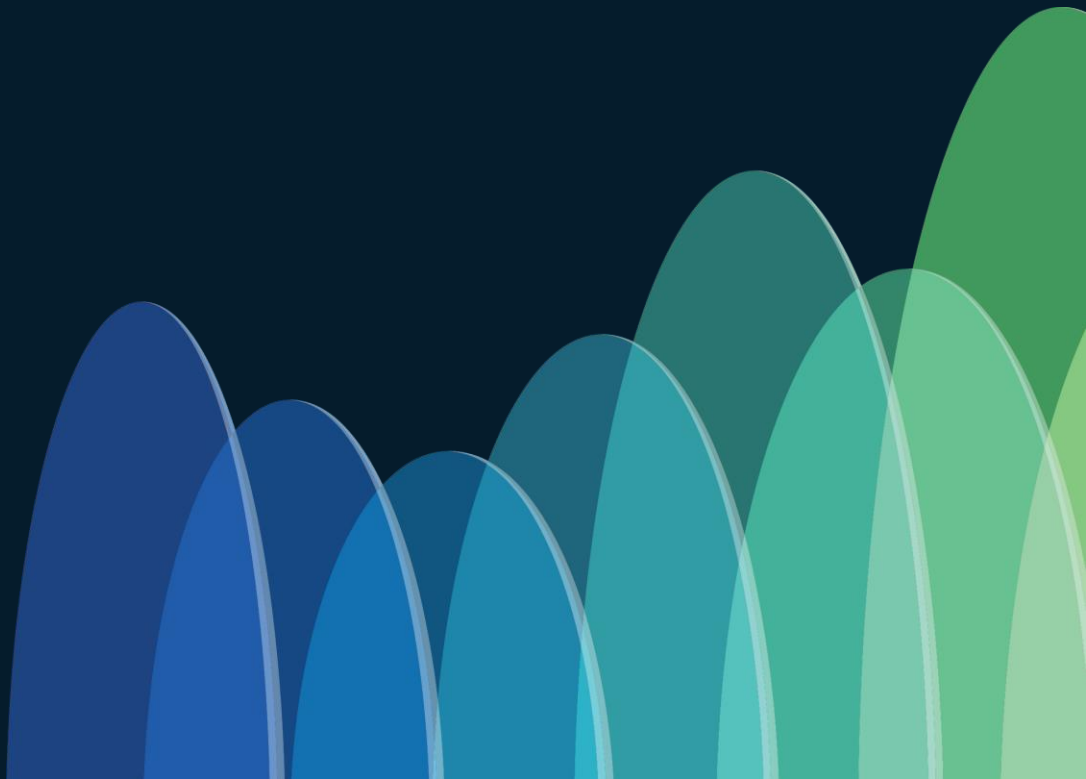
Catalyst Center
IP: 198.18.129.100
User: admin
Pass: C1sco12345

