

CISCO *Live!*

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#CiscoLiveAPJC



Automating NDFC with Ansible & NetDevOps!

Rahul Nema, Technical Marketing Engineer
Session ID - LTRDCN-2621

Cisco Webex App

Questions?

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

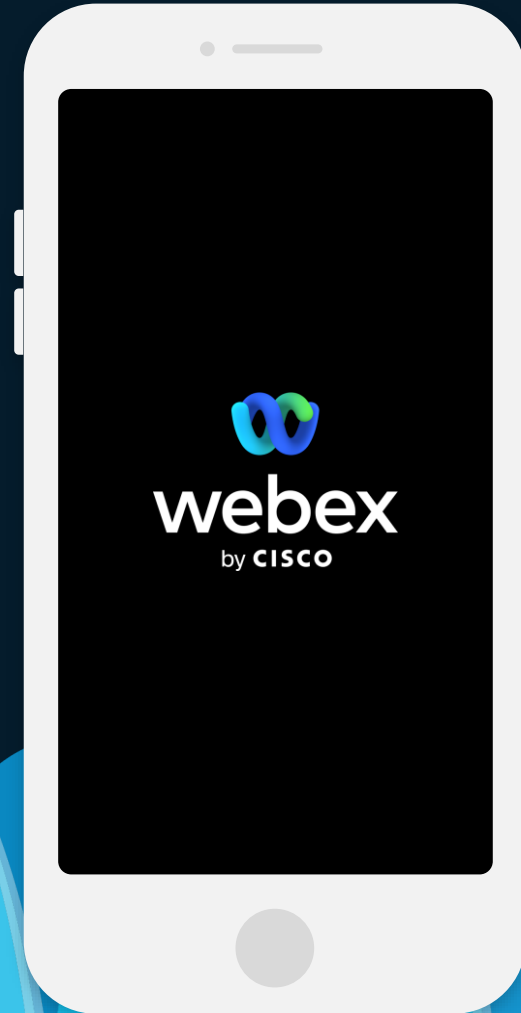
How

- 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.

CISCO *Live!*

<https://ciscolive.ciscoevents.com/ciscolivebot/#LTRDCN-2621>



Agenda

- Nexus Dashboard and Fabric Controller in-depth
- Fabric Controller with Ansible
- Infrastructure-as-Code (IaC)
- Lab overview

Nexus Dashboard and Fabric Controller In-depth

Nexus Dashboard and Fabric Controller in-depth

Unify your operational experience with Nexus Dashboard



MDS



SAN

Nexus



Classic Ethernet

VXLAN

ACI

IP Media Fabrics

AI/ML Fabrics

Extensible to other networks



Campus

IOS-XE
Catalyst



WAN/Transport

Cisco 8000
Catalyst 8000v
ASR/NCS
CSR 1000v

Virtual, Kubernetes & 3rd party Networks

The **simplest** way to manage and operate data center connectivity¹

Included with every Nexus switch license ²

¹ Capabilities may vary by switch model

² Applies to Nexus Dashboard Virtual Appliance.

Nexus Dashboard physical appliance or cloud instance cost is not included

Nexus Dashboard and Fabric Controller in-depth

Fabric Controller – Transformed and Re-branded



Cisco Data Center
Network Manager

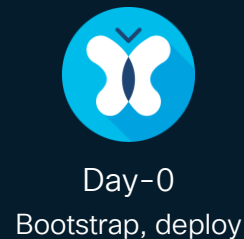


Cisco Nexus
Dashboard
Fabric Controller

Nexus Dashboard and Fabric Controller in-depth

Fabric Controller – a comprehensive data center automation tool

Fabric Controller helps you easily and reliably deploy, operate and maintain
VXLAN-EVPN, LAN, SAN, and Media fabrics
for Cisco NX-OS Nexus and MDS, IOS-XE, IOS-XR infrastructure
and interconnect with public clouds



