



You make multicloud **possible**

**CISCO** *Engage*

# Data Center Innovation

Vietnam. 24-26 September 2019



You make multicloud **possible**

# Hyper-converged Infra for Multicloud

*Dung Mai*

*Technical solution specialist, Cisco Systems*

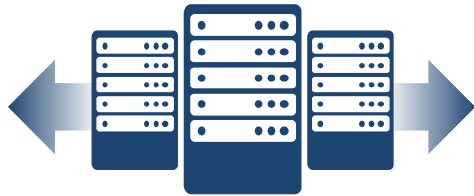


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*Quick Recap on hyper-  
convergence !*

# IT Challenges

Moving at the  
Speed of  
Business



Consumption of  
infrastructure adds time,  
cost and inefficiency

Operationalizing  
Speed and Simplicity



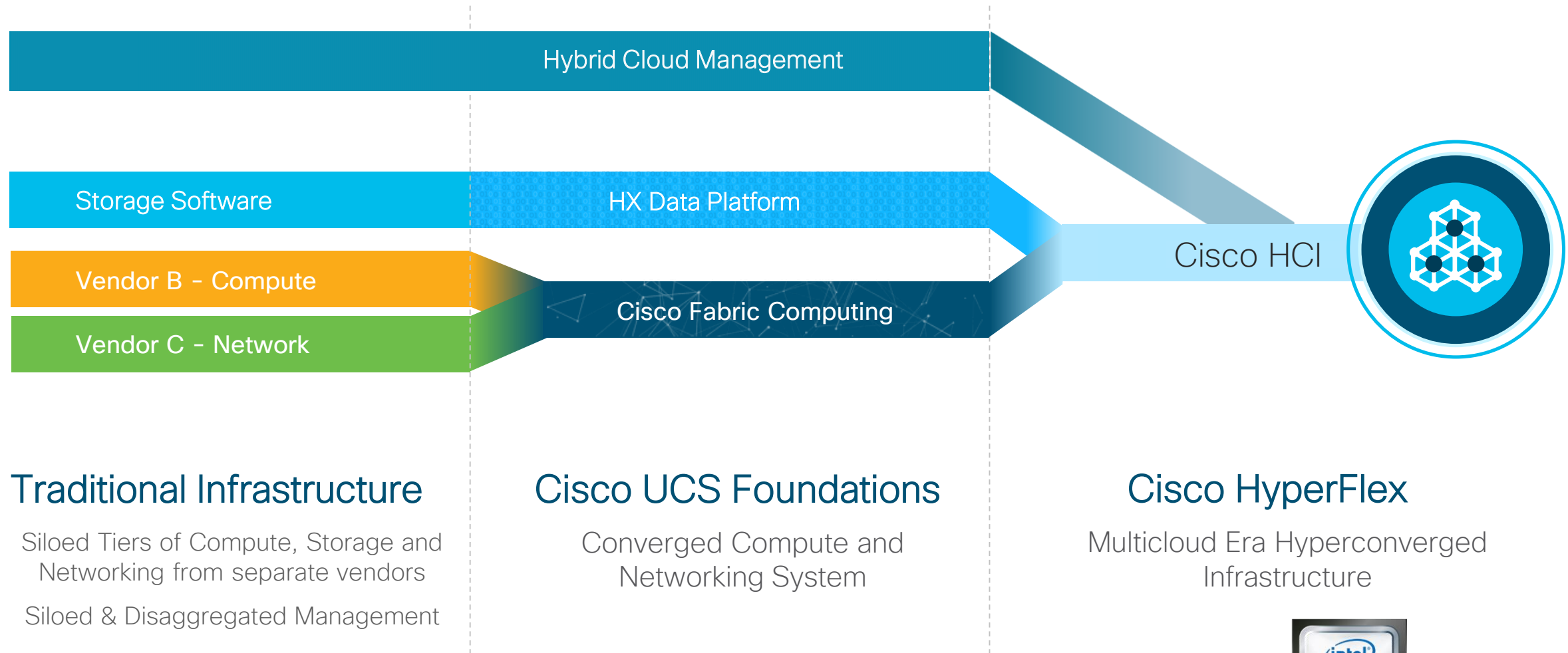
Proliferation of solutions  
creating silos that complicates  
operations

CFOs Expect a  
Cloud Economics On-  
Premise



Expectation of pay-as-  
you-go economics with  
scaling on-demand

# Cisco - Making Hyperconvergence Simple



## 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

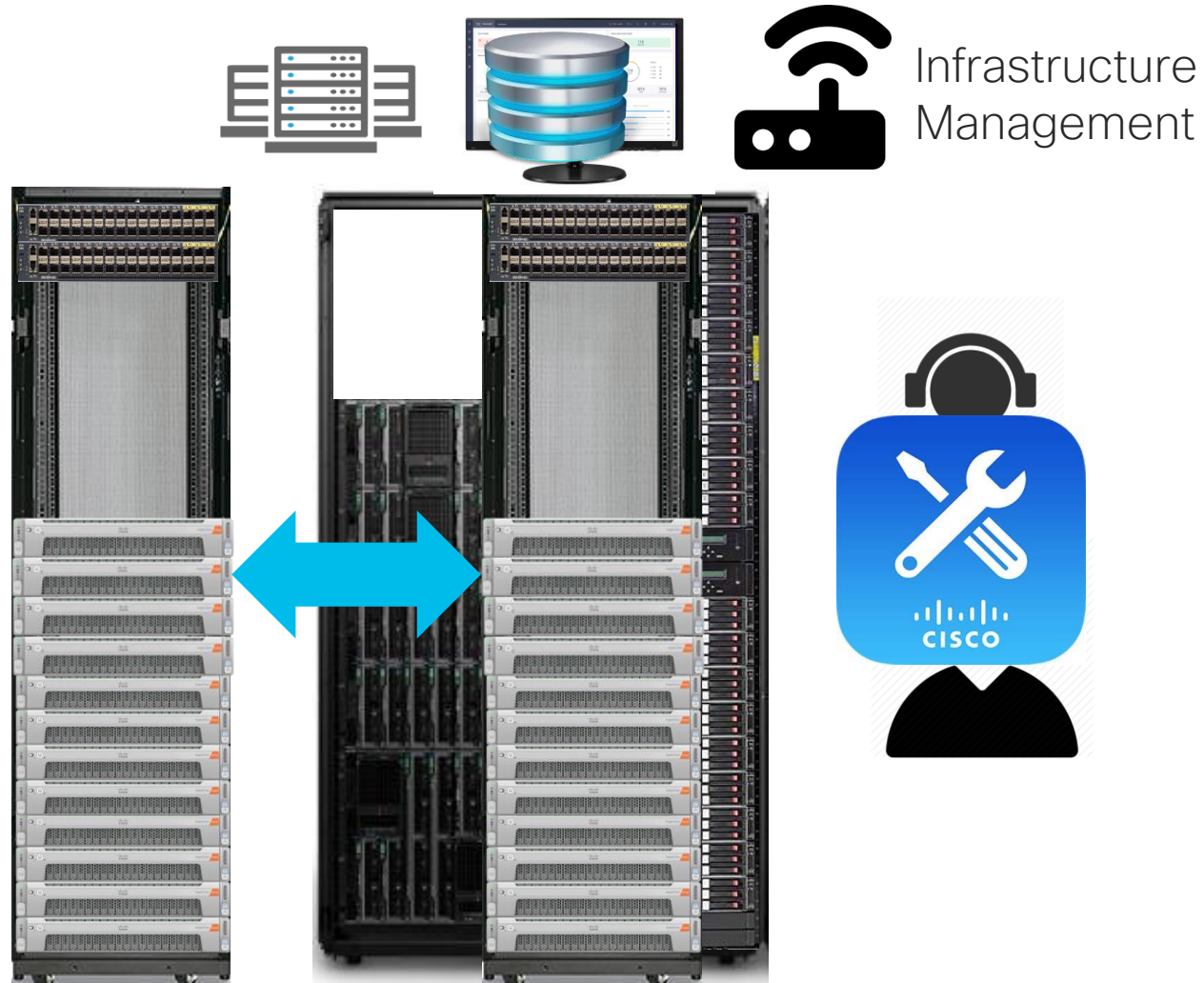
Multicloud Era Hyperconverged Infrastructure