Cisco ISE
IP: 198.18.133.27
User: admin
Pass: C1sco12345

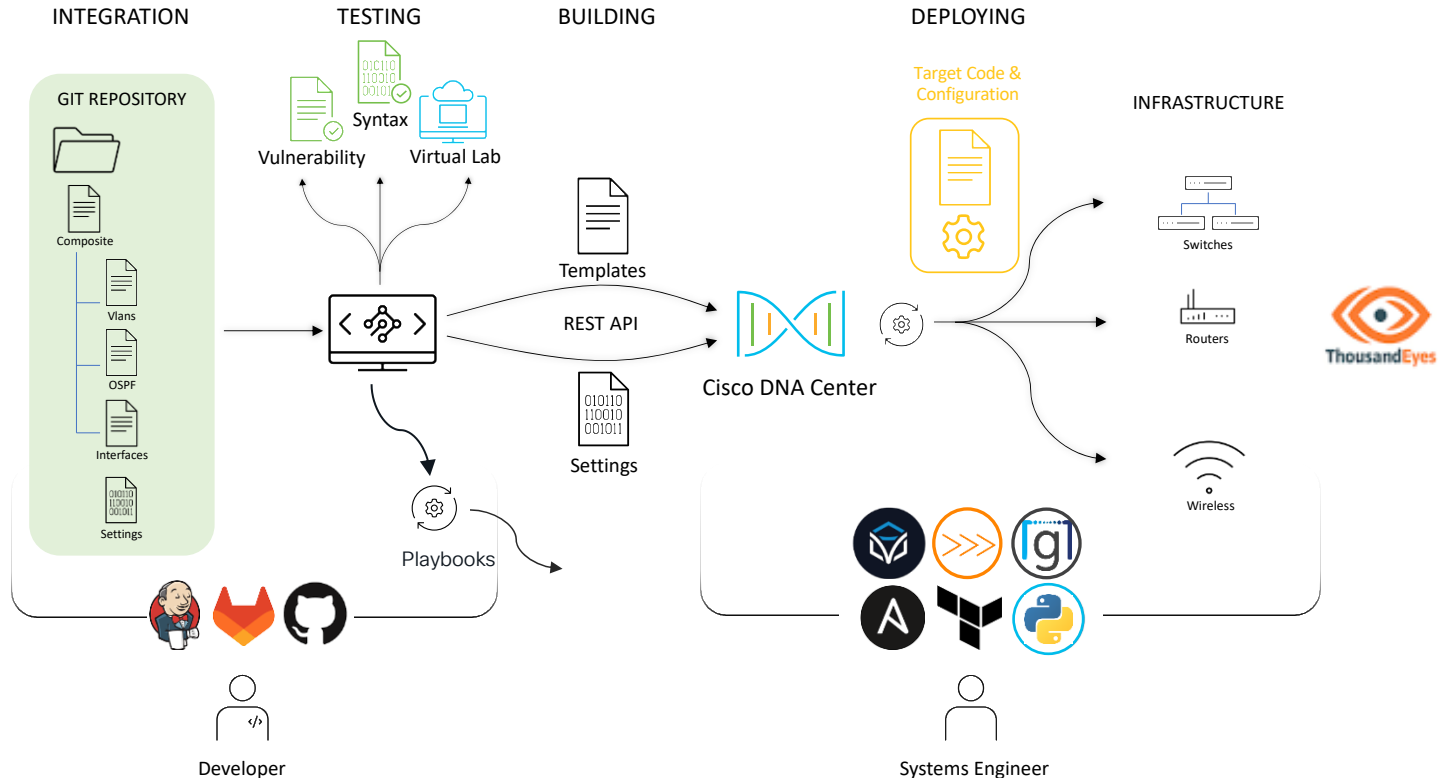
Postman
User: devnet-ws1-seat#@outlook.com
Pass: C1sco12345!

