



Cisco Tech Club

Cisco Intersight Cloud Platform –

Přehodnoťte správu v multcloudě a převezměte kontrolu nad svým vždy zapnutým a hyper-distribuovaným světem

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Cisco Technical Solution Architect

Infrastructure Management Challenges

- How many tools/processes are needed to manage the infrastructure?
- What issues need my attention?
- Where “else” do I need to look for information (e.g., release notes)



Traditional
management

“Building a monster
to manage the monster”

Infrastructure Operations Challenges we are Addressing



Distributed apps and IT

Physical and virtual sprawl,
IoT, microservices



Human limitations

Scale, speed, complexity
that make modern data centers
unmanageable



Traditional management

“Building a monster
to manage the monster”

Strategy for next-generation systems management



Use the cloud

Connect everything



Analyze
the telemetry

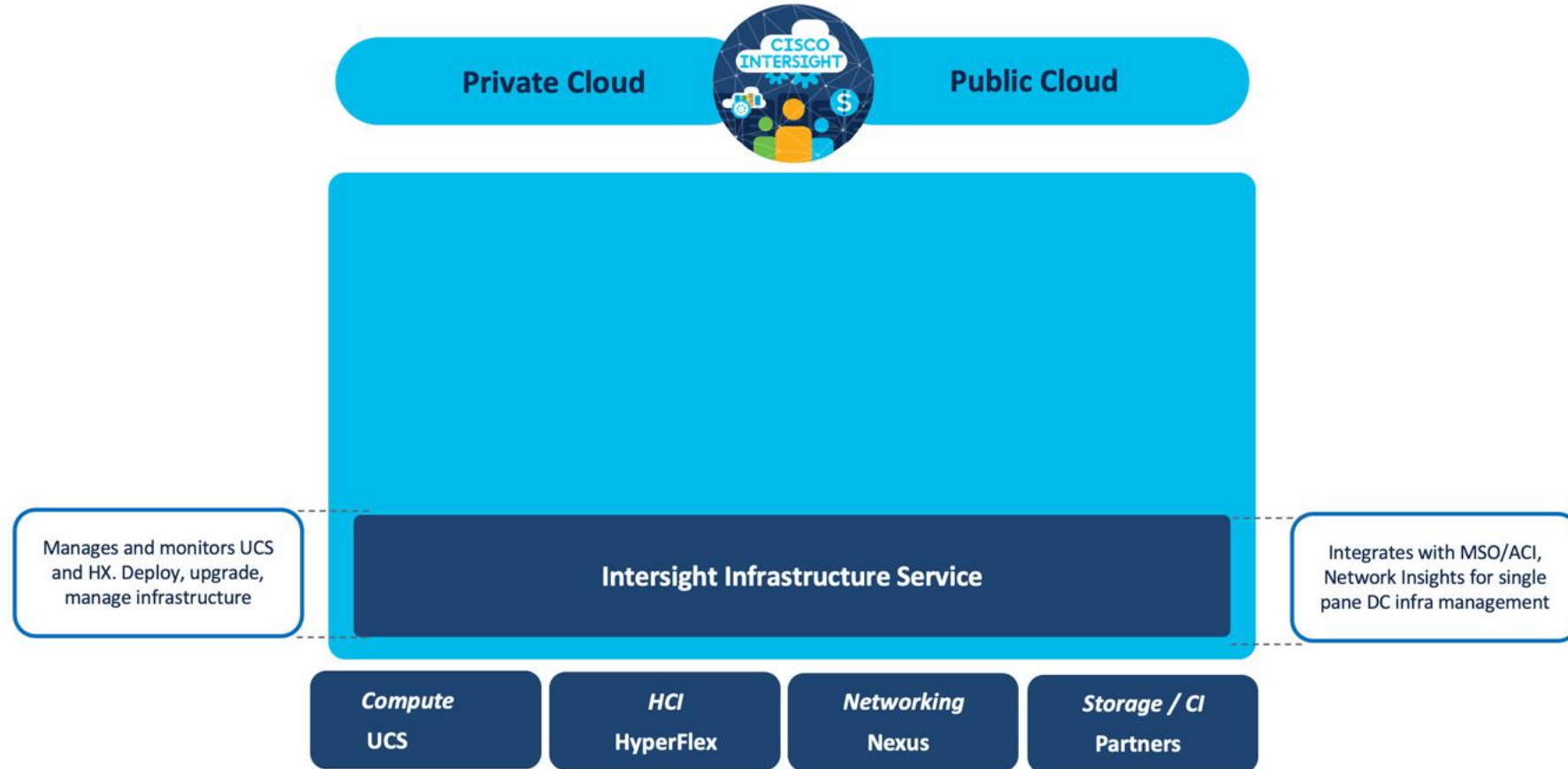
Create actionable insight



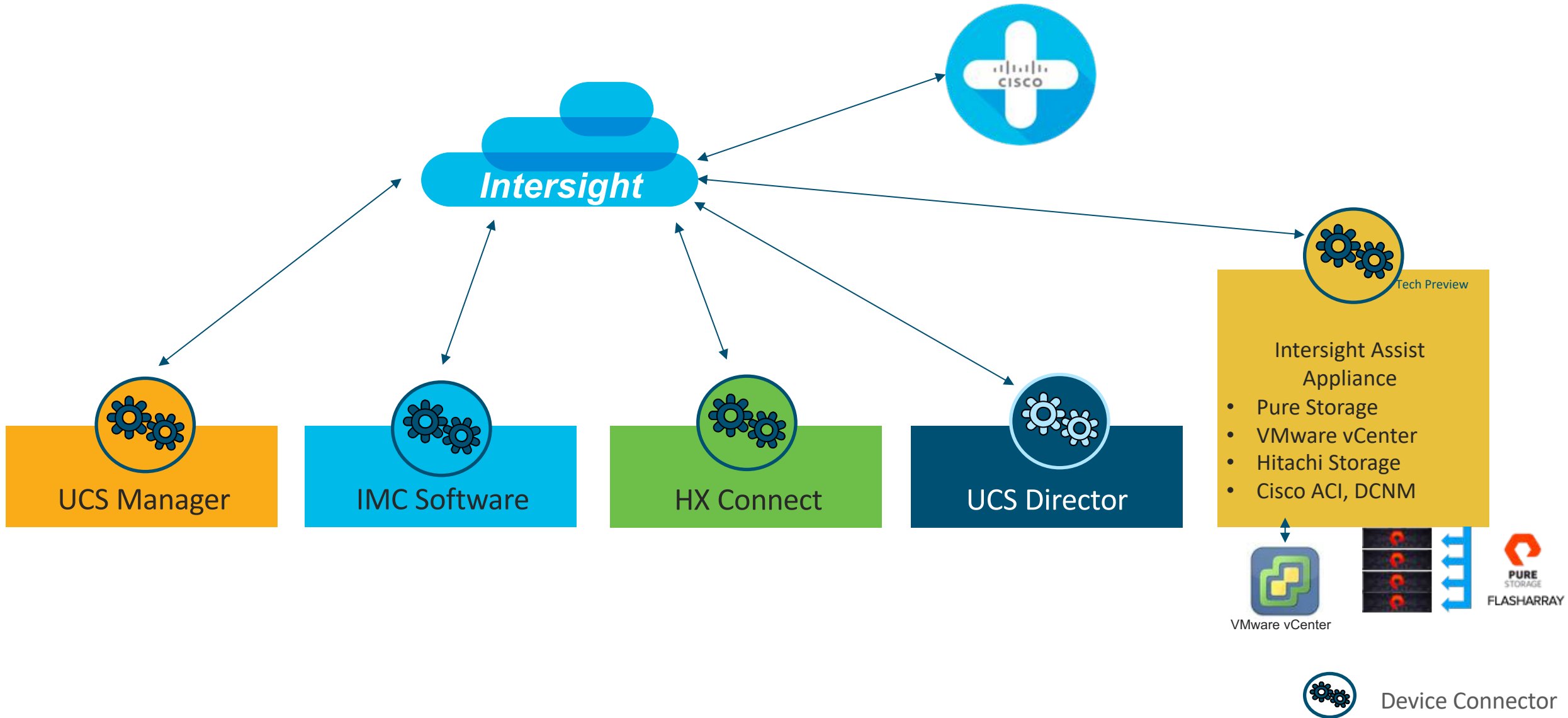
Combine insight
with automation

Have machines
manage machines

Intersight Cloud Platform



Device Connectors



Security

Ensuring data is transmitted
and stored securely

Key features in Cisco Intersight security architecture



Use of industry-standard security protocols



