

Get Webhook'd

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[@zapodeanu](https://twitter.com/zapodeanu)

GitHub

github.com/cisco-en-programmability



<http://cs.co/EN-Programmability-Videos>

CISCO *Live!*

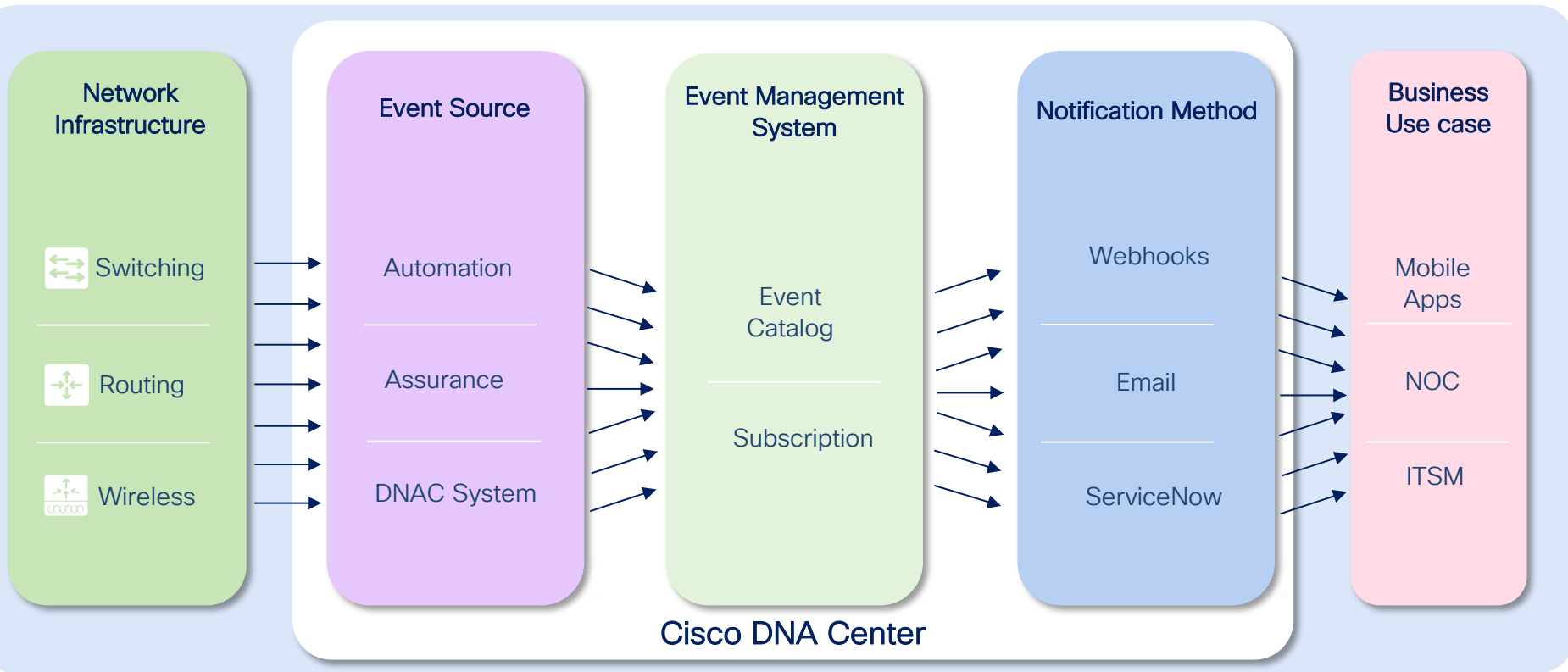




Agenda

- Cisco DNA Center Event Notifications
- Build your Integration
- Developer Resources

Cisco DNA Center Event Notification Framework



Configure Cisco DNA Center Webhooks

The screenshot shows the 'Subscribe' configuration page in Cisco DNA Center. The form is titled 'Subscribe' and contains several sections: 'SUBSCRIPTION DETAILS', 'Subscription Type', 'Subscription Endpoint', 'URL', 'Trust Certificate', 'HTTP Method', 'Authentication', and 'Headers'. The 'Subscription Type' is set to 'REST'. The 'Subscription Endpoint' is 'Gabi PythonAnywhere'. The 'URL' is 'https://zapodeanu.pythonanywhere.com'. The 'Trust Certificate' is set to 'Yes'. The 'HTTP Method' is 'POST'. The 'Authentication' is set to 'Basic'. The 'Headers' section shows 'Authorization' with a value of 'Basic YWRtaW4...'. There are 'Cancel' and 'Subscribe' buttons at the bottom.

