



# Cisco Tech Club Days

## **Cisco technologie pro datová centra: Nástroj pro transformaci Vašeho businessu**

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Cisco TSA

Date

# Applications Are

Foundation for digital transformation

Key interface between  
businesses and their customers

Hyper-diverse and hyper-distributed



# As a Result

The data center is no longer  
a place or fixed location

It's defined as wherever the data  
is created, processed and used



# 3 Trends Driving Data Center Modernization



## Applications are Evolving

- Refactoring and cloud native need modern architectures and capabilities
- ML, AI, and Analytics placing new demands



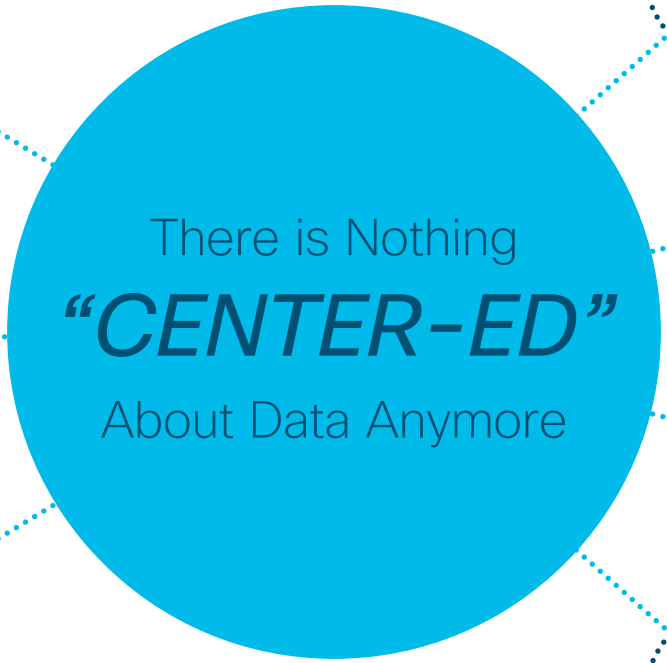
## Workloads are more Distributed

- Require flexible placement, increased performance, and enhanced monitoring
- Increased attack surfaces and blind spots



## Developers Demand Multicloud Flexibility

- Unprecedented app development speed and scale
- IT complexity driven by inconsistent buying options



### Enterprise DC

This is where we began,  
and it's here to stay



### Public Cloud

A new operating model and  
growth of cloud native apps



### Private Cloud



### IoT Edge

Significant amounts of data are being  
generated remotely which need to be  
analyzed, processed, and consumed.



### 5G Telco Edge

New apps are creating  
new BW demands



### Enterprise Edge

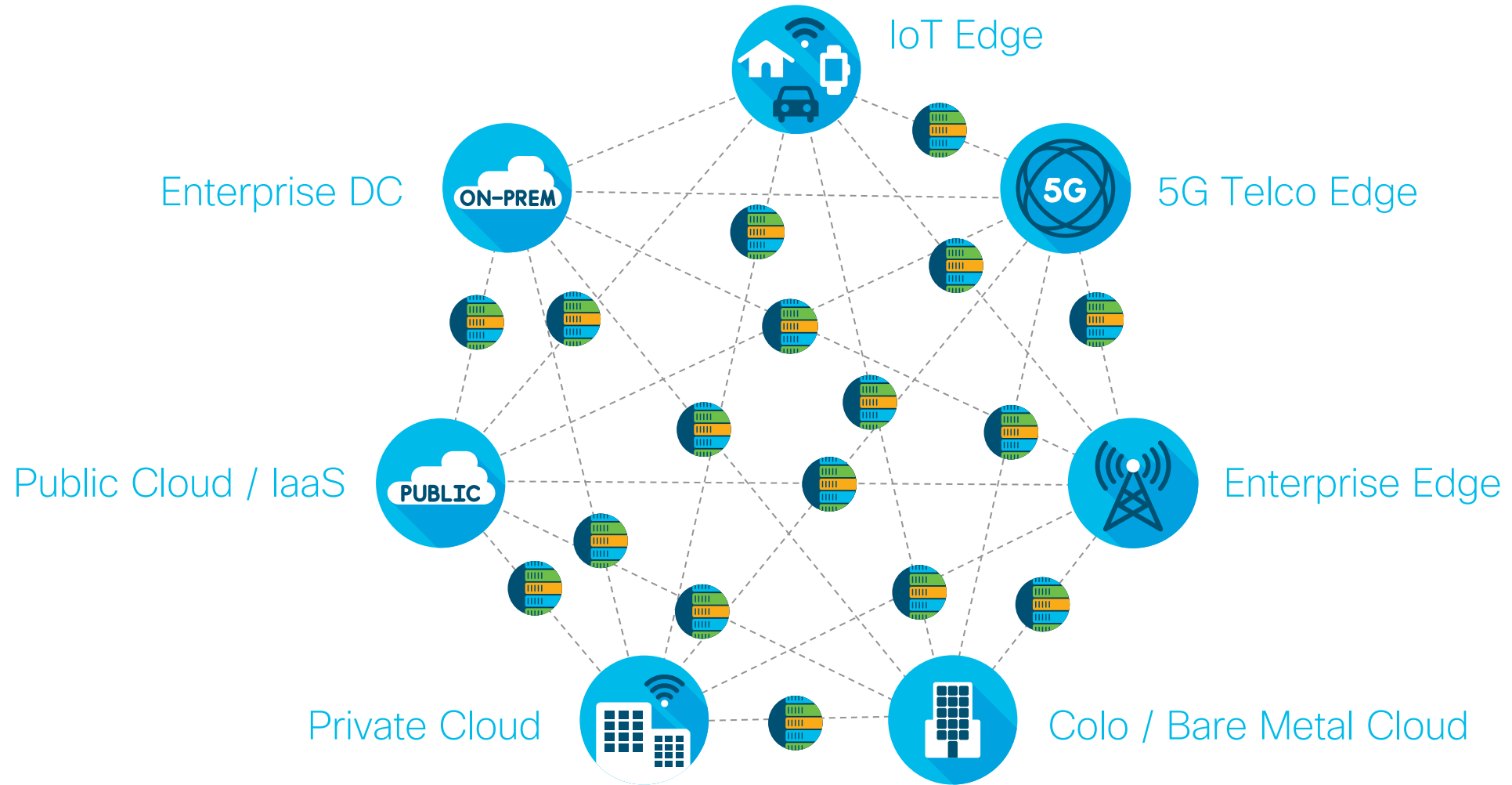
Data processing needs to be  
closer to the sources of demand



### Colo

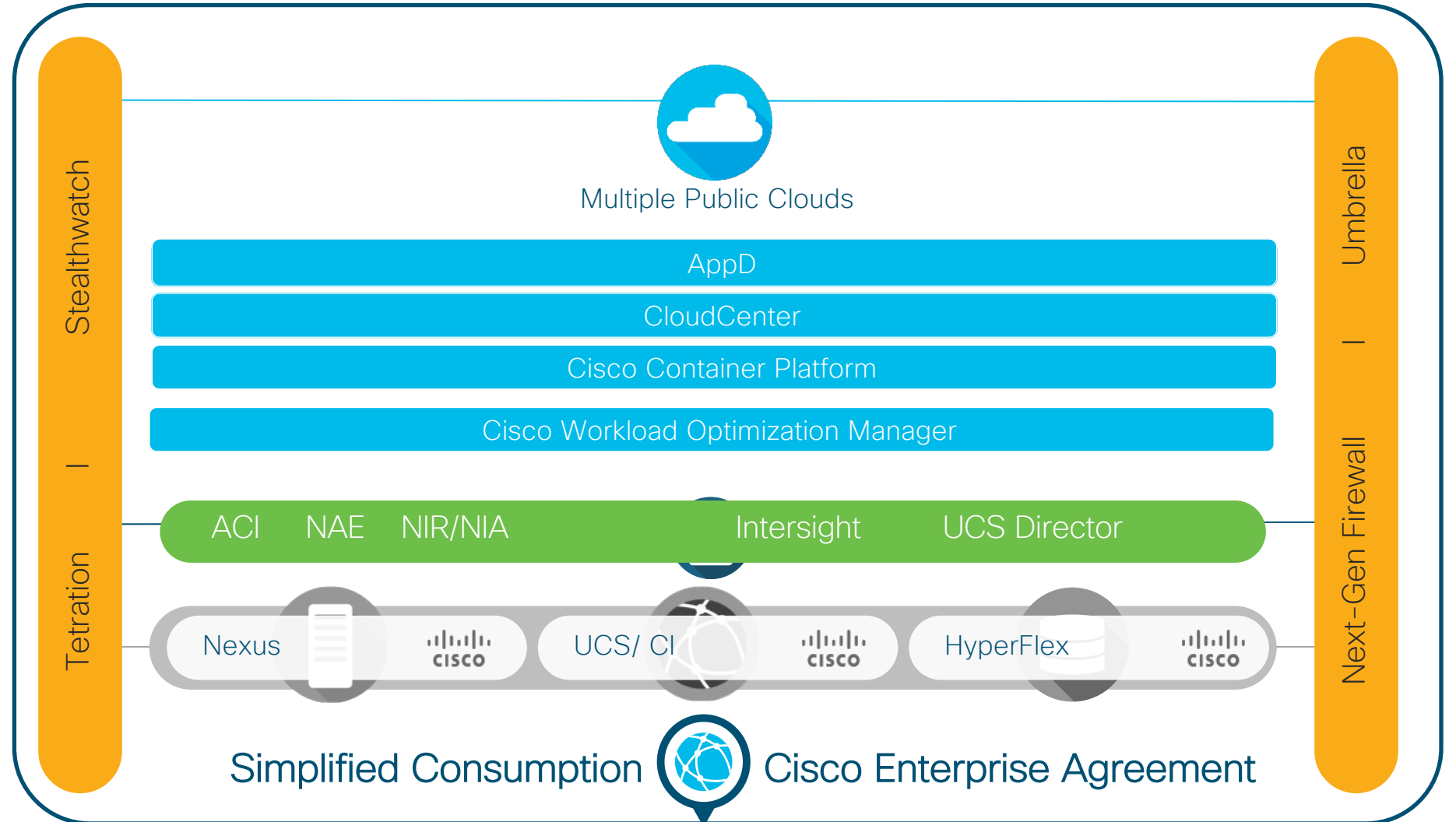


# The DC Needs to go Anywhere the Data is



# Cisco Data Center Architecture Stack

-   
Security
-   
Multi-cloud
-   
Automation

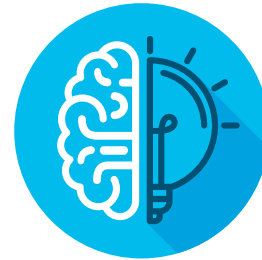


# Cisco Data Center: Pillars for Success



## Automation

Automate wherever possible and transform IT into a strategic business enabler.



## Multicloud

Design so that location doesn't matter, embracing Multicloud as an opportunity, not a hinderance.



## Security

Integrate security from the ground-up, providing pervasive defense in depth.



## Pillar for Success #1

Automate everything

# Automation is Your Competitive Advantage

Plan better

Deploy faster

Operate cheaper

Support proactively



# Cisco, as Open as You Want it to Be



Be Open

- Standard APIs across portfolio
- Programmable hardware
- Large ecosystem of partners
- Extensible for homegrown tools

BYO Automation



ANSIBLE



openstack®



CANONICAL

CFEngine



python™

splunk>



redhat.

vmware®

# Simplify the Entire IT Operations Lifecycle



Fully  
Packaged  
Systems



Be Open

- Single vendor simplicity
- From build to ongoing support
- Integrated automation
- Policy based management
- Open API's

Off The Shelf

ACI | AppD | Tetration

Network Assurance Engine

Intersight | HyperFlex | CWOM

# Cisco Data Center Automation Highlights



## Compute

### “Simplified Management”

Global policy enforcement and workflow automation from a cloud-based portal

Intersight | UCS | HyperFlex



## Network

### “Intent-Based”

Evolving the automation lifecycle to offer assurance and predictive change control

ACI | Tetration | NAE



## Workloads

### “All about the Apps”

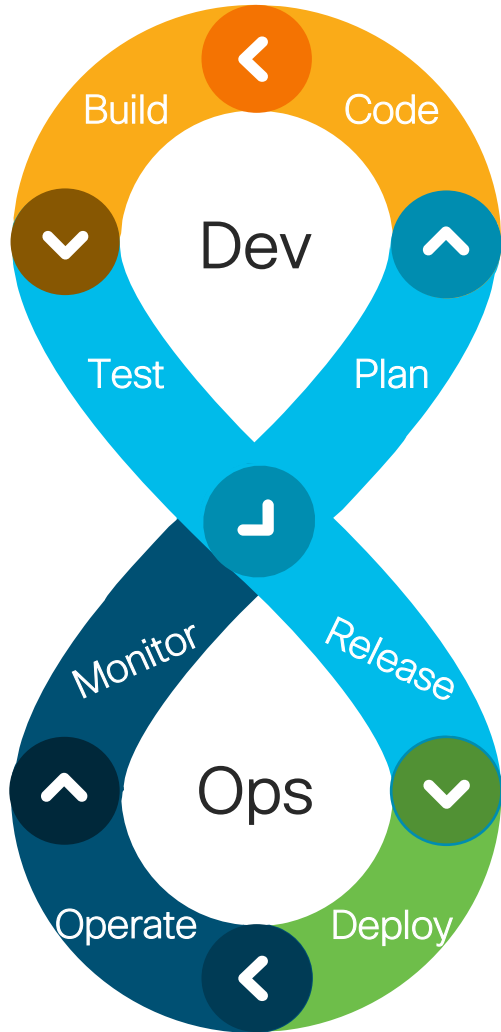
Continuously optimize the connection between app health, user satisfaction, and business results

