



The bridge to possible

No More Repetitive Actions

Say Hello to Nexus Dashboard Insights REST API

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Cisco Webex App

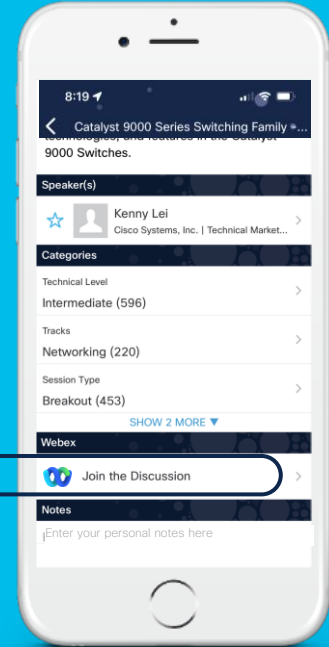
Questions?

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Webex spaces will be moderated until February 24, 2023.



Session Goals

- Review Nexus Dashboard Insights
- Learn about NDI APIs
- Understand how to use them
- Discover how to apply them in different use cases



Agenda

- Introduction
- NDI APIs Offering
- NDI APIs Interfaces
- Demo
- Conclusion

Introduction

Nexus Dashboard Insights

Operations Must-Have

Assurance

Am I doing correct configuration?

Are interdependencies known?

Does the change impact something am not aware of?

Proactive advisories

Was the issue preventable?

Is the network exposed to known vulnerabilities?

Can I get proactive advice?



Troubleshooting

Where is the problem and what's the blast radius?

How do I reduce MTTR?

How do I prove network is healthy?

Single-pane-of-glass

Can I get visibility across datacenters?

Single point for monitor and control?

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Use Cases

“Can I safely apply this configuration?”



Change management

“Is my network compliant with Governance Rules?”



Compliance analysis

“Can A talk to B?”



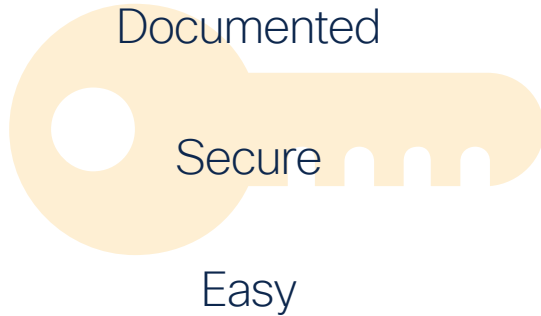
Connectivity Analysis

NDI APIs Offering

Nexus Dashboard Insights

APIs

Available by default



Alerts Rules Anomalies Endpoints
Delta Analysis
Configuration Import
Compliance
Protocols Configuration Export
Flow Rules Advisories
Extensible Flow Analytics
Pre-Change Analysis

Nexus Dashboard Insights

APIs – Documentation

Nexus Dashboard and all applications have an on-board documentation that allows the users to learn and test the different APIs calls

Additional Documentation will be available online at:

[Click Here!](#)

The screenshot displays the Nexus Dashboard API documentation interface. On the left is a dark blue sidebar with a search bar and a list of API categories: Authentication, Federation Management, Site Management, API Gateway, User Management, Audit Logs, Event Monitoring, Service Management, Platform Version Management, Node Management, and Backup Restore. The main content area is titled 'Nexus Dashboard' and 'Authentication'. It features a 'Login' endpoint with a description: 'Returns an authentication token, which can be used for subsequent API calls. You can provide a username, password, and login domain to authenticate an existing Nexus Dashboard user.' Below this is a 'POST /login' endpoint with a 'REQUEST BODY SCHEMA' section showing a 'Login Request Body' with fields: 'domain' (string, required), 'userName' (string, required, with a note 'User ID as created by Nexus Dashboard admin or remote identity provider'), and 'userPassword' (string, required, with a note '<password>'). A 'Responses' section shows a '200 Login Response' and a '401 Invalid Username/Password' error. On the right, a 'Details' panel shows a 'Run' button, an 'Example' tab, and a 'Body' section with a 'Form' dropdown and input fields for 'domain' (value: 'local'), 'userName' (value: 'admin'), and 'userPassword' (value: 'password'). A 'Run' button is at the bottom right of the details panel.

