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#CiscoLive



The bridge to possible

# Multi-Domain Orchestration is Just a Click Away

With Cisco Intersight

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BRKCLD-2015



#CiscoLive

# Cisco Webex App

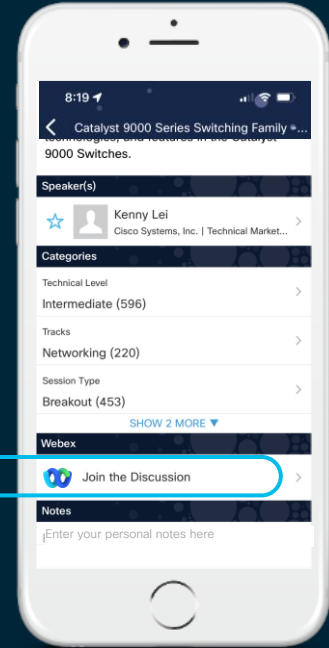
## Questions?

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 17, 2022.



<https://ciscolive.ciscoevents.com/ciscolivebot/#BRKCLD-2015>



# Agenda

- Challenges and Personas
- Intersight Cloud Orchestrator Overview
- Intersight Orchestration Demos
- Programmability and Top 3 Use Cases

How is that different  
compared to other  
orchestrators?





# Intersight Cloud Orchestrator is not a product



Intersight Cloud Orchestrator is  
**not** a product

It's a ***service***

A decorative graphic in the top right corner consisting of numerous circles of various sizes and colors, including shades of blue, teal, orange, and red, scattered across the dark blue background.

# Intersight is the product

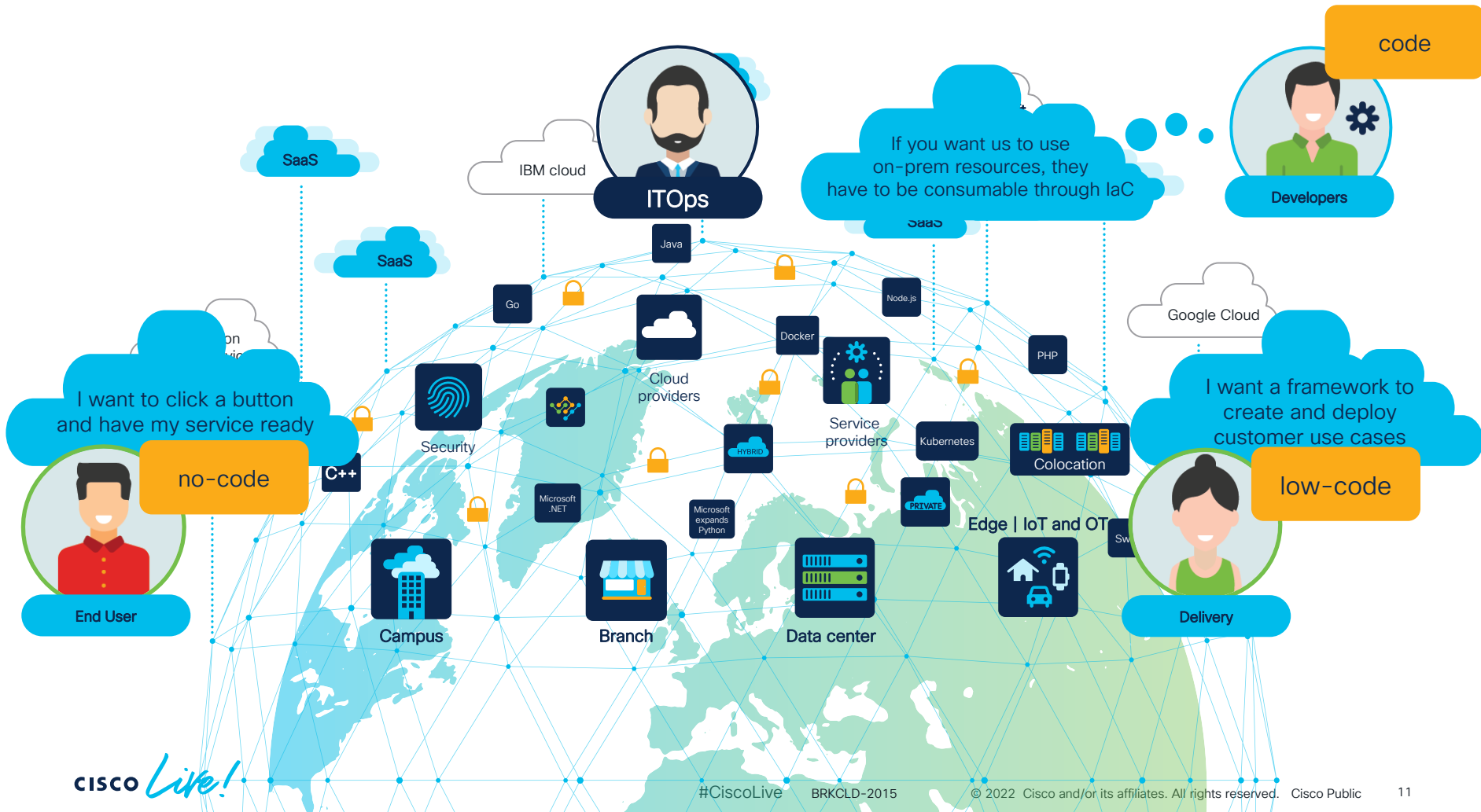


# Spoilers!

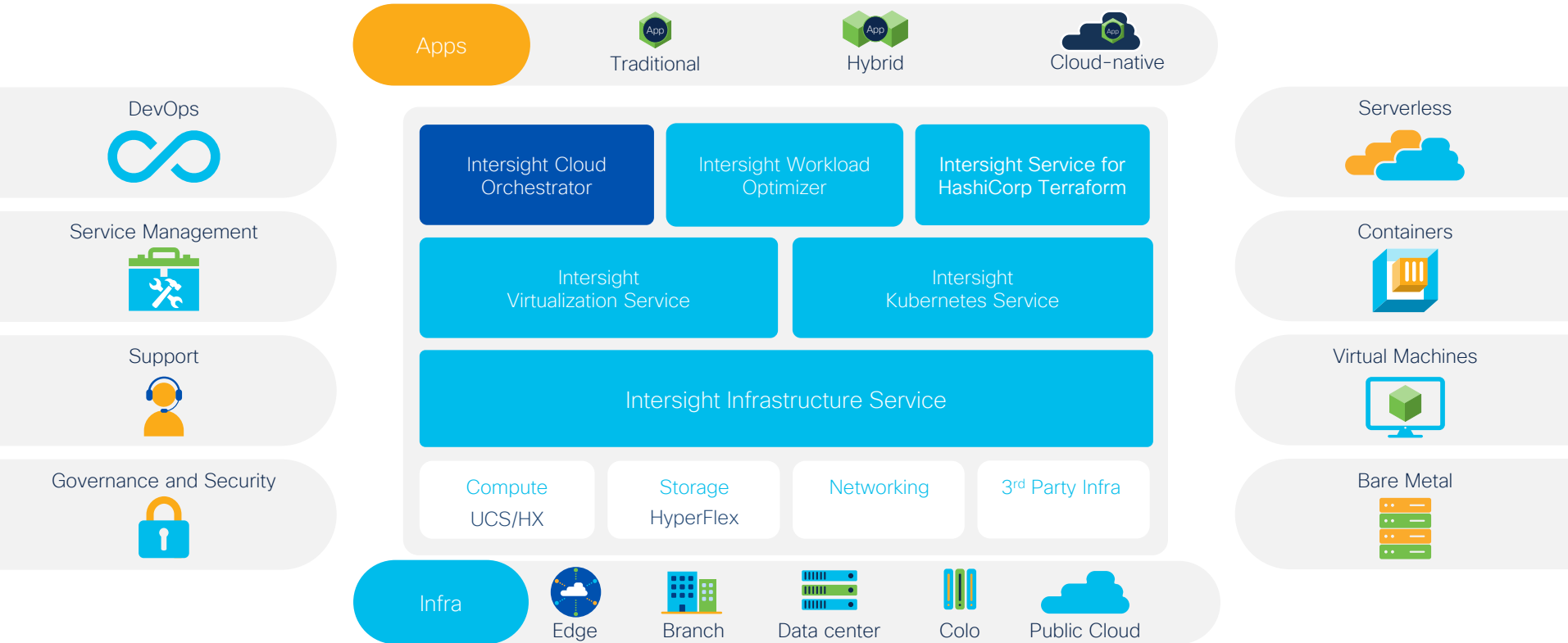
1. Intersight Cloud Orchestrator (ICO) adds multi-vendor, multi-domain **orchestration capabilities** to the Intersight platform and ecosystem
2. ICO is **extensible**. It provides an easy framework to empower users on creating custom automation logics
3. ICO can onboard and drive your existing **brownfield automation**

