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# From CLI Hero to API Superhero:

Manage and Automate ACI L2-L7 Infrastructure-as-Code

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@DassHaroun

**cisco Live!**

Barcelona | January 27-31, 2020



Session ID: DEVWKS-1195

# Agenda

- Why Automate?
- What Are We Automating?
- How To Do It?
- Key Takeaways

# Cisco Webex Teams

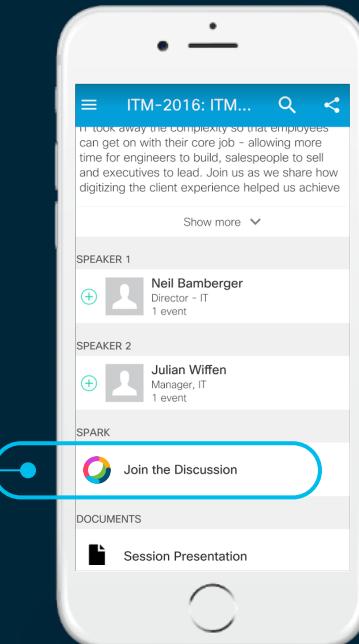
## Questions?

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

## How

- 1 Find this session in the Cisco Live Mobile App
- 2 Click “Join the Discussion”
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Webex Teams will be moderated by the speaker until June 16, 2019.



# Network “Automation” Today / the Past

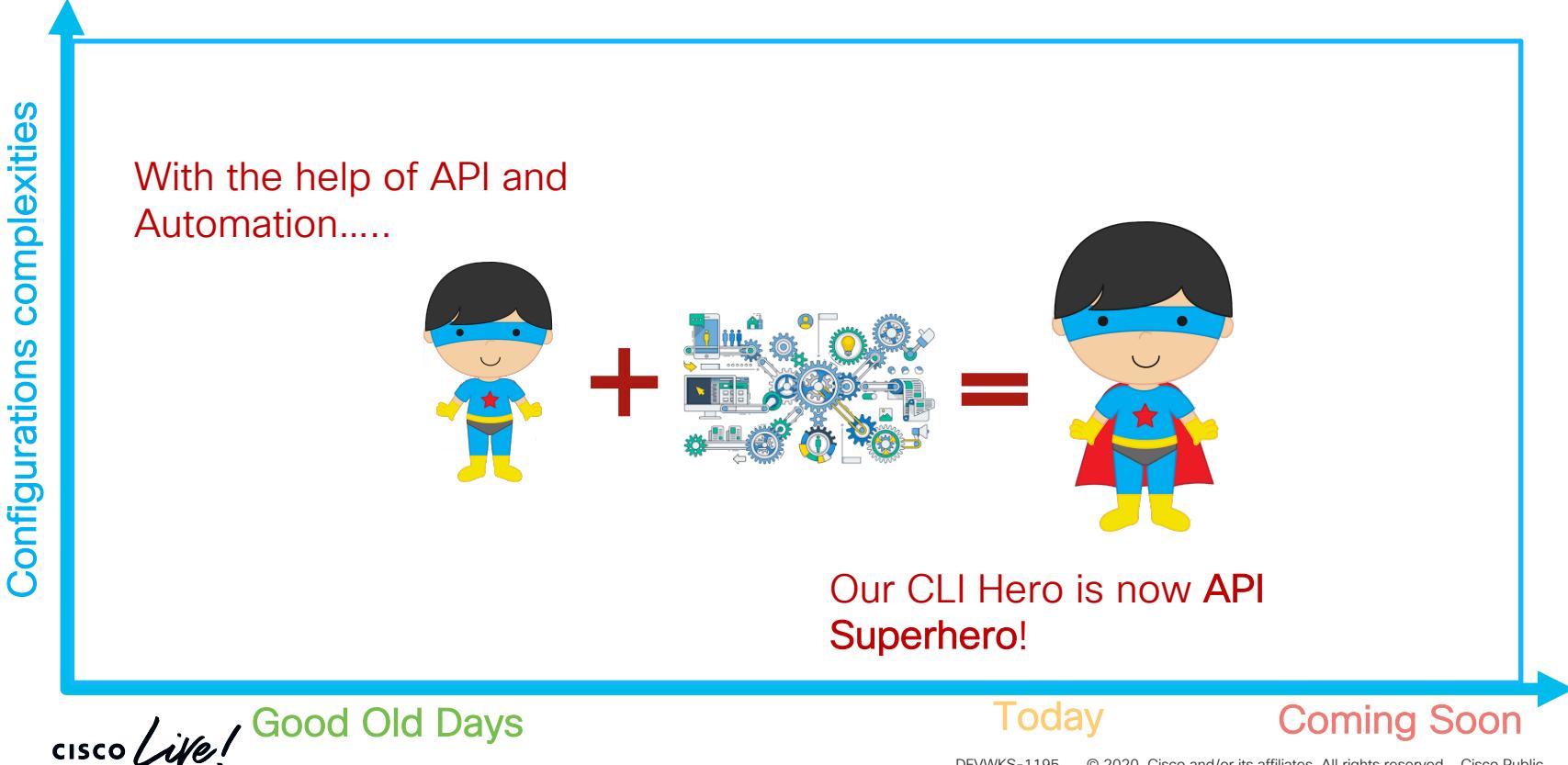
- In a majority of environments:
  - Stage configuration – Notepad, XML/JSON
  - Some Automation by third party tools
  - Expect scripts
- Challenges:
  - Manual, repetitive, error-prone tasks
  - Waste time, typing
  - Network lags behind industry automation capabilities