Cloud Center | AppD  
Cisco Workload Optimization Manager

# Compute Automation Highlights



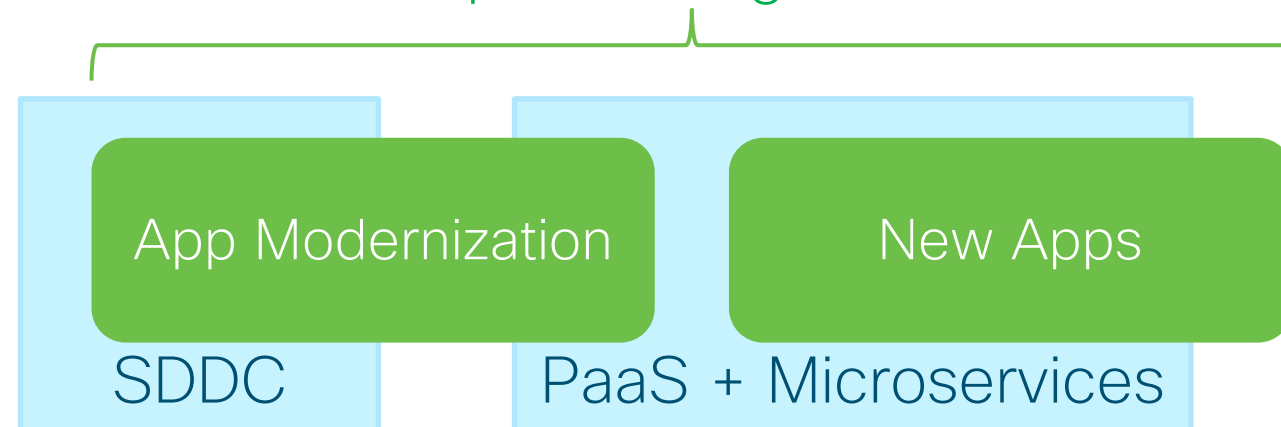
# How Modern Apps are Made



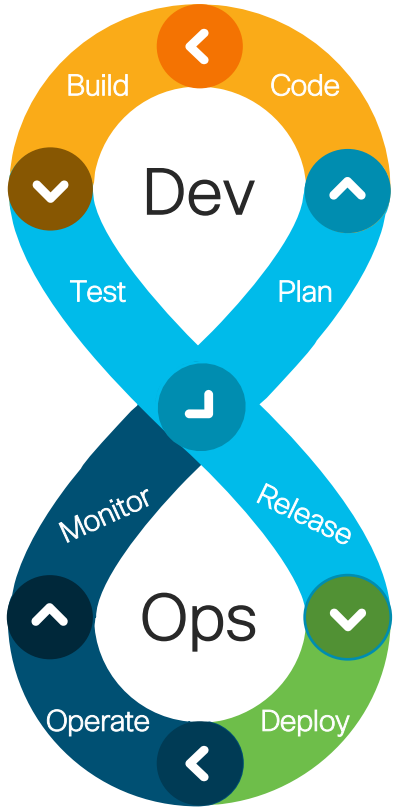
## Continuous Integration / Continuous Delivery

- Manage everything as software
- Fully programmable, including hardware: “Infrastructure as Code”
- Continuous automation and improvement

### Implementing CI/CD



# Policy-Driven Automation for DevOps



Develop

Code & Commit



Jenkins



Scan & Test



ANSIBLE

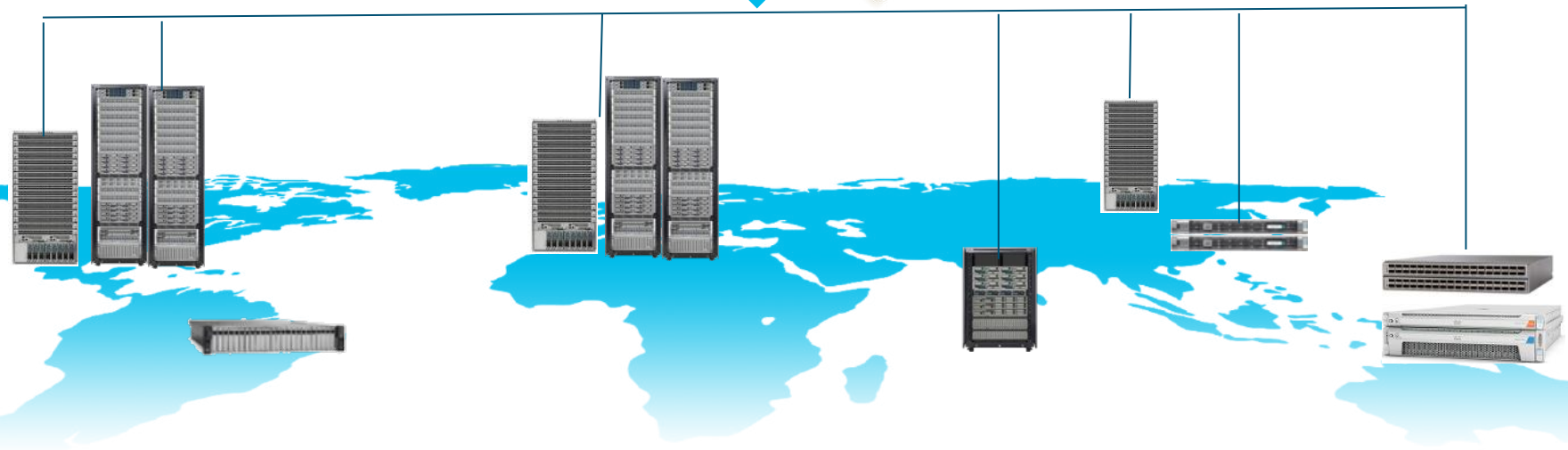


Playbooks

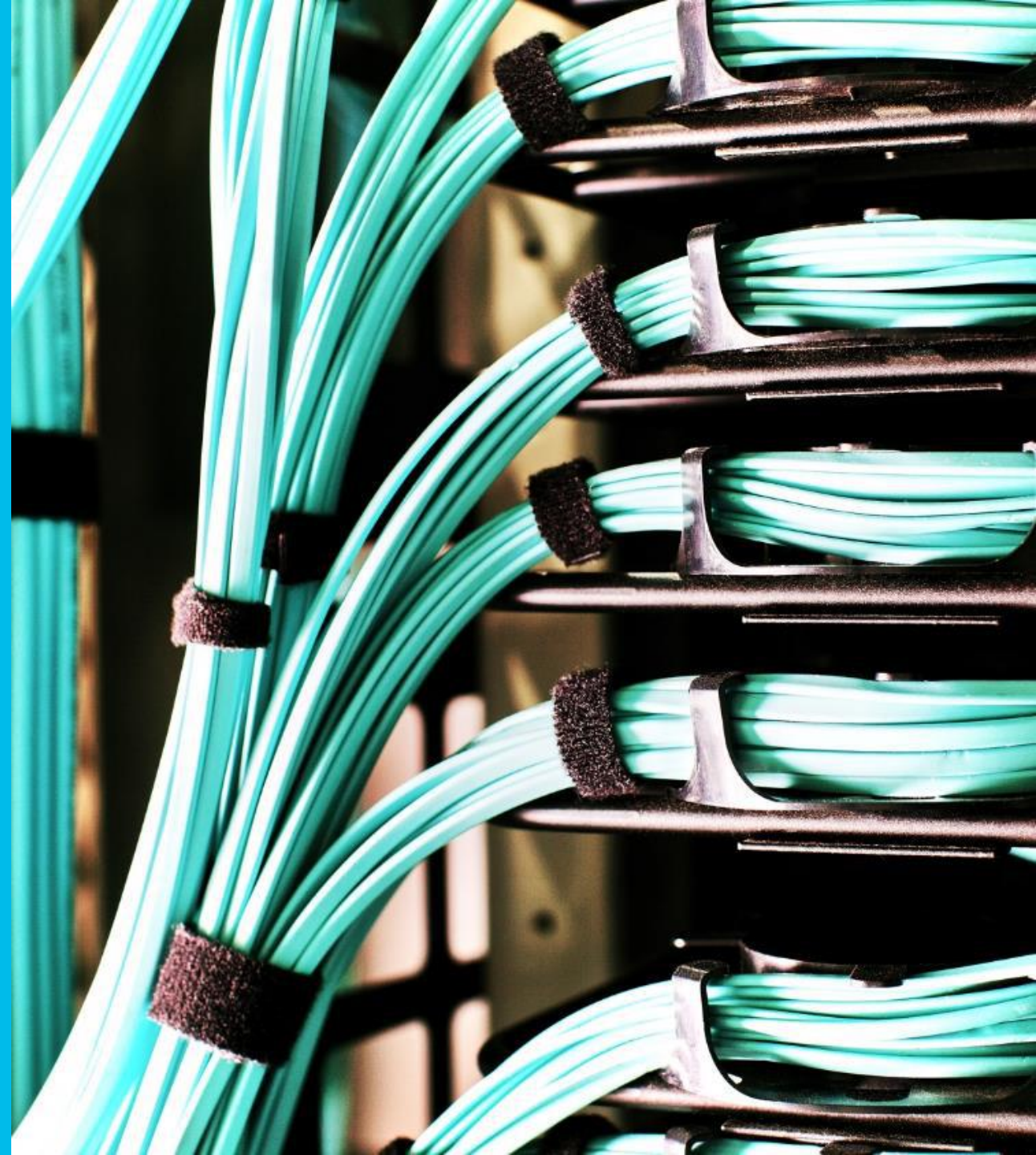
Deploy



Policy-Driven



# Networking Automation Highlights





# Cisco Application Centric Infrastructure



## Optimizes Your Network

- Single point for configuration and troubleshooting
- Full network and security automation
- Scale within and across data centers and geographies
- Seamless integration of underlay and overlay networks optimizes management overhead
- Open APIs enable an integrated ecosystem to protect your investment

# Policy Compliance and Enf. With NAE

## Assure Network Security Policies and Compliance

What Can a Model Answer?  
Example: Tenant Security



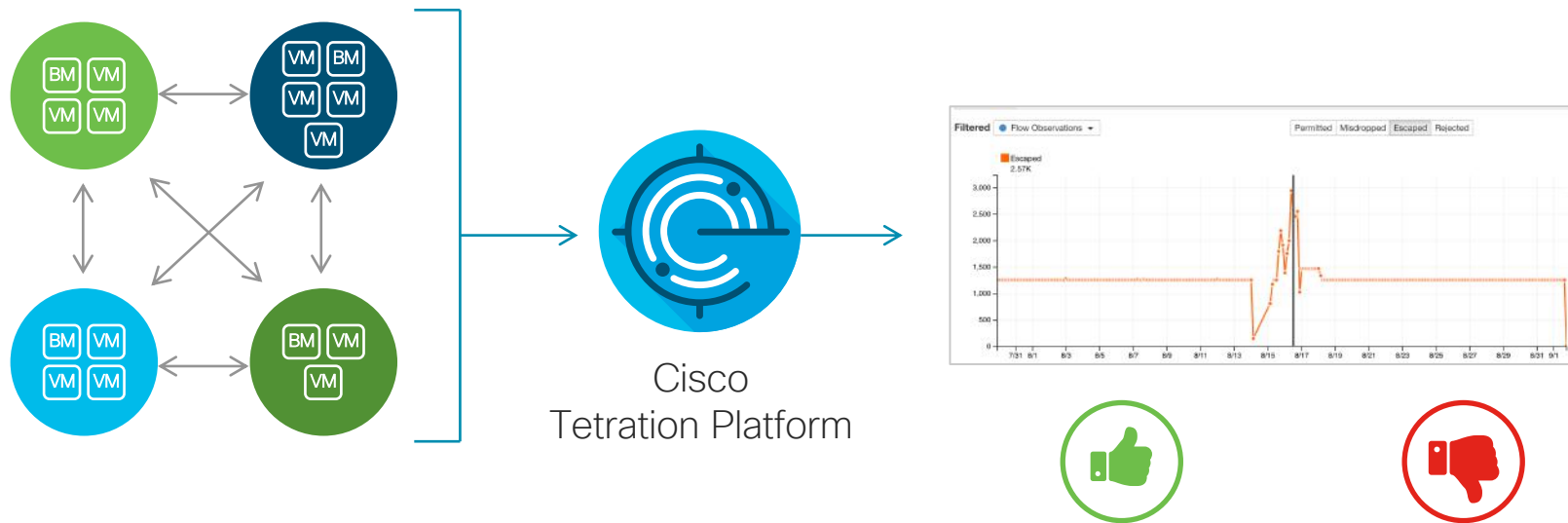
### Benefits

- View conflicting policies
- View aliased policies
- Clear compliance view
- Identification of violations
- Automated re-mediation