Encryption of all data



Compliance with stringent Cisco® InfoSec security and data handling standards

Management Network Separation

- Intersight uses an Out of Band Management Architecture to separate management data from IT production network and application data
- No disruption to customer's IT production if Intersight connection is interrupted
 - Only management network accessible data (e.g., device configuration and usage) is stored in Intersight
 - All sensitive data (e.g., passwords) stored in encrypted format
 - Application workload data does not pass through to Intersight

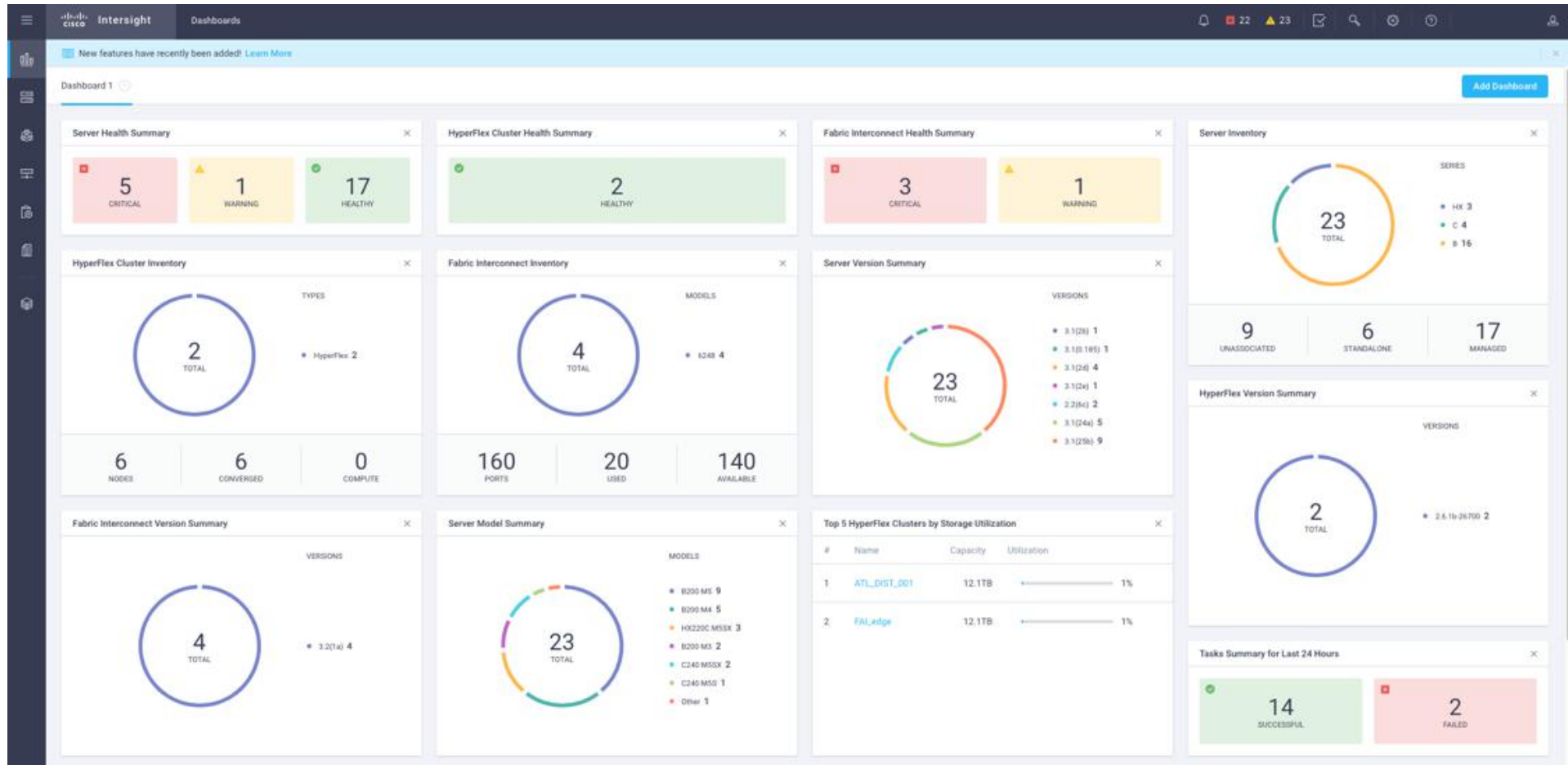
Intersight Standards Compliance/Certifications

- Intersight meets or exceeds InfoSec's requirements applying to numerous Industry Standards:
 - ISO 270XX - Cisco is [ISO 27001 certified](#). Intersight is in the process of getting an Intersight specific set of certifications*
 - FIPS 140-2 – Intersight uses FIPS 140-2 compliant crypto modules. Certifications are being planned*
- Intersight's out-of-band management architecture makes it out of scope for some standards/audits:
 - PCI DSS - Customer traffic (including cardholder data) does not flow through the Cisco Intersight platform
 - HIPAA - No individually identifiable health information (IIHI) on the network is ever sent to the Cisco Intersight portal