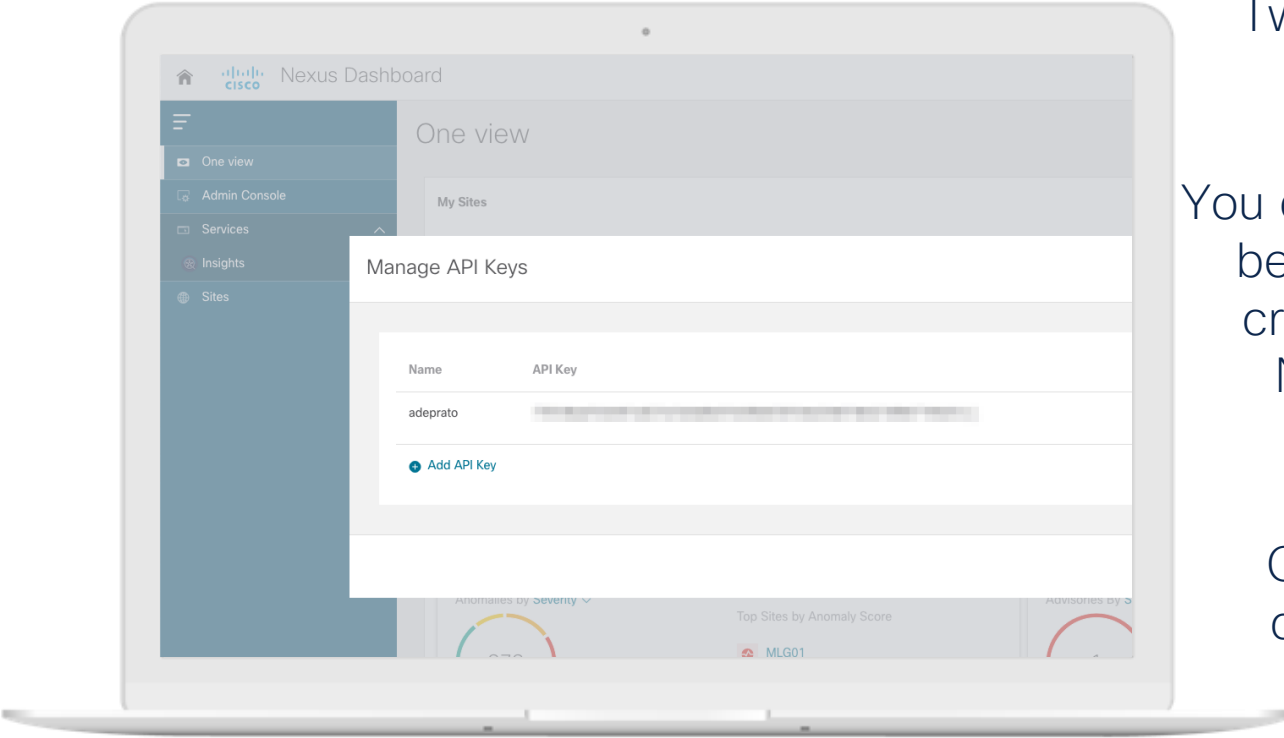
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APIs – Security

Two ways of accessing NDI resources via APIs.

You can create a token and it will be bounded to the user that creates it, so it will maintain Nexus Dashboard RBAC permissions.

