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GO BEYOND

#CiscoLiveAPJC





Simplifying Edge Infrastructure

with Intersight Cloud Management and Cisco
Compute Hyperconverged with Nutanix

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BRKCOM-2011



#53071

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Agenda

- Introduction to HCI Landscape
- Cisco HCI with Nutanix Solution Overview
- Cisco Intersight Overview
- Intersight Standalone Mode
- Intersight Managed Mode 
- Exciting Road Ahead!

Cisco Compute Hyperconverged with Nutanix – Solution Overview

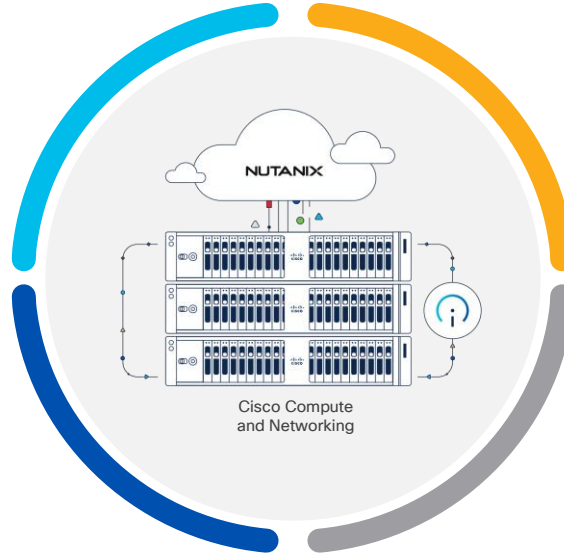
A unique-to-the-market, 360-degree partnership

Strategy

Complete roadmap leveraging the strengths of both companies in service of our customers

Go-to-market

Combined, expert sales teams and buying process focused on simplifying the customer experience



Engineering

A solution built, managed, and supported holistically for a seamless end-to-end experience

Support

A joint augmented support model built for information-sharing to ensure our customers' success

Operate
at scale

More choice
and flexibility

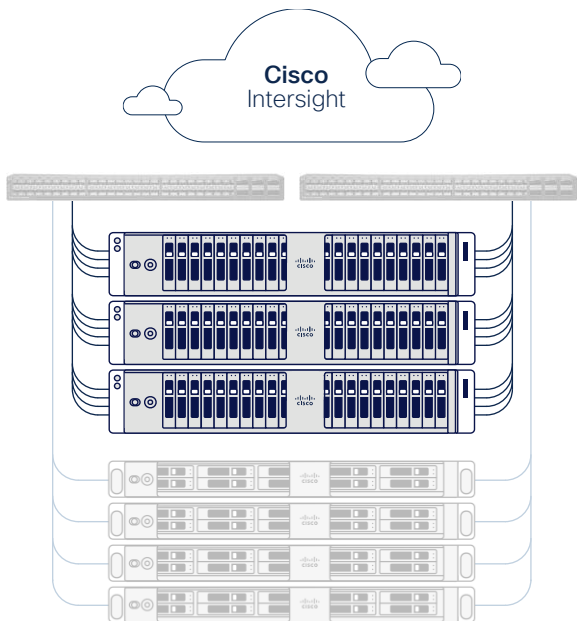
End-to-end
security

Comprehensive
support

Easy
to buy

1: What Cisco brings to the table

**Cloud-connected,
fabric-based compute**



Value

SIMPLICITY

Global visibility, unified experience and connected support

FLEXIBILITY

Address any use case with flexible deployment options and full programmability

RESILIENCY

Built-in security, highly available, low-latency fabric and proactive support

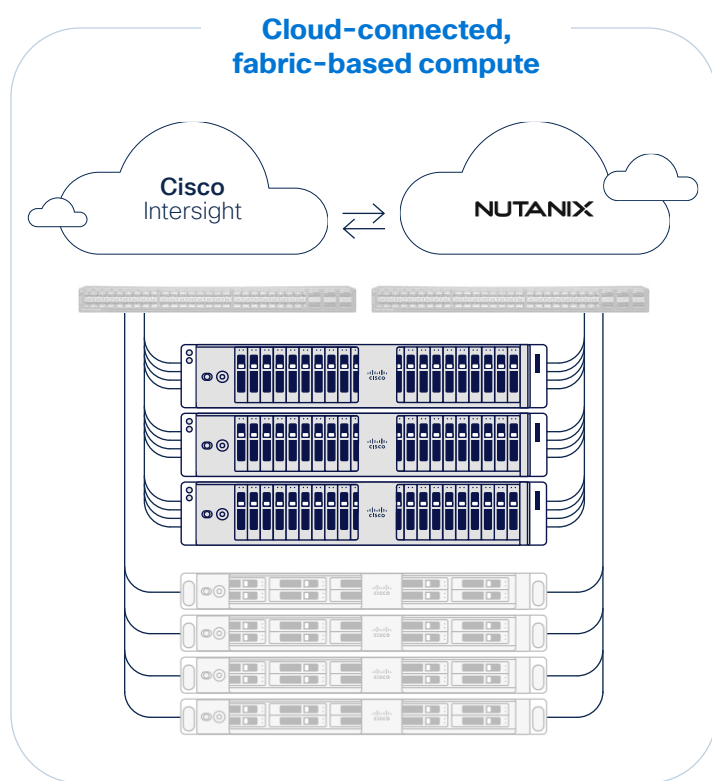
Outcome

Do more with less time and cost

Do more with less waste and more efficiency

Protect your business with more uptime and reliability

1 + 1 = 3: What Cisco and Nutanix bring to the table



Value

SIMPLICITY

Global visibility, unified experience and connected support

FLEXIBILITY

Address any use case with flexible deployment options and full programmability

RESILIENCY

Built-in security, highly available, low-latency fabric and proactive support



Nutanix unique features

Full-stack lifecycle management, with automated, out of the box configuration

Your choice of hypervisor, seamless scalability, and investment re-use

Business continuity, high-availability and an integrated support model

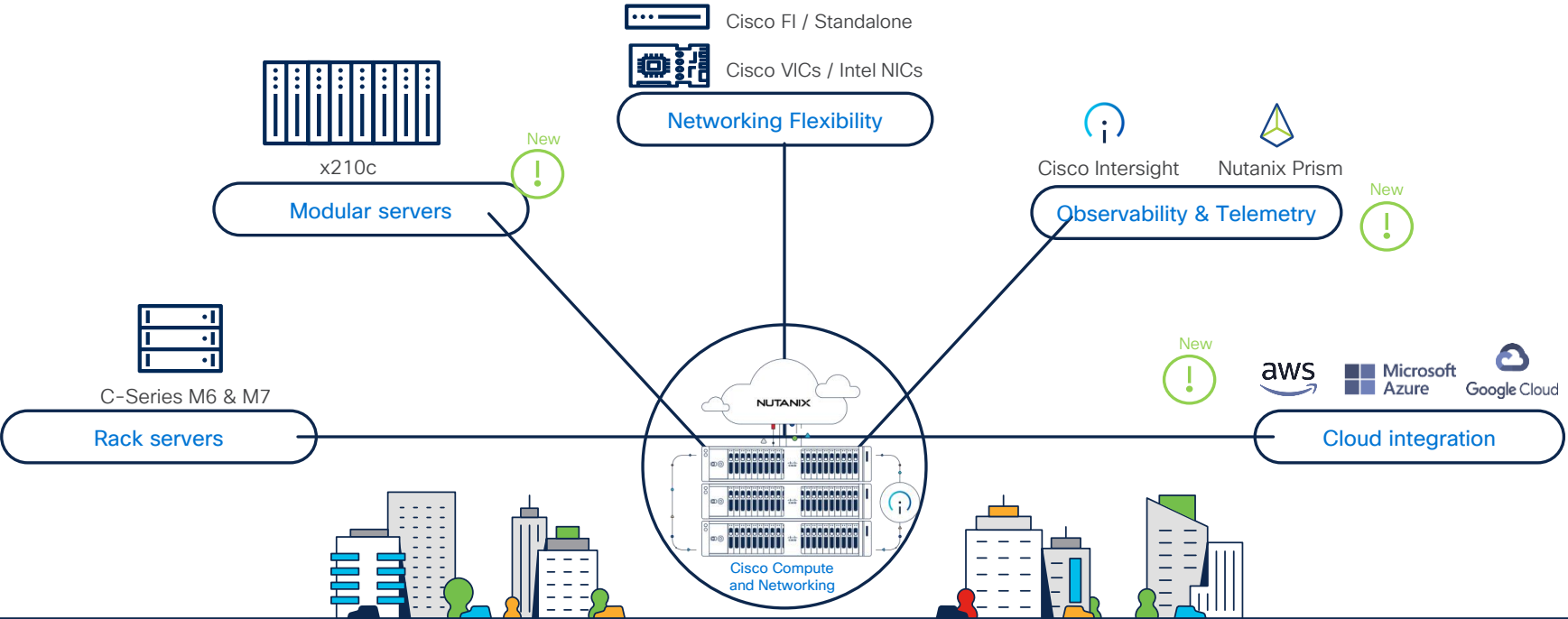
Outcome

Do more with less time and cost

Do more with less waste and more efficiency

Protect your business with more uptime and reliability

• Accelerate IT transformation with more flexibility and choice



Virtual infrastructures

Hybrid cloud

Enterprise applications

AI/ML

Containers

Desktop virtualisation

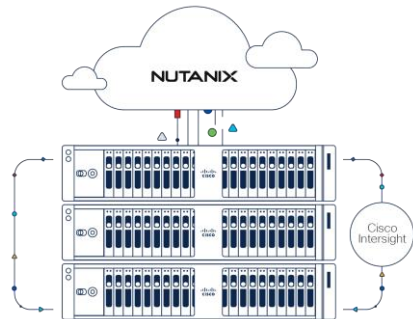
Data protection

Solution portfolio



Hyperconverged Infrastructure

Flexible options and scalability



Node expansion options



HCI

Adds CPU, memory and disk capacity resources to a cluster



Storage-Only

Adds only disk capacity resources to a cluster

Hypervisor options

NUTANIX

AHV Hypervisor

min 1 max 32
nodes per cluster



vSphere Hypervisor (ESXi)

min 1 max 48
nodes per cluster

Networking options



UCSM Mode

with 4th and 5th Gen Fabric Interconnect



Intersight Standalone Mode

with existing ToR



IMM Mode

with 4th and 5th Gen Fabric Interconnect

NUTANIX
Cloud Infrastructure (NCI)

Max raw capacity per node
depends on node type

216TB



Mixed Drive Support



Mixed Node Support

Cisco Compute Hyperconverged node options



1RU and 2RU form-factor
options available



All-Flash drive capacity
options available

All-NVMe drive capacity
options available



UCS-X Modular Servers

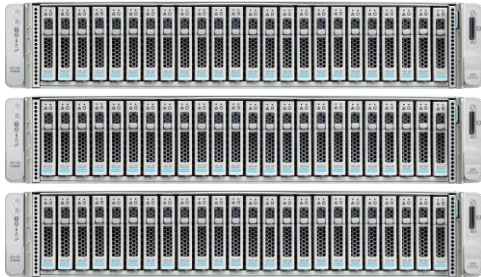
NOTE: See solution documentation for all caveats, limitations and compatibility information

cisco Live!