# Automation Challenges and Personas





# Cisco Intersight



# One Claim, Multiple Use Cases

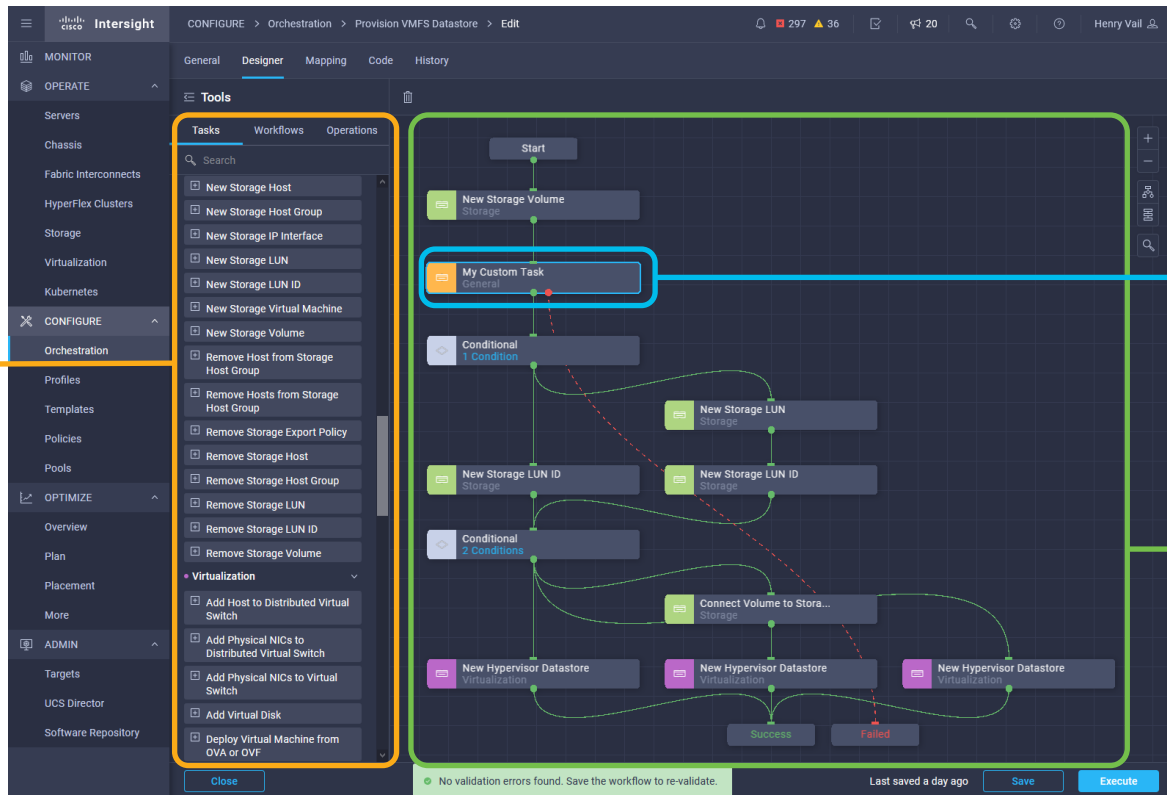
The collage illustrates the versatility of the Cisco Cloud Manager platform across different use cases:

- Hypervisor Management:** A screenshot showing the 'Hypervisor' section with options for Red Hat Enterprise Virtualization, Microsoft Hyper-V, and VMware vCenter (highlighted with a red box).
- Datacenter Overview:** A screenshot of the 'Datacenters' page showing a list of datacenters (RMLAB, TF\_RMLAB\_DC) with their respective node counts (13 and 4).
- Virtual Machine Creation:** A screenshot of the 'New Virtual Machine from Template or Clone from Virtual Machine' wizard, showing the 'Select Datastore' step with a list of available datastores.
- Cluster Configuration:** A screenshot of the 'RMLAB-ICS-CLUSTER-1' configuration page, showing details like 'Node Pools', 'Nodes', and 'Network & Addons'.
- Virtualization Tasks:** A screenshot of the 'Virtualization' section with a list of tasks such as 'Add Host to Distributed Virtual Switch', 'Add iSCSI Server', 'Add iSCSI Software Adapter', 'Add Network Port Binding to iSCSI Software Adapter', 'Add Physical NICs to Distributed Virtual Switch', 'Add Physical NICs to Virtual Switch', 'Add Virtual Disk', and 'Deploy Virtual Machine from OVA or OVF'.
- Architecture Diagram:** A screenshot of the 'OPTIMIZE > Overview' page showing a complex architecture diagram with various components like Service, Application Component, Container, Container Spec, Container Pool, Workload Controller, Namespace, Virtual Machine, Container Cluster, Host, IO Module, and Volume, connected by arrows indicating dependencies and data flow.

# Cross-domain orchestration with workflow designer



Accelerate hybrid IT delivery with an extensive library of ready-to-use tasks and workflows



Create your own custom automation and integration tasks

Simple drag-and-drop workflow authoring

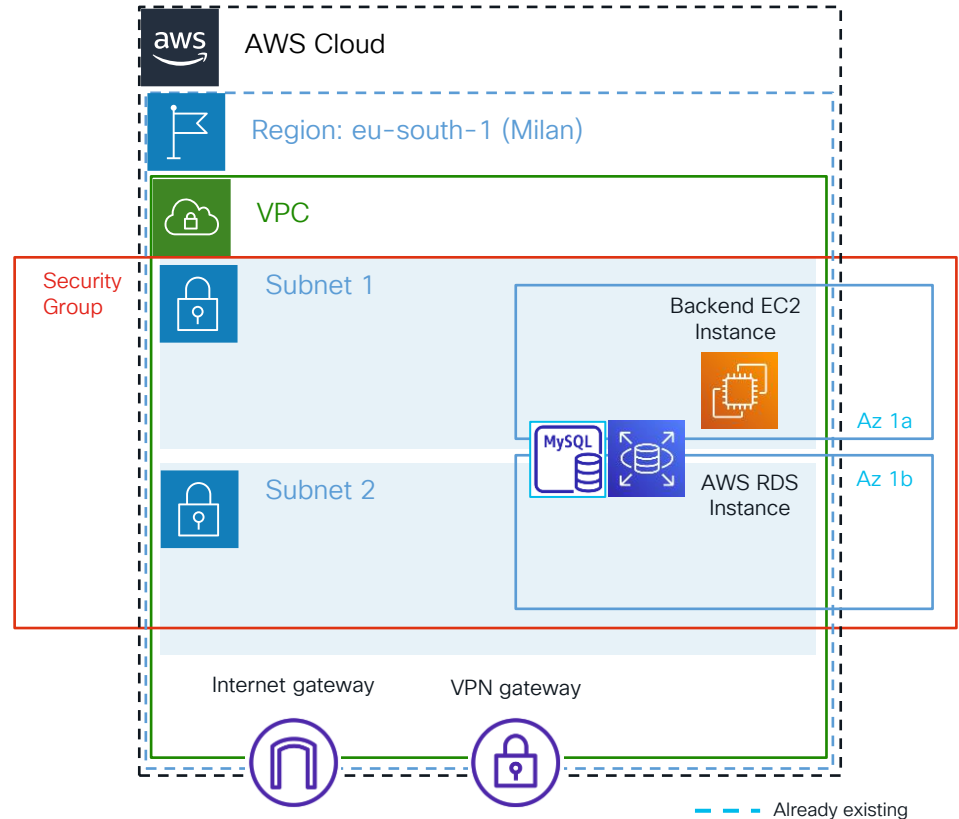
# Platform Demo

A decorative graphic in the top right corner of the slide. It consists of a dense cluster of circles of various sizes and colors, including shades of blue, cyan, green, orange, and red. The circles are arranged in a way that they appear to be pushing or expanding towards the right edge of the frame. The background is a solid dark blue.