## Pasting large configuration:

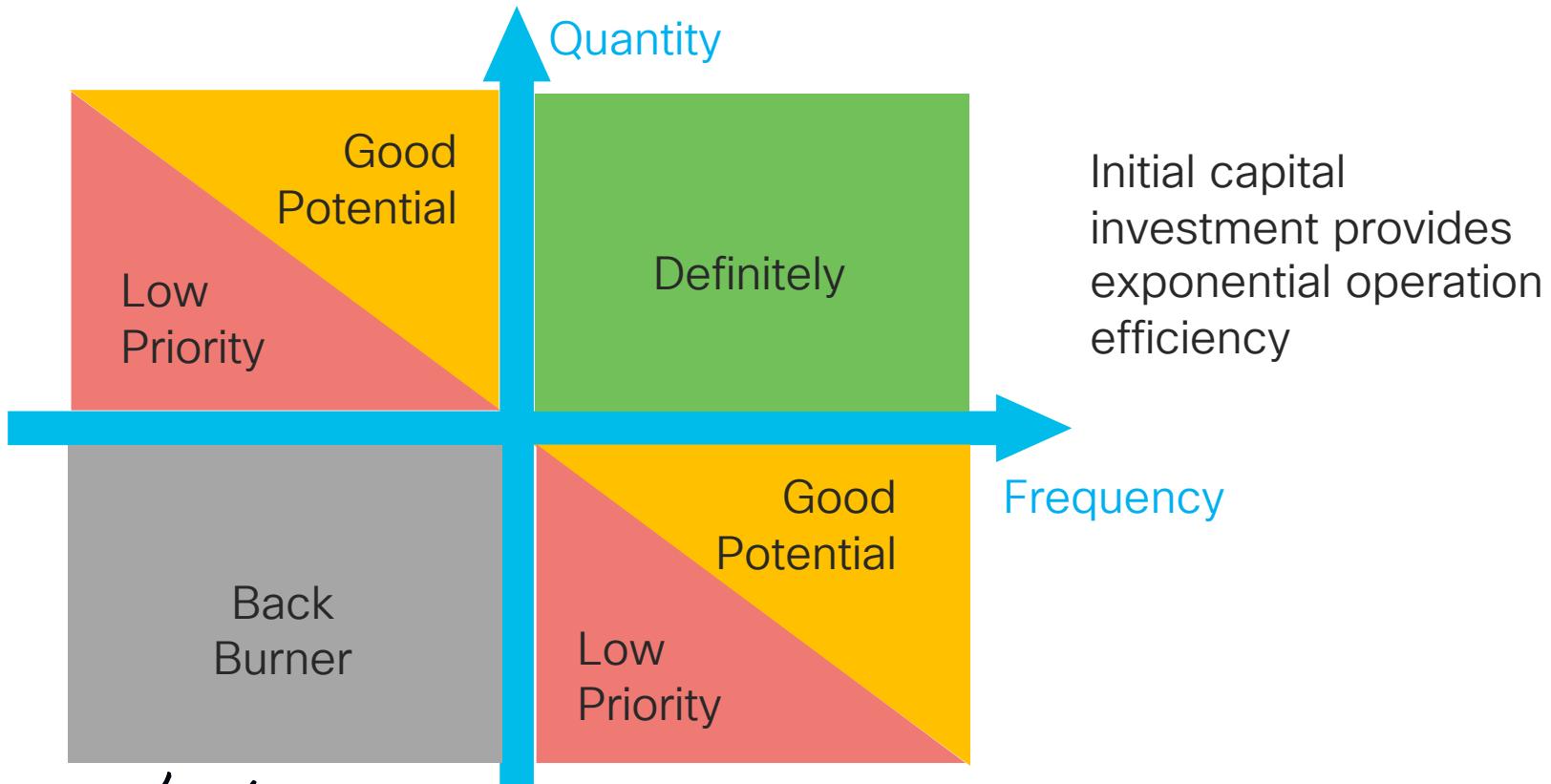
```
% Invalid command at '^' marker.  
RTPDC1N3K1(config-cmap-qos)#    class copp-s-igmp  
RTPDC1N3K1(config-cmap-qos)#      police pps 400  
^  
  
% Invalid command at '^' marker.  
RTPDC1N3K1(config-cmap-qos)#    class copp-s-routingProto2  
RTPDC1N3K1(config-cmap-qos)#      police pps 1300  
^  
  
% Invalid command at '^' marker.  
RTPDC1N3K1(config-cmap-qos)#    class copp-s-v6routingProto2  
RTPDC1N3K1(config-cmap-qos)#      police pps 1300  
^  
  
% Invalid command at '^' marker.  
RTPDC1N3K1(config-cmap-qos)#[
```