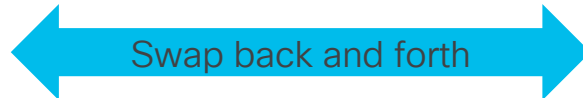
Reuse and Repurpose

- Repurpose existing servers with qualified components as Nutanix HCI nodes
- Convert Nutanix nodes back to regular x86 to repurpose for other use cases
- Invest in UCS compute with standardised platform management without being tied to an architecture

Personality set during installation



Cisco Compute Hyperconverged with Nutanix



Personality cleared manually



Cisco M6/M7 general purpose server

Standalone IMC CLI

```
# scope chassis
# clear personality
# commit
```

Fabric Interconnect CLI

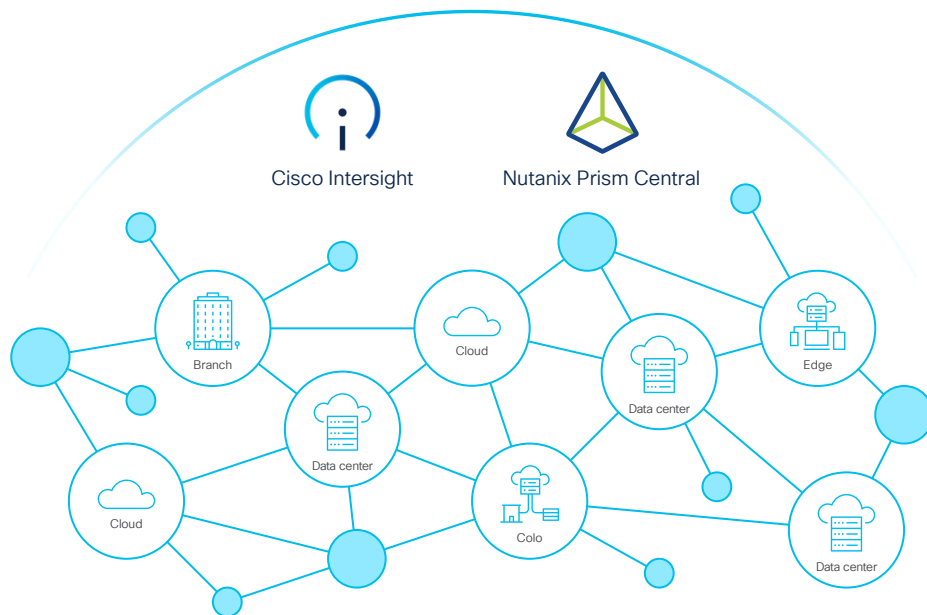
```
# scope server [server-num]
# scope personality 1
# show
# clear personality
# commit-buffer
```

Simplify and scale with cloud operations

IT operations simplified

Unified operations across your distributed environment with Cisco Intersight and Nutanix Prism Central

- See and control your entire Cisco Compute Hyperconverged estate with Cisco Intersight
- Unified storage and cluster management with Nutanix Prism Central
- Turnkey solution combining compute, networking, storage, management, and hybrid multicloud platform simplifies end-to-end experience
- Augmented support and resiliency capabilities keep systems up and running at global scale



Remotely deploy and manage

CONVENTIONAL INFRASTRUCTURE



Ship from
factory



Integrate/
configure



Stage



Ship people/
infra to sites



IT deploy
on-site

NUTANIX WITH INTERSIGHT



Ship
to sites



Connect to
Intersight



Deploy and
manage remotely

Nutanix: One Platform for Apps and Data, Anywhere

Enterprise Apps | Modern Apps | Analytics AI/ML | Databases | Desktops

Prism Central

Federated Management
APIs | LCM | IAM

Cloud Management (NCM)
Intelligent Operations | Self-Service | Cost | Security Operations

Data Governance (NDL)
Security | Privacy | Compliance

Files, Objects (NUS)

Data Services for K8s (NDK)

Database Service (NDB)

Project Beacon
Platform Services

Nutanix Cloud Infrastructure (NCI)

Virtual Storage, Compute, Networking, Disaster Recovery, Security

AI Enabled Edge | Private Cloud | MSPs

Nutanix
Cloud Clusters (NC2)

Public Clouds
(Native)

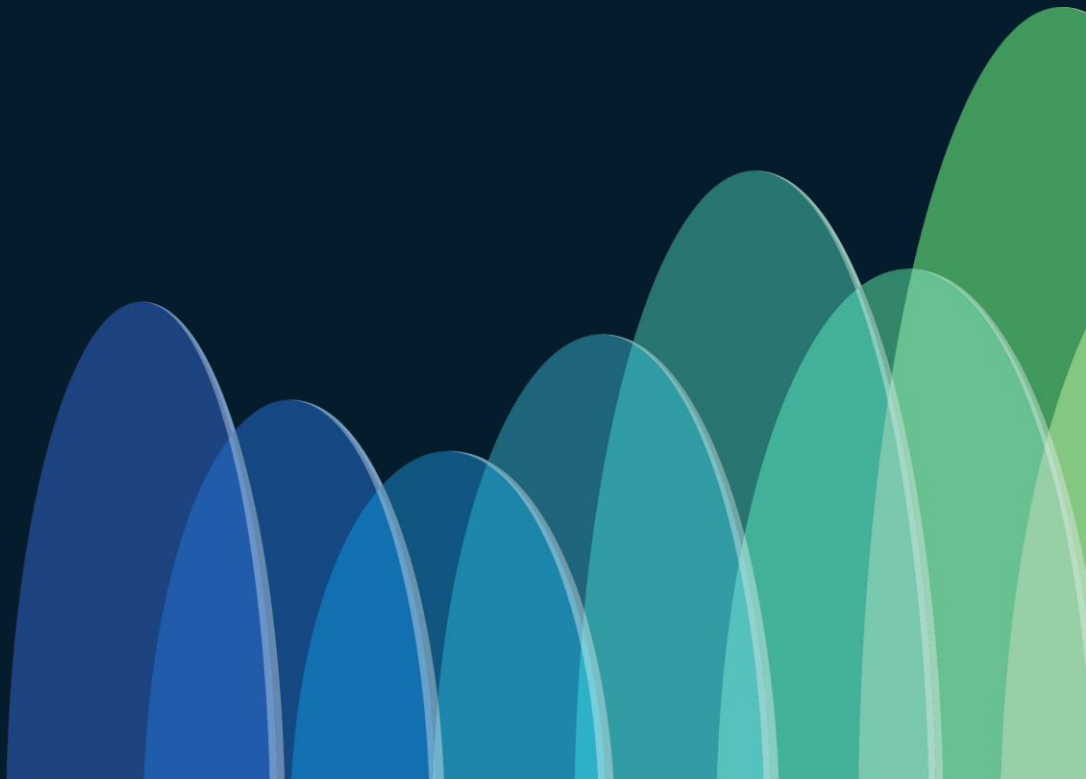
Future



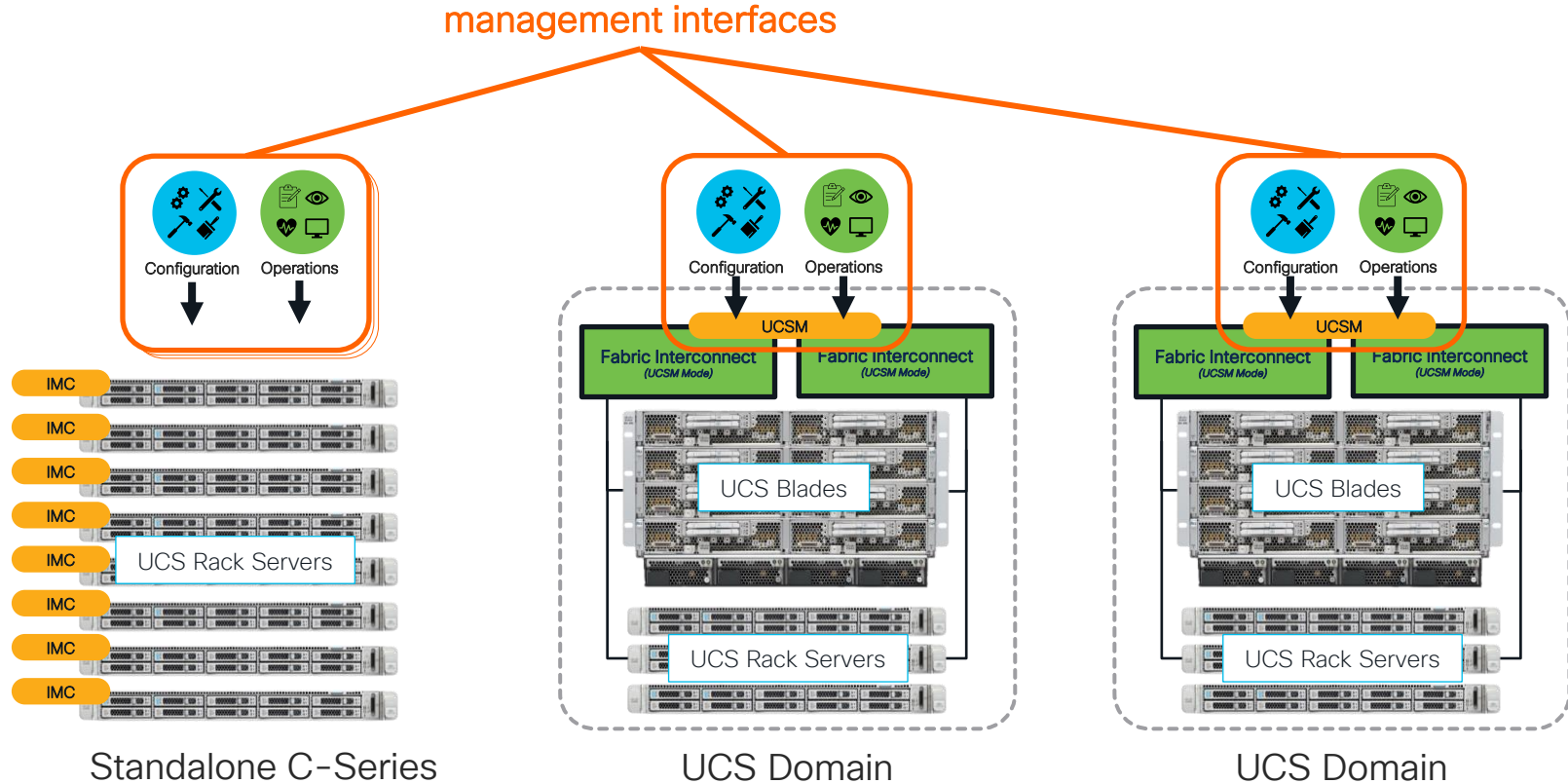
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Cisco Intersight Cloud Management