Day-0
Bootstrap, deploy



Day-1
Provision,
maintain,
monitor, operate



Day-2 with
ND Insights
Troubleshoot,
plan, grow



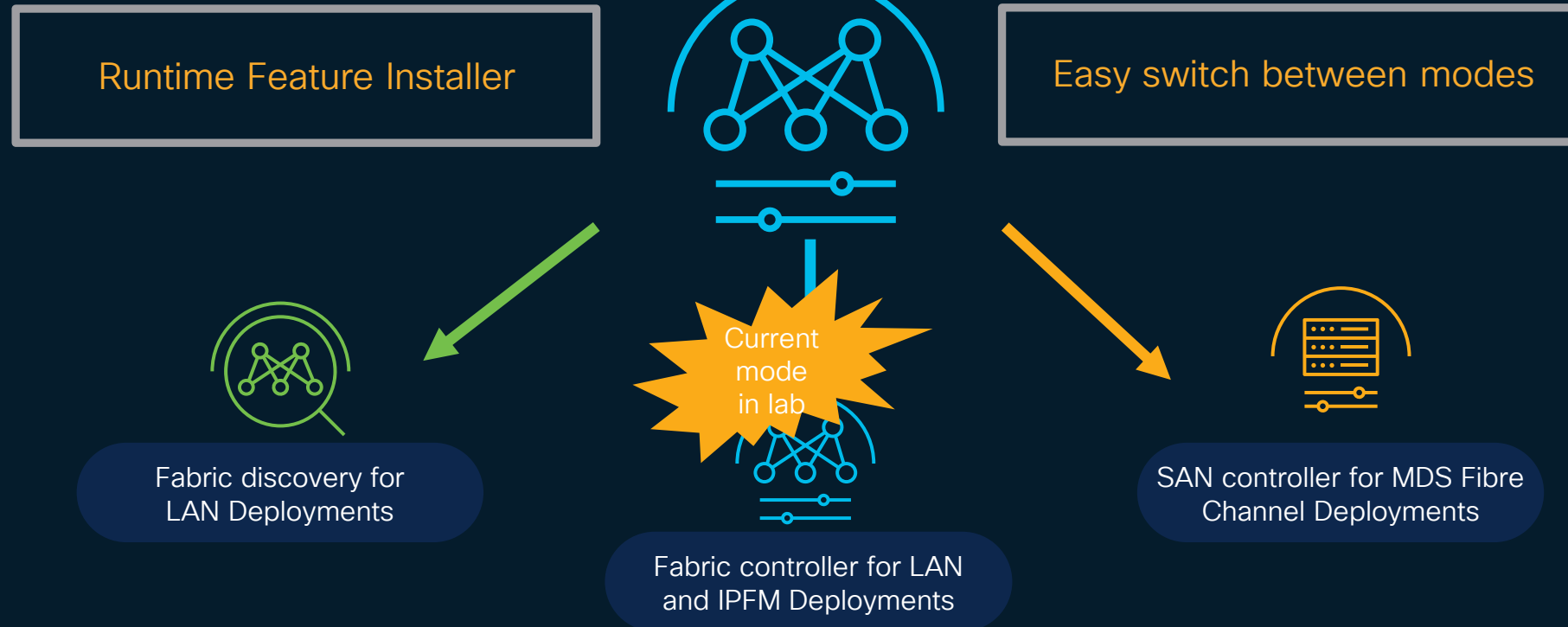
Scale out with
One Manage
Multi-site
acceleration

It addresses challenges by providing comprehensive solution-level control,
automation, visibility, monitoring, and integration

Nexus Dashboard and Fabric Controller in-depth

Fabric Controller – Modes

Make decision at run-time!