**Typo? Start from scratch**

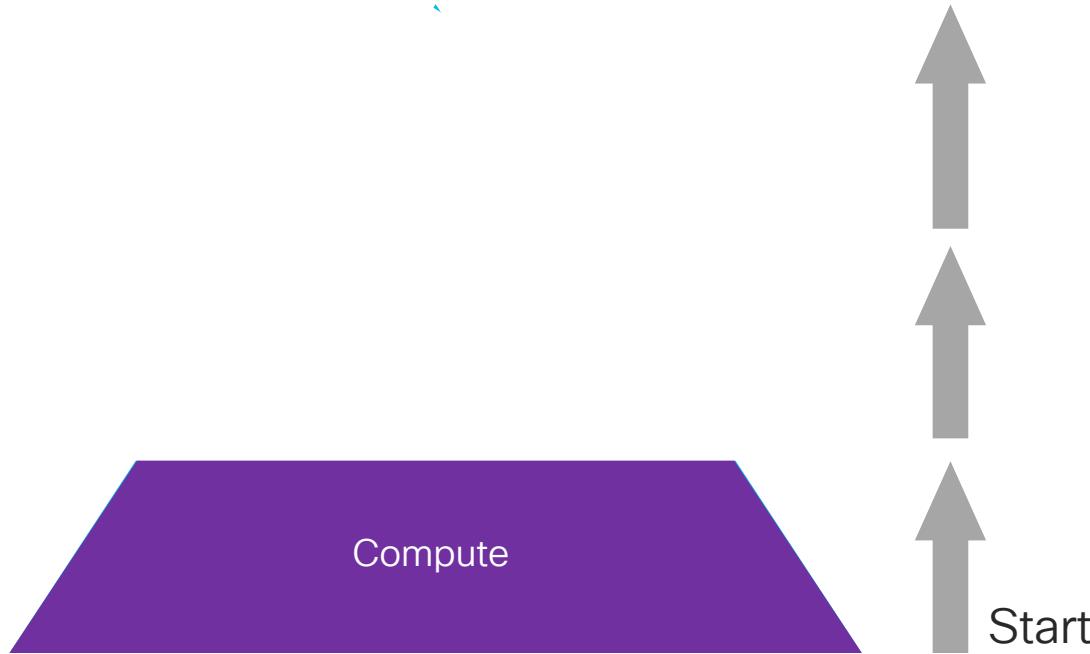
# Why Automate?



