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You make **possible**



From CLI Hero to API Superhero:

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

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cisco Live!

Barcelona | January 27-31, 2020



Session ID: DEVWKS-1195

Agenda

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

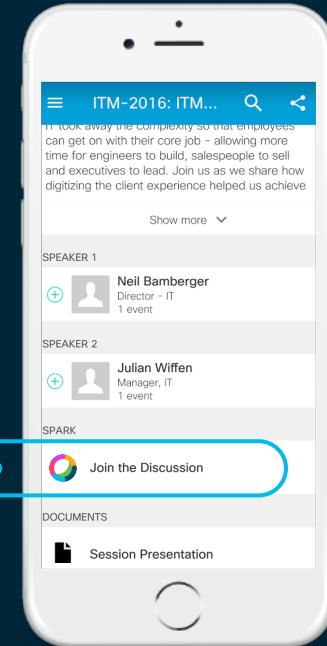
Cisco Webex Teams

Questions?

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

How

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



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Network “Automation” Today / the Past

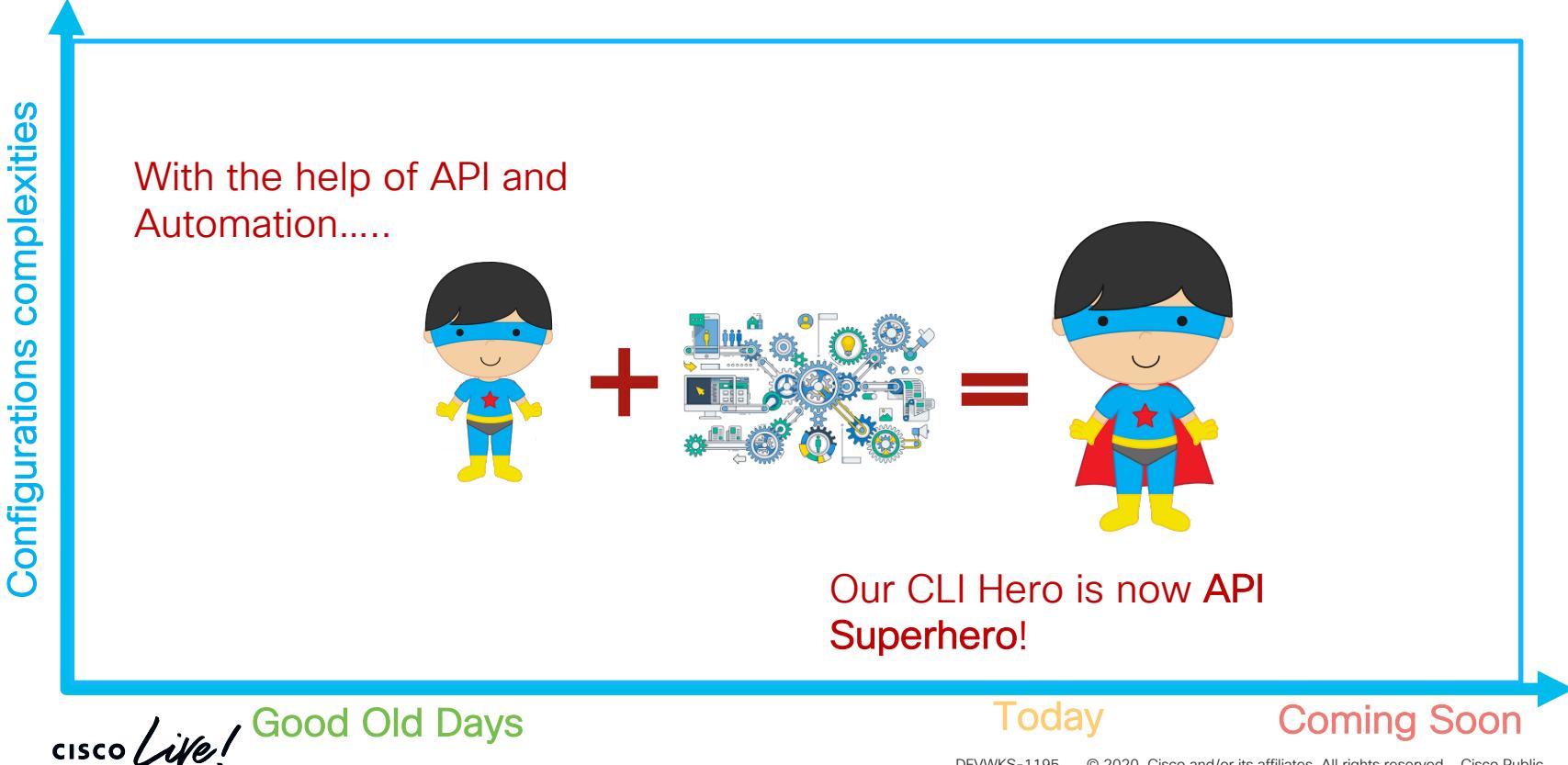
- In a majority of environments:
 - Stage configuration – Notepad, XML/JSON
 - Some Automation by third party tools
 - Expect scripts
- Challenges:
 - Manual, repetitive, error-prone tasks
 - Waste time, typing
 - Network lags behind industry automation capabilities