Nexus Dashboard and Fabric Controller in-depth

Fabric Controller – Automation wizard



Accelerate provisioning from days to minutes

Easy to understand approach to auto-bootstrapping of entire fabric

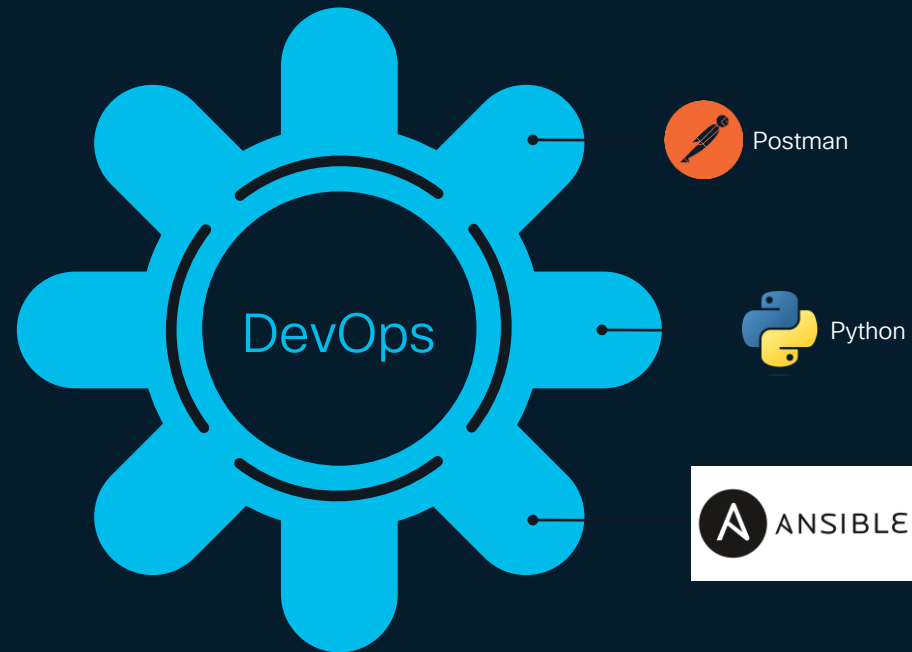
Rapid Deployment with Fabric Builder best practice templates for VXLAN-EVPN

DevOps friendly

Enhanced Programmability

Nexus Dashboard and Fabric Controller in-depth

Fabric Controller – DevOps



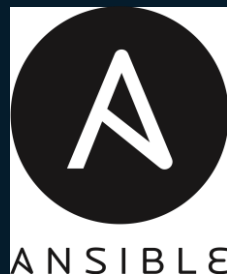
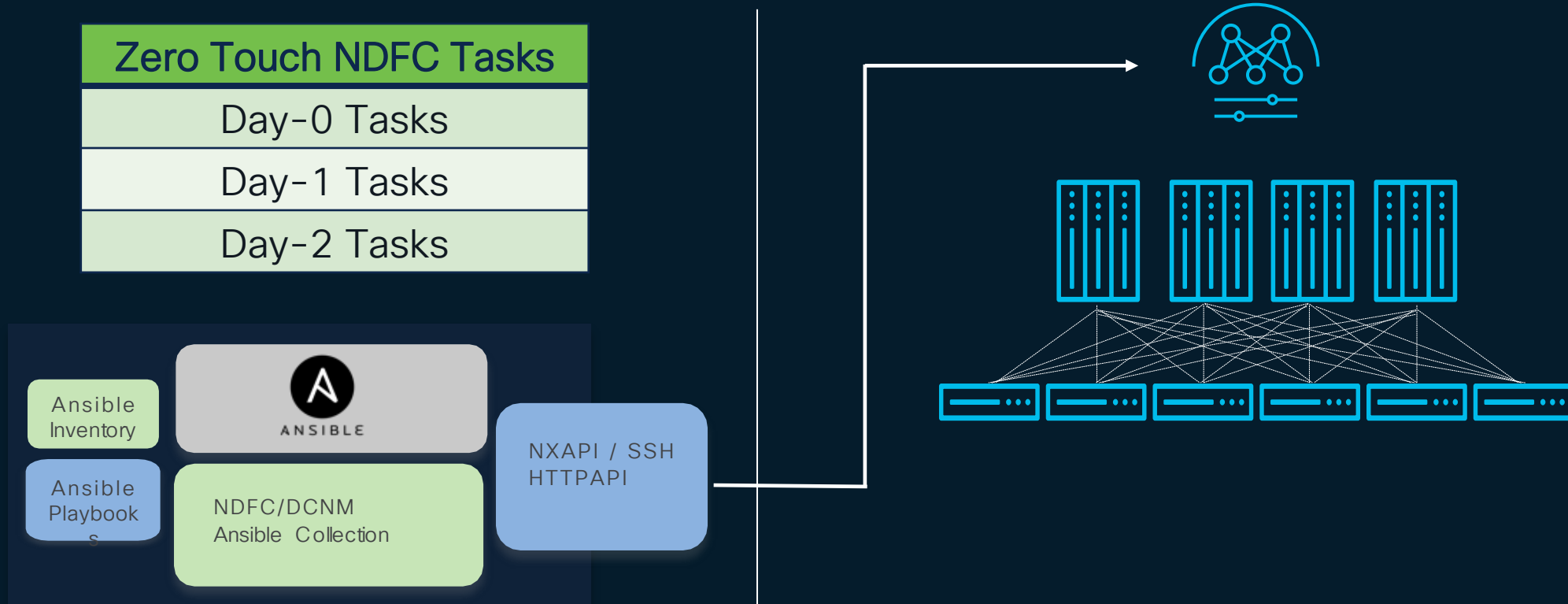
Utilize GUI or automation through APIs