Analyze millions of policies; answer questions in real-time

# Policy Compliance and Enforcement with Tetration

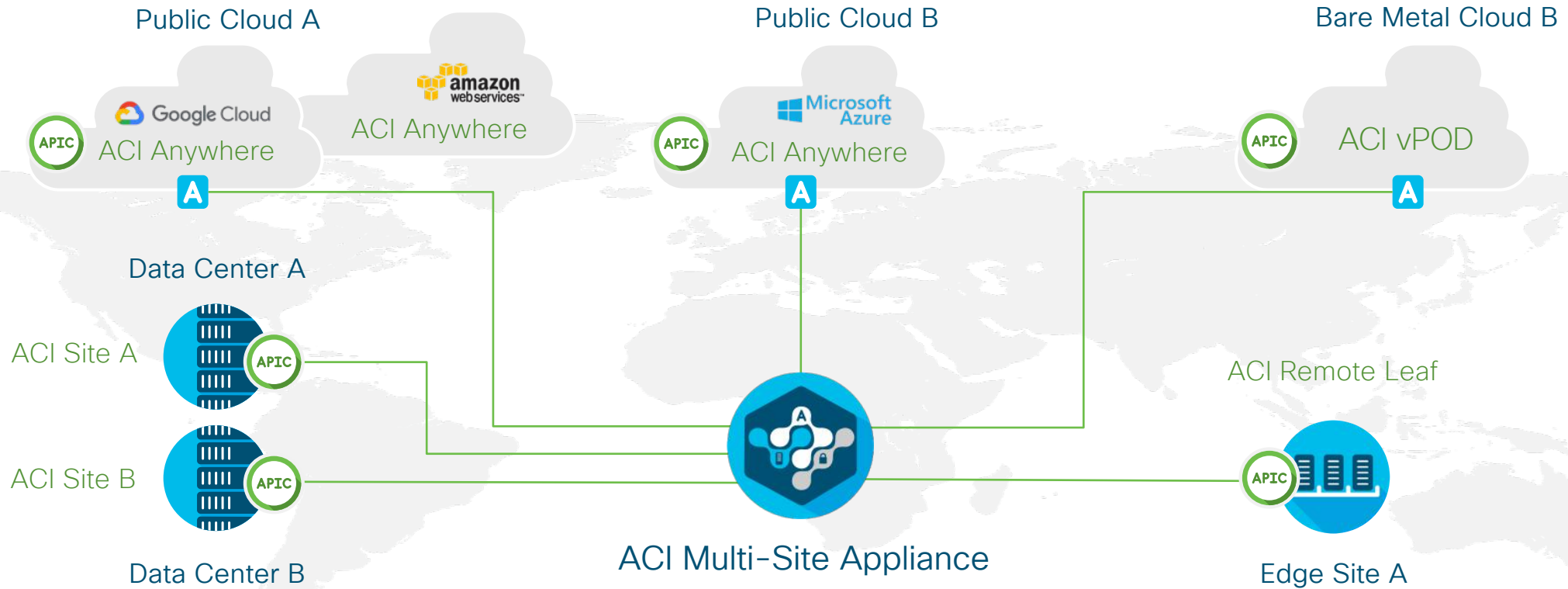
## Enforcement of Policy Across any Floor Tile



### Benefits

- Identify policy deviations in real time
- Review and update whitelist policy with one click
- Perform policy lifecycle management

# Network Policy that Goes Where You Go



Consistent network and policy across clouds



Seamless workload migration



Single point of orchestration

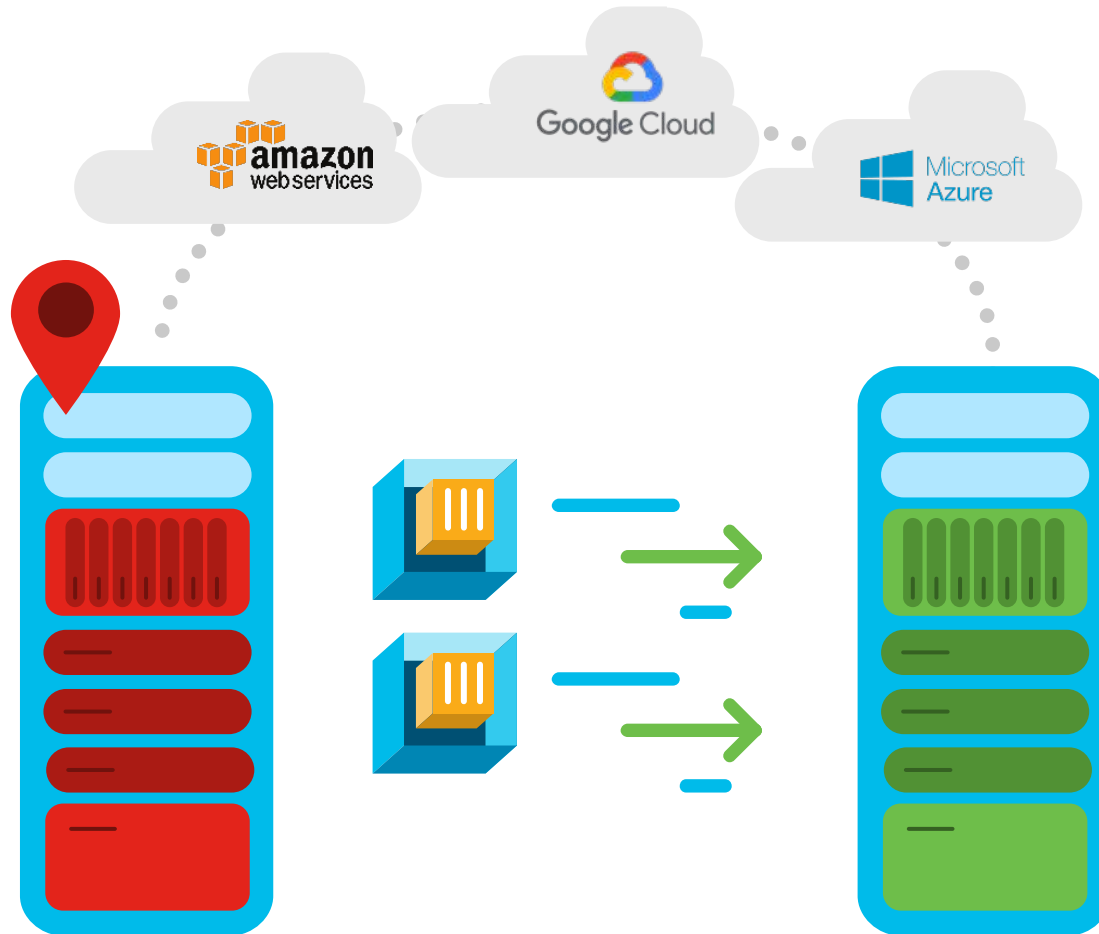


Secure automated connectivity

# Workload Automation Highlights



# Continuous Resource Optimization



## Cisco Workload Optimization Manager

### Dynamic Workload Optimization

Automatically allocate resources to the workloads that need them the most

### Increase infrastructure efficiency

Automatically maximize workload density and resource utilization, minimizing waste

### Workload Management

Automatically place, size, and move workloads across on-prem and cloud resources

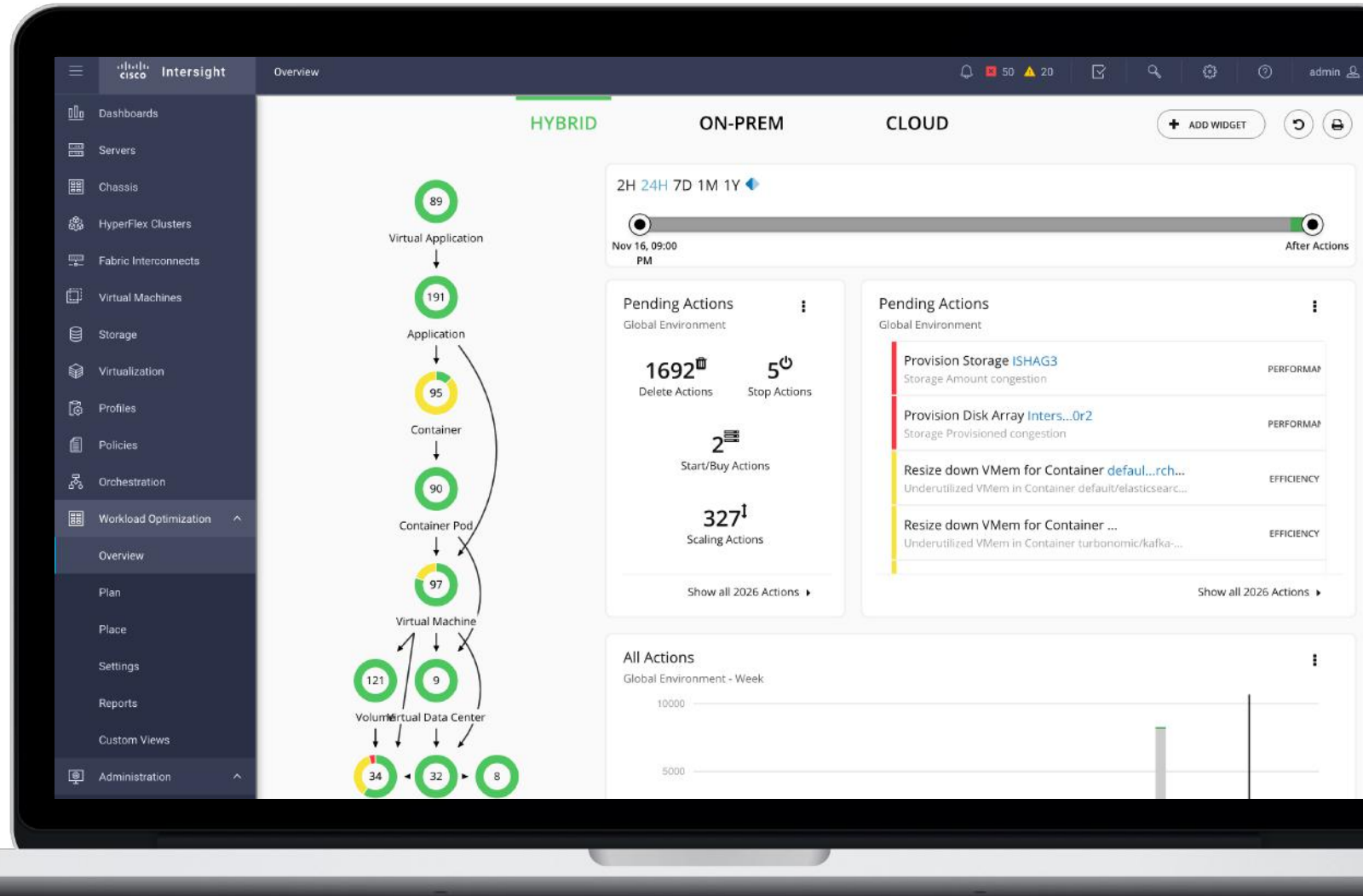
# Cisco Intersight Workload Optimizer

Ensure app performance and critical digital experiences

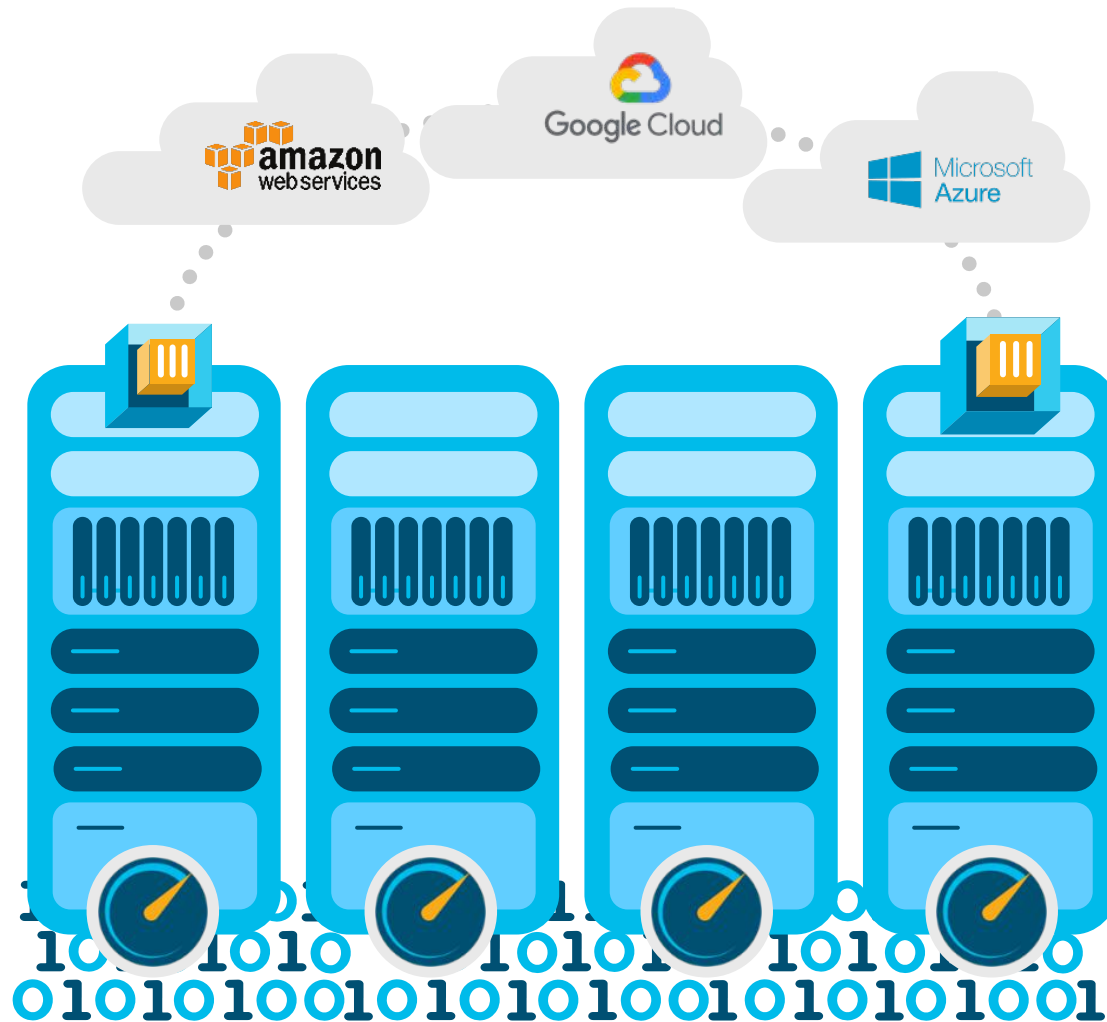
Understanding app resource needs at every layer