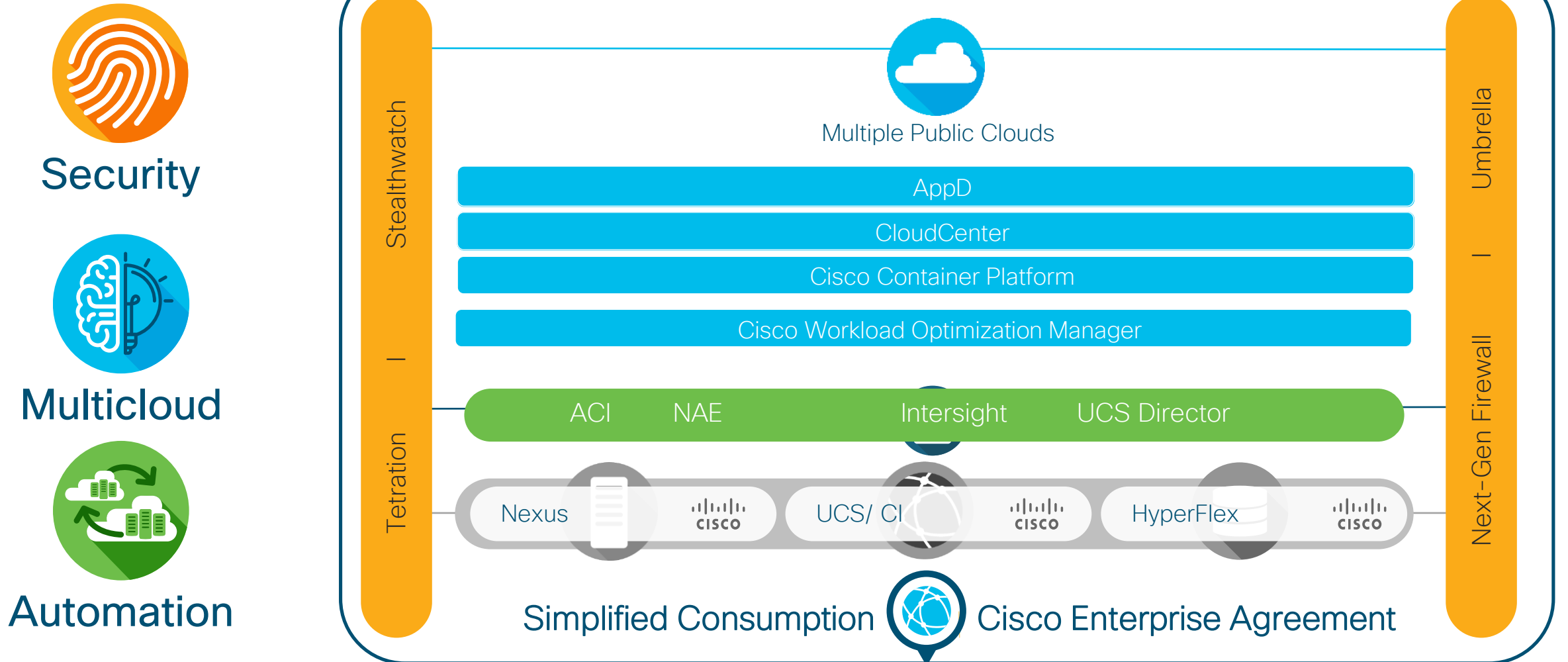
Cisco Hyperflex™ Systems with Intel® Xeon® Platinum processor

# Customer Benefits

- Remove infrastructure silo
- Simplified management
- Single support model
- Modular and Scalable
- Upscale for Business Continuity
- Cloud Like Economics – Pay as you grow