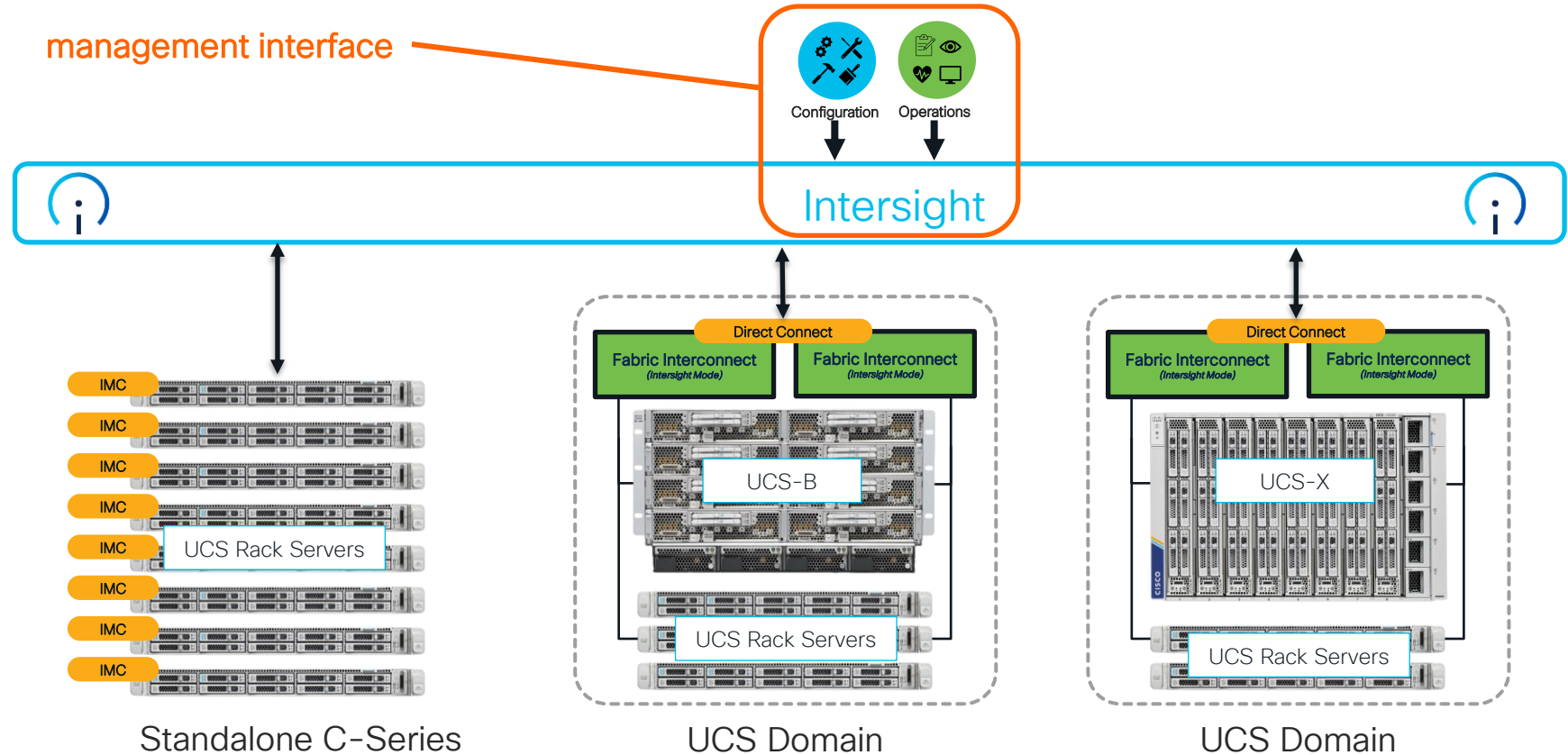
CISCO *Live!*



UCSM-based configuration and operations



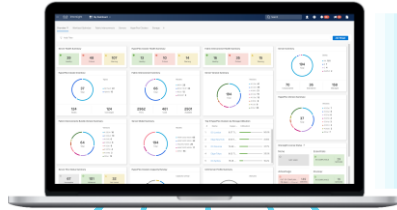
Intersight-based configuration and operations



Cisco Intersight



Cisco Intersight



SaaS-based management platform providing global visibility and fleet management for all Cisco Compute Hyperconverged with Nutanix nodes

- Server Profiles, templates & pools in Intersight
- Nutanix personality in Intersight
- Can be deployed in Edge/Remote locations or data centers
- Connected TAC & Proactive RMA
- Hardware contract status, EoL notices, security advisories and field notices
- Server faults/alerts
- Server management & KVM
- Lifecycle Management and Cluster expansion

Management modes

<div><div>Networking flexibility</div><div><div>Custom built Switching that includes Server Mgmt. Software</div><div>BYO (bring your own)</div></div><div><div>Global policy & visibility</div><div>Local policy</div><div>Global policy & visibility</div></div></div>			
 Name	IMM	UMM	ISM
 Suitable for	Future looking & latest innovations	Existing UCS customer	Existing/New Nutanix customer
 Location	Edge & DC	DC	Edge and DC
 Servers	Modular M7	Rack – M6 & M7	Rack – M6 & M7
 Network HW	FI / FI-9108	FI	Preferably Nexus Switch

Management modes

	UCS Managed Mode (UMM)	Intersight Standalone Mode (ISM)	Intersight Management Mode (IMM)
Support for servers	Rack – M6 & M7	Rack – M6 & M7	Modular – x210c M7 only
Requires Foundation Central for Day 0/Day 2	No	Yes	Yes
Support for Cisco VIC	Yes	Yes	Yes
Support for Intel NIC	For guest VM traffic only	Yes, for storage & guest VM traffic	No
Support for 1N/2N Clusters	No	Yes	Yes

Security Advisories save time

Advisories

[Security Advisories](#) [Field Notices](#) [End of Life Advisories](#) [Acknowledged](#)

Advisories for affected devices only are listed here. For a complete list of advisories and more information, see [Help Center](#)

* All Security Advisories

[Export](#) 3 items found 10 per page 1 of 1

Description	Severity	CVEs	Affected Devices	Last Update
☐ Cisco FXOS and NX-OS Software Link Layer Discovery Protocol Denia...	Medium	CVE-2024-20294	8	Feb 28, 2024 10:00 AM
☐ Cisco HyperFlex HX Data Platform Open Redirect Vulnerability	Medium	CVE-2023-20263	1	Sep 5, 2023 7:00 PM
☐ Intel 2022.1 IPU - BIOS Advisory	High	CVE-2021-0154,...	24	Sep 22, 2022 7:00 PM

1 of 1

Anatomy of a security advisory

Summary

Potential security vulnerabilities in the BIOS firmware or BIOS authenticated code module for Cisco UCS M4, M5 and M6 generation of servers using Intel® Processors may allow escalation of privilege or information disclosure. Cisco is releasing BIOS updates to mitigate these potential vulnerabilities.

Affected Devices (24)

 Advisories for the devices are processed every 3 hours. If you update the device, it can take up to 12 hours for the updated status to be displayed for the device. For more info see [Help Center](#)

24 items found per page 1 of 3

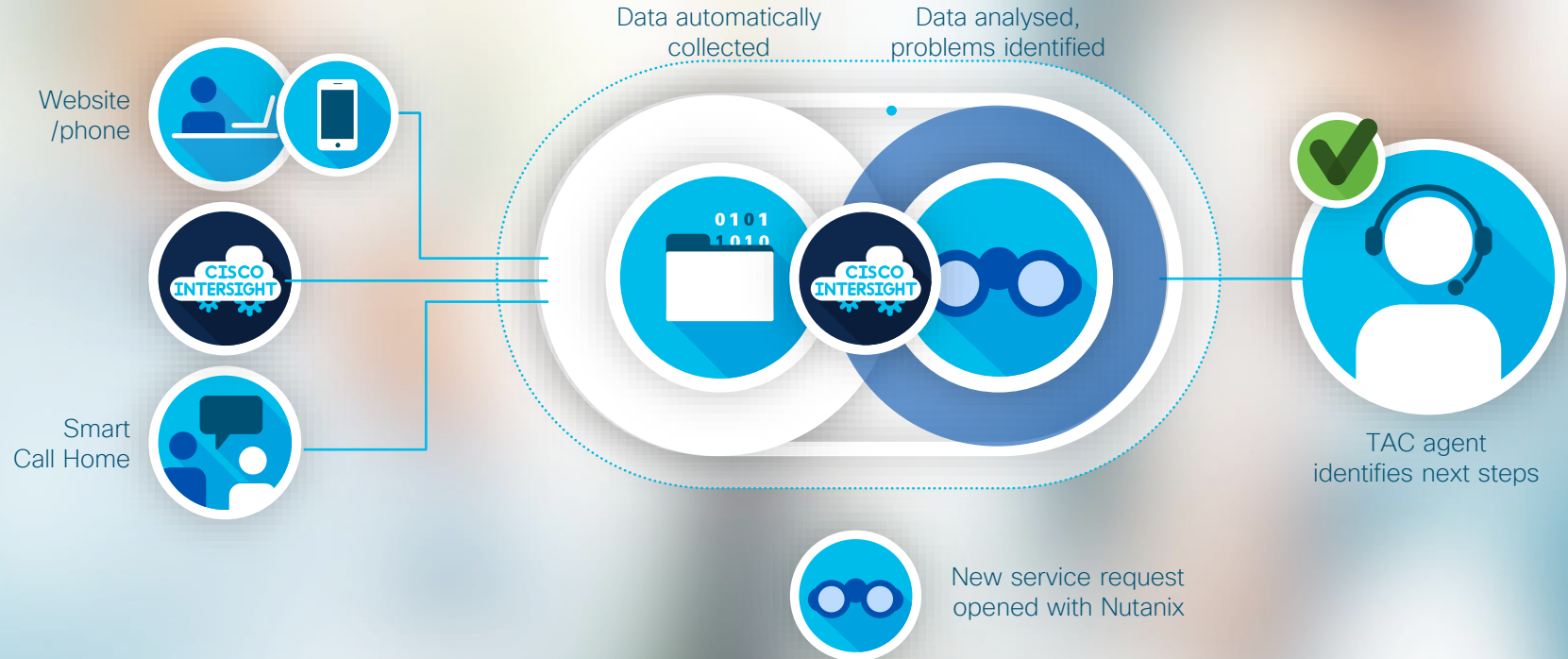
Name	Type	Model / Type	Firmware / Version
C220-WZP22020DBG	Server	HXAF220C-M5SX	4.1(3d)
midnight-man-1	Server	HXAF220C-M5SX	4.1(3f)
midnight-man-2	Server	HXAF220C-M5SX	4.1(3f)
C220-WZP22020DFJ	Server	HXAF220C-M5SX	4.1(3d)
field-hxm4-1-3	Server	UCSB-B200-M4	4.2(1a)

Below firmware releases and later versions have fixes for the above mentioned vulnerabilities.