Monitoring / Fault Reporting /
Server Actions

Cisco Intersight Dashboard



- Customizable dashboard to show overall faults / health / inventory for all managed infrastructure
- Can create unique dashboards for individual Intersight users
- Can add / remove widgets as desired
- Can click on various widgets for more detailed information

Cisco Intersight Fault List

Severity	Date/Time	Code	Source Type	Source Name	Component	Message
■	Jan 18, 2018 8:38 AM	UCS-F0743	Standalone Ser...	C240-WZP213...	sys/rack-unit-1	PS_RDNDNT_MODE: Power Supply redundancy is lost: Reseat or replace Power Supply

1 - 1 of 1

The screenshot shows the Cisco Intersight Alarms panel. The panel is titled 'Alarms' and has tabs for 'All', 'Critical', and 'Warning'. The 'All' tab is selected. The panel displays a list of faults with the following details:

- UCS-F0276** (Critical): Jan 23, 2018 2:47 PM. ether port 2/1 on fabric interconnect B oper state: link-down, reason: Link failure or not-connected.
- UCS-F0279** (Warning): Jan 23, 2018 1:30 PM. ether port 1/31 on fabric interconnect B oper state: sfp-not-present.
- UCS-F0689** (Warning): Jan 19, 2018 4:09 PM. Assignment of service profile UCP-Node-10 to server sys/chassis-1/blade-3 failed.
- UCS-F0156** (Warning): Jan 18, 2018 6:04 PM. Server, vendor(Cisco Systems Inc), model(UCSB-8200-M5), serial(FCH21347DEK) in slot 1/3 presence: mismatch.
- UCS-F0842** (Warning): Jan 18, 2018 8:38 AM. P2_PRESENT: Processor 2 missing: Please reseat or replace Processor 2.
- UCS-F0743** (Critical): Jan 18, 2018 8:38 AM. PS_RDNDNT_MODE: Power Supply redundancy is lost: Reseat or replace Power Supply.
- UCS-F0395** (Warning): Jan 17, 2018 4:57 PM. Fan 1 in Fan Module 1-2 under chassis 1 speed: upper-non-critical.
- UCS-F0397** (Warning): Jan 17, 2018 4:53 PM. Fan 2 in Fan Module 1-4 under chassis 1 speed: upper-non-recoverable.
- UCS-F0397** (Warning): Jan 17, 2018 4:53 PM. Fan 2 in Fan Module 1-3 under chassis 1 speed: upper-non-recoverable.
- UCS-F0397** (Warning): Jan 17, 2018 4:53 PM. Fan 2 in Fan Module 1-2 under chassis 1 speed: upper-non-recoverable.

The panel also shows a 'View All' button at the bottom.

- All device faults can be accessed from any Intersight page (image to the right shows access from dashboard)
- Clicking on a particular fault provides additional fault details, remediation steps if available
- Tabs available for All / Critical / Warning fault levels
- Fault tab shows UCS fault code, timestamp, and fault details

Server Compatibility (HCL), Advisories (CVEs), and Contract Status

Advisories (CVEs)

- Intersight displays devices impacted by Cisco Security Advisories
 - Advisories available in the menu bar of the UI
- CVE IDs and links for more information are provided



Model	Hardware Status	Software Status	Firmware Version	Driver Protocol	Driver Version
Cisco 120 Modular SAS Pt	Validated	Validated	13.00.00.12		
UCSC-MLOM-C40Q-03	Validated	Validated	4.9(1b)	anic	2.3.0.14

Details	General
Severity	Medium
CVE	CVE-2017-5715
Published	Oct 8, 2019 9:01 PM
Last Update	Oct 9, 2019 2:16 PM

CPU Side-Channel Information Disclosure Vulnerabilities

Details

To learn more about this security vulnerability, the affected products, and other details, see: <https://tools.cisco.com/security/center/content/CiscoSecurityAdvisory/cisco-sa-20180104-cpusidechannel>

Affected Devices (29)

Name	Type	Model / Type	Firmware / Version
CC7UCS1-3-4	Server	UCSB-B200-M4	3.1(1e)
CC7UCS1-1-5	Server	UCSB-B200-M4	3.1(26i)

Service Contract Status

- Dashboard Widget and Table View column display current Contract Status
- Categories: Active, Expiring Soon (next 30 days), Not Covered
- Widget provides custom date range for planning (1 or 5 year status displayed)



Firmware Upgrades

Intersight – Firmware Upgrades

	Power On	Health	Management IP	Model
<input type="checkbox"/>	Power Off	✓	Unavailable	UCSB-B200-M4
<input type="checkbox"/>	Power Cycle	✓	Unavailable	UCSB-B200-M4
<input type="checkbox"/>	Shut Down OS	✓	Unavailable	UCSB-B200-M4
<input type="checkbox"/>	Hard Reset	✓	Unavailable	UCSB-B200-M4
<input type="checkbox"/>	Reboot IMC	✓	Unavailable	UCSB-B200-M4
<input type="checkbox"/>	Turn On Locator	✓	Unavailable	UCSB-B200-M4
<input type="checkbox"/>	Turn Off Locator	✓	Unavailable	UCSC-C220-M5SX
<input type="checkbox"/>	Upgrade Firmware	✗	172.22.249.75	UCSC-C220-M5SX
<input type="checkbox"/>	D23-UCS1-1-8	✓	10.29.131.185	UCSB-B200-M3
<input type="checkbox"/>	D23-UCS1-1-7	✓	10.29.131.185	UCSB-B200-M3
<input type="checkbox"/>	D23-UCS1-1	⚠	10.29.131.185	UCSC-C240-M5S
<input checked="" type="checkbox"/>	C240-WZP21340YNQ	✗	10.29.131.134	UCSC-C240-M5SX

Upgrade Firmware

Network Share Utility Storage

NFS CIFS HTTPS

Remote IP *

Remote Share *

Remote File Name *

Firmware will be installed and the device will be rebooted immediately.

Cancel

Upgrade

Upgrade Firmware

Network Share Utility Storage

Utility storage includes FlexUtil cards for the M5 servers.

Firmware Version *

3.1(2b)

Image Name

ucs-c240m5-huu-3.1.2b.iso

Release Date

October 5, 2017

Size

487 MB

Supported Models

UCSC-C240-M5S, UCSC-C240-M5L, UCSC-C240-M5SX, UCSC-C240-M5SN

Description

Cisco UCS Host Upgrade Utility

On clicking upgrade below, firmware download to FlexUtil will begin immediately. Installation will start on the first boot after the download has successfully completed. Installation can be initiated once the server Firmware Status is "Ready for Upgrade" by performing a Host Reboot on the server.