# Cisco Data Center Architecture Reference Stack

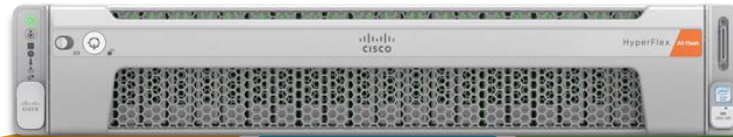


# What is HyperFlex?

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



Cisco Hyperflex™  
Systems with  
Intel® Xeon®  
Platinum processor

# A lot of innovations !



**#1 Performance**  
Proprietary, data-  
distributed architecture



**Data Management**  
Inline storage efficiency,  
snapshots & clones



**Seamless Scale**  
Edge to Datacenter, perf &  
capacity scaling options



**Next-Gen HCI**  
End to end automation,  
including networking



**Cloud Integrations**  
Multicloud ready, Intersight  
for mgmt, analytics, support



**Security**  
SED, PSIRT, Cisco Secure  
Development Lifecycle



**HW Assisted**  
Co-engineered HW + SW,  
flexible HW configurations



**Data Protection**  
Native replication, disaster  
recovery & backup solns



**Ease of Use**  
Simplicity from eval, sizing,  
Day 0/1 to support



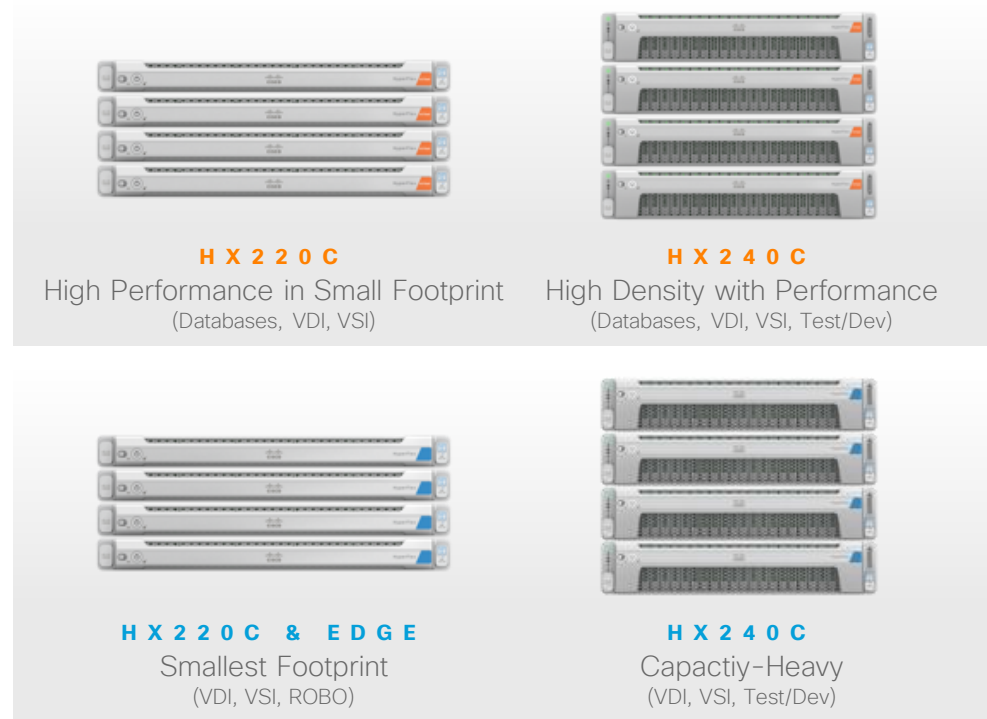
**Global Support**  
Native replication, disaster  
recovery & backup solns

# HCI with Converged Fabric Networking



Cisco Hyperflex™  
Systems with  
Intel® Xeon®  
Platinum processor

- 1 Network Integrated HCI
- 2 Policy Based Management
- 3 End-to-End HCI Automation



+



+

HYBRID CLUSTER    ALL FLASH CLUSTER

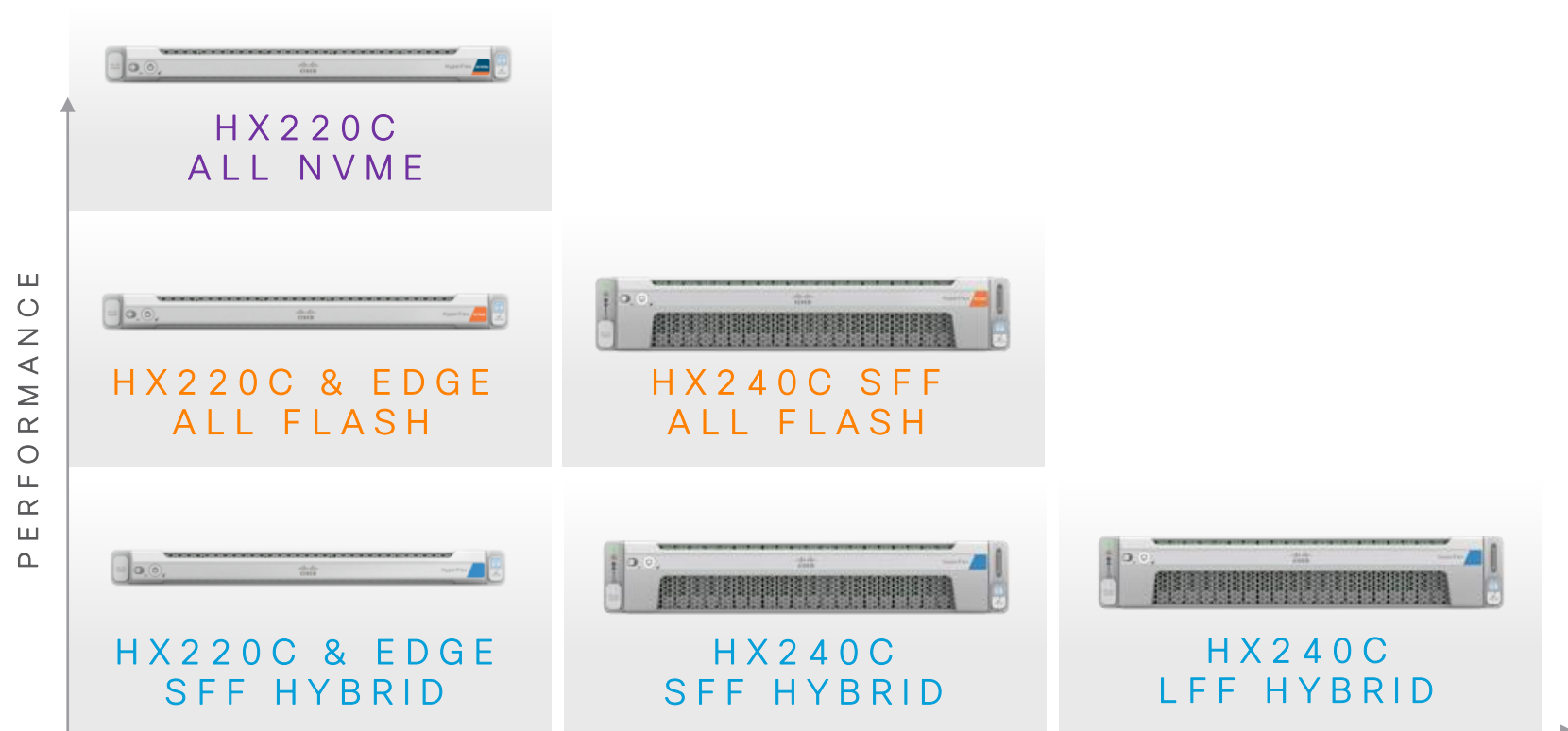


Cisco Hyperflex™  
Systems with  
Intel® Xeon®  
Platinum processor

# Scale on Capacity and Performance

## HYPERFLEX NODES

- 1 Capacity 2 TB to 790 TB in one cluster !
- 2 Hypervisor choice !  
vSphere or HyperV



■ HYBRID NODES    ■ ALL FLASH NODES    ■ ALL NVME NODES

# Cisco HyperFlex **All Flash M5** Configurations

## HXAF220c M5 Edge Cluster



\*3.6TiB – 38.5TiB

Smallest Footprint  
3 Node Cluster  
(VSI, ROBO)

**Per-Node**  
1 x Cache SSD  
3-8 x 960GB or 3.84TB Capacity SSDs

## HXAF220c M5 Cluster

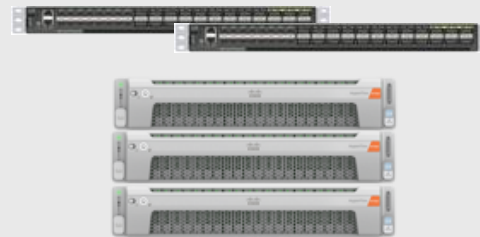


\*\*4.8TiB – 274.2TiB

Smallest Footprint  
3-32 Node Cluster  
(VSI, VDI, DB, ROBO)

**Per-Node**  
1 x Cache SSD  
6-8 x 960GB or 3.84TB Capacity  
SSDs  
SED Options Orderable

## HXAF240c M5 Cluster

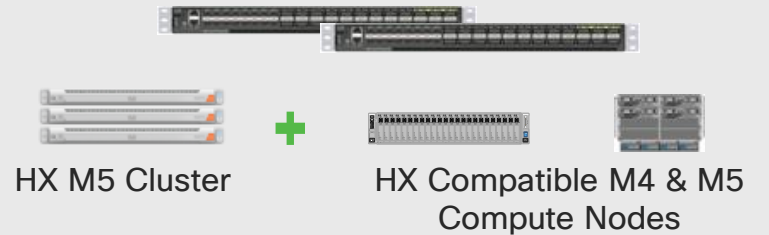


\*\*4.8TiB – 788.3TiB

Capacity-Heavy  
3-32 Node Cluster  
(VDI, VSI & DB Workloads)