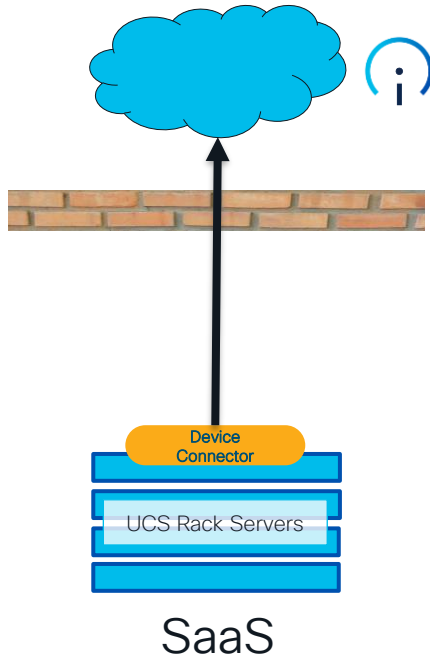
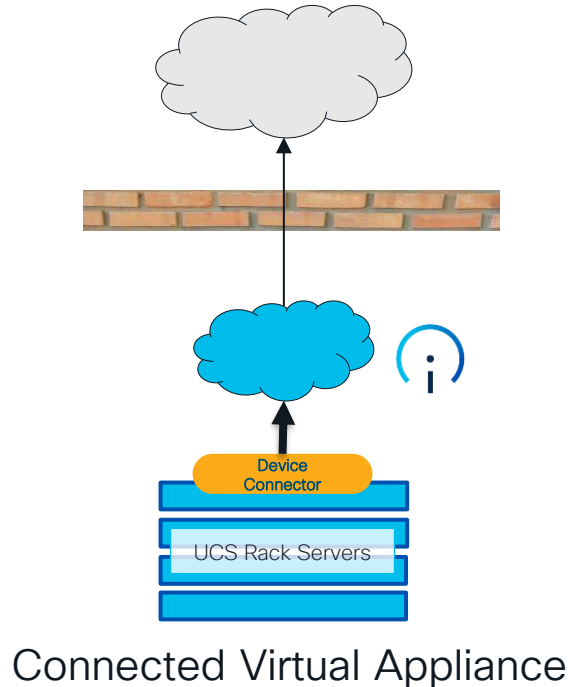
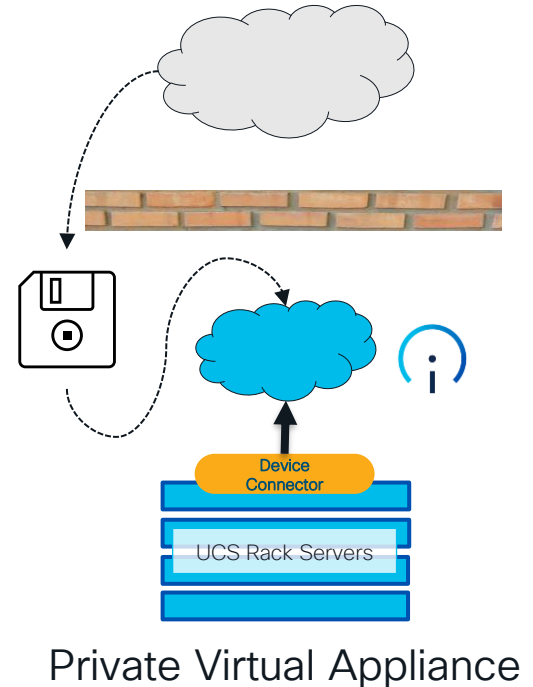
UCS Servers Operating in Intersight Managed Mode

Platform Model	4.1(3) Release	4.2(1) Release	4.2(2) Release
ucs-c220-m6	NA	4.2(1j)	4.2(2f)
ucs-c240-m6	NA	4.2(1j)	4.2(2f)
ucs-b200-m6	NA	4.2(1h)	4.2(2d)
ucs-x210-m6	NA	5.0(1f)	5.0(2d)
ucs-c220-m5	4.1(3h)	NA	All
ucs-c240-m5	4.1(3h)	NA	All

Connected TAC workflow



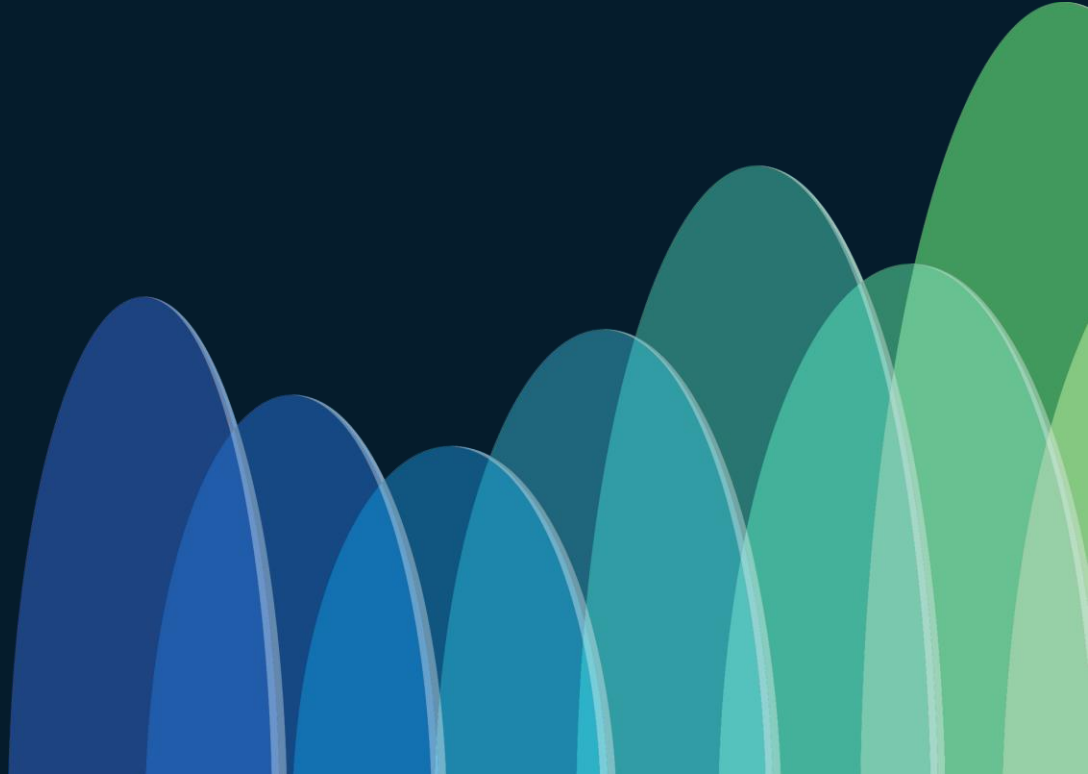
Intersight deployment models



Supported Features Matrix:

https://intersight.com/help/saas/getting_started/supported_features_matrix

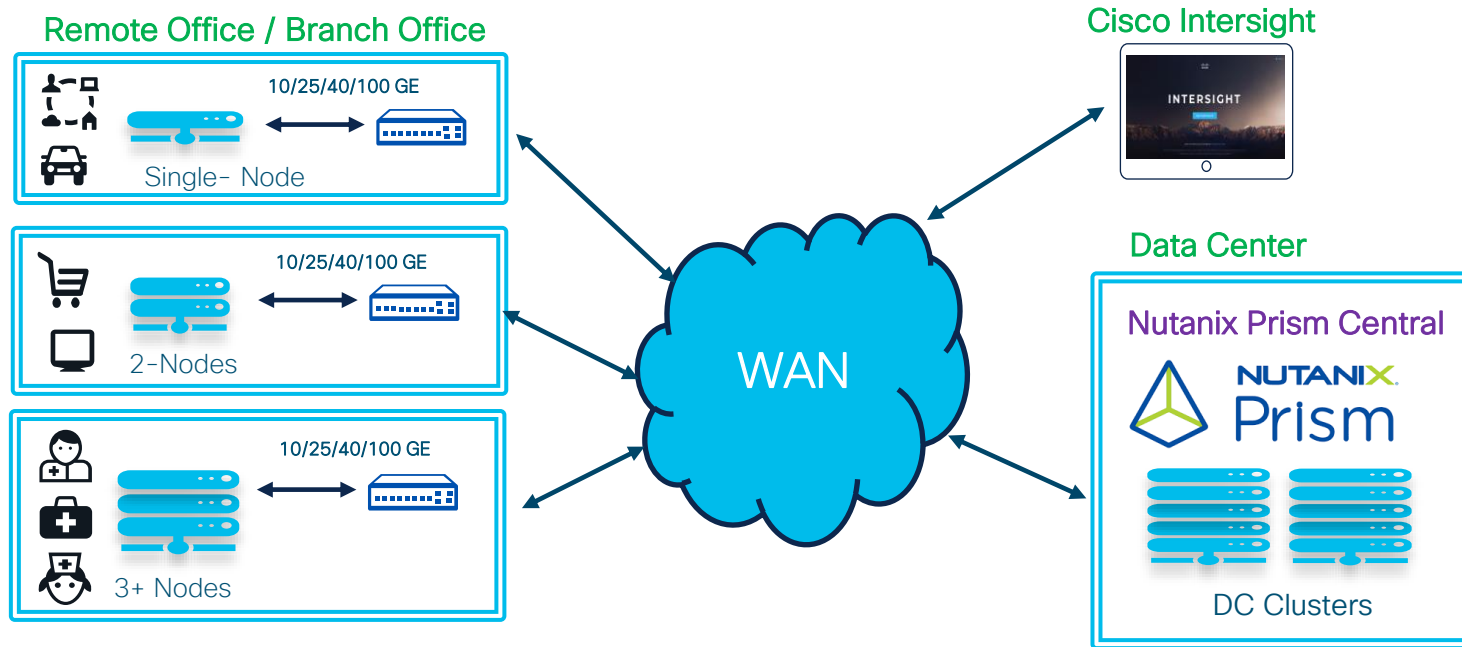
Cisco Compute Hyperconverged with Nutanix for Edge



Intersight Standalone Mode Architecture

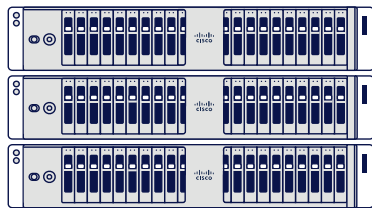
Size your Deployment for your Environment

Scale | Network Flexibility | Full Life Cycle Management | Multi-cluster Management



