



You make **possible**



# Simplify Multicloud Deployments with Workload Manager and Action Orchestrator

Cisco CloudCenter Suite

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@mchenetz

BRKCLD-1215

**CISCO** *Live!*

Barcelona | January 27-31, 2020



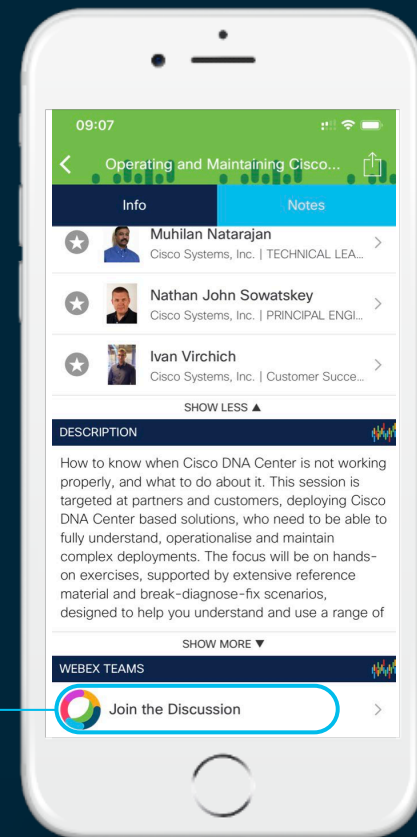
# Cisco Webex Teams

## Questions?

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

## How

- 1 Find this session in the Cisco Events Mobile App
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# Agenda

- Housekeeping
- Introduction
  - Industry Trends
- Introducing CloudCenter Suite
  - Multicloud Complexities
  - Lifecycle of IT Outcomes
  - Architecture
- Workload Manager Overview & Demo
- Action Orchestrator Overview & Demo
- Working Together
- What's Next? & Key Takeaways



CloudCenter Suite  
30-Day Free Trial



# Other Cloud Sessions at Cisco Live

## Monday

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### **PSOCLD: 1981**

Run modern serverless applications with Knative!  
12:30 PM – 1:00 PM

**Visit the Multicloud Showcase in the World of Solutions**  
12 – 5:30pm

## Tuesday

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### **PSOCLD: 2980**

How to make IT Ops move at the speed of Dev  
1:15 PM – 02:15 PM

**Visit the Multicloud Showcase in the World of Solutions**  
10:30am – 8:00pm

## Wednesday

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### **INTCLD: 1315**

Building the bridge to Multicloud:  
Powering the Application Revolution  
12–12:30pm

### **TCRDCN: 2900**

Cost Control in a Multicloud World  
1:30pm–2:30pm

### **BRKCLD-1215**

Simplify Multicloud Deployments with Workload Manager and Action Orchestrator in Cloud Center Suite  
2:45pm–4:15pm

### **PSOCLD: 1983**

Is your cloud bill too high? Learn how you can control costs with CloudCenter Suite  
5:00 – 5:30 PM

**Visit the Multicloud Showcase in the World of Solutions**  
10:30am – 6:00pm

## Thursday

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### **PSOCLD: 2982**

How to optimize your K8s infrastructure for AI/ML development with a few clicks.  
1:30 PM – 2:30 PM

### **PSODCN-2119**

How to simplify and accelerate multicloud strategies with ACI  
4:00pm–4:30pm

**Visit the Multicloud Showcase in the World of Solutions**  
10:30am – 5:00pm

*Gartner predicts that by 2020,  
90 percent of organizations will  
adopt hybrid infrastructure  
management capabilities.*

Gartner: <https://www.gartner.com/en/newsroom/press-releases/2017-04-05-gartner-says-a-massive-shift-to-hybrid-infrastructure-services-is-underway>

# Public cloud is part of the solution



Public Cloud  
Mandated

**73%**  
of organizations  
use cloud<sup>1</sup>



But most workloads  
remain on-prem

Only **10%**  
of workloads  
moved<sup>2</sup>



Some even  
moved **back**

**80%**  
moved some app/data  
back on-prem<sup>3</sup>

1. IDG Cloud Insights survey, 2018 (N=550)

2. Cloudability, State of Cloud 2018 report based on actual spend data

3. IDC Cloud and AI adoption survey, 2018 (N=400 IT decision makers)

# Infrastructure and Operations Trends in 2020

## Gartner IT Infrastructure, Operations & Cloud Strategies Conference

### Trend No. 1: Automation Strategy Rethink

- “As vendors continue to pop up and offer new automation options, *enterprises risk ending up with a duplication of tools, processes and hidden costs that culminate to form a situation where they simply cannot scale infrastructure in the way the business expects.*”
- “We think that by 2025, top performing leaders will have employed a *dedicated role to steward automation forward and invest to build a proper automation strategy* to get away from these ad hoc automation issues.”

### Trend No. 3: Scaling DevOps Agility

- “We believe that the vast majority of organizations that do not adopt a shared self-service platform approach *will find that their DevOps initiatives simply do not scale.*”
- “Adopting a shared platform approach *enables product teams to draw from an I&O digital toolbox of possibilities, all the while benefiting from high standards of governance and efficiency needed for scale.*”

Source: <https://www.information-management.com/news/gartner-identifies-10-top-trends-impacting-infrastructure-and-operations-for-2020>



# Multicloud Complexity



“lack of **visibility and governance** across multiple clouds ”

“inefficient methods to **monitor and optimize cloud consumption** and costs”

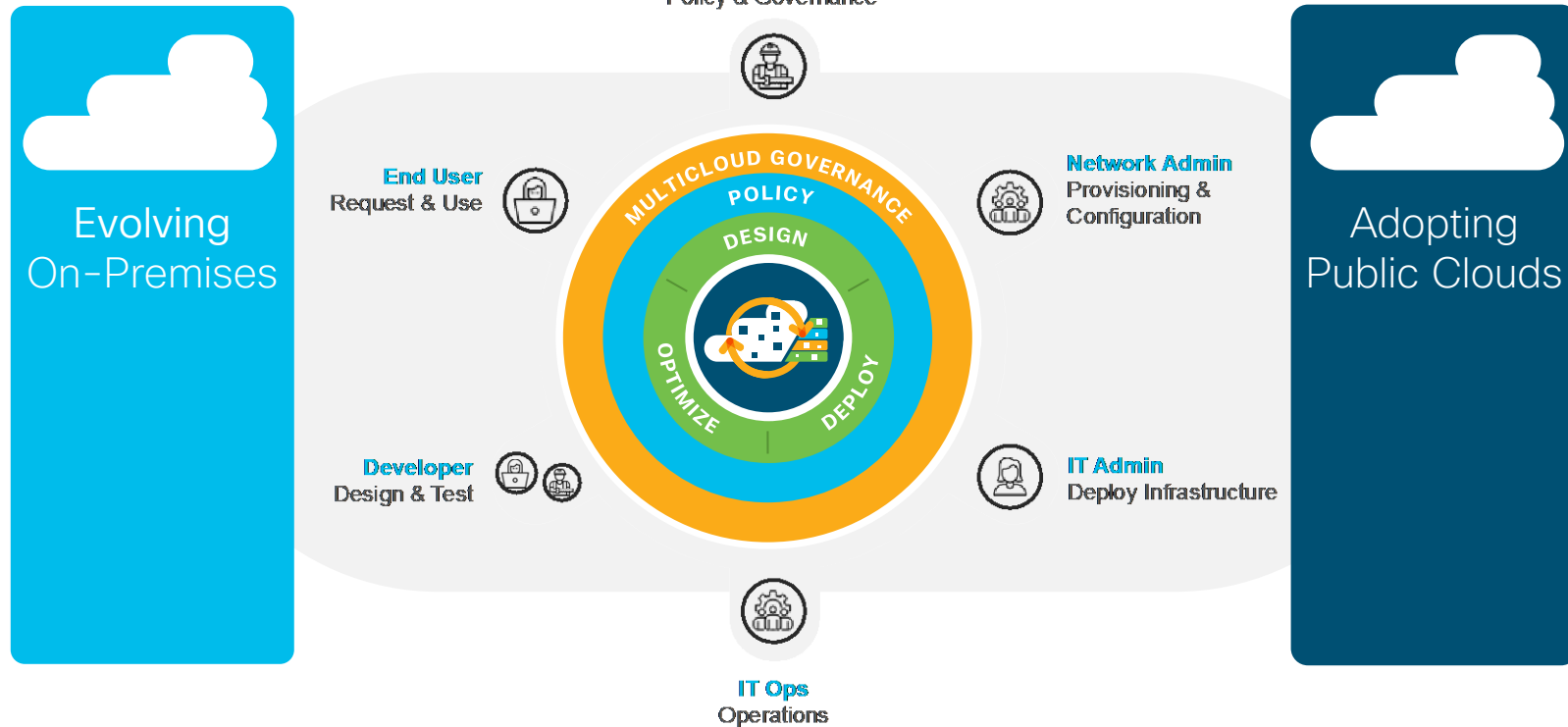
“to **develop fast** across multiple environments”