Or you can post the login credentials and store the temporary cookie

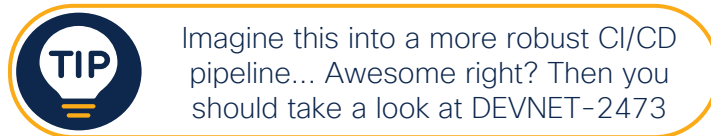
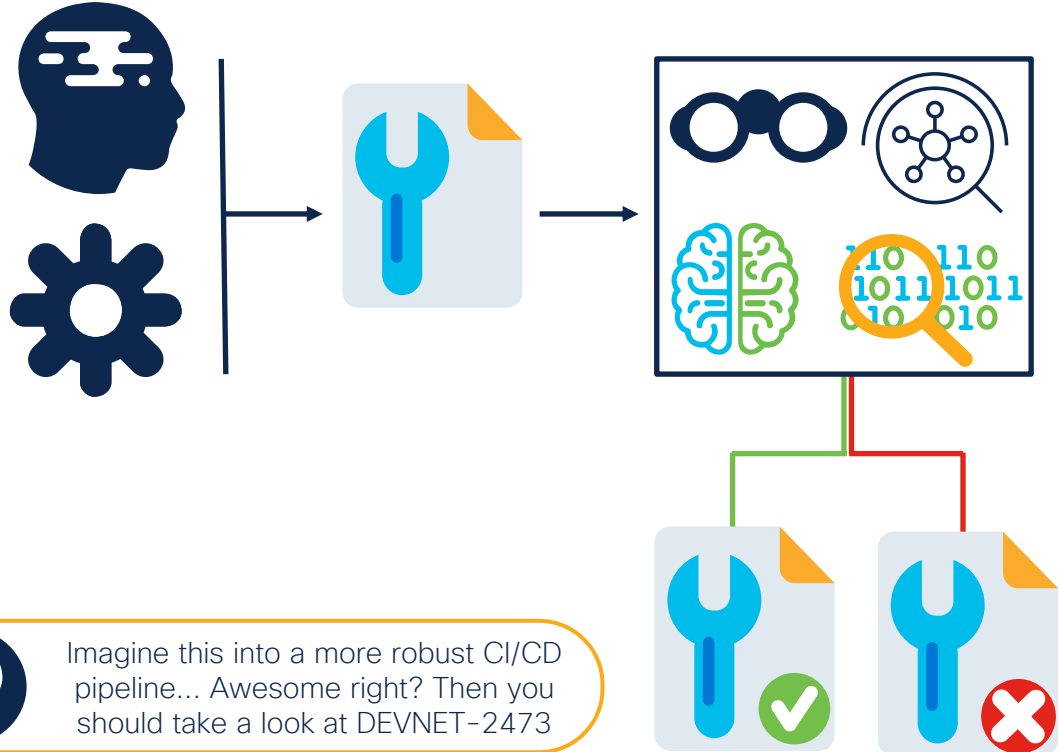


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Pre-Change Validation

Pre-Change Validation or PCV, drastically reduces the chances to introduce problems with network changes

API can be invoked by other tools to verify the validity of the produced xml/json configuration files

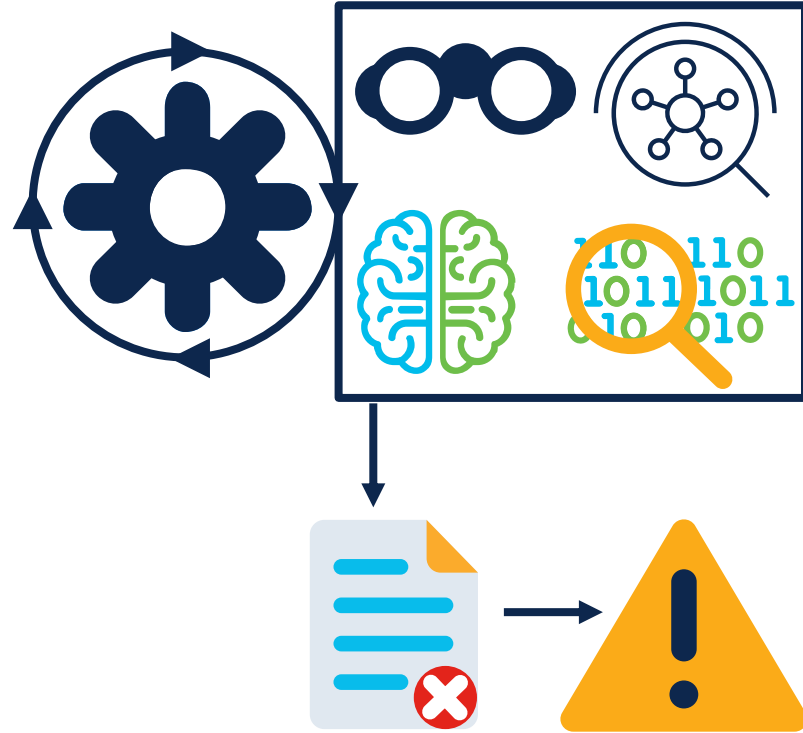


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Compliance Requirements

Compliance Requirements keeps the fabric under control. If at any point in time any condition is not going to be met an anomaly will be raised