Subscribe

SUBSCRIPTION DETAILS

Name*

GPA

Subscription Type*

REST

☐ Select an existing endpoint ☒ Create a new endpoint

Subscription Endpoint

Gabi PythonAnywhere

URL*

https://zapodeanu.pythonanywhere.com

Trust Certificate

☒ Yes ☐ No

HTTP Method*

POST

Authentication

☒ Basic ☐ Token ☐ Not Auth

Headers

Header Key

Authorization

Header Value

Basic YWRtaW4...

4 Add

Cancel Subscribe

- Name your subscription
- Subscription Type – REST
- Create a new endpoint
- Description of the new endpoint
- URL – https://your_app_url/webhook
- Trust Certificate – yes
- HTTP Method – POST/PUT
- Authentication – Basic
- Headers – Authorization + Basic YWRtaW4...
- Subscribe

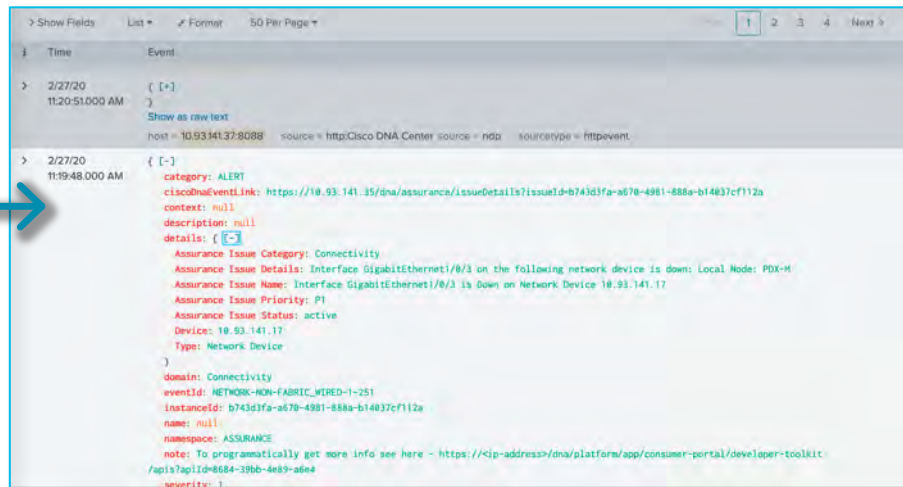
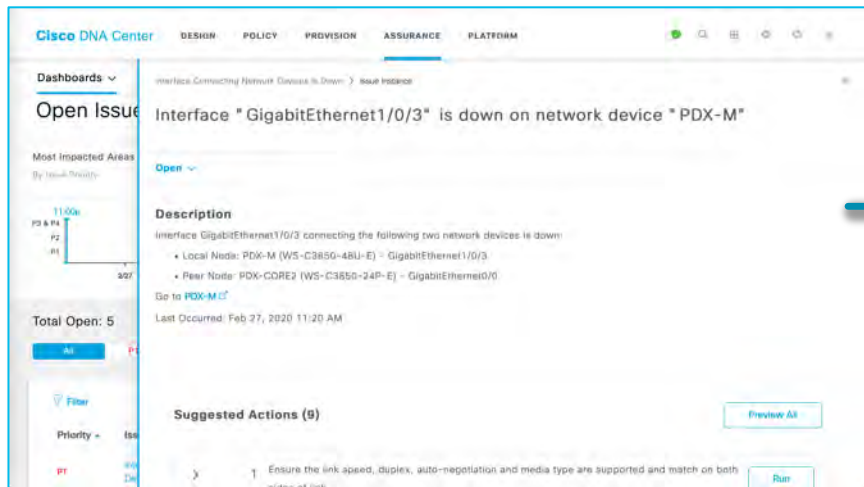
Cisco DNA Center Webhook Sample Payload

```
{
  "version": "",
  "instanceId": "ea6e28c5-b7f2-43a4-9937-def73771c5ef",
  "eventId": "NETWORK-NON-FABRIC_WIRED-1-251",
  "namespace": "ASSURANCE",
  "name": "",
  "description": "",
  "type": "NETWORK",
  "category": "ALERT",
  "domain": "Connectivity",
  "subDomain": "Non-Fabric Wired",
  "severity": 1,
  "source": "ndp",
  "timestamp": 1574457834497,
  "tags": "",
  "details": {
    "Type": "Network Device",
    "Assurance Issue Priority": "P1",
    "Assurance Issue Details": "Interface GigabitEthernet1/0/3 on the following network device is down:
                                Local Node: PDX-M",
    "Device": "10.93.141.17",
    "Assurance Issue Name": "Interface GigabitEthernet1/0/3 is Down on Network Device 10.93.141.17",
    "Assurance Issue Category": "Connectivity",
    "Assurance Issue Status": "active"
  },
  "ciscoDnaEventLink": "https://10.93.141.35/dna/assurance/issueDetails?issueId=ea6e28c5-b7f2-43a4-9937-def73771c5ef",
  "note": "To programmatically get more info see here - https://<ip-address>/dna/platform/app/consumer-portal/developer-toolkit/apis?apiId=8684-39bb-4e89-a6e4",
  ...
}
```