# Automation Magic Quadrant



# Automation Journey



# What does Software Defined Network Solves?

- Decoupling the control plane and data plane.
  - No need to manage hundred of devices.
- API is natively available.
  - API is no more after thought.
- Foundation of automation.
  - Consistence of API and best practice.
  - Automation provides an agile and consistent operation model.

# What are We Automating L2-L7 in this session?



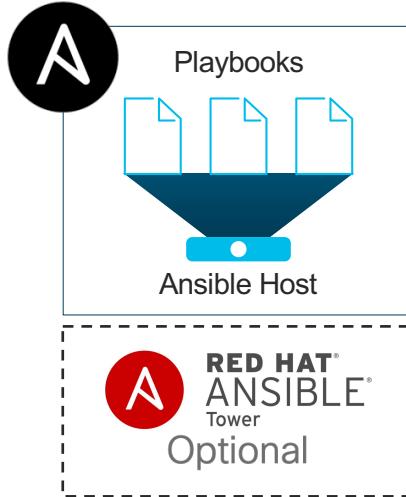
# What Is Available?

- API
  - Cisco ACI – REST; SDK such as Cobra, acitoolkit; Ansible
  - NX-OS – REST, NX-API
  - Other vendors – ex. F5 Automation toolchain (declarative API), iControl REST
- Tools
  - Python – your favorite IDE + vendor's SDK, requests module
  - Ansible Network module – ACI, ASA, F5, IOS, NetConf, NXOS, etc.

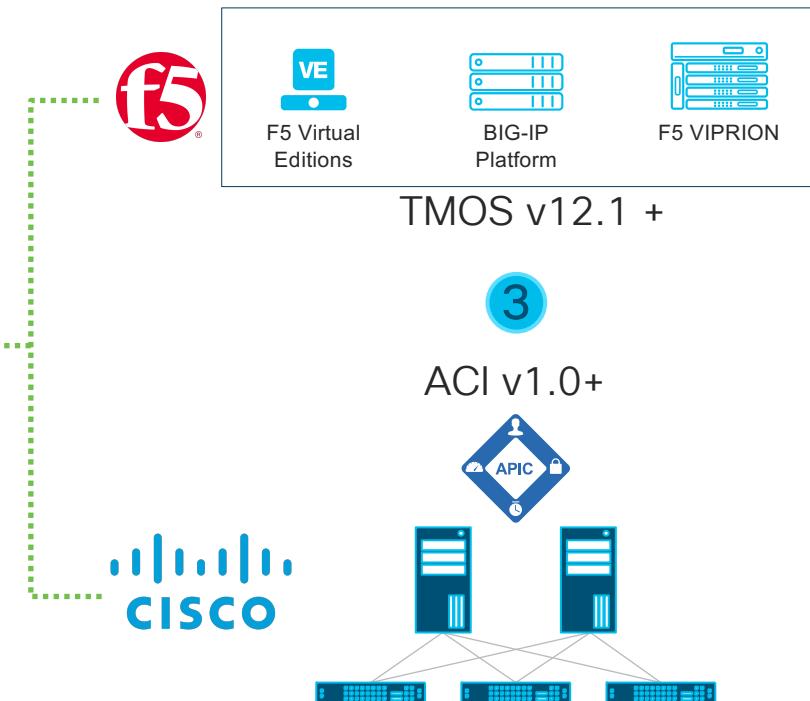
# How Can We Do It?

