Cisco Tech Club

# **Cisco HyperFlex** – nejen obyčejná hyperkonvergovaná platforma

Miloš Pavlík
Cisco TSA

14.5.2020

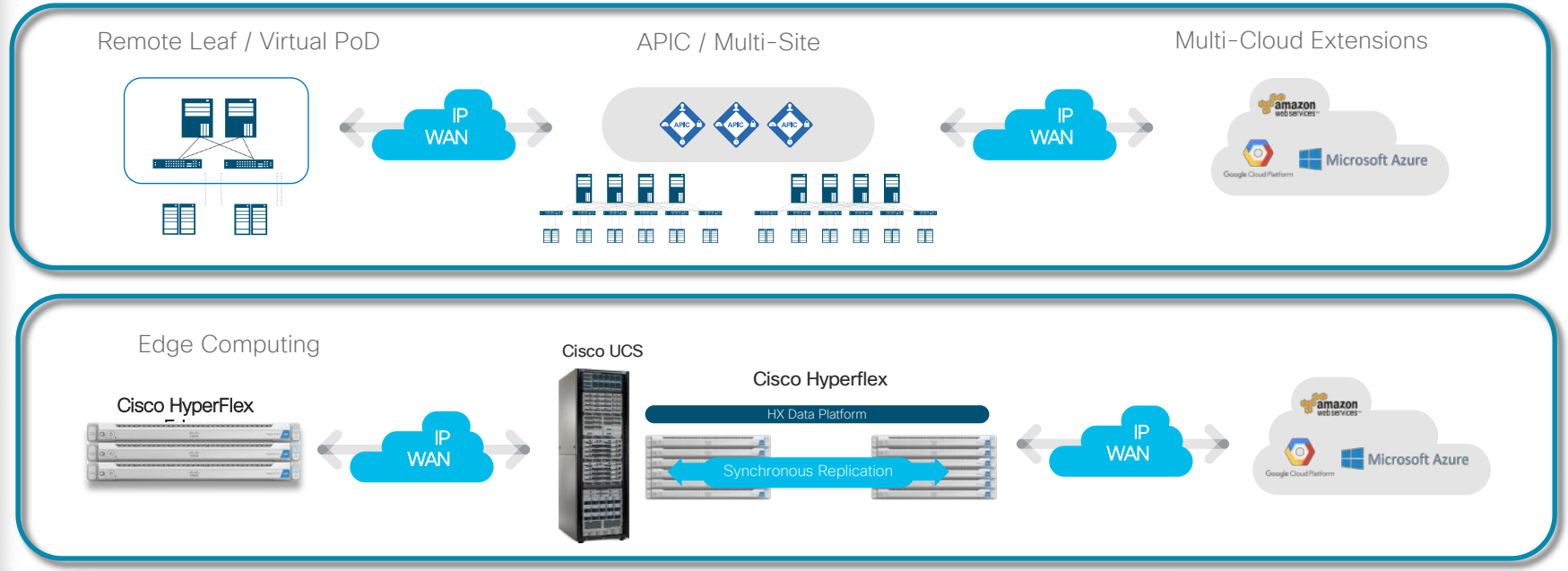
Cisco Cloud Center

Cisco AppDynamics

Cisco Workload Optimisation Manager

Cisco Container Platform

## Cisco Intersight




**Edge DC** | **Core DC** | **Cloud**

Security Everywhere

Analytics Everywhere

Policy Everywhere

PUBLIC

# *Cisco HyperFlex Anywhere*

## Your Platform to Modernize The Present Simplify Your Future

# What is HyperFlex?
## Engineered and Optimized HCI

Performance and Scalability to Power

Any App, Any Cloud, Anywhere

### HX Data Platform

- Purpose Built for HCI
- Fast and Flexible
- Enterprise Grade Storage

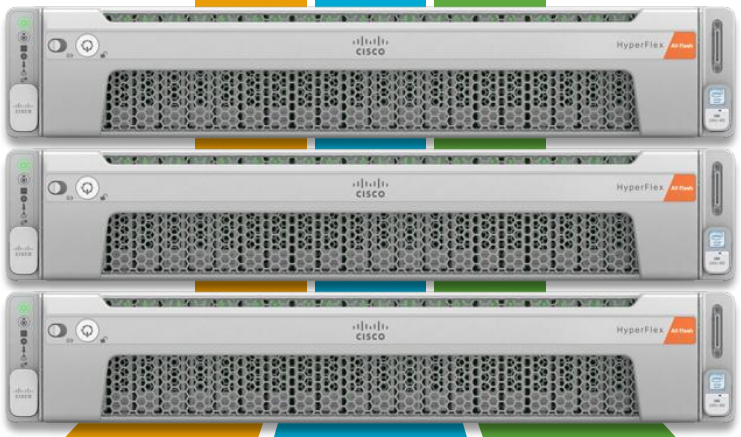
### Cloud Platform

- Cisco Intersight
- Cisco CloudCenter
- Cisco Workload Optimization Mgr.