“to manage infrastructure for **both old and new** applications”

“**complex process for integration** with other ecosystem solutions”

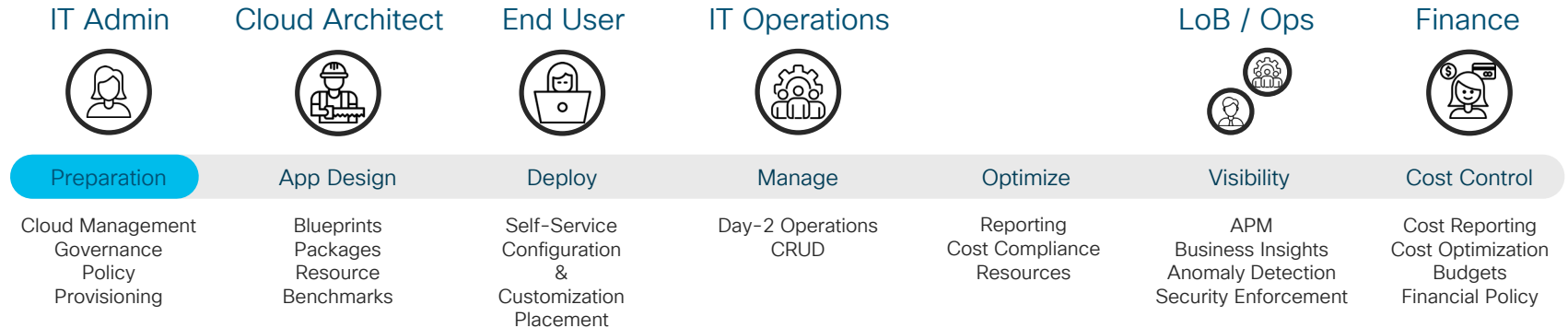


# CloudCenter Suite



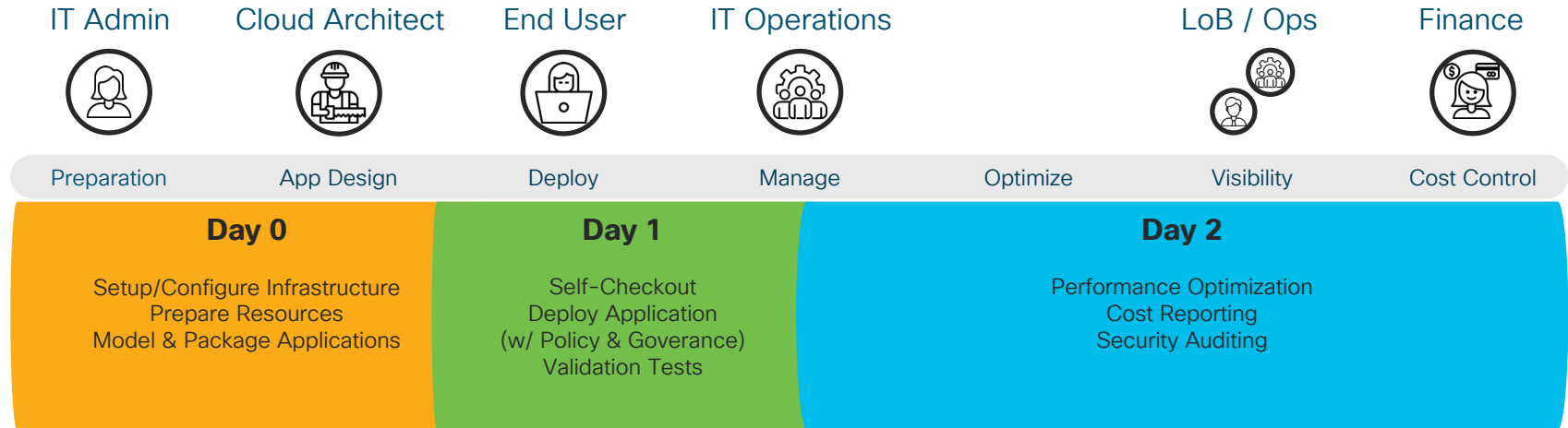
# Lifecycle of IT Outcomes

## Applications, Services and Operations



# Lifecycle of IT Outcomes

## Applications, Services and Operations



# Modular, Microservices Architecture



## Workload Manager

Design, deploy and manage application workloads



## Cost Optimizer

Provides public and private cloud cost visibility and optimization



## Action Orchestrator

Enables workflow process orchestration and automation

## Suite Admin

### Core Runtime Services on Kubernetes

#### Middleware Services

User / Tenant Service

Licensing Service

Log & Health Service

Suite Admin

...

#### Backend Services

Key / Cert service

Crypto Service

Password & Auth Service

Email Service

...

#### Infra Services

Cluster Mgmt.

In-Region HA

Product Registry

Upgrader

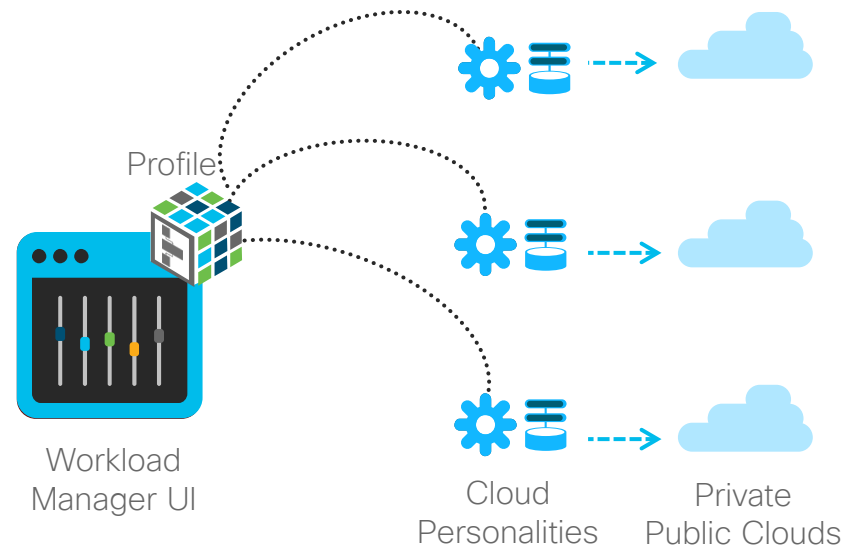
API Gateway

...

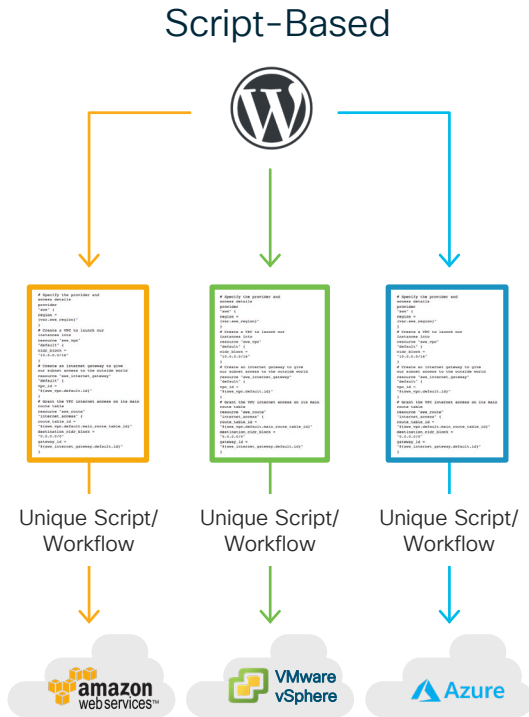


# Workload Manager

- End-to-End infrastructure and application lifecycle management
  - Blueprint once, deploy anywhere
  - Integrate with CI/CD toolchain
  - Govern and control user and cloud accounts, environments and budgets
- **Benefits:** Increase workload management efficiencies, accelerate time to value, provide governance and policy across multiple clouds