**Per-Node**  
1 x Cache SSD  
6-23 x 960GB or 3.84TB Capacity SSDs  
Up to 2 x GPUs  
SED Options Orderable

## HXAF M5 + Compute Node Clusters



NOTE: Consult Release Notes for Compute Node Support Details

Compute-Heavy Hybrid  
(Compute Bound Apps/VDI)

3-32 HXAF220 or HXAF240 Node Cluster  
+  
Up to 32 Compute Nodes  
Blade or Rack  
Local Disk, SD Card or SAN Boot

\*Edge does not support RF3. Usable capacity w/ RF2 before compression and deduplication

\*\*Usable capacity w/ RF3 before compression and deduplication

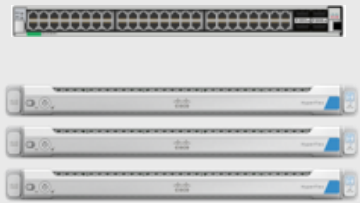
Use HX sizer for details: <https://hyperflexsizer.cloudapps.cisco.com/>



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Platinum processor

# Cisco HyperFlex **HYBRID M5** Configurations

## HX220c M5 Edge Cluster



\*6.7TiB – 18.0TiB

Smallest Footprint  
3 Node Cluster  
(VSI, ROBO)

Per-Node  
1 x Cache SSD  
3-8 x 1.8TB Capacity HDDs

## HX220c M5 Cluster

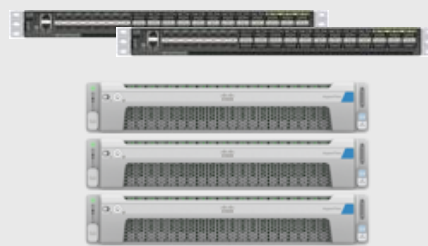


\*\*6.0TiB – 128.5TiB

Smallest Footprint  
3-32 Node Cluster  
(VDI, ROBO)

Per-Node  
1 x Cache SSD  
6-8 x 1.2TB or 1.8TB Capacity  
HDDs  
SED Options Available

## HX240c M5 Cluster



\*\*6.0TiB – 369.5TiB

Capacity-Heavy  
3-32 Node Cluster  
(VDI & VSI Workloads)

Per-Node  
1 x Cache SSD  
6-23 x 1.2TB or 1.8TB  
Capacity HDDs  
Support up to 2 GPUs  
SED Options Available

## HX240c M5 LFF Cluster

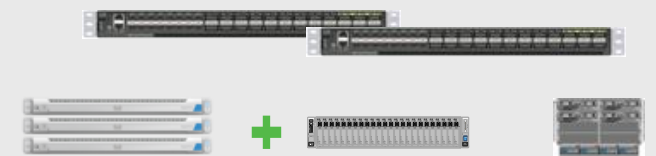


\*\*60.2TiB – 428.4TiB

Capacity-Heavy  
3-16 Node Cluster  
(high capacity Workloads)

Per-Node  
1 x Cache SSD  
6-12 x 6TB or 8TB Capacity  
HDDs  
Support up to 2 GPUs

## HX M5 + Compute Node Clusters



HX M5  
Cluster

HX Compatible M3,M4  
& M5 Compute Nodes

NOTE: Consult Release Notes for Compute Node Support Details

Compute-Heavy Hybrid  
(Compute Bound Apps/VDI)

3-32 HX220 or HX240 Node Cluster

Up to 32 Compute Nodes  
Blade or Rack  
Local Disk, SD Card or SAN Boot

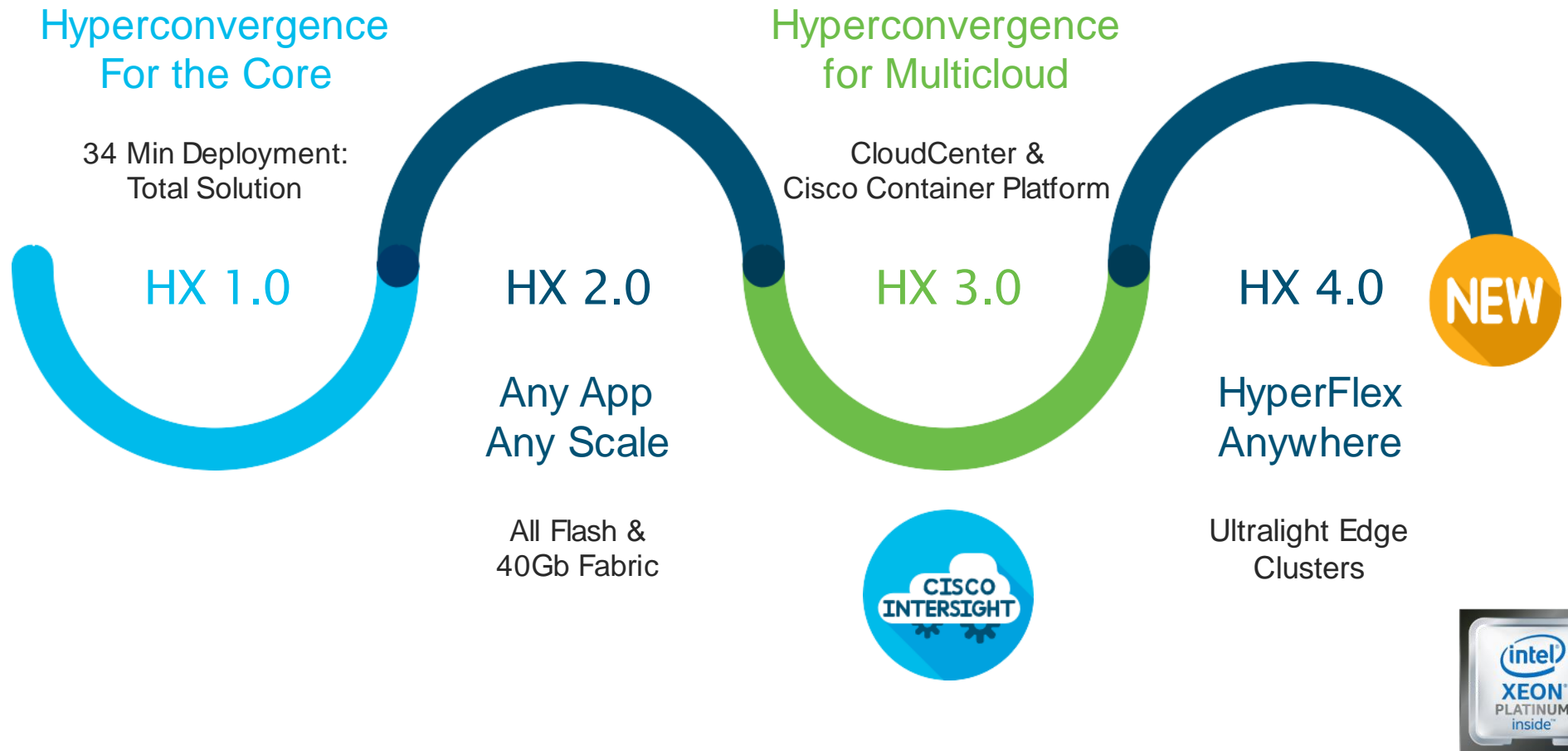
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Use HX sizer for details: <https://hyperflexsizer.cloudapps.cisco.com/>