Cancel

Upgrade

- Firmware upgrades available via Network Share or Utility Storage
- Network upgrades reboot host immediately and begin upgrade
- Utility Storage upgrades are staged – firmware is downloaded and then upgrades on next reboot

HXDP + Hypervisor Pre-Upgrade Validations

Running Pre-Upgrade Validations

- ✓ Checking Cluster Profiles
- ✓ Initiating Cluster Pre-upgrade validations
- Waiting for Cluster Pre-upgrade Validations to Complete
- 🕒 Verifying Configuration Results
- 🕒 Retrieving Configuration Result Details

The screenshot displays the Hyperflex upgrade interface. At the top, a progress indicator shows 'Step 2/3' for 'Compatibility Check'. Below this, a message states: 'Ensure all clusters meet the upgrade requirements, if any cluster does not meet the pre-upgrade requirements, delete the cluster and continue with the upgrade. Deleting a Hyperflex cluster from this page does not remove the cluster from Interight but removes it from the upgrade workflow.'

A red error banner at the top of the table area reads: 'ucd59cop-108: Cannot downgrade Hyperflex Data Platform version from 4.0.2a-34671 to 4.0(2a)-34606'.

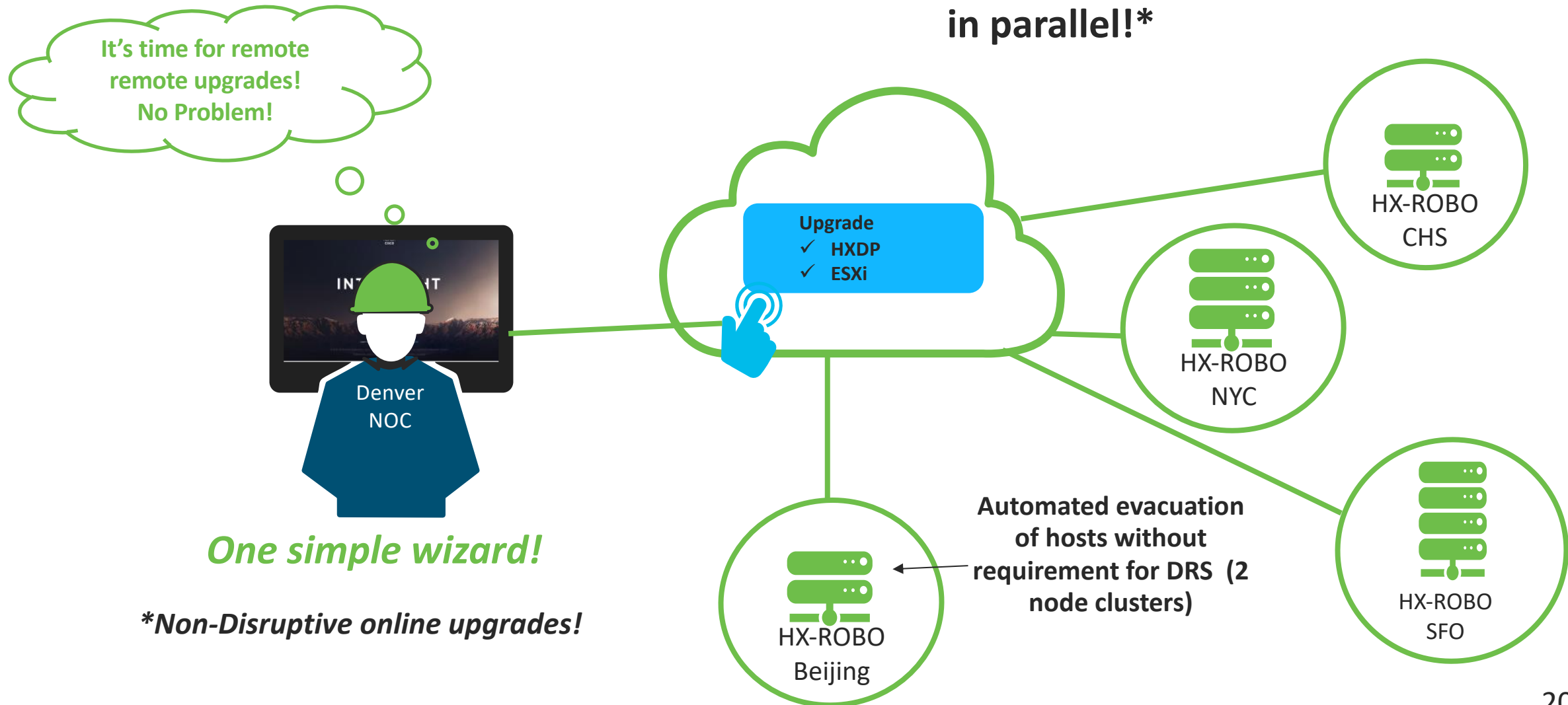
The table below shows the upgrade details for the cluster 'ucd59cop-108'. The 'Hyperflex Version' and 'Hypervisor Version' columns are highlighted with yellow circles.

Name	Hyperflex Version	Upgrade Length	Hypervisor Version
ucd59cop-108	4.0.2a-34671		VMware (ESX) 6.5.0 U2 (13004031)

Simple Worldwide HyperFlex Edge Upgrades

from Cisco Intersight

Choose one or many Edge clusters to upgrade
in parallel!*



Connected TAC and Proactive Support

Cisco Intersight + Cisco TAC + Smart Call Home = Proactive resolution



Issue detected on device



Case opened **automatically with Smart Call Home** or manually by customer



Diagnostic data **automatically** collected



Diagnostic results **automatically** gathered



CSE contacts customer with **actionable** information

Cisco Intersight Proactive Support



Issue detected on device that can be resolved by RMA



Service Request and RMA **automatically** generated



E-mail from cisco-proactive-rma@cisco.com with instructions for user

https://intersight.com/help/features#proactive_support_enabled_through_intersight

HyperFlex Installer

Cisco HyperFlex Installer user experience

HyperFlex

- Services of SaaS version wrapped up in a virtual machine
- Software Appliance (OVA) initially supporting VMware
- Same look and feel, same API, and same initial features
- Requires connection to Cisco, done via Device Connector in Software Appliance