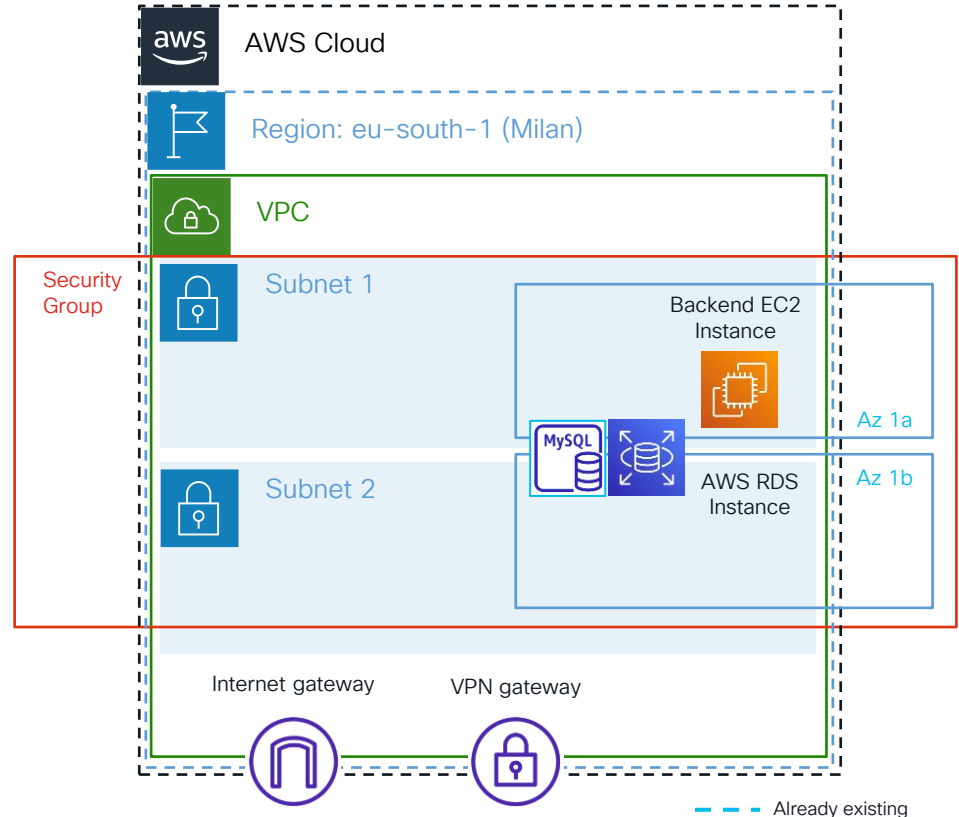
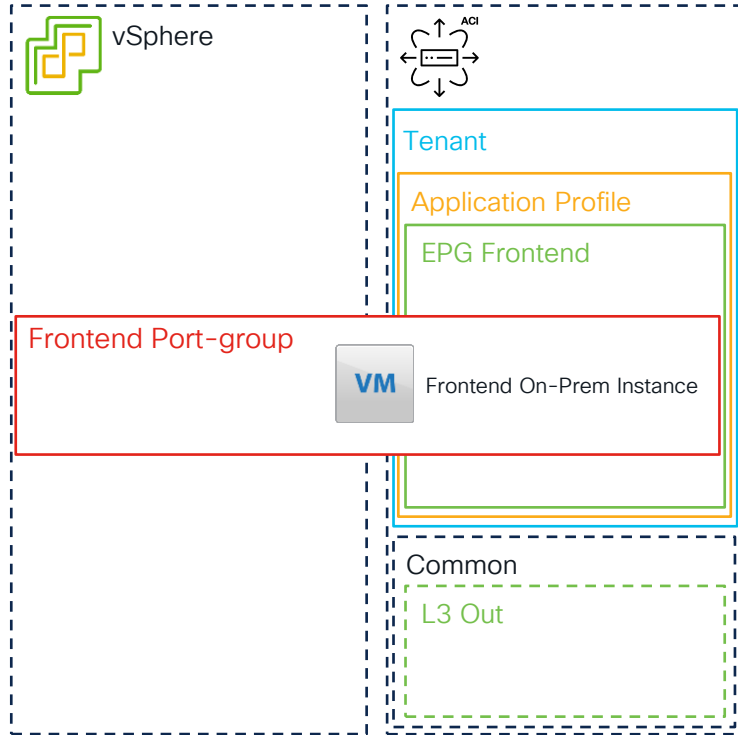
Let's push it a little bit...



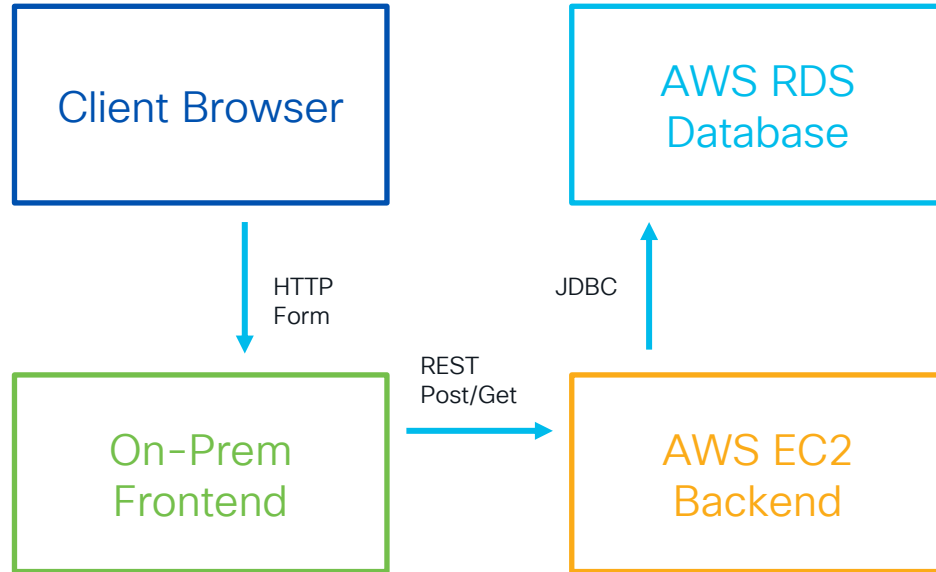
# Infrastructure Architecture



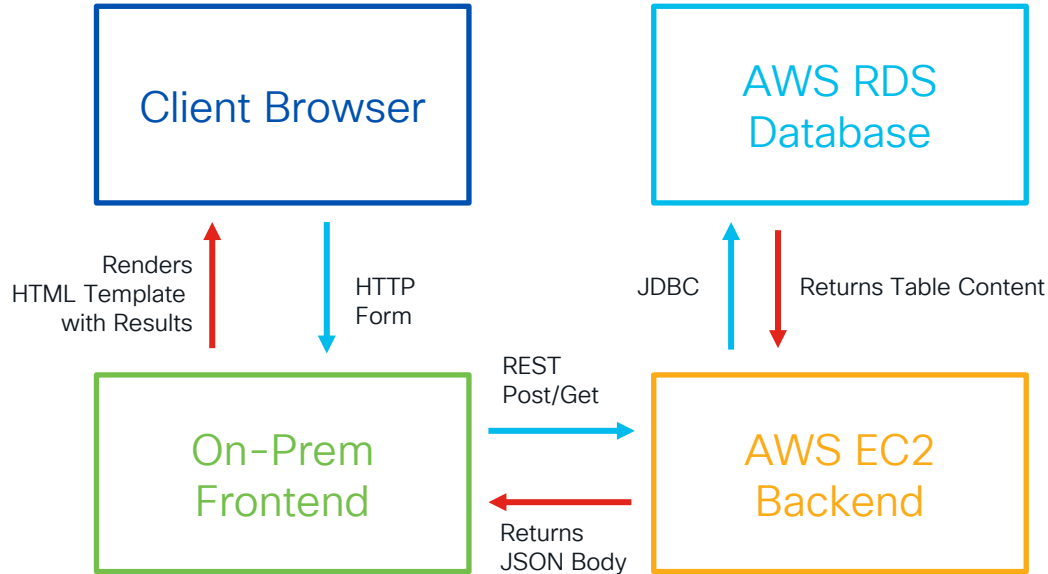
# Infrastructure Architecture



# 3 Tier Application Architecture



# 3 Tier Application Architecture



# Strategy

AWS Infrastructure

ACI Infrastructure

VMware Infrastructure

Application Layer



ICO Terraform Cloud **Native Tasks**



ICO Custom Tasks with **Web API Executor**



ICO VMware **Native Tasks**

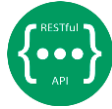


ICO Ansible **Embedded Executor**

A decorative graphic in the top right corner consisting of a dense cluster of circles in various sizes and colors, including shades of blue, green, orange, and red, against a dark blue background.