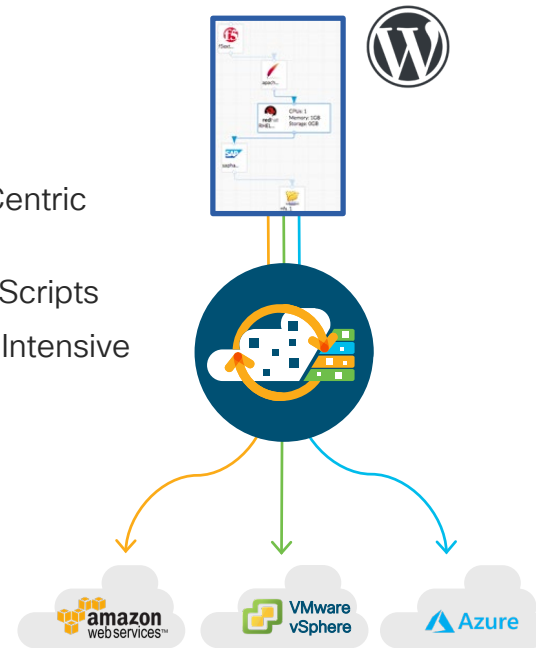


# Unique Approach to Cloud Scale



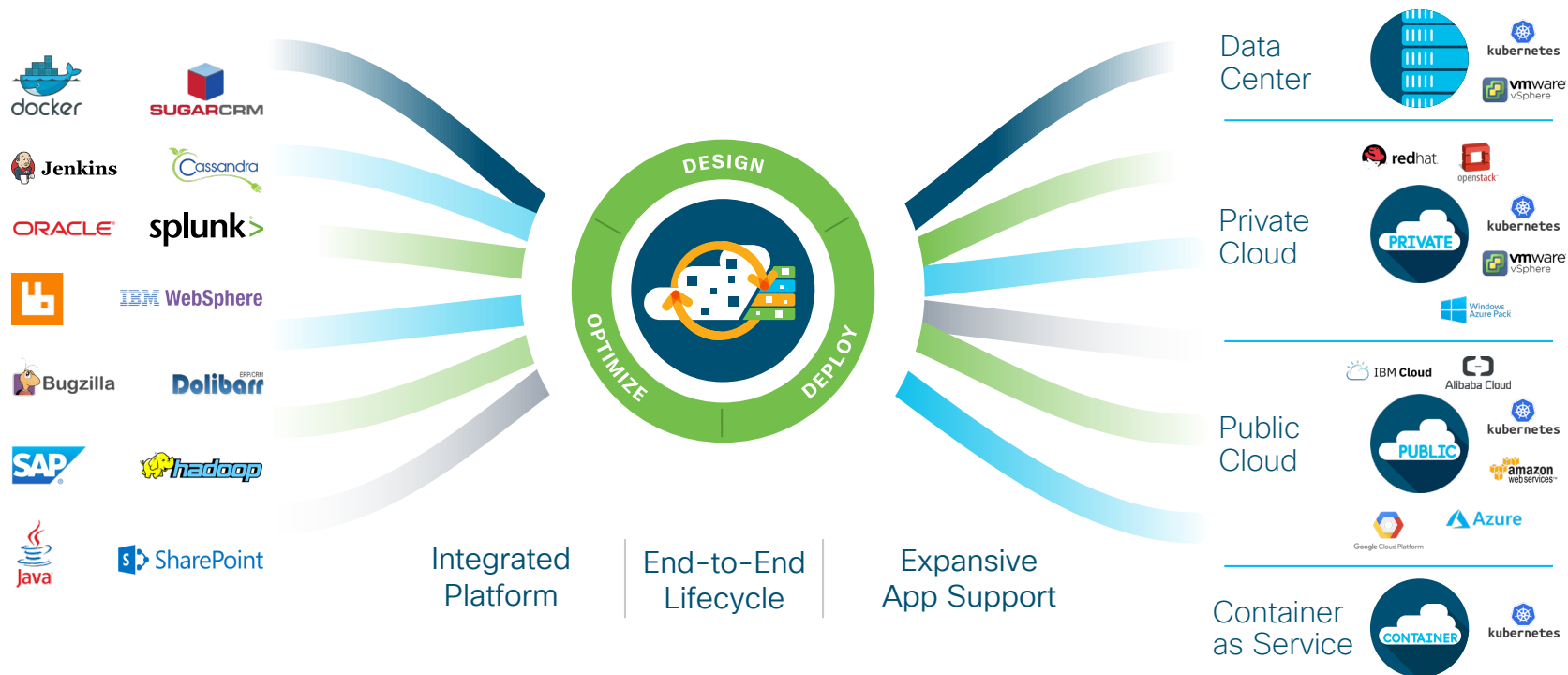
Infrastructure-Centric  
Cloud-Specific  
Workflows and Scripts  
Labor/Services Intensive  
Error Prone

