

The Cisco Live! logo features the word "CISCO" in a dark blue, sans-serif font, followed by "Live!" in a black, cursive script font. The background is a vibrant, multi-colored abstract pattern of overlapping, wavy bands in shades of red, orange, yellow, green, and blue, radiating from a bright white center on the right side.

CISCO *Live!*

Let's go

#CiscoLive



The bridge to possible

Building ACI Hybrid Multi-Cloud from scratch with Demo (On-premises ACI – AWS – Azure)

Soumitra Mukherji, Principal Architect, Cisco CX
Huyen Duong, Technical Marketing Engineer, Cisco CNBU

BRKDCN-2989

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Cisco Webex App

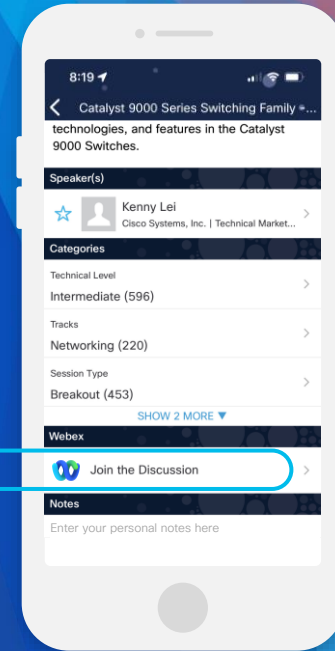
Questions?

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 June 9, 2023.

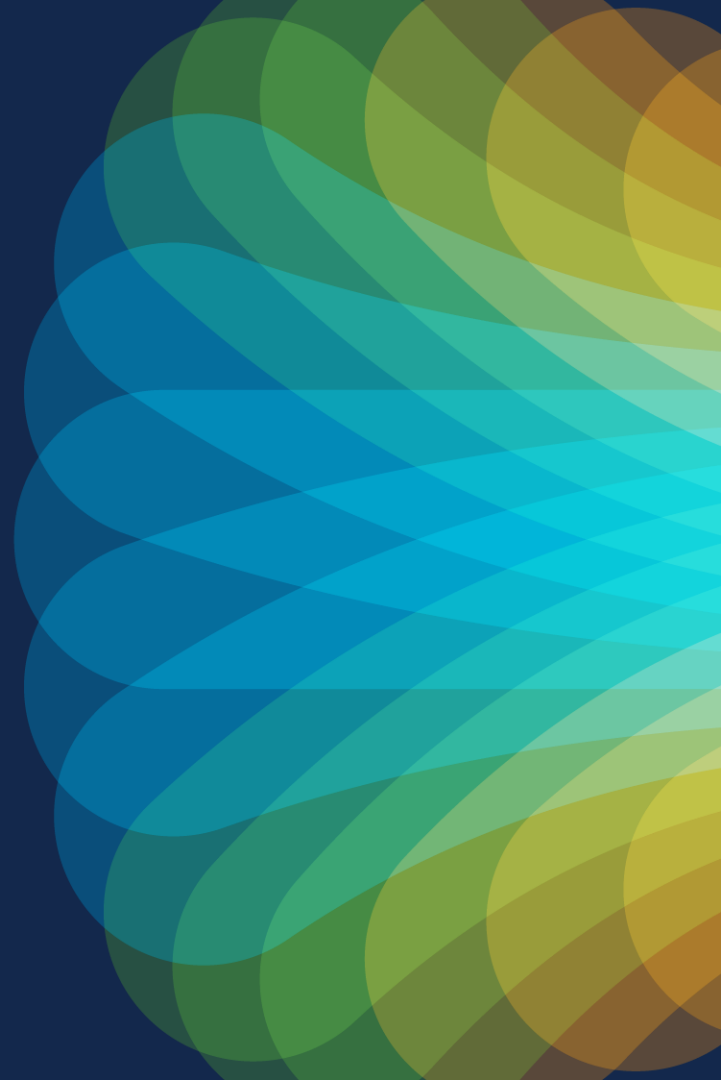


<https://cislive.ciscoevents.com/cislivebot/#BRKDCN-2989>

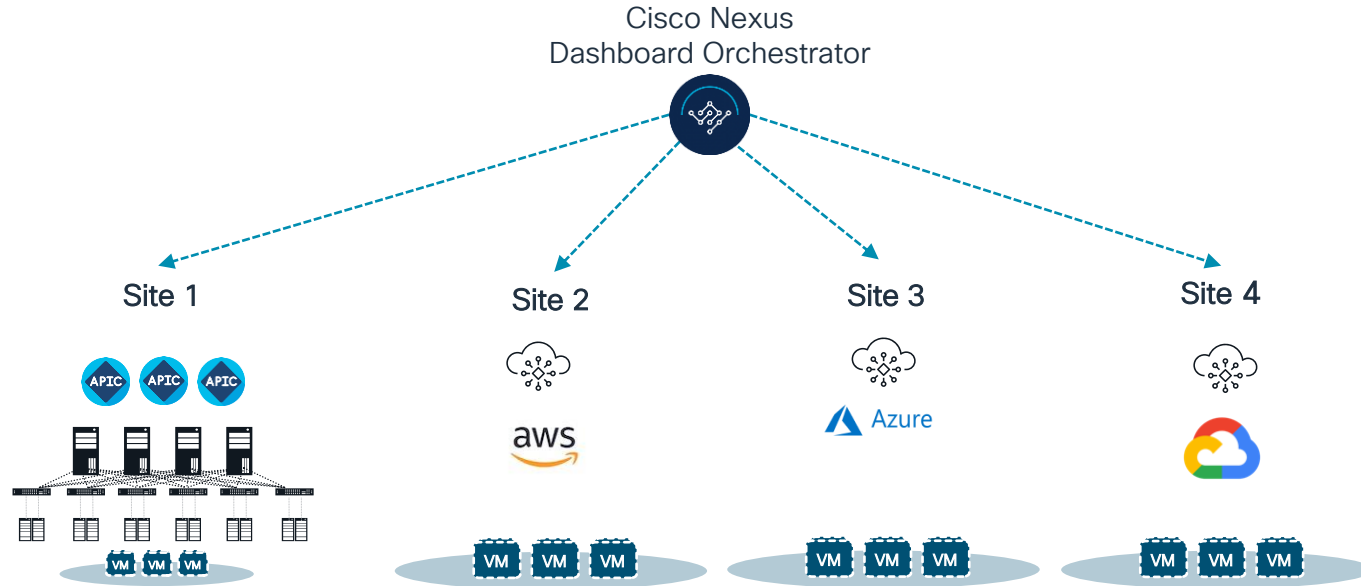
Agenda

- Introduction
- Prerequisites
- Deploy Cloud Controller AWS, Azure
- First Time Setup Cloud Controllers (AWS, Azure)
- Inter-Site Connectivity
- Logical Tenant and Workload creation