# Multi-vendor, Multi-domain Hybrid Cloud Demo

# Intersight Cloud Orchestrator Programmability



## Downloads

Intersight provides a downloadable Software Development Kit (SDK) for the Python programming language. You can generate SDKs for other programming languages using the open-source OpenAPI tools. The tables below provide you the links to download the SDKs and other Resources.

### SDKs/Plugins

Title	Description	Installation	Examples
Intersight Python SDK	Python Software Development Kit based on OpenAPI schema version 3	<a href="#">Pypi</a>	<a href="#">DevNet Python on GitHub</a>
Intersight Ansible Modules (Python)	Ansible Modules for configuration management of Cisco Intersight	<a href="#">Galaxy</a>	<a href="#">DevNet Playbooks on GitHub</a>
Terraform Provider for Intersight	This provider facilitates the use of Terraform for managing infrastructure as code in Intersight	<a href="#">Terraform</a>	<a href="#">Terraform Registry Modules</a>
Intersight Powershell Module	Intersight Powershell Cmdlets based on OpenAPI schema version 3	<a href="#">PSGallery</a>	<a href="#">DevNet PowerShell on GitHub</a>
Intersight ITSM plugin for ServiceNow	This plugin facilitates the use of ServiceNow for all its ITSM requirements for Intersight	<a href="#">ServiceNow</a>	—

### OpenAPI Documents

Resources	OpenAPI Schema Version	Download
Intersight OpenAPI JSON format	Intersight OpenAPI document in JSON format based on schema version 3	<a href="#">Download</a>
Intersight OpenAPI YAML format	Intersight OpenAPI document in YAML format based on schema version 3	<a href="#">Download</a>
Intersight OpenAPI JSON format (legacy)	Intersight OpenAPI document in JSON format (legacy) based on schema version 2	<a href="#">Download</a>

```
ICO > $wf = Get-IntersightWorkflowWorkflowDefinition -Label 'Deploy a Virtual Machine'
ICO > $wf

ClassId           : WorkflowWorkflowDefinition
ObjectType        : WorkflowWorkflowDefinition
LicenseEntitlement : Premier
DefaultVersion    : True
Description       : Deploys a Virtual Machine
InputDefinition   : {class WorkflowBaseDataType {
                    class MoBaseComplexType {
                      ClassId: 0
                      ObjectType: 0
                      AdditionalProperties: System.Collections.Generic.Dictionary`2[System.
                    }
                    [...]

```

```
1 import credentials
2 from pprint import pprint
3 from intersight.api import workflow_api
4 from intersight.rest import ApiException
5
6 # Specify the task name here
7 name='Install a package using APT'
8
9 def get_tasks_definitions(api_client):
10     """ Gets the list of tasks """
11     api_instance = workflow_api.WorkflowApi(api_client)
12
13     try:
14         query_filter = "Label eq '{0}'".format(name)
15         api_response = api_instance.get_workflow_task_definition_list(filter=query_filter, check_return_type=False)
16         pprint(api_response.results)
17     except ApiException as e:
18         print("Exception when calling WorkflowApi->get_workflow_task_definition_list: %s\n" % e)
19
20 # Authenticate
21 api_client = credentials.config_credentials()
22
23 # Get the list of Tasks
24 get_tasks_definitions(api_client)
```

# Top 3 Use Cases





# #3: Third Party Automation with Rollback

The screenshot shows the Cisco Live! interface. On the left, a workflow diagram is visible with a 'Start' node, an 'Invoke Web API Request' node (labeled 'Executors'), and a 'Success' node. On the right, the 'Task Properties' panel is open, showing the 'General' tab. The 'Enable Rollback Task' checkbox is highlighted with a red box. Below it, the 'Rollback Task Name' field is set to 'Delete Server Profile Template'.

**Task Properties**

General	Inputs	Outputs
Description		
Retry Count	3	0 - 256
Retry Delay	60	10 - 86400
Timeout	600	10 - 604800
Set Tags Enter a tag in the key-value format.		
<input checked="" type="checkbox"/> Enable Rollback Task		
Rollback Task Name * Delete Server Profile Template		

The screenshot shows the 'Rollback Execution' page. It features a 'Selected Request' table with details for a request named 'ciscolive'. Below the table, there is a 'Tasks Selection to Rollback' section with a toggle for 'Abort rollback, if any rollback task fails' and a 'Show Rollback Supported' toggle. At the bottom, there is a 'Create Server Profile Template' button with a 'Not Started' status.

**Rollback Execution**

The Rollback execution feature reverts the created or modified entities while executing a workflow.

Selected Request			
Name	ciscolive	Status	Success
ID	629594d0696f6e2d31507405	Start Time	May 31, 2022 6:08 AM
Source	ciscolive (Orchestration)	End Time	May 31, 2022 6:08 AM
Initiator	rtortori@cisco.com	Organizations	default

**Tasks Selection to Rollback**

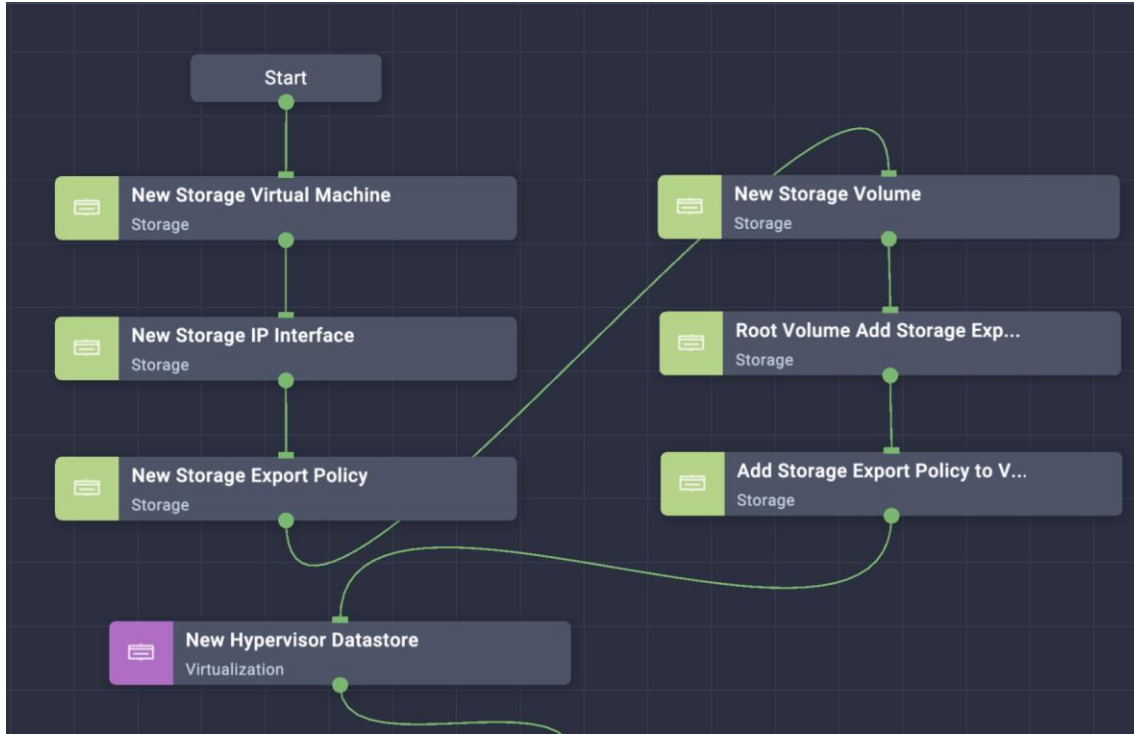
☐ Abort rollback, if any rollback task fails