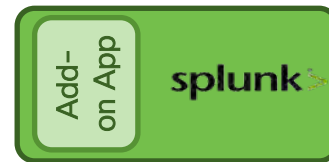

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Send Notifications from Cisco DNA Center to Splunk



Cisco DNA Center API



Sample Cisco DNA Center Add-on App

Device Inventory Collection & Overall Network Health, every 60 seconds

splunk>enterprise Apps ▾ DEVTEST-GZAPODEA@CISCO.COM admin ▾ Messages ▾ Settings ▾ Activity ▾ Help ▾ Find

\$SPLUNK_HOME/etc/apps/dnac_add_on/bin/dnac_rest_apls.py

Data inputs ▸ Script ▸ \$SPLUNK_HOME/etc/apps/dnac_add_on/bin/dnac_rest_apls.py

Source

Interval:

Number of seconds to wait before running the command again, or a valid cron schedule.

Source name override:

If set, overrides the default source value for your script entry (script:path_to_script).

Source type

Set sourcetype field for all events from this source.

Set sourcetype:

Source type:

If this field is left blank, the default value of script will be used for the source type.

☒ More settings

Host

Host field value:

Index

Set the destination index for this source.

Index:

```
***
Create the authorization token required to access DNA C
Call to Cisco DNA Center - /api/system/v1/auth/login
:param dnac_auth - Cisco DNA Center Basic Auth string
:return: Cisco DNA Center JWT token
***

url = DNAC_URL + '/dna/system/api/v1/auth/token'
header = {'content-type': 'application/json'}
response = requests.post(url, auth=dnac_auth, headers=header, verify=False)
dnac_jwt_token = response.json()[0]['Token']
return dnac_jwt_token

def get_all_device_info(limit, dnac_jwt_token):
    """
    The function will return all network devices info, using the specified limit of dev
    :param limit: the number of devices to return per API call
    :param dnac_jwt_token: Cisco DNA C token
    :return: DNA C device inventory info
    """
    offset = 1
    all_devices_list = []
    all_devices_info = [''] # assign a value, to make sure the API call will run at le
    while all_devices_info:
        all_devices_info = ''
        url = DNAC_URL + '/dna/intent/api/v1/network-device?offset=' + str(offset) + '&limit=' + str(limit)
        header = {'content-type': 'application/json', 'x-auth-token': dnac_jwt_token}
        all_devices_response = requests.get(url, headers=header, verify=False)
        all_devices_json = all_devices_response.json()
        all_devices_info = all_devices_json['response']
        all_devices_list += all_devices_info
        offset += limit
    return all_devices_list

def get_overall_network_health(dnac_jwt_token):
    """
    This function will retrieve the network health at the time the function is called
    :param dnac_jwt_token: Cisco DNA C token
    :return: network health
    """
    epoch_time = get_epoch_current_time()
    url = DNAC_URL + '/dna/intent/api/v1/network-health?timestamps=' + str(epoch_time)
    header = {'content-type': 'application/json', 'x-auth-token': dnac_jwt_token}
    network_health_response = requests.get(url, headers=header, verify=False)
    network_health_json = network_health_response.json()
    network_health = network_health_json['response'][0]['healthScore']
    return network_health
```