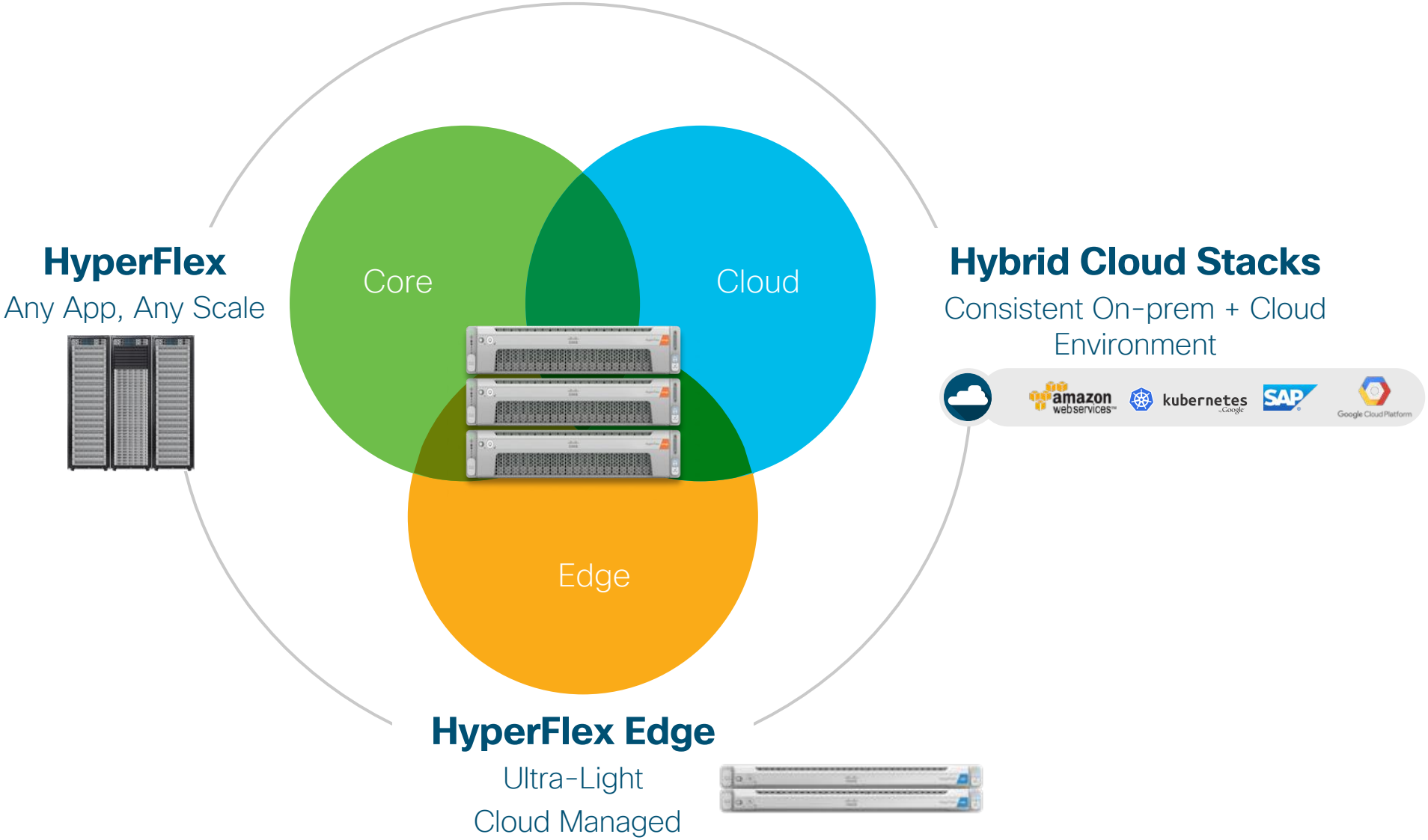
### UCS Foundations

- Software Defined Compute
- Fabric Centric
- Intent-Based

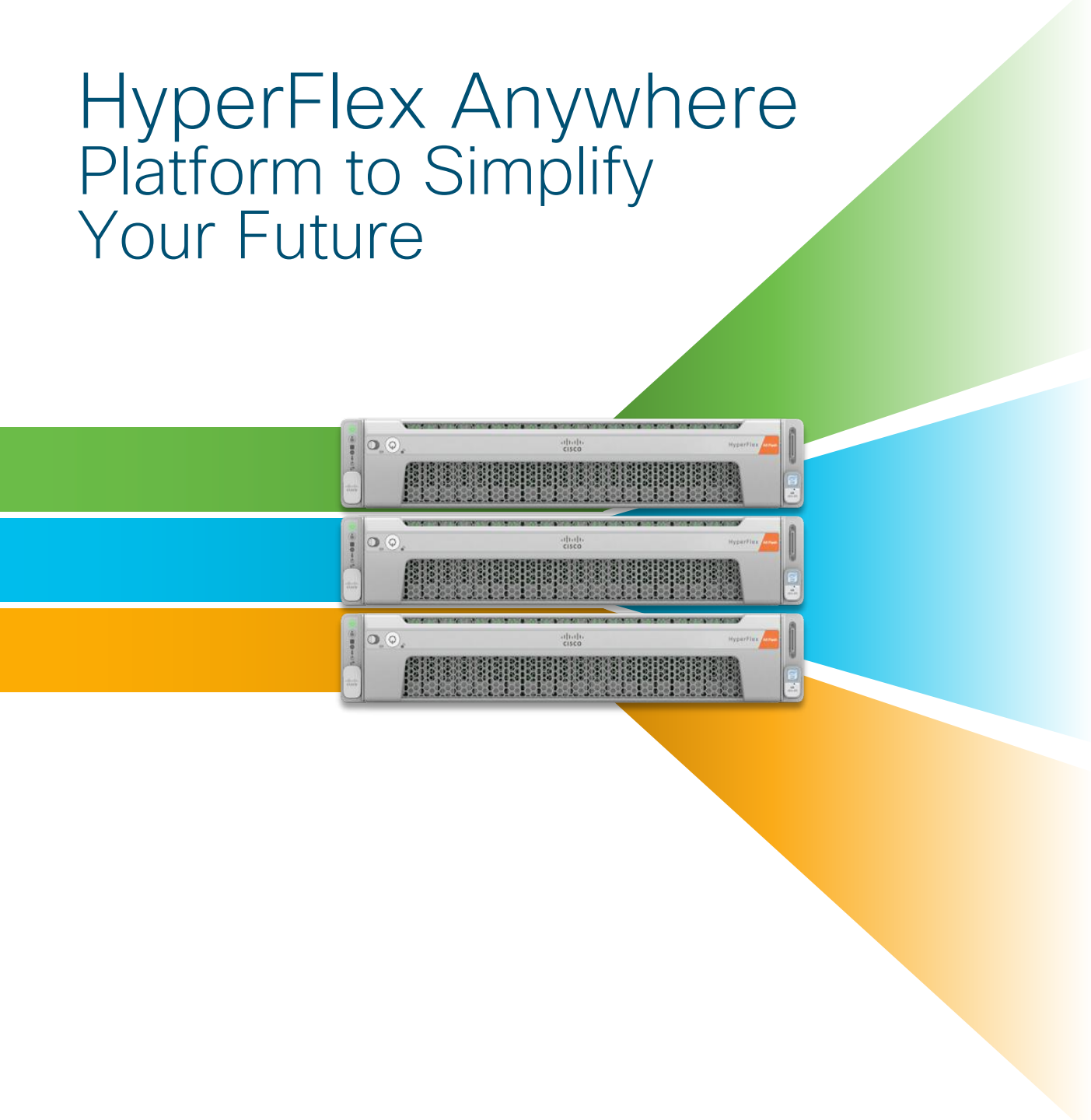
# Modernize on a Platform That Will Simplify the Future



# Cisco HyperFlex Anywhere



# HyperFlex Anywhere
## Platform to Simplify Your Future



### Cloud Based Mgmt. Automation

- AI Driven IT Mgmt. (AI Ops)
- Application Performance Monitoring
- Intelligent Workload Placement

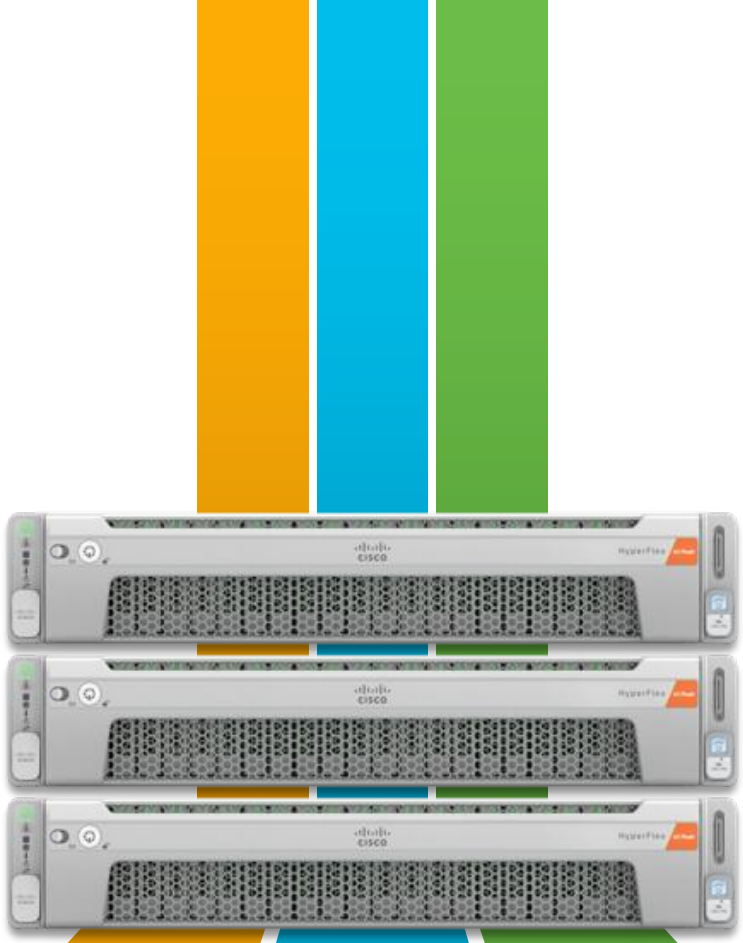
### Simplified Multicloud Operations

- Multicloud Platform
- Integrated Kubernetes
- HCI Workload Protection and Analytics (Tetration)

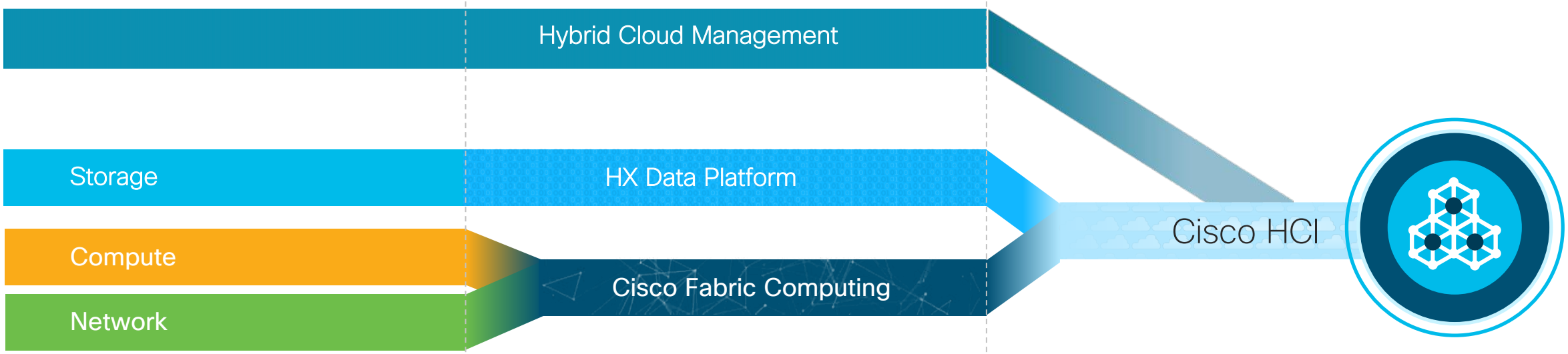
### Distributed Edge Application Support

- AI Driven Apps and Inferencing
- IoT
- Remote Office/Branch Office (ROBO)

# Cisco HyperFlex Overview



# Complete Hyperconvergence
## Compute, Network, HCI Software Engineered Together




### Traditional Infrastructure

Siloed Tiers of Compute, Storage and Networking from separate vendors

Siloed & Disaggregated Management

### Cisco UCS Foundations

Converged Compute and Networking System

### Cisco HyperFlex

Multicloud Era Hyperconverged Infrastructure

# One Architecture for Operational Simplicity

## Unified Computing System

UCS Management | Intersight | IMC Supervisor

**UCS Mini**

**Fourth Gen. UCS**

**HyperFlex Systems**

**UCS C240**

**UCS C3000**

Mainstream Computing

Converged Infrastructure

Hyperconverged Infrastructure

Software-Defined Storage

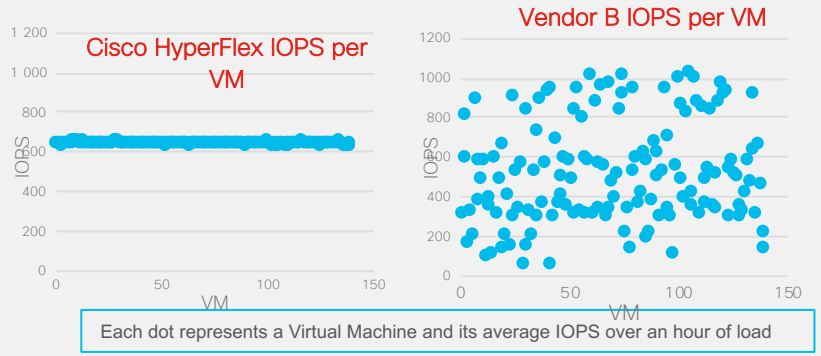
Scale Out

EDGE — CORE DATA CENTER — CLOUD

cisco HYPERFLEX
MULTICLOUD PLATFORM

# #1 PERFORMANCE

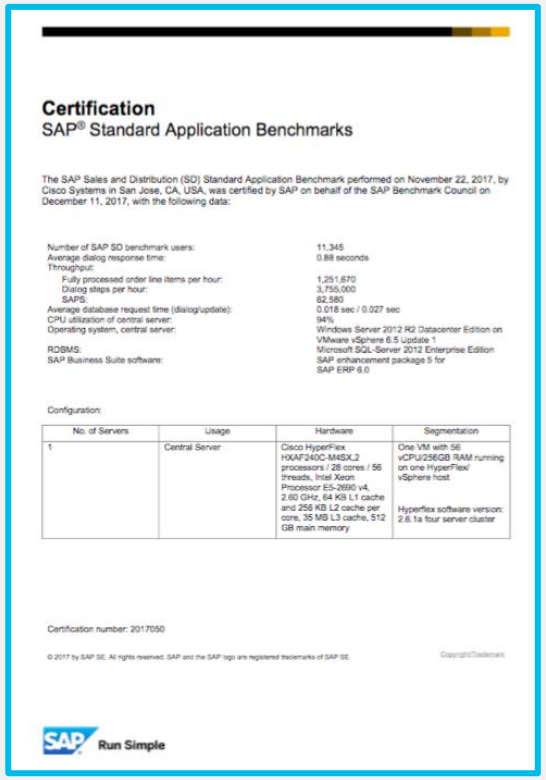
## #1 in Performance and consistency




Log structured file system with dynamic data distribution

Purpose built for HCI

Highest performance and consistency for the most mission critical enterprise applications