Search  ☒ Show Rollback Supported

☒ Collapse All | ☐ Select All | ☐ Show Selected (1) |

☒ Create Server Profile Template

## #2: Virtualization + Storage Automation



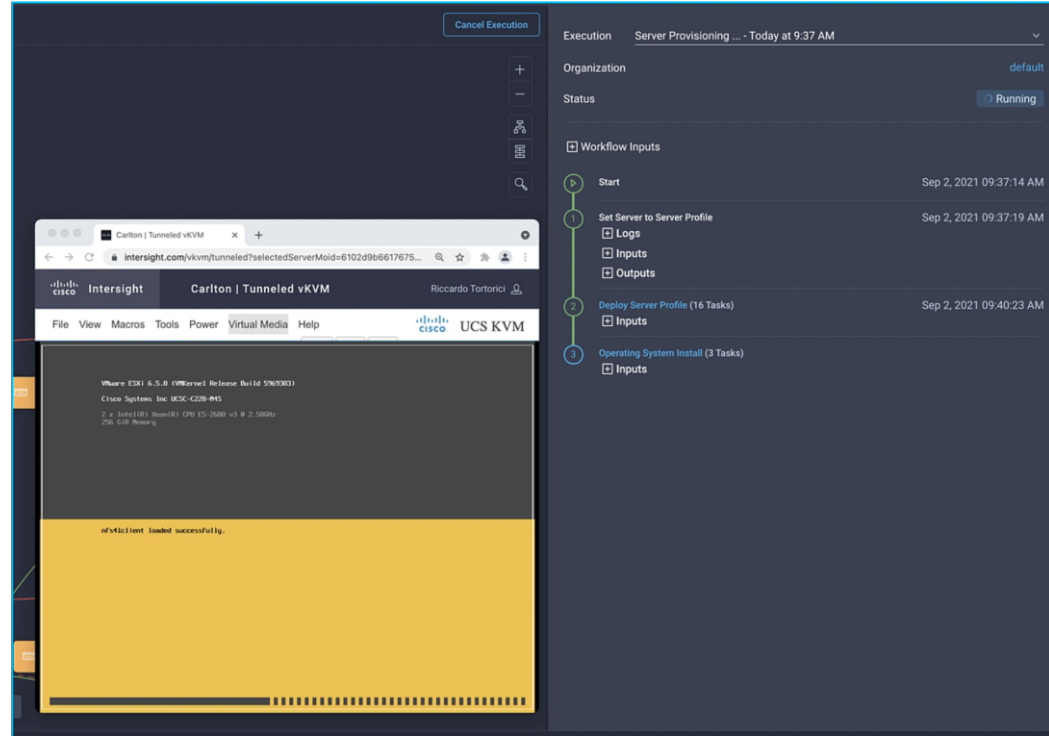
 **NetApp**

 **PURESTORAGE®**

 **Hitachi Vantara**

 **VMware**

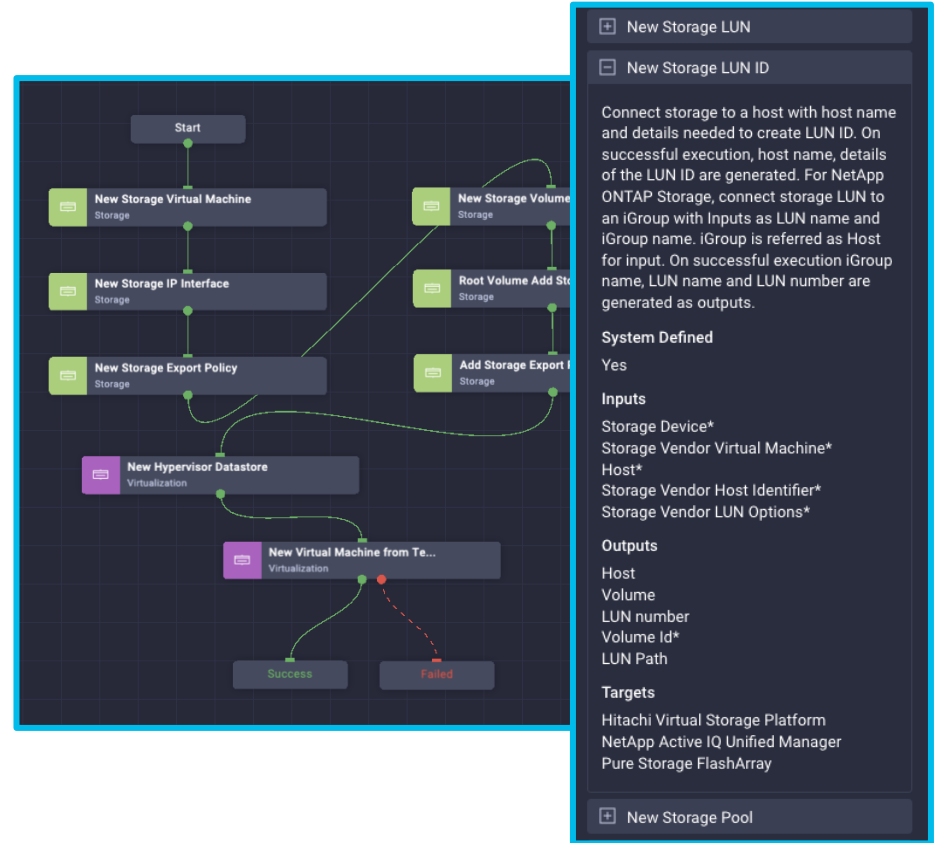
# #1: One-Click Server Onboarding



# Closing and Next Steps

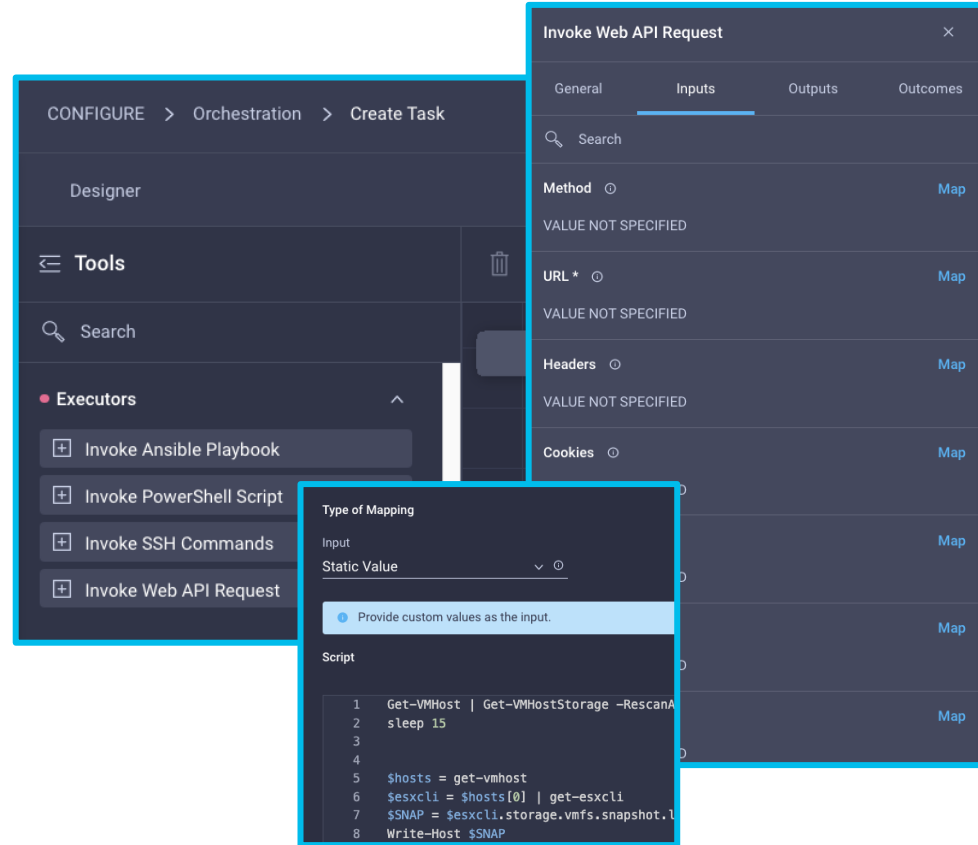
# Key Takeaway #1

1. Intersight Cloud Orchestrator (ICO) adds multi-vendor, multi-domain **orchestration capabilities** to the Intersight platform and ecosystem