AI-assisted analytics drive automated resourcing decisions

Continuous optimization matches application resource demands to the underlying infrastructure



# Keeping up with the Pace of Business



## Cisco Cloud Center

### Putting you in control of your Multicloud

- Agile workload deployments
- Increased control, avoid cloud lock-in

### IT as a strategic business enabler

### Workload performance monitoring

- Real time visibility into app performance
- Optimized end user experience

AppDynamics



## Pillar for Success #2

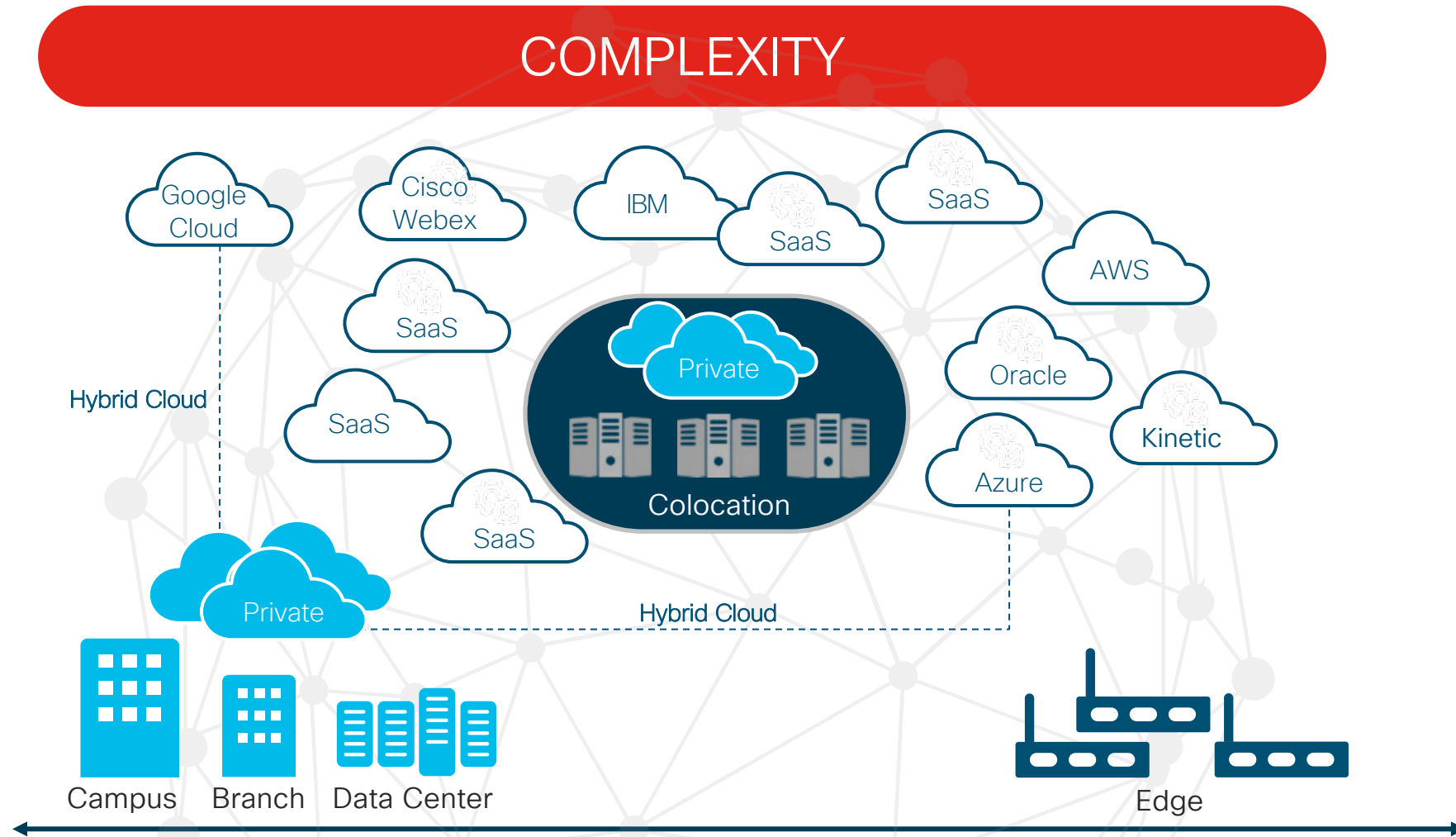
### Embrace Multicloud

# Good Multicloud Starts at Home!

Must be able to place workloads based on business needs, not technology limitations.



# A multicloud approach comes with challenges



# Cisco Data Center Multicloud Offers



## On-Prem Cloud

“Good Multicloud starts at home”

Develop a cloud-native operational model for the workloads that must stay at home and new demands at the edge

HyperFlex Hybrid Cloud | ACI | Azurestack  
Intersight | Managed Private Cloud



## Application Mobility

“Follow business needs”

Remove IT limitations to workload placement on-prem and in the cloud

CloudCenter | Cisco Workload  
Optimization Manager



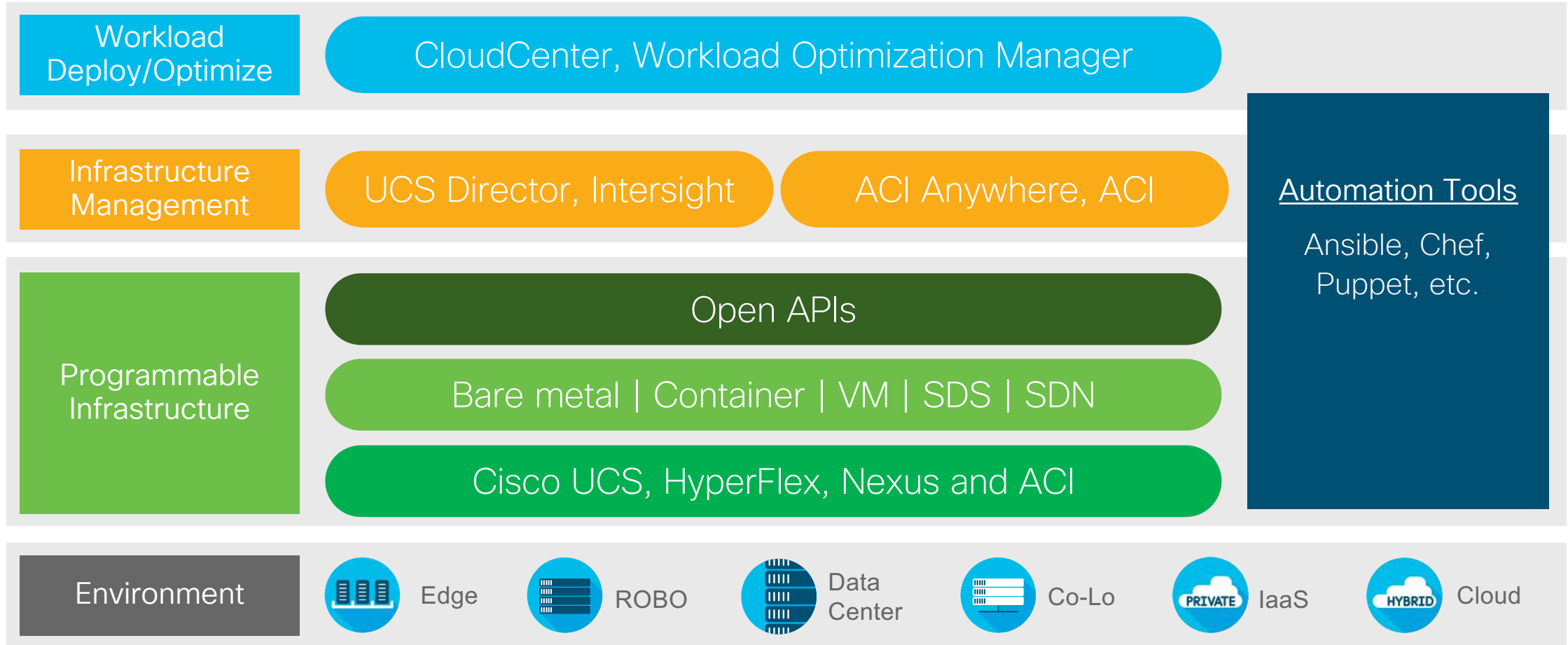
## Public Cloud

“Take control”

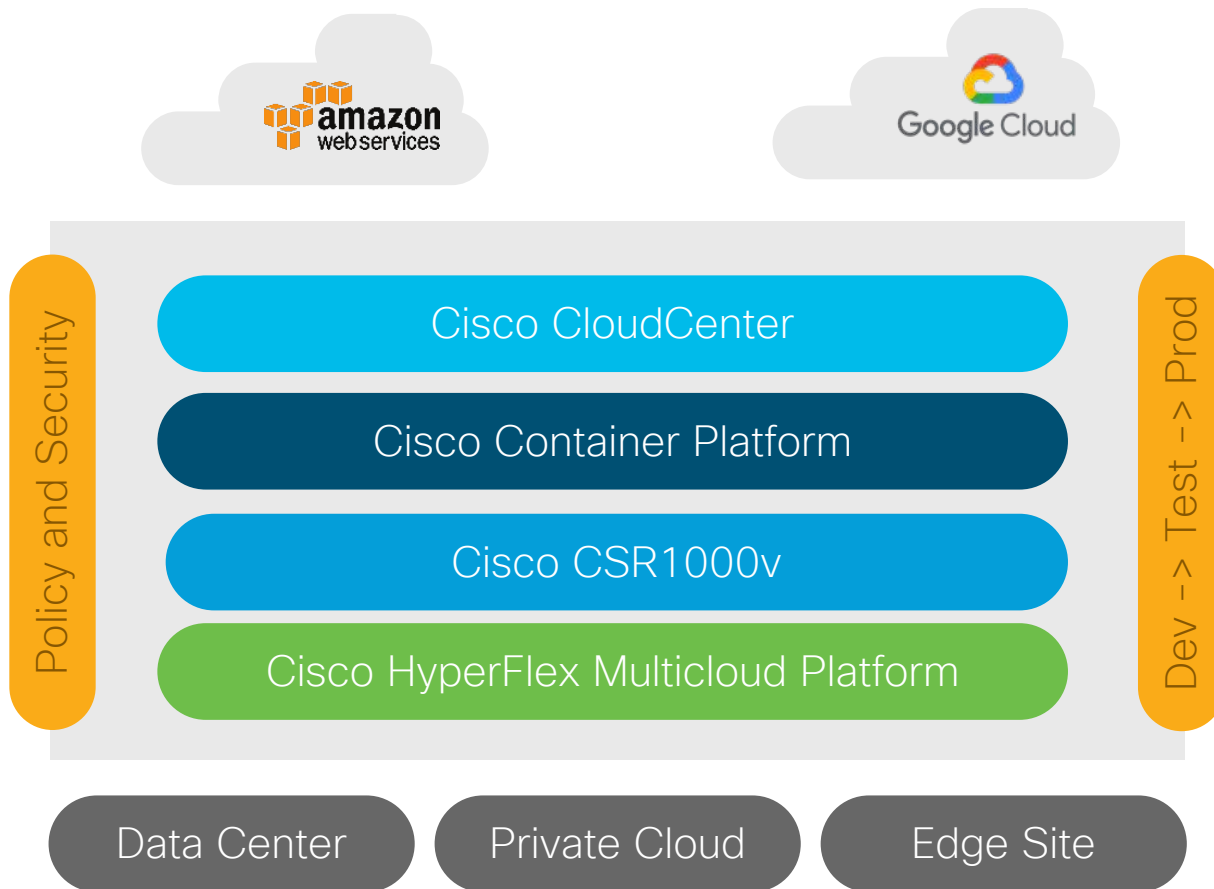
Connect, consume and protect resources and applications as the cloud broker for your business