HyperFlex



Intersight



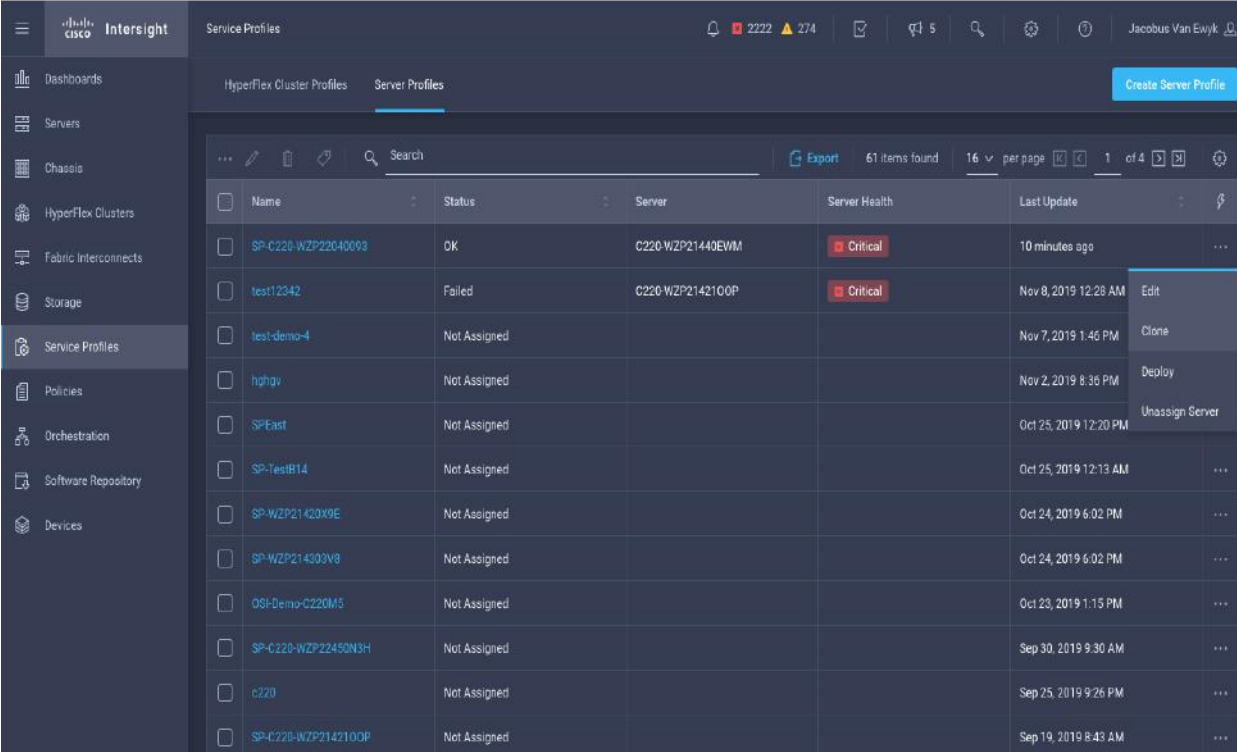
- Deploy from anywhere!
- No need for existing infrastructure or OVA setup
- Latest version always available
- Reusable policy for rapid and consistent deployment
- Simple ramp-up of large HX projects with simultaneous background deployment

Standalone Management for UCS C-Series Servers

Cisco Intersight Service Profiles overview

- Individual Server Profiles are created within the Profiles tab.
- Users select desired policies to include in profile.
- Users can also create new policies within profile setup.
- A profile can only be assigned to a single server.
- Profiles can be cloned and assigned to additional endpoints.
- Profiles can be exported to CSV file and tagged for better organization.
- Profile summary page will show list of profiles, status, and the endpoint they are associated with.

Service Profiles streamline policy alignment and server configuration



The screenshot displays the Cisco Intersight Service Profiles interface. The left sidebar shows navigation options: Dashboards, Servers, Chassis, HyperFlex Clusters, Fabric Interconnects, Storage, Service Profiles (selected), Policies, Orchestration, Software Repository, and Devices. The main content area shows a table of Service Profiles under the 'Server Profiles' tab. The table has columns for Name, Status, Server, Server Health, and Last Update. A context menu is open over the 'test12342' profile, showing options: Edit, Clone, Deploy, and Unassign Server.

Name	Status	Server	Server Health	Last Update
SP-C220-WZP22040003	OK	C220-WZP21440EWM	Critical	10 minutes ago
test12342	Failed	C220-WZP2142100P	Critical	Nov 8, 2019 12:28 AM
test-demo-4	Not Assigned			Nov 7, 2019 1:46 PM
hqhq	Not Assigned			Nov 2, 2019 8:36 PM
SP-East	Not Assigned			Oct 25, 2019 12:20 PM
SP-TestIR14	Not Assigned			Oct 25, 2019 12:13 AM
SP-WZP21420X9E	Not Assigned			Oct 24, 2019 6:02 PM
SP-WZP214303V8	Not Assigned			Oct 24, 2019 6:02 PM
OSI-Demo-C220M5	Not Assigned			Oct 23, 2019 1:15 PM
SP-C220-WZP22450N3H	Not Assigned			Sep 30, 2019 9:30 AM
c220	Not Assigned			Sep 25, 2019 9:26 PM
SP-C220-WZP2142100P	Not Assigned			Sep 19, 2019 8:43 AM