REST API
Python, Postman & Ansible

Fabric Controller with Ansible

Fabric Controller with Ansible

Zero Touch NDFC provisioning with Ansible



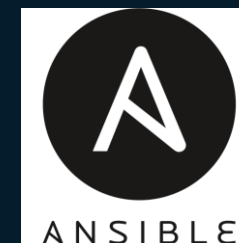
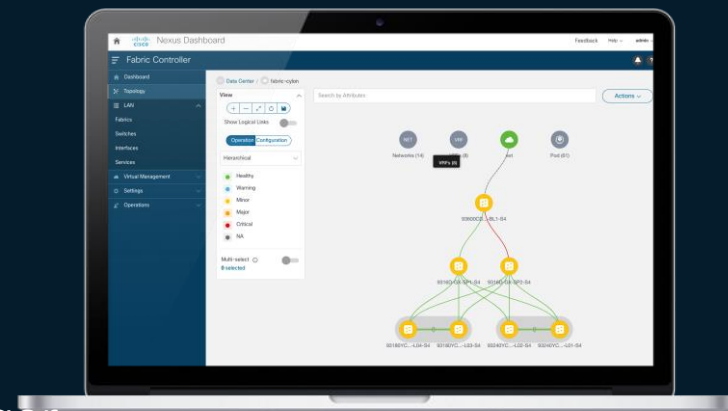
Fabric Controller with Ansible

Ansible modules - Ansible Collection Details

Latest Collection Version: 3.5.1 – Lan Fabric
Ansible DCNM Modules

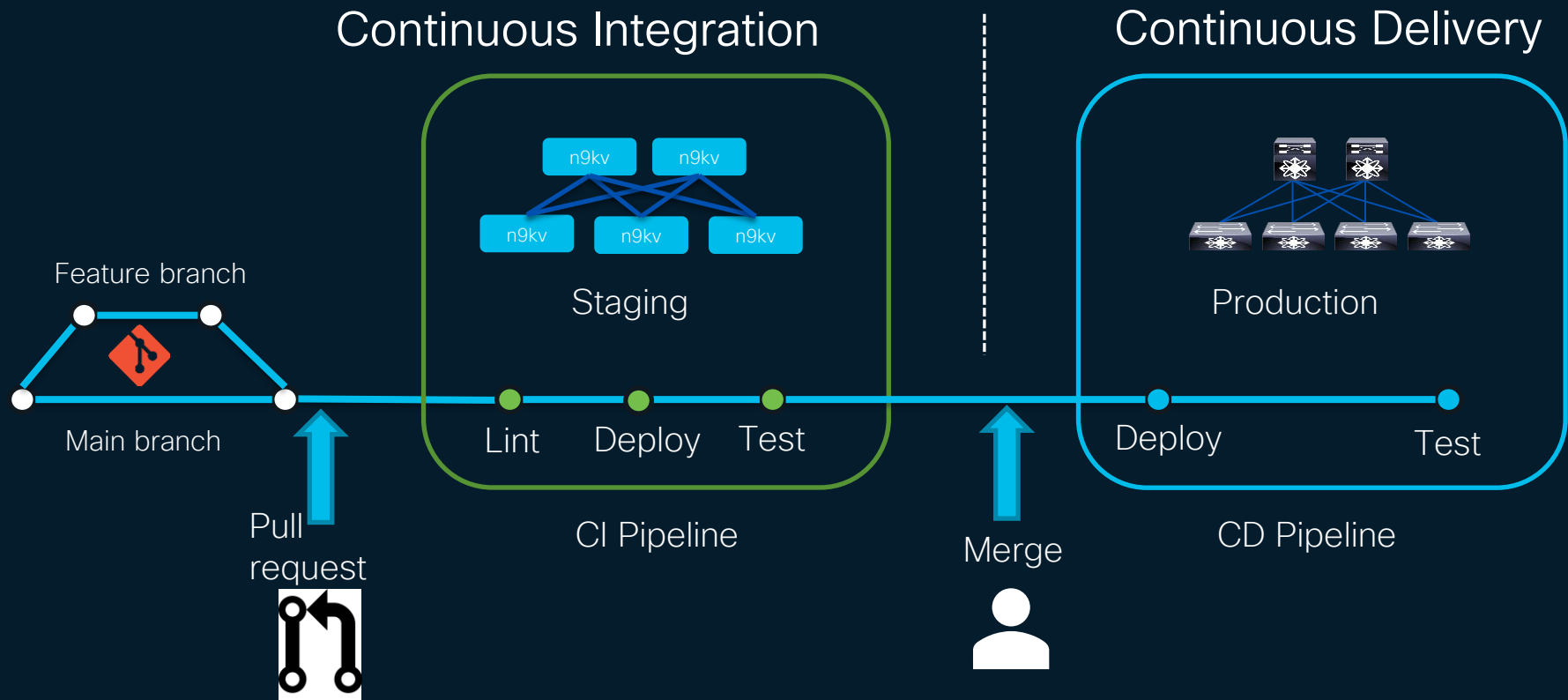
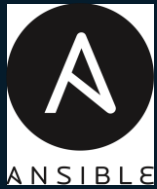
17 Modules in the current collection