Introduction



Hybrid Multi-Cloud solution overview



✓ Consistent Network and Policy








✓ Secure Automated Connectivity

✓ Single Point of Orchestration



✓ Secure Automated Connectivity





✓ Cloud only (Multi-Cloud)

Cloud Network Controller

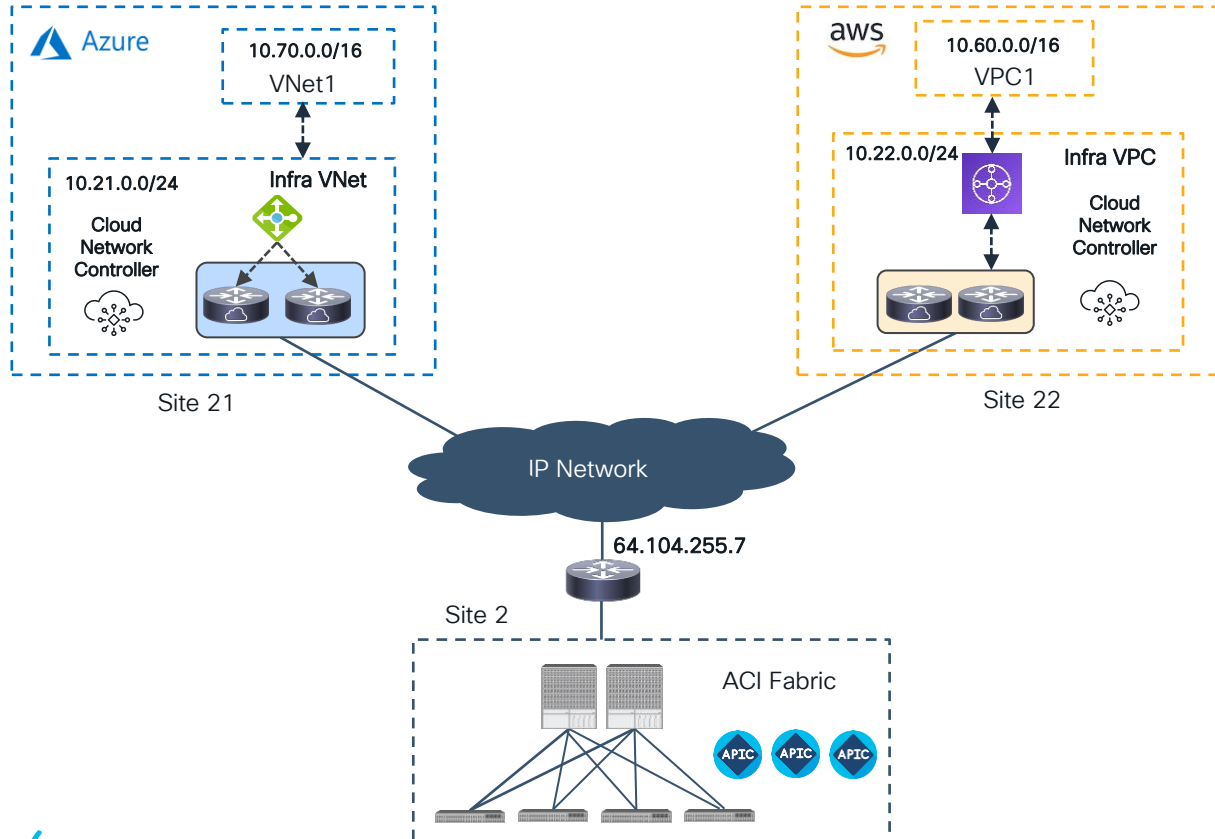
Azure	
	Subscription
	Virtual Network
	Subnet
	App Security Group
	Network Security Group
	Inbound Rule
	Outbound Rule

Cloud Network Controller
Tenant
VRF
Bridge Domain Subnet
EPG
Contracts, Filters
Consumed Contracts
Provided Contracts

GCP	
	Project
	VPC
	Subnet
	Firewall
	Firewall Rule
	Ingress Rule
	Egress Rule

AWS	
	Account
	VPC
	Subnet
	Security Group
	Security Group Rule
	Inbound Rule
	Outbound Rule