Flexible networking options with Cisco VICs or Intel NICs

Cisco HCI Node Options



Cisco Compute
Hyperconverged with Nutanix

Cisco Compute Hyperconverged **M6**



C220 M6 All-Flash Node

- Up to 10 x 1.9TB, 3.8TB or 7.6TB SSD disks
- 76TB max raw capacity/node
- 4th Gen VIC @ 10/25GbE
- Dual M.2 SATA SSDs with HW RAID for boot
- Up to 2 CPUs and 4TB Memory



C220 M6 All-NVMe Node

- Up to 10 x 1.9TB, 3.8TB, 7.6TB or 15.3TB NVMe disks
- 153TB max raw capacity/node
- 4th Gen VIC @ 10/25GbE
- Dual M.2 SATA SSDs with HW RAID for boot
- Mandatory 2 CPUs and up to 4TB Memory



C240 M6 All-Flash Node

- Up to 24 x 1.9TB, 3.8TB or 7.6TB SSD disks
- 182TB max raw capacity/node
- 4th Gen VIC @ 10/25GbE
- Dual M.2 SATA SSDs with HW RAID for boot
- Up to 2 CPUs and 8TB Memory

Cisco Compute Hyperconverged **M7**



C220 M7 All-Flash

- Up to 10 x 1.9TB, 3.8TB, 7.6TB or 15.3TB NVMe SSD disks
- 153TB max raw capacity/node
- 5th Gen VIC @ 10/25/50GbE or 40/100/200 GbE
- Dual M.2 SATA SSDs with HW RAID for boot
- Up to 2 CPUs and 4TB Memory



C220 M7 All-NVMe

- Up to 10 x 1.9TB, 3.8TB or 7.6TB SSD disks
- 153TB max raw capacity/node
- 5th Gen VIC @ 10/25/50GbE or 40/100/200 GbE
- Dual M.2 SATA SSDs with HW RAID for boot
- Up to 2 CPUs and 4TB Memory



C240 M7 All-NVMe Node

- Up to 24 x 1.9TB, 3.8TB, 7.6TB or 15.3TB NVMe disks
- 216TB max raw capacity/node
- 5th Gen VIC @ 10/25GbE or 40/100/200 GbE
- Dual M.2 SATA SSDs with HW RAID for boot
- Mandatory 2 CPUs and up to 8TB Memory



C240 M7 All-Flash Node

- Up to 24 x 1.9TB, 3.8TB or 7.6TB SSD disks
- 182TB max raw capacity/node
- 5th Gen VIC @ 10/25GbE or 40/100/200 GbE
- Dual M.2 SATA SSDs with HW RAID for boot
- Up to 2 CPUs and 8TB Memory

NOTE: See solution documentation for all caveats, limitations and compatibility information

Cisco HCI ISM – Networking Flexibility

Choose the best for your environment

Cisco VIC



Dual Port



Quad Port

Intel NIC



Dual Port



Quad Port

Note: No mixing of VIC and NIC in same node/cluster

ISM – Dual port VIC/NIC Topology

Dual 10GE + ToR Switches



Dual 10GE + ToR Switches
(standalone or stacked)

dual-port / Cisco VIC 15238 2x 40/100/200G mLOM



Legend

- HCI Nutanix Port
- CIMC port

ISM – Quad port VIC/NIC Topology

Dual 10GE + ToR Switches



Dual 10GE + ToR Switches
(standalone or stacked)

quad-port / Cisco VIC 15428 4x 10/25/50G mLOM



Legend

— HCI Nutanix Port

— CIMC port

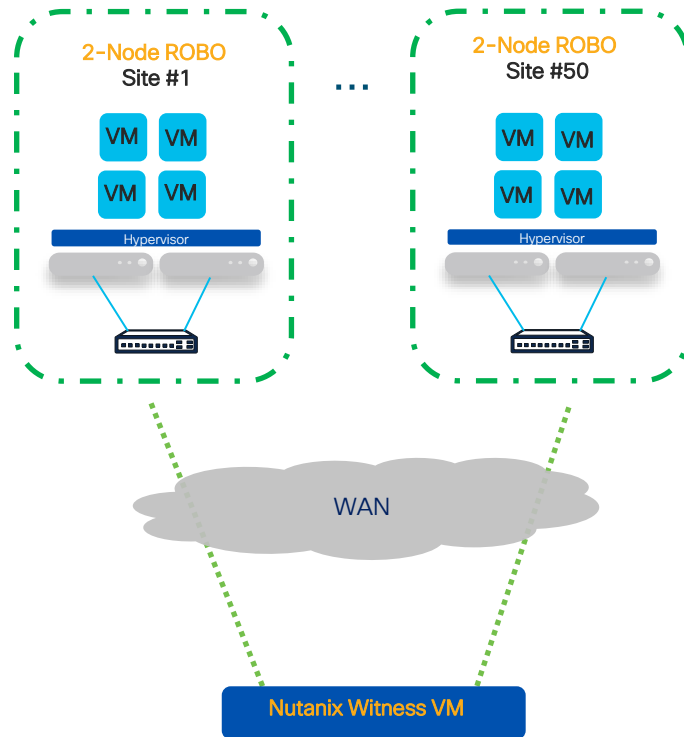
ISM Single-node clusters

- ROBO implementations and other situations that require a lower cost option
- RF2 across drives within the same node.
- Supports ESXi and AHV hypervisors
- Deploy on HCI M6 and M7 platforms
- Data should be backed up for protection in case of node failure
- Limitations
 - The 1-node is a single point of failure and thus offers lower resiliency
 - No support for cluster expansion
 - Cluster upgrade requires node to be offline
 - No server firmware upgrade using LCM
 - No Deduplication, erasure coding and iSCSI volume support

ISM Two-node clusters

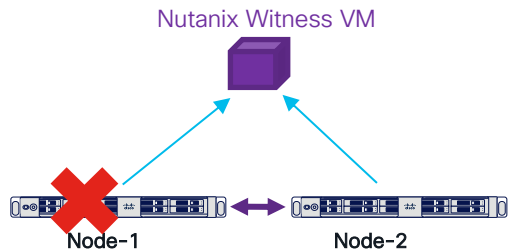
- Two-node cluster support for ROBO/edge
- Deploy with Nutanix AHV or VMware ESXi
- Supported on all HCI M6 & M7 Platforms
- RF2 across the nodes for resiliency
- Cluster lifecycle operations using Nutanix LCM
- Requires Witness VM
- Support up to 50 clusters in a single witness VM
- No support for cluster expansion

Two-node Witness

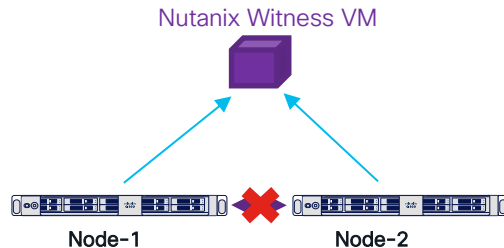


ISM Two-node cluster Failure Scenarios

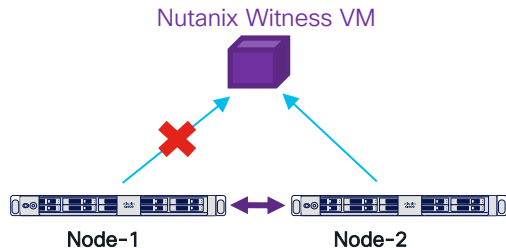
Scenario 1: Single node failure



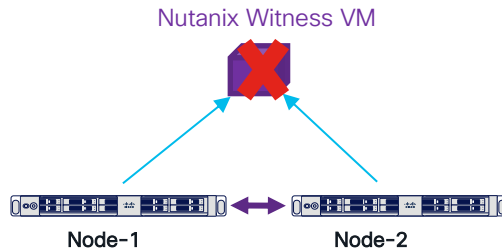
Scenario 2: Connectivity failure between the nodes



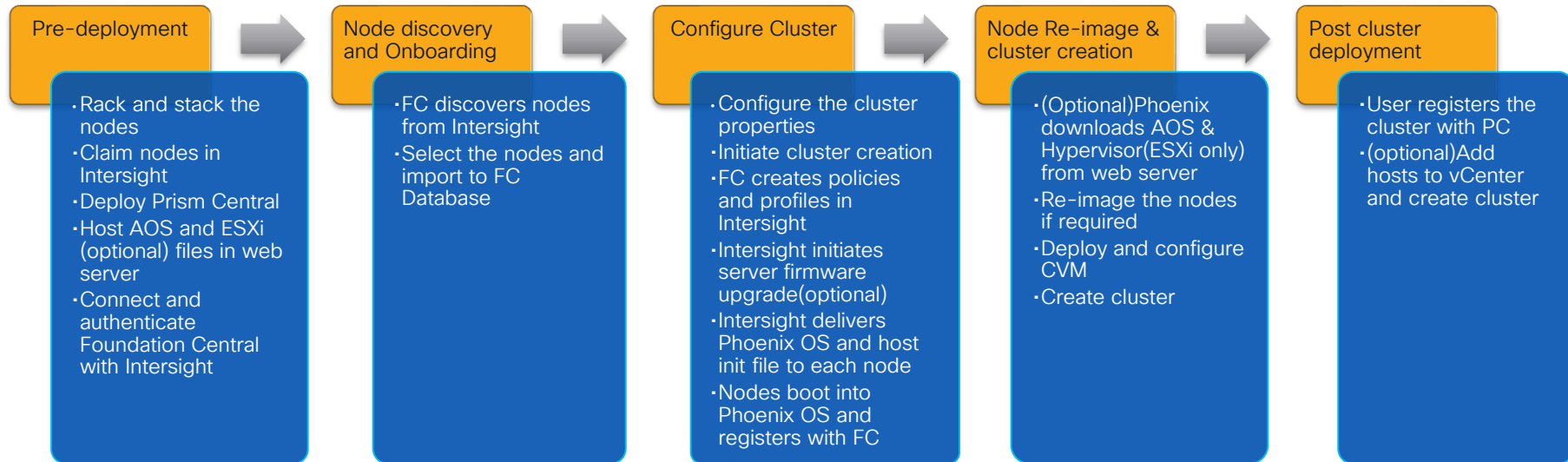
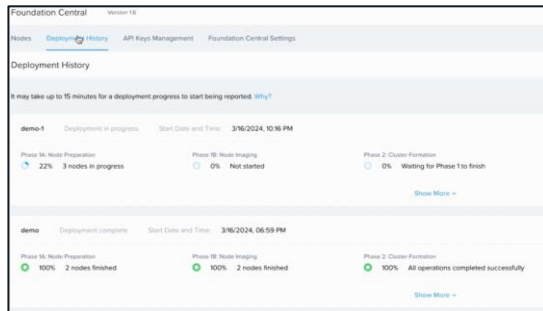
Scenario 3: Connectivity failure between one node and witness VM