Pasting large configuration:

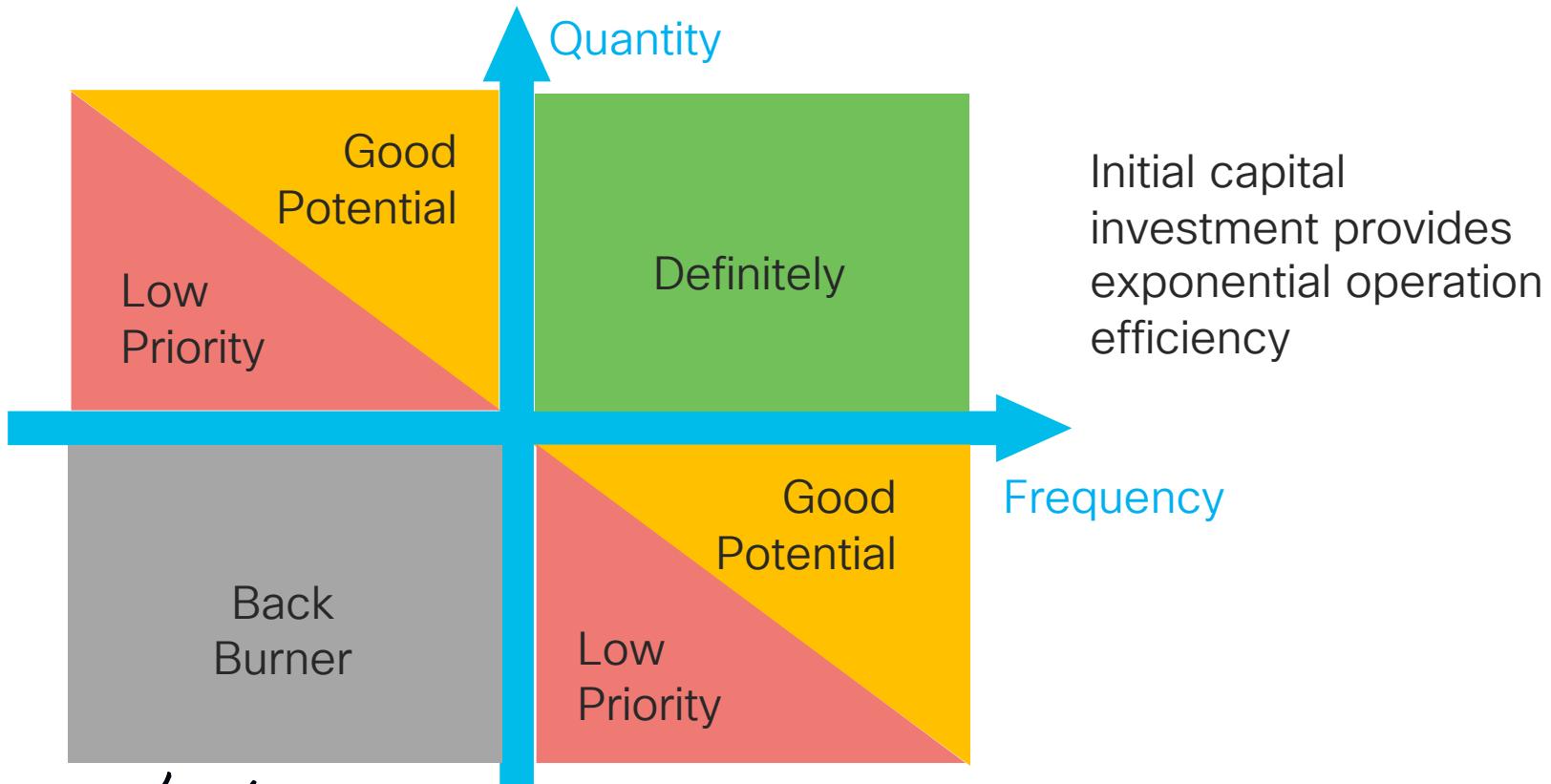
```
% Invalid command at '^' marker.  
RTPDC1N3K1(config-cmap-qos)#    class copp-s-igmp  
RTPDC1N3K1(config-cmap-qos)#      police pps 400  
^  
  
% Invalid command at '^' marker.  
RTPDC1N3K1(config-cmap-qos)#    class copp-s-routingProto2  
RTPDC1N3K1(config-cmap-qos)#      police pps 1300  
^  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

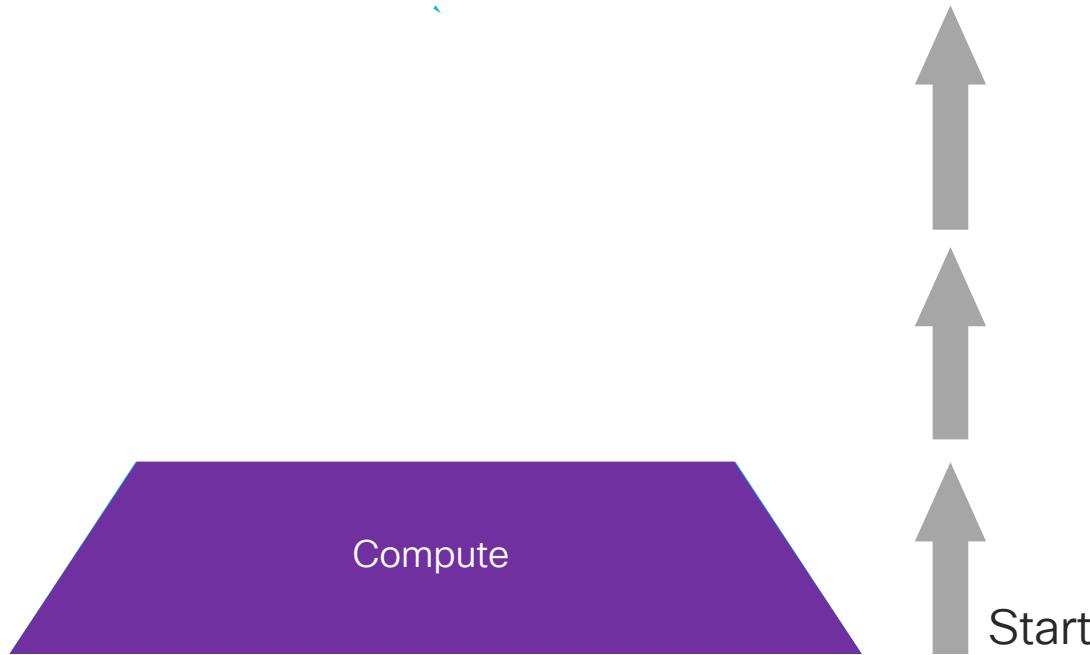
Why Automate?



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?



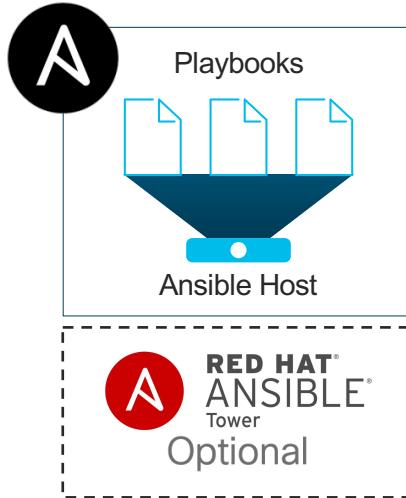
What Is Available?

- 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.