- `cisco.dcnm.dcnm_inventory`
- `cisco.dcnm.dcnm_vrf`
- `cisco.dcnm.dcnm_network`
- `cisco.dcnm.dcnm_interface`
- `cisco.dcnm.dcnm_template`
- `cisco.dcnm.dcnm_policy`
- `cisco.dcnm.dcnm_rest`
- `cisco.dcnm.dcnm_links`
- `cisco.dcnm.dcnm_resource_manager`
- `cisco.dcnm.dcnm_service_node`
- `cisco.dcnm.dcnm_service_policy`
- `cisco.dcnm.dcnm_service_route_peering`
- `cisco.dcnm.dcnm_policy`
- `cisco.dcnm.dcnm_rest`
- `cisco.dcnm.dcnm_vpc_pair`
- `cisco.dcnm.dcnm_image_upload`
- `cisco.dcnm.dcnm_image_policy`

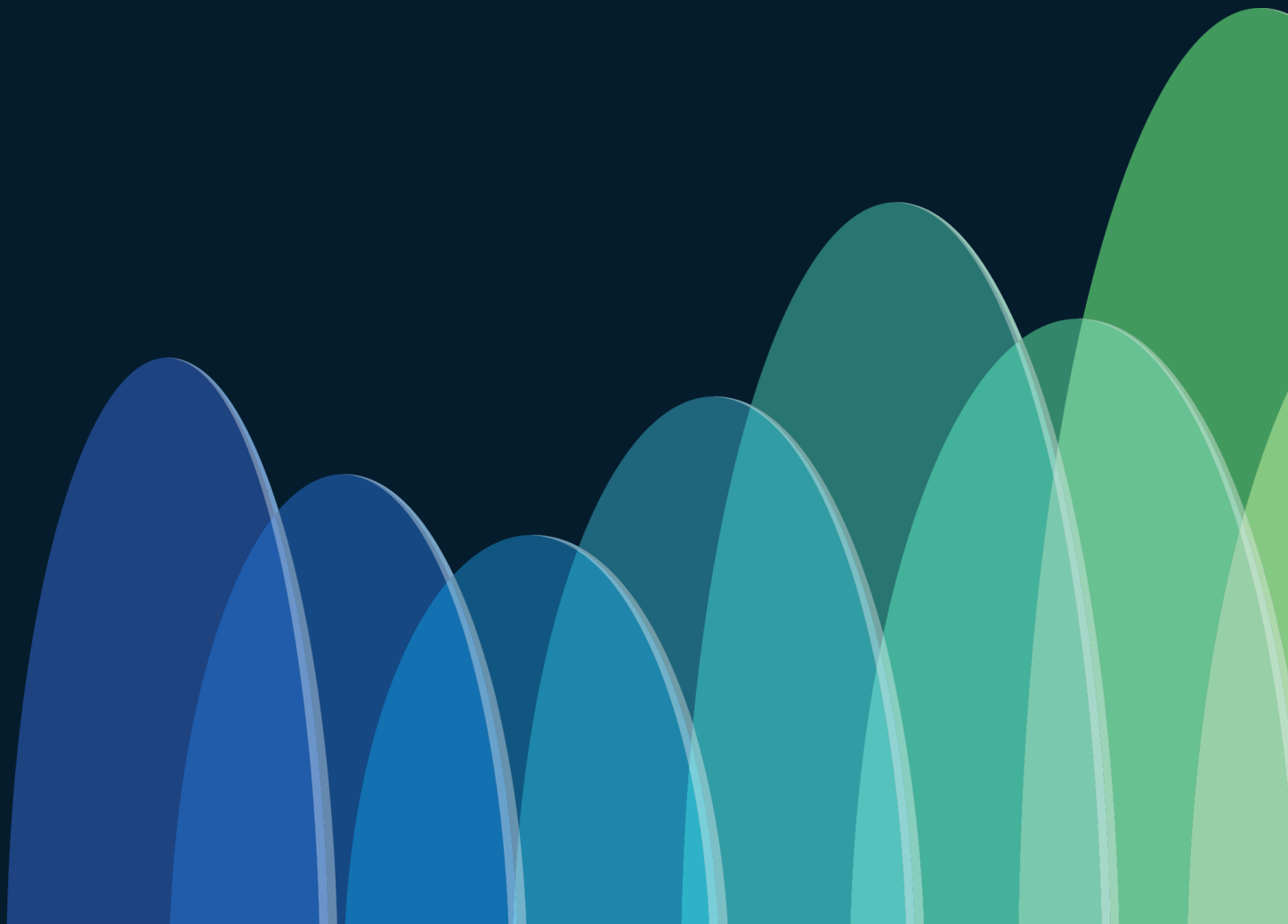


Infrastructure-as-code (IaC)

Infrastructure-as-Code(IaC)



Lab Overview



Lab Overview

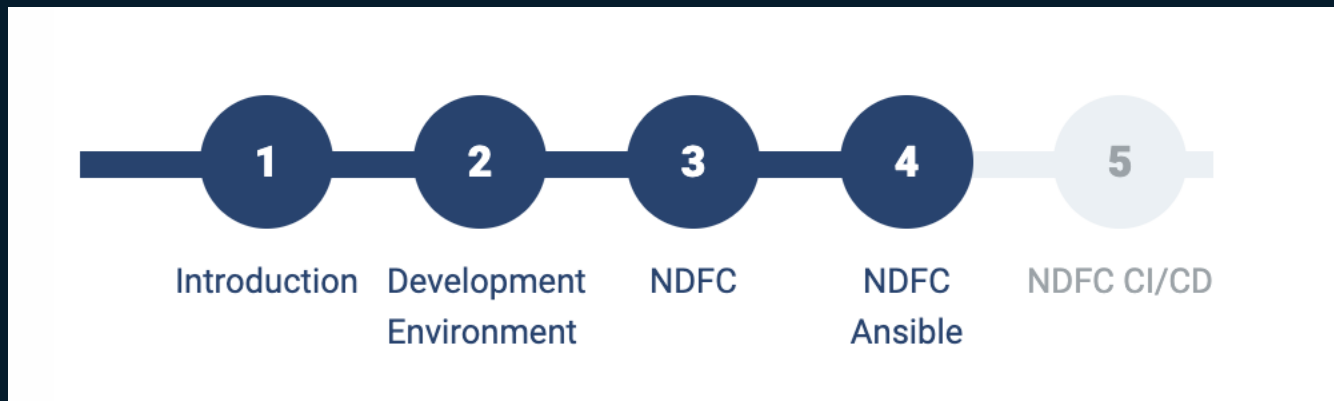
- HTML based lab guide
- Make sure you select and work in the assigned POD
- Available over internet



Lab Overview

Progress bar – Keeps track of your headway

- Lab guide shows you your progression through the lab
- Some sections are longer than others