Scenario 4: Witness VM failure



Intersight Standalone Mode – Day 0 workflow



Policies

Platform Type: UCS Server 25

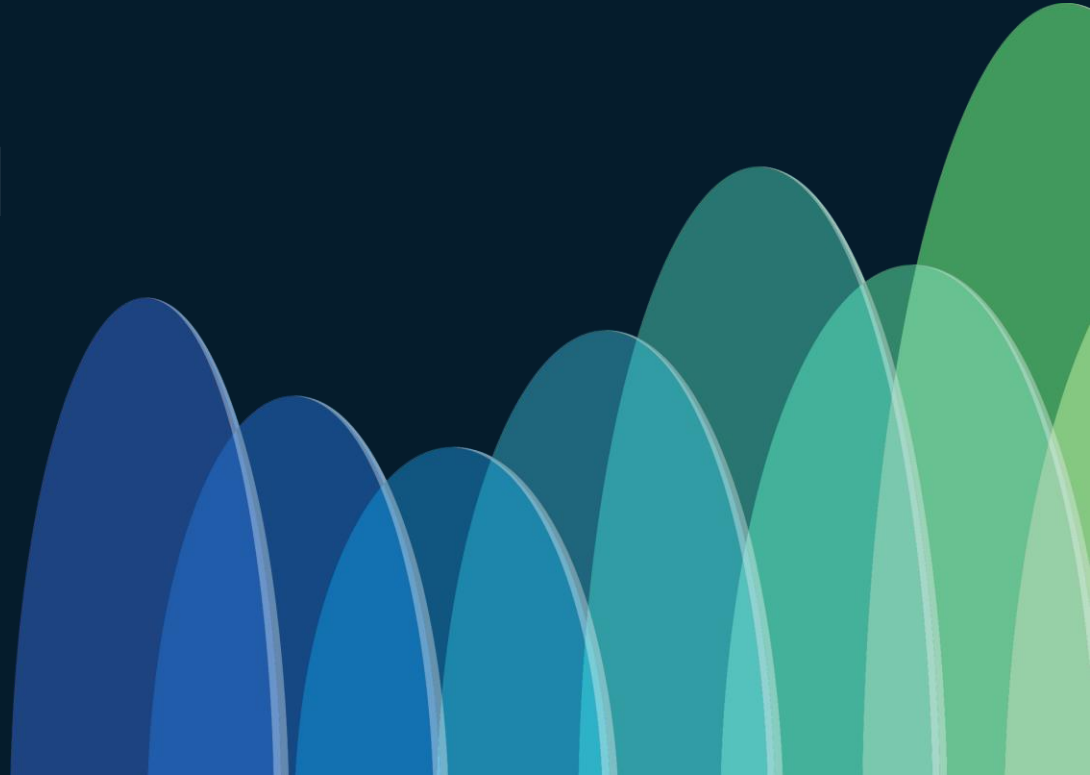
Usage: 25 Used, 18 N/A, 6

Name	Platform Type	Type	Usage
ntnx_name-bios_skyan-clus_A006d3b9-8449-4d9b-5848-6a2421ecd2ab	UCS Server	BIOS	2
ntnx_ssd_WZP27480AY1_A006d3b9-8449-4d9b-5848-6a2421ecd2ab	UCS Server	Serial Over LAN	1
ntnx_kvms_WZP27480AY1_A006d3b9-8449-4d9b-5848-6a2421ecd2ab	UCS Server	Virtual KVM	1
ntnx_tcp-cisco_WZP27480AY1_A006d3b9-8449-4d9b-5848-6a2421ecd2ab	UCS Server	LAN Connectivity	1
ntnx_int_WZP27480AY1_A006d3b9-8449-4d9b-5848-6a2421ecd2ab	UCS Server	IPMI Over LAN	1
ntnx_m2-storage_WZP27480AY1_A006d3b9-8449-4d9b-5848-6a2421ecd2ab	UCS Server	Storage	1
ntnx_as-cisco_WZP27480AY1_A006d3b9-8449-4d9b-5848-6a2421ecd2ab	UCS Server	Adapter Configuration	1
ntnx_m2-raid_WZP27480AY1_A006d3b9-8449-4d9b-5848-6a2421ecd2ab	UCS Server	Boot Order	1

ISM Demo



Cisco Compute Hyperconverged with Nutanix – Modular servers



Industry First – Nutanix on Modular Platform



Consolidate traditional rack & Hyperconverged workloads



AI/ML



Accelerated VDI

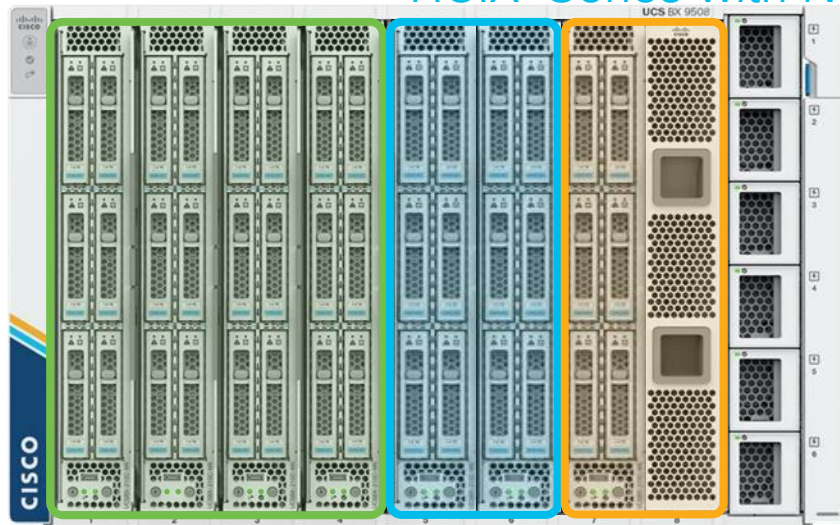


Containers



Traditional blade workloads

HCIX-Series with Nutanix



Up to 1,024

cores
per chassis
(M7 only)

16

GPUs
per chassis



200G

bandwidth to
compute node

736 TB

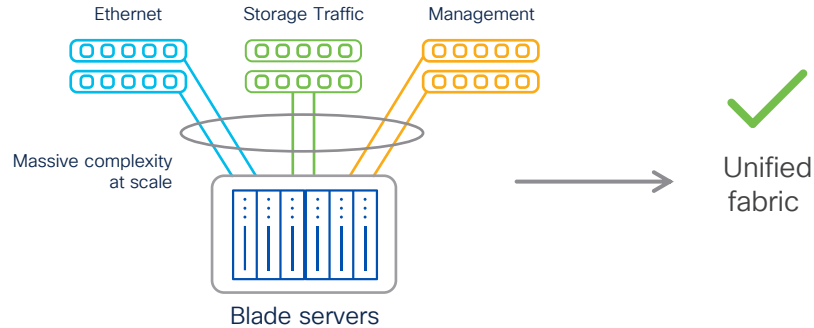
of storage

cisco *Live!*

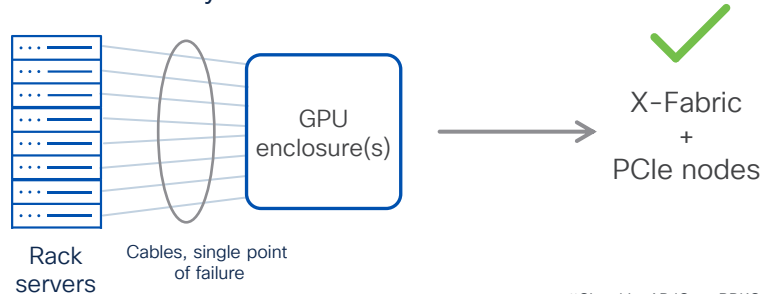
Industry-leading simplicity – HCIX with Nutanix