Cisco DNA Center to Splunk

The screenshot shows the GitHub interface for the repository 'cisco-en-programmability / dnacenter_splunk_add_on_app'. At the top, there's a navigation bar with 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. Below this, the repository name is displayed with statistics: 1 Unwatch, 0 Stars, and 0 Forks. A secondary navigation bar includes 'Code', 'Issues 0', 'Pull requests 0', 'Actions', 'Projects 0', 'Wiki', 'Security 0', 'Insights', and 'Settings'. The main content area starts with a description: 'This repo includes a simple Splunk Add-On app that will collect device inventory and overall network health data from Cisco DNA Center.' followed by a 'Manage topics' link. Below this, repository statistics are shown: 4 commits, 1 branch, 0 packages, 0 releases, 1 contributor, and a 'View license' link. Action buttons include 'New pull request', 'Create new file', 'Upload files', 'Find file', and a green 'Clone or download' button. A file list shows '.gitignore', 'CODE_OF_CONDUCT.md', 'CONTRIBUTING.md', 'LICENSE', 'README.md', and 'dnac_rest_apis.py'. The 'README.md' file is selected and its content is displayed below, featuring the title 'Cisco DNA Center Add-On App for Splunk Enterprise' and a description: 'This Python script collects device inventory and overall network health using the Cisco DNA Center REST APIs.'

Search or jump to...

Pull requests Issues Marketplace Explore

cisco-en-programmability / dnacenter_splunk_add_on_app

Unwatch 1 Star 0 Fork 0

Code Issues 0 Pull requests 0 Actions Projects 0 Wiki Security 0 Insights Settings

This repo includes a simple Splunk Add-On app that will collect device inventory and overall network health data from Cisco DNA Center. [Edit](#)

[Manage topics](#)

4 commits 1 branch 0 packages 0 releases 1 contributor [View license](#)

Branch: master New pull request Create new file Upload files Find file [Clone or download](#)

Fetching latest commit...

- .gitignore
- CODE_OF_CONDUCT.md
- CONTRIBUTING.md
- LICENSE
- README.md
- dnac_rest_apis.py

README.md

Cisco DNA Center Add-On App for Splunk Enterprise

This Python script collects device inventory and overall network health using the Cisco DNA Center REST APIs.

Demo

DNA Center Dashboard

Edit Export ▾ ...