Lab Overview

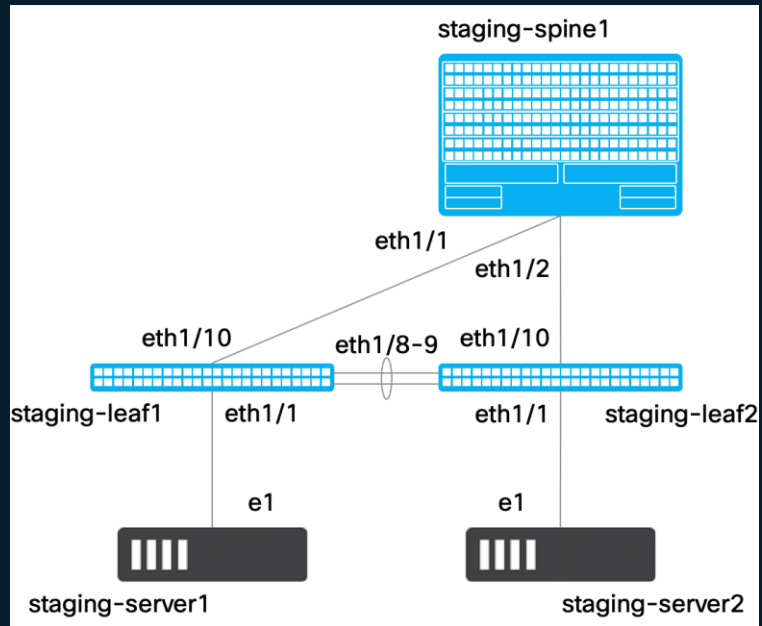
Topology and Environment

Each student gets their own instance of NDFC & CML with Nexus 9000vs

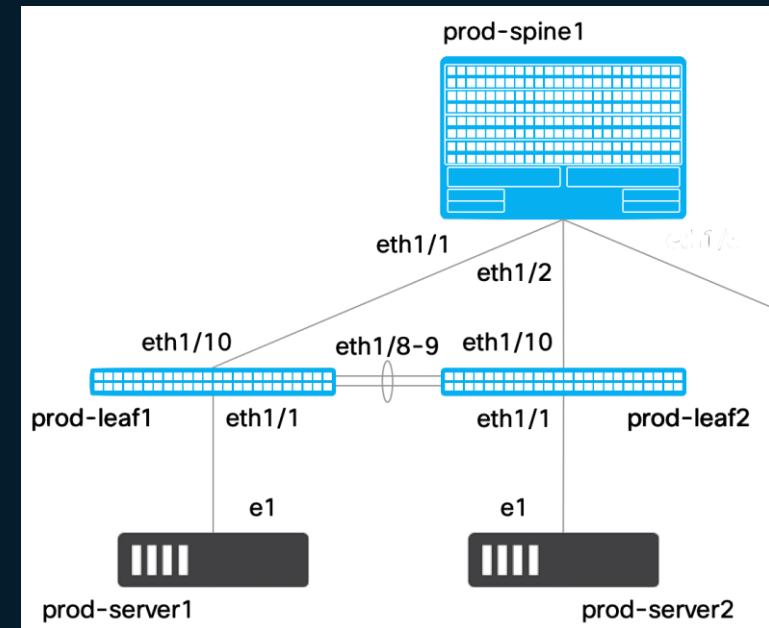


Deploy and verify VXLAN
EVPN fabrics using
powerful DevOps Tools!