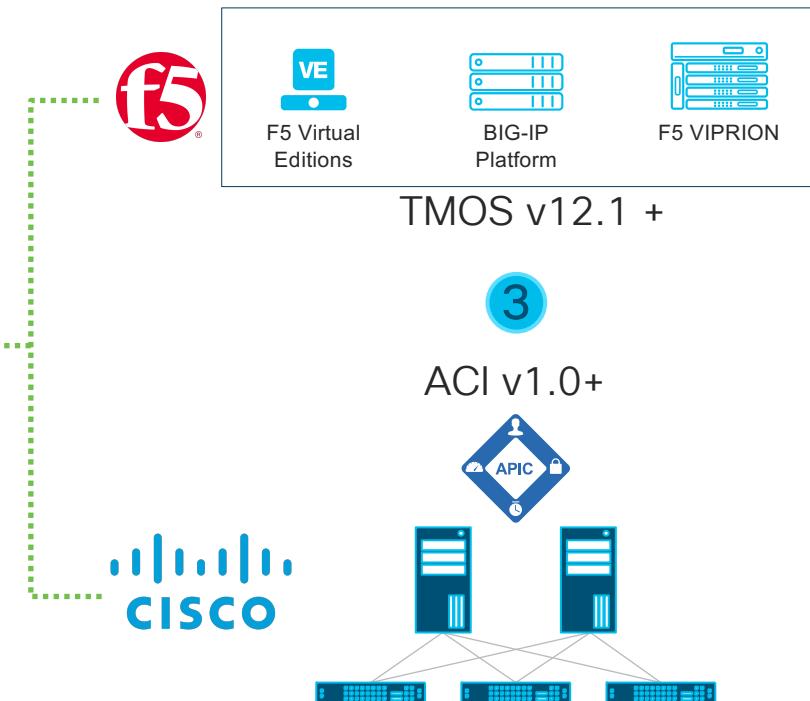
How Can We Do It?

- 1 Ansible Versions 2.4 +
Python 2.7

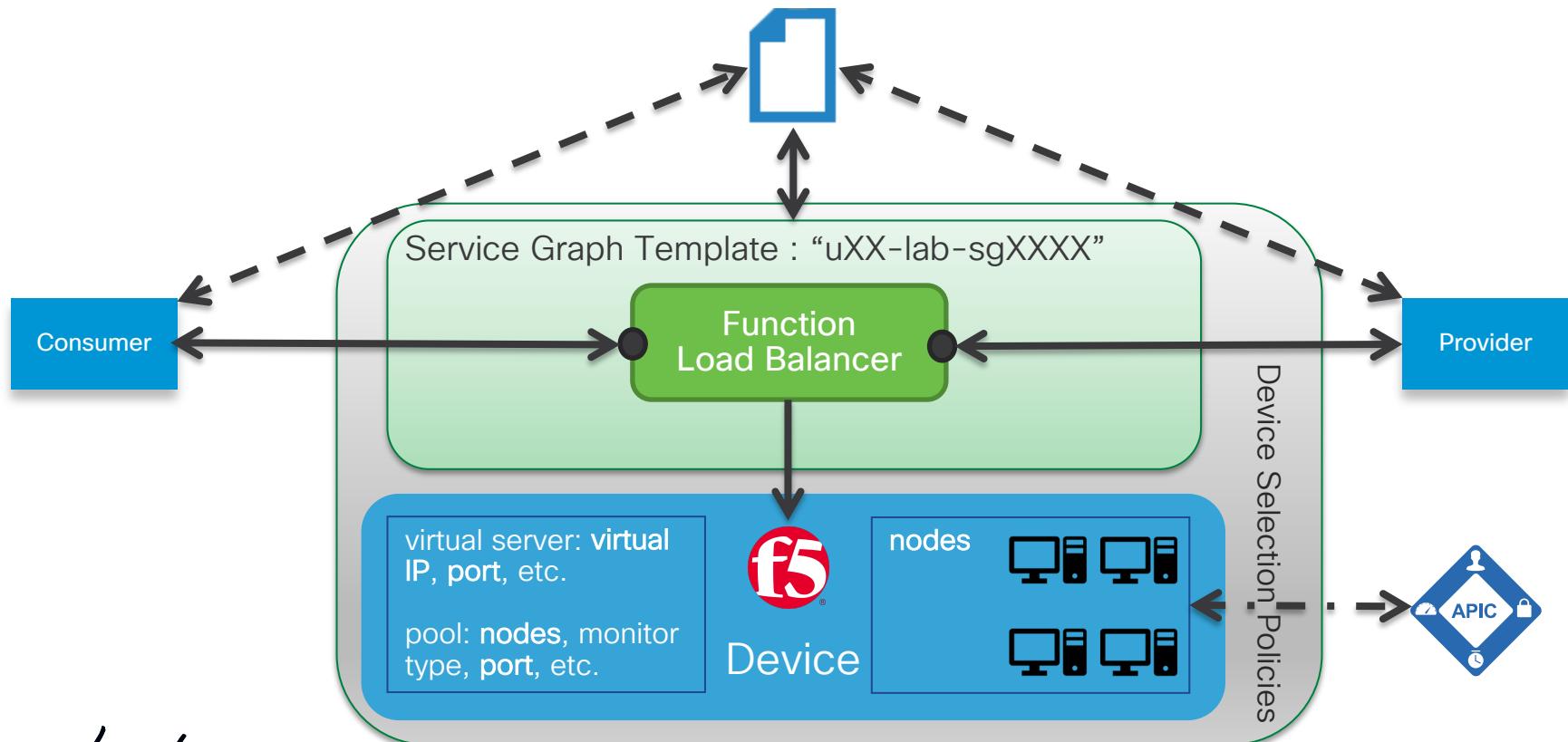
- 2 bigsuds, f5-sdk (pre Ansible 2.8)
aci, lxml, xmljson



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 0 100

Bridge Domains 2 Total 0 100

VRFs 1 Total 0 100

External Bridged Networks 0 Total

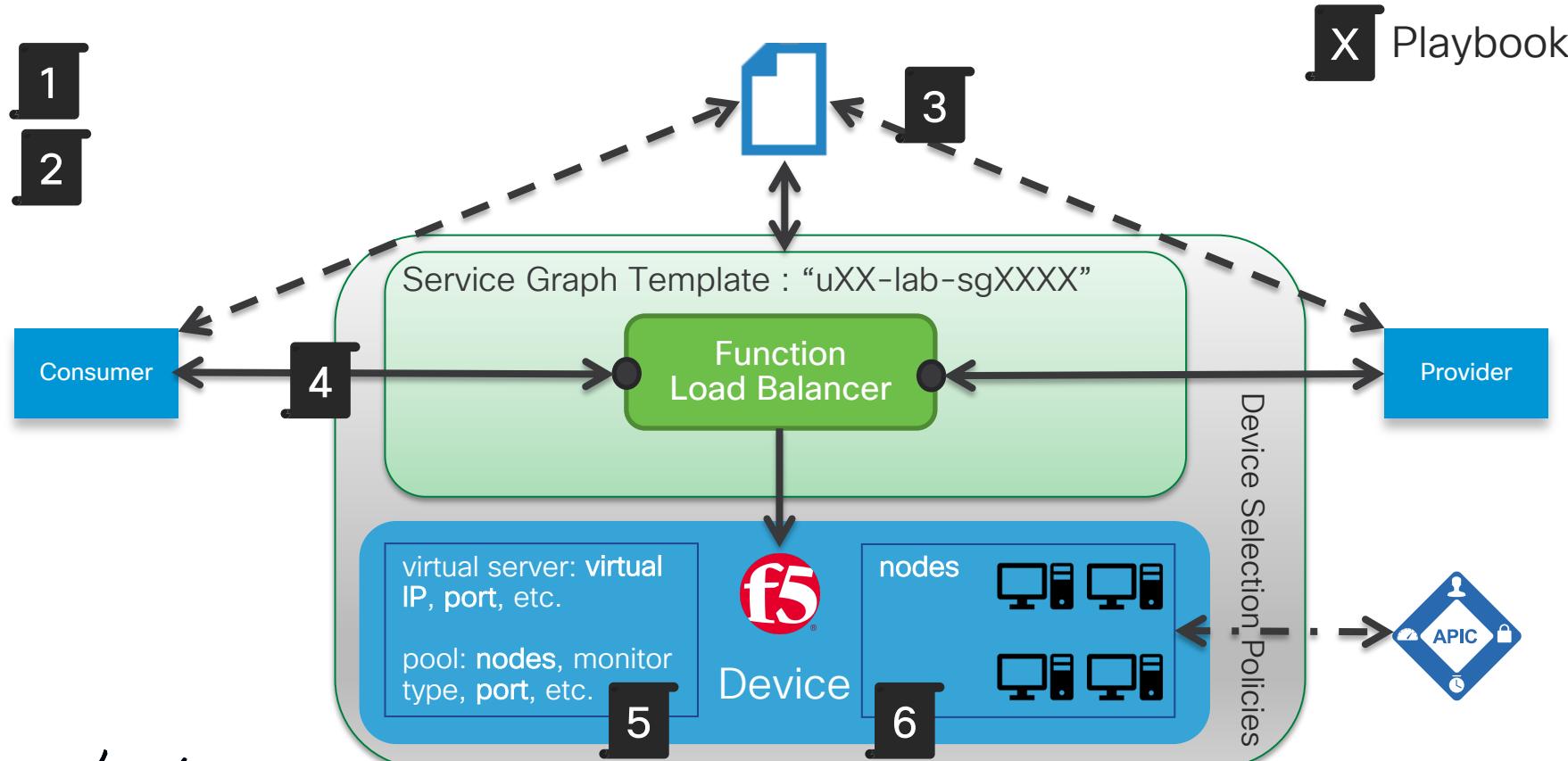
External Routed Networks 0 Total

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

The screenshot shows the Cisco Application Policy Infrastructure Controller (APIC) interface. The main navigation bar includes tabs for System, Tenants, Fabric, Virtual