What we will build today



Prerequisites

Prerequisites

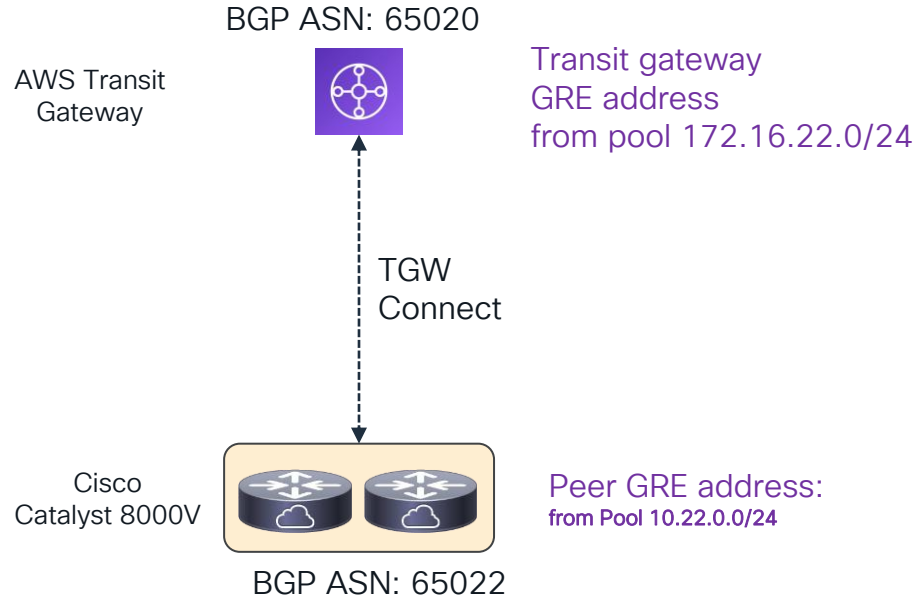
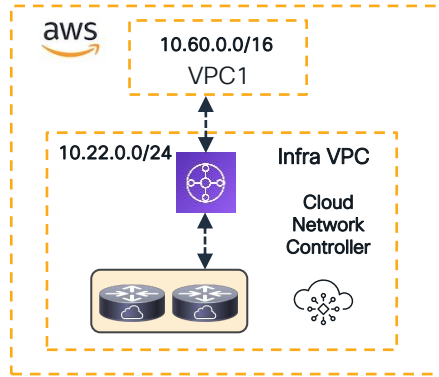
Before starting, you should have:

- On-premises ACI fabric up and running
- At least 1 on-premises IPsec device
- Nexus Dashboard and NDO up and running
- At least 2 AWS accounts
- At least 1 Azure subscription
- At least 9 public IP addresses on each Public Cloud

Deploy Cloud Controller AWS

First Time Setup Cloud Controller AWS

Cloud Controller AWS

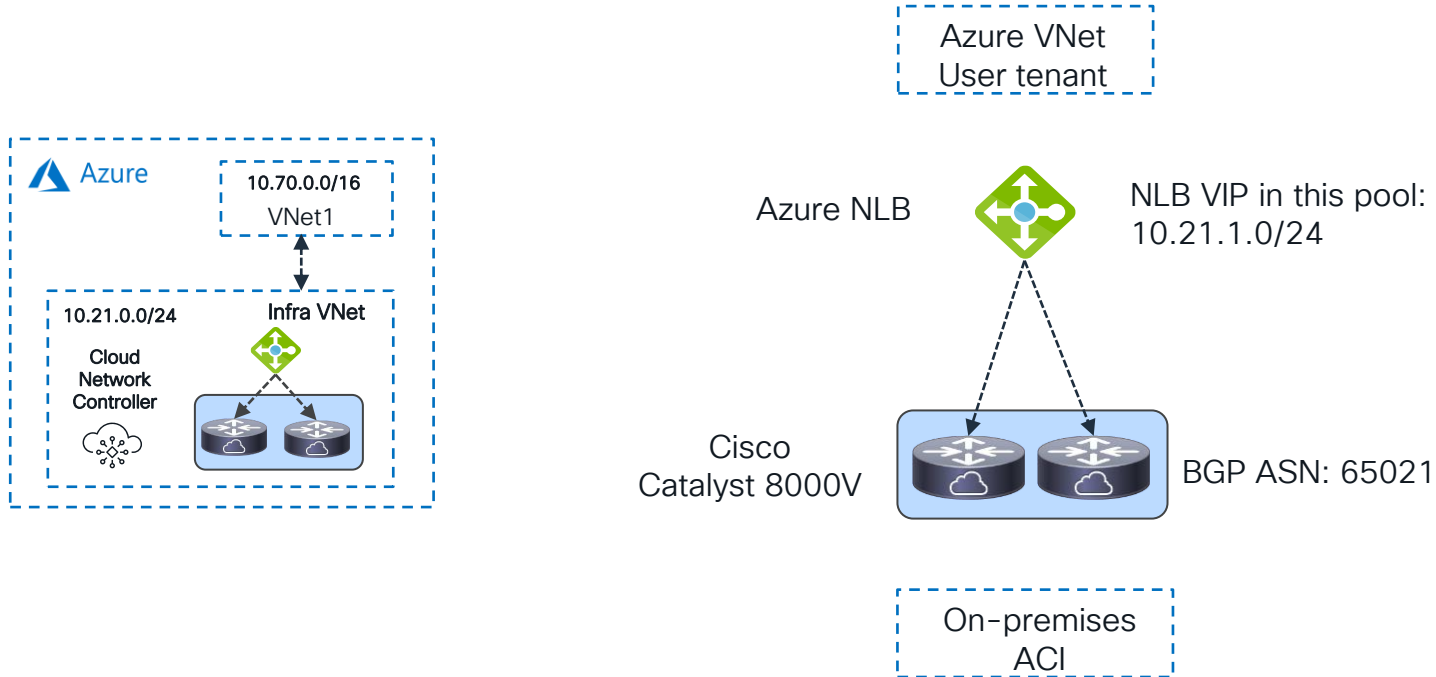


Hub network is a collection of Transit Gateways that reside in different AWS region.

Deploy Cloud Controller Azure

First Time Setup Cloud Controller Azure

Cloud Controller Azure



Hub network is Infra VNet that can be logically expanded across regions.