**Certification**
**SAP® Standard Application Benchmarks**

The SAP Sales and Distribution (SD) Standard Application Benchmark performed on November 22, 2017, by Cisco Systems in San Jose, CA, USA, was certified by SAP on behalf of the SAP Benchmark Council on December 11, 2017, with the following data:

| | |
|---|---|
| Number of SAP SD benchmark users: | 11,345 |
| Average dialog response time: | 0.88 seconds |
| Throughput: | |
| Fully processed order line items per hour: | 1,251,670 |
| Dialog steps per hour: | 3,755,000 |
| SAPS: | 62,580 |
| Average database request time (dialog/update): | 0.018 sec / 0.027 sec |
| CPU utilization of central server: | 94% |
| Operating system, central server: | Windows Server 2012 R2 Datacenter Edition on VMware vSphere 6.5 Update 1 |
| RDBMS: | Microsoft SQL-Server 2012 Enterprise Edition |
| SAP Business Suite software: | SAP enhancement package 5 for SAP ERP 6.0 |

Configuration:

| No. of Servers | Usage | Hardware | Segmentation |
|---|---|---|---|
| 1 | Central Server | Cisco HyperFlex HXAF240C-M5SX,2 processors / 28 cores / 56 threads, Intel Xeon Processor E5-2690 v4, 2.60 GHz, 64 KB L1 cache and 256 KB L2 cache per core, 35 MB L3 cache, 512 GB main memory | One VM with 56 vCPU/256GB RAM running on one HyperFlex/ vSphere host<br>Hyperflex software version: 2.6.1a four server cluster |

Certification number: 2017050

© 2017 by SAP SE. All rights reserved. SAP and the SAP logo are registered trademarks of SAP SE.

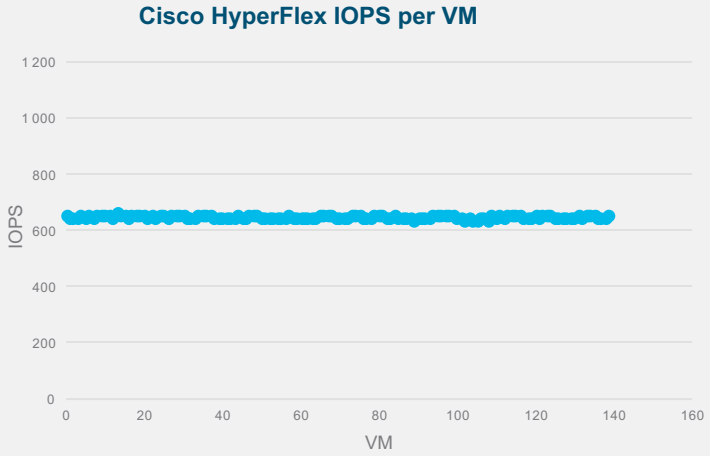
SAP Run Simple

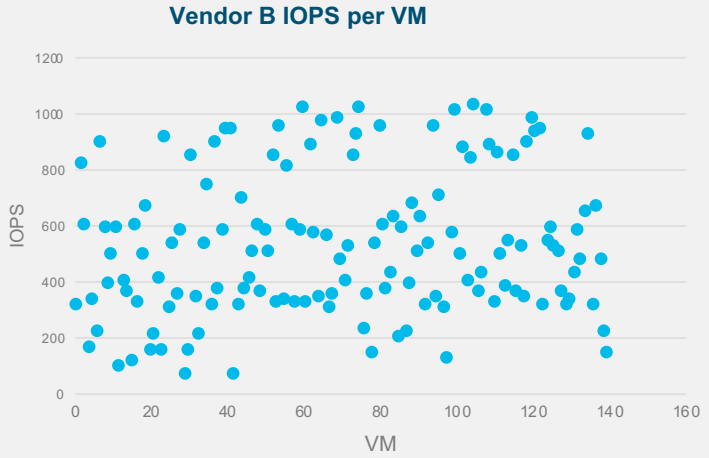
1st Hyperconverged system to pass stringent SAP SD Benchmark

https://www.cisco.com/c/dam/global/fr_fr/products/hyperconverged-infrastructure/cisco-hyperflex-certifiee-sap-benchmark-dec-2017.pdf

**CONSISTENT PERFORMANCE**

## #1 in Performance and consistency




Each dot represents a Virtual Machine and its average IOPS over an hour of load

## Flexible Performance Scaling Options

- Multiple VMs on each node of the cluster
- Ability to absorb VM perf hotspots
- Single large VM can drive cluster perf
- Perf scaling without moving around VMs

# HIGH AVAILABILITY AND RELIABILITY

## Enterprise Class Filesystem

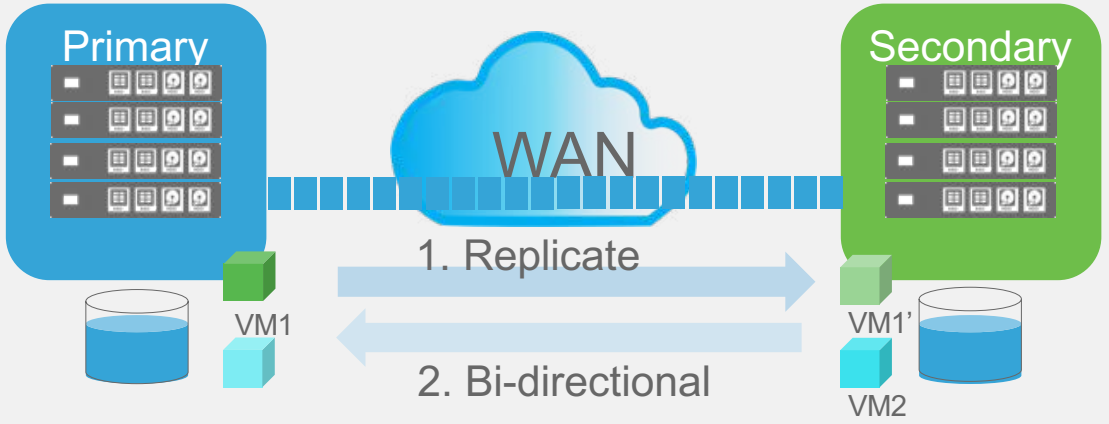
### DATA INTEGRITY & RELIABILITY

Block checksums protect against media errors
Flash friendly layout helps maximize flash life
Zero overhead, instantaneous snapshots for DP

### HIGH AVAILABILITY

Fully-striped architecture helps with faster rebuilds
Fine grained data-resync and rebalance
Non-disruptive rolling upgrades