ACI Anywhere |  
Cisco Multicloud Software Portfolio

# On-Prem Cloud Platform Components



# Bringing the cloud experience on-prem



**HYPERFLEX**

Platform for Multicloud  
Any app. Any cloud. Anywhere

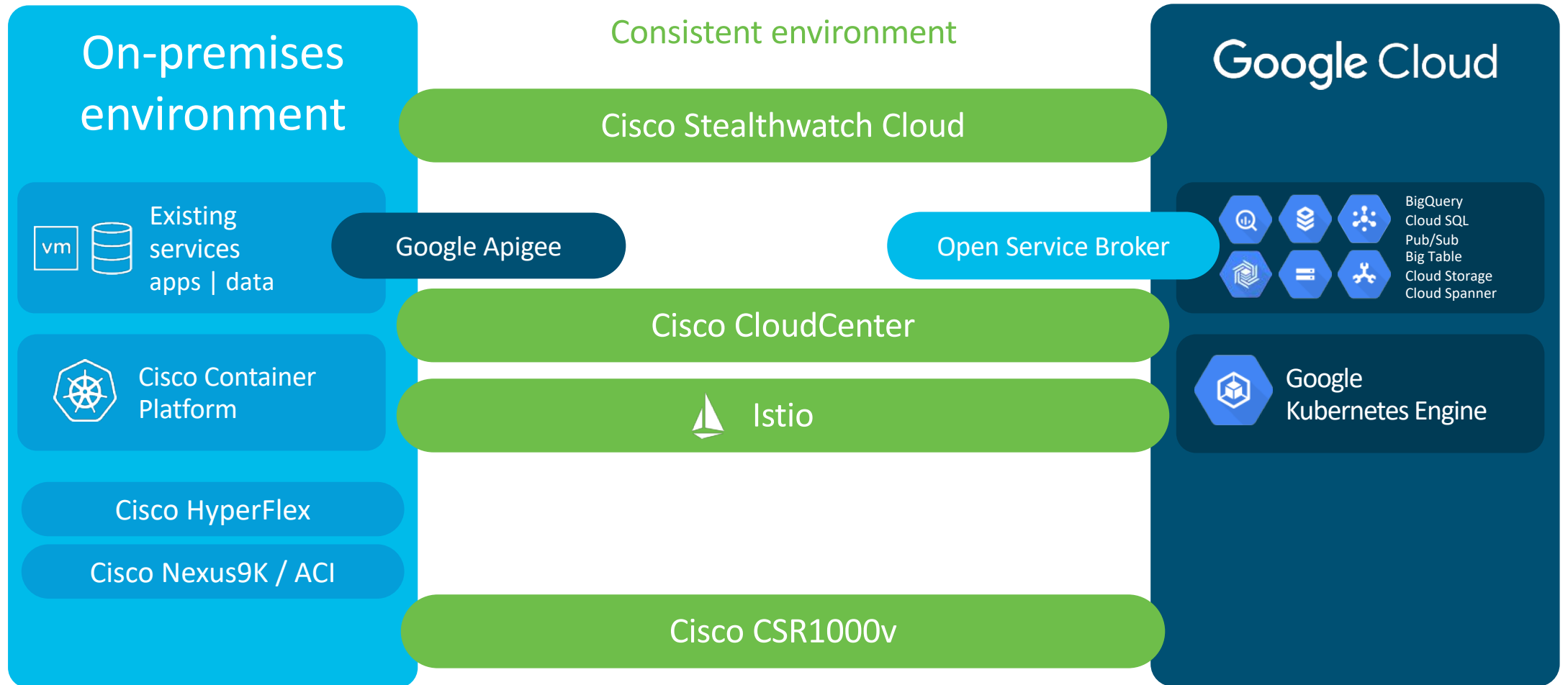
- Pathway to cloud-native operations on-prem
- Agile resource provisioning
- Packaged workload management
- Easy consumption model