# Key Takeaway #2

1. Intersight Cloud Orchestrator (ICO) adds multi-vendor, multi-domain **orchestration capabilities** to the Intersight platform and ecosystem
2. ICO is **extensible**. It provides an easy framework to empower users on creating custom automation logics



# Key Takeaway #3

1. Intersight Cloud Orchestrator (ICO) adds multi-vendor, multi-domain **orchestration capabilities** to the Intersight platform and ecosystem
2. ICO is **extensible**. It provides an easy framework to empower users on creating custom automation logics
3. ICO can onboard and drive your existing **brownfield automation**

The screenshot displays the Cisco Intersight Orchestrator (ICO) interface. At the top, a green banner indicates the run was "Triggered via Cisco Intersight Orchestrator". Below this, a timeline shows the run's progress: "Plan finished" and "Apply finished", both 21 hours ago. A green bar indicates "+ 12 created" resources. A list of resources is shown, including "aws\_db\_subnet\_group.demo", "aws\_ec2\_client\_vpn\_authorization\_rule.client\_vpn\_auth\_rule", and "aws\_ec2\_client\_vpn\_endpoint.client\_vpn".

Overlaid on the bottom right is a "Type of Mapping" dialog box. It has a "Static Value" input field and a button to "Provide custom values as the input.". Below this, the "Update Variables Options" section shows "Variable Type \*" set to "Non Sensitive Variables". The "Update Terraform Variables" section lists two variables:

- Key: `vpc_name`, Value: `{{global.workflow.input.vpcname}}`
- Key: `vpc_cidr_block`, Value: `{{global.workflow.input.vpccidr}}`

Overlaid on the bottom left is an "Invoke Ansible Playbook" dialog box. It has tabs for "General", "Inputs", "Outputs", "Outcomes", and "Variables". The "Inputs" tab is active, showing a search bar and a list of inputs:

- Ansible Controller: Workflow Input (with an "Edit Mapping" link)
- Playbook Path: Custom Value (with an "Edit Mapping" link)
- Host Inventory: Custom Value (with an "Edit Mapping" link)

# Intersight Cloud Orchestrator at CL22



## Hybrid Cloud Booth @ Showcase

- ICO Platform Overview Demo
- ICO TMEs

## ICO Sessions

- BRKCLD-2015
- DEVLIT-2167
- DEVWKS-2170
- MTEs

## Cross Stack Orchestration Demos at Partners Booths





# Resources

- [Intersight Cloud Orchestrator YouTube Playlist](#)
- [Intersight Cloud Orchestrator Deep Dive Deck](#)
- [Intersight Cloud Orchestrator Workflow Designer](#)
- [Intersight Cloud Orchestrator Task Designer](#)
- [Intersight Documentation](#)
- [Intersight API Documentation](#)

# Technical Session Surveys

- Attendees who fill out a minimum of four session surveys and the overall event survey will get Cisco Live branded socks!
- Attendees will also earn 100 points in the Cisco Live Game for every survey completed.
- These points help you get on the leaderboard and increase your chances of winning daily and grand prizes.



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### Cisco Modeling Labs

Network simulation platform for design, testing, and troubleshooting

### Cisco Learning Network

Resource community portal for certifications and learning



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### Cisco Learning Partner Program

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### Cisco Instructor-led and Virtual Instructor-led training

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# Continue your education

- 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](http://www.CiscoLive.com/on-demand)



The bridge to possible

# Thank you

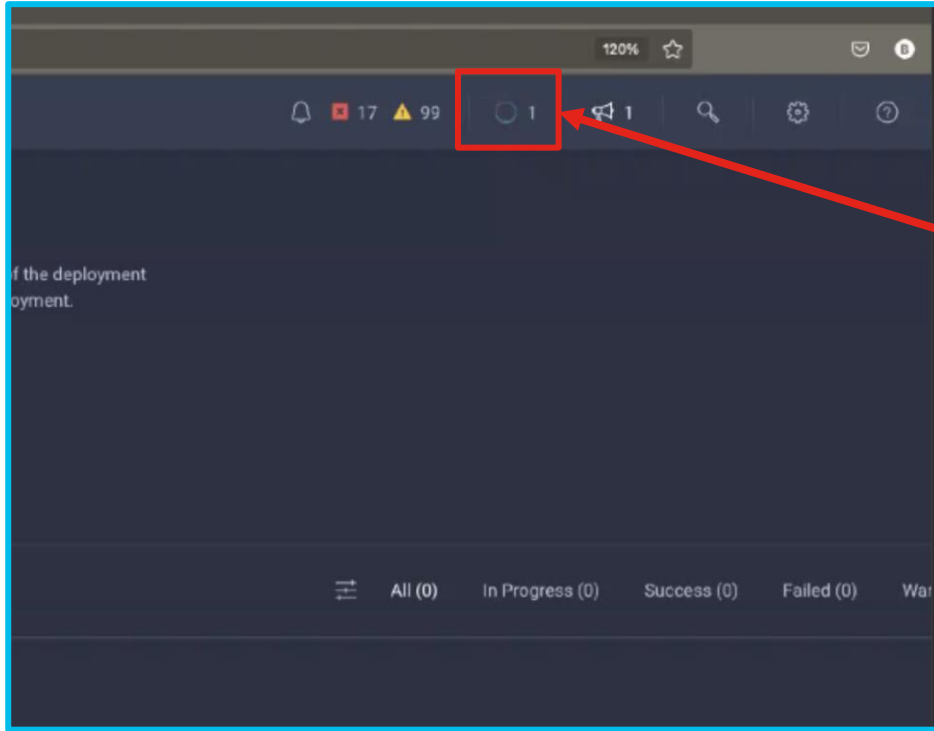
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# Backup Slides

# The Intersight Engine



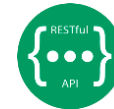
Example

IKS/IWE Cluster Creation

Intersight services use ICo  
internal workflows to deploy  
resources



# Extensible task library



Large pre-built and supported task library spanning Cisco and 3<sup>rd</sup> party devices, resources and targets.



Flexible creation of orchestration tasks and workflows allows users to extend base functionality and enables implementation partners to deliver additional value out-of-the-box.



Mix and match tasks to design workflows that span across domains.