## Native Data Protection Options




## Integration with 3rd party solutions

veeam IT JUST WORKS!™

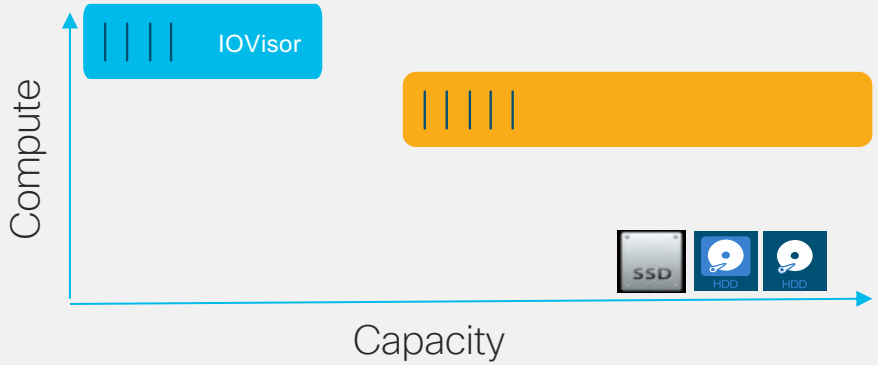
COMMVAULT

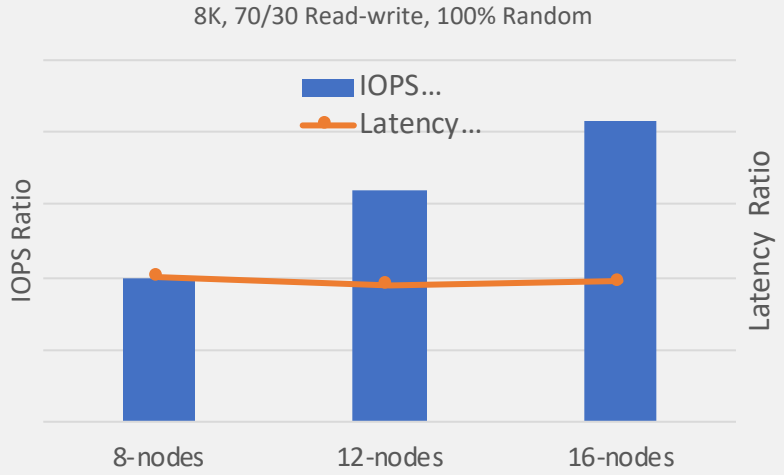
## Scale with Availability

## Stretch Cluster

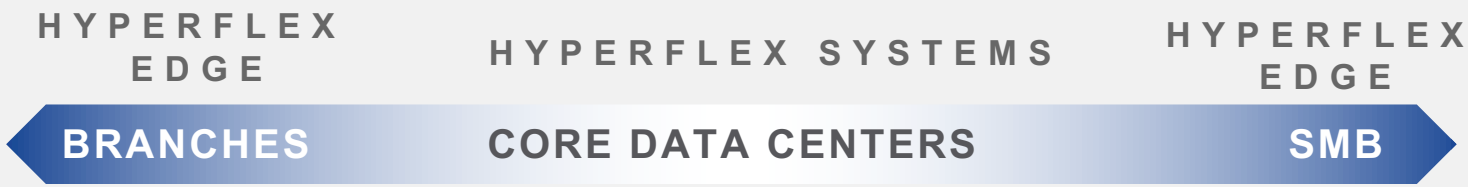
**SEAMLESS SCALE**

## Independent Scaling




## Scale Up and Scale Down




## Scale from Private to Public Cloud

**Cisco CloudCenter**

+

**Cisco HyperFlex**

+

# GLOBAL SUPPORT

## Cisco Support – Global scale and reach

Single Support for HW & SW

**1.8M** SERVICE REQUESTS handled annually

**2,800** PROFESSIONALS averaging **5+** YEARS industry experience

TAC SUPPORT CAPABILITIES

**180+** COUNTRIES

**24** TAC FACILITIES

**17+** LANGUAGES

## SCH & Support Integration

**Proactive, fast issue resolution**

- Continuous monitoring to detect early problems
- Critical events integrated with **Smart Call Home**
- Operational analysis and recommendations