API can help the administrator control the full requirements lifecycle



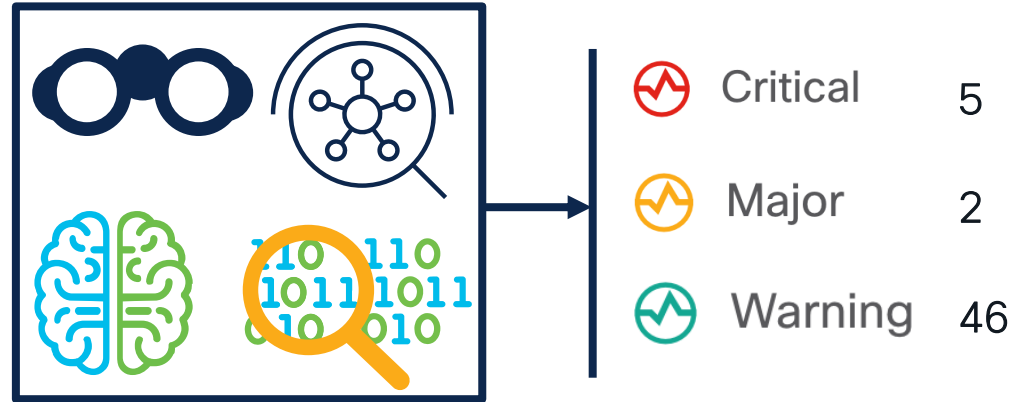
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Anomalies

APIs allow you to access all the data related to the anomalies

This might be useful to perform some analysis if you have KPI metrics that look into this

Or you simply might export the total count of active anomalies to a summary page for your NOC



NDI APIs Interfaces

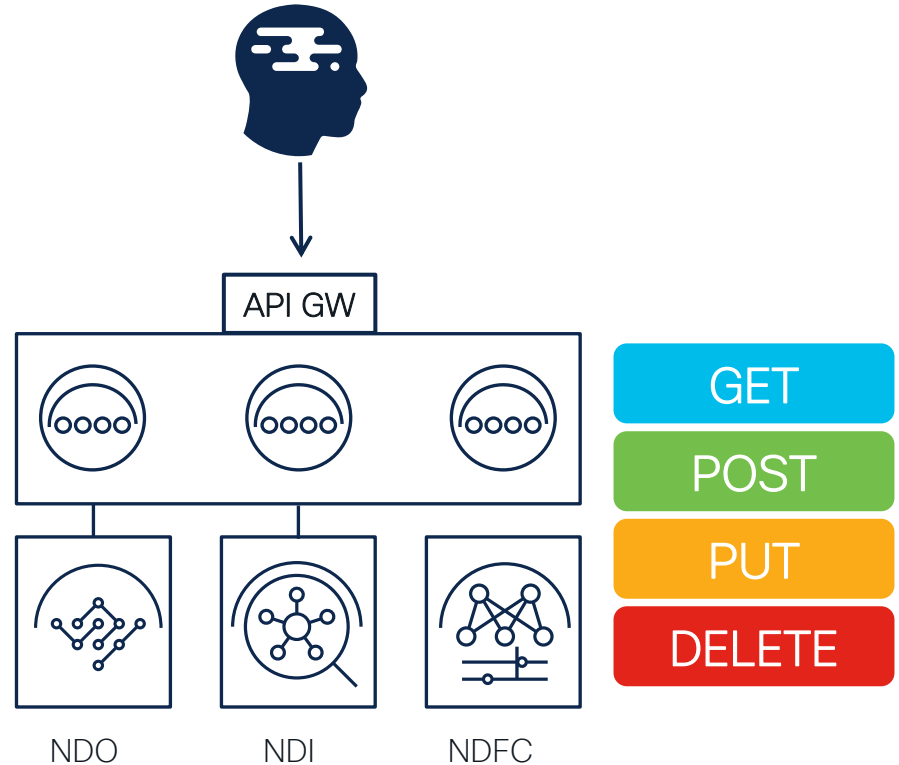
Nexus Dashboard

APIs - Overview

Nexus Dashboard offers the standard REST API methods

The API gateway inspects and routes all the HTTP calls towards the right service or application