Networking, L4-L7 Services, Admin, Operations, Apps, and Integrations. The Tenants tab is selected, showing the 'ALL TENANTS' view with a search bar and a list of tenants: devwks1195, mgmt, msm-u02-lab-1417, and u01-lab4-i3. A sidebar on the left shows a tree structure for devwks1195, including categories like Application Profiles, Networking, Contracts, Policies, and Services. The main content area is titled 'Tenant - devwks1195' and features a 'Summary' tab. It displays six summary cards: 'Application EPGs' (2 Total), 'Bridge Domains' (2 Total), 'VRFs' (1 Total), 'External Bridged Networks' (0 Total), 'External Routed Networks' (0 Total), and 'Contracts' (0 Total). The 'Contracts' card provides detailed information about contract types: Standard (0), Taboo (0), Imported (0), and Out of Band (0). The bottom of the screen shows system status: Last Login Time (2019-06-05T23:03 UTC+00:00) and 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.

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1:1 meetings



Related sessions

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Professional Level

Expert Level

Engineering



Software



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- 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

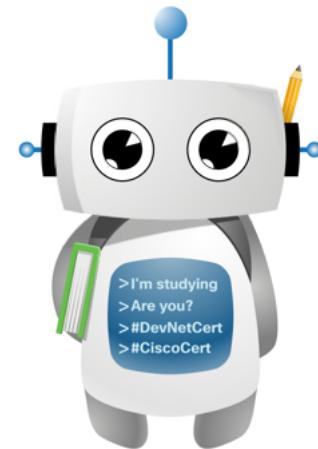
Offered daily 12:15-12:45 in the DevNet Zone Theater

- Visit the **Learning@Cisco** booth

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



CISCO Live!

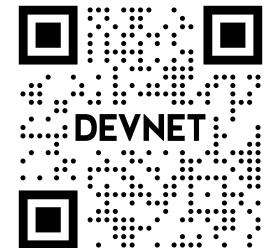


Find shared code repositories of use cases for network automation & more!

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 headline reads "Make Network Automation simple with the community". Below the headline, a sub-headline states: "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 descriptive text block below says: "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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