## Cisco Intersight Integration

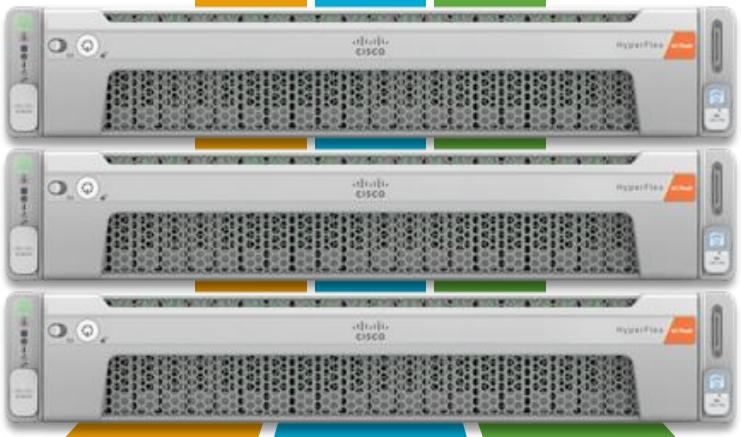
### ENHANCED SUPPORT

PLATFORM INVENTORY
POLICY COMPLIANCE
UPGRADE CHECKS
CAPACITY PLANNING

### PROACTIVE GUIDANCE

ADVANCED ANALYTICS
SIGNATURE ANALYSIS
UPGRADE GUIDANCE

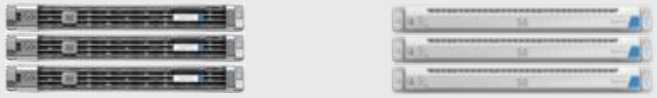
# HyperFlex Edge



# HyperFlex Edge
# Expanding Hyperconverged Simplicity to the Edge

COMMON HX MANAGEMENT

HYPERFLEX EDGE

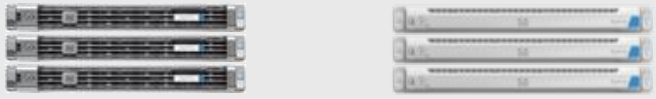


Healthcare Finance Retail Hospitality

Transportation Government Manufacturing

HYPERFLEX SYSTEMS

HYPERFLEX EDGE



SMB Operations

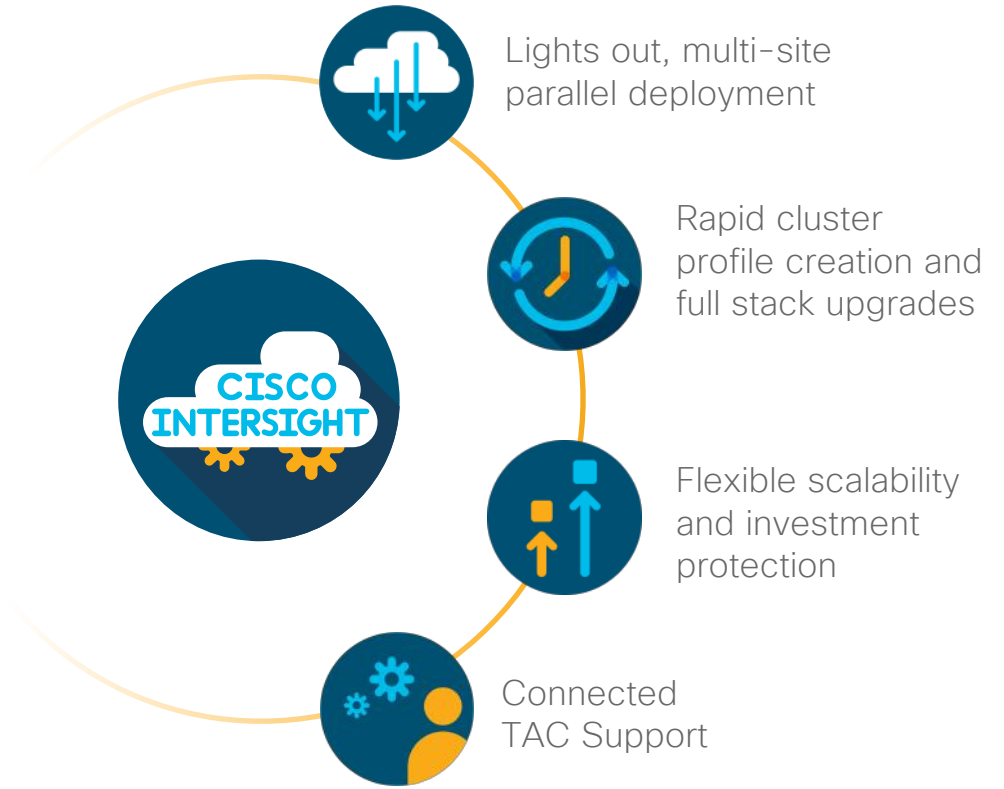
Limited IT

Minimal Application Growth

BRANCHES CORE DATA CENTERS SMB

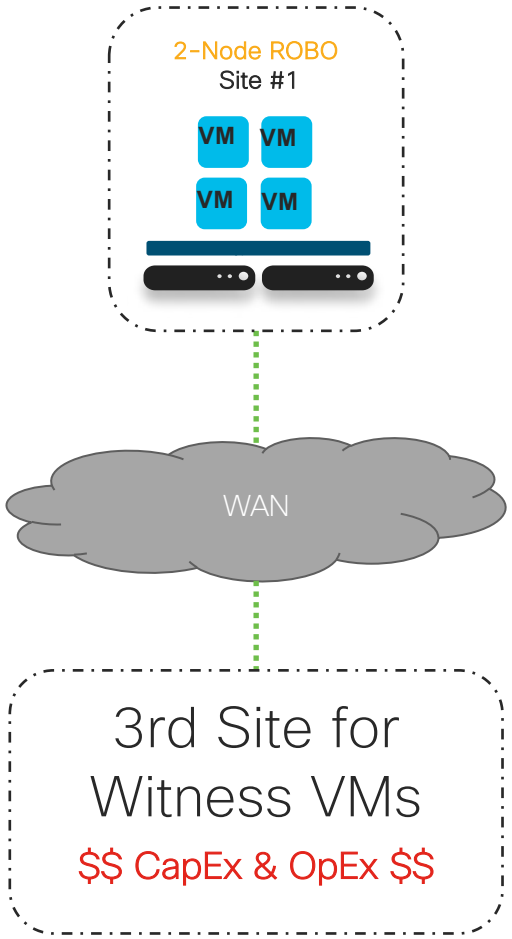
# The New HyperFlex Edge

## The Power of Cloud-Managed Computing



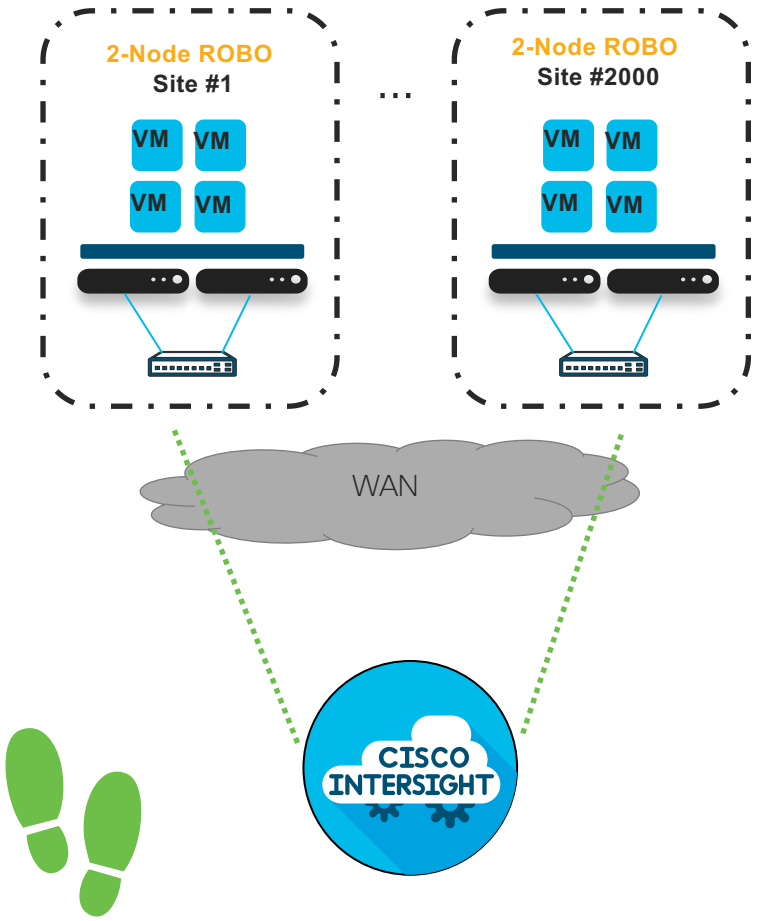
# Invisible Cloud Witness, Why?

Traditional 2-Node Deployment



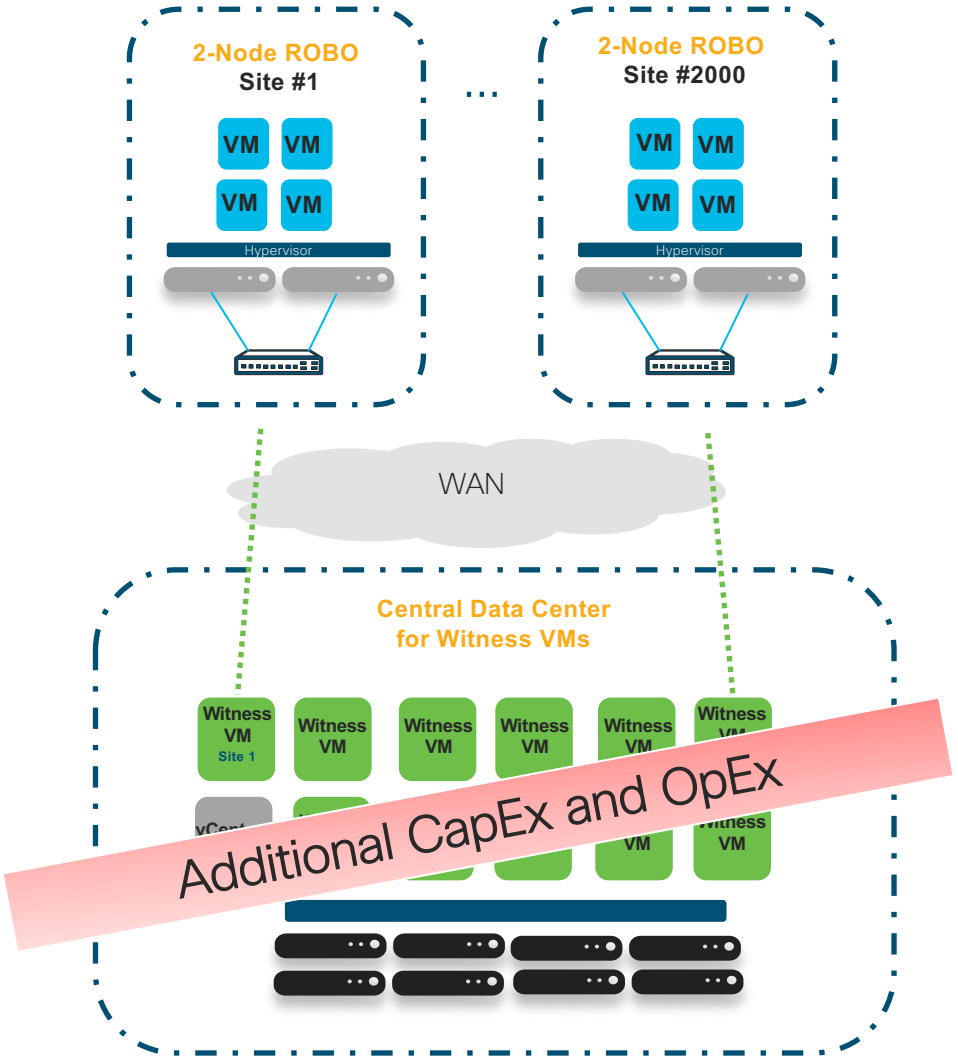

1. Consistency of the file system is essential.
2. To guarantee consistency of a file system a quorum is needed.
3. In a HyperFlex cluster a quorum requires a majority, or 2 of 3 nodes available and in agreement in a cluster.
4. Traditional 2-Node ROBO solutions require a 3rd site for witness VMs.
5. Cisco's innovation of the Intersight Invisible Cloud Witness virtually eliminates the costs with deploying 2-node HCI clusters/

# Benefits of Invisible Cloud Witness Architecture



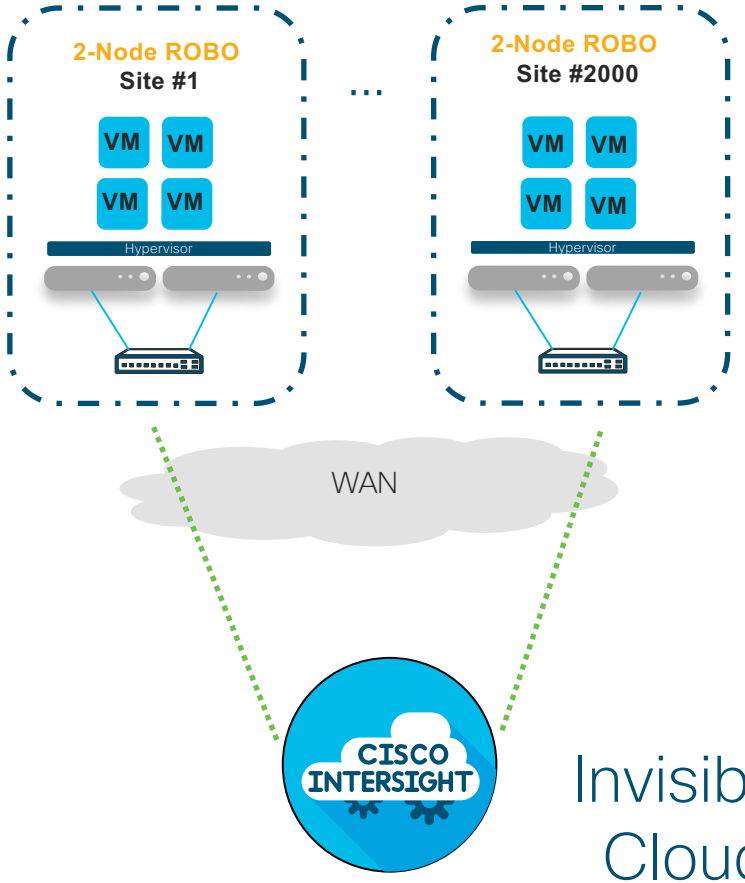

- No additional license cost; Included in an HX Edge Subscription
- No requirement for 3rd site or existing infrastructure
- Cloud-like operations - Nothing to manage
  - No user interface to monitor
  - No user driven software updates
  - No setup, configuration or backup required
  - No scale limitations
- Security
  - Realtime updates with the latest security patches
  - All communications encrypted via TLS 1.2
  - Uses standard HTTPS port 443; no firewall configuration required
- Built on efficient protocol stack
  - No periodic heartbeats
  - No cluster metadata or user data transferred to Intersight
  - Tolerates high latency and lossy WAN connections