## Compute

Cisco UCS & HX  
HPE, Dell



## Virtualization & Containers

VMware, Hyper-V\*,  
KVM\*, IKS



## Public Cloud

AWS, Azure\*, GCP\*



## Network

Nexus (ACI\*/Standalone)  
MDS



## Converged Infrastructure

FlexPod\*, FlashStack\*



## App Automation

Deployment, End-to-end Scaling



## Storage

NetApp, Pure Storage,  
HDS



## Automation

SSH, PowerShell,  
HTTP, Terraform Cloud,  
Ansible



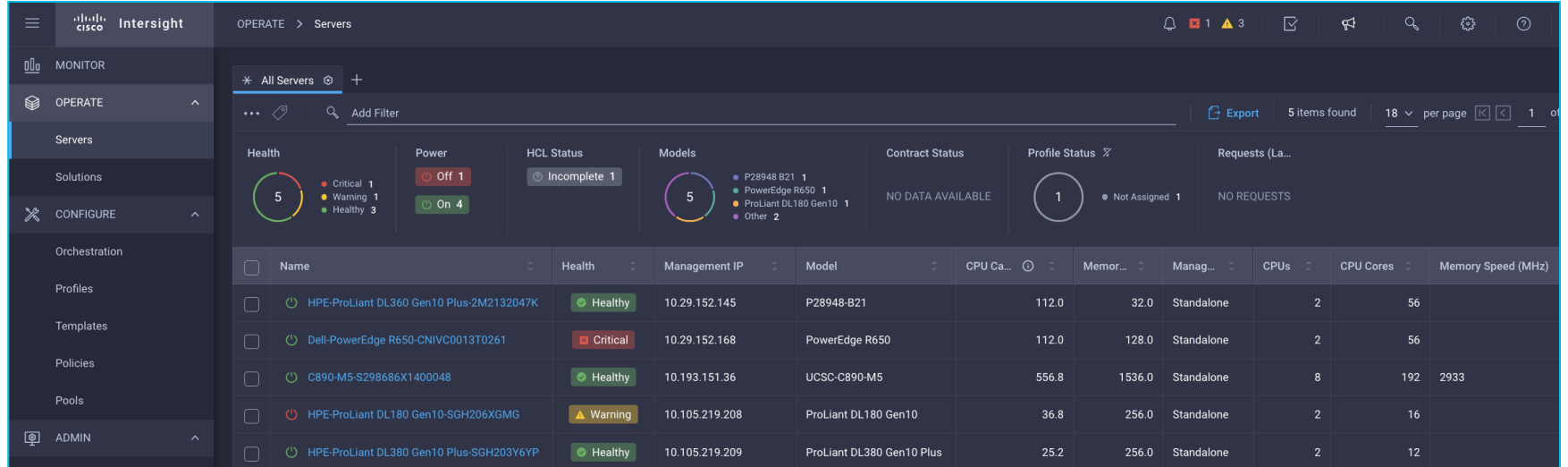
## Integration Controls

Data Transformation,  
Boolean logic, Iteration

\* Roadmap

# Third Party Compute Support

## Dell / HPE



# Third Party Compute Inventory

Dell / HPE

OPERATE > Servers > HPE-ProLiant DL380 Gen10 Plus-SGH203Y6YP

General Inventory

Expand All

Motherboard

Boot

Management Controller

CPUs

Processor 1

Memory

Network Adapters

Adapter DC07A000

PCIe Devices

Slot 210

Storage Controllers

Controller DA000008-0

Controller DA000007-0

Location	Memory ID
PROC 1 DIMM 1	1
PROC 1 DIMM 10	10
PROC 1 DIMM 11	11
PROC 1 DIMM 12	12
PROC 1 DIMM 13	13
PROC 1 DIMM 14	14
PROC 1 DIMM 15	15
PROC 1 DIMM 16	16
PROC 1 DIMM 2	2
PROC 1 DIMM 3	3
PROC 1 DIMM 4	4
PROC 1 DIMM 5	5
PROC 1 DIMM 6	6
PROC 1 DIMM 7	7
PROC 1 DIMM 8	8
PROC 1 DIMM 9	9

OPERATE > Servers > HPE-ProLiant DL380 Gen10 Plus-SGH203Y6YP

General Inventory

Expand All

Adapter DC07A000

Motherboard

Boot

Management Controller

CPUs

Memory

Network Adapters

Adapter DC07A000

PCIe Devices

Storage Controllers

General Interfaces

DCE Interfaces

Name	IO Module Port
------	----------------

NIC Interfaces

Name	MAC Address
2	E4:3D:1A:B1:01:C5
4	E4:3D:1A:B1:01:C7
1	E4:3D:1A:B1:01:C4
3	E4:3D:1A:B1:01:C6

# Create Virtual Machines – AWS Support (July 22)

Static Value | Direct Mapping | Advanced Mapping

● Provide custom values as the input.

**Platform Type**  
Platform type for virtual machine deployment  
Amazon Web Service x v ⓘ

Virtual Machine Name \* ⓘ

Region \* ⓘ  
[Select Region](#)

Image ID \* ⓘ

Key Pair ⓘ  
[Select Key Pair](#)

User Data ⓘ

Instance Type \* ⓘ  
[Select Instance Type](#)

VPC ⓘ  
[Select VPC](#)

Security Groups ⓘ No Security Groups Selected ✎

**Primary Network**

Subnet \* ⓘ  
[Select Subnet](#)

☐ Auto-assign Public IP ⓘ

☐ Add Additional Network ⓘ

**Root Volume**

Volume Type \* ⓘ  
[Select Volume Type](#)