Inter-Site Connectivity

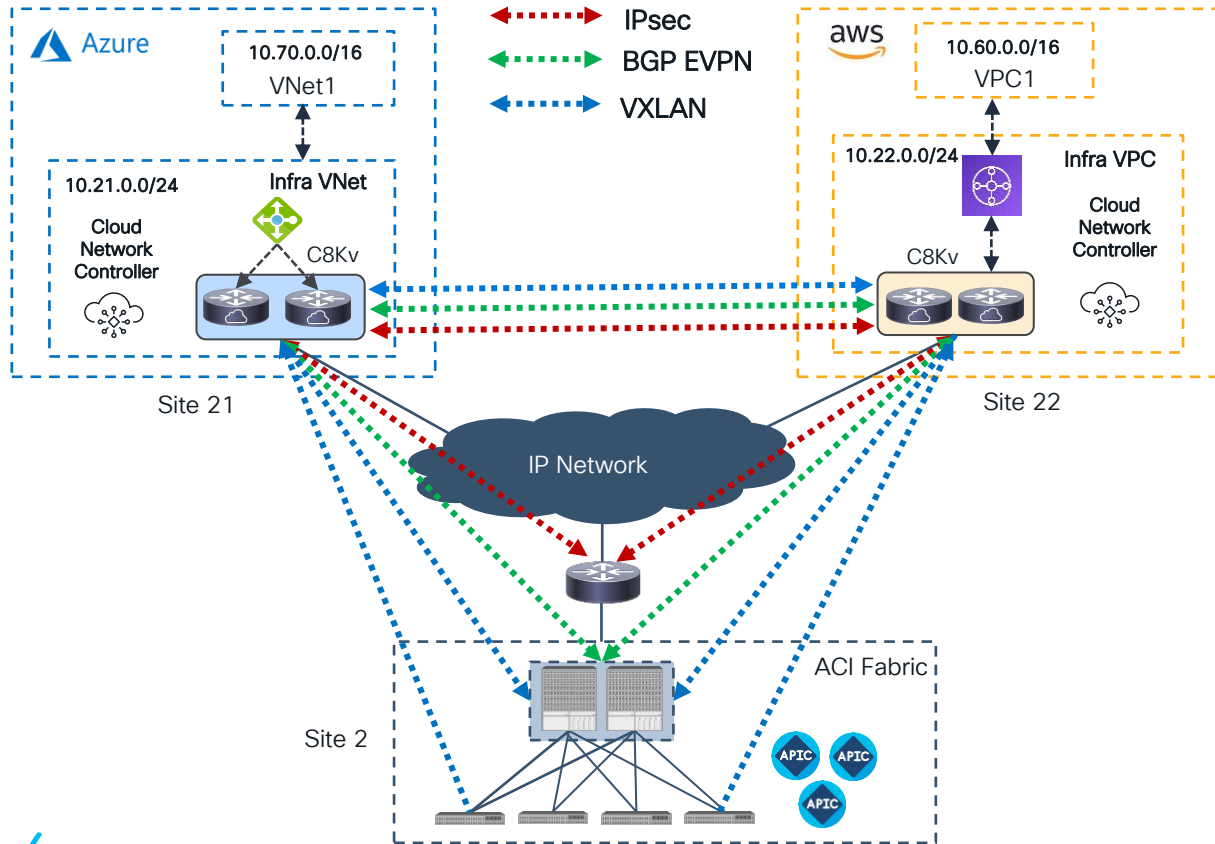
Sites Information

	On-premises ACI	Azure	AWS
Site Name	ACI	AZURE	AWS
Site ID	2	21	22
BGP ASN	65002 (Fabric)	65021 (C8KV)	65022 (C8KV) 65020 (TGW)
Infra Pool	10.2.0.0/16	10.21.0.0/24 10.21.1.0/24 (for NLB VIP)	10.22.0.0/24 172.16.22.0/24 (TGW Connect)
VM/Instance Name		cnc-azure	cnc-aws

IPsec tunnel pool: 100.64.0.0/22 (configured on NDO)

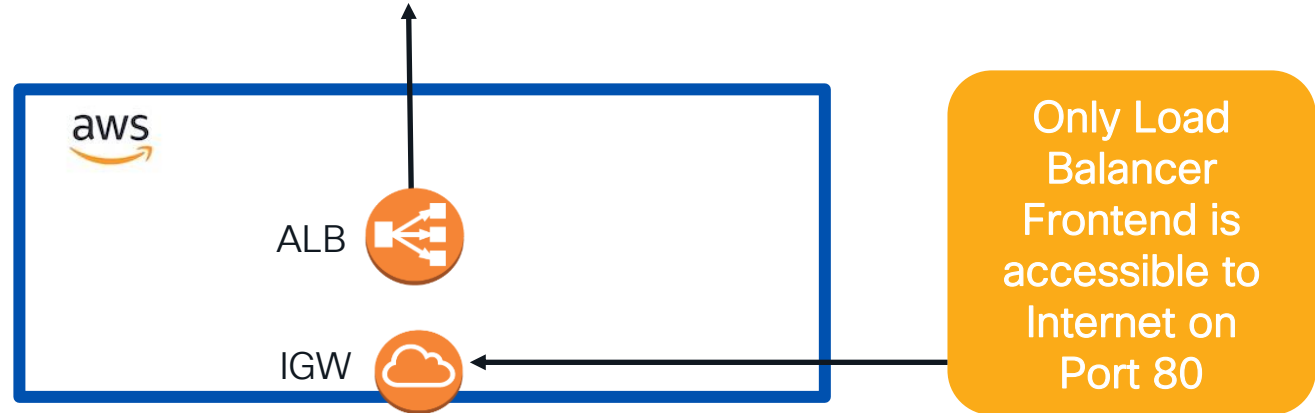
Azure C8KV subscription: Cisco Catalyst 8000V Edge Software-BYOL-17.07.01a