# Cisco Hybrid Solution for Kubernetes on AWS

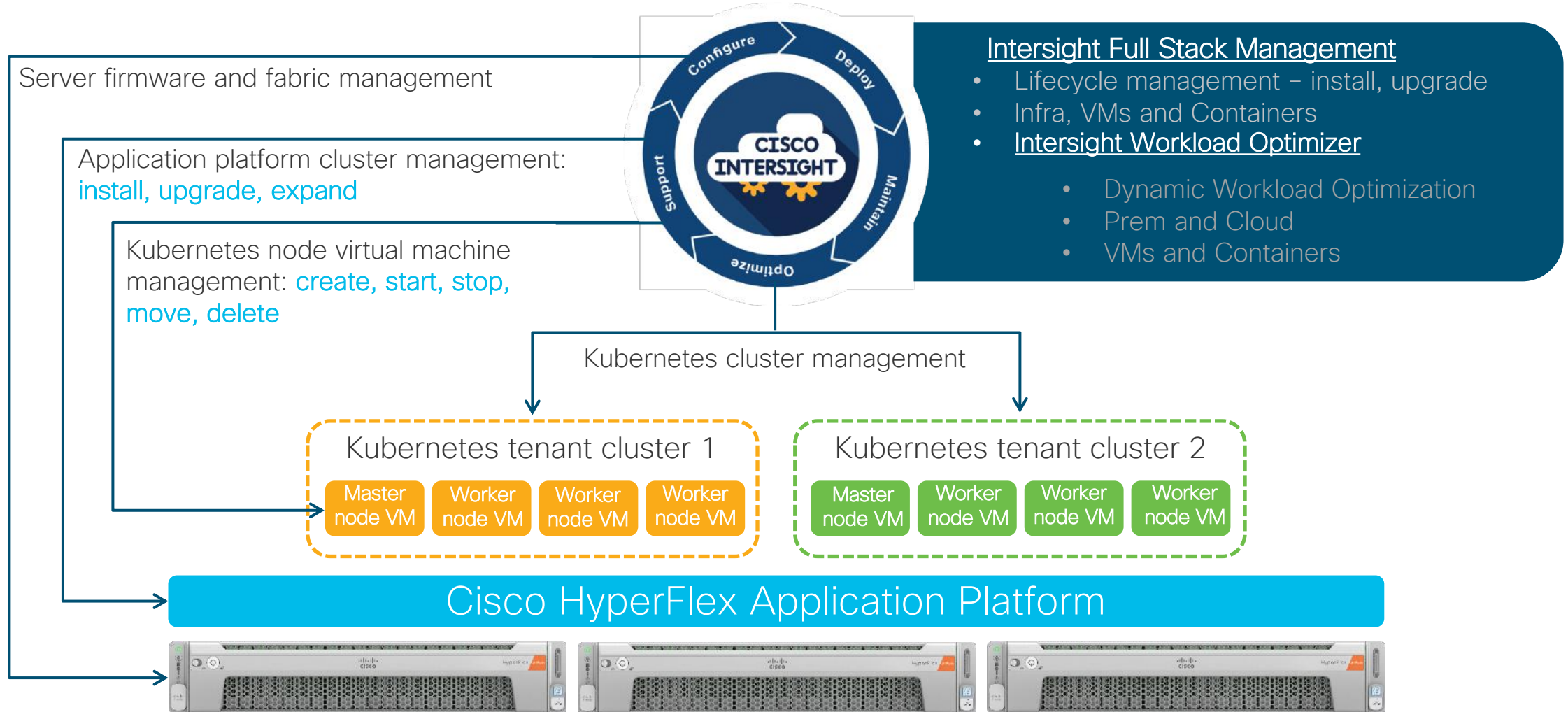


Legend: Optional Mandatory

# Cisco Hybrid Cloud Platform for Google Cloud

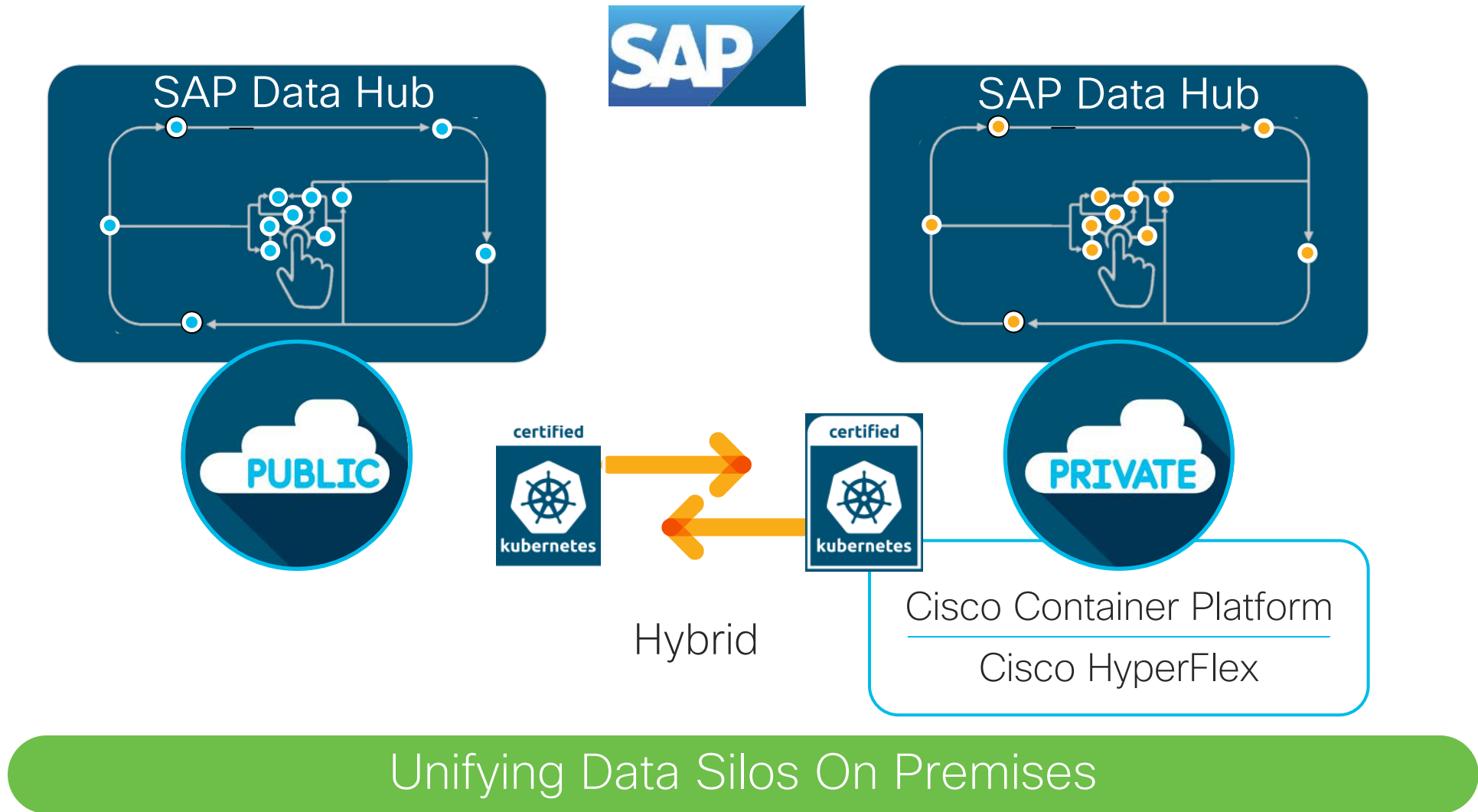


# Hyperflex Application Platform





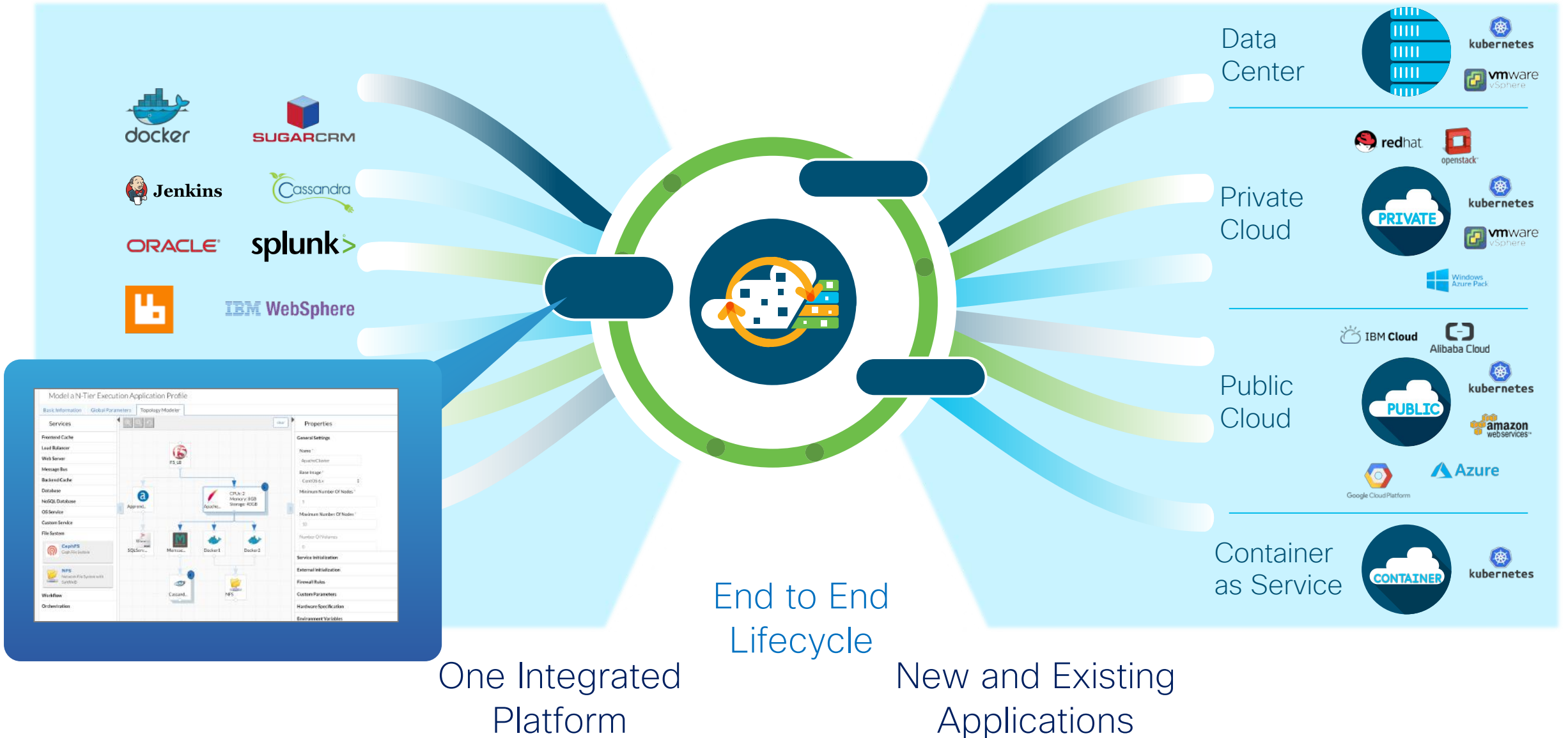
# Cisco Container Platform, SAP Datahub Solution



# Application Mobility Highlights



# CloudCenter: multicloud management platform



# Proactive systems management anywhere



Predictive Support Automation



Proactive Management



Preemptive Recommendations



Continuous Improvement



Data Center A



Co-Lo



Data Center B



Hybrid Cloud



Edge Site A



Private Cloud



ROBO



Edge Site B

# Public Cloud Highlights



# ACI Anywhere

Achieve automation, security, mobility, and visibility, required for successful digital transformation, through tighter full stack integration.



Any Cloud



Any Application



Any Platform



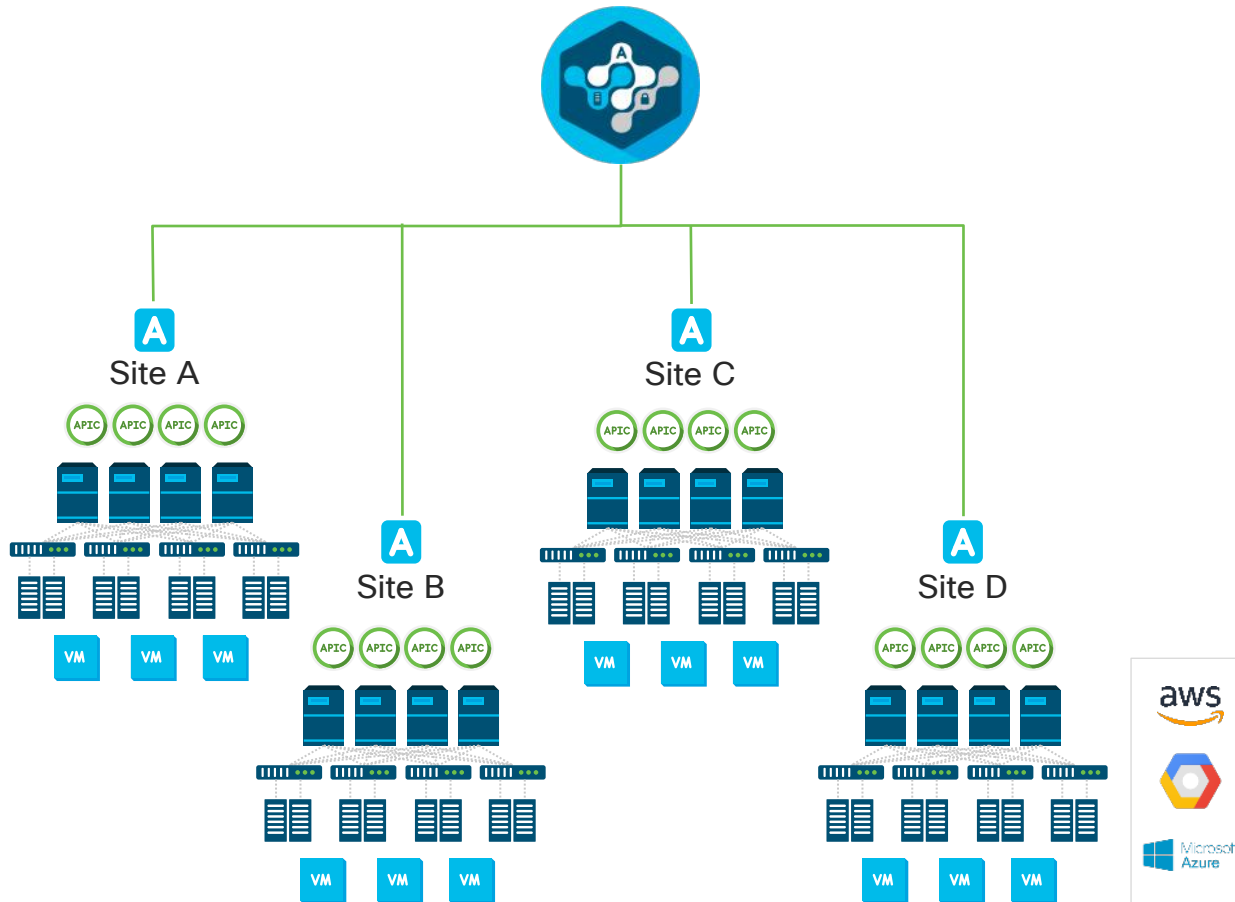
Anywhere

# Cisco ACI

## Key Components

- 1 Cisco ACI Multi-Site Orchestrator
- 2 Cisco Virtual ACI (Virtual Edge)
- 3 Cisco ACI Physical Remote Leaf
- 4 Cisco Virtual ACI (Virtual Pod)
- 5 Cisco Cloud ACI

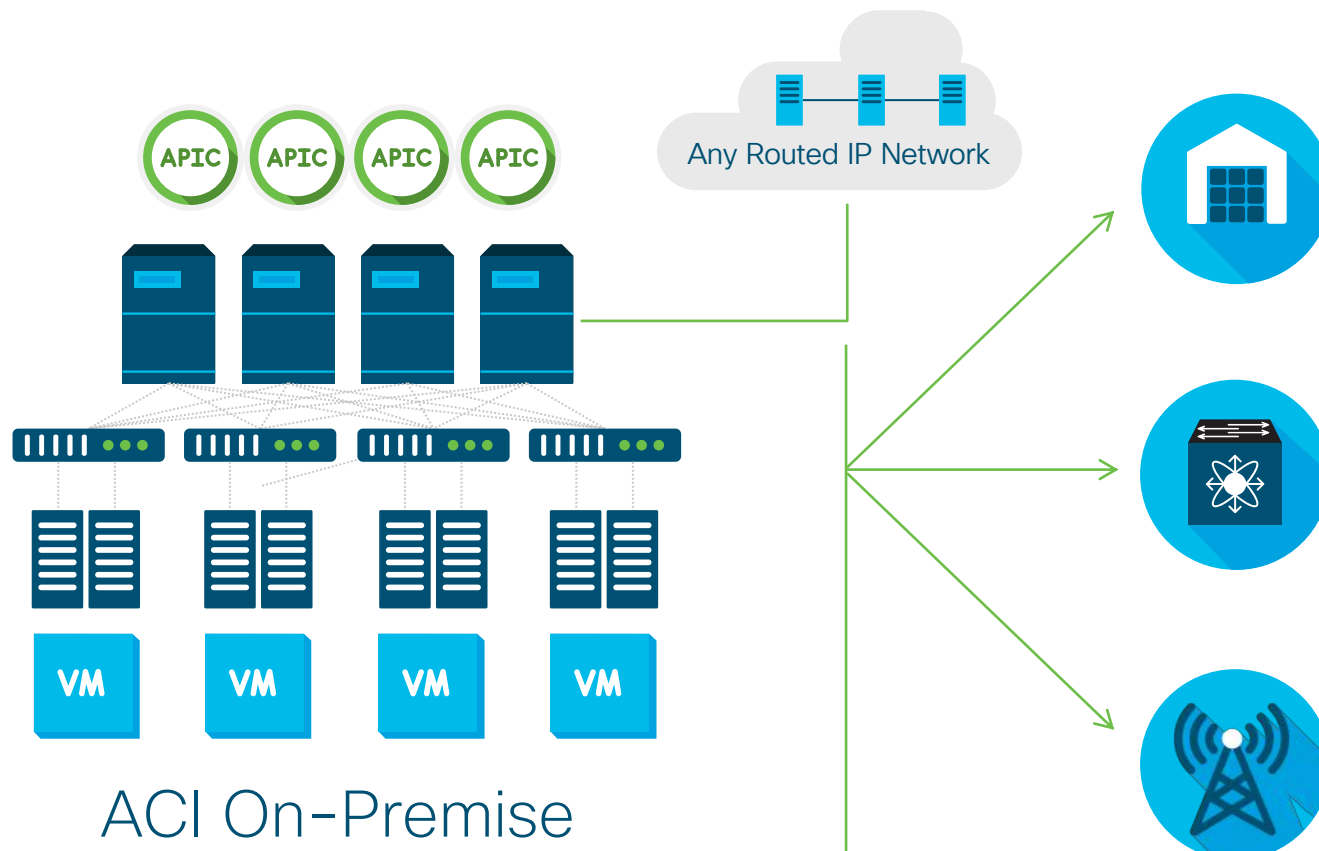
# ACI Multisite Orchestrator Enables Distributed Data Centers



- Single pane of management
- Consistent ACI Policy
- High Availability and Scale
- Simple fault isolation domain
- No Latency issues



# Extending ACI into Virtual Environments with ACI Virtual Edge



## Physical Remote Leaf

- Satellite/Remote locations deployment
- Leverage Nexus 9K hardware capabilities
- Extend ACI policy

## ACI Virtual Pod

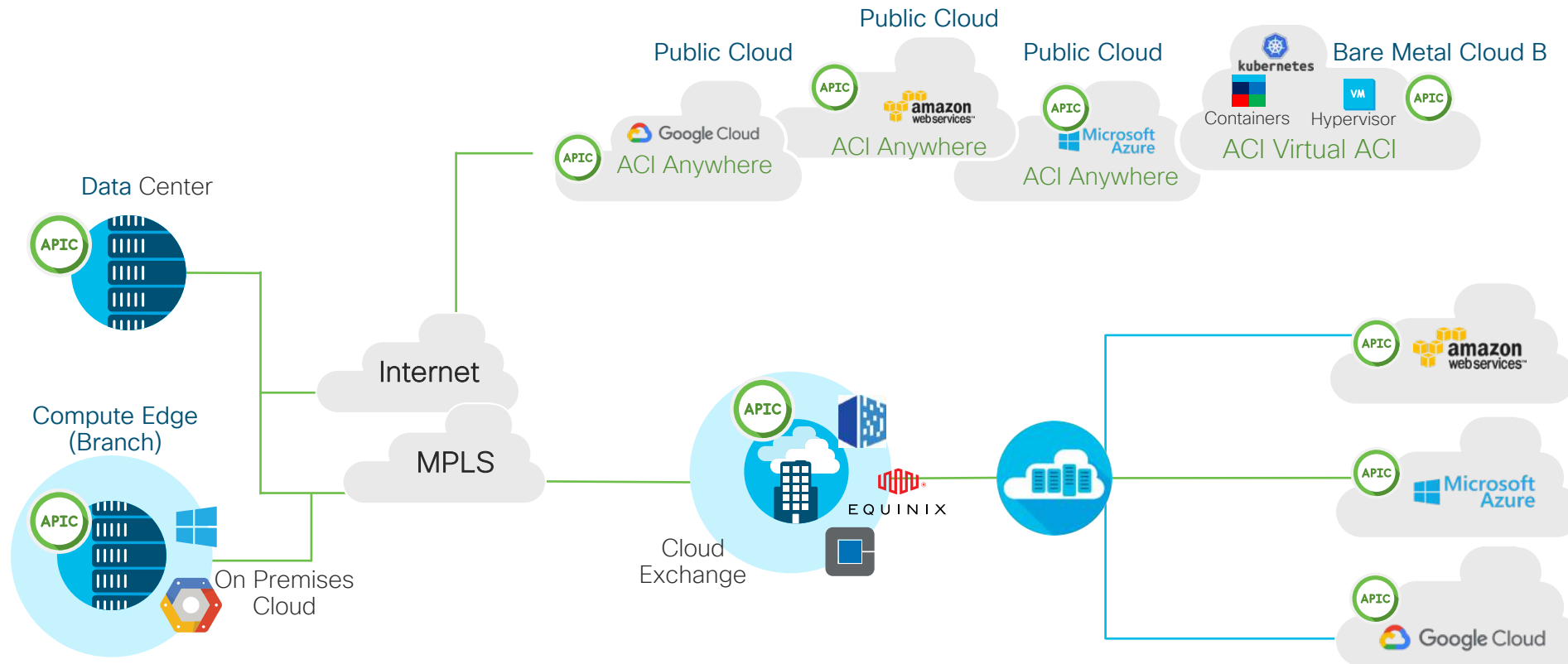
- Extend ACI Policy w/o H/W
- Virtualized Spine, Leaf and APIC
- Bare-metal providers, co-location providers, legacy networks