## Application Profile-Based



Application-Centric  
Cloud-Agnostic  
Low TCO

# Design, Deploy, Orchestrate and Optimize

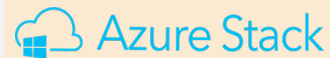




# Supported Clouds

## Workload Manager & Cost Optimizer

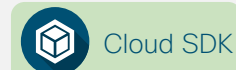
### Private Clouds



### Kubernetes



### "BYO-Cloud"



### Public Clouds



Government Cloud Support

Supported in 5.2

Under Evaluation

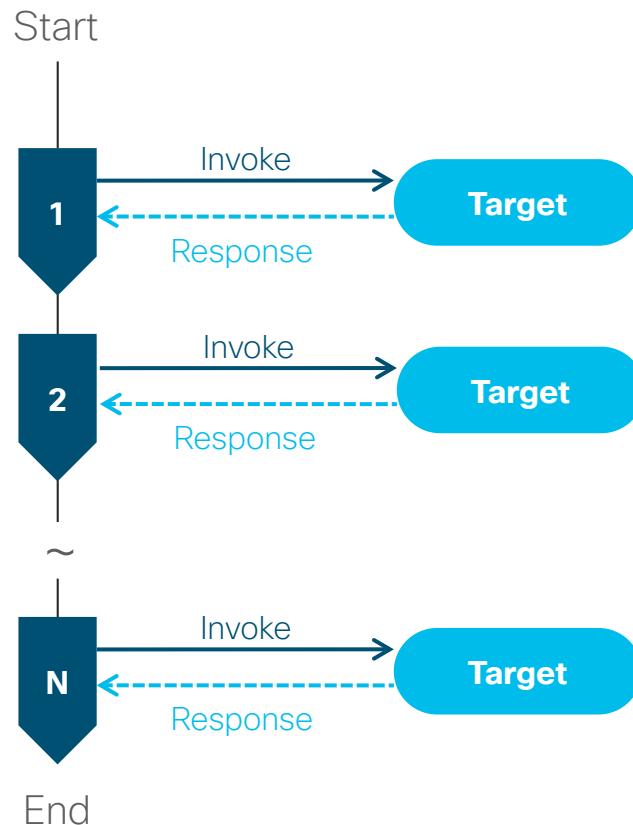


# Workload Manager Demo



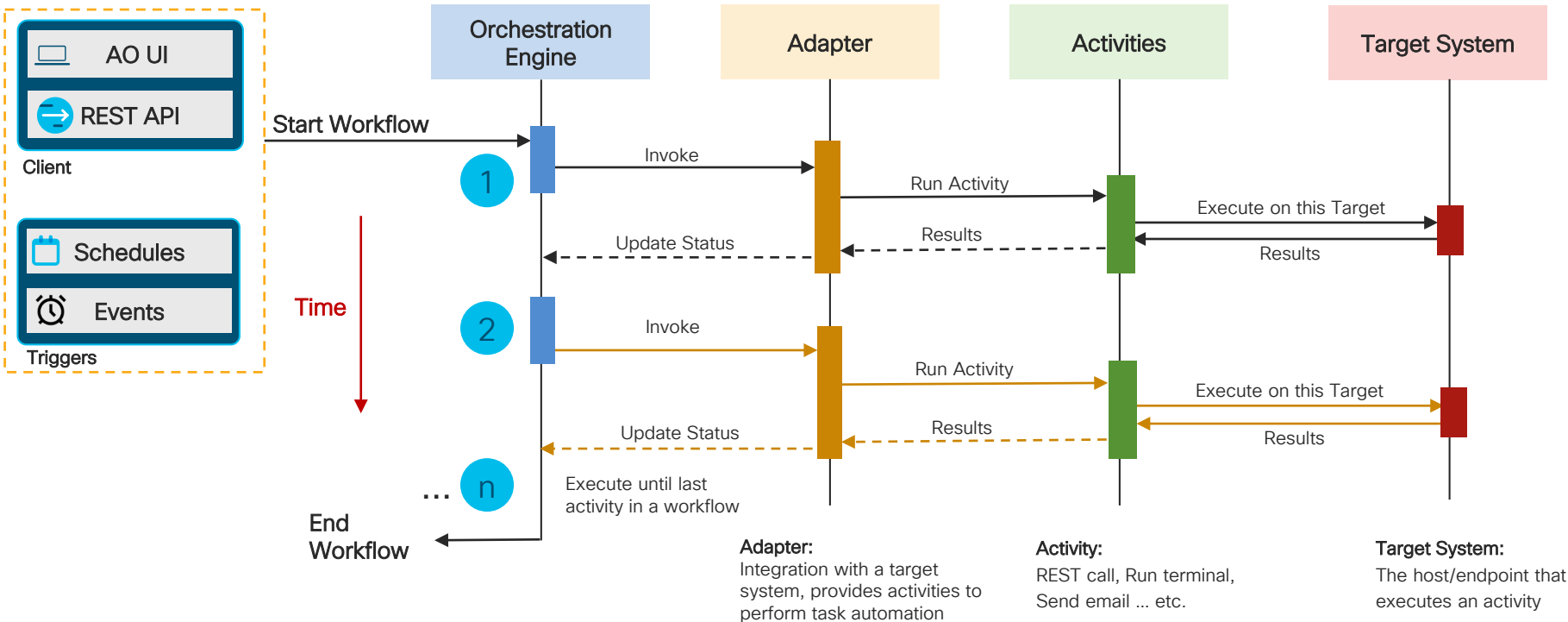
# Action Orchestrator

- Ecosystem integration standardized using adapters and workflows
  - Execute workflows with business and technical logic
  - Use included adapters & activities  
... or create custom ones!
- **Benefits:** Eliminate repetitive tasks and broaden scope of cloud orchestration, simplify business process and reduce human error



# Action Orchestrator Workflow Sequence

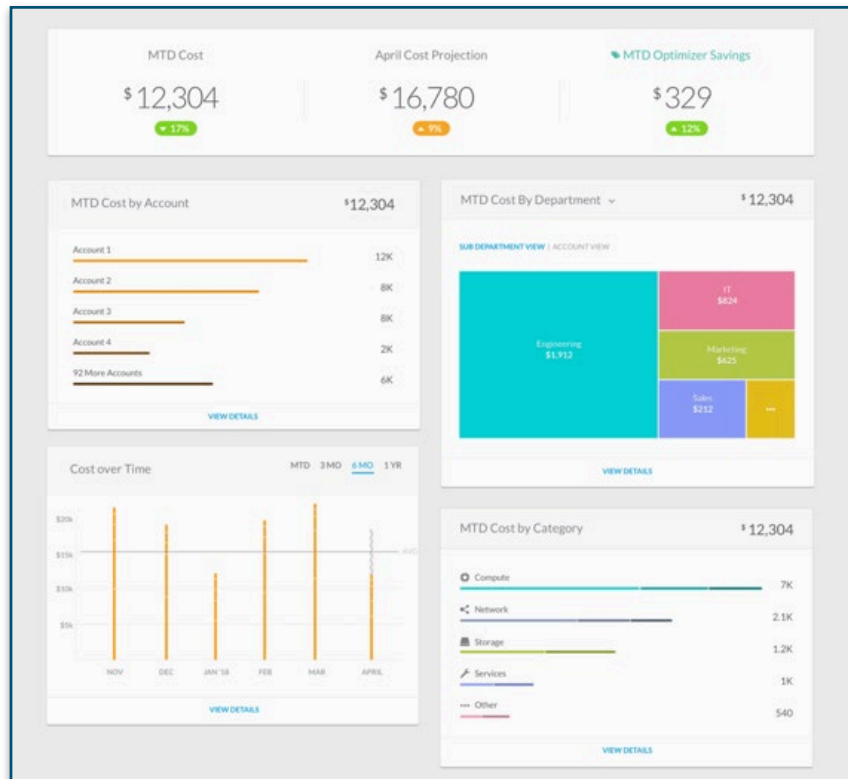
AO's Orchestration Engine invokes **Adapters** to execute **Activities** on the **Target Systems**, which returns results and status, then the next step in the workflow begins.





# Cost Optimizer

- Cloud usage optimization and cost reduction across multiple clouds
- Use automated recommendations to optimize consumption
- Simplify inventory and total spend reporting across clouds, accounts and users
- Implement rightsizing aligned with policy
- **Benefits:** Provide consumption visibility across clouds, right-size cloud instances, control spend and reduce cloud costs