Operating System Installation

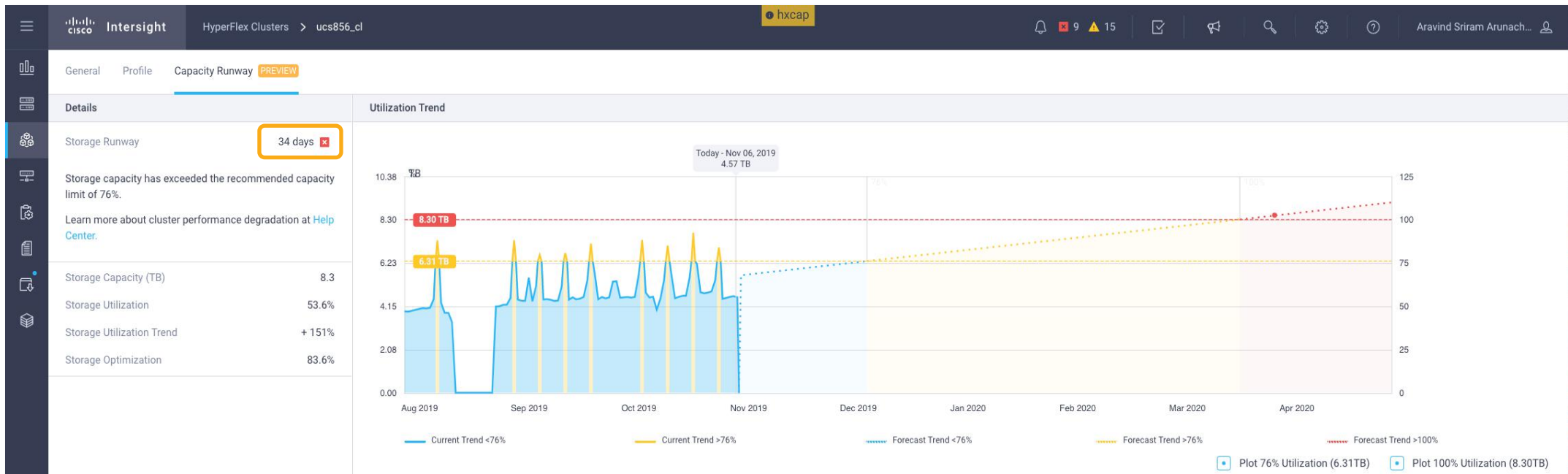
Feature Overview

- Operating System Installation Support from Intersight SaaS
- Standalone rack server OS install to local disk currently (for assisted w/ SCU)
- 3 Modes of Operation
 - Cisco Validated Template
 - Cisco created install script (Currently ESXi and Windows support)
 - Upon execution/runtime user provides details
 - Assisted (Server Configuration Utility) SCU
 - ESXi and Windows only
 - Upload SCU and OS Install Metadata (on-prem location that will house the media) to Intersight Software Repository
 - Customer can create custom parameters in their install scripts (kickstart/unattend file) that are prompted during runtime
 - Embedded
 - Customer spins their own custom ISO
 - No OS Limitations other than headless install capable and server OS support by hardware
 - ISO is expected to have everything that is needed (embedded kickstart or unattended install info)

HyperFlex Usability & Mgmt Enhancements

Storage Capacity Forecast and Trending

- Predict the storage capacity runway up to a year in advance
- Periodic reminders as you get closer to maximum capacity
- Insights on the last 6 months historical trends
- Forecast available 2 weeks after cluster installation
- Functionality available under Intersight Essentials license



Storage Capacity Forecast and Trending

- Get capacity runway insights across multiple clusters
- Available under Intersight Essentials license tier
- Historical utilization trends across multiple clusters
- Alarms(critical and warning) to notify users

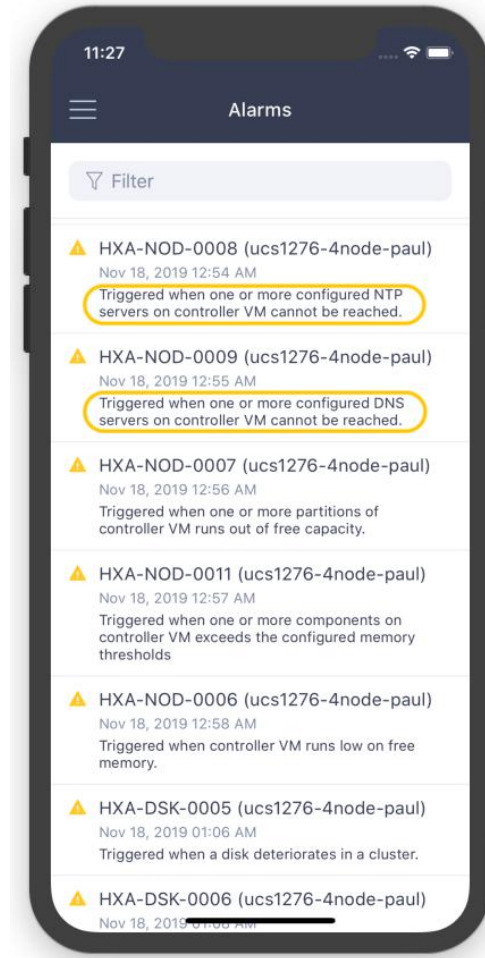
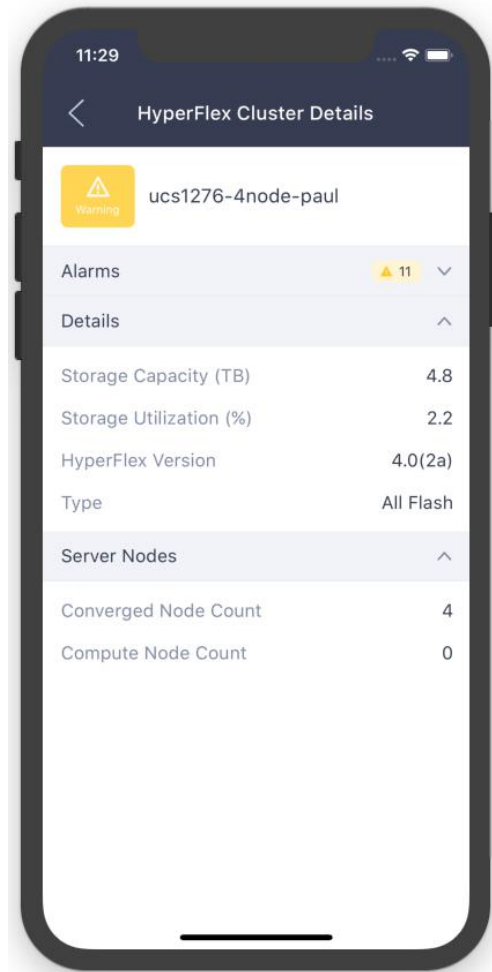
The screenshot displays the Cisco Intersight HyperFlex Clusters dashboard. The top navigation bar includes the Cisco Intersight logo, the page title 'HyperFlex Clusters', a cluster selector 'hxcap', and user information 'Aravind Sriram Arunach...'. The dashboard features several summary cards: 'Health' (3 items, 2 Critical, 1 Healthy), 'Connection' (1 Connected, 2 Not Connected), 'Storage Utilization' (3 items, UNDER 80%), 'Capacity Runway' (3 items, 1 Critical, 1 365+ da..., 1 Unknown), 'Types' (3 items, 1 Hybrid, 2 All Fla...), and 'HyperFlex Versions' (3 items, 1 4.0(2a), 1 4.0(1b), 1 4.0(1a)). Below these cards is a table with columns: Name, Health, Type, HyperFlex Versi..., Storage Capacity (TB), Storage Utilization, Storage Utilization Trend, Capacity Runway, and Server Nodes. The table lists three clusters: 'hx233' (Healthy, Hybrid, 5.1 TB, 61.7% utilization, 0% trend, 365+ days runway), 'ucs-557-cl' (Critical, All Flash, 6.4 TB, 1.7% utilization, 0% trend, Unknown runway), and 'ucs856_cl' (Critical, All Flash, 8.3 TB, 53.3% utilization, +151% trend, 34 days runway). The 'Storage Utilization Trend' and 'Capacity Runway' columns for the 'ucs856_cl' cluster are highlighted with a yellow box. The 'Capacity Runway' summary card is also highlighted with a yellow box.