Data or payloads must be encoded in JSON format



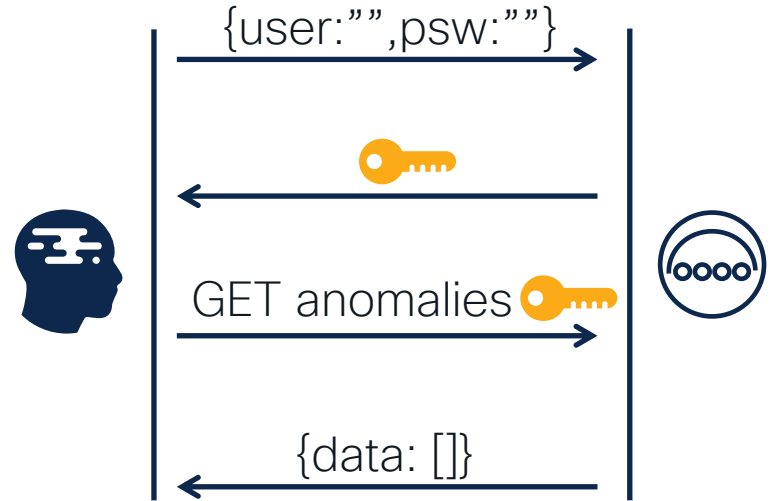
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APIs - Authentication

All NDI API Calls must be authenticated via an authorization token or an API Key

Authorization Tokens can be retrieved by authenticating over a special API URI, they expire after some time

API Keys are owned by ND local users, they do not expire with time



```
curl -k --request POST 'https://your-ndi-host.your-domain/login' --data-raw '{"userName": "myuser", "userPasswd": "mypassword", "domain": "DefaultAuth"}'
```

Nexus Dashboard Insights

APIs – Interfaces



ANSIBLE

We maintain some ansible modules that will allow you to interact directly with NDI APIs from your playbooks.

Link is in the references



POSTMAN

Postman is the right tool to keep all your API calls stored, organized and accessible. It provides a rich set of feature for any testing or developing APIs



Python, like any other programming tool with an http library, expands the possibilities to interact with NDI APIs. There is no limit on what you can achieve

Demo



*“All ACI Subnets **MUST** be defined in
InfoSec’s IPAM ”*

Violations Must Be Reported As Soon As Possible

Shjope Szieker, Head of InfoSec Team

ACI Overlay Topology

Design Requirement:

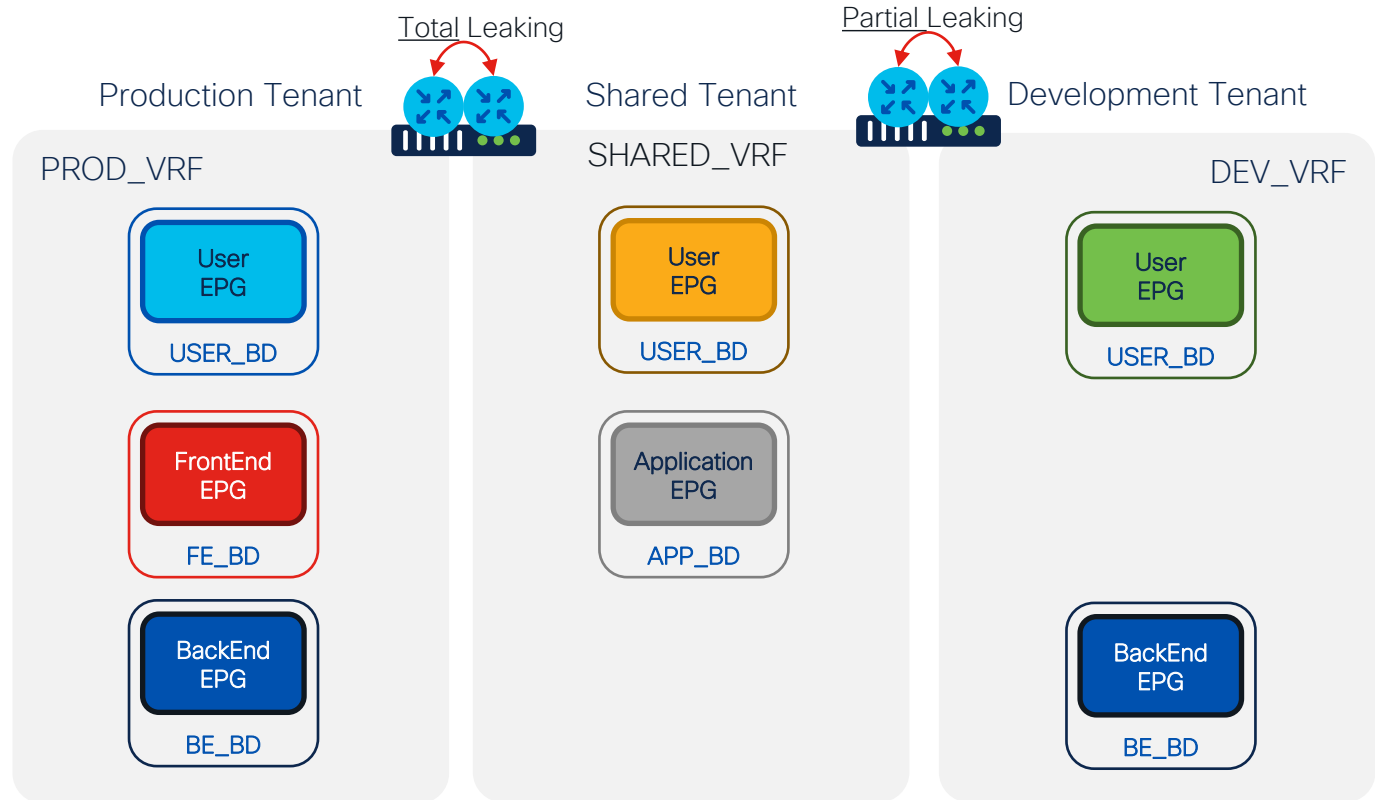
Production BDs/EPGs might be copied into Development but they must keep the same addressing scheme