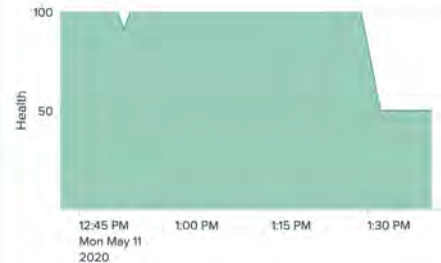
Overall Network Health

Last 60 Minutes



Routers Health

Last 60 Minutes



Access Switches Health

Last 60 Minutes



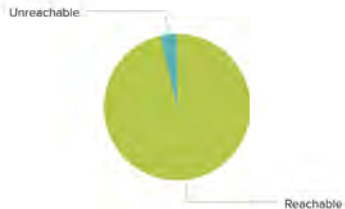
Distribution Switches Health

Last 60 Minutes



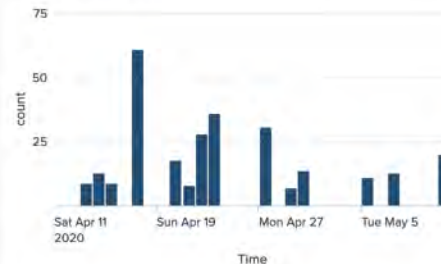
Device Reachability

Last 5 Minutes



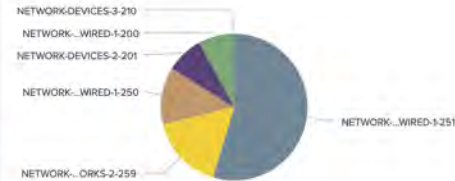
Events Received

Daily Last 30 days



Event Types

Last 30 Days

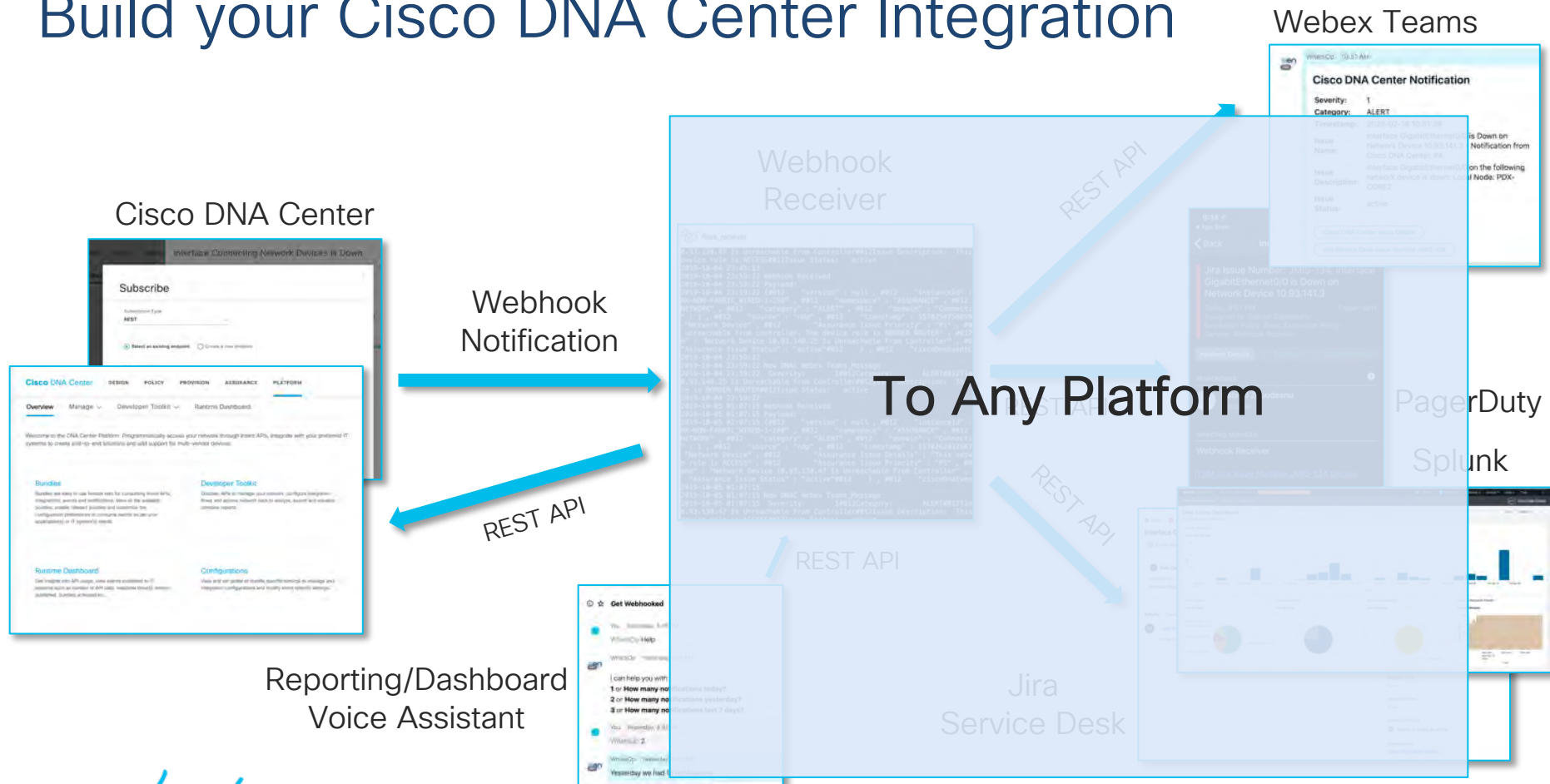


Events Severity

Last 30 Days



Build your Cisco DNA Center Integration



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Agenda

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- Developer Resources



The Network is Open for Business!