Inter-Site Connectivity

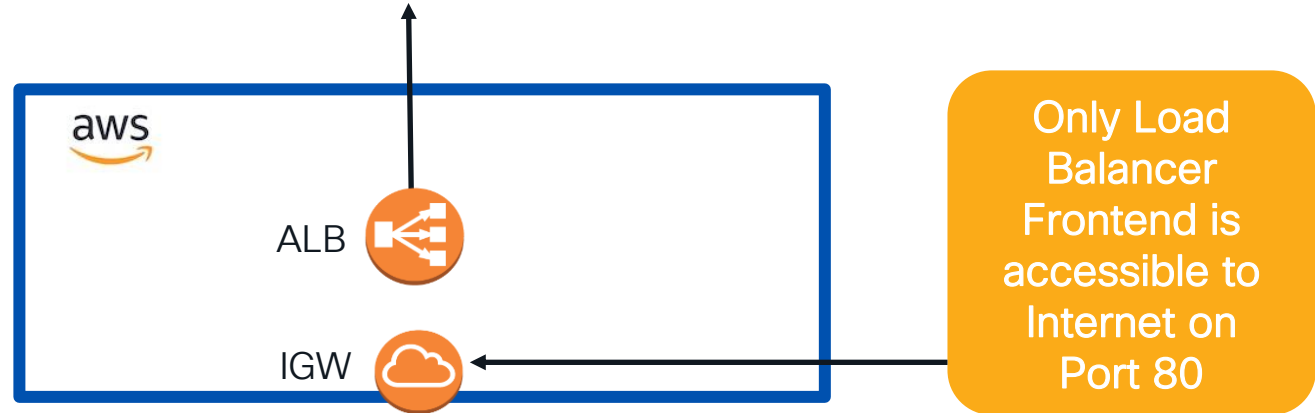
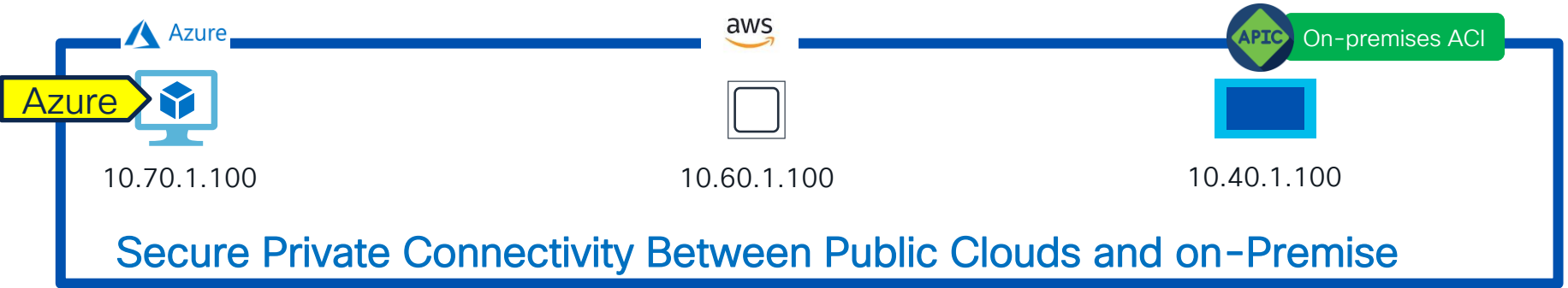


Logical Tenant and Workload creation

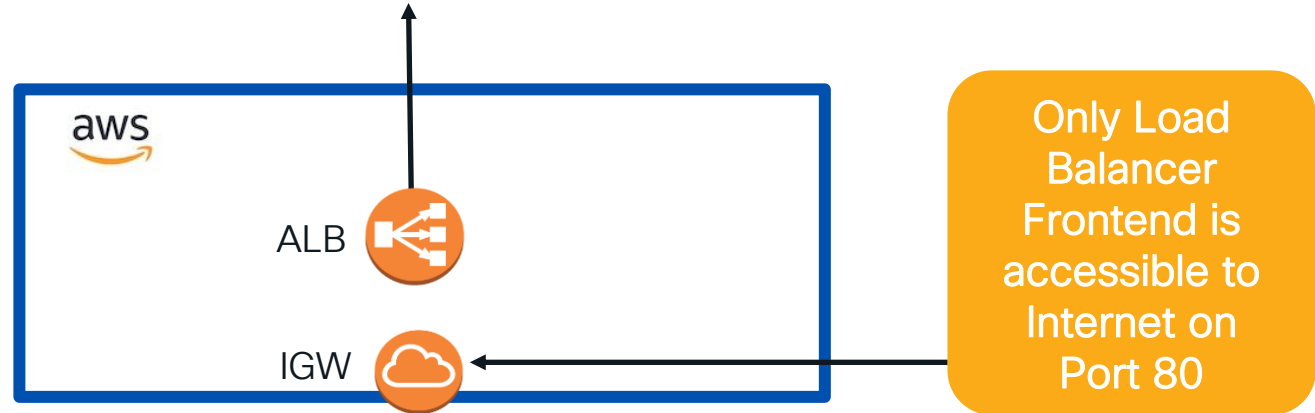
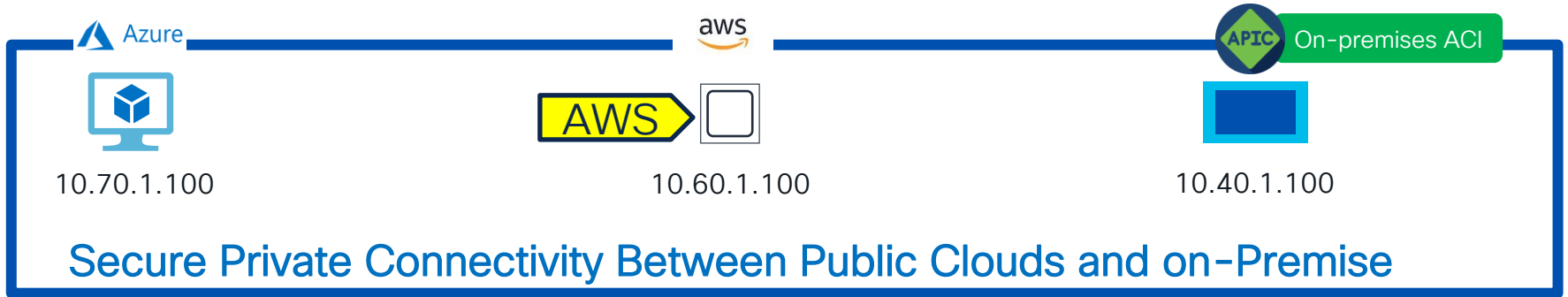
Intended Logical Application Profile