- 1 Ansible Versions 2.4 +  
Python 2.7

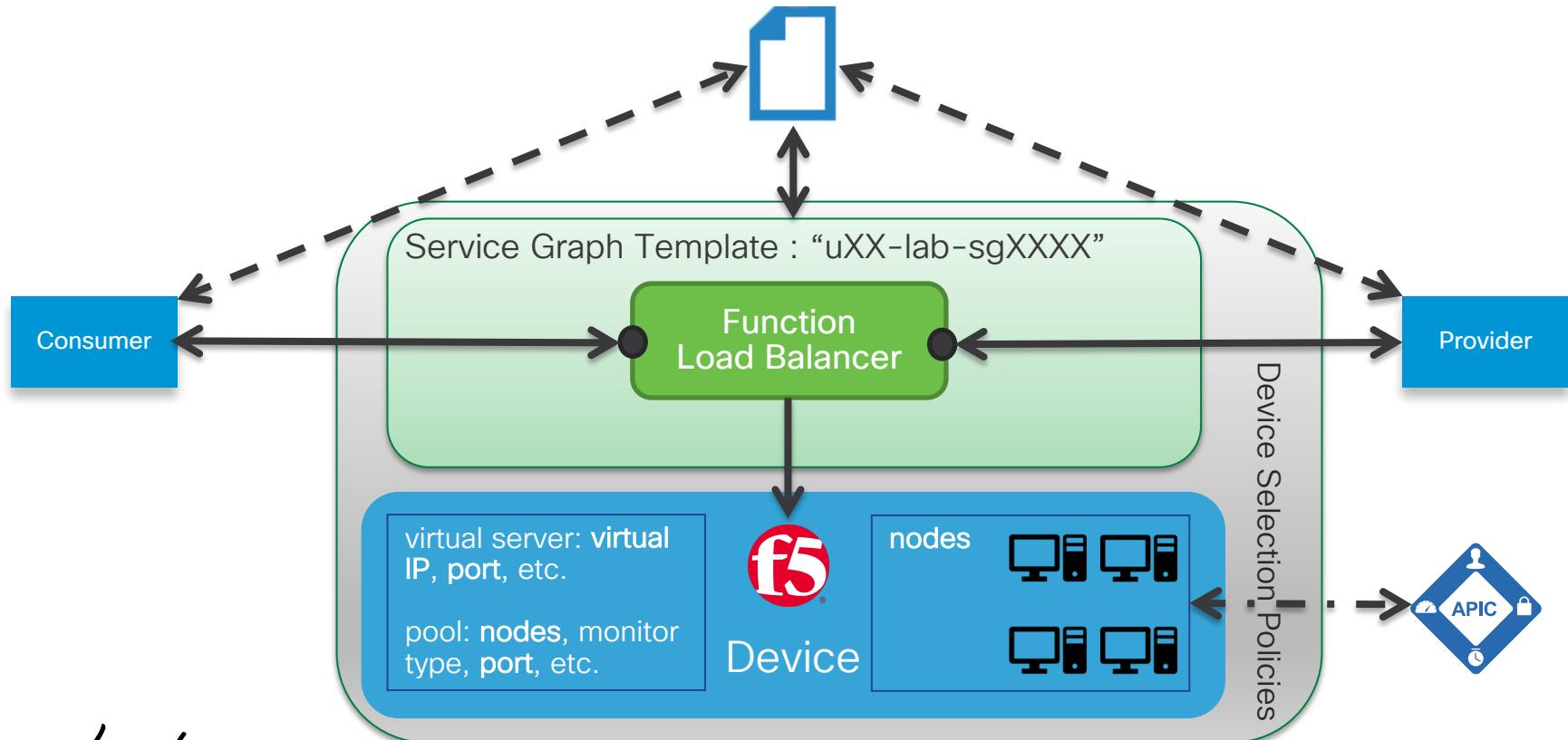
- 2 bigsuds, f5-sdk (pre Ansible 2.8)  
aci, lxml, xmljson



REST/SOAP API calls



# What Are We Trying to Accomplish in This DevNet Workshop?



BIG-IP® - bigip35.lab.test.local APIC (173.36.211.11) Not Secure | https://173.36.211.11/#/bTenants:devwks1195/untn-devwks1195 Incognito (2)

Bock-Bock User:J... Cisco Product Do... CARE/DDTS Quer... Casekwy CDETS Topic Search DCP Webex Other Bookmarks

APIC (Site 2)

System Tenants Fabric Virtual Networking L4-L7 Services Admin Operations Apps Integrations