# Orchestrator

of Orchestrators



# The Holy Grail

## Cisco Live NOC



Cisco Prime Service Catalog

Action Orchestrator



"Helper VM"  
Ubuntu



Logging  
Device Status

TFTP

fping

SSH

SNMP

SSH

ASR1009



Internet  
2x10 GB



Webex Teams



Meraki



CMX



Cisco Prime  
Infrastructure



Cisco Prime  
Network Registrar



InfluxDB  
Grafana

smartsheet



Catalyst  
9800

SSH & REST API

REST API

REST API

SSH & REST API

REST API

SSH & REST API

SSH & REST API

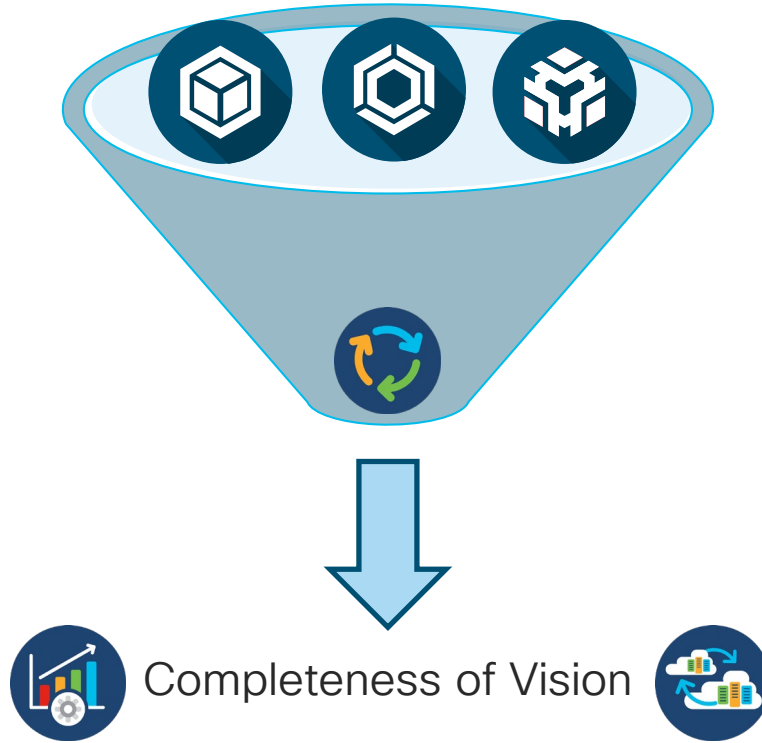
SSH & REST API

SSH & RESTCONF API

cisco *Live!*

# Better Together = Equal Parts

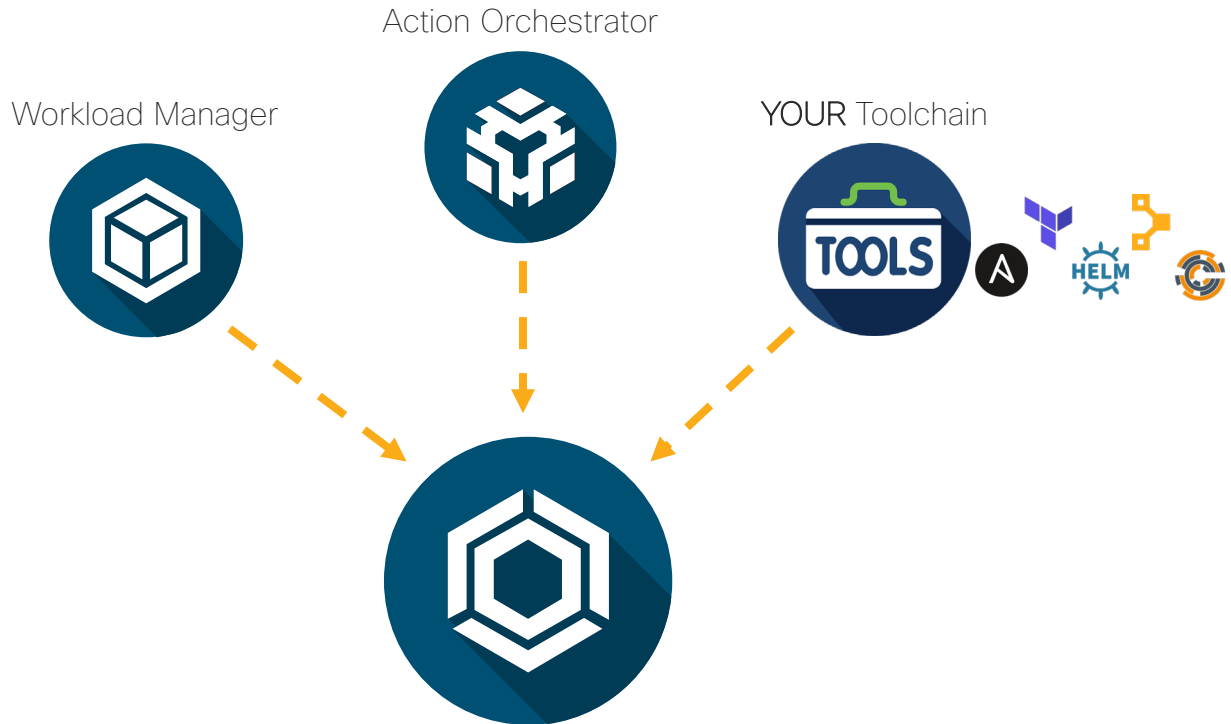
Workload Manager + Action Orchestrator + Cost Optimizer



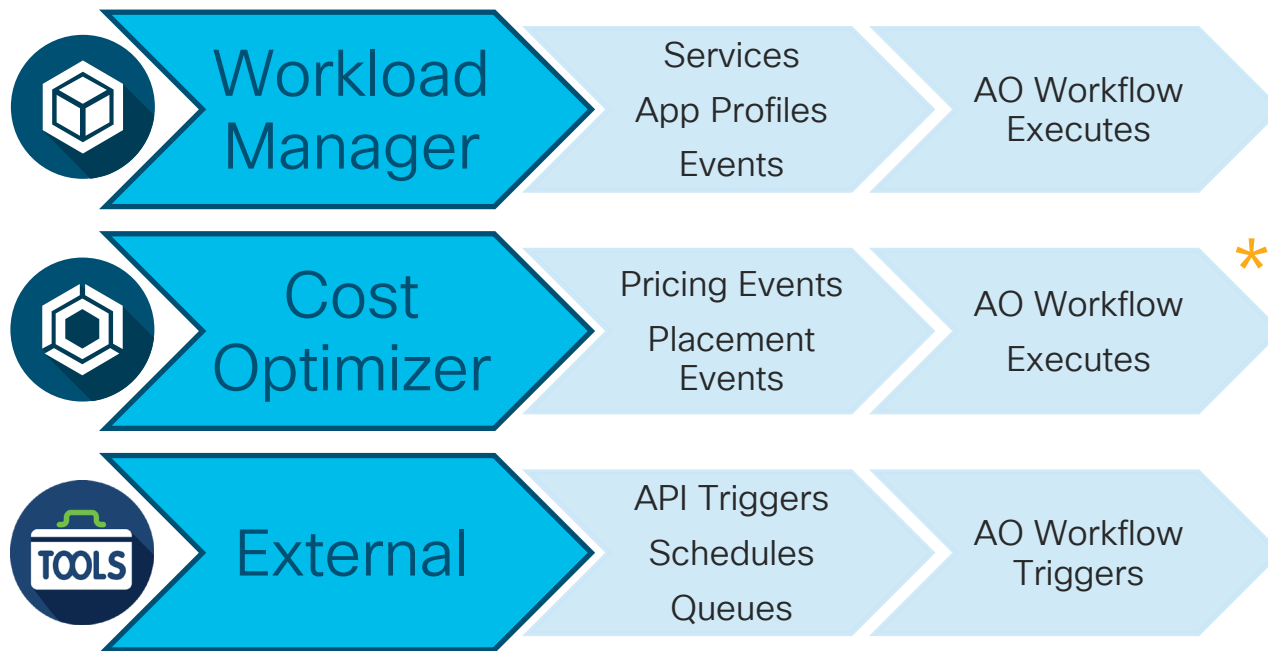


# Action Orchestrator

## The Orchestrator of Orchestrators



# Trigger-Driven Orchestration



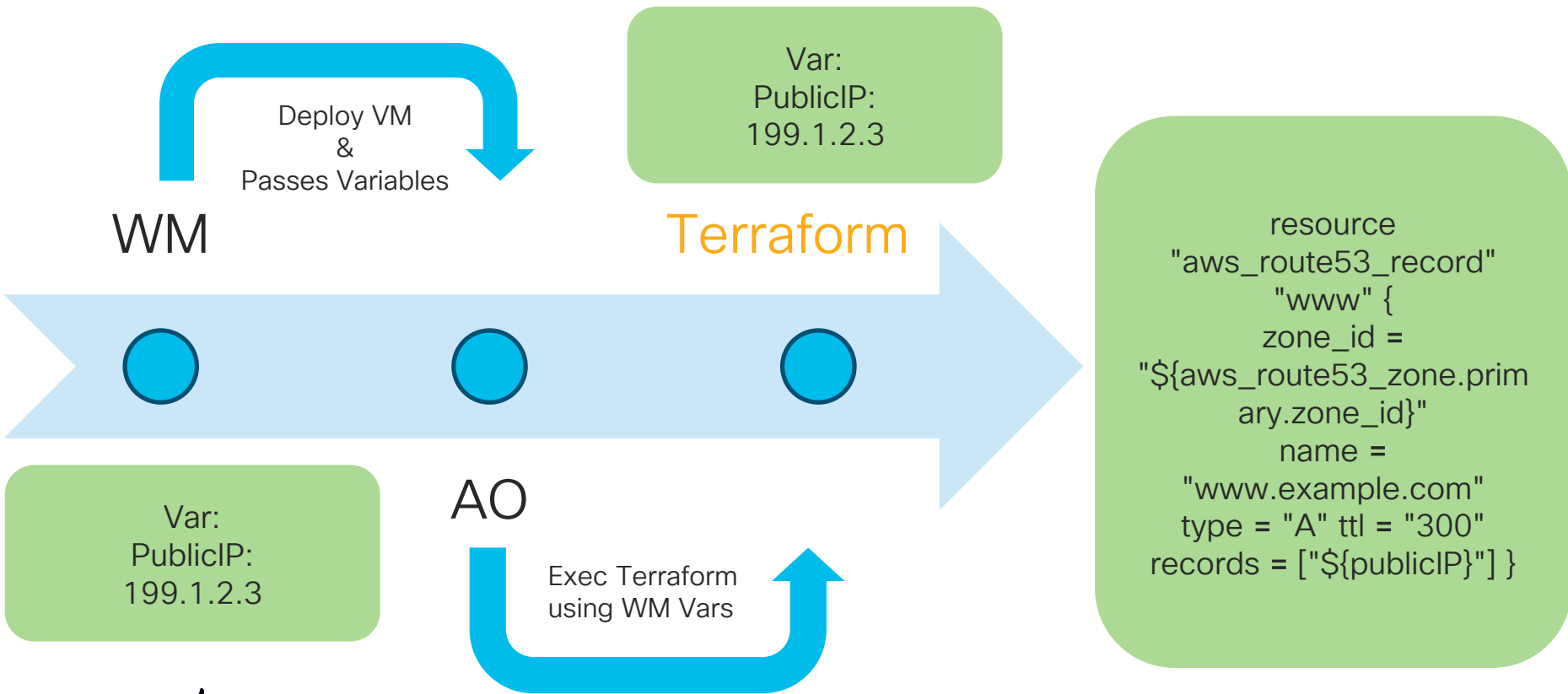
# Use Cases

- Workload Manager triggers a workflow to pre-provision a VPC, Subnet, and Internet GW in AWS.
  - This would occur Pre-VM initialization [i.e. Day-0].
- Cisco Container Platform (CCP) triggers a workflow whenever new pods are created to inject the Ingress LB name into DNS.
  - In addition, a workflow could be also trigger to create the cluster!
- Action Orchestrator workflows can be used to gather and aggregate data into Prometheus-Grafana dashboards.
  - On display at the Cisco Live! NOC in The Hub.