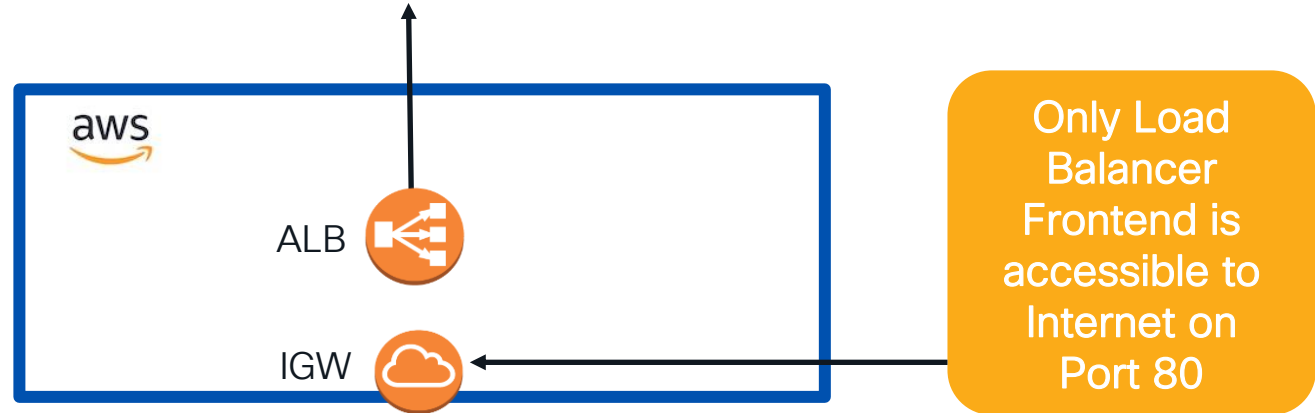
Intended Logical Application Profile



Intended Logical Application Profile



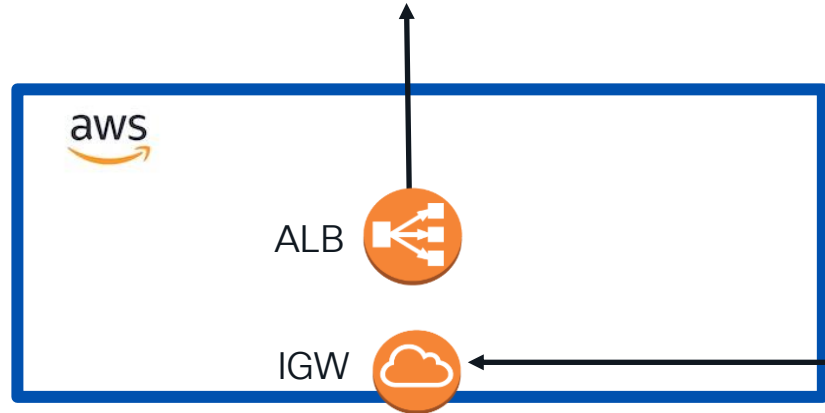
Intended Logical Application Profile



Intended Logical Application Profile



Secure Private Connectivity

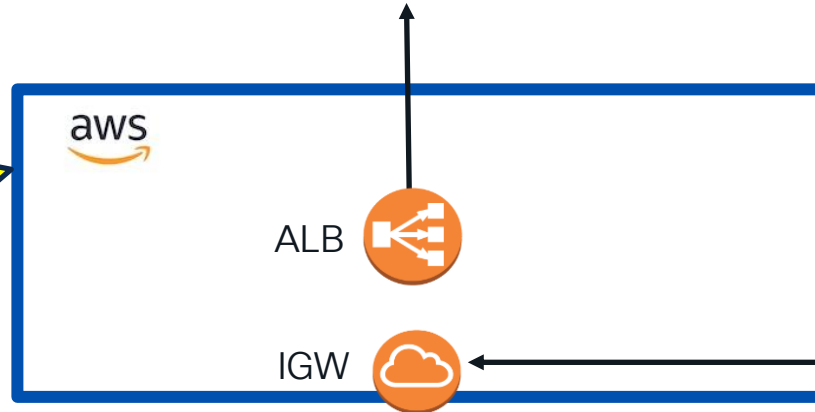


Only Load Balancer Frontend is accessible to Internet on Port 80

Intended Logical Application Profile

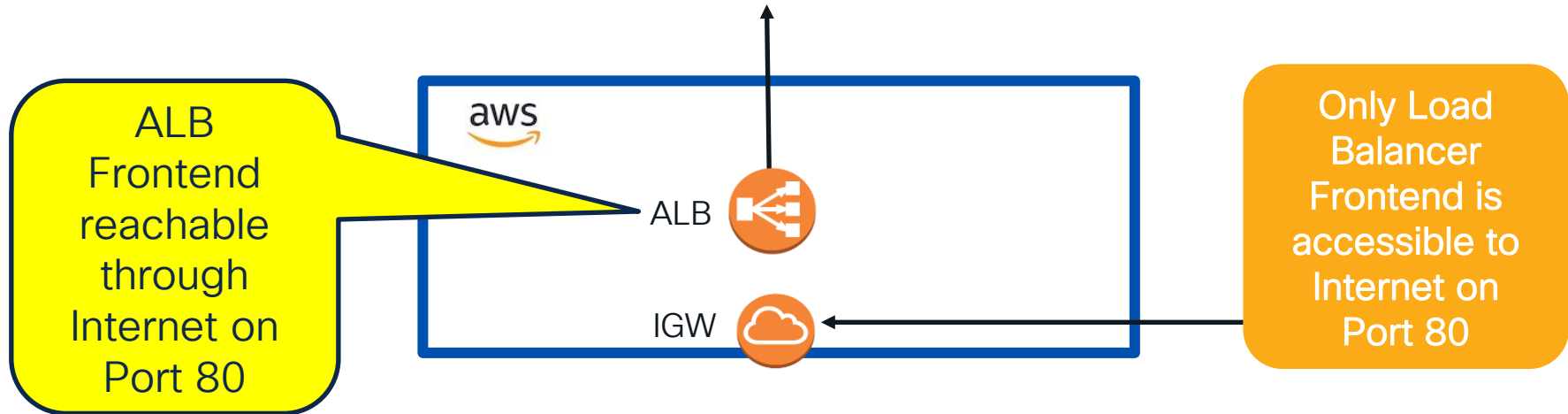


Application Load Balancer in the same AWS VPC but different subnets



Only Load Balancer Frontend is accessible to Internet on Port 80

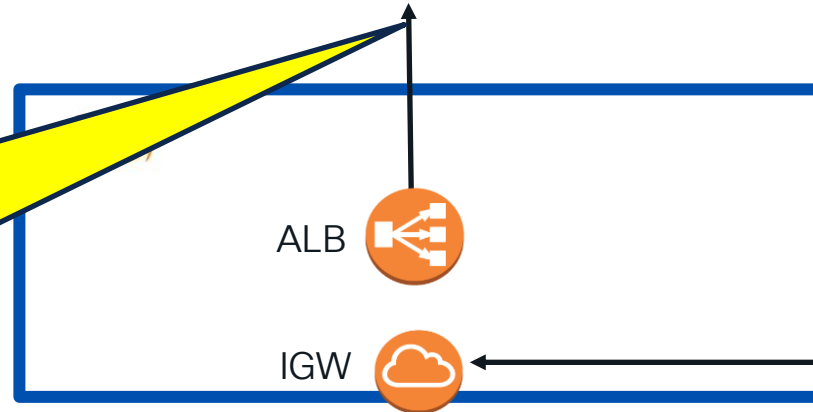
Intended Logical Application Profile



Intended Logical Application Profile



ALB Backend (target group) reaches to VMs in different domains through Private Connectivity



Only Load Balancer Frontend is accessible to Internet on Port 80

Configuration Details Schemas/Templates on NDO

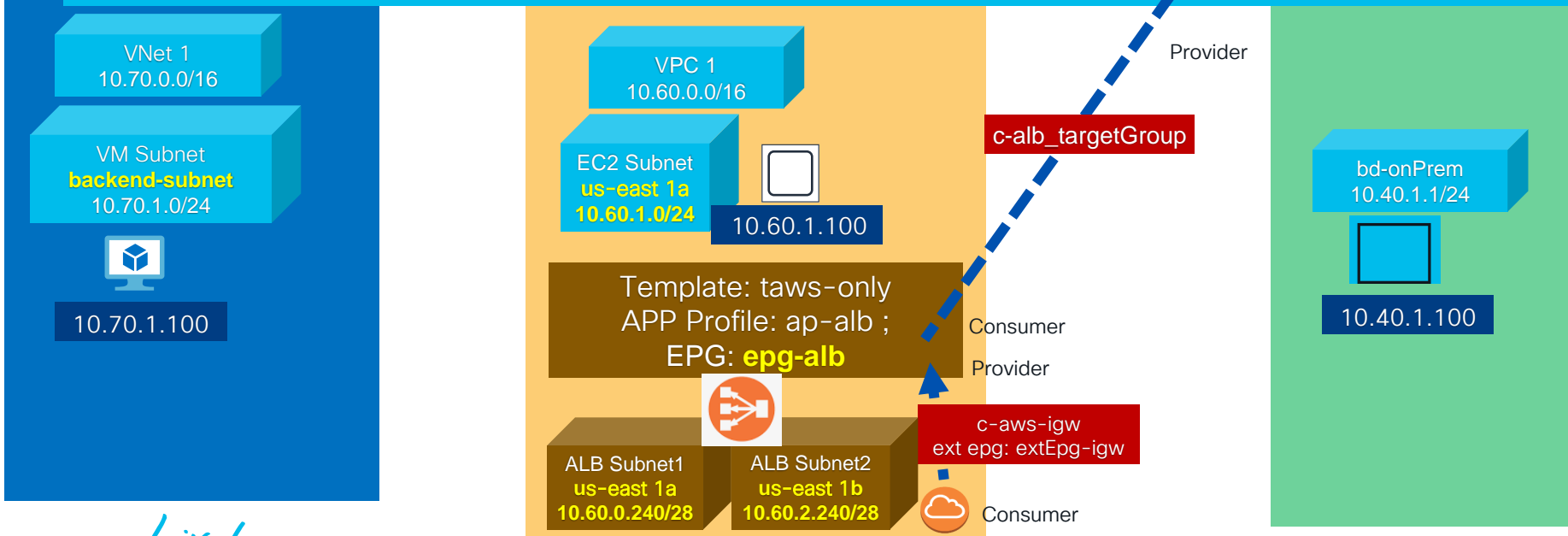


OnPrem ACI Fabric

Tenant – **cldemo2023**

Template: shared APP Profile – **ap-cldemo2023**; EPG **epg-cldemo2023**