ALL TENANTS | Add Tenant | Tenant Search: name or descr | common | devwks1195 | mgmt | msm-u02-lab-1417 | u01-lab4-i3

devwks1195 Tenant - devwks1195

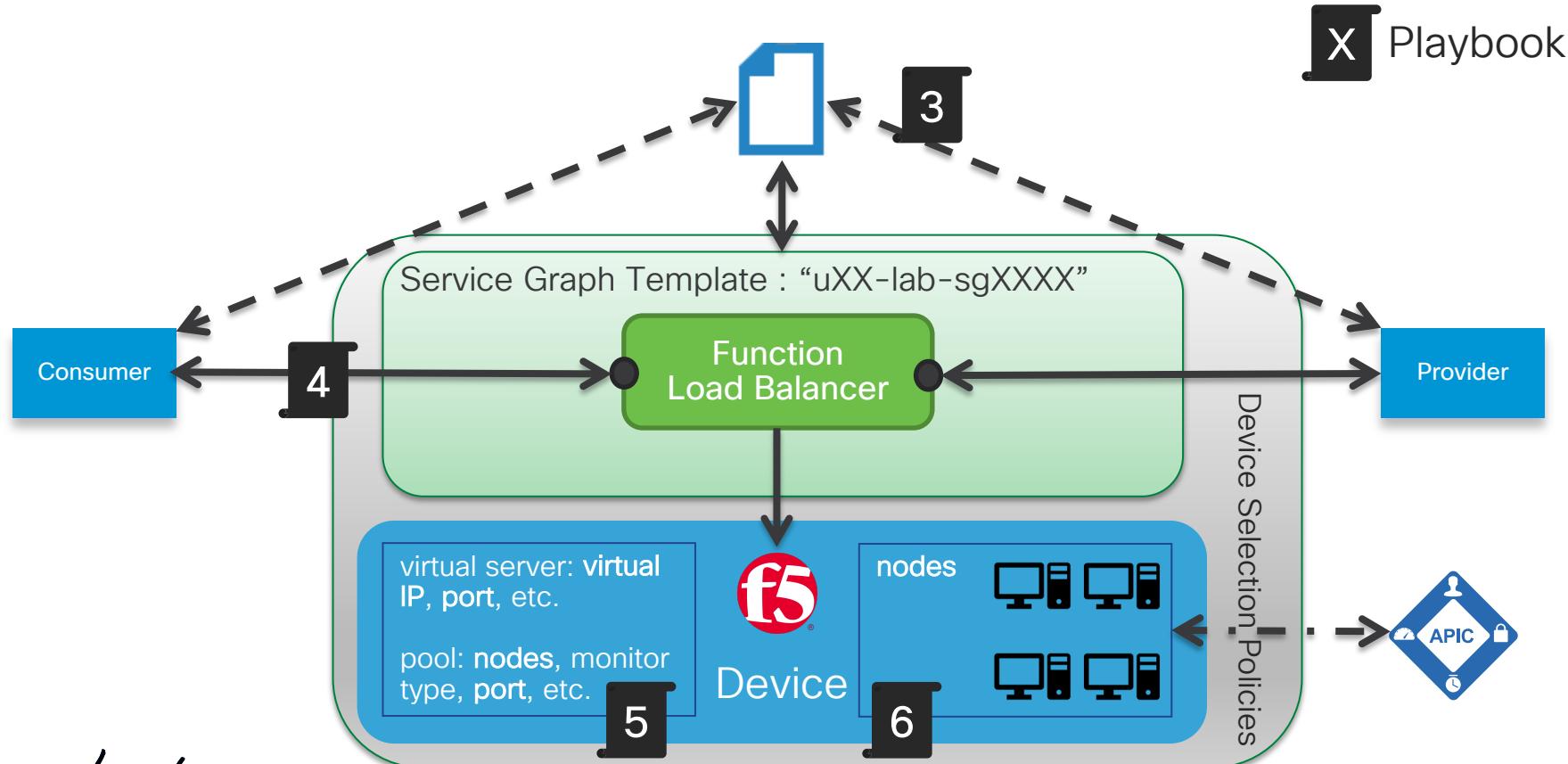
Summary Dashboard Policy Operational EPG Communication Stats Health Faults History

Application EPGs: 2 Total | Bridge Domains: 2 Total | VRFs: 1 Total

External Bridged Networks: 0 Total | External Routed Networks: 0 Total | Contracts: 0 Total  
Standard: 0 Taboo: 0 Imported: 0 Out of Band: 0

Last Login Time: 2019-06-05T23:03 UTC+00:00 Current System Time: 2019-06-07T03:52 UTC+00:00

# Our Lab Tasks



# Hands On Lab Time!

A large, faint watermark of the Cisco logo is visible across the slide, consisting of a grid of dark blue vertical bars.