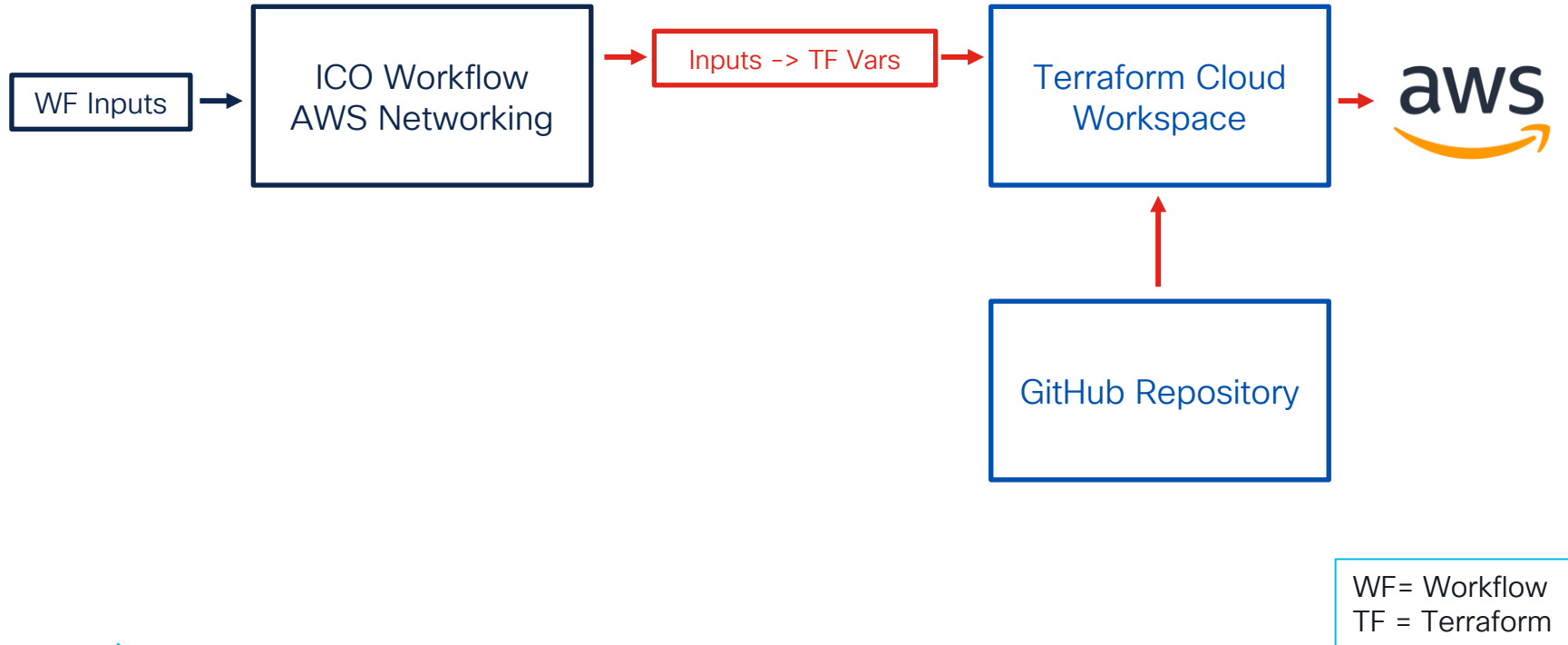
Volume Size in GiB ⓘ  
0 - 16384

☐ Volume Encryption ⓘ

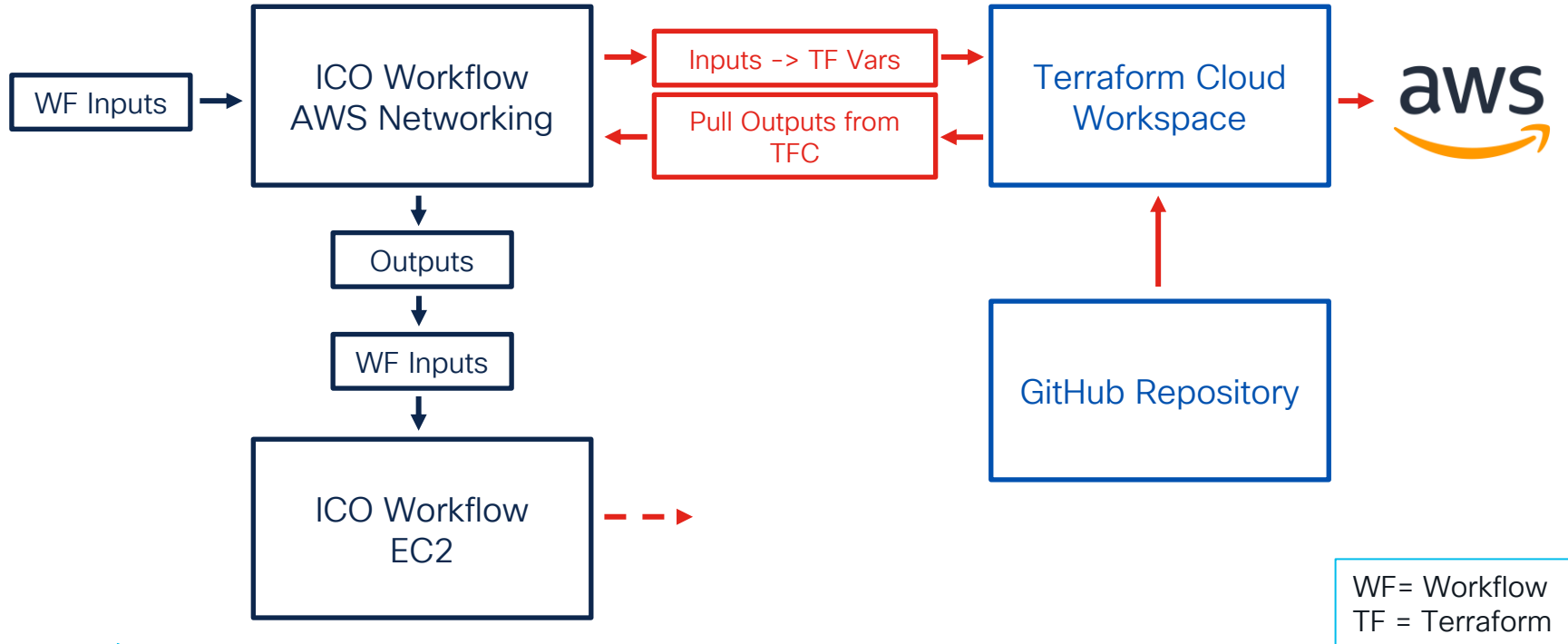
☐ Delete Volume on Termination ⓘ

☐ Add Additional Volume ⓘ

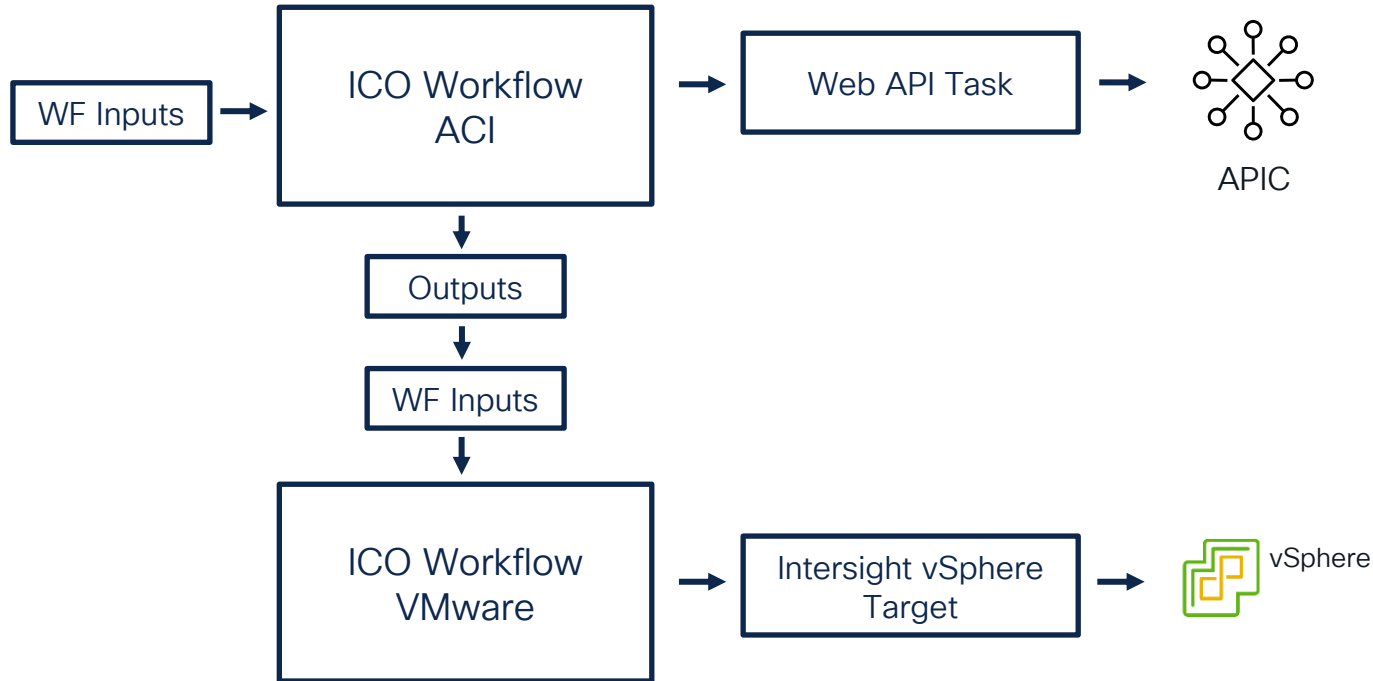
# Creating the Workflows – AWS with Terraform



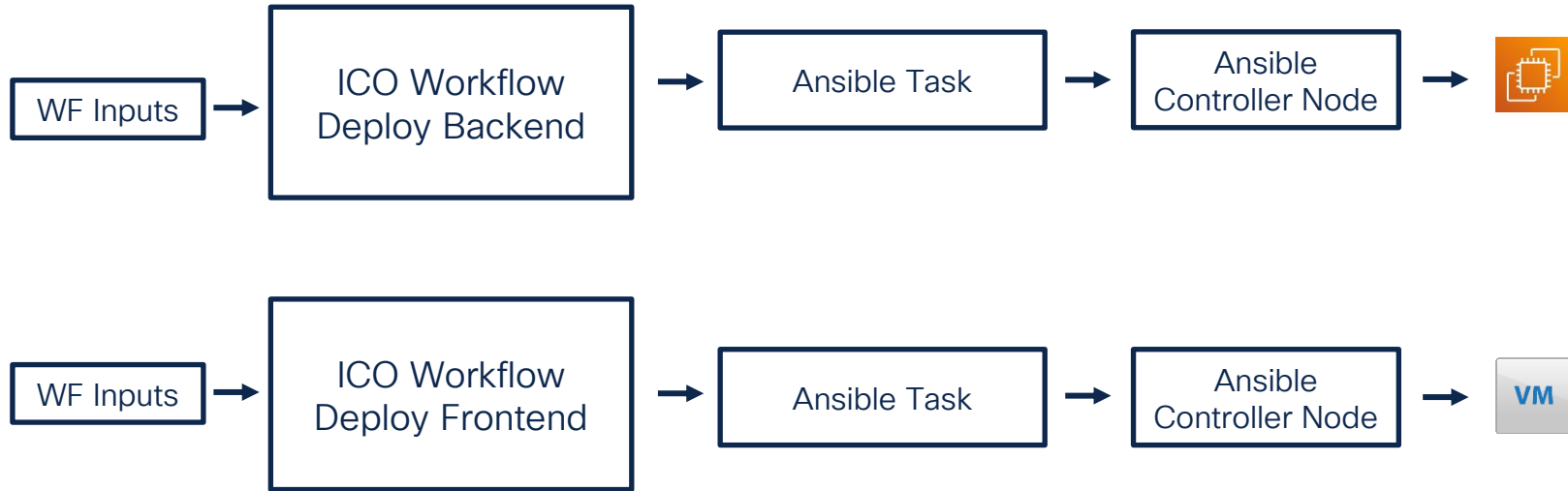
# Creating the Workflows – AWS with Terraform



# Creating the Workflows – Native and Executors



# Creating the Workflows – App Deployment





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