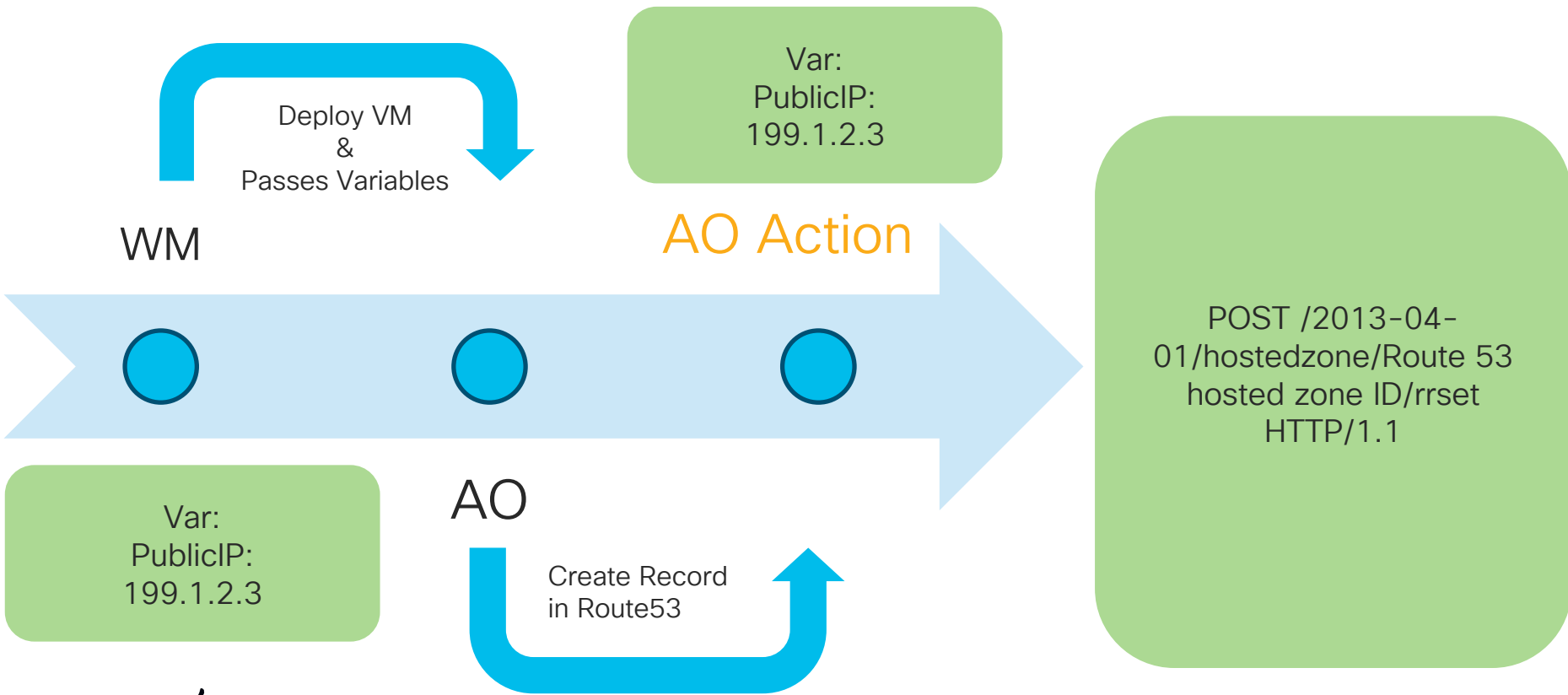
# Example:

## Action Orchestrator & Terraform

# Action Orchestrator w/ Terraform



# Action Orchestrator **Only**



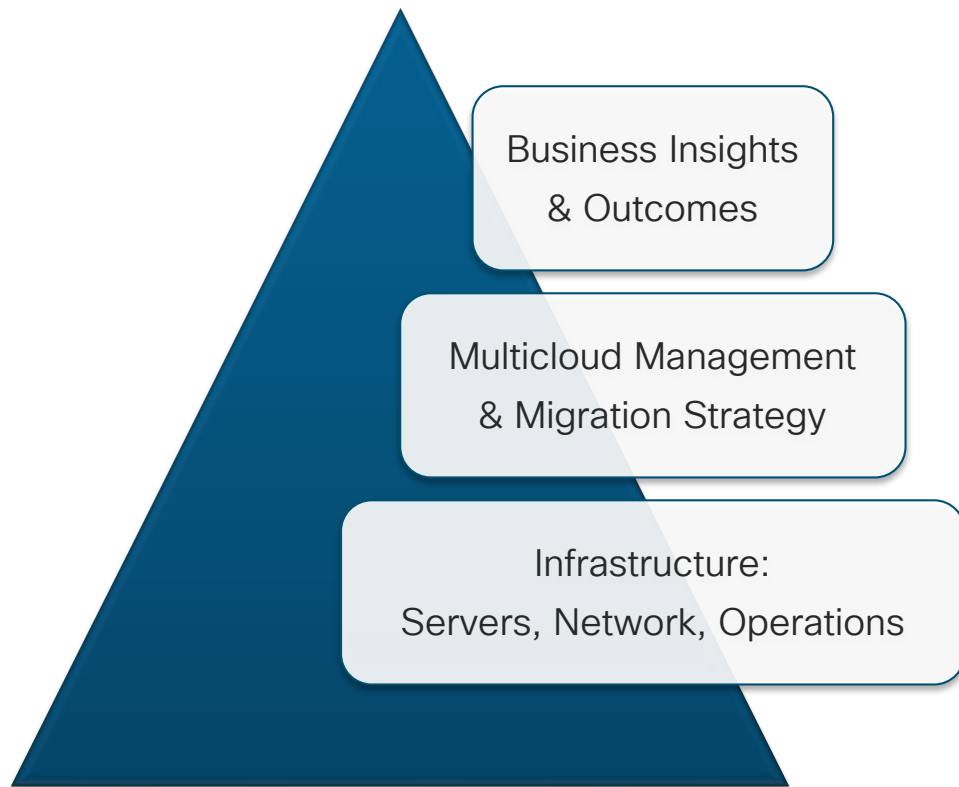


Demo

*Working Together*



# What needs to be orchestrated?



# Enhance your Development Pipeline

Action Orchestrator enables IT operations to use best-in-class software and tools without developing complicated, fragile and ad-hoc work streams.

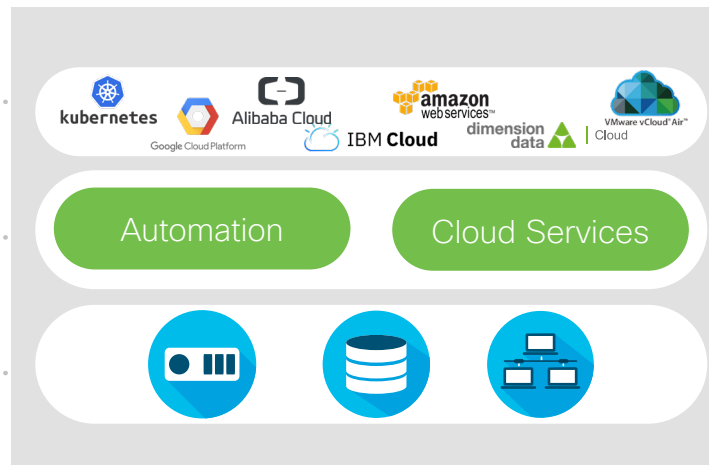
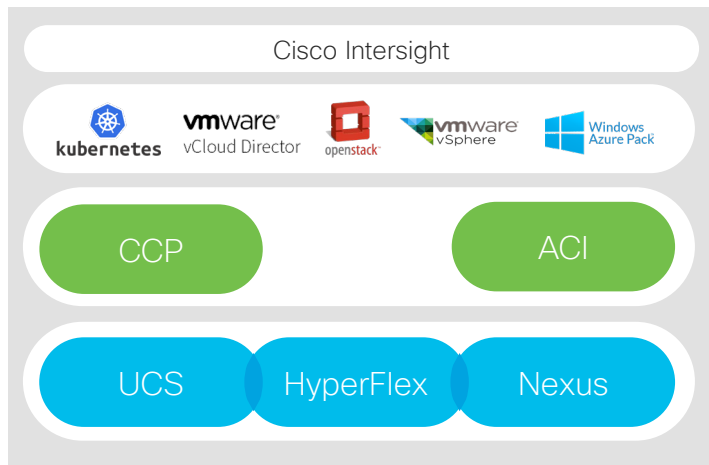
Build automation strategies that reduce human error and eliminate the repetitive and complicated tasks that often plague technical integrations and business processes.