Git Repo - <http://bit.ly/cl20-1195-repo>

Lab Guide – <http://bit.ly/cl20-1195>

# Q&A

# Complete your online session survey



- Please complete your session survey after each session. Your feedback is very important.
- Complete a minimum of 4 session surveys and the Overall Conference survey (starting on Thursday) to receive your Cisco Live t-shirt.
- All surveys can be taken in the Cisco Events Mobile App or by logging in to the Content Catalog on [ciscolive.com/emea](https://ciscolive.com/emea).

Cisco Live sessions will be available for viewing on demand after the event at [ciscolive.com](https://ciscolive.com).

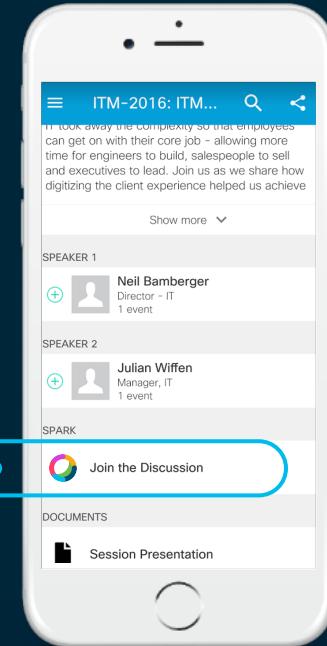
# Cisco Webex Teams

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[cs.co/ciscolivebot#DEVWKS-1195](https://cs.co/ciscolivebot#DEVWKS-1195)

# Continue your education



Demos in the  
Cisco Showcase



Walk-In Labs



Meet the Engineer  
1:1 meetings



Related sessions

# Learn more about the new DevNet Certifications and how you can prepare now!

Associate Level

Specialist Level

Professional Level

Expert Level

Engineering



Software



# Start Here | Upcoming Cisco DevNet Certifications

- Start at **Meet DevNet**

DEVNET-2864: Getting ready for Cisco DevNet Certifications

Offered daily at 9am, 1pm & 4pm at Meet DevNet

- Attend a **brownbag session**

DEVNET-4099: DevNet Certifications: Bringing software practices & software skills to networking

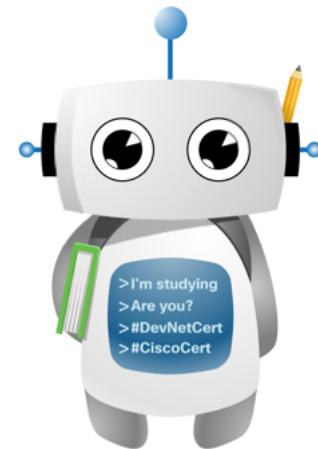
Offered daily 12:15-12:45 in the DevNet Zone Theater

- Visit the **Learning@Cisco** booth

- Scan this code to **sign up** for the latest updates or go to  
<http://cs.co/20eur02>



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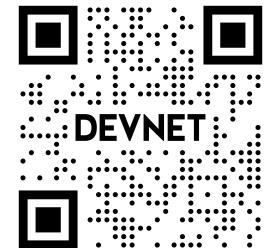


# Find shared code repositories of use cases for network automation & more!

The screenshot shows the DevNet Automation Exchange homepage. At the top, there are navigation links: "Automation Exchange", "Share use case", and "Use case library". The main heading is "Make Network Automation simple with the community". Below the heading, a sub-headline reads: "DevNet Automation Exchange provides shared code repositories for network automation and guides teams through their journey with a walk-run-fly methodology." There are two buttons: "View all use cases" and "Share use case". A text block states: "We are bringing network professionals and software developers into one community to unleash the capabilities of the new network." At the bottom, there is a "Join the community" button.



Scan this code or go to the URL to **learn more**



<http://cs.co/20eur01>



Thank you





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