Staging

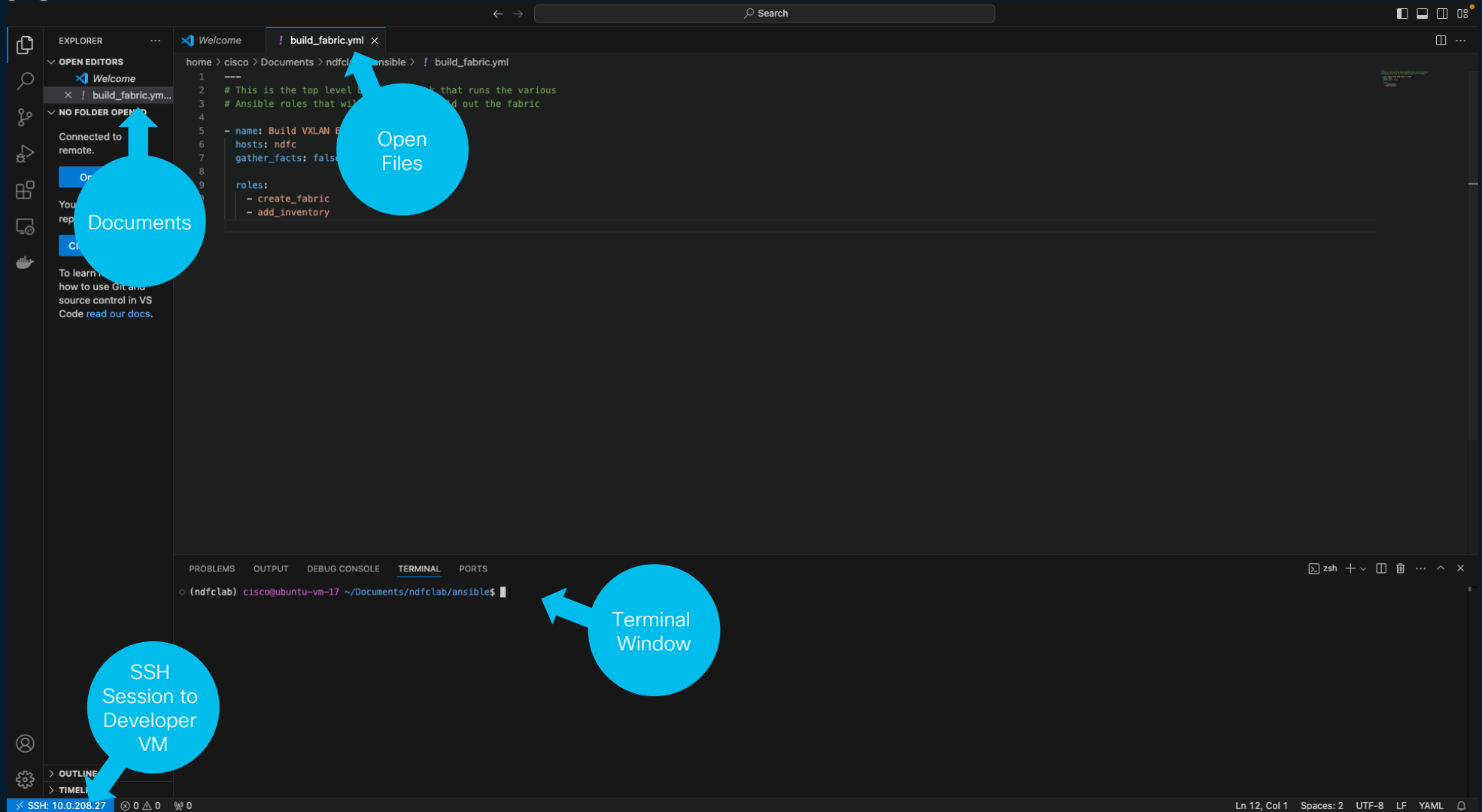


Prod



Lab Overview

VSCode as IDE



Lab Overview

Lab guide code Snippets

- Any interaction with the Linux Terminal will be indicated with the following look:

```
>_ Visual Studio Code Terminal
(ndfclab) cisco@ubuntu-vm-01:~/Documents/ndfclab/ansible$ code -r ~/Documents/ndfclab/ansible/roles/add_inventory/tasks/main.yml
```

- Populating code related files is represented by the following look:

```
roles/add_inventory/tasks/add_fabric_devices.yml
1 ---
2
3 - name: Add switches to Fabric {{ fabric_settings.FABRIC_NAME }} in NDFC
4   cisco.dcnm.dcnm_inventory:
5     fabric: "{{ fabric_settings.FABRIC_NAME }}"
6     config: "{{ fabric_inventory | selectattr('poap', 'undefined') | list }}"
7     deploy: false
8     save: true
9     state: merged
```

Lab Overview

Lab guide code Snippets

- Quick create for code related files:

```
>_ Visual Studio Code Terminal cisco  
touch ~/Documents/ndfclab/ansible/build_fabric.yml YAML Copy  
cat << EOF > ~/Documents/ndfclab/ansible/build_fabric.yml  
---  
# This is the top level build playbook that runs the various  
# Ansible roles that will be used to build out the fabric  
  
- name: Build VXLAN EVPN Fabric on NDFC  
  hosts: ndfc  
  gather_facts: false  
  
  roles:  
    - create_fabric  
EOF
```

Keynote Deep Dives

Wednesday

10:30am - 11:30am



Experiences Amplified:
How AI Can Fuel Better Employee and Customer Experiences

Level 1
Room 106



Smart, Secure, Seamless:
Transforming Experiences with Next-Generation Networking

Level 2
Room 204



Harness a Bold New Era:
Transform Data Centre and Service Provider Connectivity

Level 2
Room 203



Securing User to Application and Everything in Between

Level 2
Melbourne Room 2



Unlocking Digital Resilience through Unified Observability

The HUB
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Thank you

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