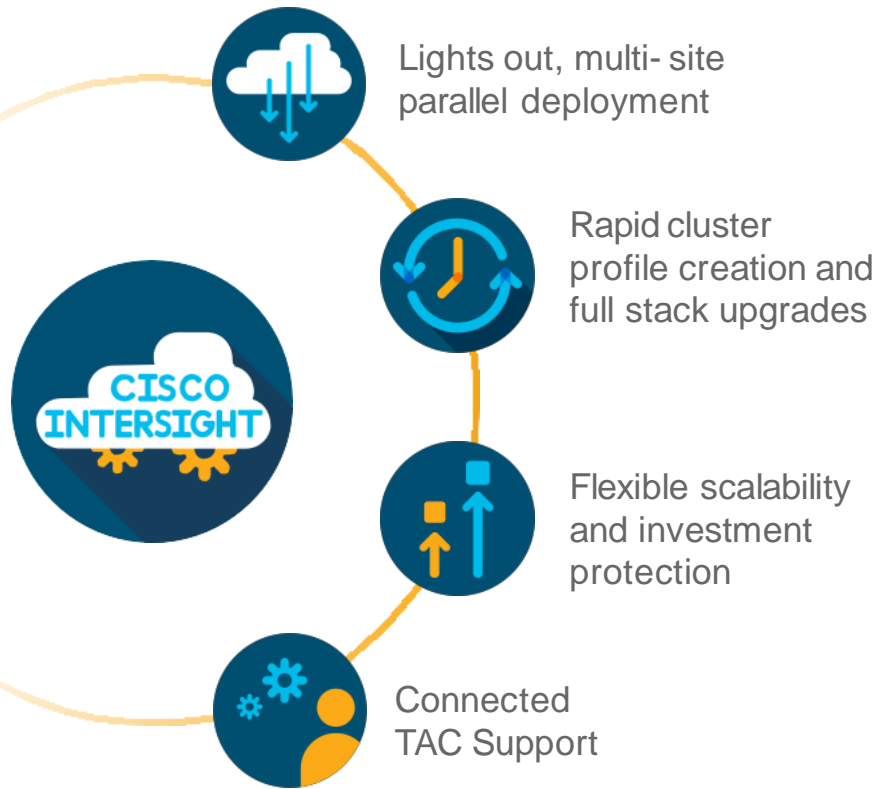
# Cisco HyperFlex

*The Simplicity of Cloud-Managed Computing*



# The New HyperFlex Edge

## The Power of Cloud-Managed Computing



Cloud Witness Service



Cisco Hyperflex™ Systems with Intel® Xeon® Platinum processor

## Ultra-light 2-node HyperFlex Edge



Customer Leveraging Existing Branch Network



Three-node cluster quorum without physical 3rd node!

# HyperFlex Edge Configurations

HX220c M5 Hybrid Edge



HXAF220c M5 All Flash Edge



Configurable CPU	Single or Dual Socket (10- 56 cores)	Single or Dual Socket (10- 56 cores)
Configurable Memory	128GB – 3TB	128GB – 3TB
2- Node Usable Capacity Range	3.3TB - 13.2TB	2.6TB - 28.2TB
3- Node Usable Capacity Range	4.9TB - 19.8TB	4.0TB - 42.4TB
4- Node Usable Capacity Range	6.6TB - 26.5TB	5.3TB - 56.5TB

**Most Flexible  
Edge Appliance  
in the Industry**

Initial  
Cluster Size:  
2, 3 or 4

Networking  
options:  
1GbE or 10GbE  
(bring your own switch)

Replication  
Factor 2 (RF2)

Powered  
by Intersight



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# *Cisco Intersight*

# Managing your Future Datacenter

Harness the power of cloud-based management



Proactive  
Guidance



Connected  
Support



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



# Cisco Intersight

## Centralized Cloud-Based Management



Telemetry and Analytics



Policy Based Orchestration



Secure and Compliant



API Driven, DevOps Enabled



Connected TAC

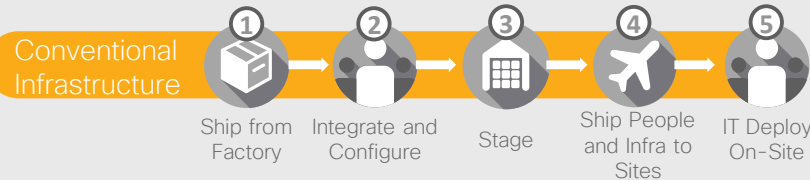
Cisco Intersight

SaaS Simplicity

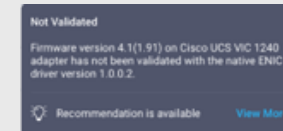
Actionable Intelligence



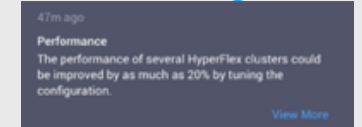
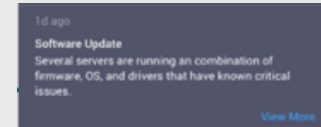
## Remotely Deploy & Manage