## ACI Mini Fabric

- Small scale and cost optimized deployments
- 5RU: Ideal for space, power and cooling restrictions
- Telco DC, small to midsize business

# Cloud ACI - Multicloud Extensions

## Cloud Service Connectivity



Automation



Security



Mobility



Visibility

**Pillar for Success #3:**  
Secure Everything, Everywhere

Prevent Not Cure

Monitor, detect, respond

Zero-trust everywhere

People-centric security



01



02

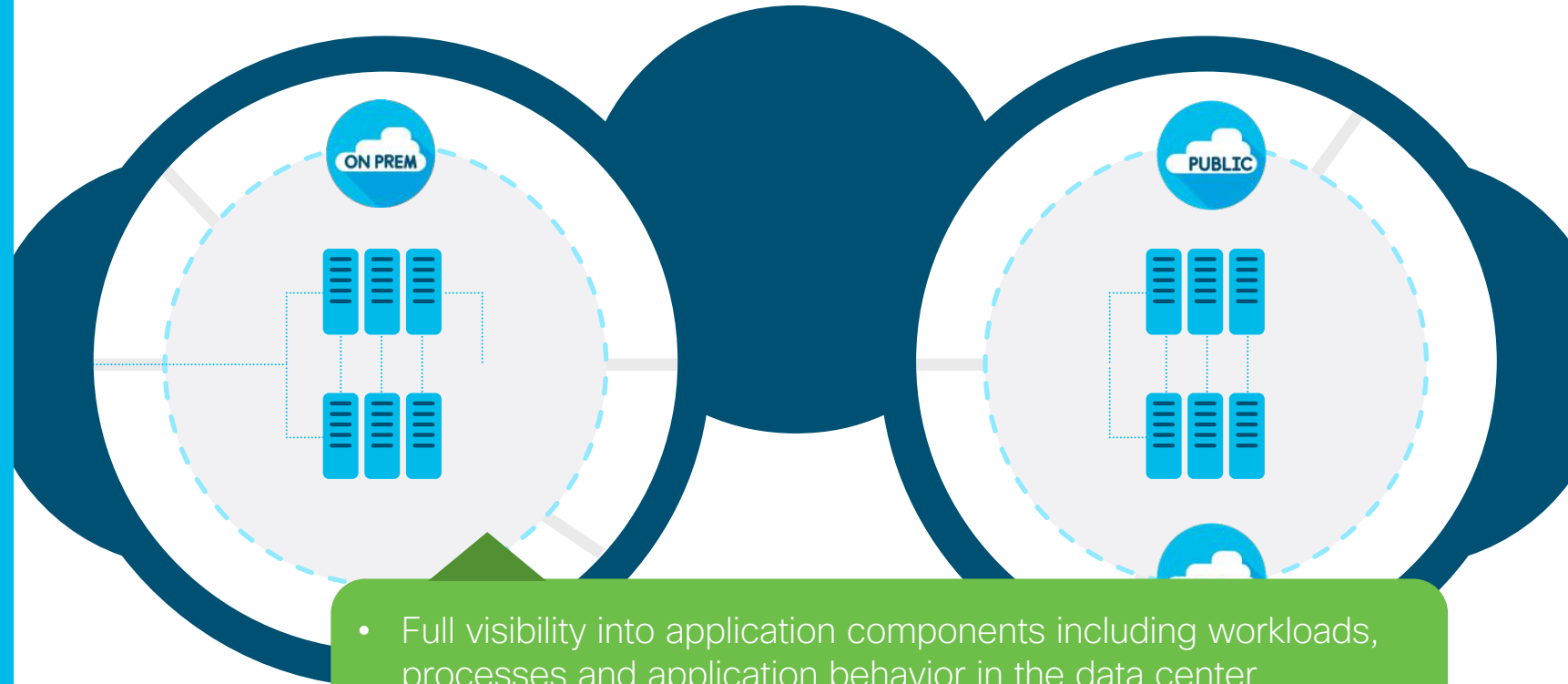


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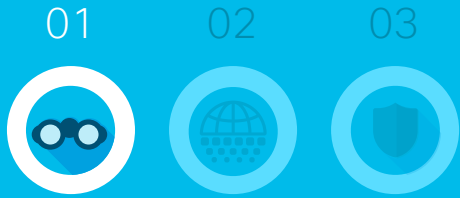


# Visibility: See Application Components and Their Behavior

Cisco Tetration

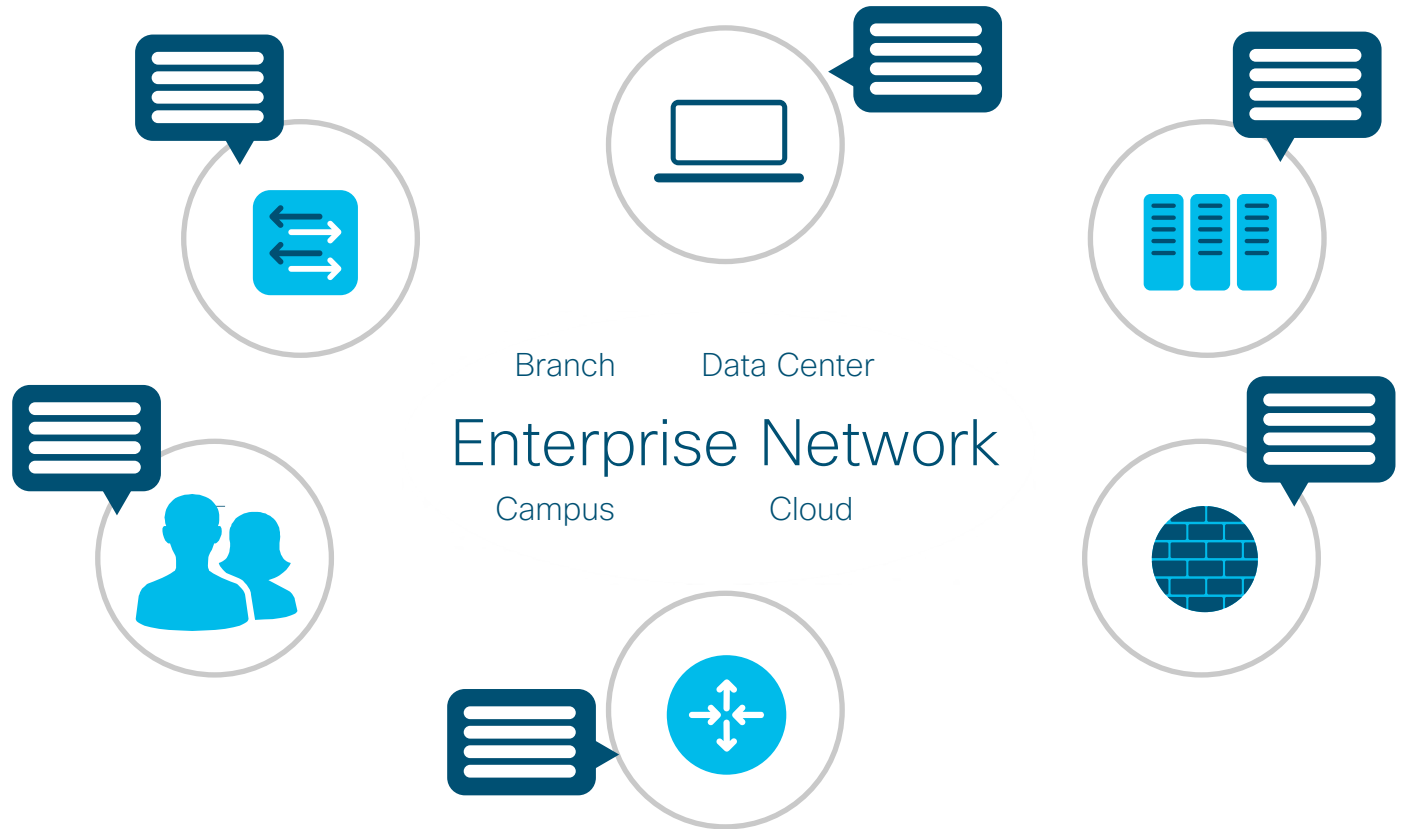


- Full visibility into application components including workloads, processes and application behavior in the data center
- Application dependency mapping
- Application segmentation policies (whitelist/blacklist)
- Forensic search and application anomaly detection



# Visibility: See Across the Enterprise Network

Cisco Stealthwatch



- Enterprise-wide network visibility across users, hosts, networks, and infrastructure (switches, routers, firewalls, servers)
- Collects network flow and other data to provide network visibility for understanding network wide traffic and discover threats
- Real-time situational awareness of users, devices, and applications
- Network flow monitoring of policy violations validates enterprise-wide network access to facilitate compliance and segmentation requirements