# Others
## 2-Node ROBO




– or –

# Cisco HyperFlex Edge 4.0
## 2-Node ROBO




Invisible Cloud Witness

**No additional cost!**

# Managing your Future Datacenter

## Harness the power of cloud-based management

Proactive Guidance

Connected Support

CISCO INTERSIGHT

Remote Deployment

Storage Analytics

### Data Center 1

Cisco HyperFlex

Cisco UCS

### Remote Office/ Branch Office

Cisco HyperFlex Edge
2-Node ROBO

### Edge Computing

Cisco HyperFlex Edge

### Data Center 2

Cisco HyperFlex

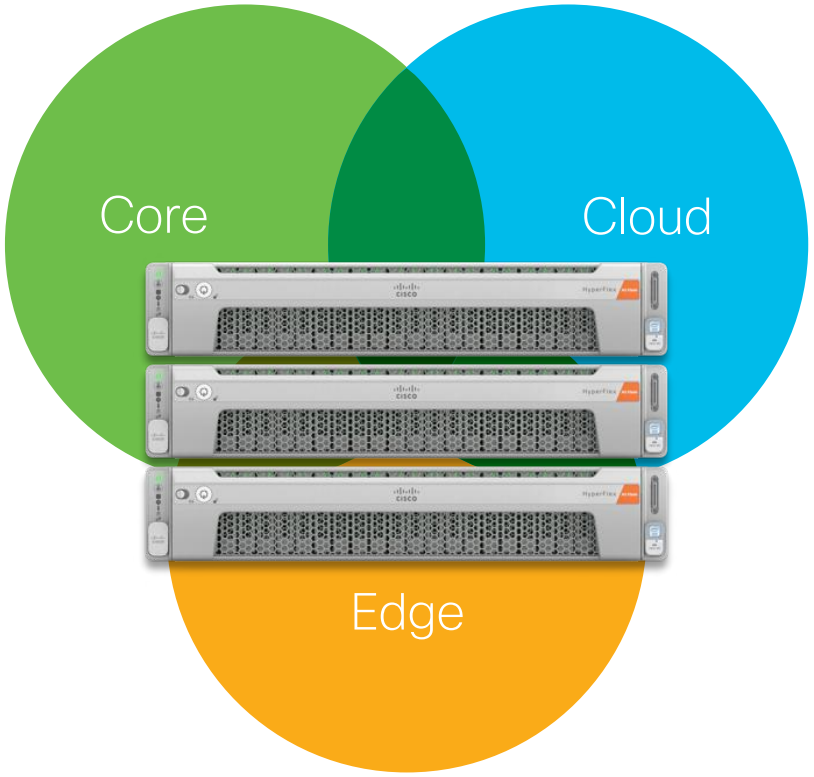
Cisco UCS

Actionable Intelligence

Increased Agility

Reduced Operational Costs

# Supporting your Ecosystem Anywhere




## Enterprise Apps

CITRIX · Exchange · Cisco webex · Microsoft SQL Server · ORACLE DATABASE · ORACLE E-BUSINESS SUITE · vmware Horizon · Microsoft · SharePoint · Cisco Unified Contact Center · splunk> · SIEBEL · PeopleSoft · vmware · MCKESSON · Epic · MUREX · SAP · SAP HANA · CITRIX XenDesktop

## Hybrid/Multicloud

Google Cloud Platform · amazon web services · Cisco Cloud Center · CISCO APPDYNAMICS · Microsoft Azure

## Containers / Cloud Native Apps

Google Cloud Platform · OPENSHIFT by Red Hat · Cisco Container Platform · kubernetes by Google · docker

## Intelligent Management (AI Ops)

CISCO INTERSIGHT · Citrix Cloud · turbonomic · Cisco Workload Optimization Manger