vrf – **vrf-cldemo2023**



Configuration Details Schemas/Templates on NDO



OnPrem ACI Fabric

Tenant – **cldemo2023**

Template: shared APP Profile – **ap-cldemo2023**; EPG **epg-cldemo2023**

vrf – **vrf-cldemo2023**

VNet 1
10.70.0.0/16

VM Subnet
backend-subnet
10.70.1.0/24



10.70.1.100

Building The Tenant and other Objects across
AWS/Azure/onPrem Done in a Single Pane of Glass
through NDO

ALB Subnet1
us-east 1a
10.60.0.240/28

ALB Subnet2
us-east 1b
10.60.2.240/28

c-aws-igw
ext epg: extEpg-igw



Consumer

Configuration Details Schemas/Templates on NDO



OnPrem ACI Fabric

Tenant – **cldemo2023**

Template: shared APP Profile – **ap-cldemo2023**; EPG **epg-cldemo2023**

vrf – **vrf-cldemo2023**



VNet 1
10.70.0.0/16

VM Subnet
backend-subnet
10.70.1.0/24



10.70.1.100

You can also use Automation / API scripts targeted to NDO to build the Hybrid/Multi-Cloud Tenant

In this Demo we will use Terraform
If you wanted to you can get the script from:
<https://github.com/soumukhe/cldemo-2023>