Conventional approaches

1 | Silos of multiple Ethernet and SAN fabrics and adapters



2 | Complex PCIe connectivity to external accelerators

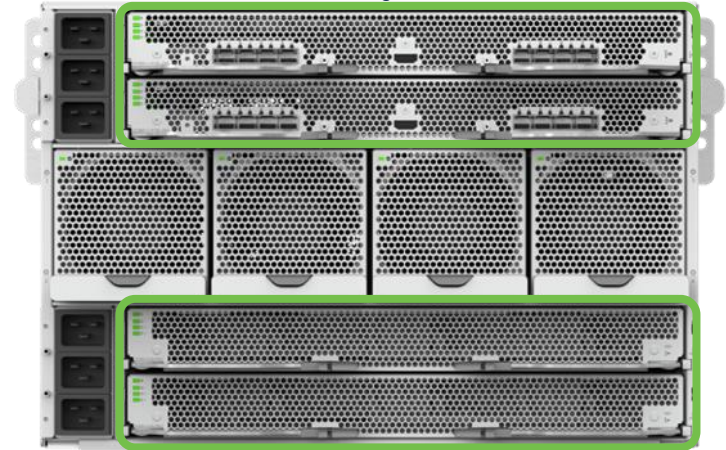


Cisco solution

HCIX-Series



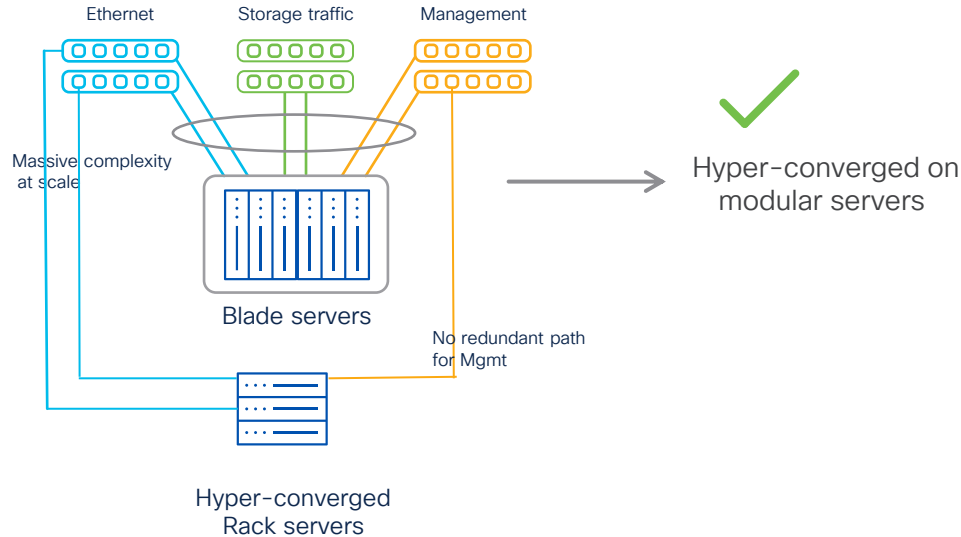
Cisco
Intersight®



Industry-leading simplicity – HCIX with Nutanix

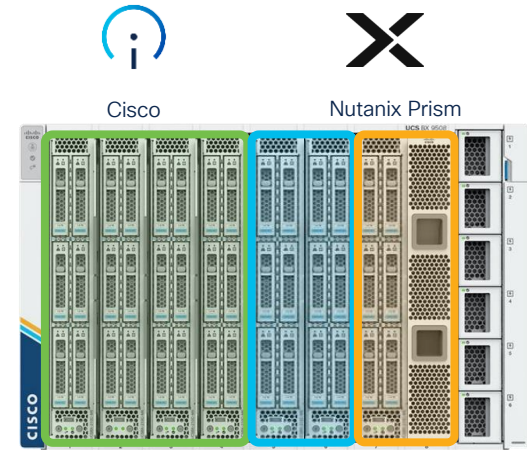
Conventional approaches

3 | Silos of Hyper-converged and blade server

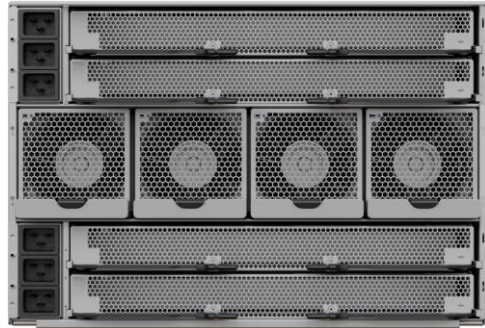


Cisco solution

HCIX with Nutanix



HCIX-Series I/O



UCS 9108 25G Intelligent Fabric Module



UCS 9108 100G Intelligent Fabric Module



UCS Fabric Interconnect 9108 100G



UCS X9416 X-Fabric Module

HCIX 210c M7 Compute Node

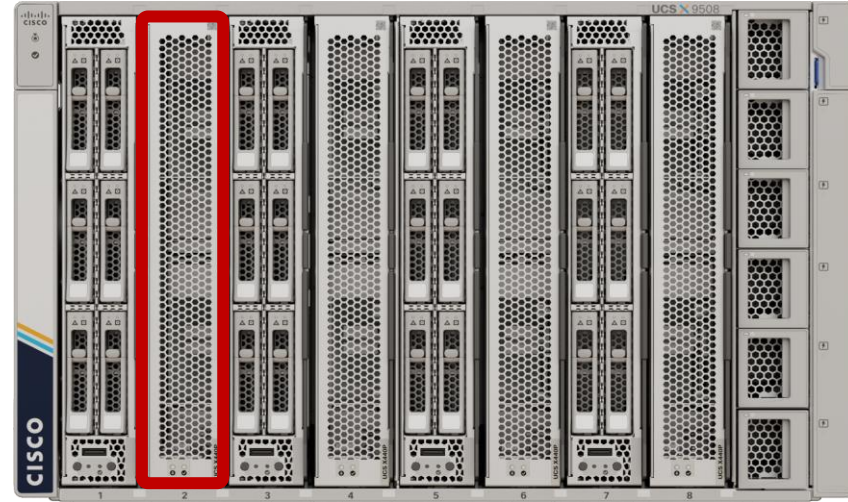
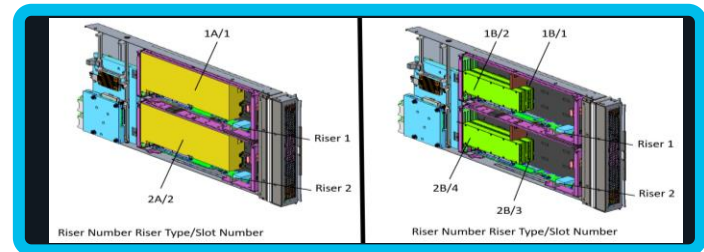
- Two-socket modular server
 - 5th Gen and 4th Gen Intel® Xeon® Scalable CPUs with 62% more cores than M6
- Up to 8 TB of capacity using 256 GB DDR5 DIMMs
- Minimum three and up to six NVMe drives
- NVMe Drives* – 1.9 TB, 3.8 TB, 7.6 TB and 15.3 TB
- Boot Drive – M.2 240 G/480 G
- mLOM VIC – 15230 (2 x 100 G) or 15420/15422 (4 x 25 G)
- Front Mess controller – Pass through controller for NVMe Drives

* Check Spec Sheet for supported Drive PID List



HCIX 440P PCIe Node

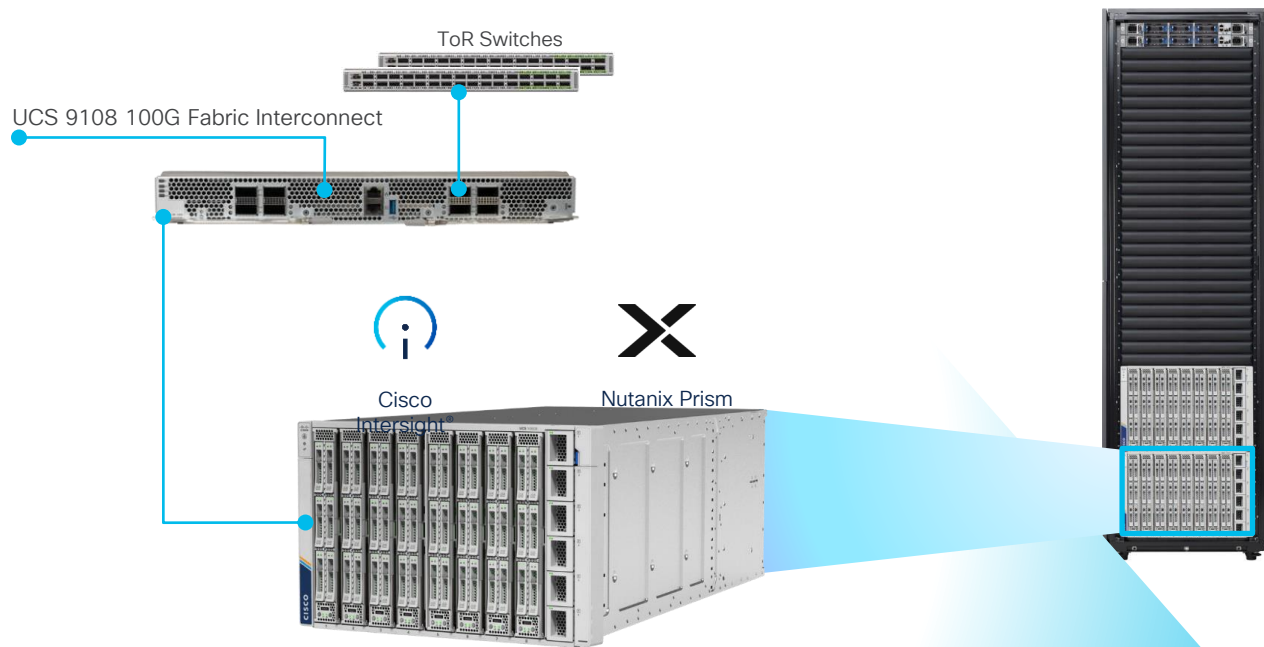
- The X440p PCIe node provides 2 or 4 PCIe slots **connected to an adjacent compute node**
- Up to 4 Nvidia GPUs for AI inferencing, data analytics, and graphics
- Includes two riser cards options, type A or B
- GPU Support
 - 4x NVIDIA L4
 - 2x NVIDIA L40S
 - 2x NVIDIA A16
 - 2x NVIDIA H100-80



- Modernise at the edge

Flexible and powerful
infrastructure to handle all
workloads:

- Compute (All NVMe Only)
- Networking (1/10/25/40/100G)
- GPU
- IMM Only
- Same compute nodes / Fans / Power Supplies / Chassis



68%

CapEx Savings

64%

Better Performance

52%

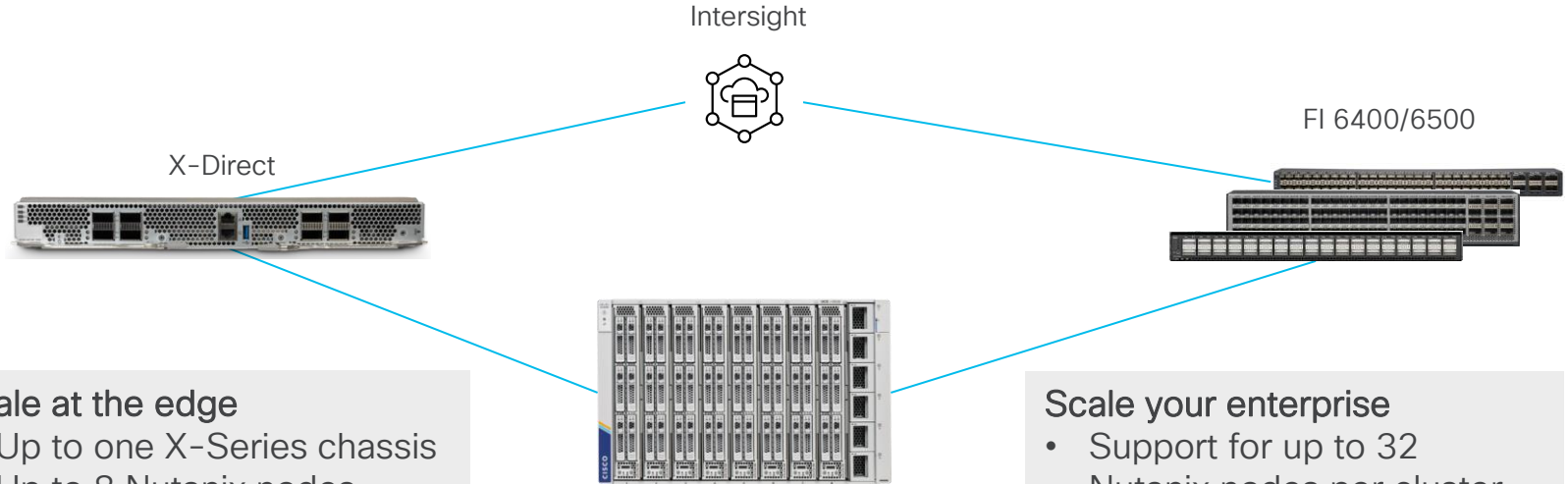
Lower
Power

50%

More
sustainable

CISCO *Live!*

Solutions for Edge to Enterprise



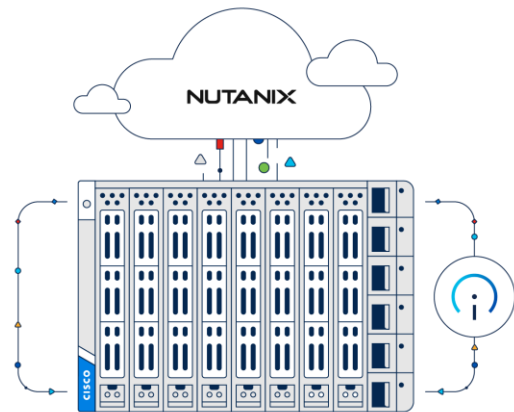
Scale at the edge

- Up to one X-Series chassis
- Up to 8 Nutanix nodes
- Up to 1,600 Gbps throughput
- Up to 720 TB capacity
- Perfect fit for most applications at the edge

Scale your enterprise

- Support for up to 32 Nutanix nodes per cluster
- Multiple clusters under same FI domain
- From medium to large scale enterprise environments
- Perfect fit for all kind of applications