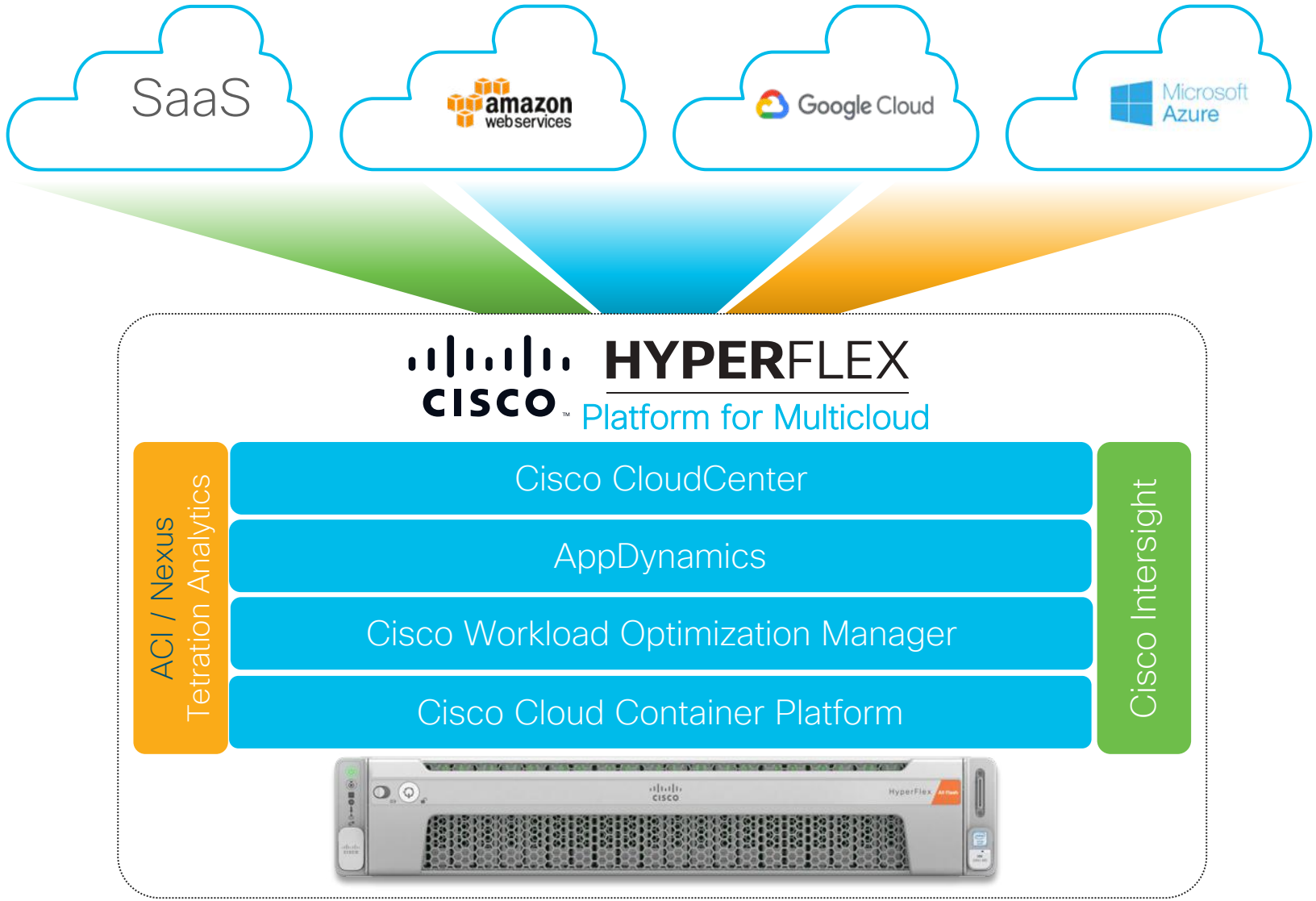
## AI/ML Apps

Google Cloud Platform · NVIDIA · skymind · ANACONDA · OpenVINO

# Simplified Multicloud Operations

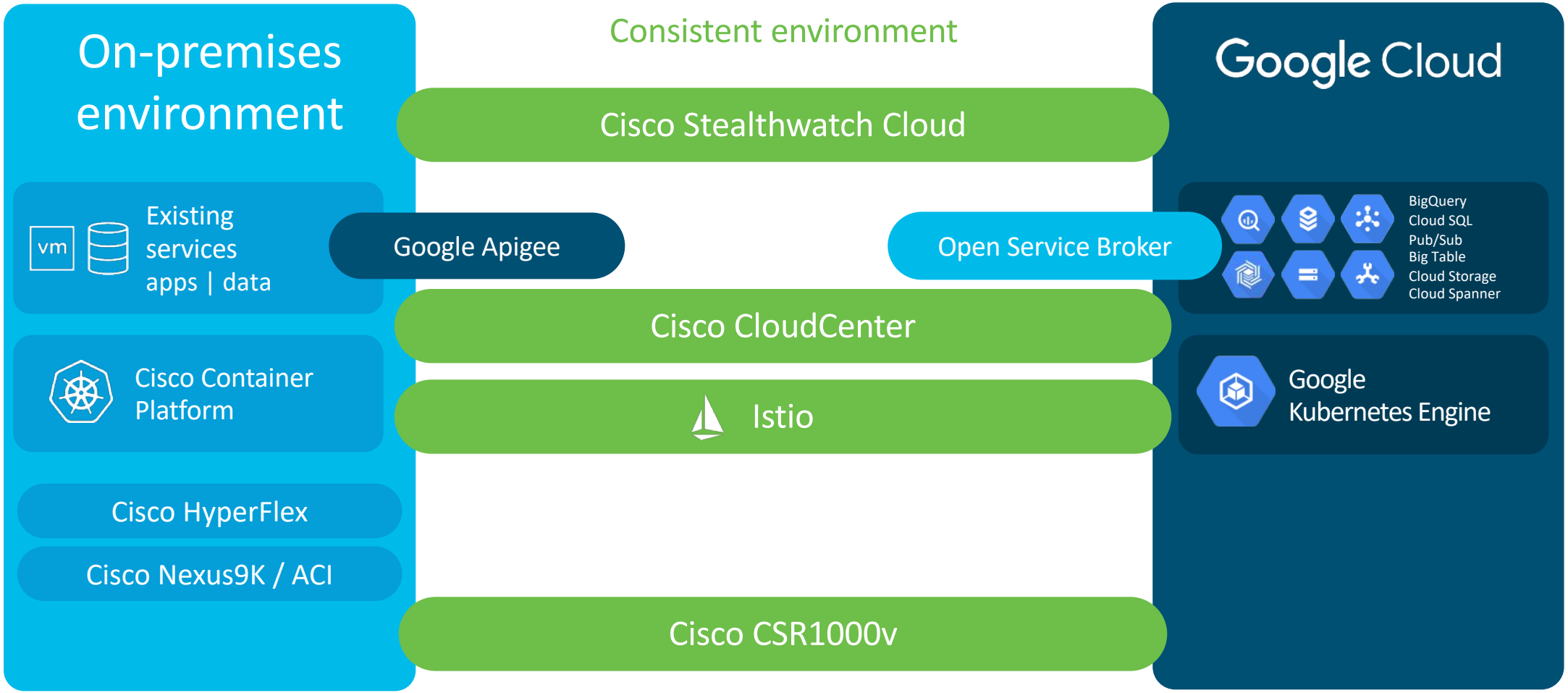
Simplified public cloud consumption

Cloud like experience on-prem

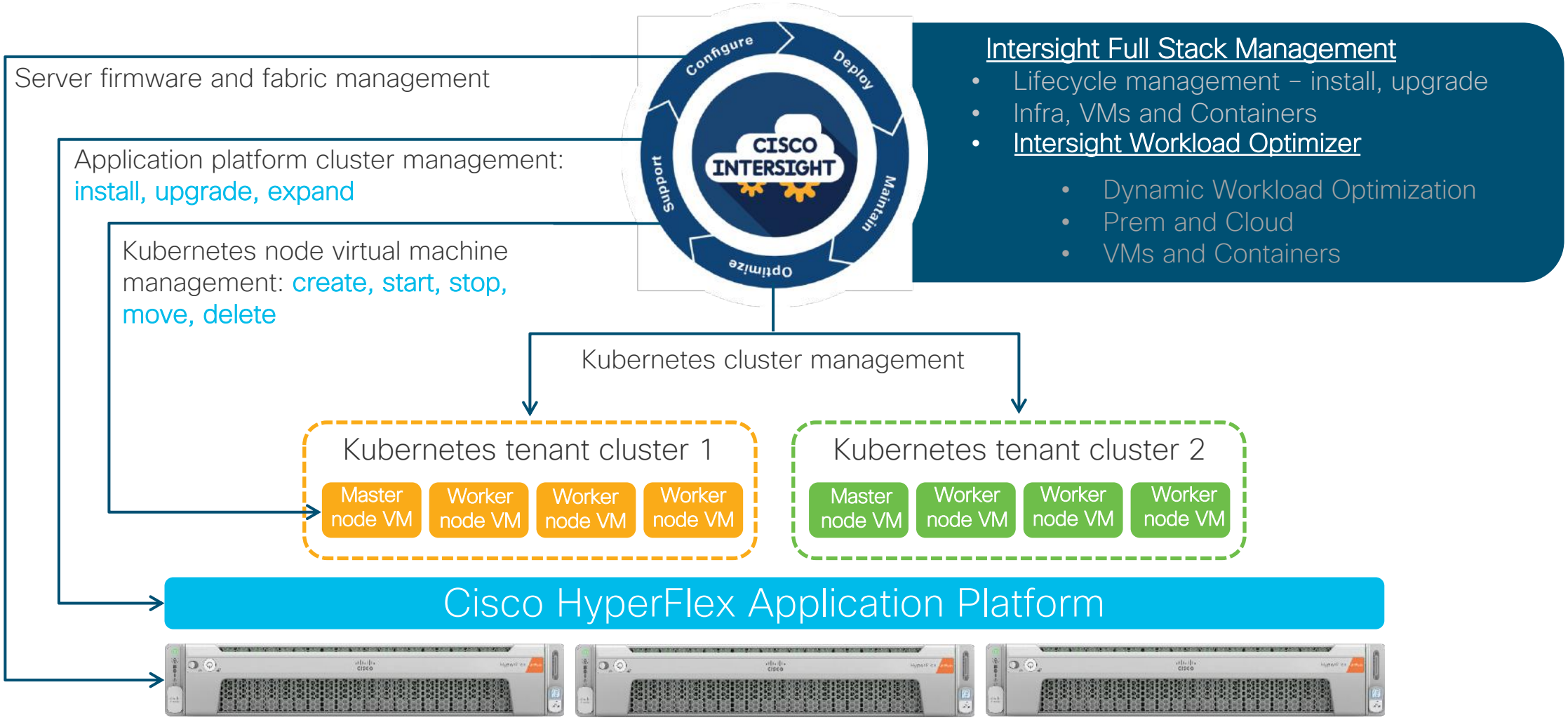


# Cisco Hybrid Solution for Kubernetes on AWS

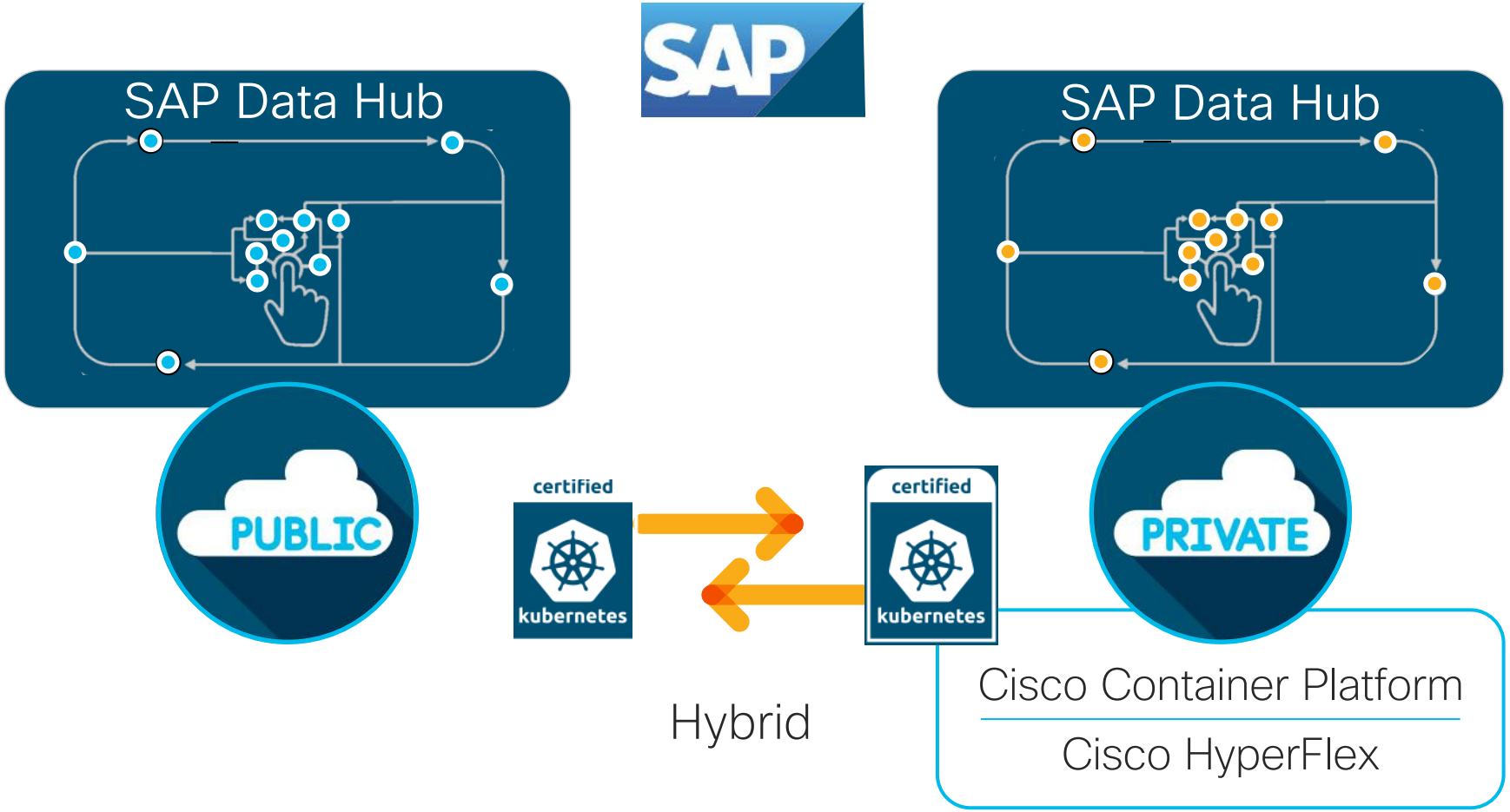
# Cisco Hybrid Cloud Platform for Google Cloud