ALB Subnet1
us-east 1a
10.60.0.240/28

ALB Subnet2
us-east 1b
10.60.2.240/28

c-aws-igw
ext epg: extEpg-igw



Consumer

Configuration Details Schemas/Templates on NDO



OnPrem ACI Fabric

Tenant – **cldemo2023**

Template: shared APP Profile – **ap-cldemo2023**; EPG **epg-cldemo2023**

vrf – **vrf-cldemo2023**

VNet 1
10.70.0.0/16

VM Subnet
backend-subnet
10.70.1.0/24



10.70.1.100

VPC 1
10.60.0.0/16

EC2 Subnet
us-east 1a
10.60.1.0/24



10.60.1.100

Template: **taws-only**
APP Profile: **ap-alb** ;
EPG: **epg-alb**



ALB Subnet1
us-east 1a
10.60.0.240/28

ALB Subnet2
us-east 1b
10.60.2.240/28



Consumer

c-alb_targetGroup

Consumer

Provider

c-aws-igw
ext epg: extEpg-igw

Provider

bd-onPrem
10.40.1.1/24



10.40.1.100

Fill out your session surveys!



Attendees who fill out a minimum of four session surveys and the overall event survey will get **Cisco Live-branded socks** (while supplies last)!



Attendees will also earn 100 points in the **Cisco Live Challenge** for every survey completed.



These points help you get on the leaderboard and increase your chances of winning daily and grand prizes

Continue your education

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- Visit the Cisco Showcase for related demos
- Book your one-on-one Meet the Engineer meeting
- Attend the interactive education with DevNet, Capture the Flag, and Walk-in Labs
- Visit the On-Demand Library for more sessions at www.CiscoLive.com/on-demand

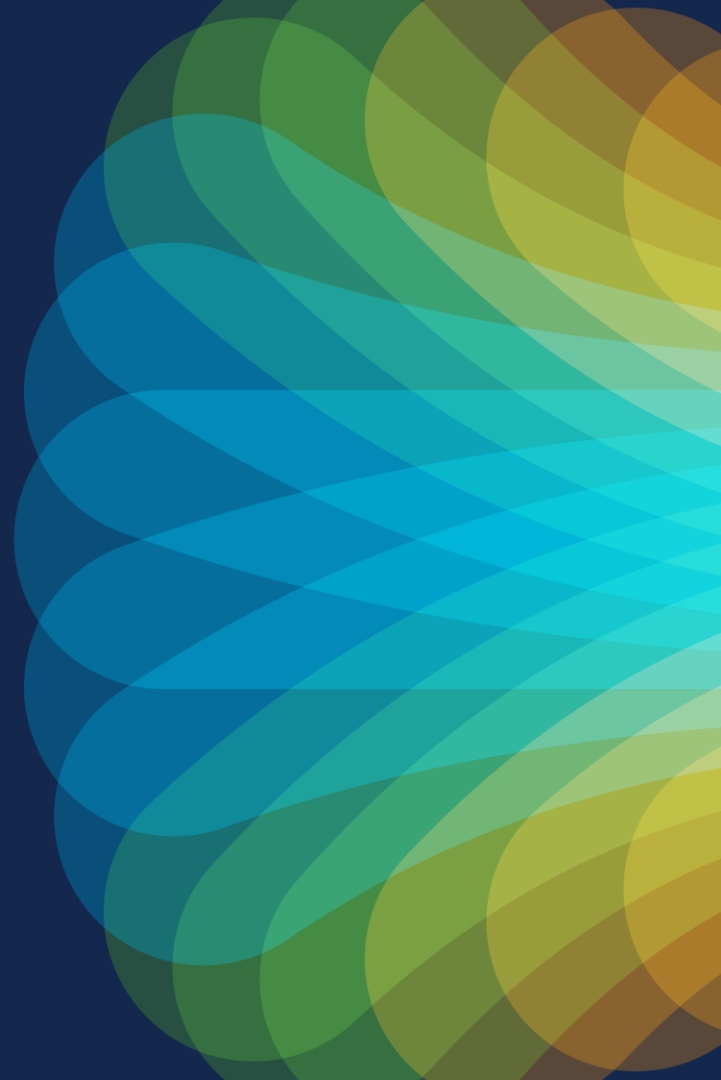


The bridge to possible

Thank you

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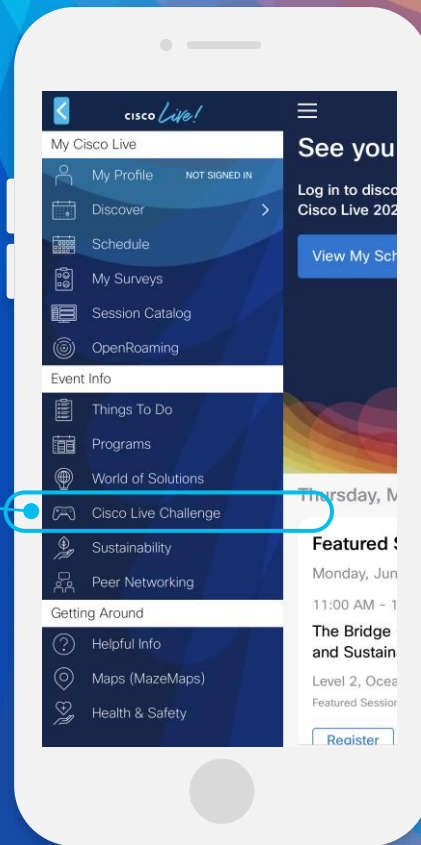
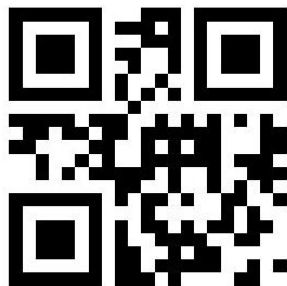


Cisco Live Challenge

Gamify your Cisco Live experience!
Get points for attending this session!

How:

- 1 Open the Cisco Events App.
- 2 Click on 'Cisco Live Challenge' in the side menu.
- 3 Click on View Your Badges at the top.
- 4 Click the + at the bottom of the screen and scan the QR code:



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