- Simplify technical and business workflow automation by providing integration through a broad set of adaptors and standardized interfaces
  - **Limitless Extensibility!**
- “Drag n’ Drop” UI with visual workflows and built-in patterns such as Circuit Breaker, Canary Calls and Retries – **No coding required!**

**\*\* Demo Video Available \*\***

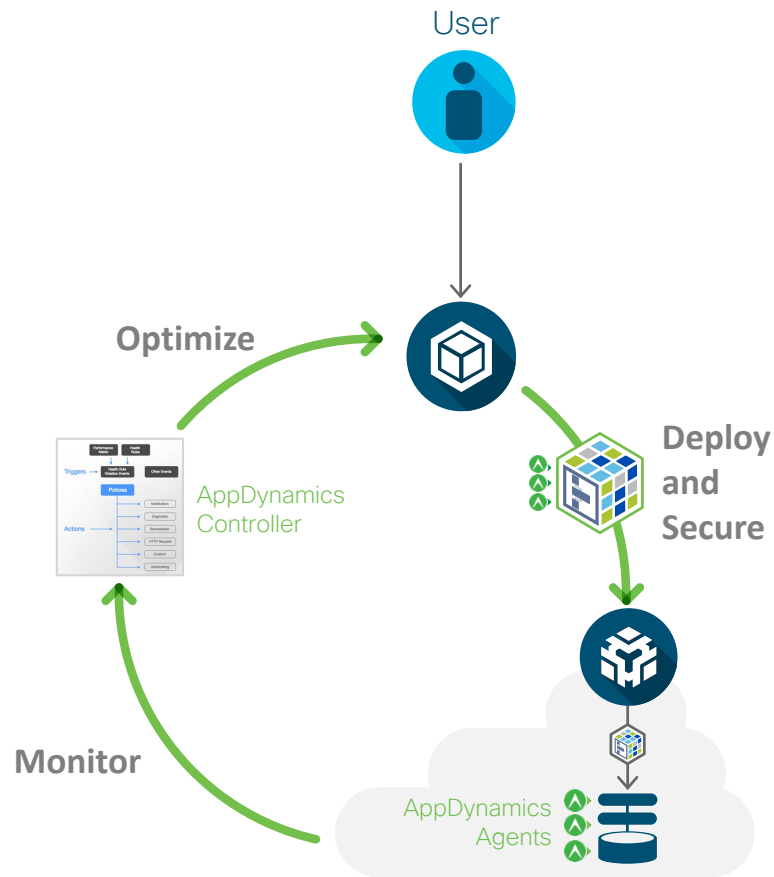


# CloudCenter Suite Integration with Cisco Portfolio



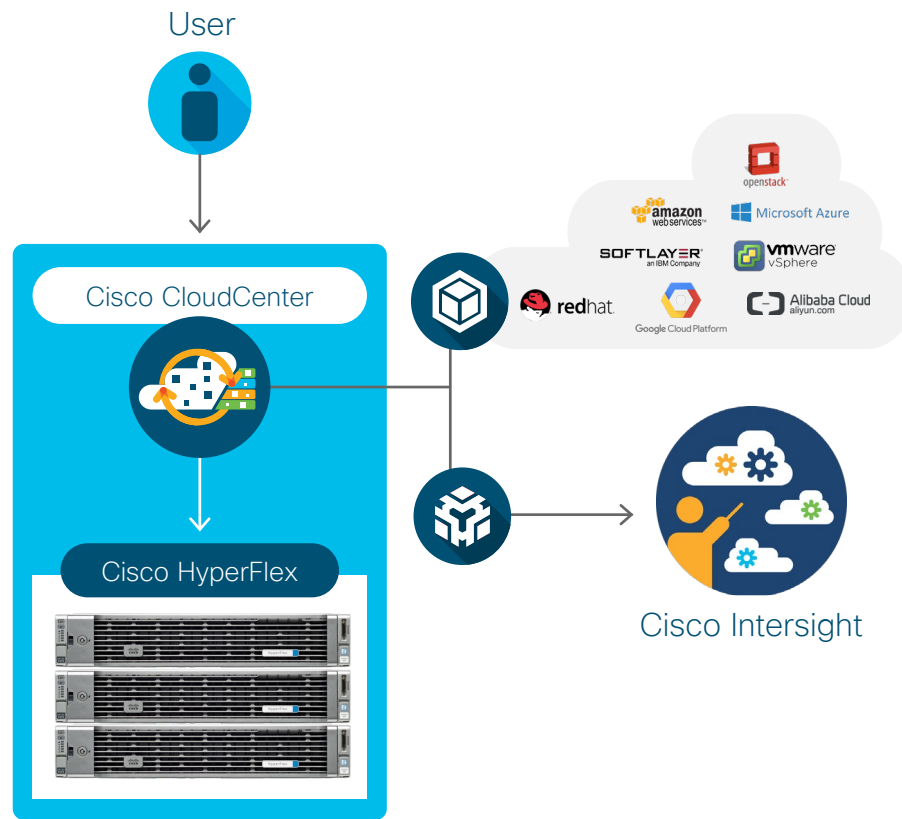
# CloudCenter Suite with **AppDynamics**

- Deploy – AppDynamics Agent seamlessly as part of Workload Manager Application Profile
- Monitor – Application ecosystem and identify emerging issues
- Optimize – Automate scale out to preserve performance and minimize cost



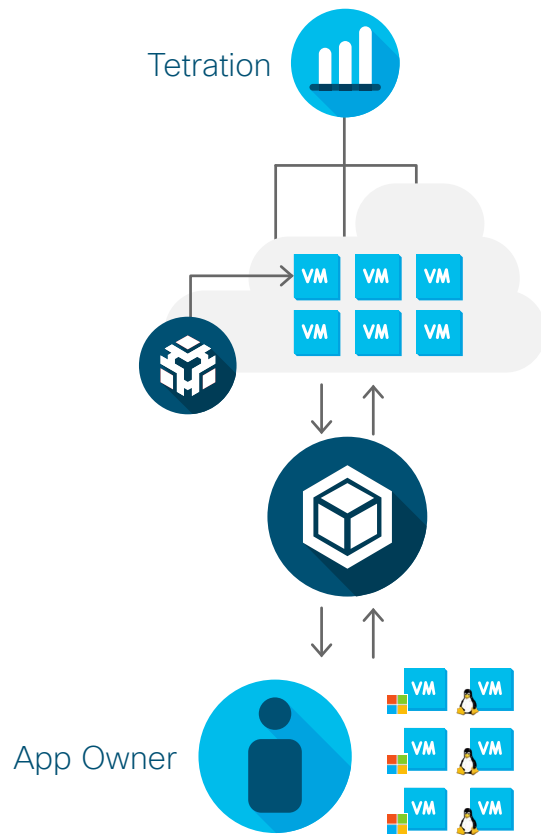
# CloudCenter Suite with **HyperFlex**

- Deploy and Manage applications on both HyperFlex and Public Cloud
- Provides Self-Service Catalog
- Optimize Capacity
- Pre-Integrated HW and SW with SmartPlay Bundles



# CloudCenter Suite with **Tetration**

- Deploy Tetration Agent to perform security audits and automatically remediate non-compliant workloads