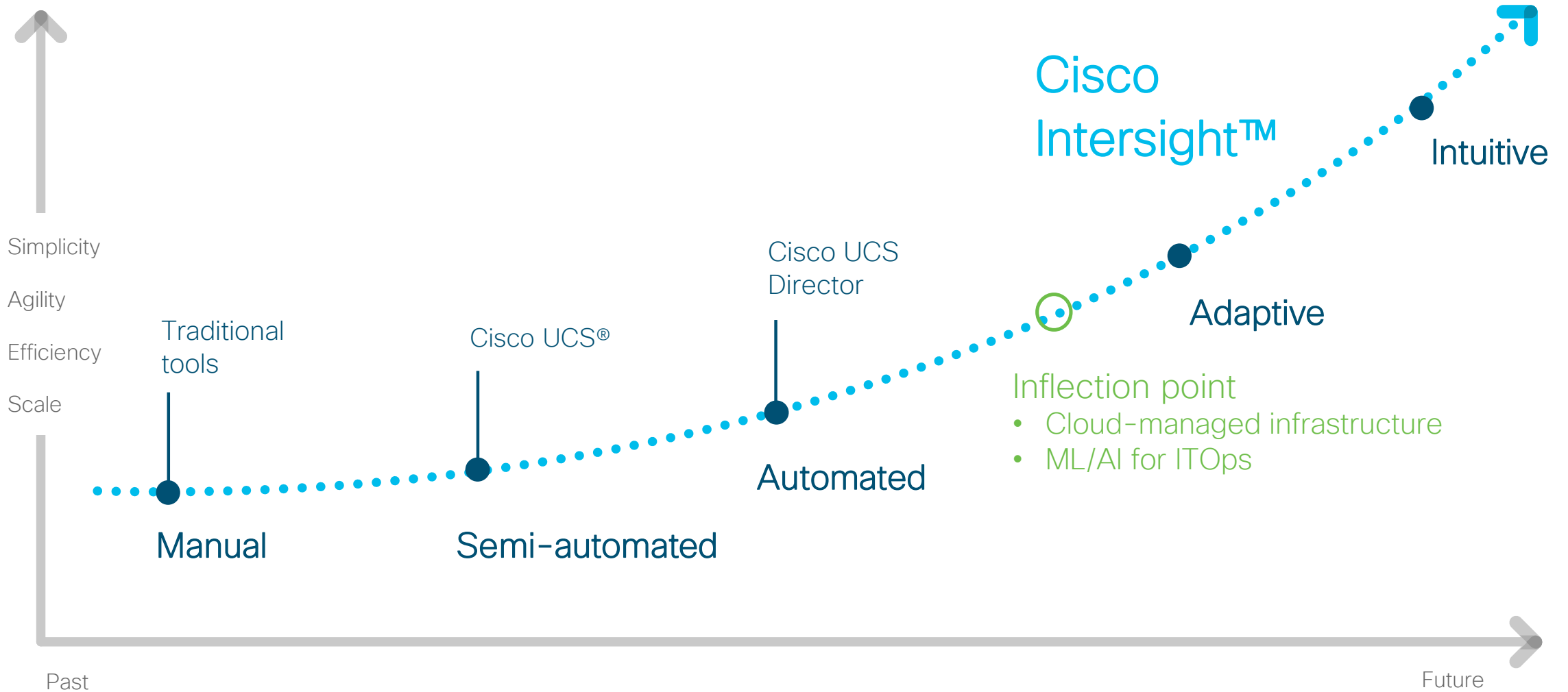
## Compatibility(HCL) Check



## Recommendations Engine



# Systems management evolution





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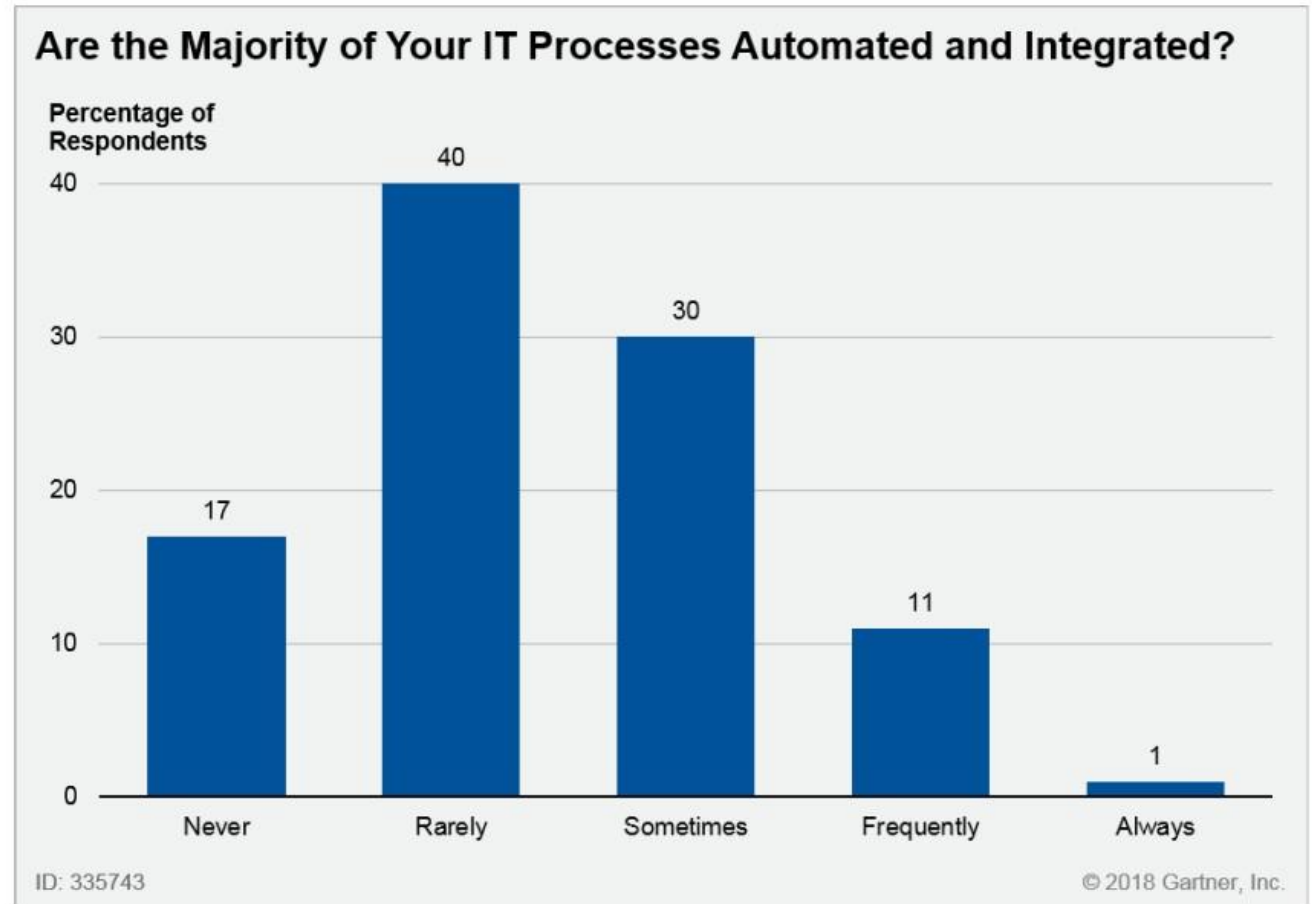
# *Infrastructure Automation for Multicloud with Cisco UCS and HyperFlex*



Cisco HyperFlex™  
Systems with Intel®  
Xeon® Platinum  
processors

# How Automated Are Your Processes?

- Most organizations are in the early stages of automation.
- What skills and tools do you need to improve and integrate your processes?



n = 3,213

Source: Gartner (2018) *2018 Strategic Roadmap for I&O Automation*

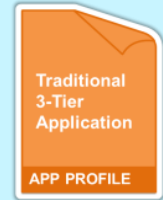
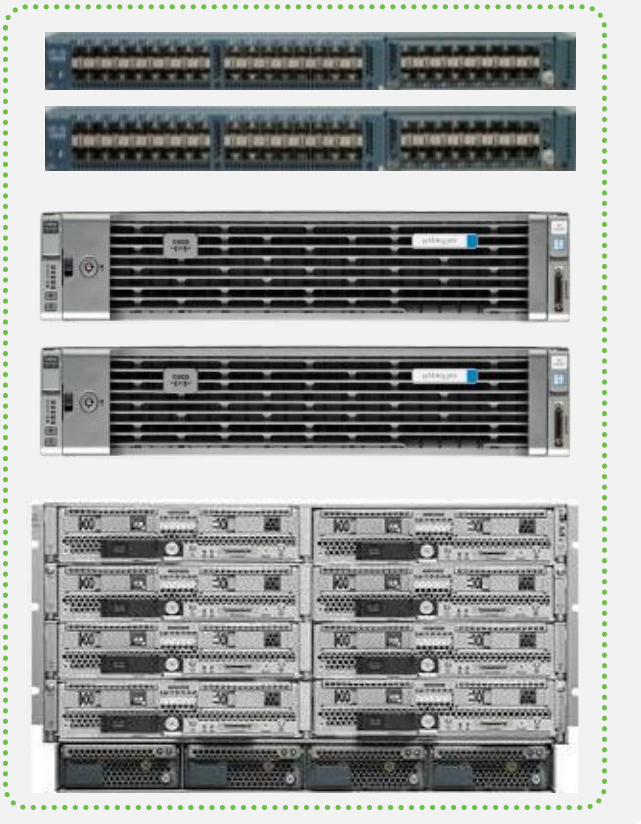