UCS X-Series **Modular** Compute Options for Nutanix

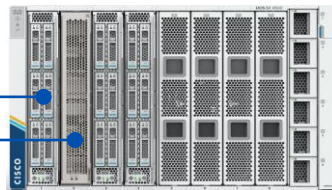


Cisco Compute
Hyperconverged with Nutanix

NOTE:

- See solution documentation for all caveats, limitations and compatibility information
- HW Orderable : Since June 2024, Software Orderable: Since 15 Oct-24

Cisco Compute Hyperconverged **M7** Modular Compute Options -HCIX-M7-MLB



front

X9508 Modular Chassis

- 7RU chassis
- 8 flexible slots
- 6 x 2800W PSUs



back

X210c M7 Modular Compute

- Up to 6 x 1.9TB, 3.8TB, 7.6TB or 15.3TB NVMe disks
- Up to 2 x 5th Gen VIC adapters
- Dual M.2 SATA SSDs with HW RAID for boot
- Up to 2 Intel CPUs and 8TB Memory

X440p PCIe Node

- Provides 2 or 4 PCIe slots connected to an adjacent compute node
- Supports up to 2 dual width GPUs or up to 4 single width GPUs

Intelligent Fabric Module (IFM)

- Modular fabric modules for north-south traffic between compute nodes and external network(s)
- 25GbE and 100GbE options
- Option for integrated FIs with X-Direct
- 2 TB/s throughput

X-Fabric Module (XFM)

- Internal east-west fabric for internal node interconnection
- Industry standard PCIe, CXL traffic
- Enables connectivity between compute and PCIe (X440p) nodes for GPU acceleration expansion

IMM Demo



Cisco and Nutanix Innovations – Day 0 & Day 2

Using Cisco Intersight and Nutanix Foundation Central

UNIQUE TO CISCO



Custom deployment workflow

- Remote zero touch deployment without DHCP
- Custom workflow for remote bare metal OS installation
- Embedded firmware compatibility (HCL) check built into workflow
- Firmware auto download (Intersight hosted) and upgrade at cluster deployment

- Parallel multi-cluster deployment



Security and governance

- Simple authenticated and Secure mechanism of onboarding new servers using BMC device connector

- Intersight keys stored securely in Prism Central vault

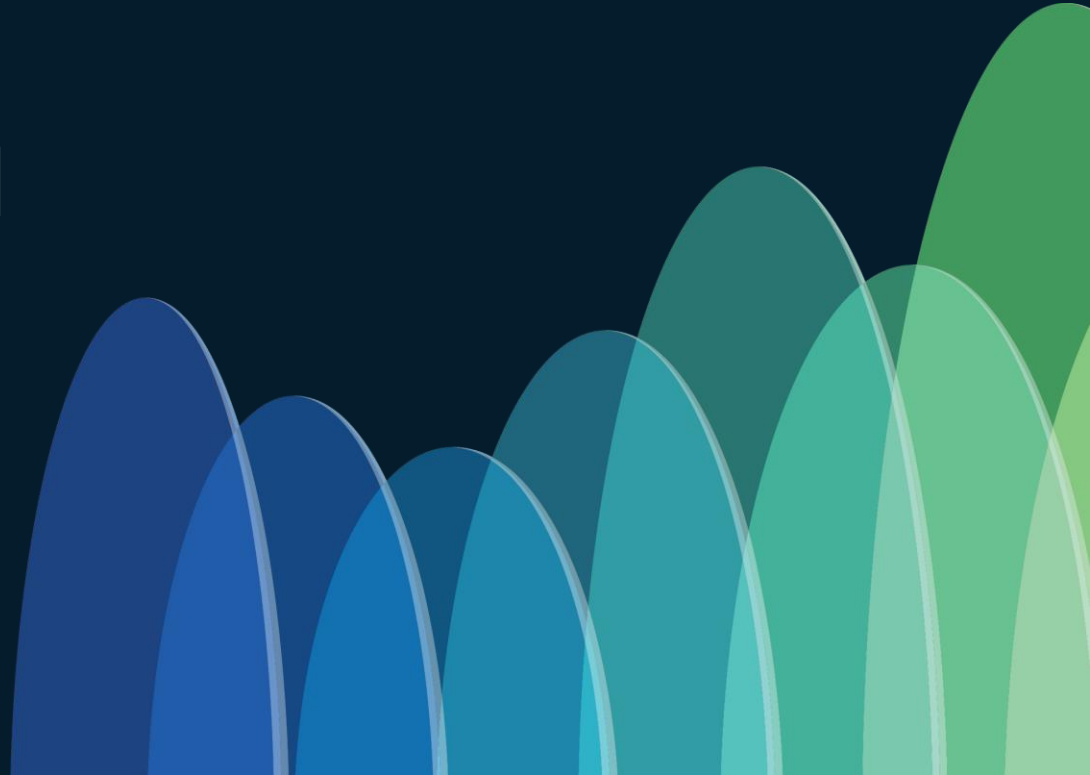


Simplified cluster operations

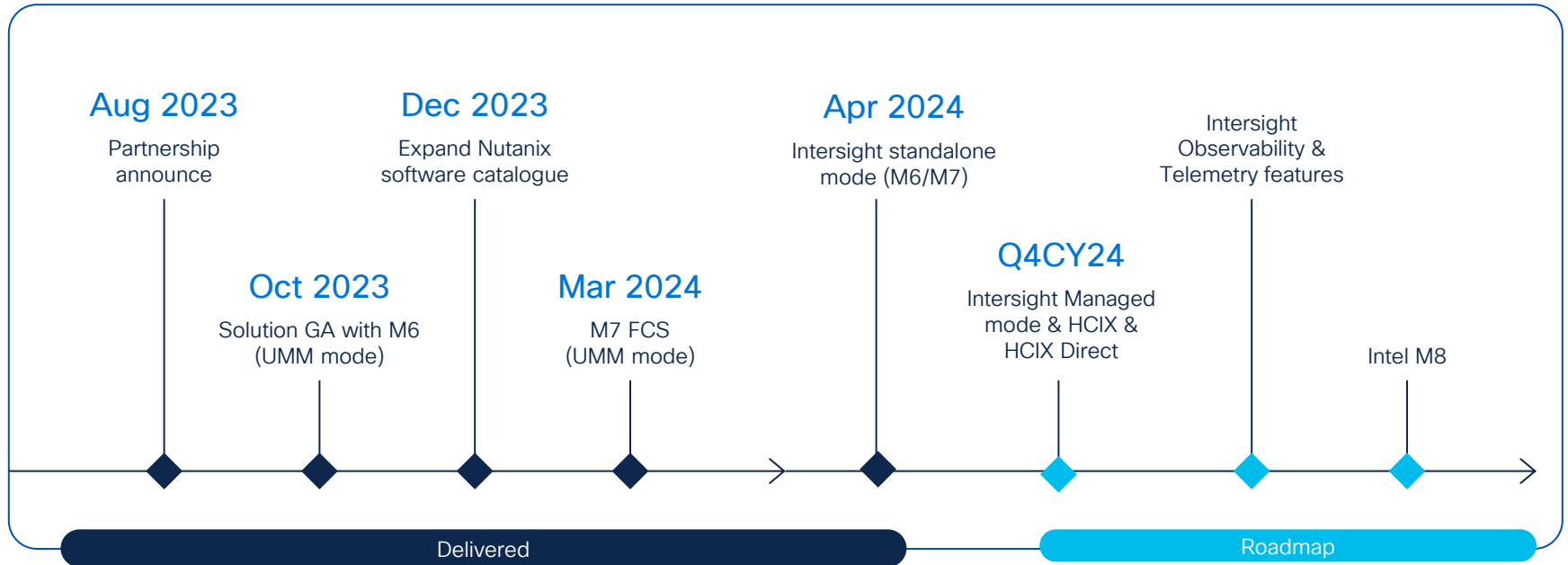
- Server policies and templates in Intersight to reduce manual errors and provide uniform/easy update mechanism
- Intersight driven LCM of server firmware orchestrated from Prism
- Connected TAC, Security advisories, HCL, Pro-active RMA, Automatic log upload, e-Bonding between TAC teams for faster issue resolution

- Multi cluster Management, visibility and monitoring using Prism Central

Cisco Compute Hyperconverged with Nutanix What's Coming

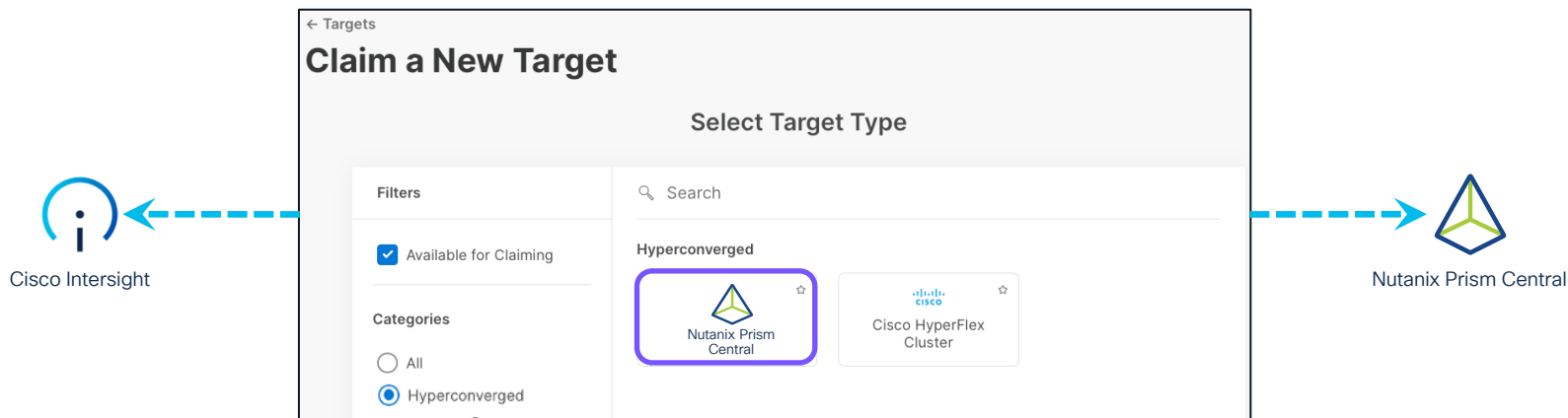


Cisco and Nutanix partnership



Planned
Target: Q4CY24

Prism Central as an Intersight Managed Target



Enables building new Day-1 management capabilities in Intersight

Cluster Inventory

Cluster Status, Alarms, Events

HW and SW HCL Checks

SW Contract Status

VM Inventory

Tunneled Cross Launch

SW Security Vulns/Advisories

Cluster Utilisation & Metrics

... And More!

* All dates shared above are roadmap targets dates and are subject to change based on program execution without prior notice.

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Contact me at: shankarn@cisco.com



Thank you

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