01



02



03

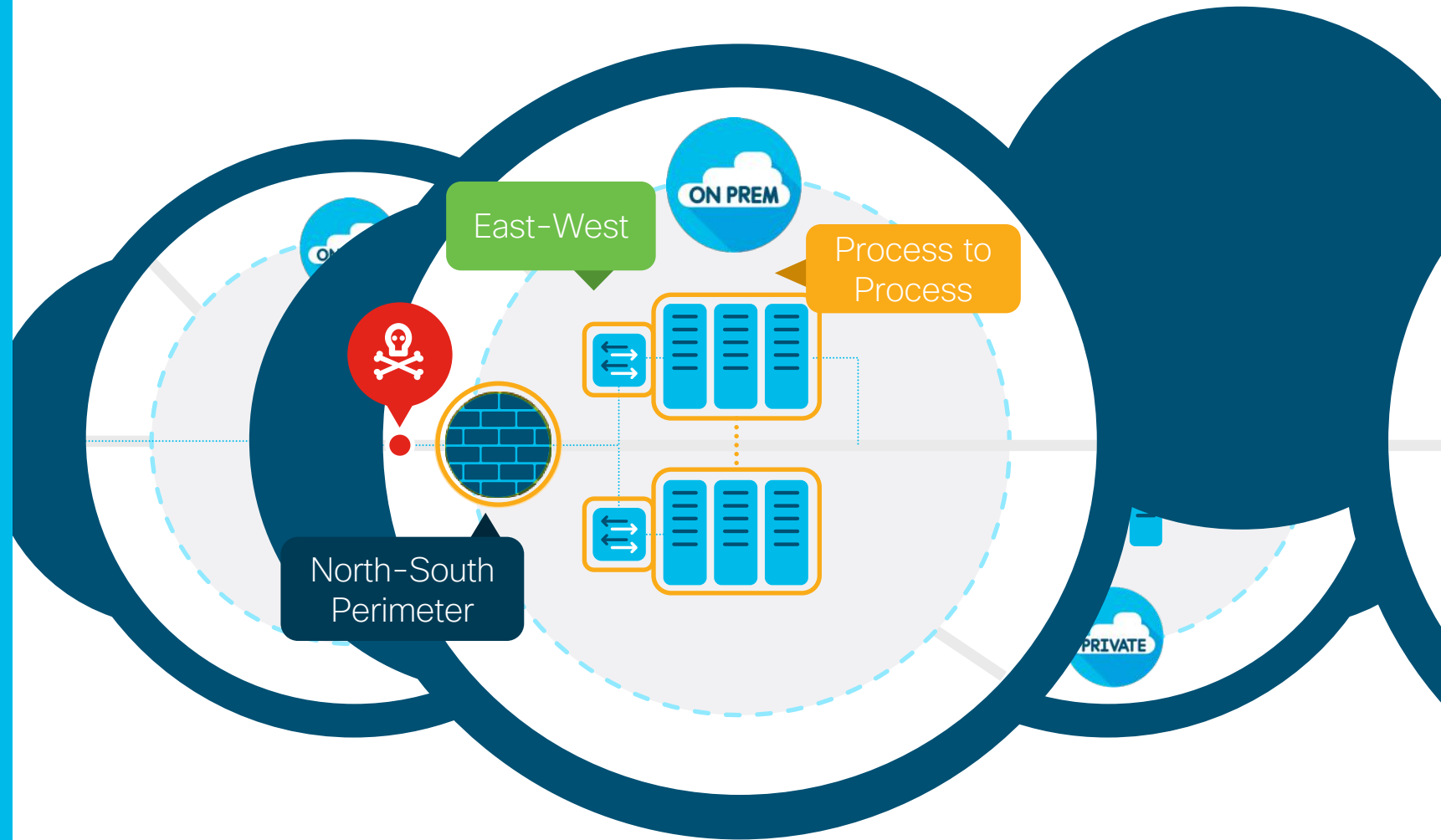


# Segmentation: Reduce the Attack Surface

Cisco NGFW

Cisco ACI

Cisco Tetration



01



02



03

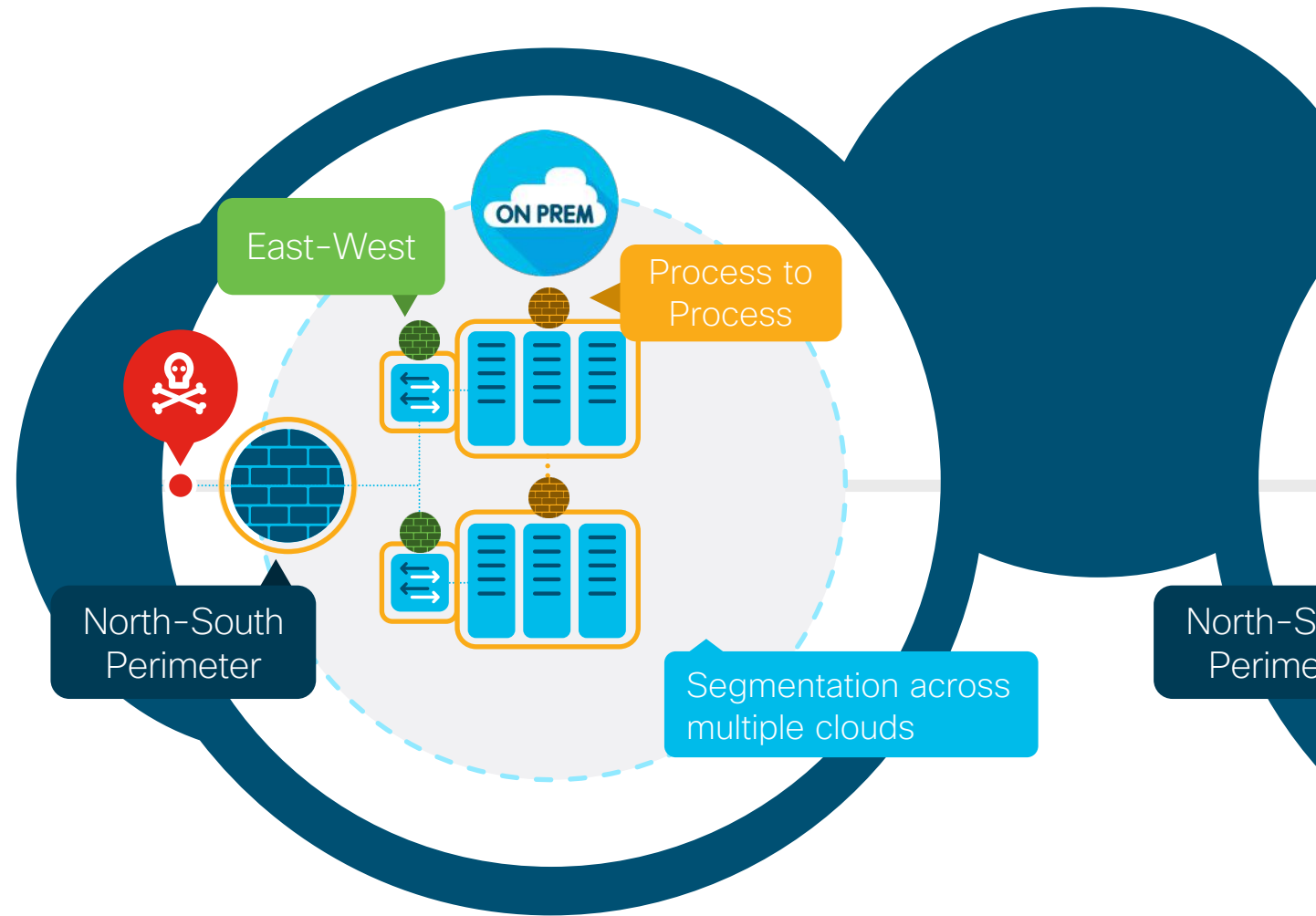


# Segmentation: Reduce the Attack Surface

Cisco NGFW

Cisco ACI

Cisco Tetration



North-South  
Perimeter

Segmentation across  
multiple clouds

North-S  
Perime

01



02



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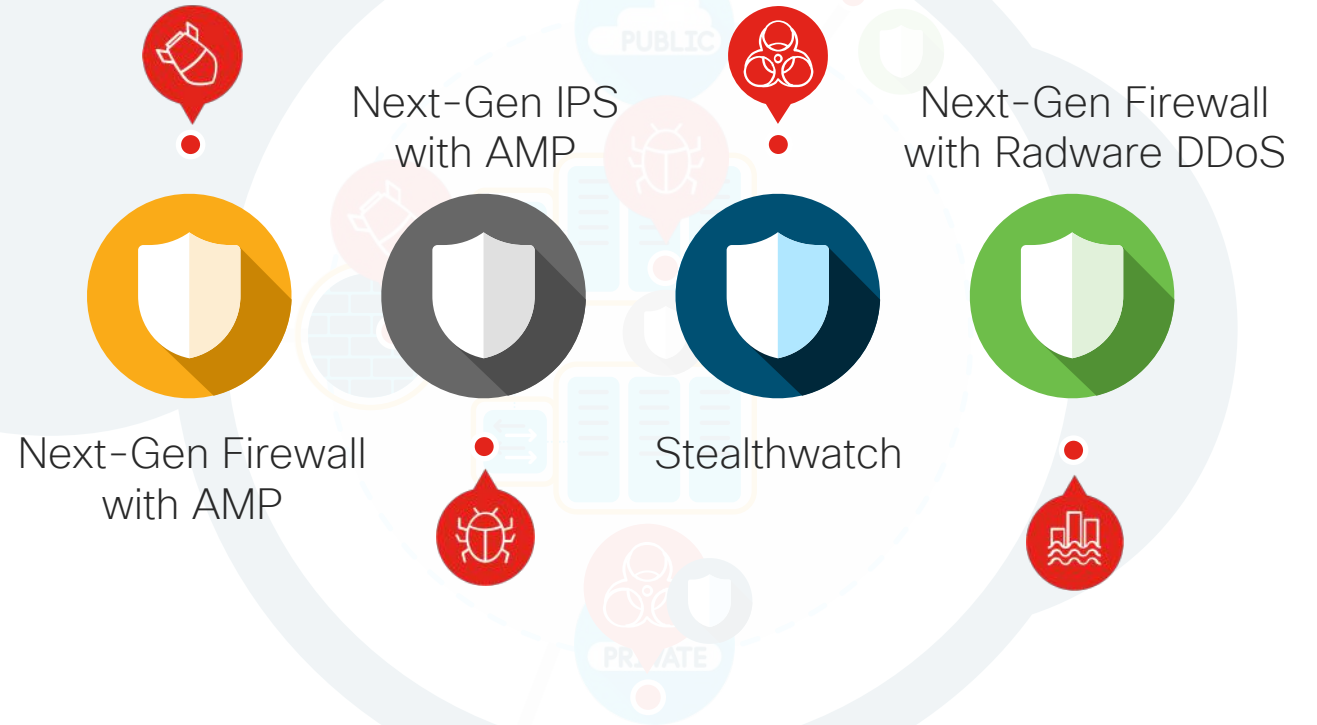


# Threat Protection: Stop the Breach

By strategically deploying threat sensors north-south, east-west

## Multi-Layered Threat Sensors

Quickly detect, block, and respond dynamically when threats arise to prevent breaches from impacting the business



Cisco ACI

Cisco Tetration



01



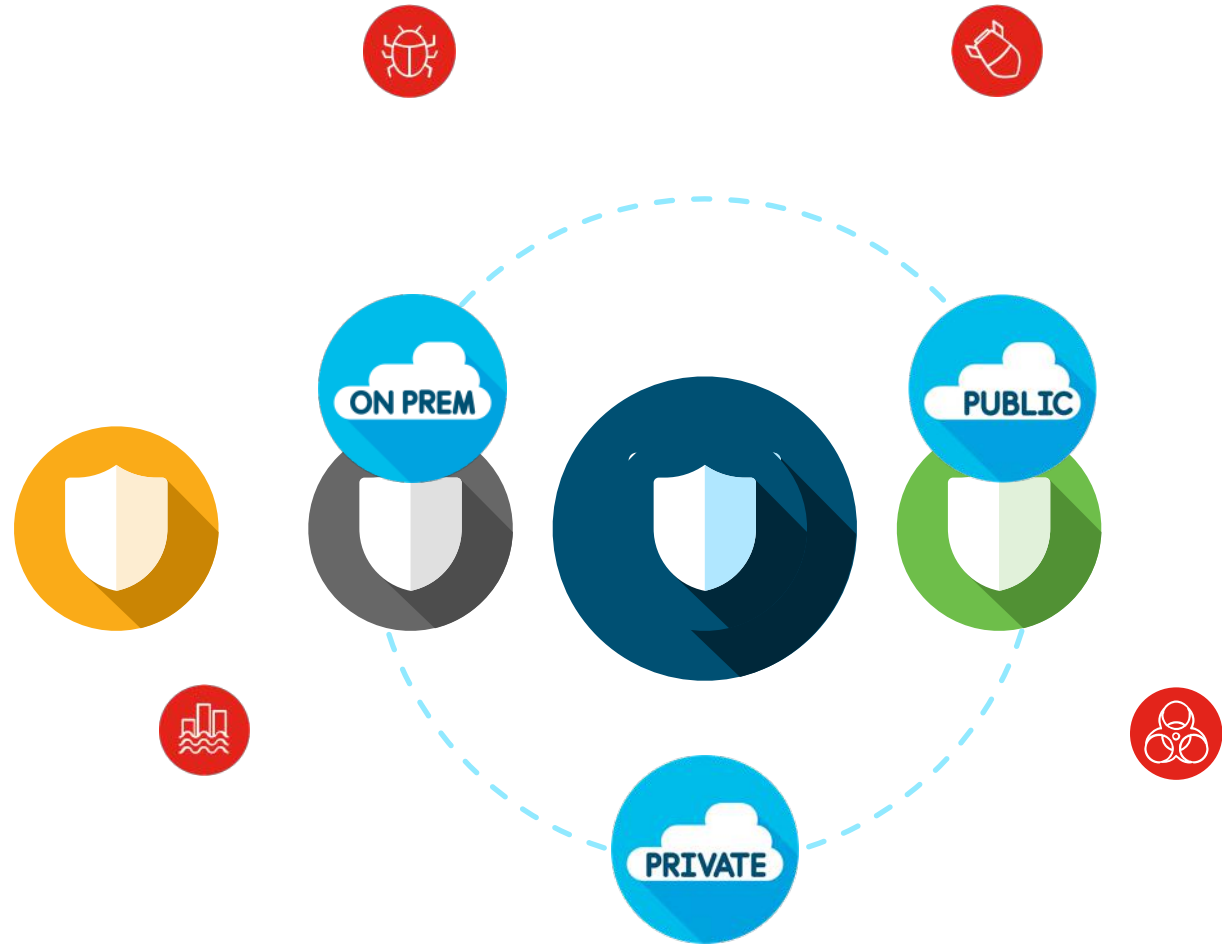
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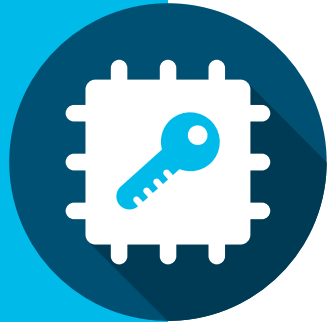


# Protect the Workload Everywhere





## UCS Server Security



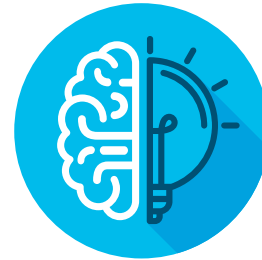
- Multiple HW roots of trust – Anchored with immutable fingerprints
- Secure Boot – Cryptographically signed firmware and BIOS
- Anti-counterfeit protection
- Secure debug, BIOS and BMC secure communication
- Trusted BIOS failsafe
- NIST SP800-147b/  
IEEE 802.1AR compliance

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Automate wherever possible, and transform IT into a strategic business enabler.



## Multicloud

Design so that location doesn't matter, embracing Multicloud as an opportunity, not a hinderance.



## Security

Integrate security from the ground-up, providing pervasive defense in depth.



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Ďakujem za pozornosť