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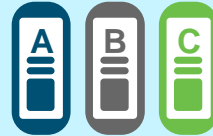
# Cisco HyperFlex and Cisco UCS director

## Infrastructure automation and private-cloud IaaS services

HyperFlex™ Stack with  
Cisco UCS® Director



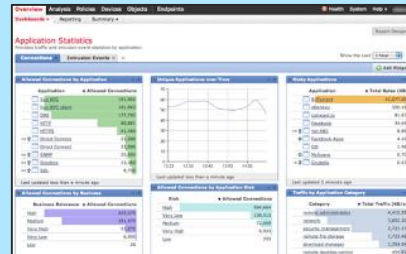
Traditional  
3-Tier  
Application  
APP PROFILE



UCS Manager  
security model



Infrastructure automation of  
UCS, storage, virtualization  
Networking and Cisco® ACI



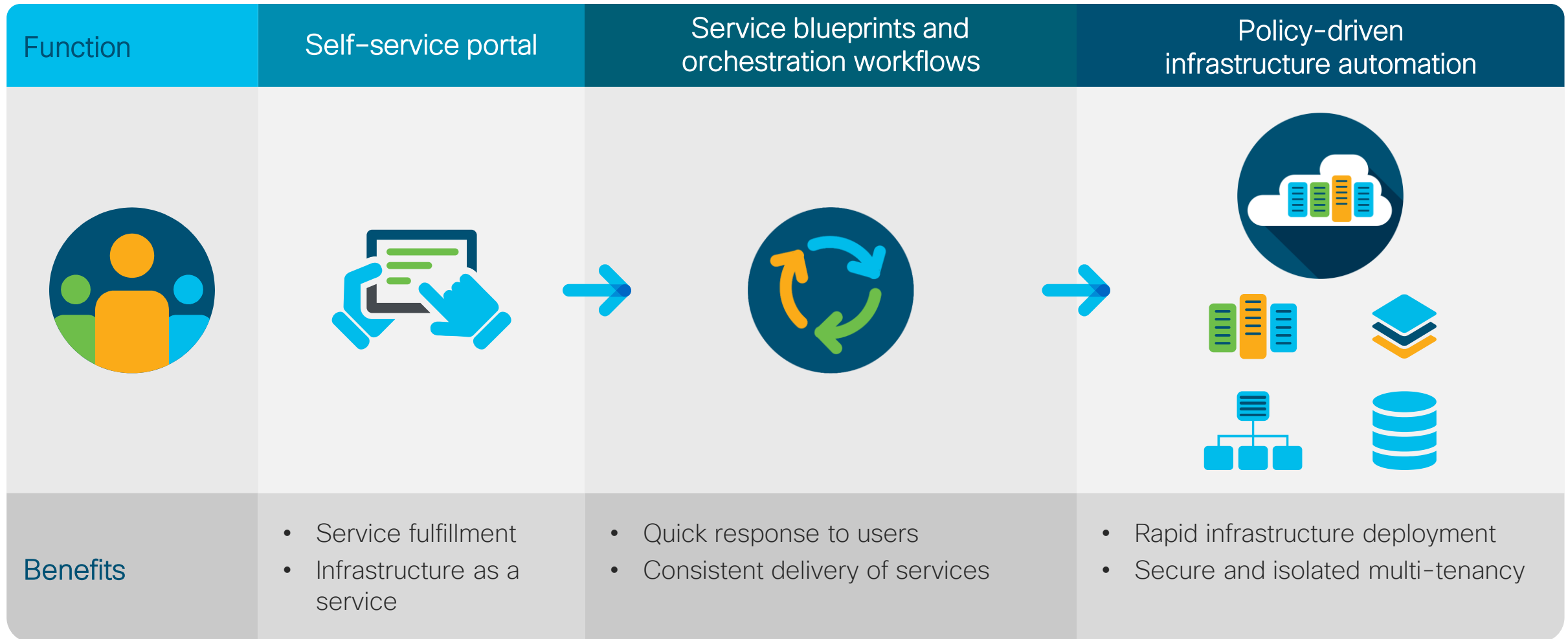
Management and  
operational visibility



Private cloud IaaS automation

- Policy-based data center
- IaaS service catalog
- Workload provisioning
- Metering and chargeback

# Infrastructure as a service and orchestration





You make multicloud **possible**

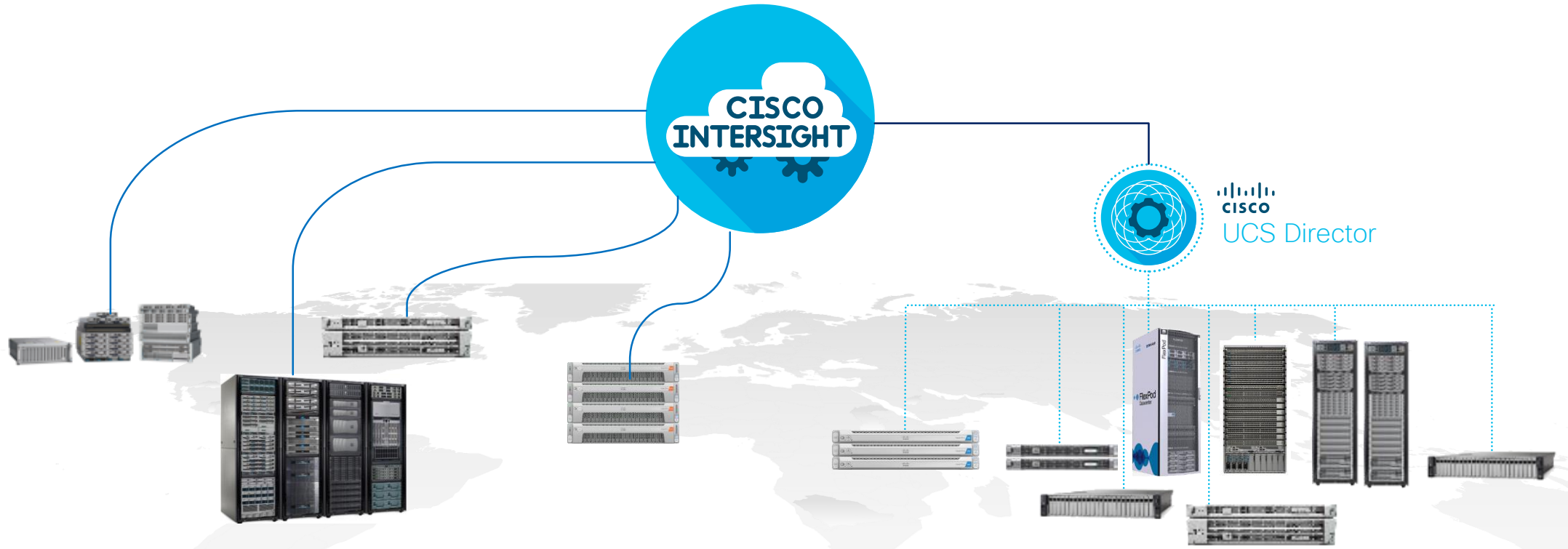
# *Better Together: Intersight and UCS Director*