# Adapter Support

| Adapter             | Category          | Acquisition Method      |
|---------------------|-------------------|-------------------------|
| APIC EM             | Orchestration     | OOB                     |
| Meraki              | Networking        | OOB                     |
| AWS                 | Public Cloud      | OOB                     |
| Azure               | Public Cloud      | OOB                     |
| GCP                 | Public Cloud      | OOB                     |
| Email               | Communication     | OOB                     |
| Python              | Dev Tools         | OOB                     |
| Table Activities    | Dev Tools         | OOB                     |
| Unix/Linux System   | Platforms         | OOB                     |
| WebService          | Dev Tools         | OOB                     |
| Terminal            | Dev Tools         | OOB                     |
| AMQP                | Messaging         | OOB                     |
| Database Activities | Dev Tools         | OOB                     |
| MongoDB             | Dev Tools         | OOB                     |
| Core                | Dev Tools         | OOB                     |
| Kafka               | Messaging         | OOB                     |
| CloudCenter         | CMP               | OOB                     |
| Ansible Tower       | Config Management | OOB                     |
| UCSD                | Orchestration     | Cisco Published to Repo |

| Adapter              | Category            | Acquisition Method      |
|----------------------|---------------------|-------------------------|
| NSO                  | Orchestration       | Cisco Published to Repo |
| DNA-C                | Orchestration       | Cisco Published to Repo |
| Chef                 | Config Management   | Cisco Published to Repo |
| Ansible              | Config Management   | Cisco Published to Repo |
| Puppet               | Config Management   | Cisco Published to Repo |
| Kubernetes           | Platforms           | Cisco Published to Repo |
| Process Orchestrator | Orchestration       | Cisco Published to Repo |
| AppD                 | Monitoring          | Cisco Published to Repo |
| PSC                  | Catalog             | Cisco Published to Repo |
| Duo                  | Identity Management | Cisco Published to Repo |
| ThreatResponse       | Security            | Cisco Published to Repo |
| MS Windows           | Platforms           | Cisco Published to Repo |
| VMWare               | Private Cloud       | Cisco Published to Repo |
| OpenStack            | Private Cloud       | Cisco Published to Repo |
| Terraform            | Config Management   | Cisco Published to Repo |
| Openshift            | Platforms           | Cisco Published to Repo |
| Flexera              | Asset Management    | Cisco Published to Repo |
| ServiceNow           | ITSM                | Cisco Published to Repo |
| AI/ML                | AI/ML               | Cisco Published to Repo |

*What's Next?*



# Project Tercel

01 Dashboard

02 IT Services Catalog

03 Service Management

04 Inventory

Simplifying how organizations can seamlessly connect software and hardware across multiple domains, deployed across a variety of different target environments (cloud and on premises) for visibility and management

100%

Cloud Native

Check out the UX Demo!

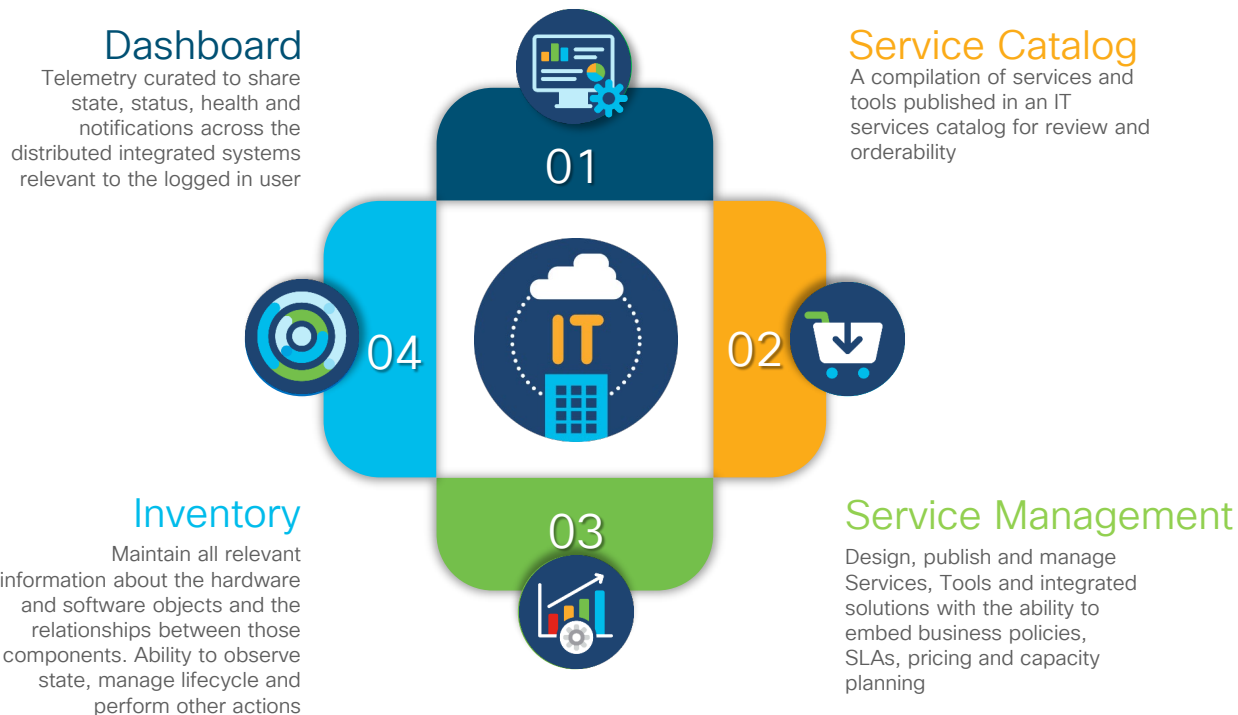


Reduces complexity of distributed environments

Orderable (Aug 2020)



# Simplifying Connected Management Software



# Key Takeaways

- Workload Manager helps customers design, deploy, and optimize their on-premises and public cloud environments. Workload manager enables governance policies, aligned with the organization's objectives, that provide centralized visibility and control to help customers improve their multicloud maturity.
- Action Orchestrator enables IT operations to use best-in-class software without developing complicated, ad-hoc work streams that do more to get in the way than solve the many challenges of running a modern data center and cloud strategy.
- Working together, Workload Manager and Action Orchestrator can provide the end-to-end management of infrastructure, applications and the "glue" in-between.
- [CloudCenter Suite 30-Day Free Trial](#)

# CCS@CLEUR20

- Additional Sessions:

- [DEVNET-2756](#) - Automate Kubernetes Infrastructure deployment in a MultiCloud environment using Cloud Center Suite API
- [DEVNET-2907](#) - Programming with Cisco Cloud Center Action Orchestrator Engine
- [TCRDCN-2900](#) - Cost Control in a Multicloud World

- World of Solutions!

- Multicloud Booth - CCS, CCP, ACI
- Cisco Live NOC in World of Solutions
- [LABCLD-2694](#) - Programming with CloudCenter AO for AWS Instance Management

- Read/Share these blogs:

- [IT Ops at the speed of Dev: Finding Balance in your Automation Strategy](#)
- [Pondering Automation](#) in Data Center Blogs
- [Your cloud bill is probably too high, and you should probably care](#)



Questions?



# 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).

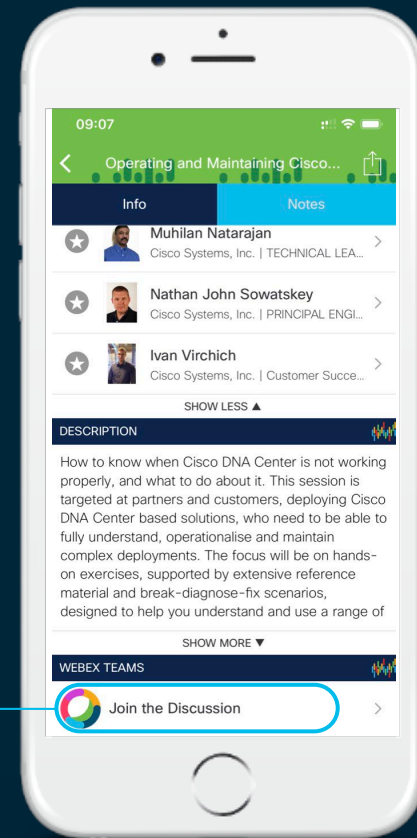
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# Continue your education



Demos in the  
Cisco Showcase



Walk-In Labs



Meet the Engineer  
1:1 meetings



Related sessions





Thank you





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