Create connections never before possible.

Integrate devices from any provider.

Transform slow, manual processes into fast, automated workflows.

[See Automation Use Cases](#)

- Code Exchange
- Automation Exchange

<https://developer.cisco.com/codeexchange/platforms/dnac>

- DevNet Sandboxes
- DevNet Labs



Know more

Derive new insights from data, optimize network health, and reduce risk through end-to-end, proactive communication.

Platform Capabilities

Easy to learn. Simple to use. Constantly evolving.



Intent APIs

Intent APIs provide a consistent way to make network-wide changes aligned with the business.

[POLICY](#) [REPORTING](#) [ASSURANCE](#) [APP EXPERIENCE](#)



Events and notifications

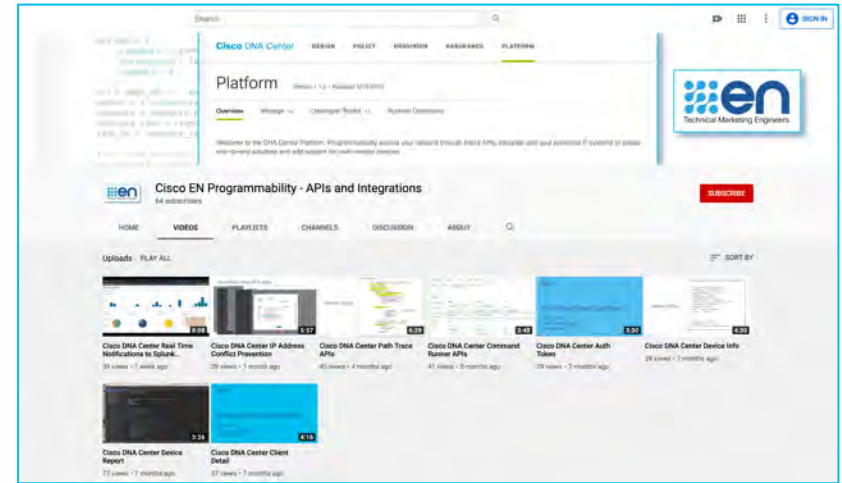
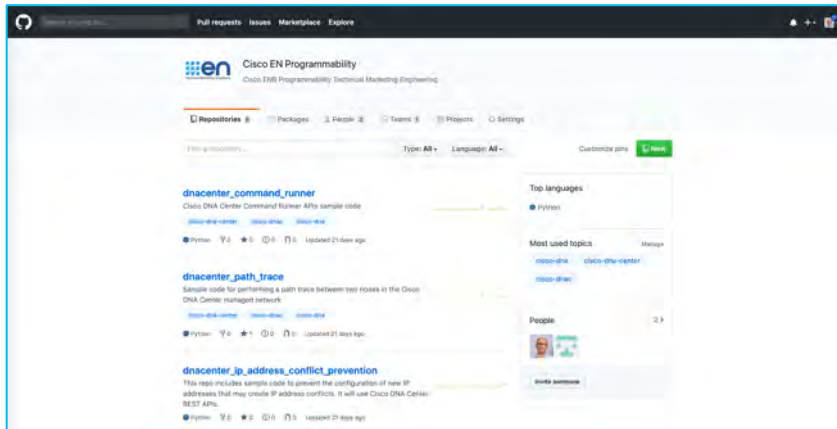
Resolve issues proactively by helping third-party applications listen and respond to correlated events detected by Cisco DNA Center.

[NOTIFICATIONS](#) [ASSURANCE](#) [WEBHOOK](#)

Developer Resources – Continued

- Cisco EN Programmability YouTube Channel
- Cisco EN Programmability GitHub Organization:
 - Cisco DNA Center SDK
 - Sample Code

<http://cs.co/EN-Programmability-Videos>



<https://github.com/cisco-en-programmability>

Thank you



Possibilities

#CiscoLive | #DevNetDay