Laptop
User: devnet
Pass: cisco

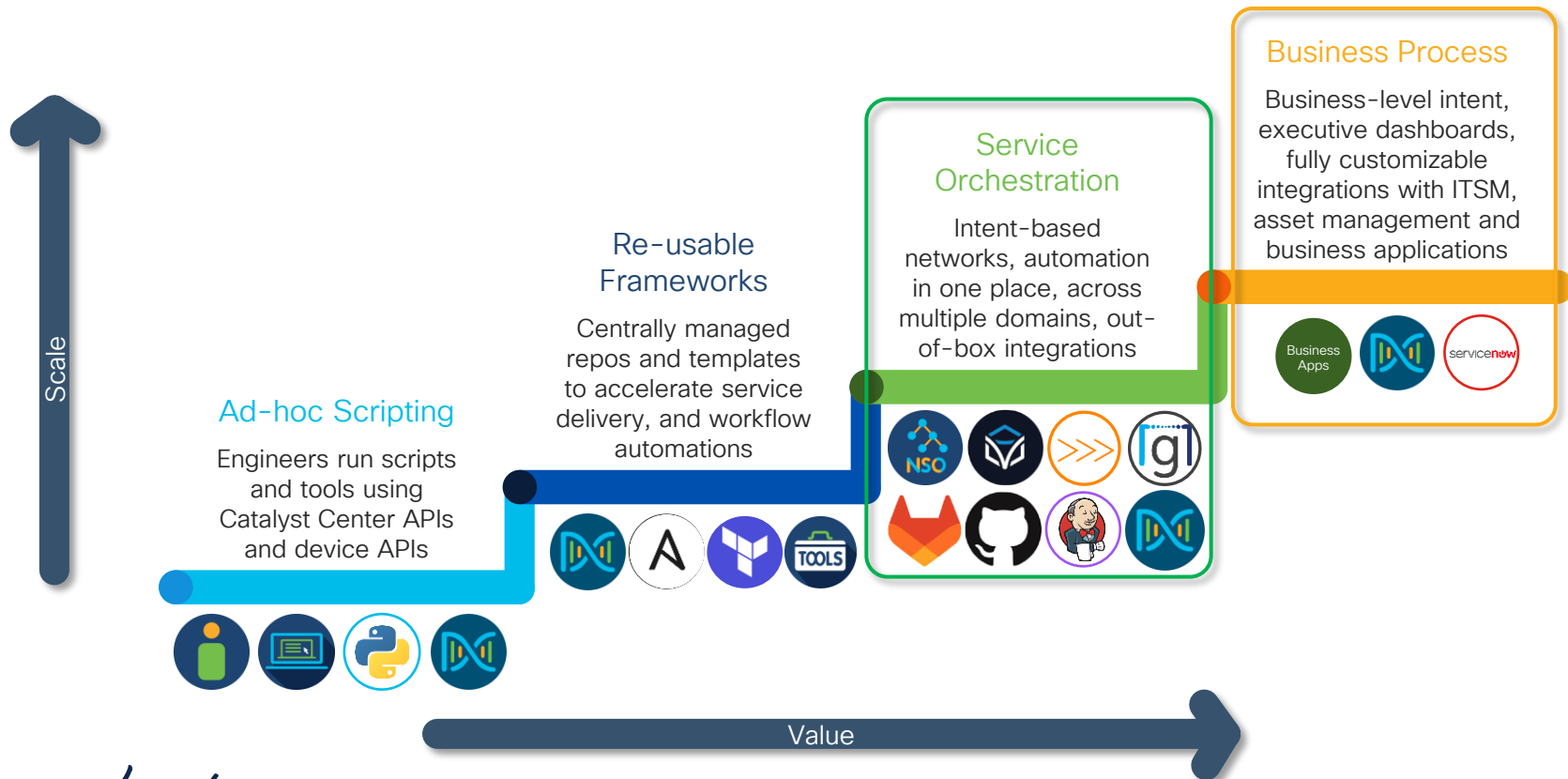
Summary



Catalyst Center with REST API towards CI/CD



Catalyst Center and DevOps Journey

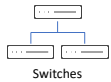


Just one more thing!!!

We dealt with:

Who?

INFRASTRUCTURE



What?

GIT REPOSITORY



Composite



Vlans



OSPF



Interfaces



Settings

How?



Python



Ansible



Jenkins



GitHub



GitLab

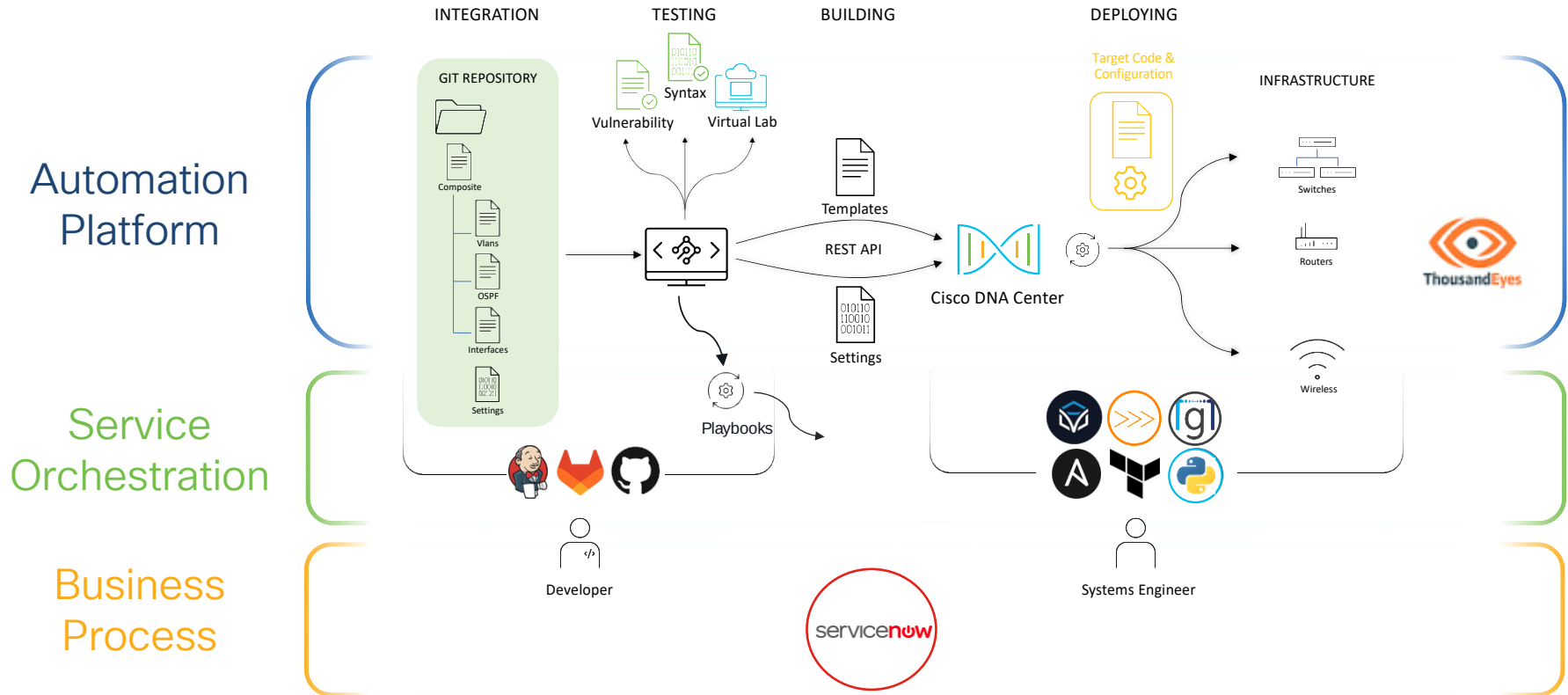
Now deal with:

When?



- Approvals
- Change Control
- Incident Control
- Compliance

Catalyst Center with REST API towards CICD



Key Takeaways:

- REST API uses HTTP(S) to send **requests** and receive **responses**
- It is very crucial to refer to the **API Documentation** to understand what and how to make an API call
- REST APIs use standard **verbs** like **GET, PUT, POST, and DELETE** that correspond to **CRUD** Operations (Create, Read, Update, Delete)
- Tools like a **Browser, CURL, Postman, Ansible, and Python requests** are commonly used for testing/developing using REST API calls

Summary



Continue Learning

- Cisco Certification Learning platform.
- developer.cisco.com



Develop Your Skills

- DevNet Sandbox
- Cisco dCloud
- Tools GitHub, Postman, Python



Certify

- DevNet Certifications

Where to learn:

Developer.cisco.com



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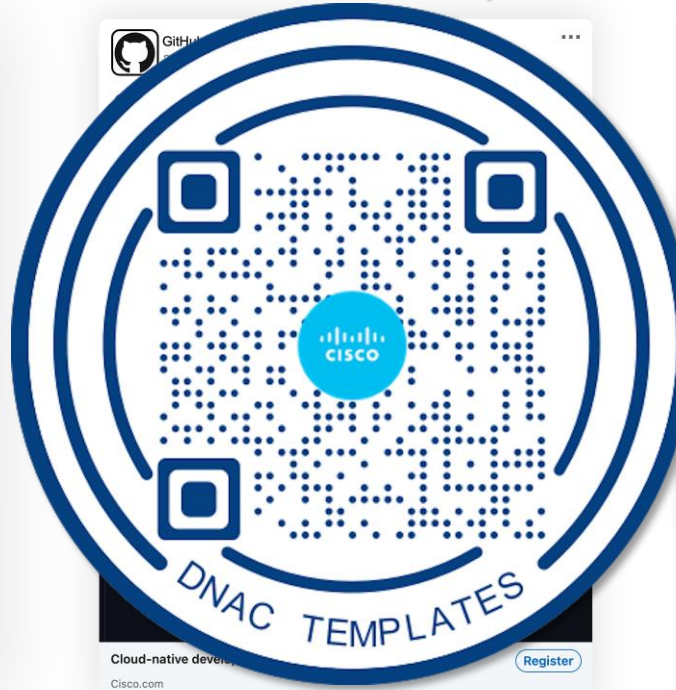
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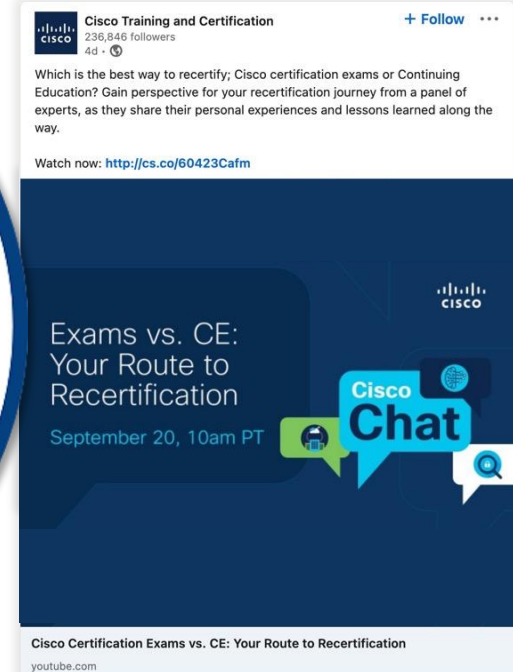
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Contact me at: kebaldwi@cisco.com



Thank you

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