Legend

Same Colour = Same Subnet

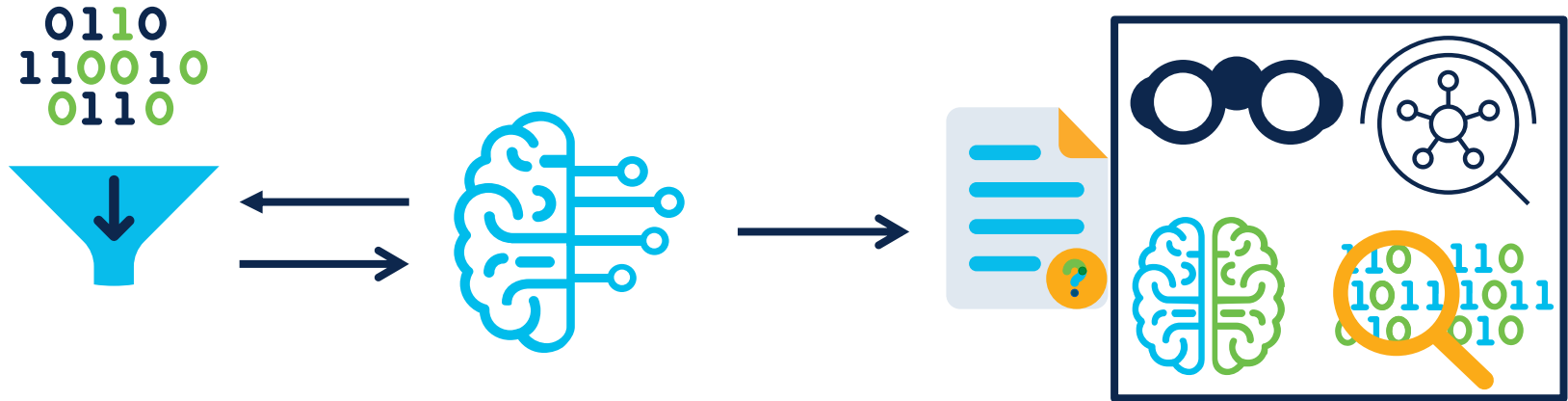


Contracts Are Not Displayed
For Simplicity



Demo 1

Workflow

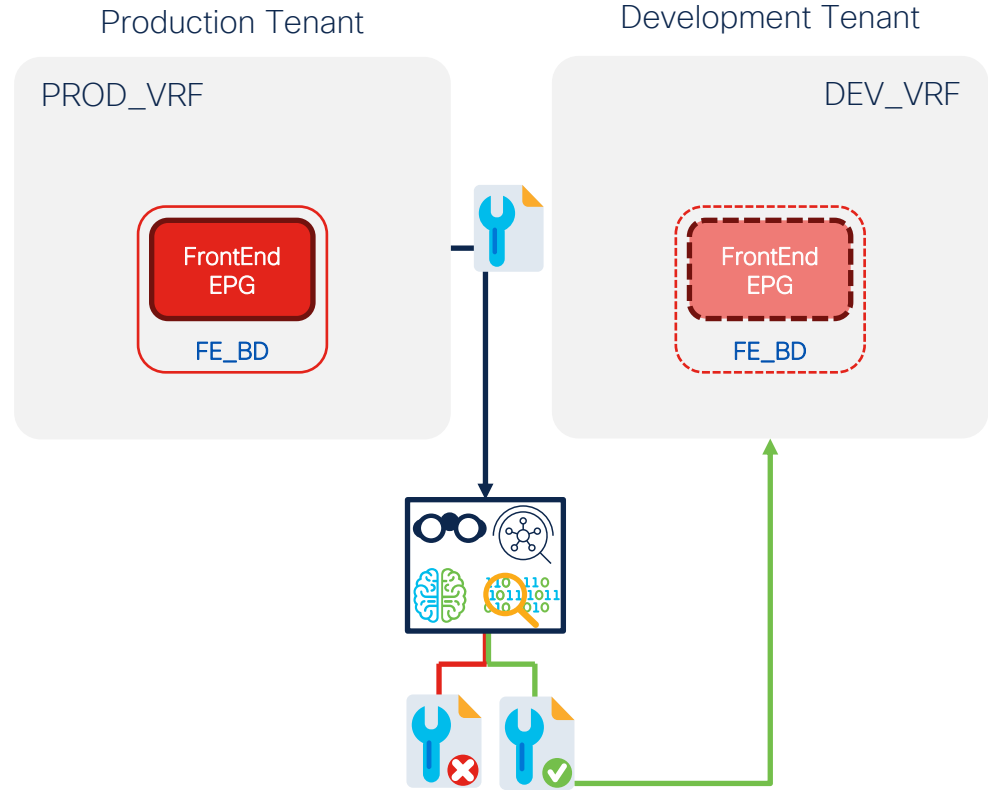


1. Acquire data from IPAM
2. Build valid Compliance Requirements for each Tenant
3. Upload the requirements if they are not there already

Demo 2

Workflow

1. Read BD and EPG configurations from Production Tenant
2. Prepare the json configuration
3. Validate the json file via PCV
4. Copy the objects into the Development Tenant



Conclusion

Summary

- NDI APIs are available by default
- Lightweight and securely exposed from Nexus Dashboard
- Many NDI features are available and documented in the API docs
- As long as you have a valid use case, business need or idea:

TRY THEM

References

- [Github Repository](#)
- [Online API Reference](#)
- [https://{your_nd_fqdn}/apidocs/](#)
- [Nexus as Code Reference](#)
- [Nexus Dashboard Ansible Repository](#)

Sessions From the past days

(Look them up in the on-demand library)

[BRKDCN-2673](#)

[DEVNET-2097](#)

[DEVNET-2473](#)

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Thank you

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CISCO *Live!*

ALL IN