# Hyperflex Application Platform

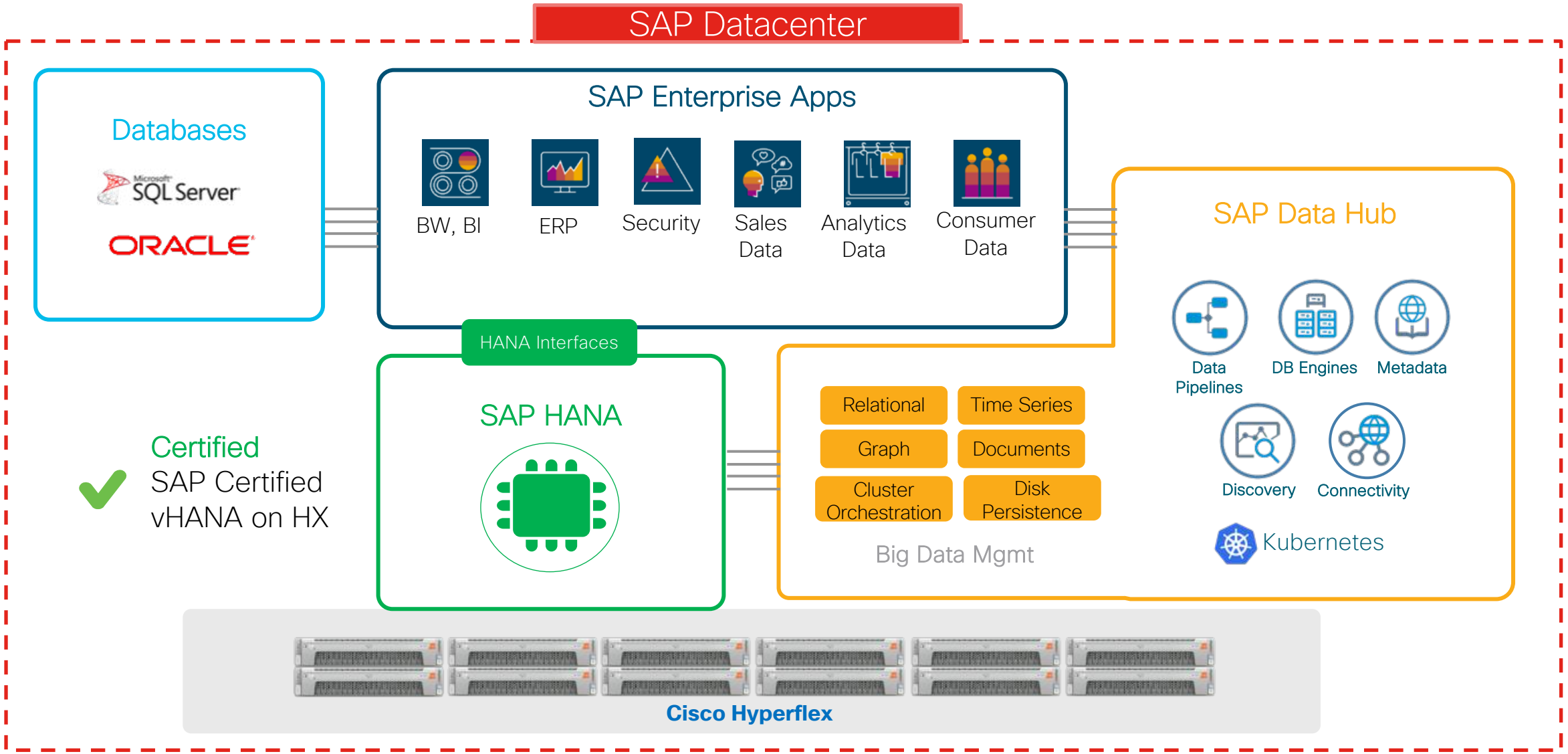


# Cisco Container Platform, SAP Datahub Solution

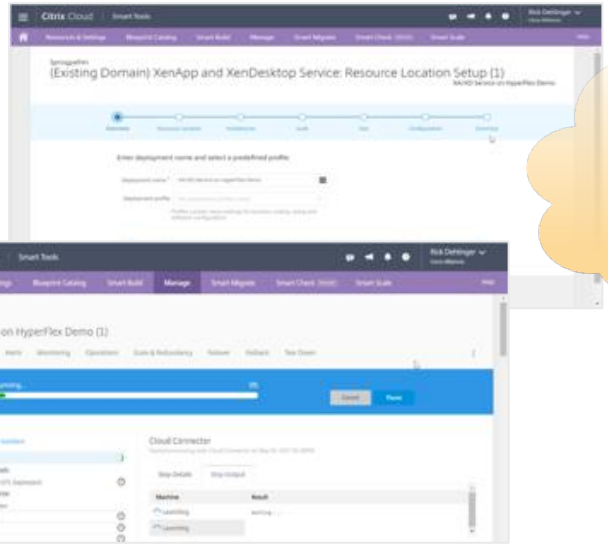


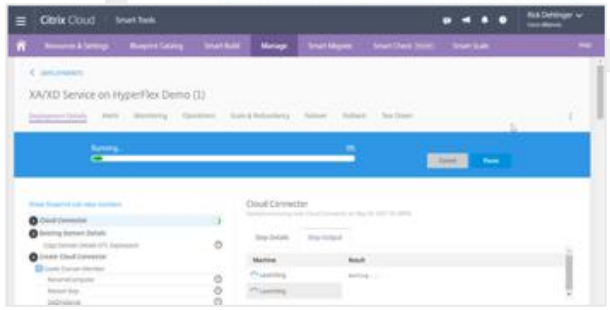

Unifying Data Silos On Premises

# Modernizing SAP on HyperFlex



# Citrix Workspace Appliance with HyperFlex





## Citrix Cloud

*XA/XD Service, ShareFile, Lifecycle Mgmt, Secure Browser*

## Cisco HX Connect

*HX Connect, Multi-site Infrastructure Mgmt*

**End Users**
Subscribed to Infrastructure & Workspace Services

**Citrix Admin**
- Enterprise IT
- Service Provider
- Workspace Publisher

Site 1

Site 2

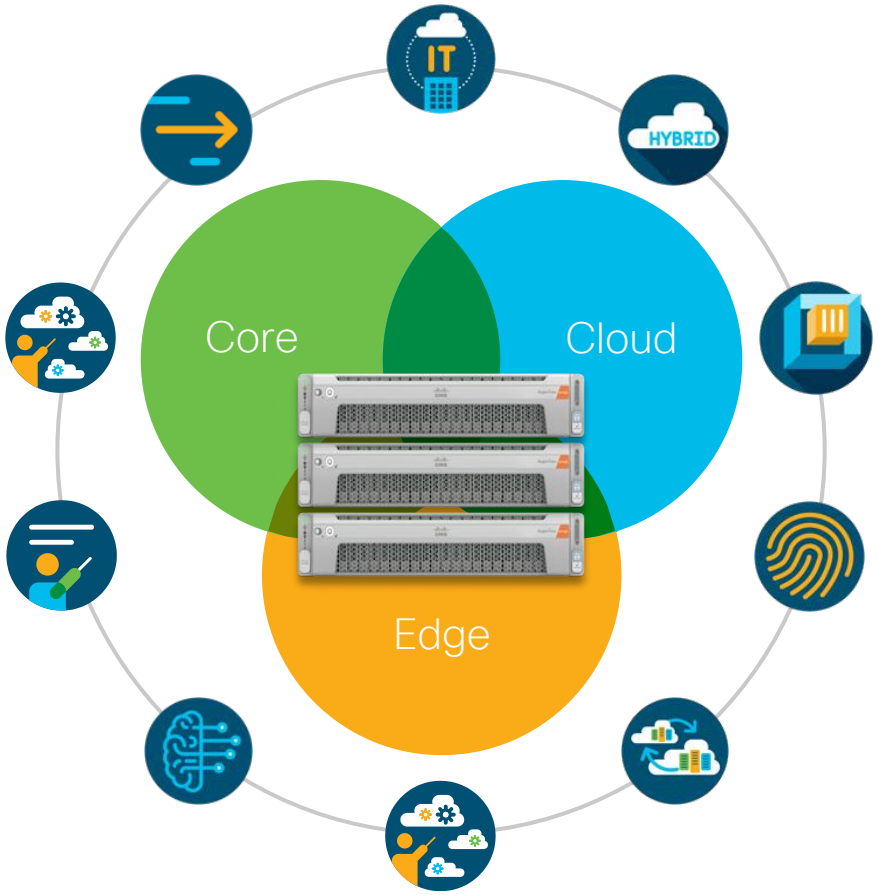
Site 3

Site 4

**Cisco Admin**
- Enterprise IT
- Hosted Provider
- Infrastructure Services

# HyperFlex Anywhere

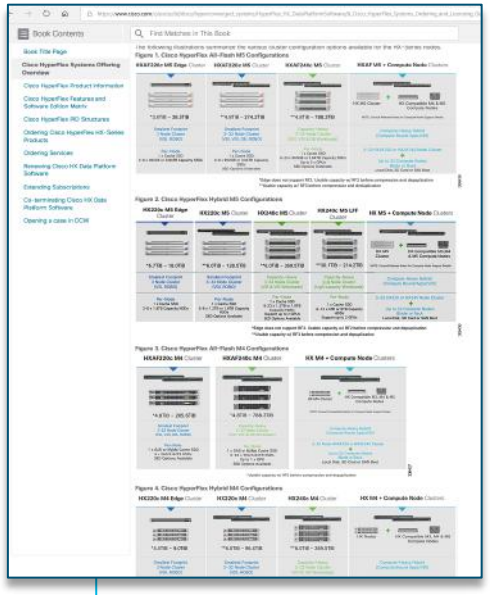
## Modernize the Present, Simplify your Future



# Get Started Today

## 1. Research

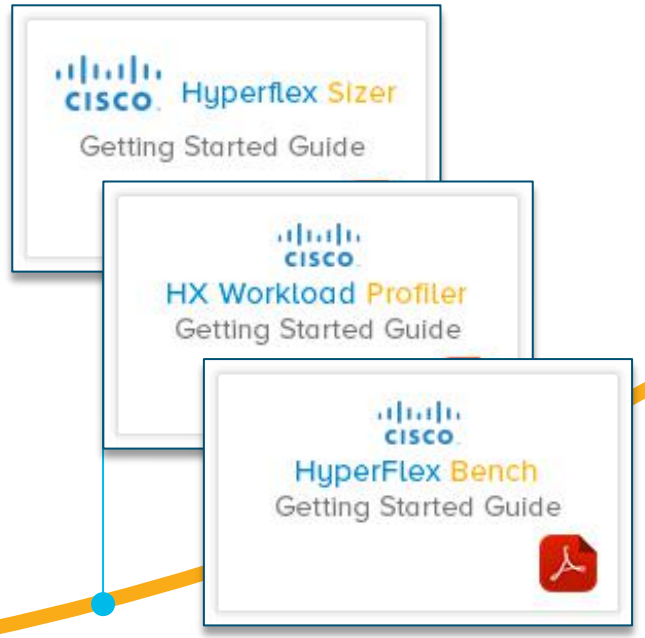
HyperFlex Systems & Cluster Configurations



https://www.cisco.com/c/en/us/td/docs/hyperconverged_systems/HyperFlex_HX_DataPlatformSoftware/b_Cisco_HyperFlex_Systems_Ordering_and_Licensing_Guide/b_Cisco_HyperFlex_Systems_Ordering_Guide_chapter_00.html

## 2. Consult

Your Cisco Account team will size the perfect HyperFlex Solution




## 3. Proof of Concept

### What to expect

- Increased Application Performance
- Spend Less Time Managing your Infrastructure
- Lower TCO