Name	Health	Type	HyperFlex Versi...	Storage Capacity (TB)	Storage Utilization	Storage Utilization Trend	Capacity Runway	Server Nodes
hx233	Healthy	HyperFlex Hybrid	4.0(1a)	5.1	61.7%	0%	365+ days	1
ucs-557-cl	Critical	HyperFlex All Flash	4.0(2a)	6.4	1.7%	0%	Unknown	4
ucs856_cl	Critical	HyperFlex All Flash	4.0(1b)	8.3	53.3%	+151%	34 days	4

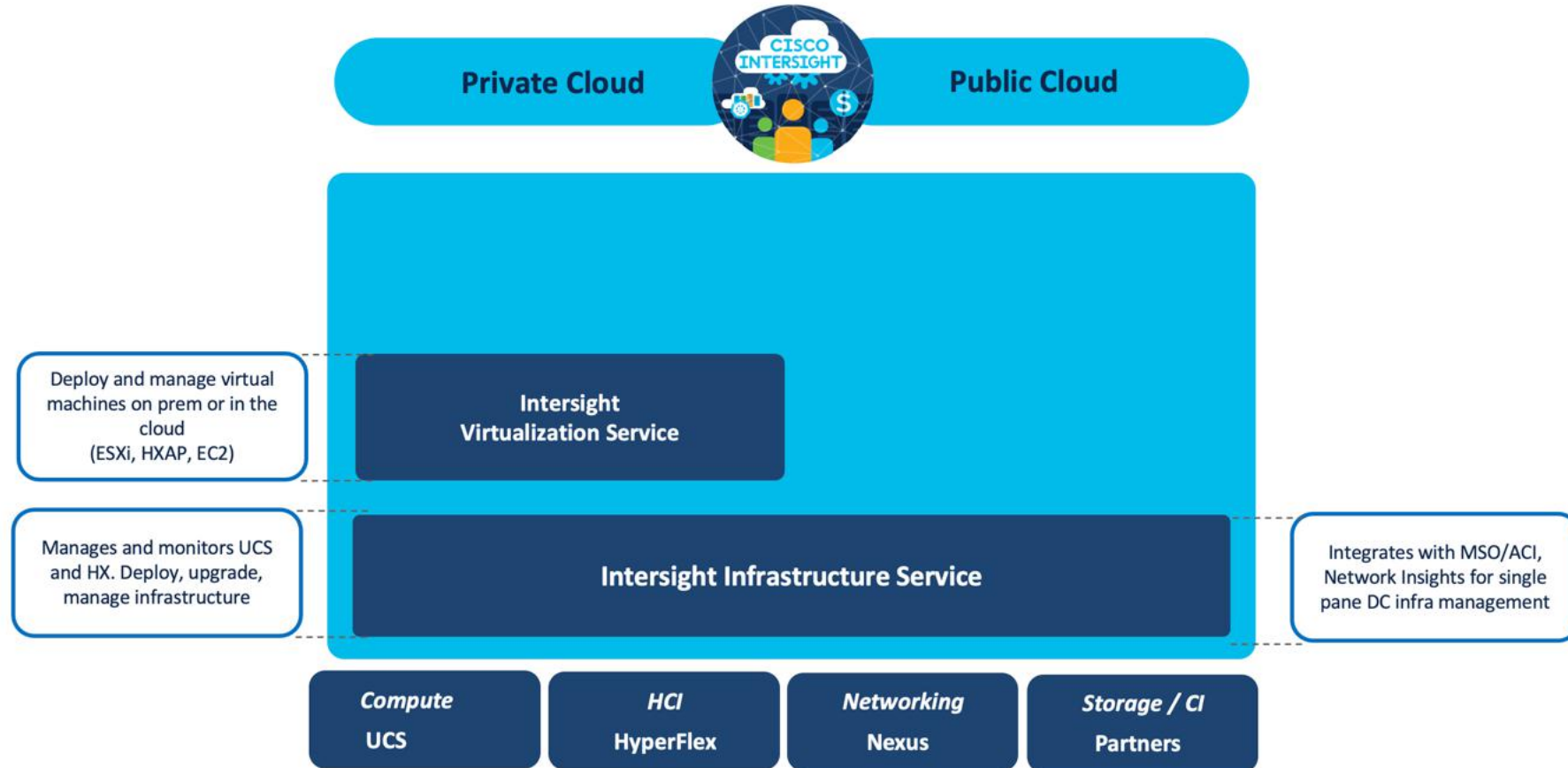
Proactive Health Monitoring

- Help customers troubleshoot common issues quickly
- HX proactively monitors for the following failure scenarios
 - NTP server connectivity
 - DNS server connectivity
 - vCenter connectivity
 - Controller VM
 - Memory usage
 - Space usage
- Alarms raised in HX Connect and Intersight