# Intersight Advantage: Intersight + UCS Director

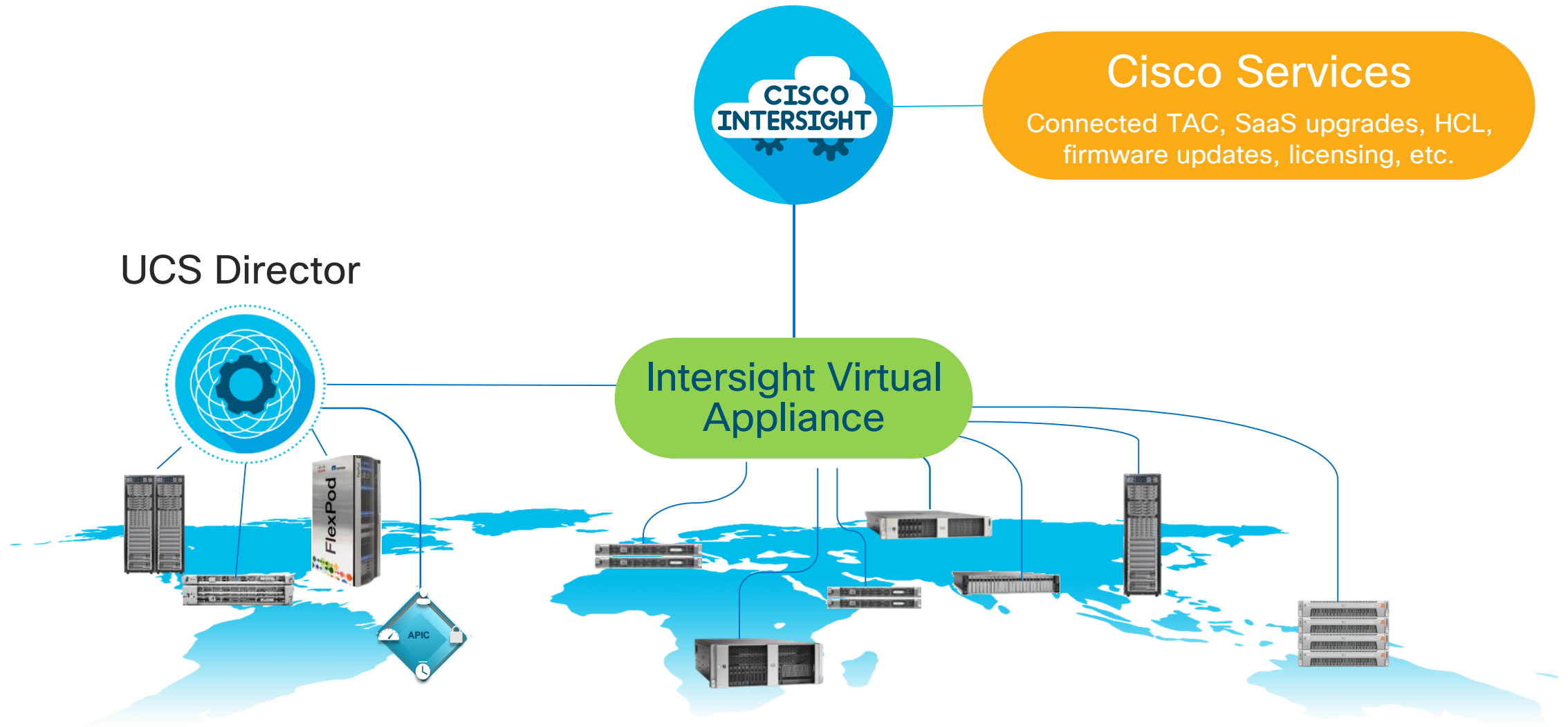
**Intersight:** Simplified SaaS management for data center, edge, and ROBO



**UCS Director:** Open private cloud, infrastructure automation



# Cisco Intersight Connected to Cisco Services

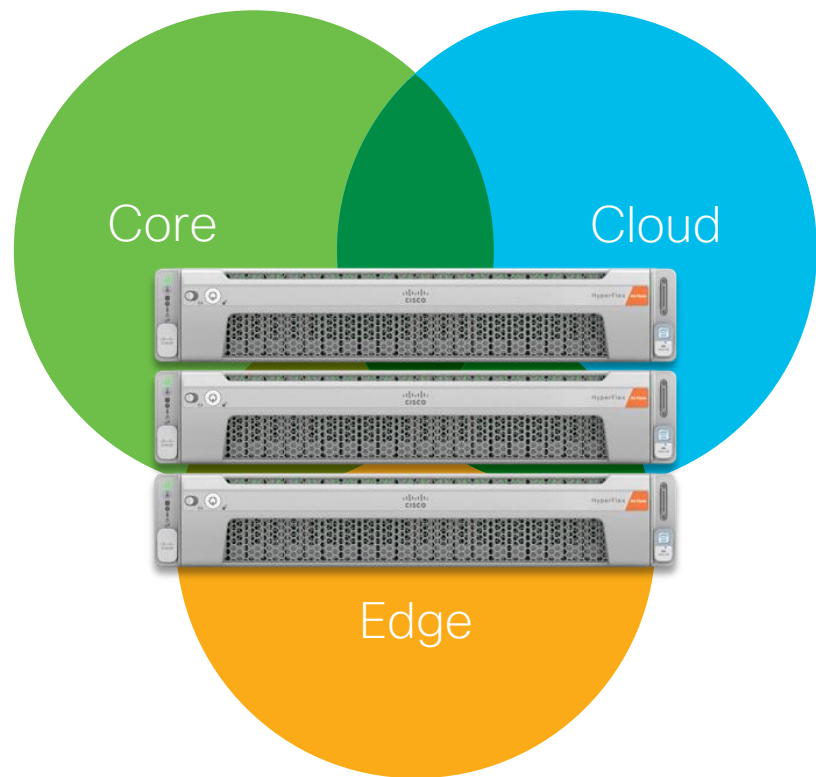




You make multicloud **possible**

# *Summary*

# Cisco HyperFlex – Supporting your Ecosystem Anywhere



## Enterprise Apps



## Hybrid/Multicloud



## Containers / Cloud Native Apps



## Intelligent Management (AI Ops)



## AI/ML Apps



# The big picture

- Look at solutions that don't lock you to a specific cloud or hypervisor
- Important to look beyond point products





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*Thank You*