Proactive Health Monitoring



Intersight Cloud Platform

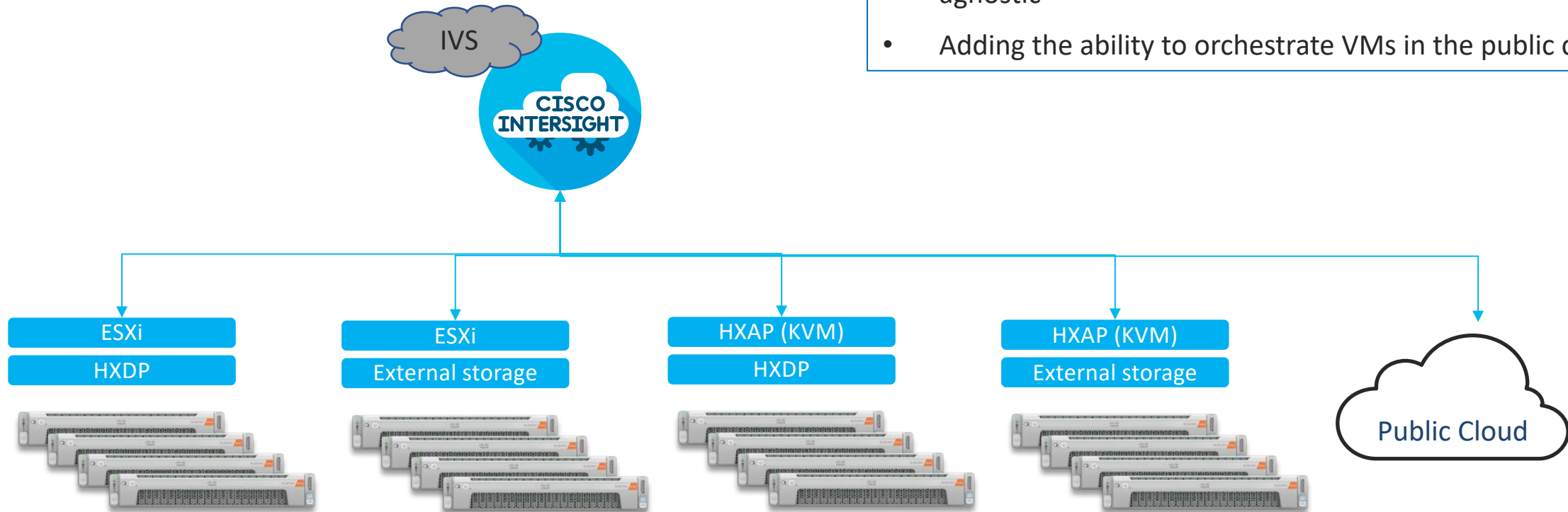


Intersight Virtualization Service

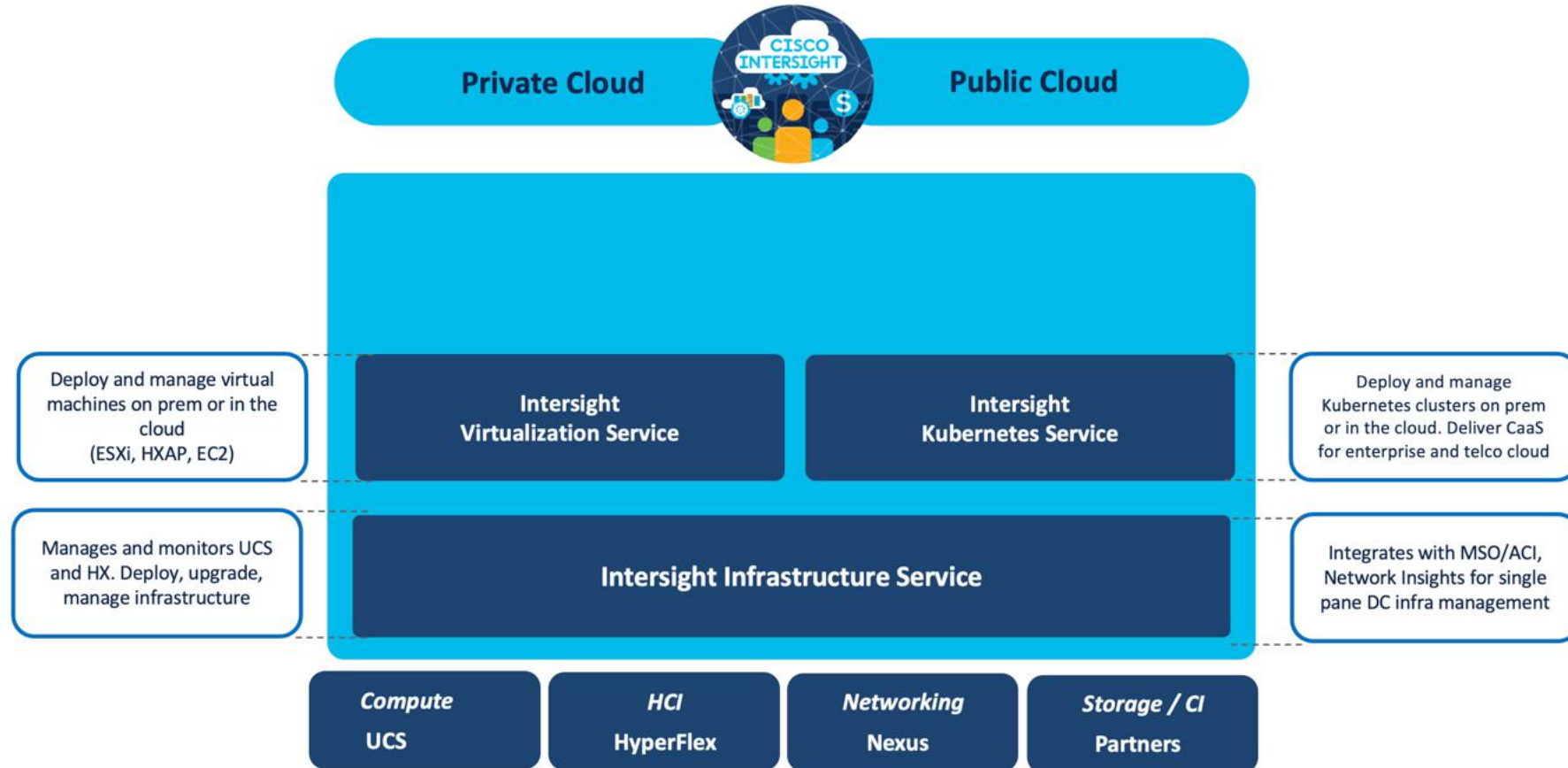
Intersight Virtualization Service

Deploy and manage virtual machines on prem
or in the cloud
(ESXi, HXAP, EC2, ...)

- Single, simplified management across ESXi, HXAP & public cloud hypervisors
- Intersight exposes VM management APIs that are Hypervisor agnostic
- Adding the ability to orchestrate VMs in the public cloud



Intersight Cloud Platform



Why IKS

Developer

- OpenAPI specification
- Helm chart deployments
- Integration registries and repos

DevOps

- Automated deployments and scale
- Service assurance across IaaS and PaaS
- Consistent and reliable open source integrations

IT Admin

- Common tools to deploy and manage K8s clusters
- Secure, hardened and turnkey
- Full stack visibility, monitoring and logging

Intersight Kubernetes Service (IKS)

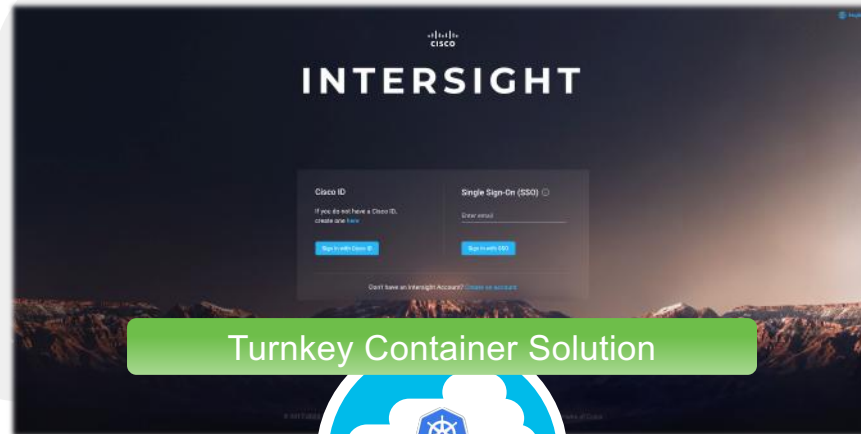
Cloud- / Connected / Air-gaped Managed



Secure

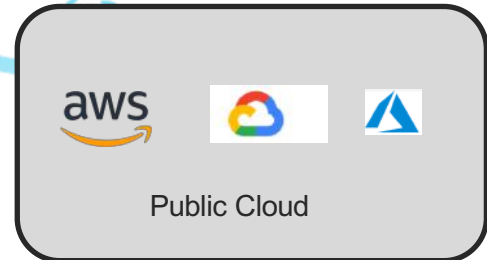


Enterprise-Ready

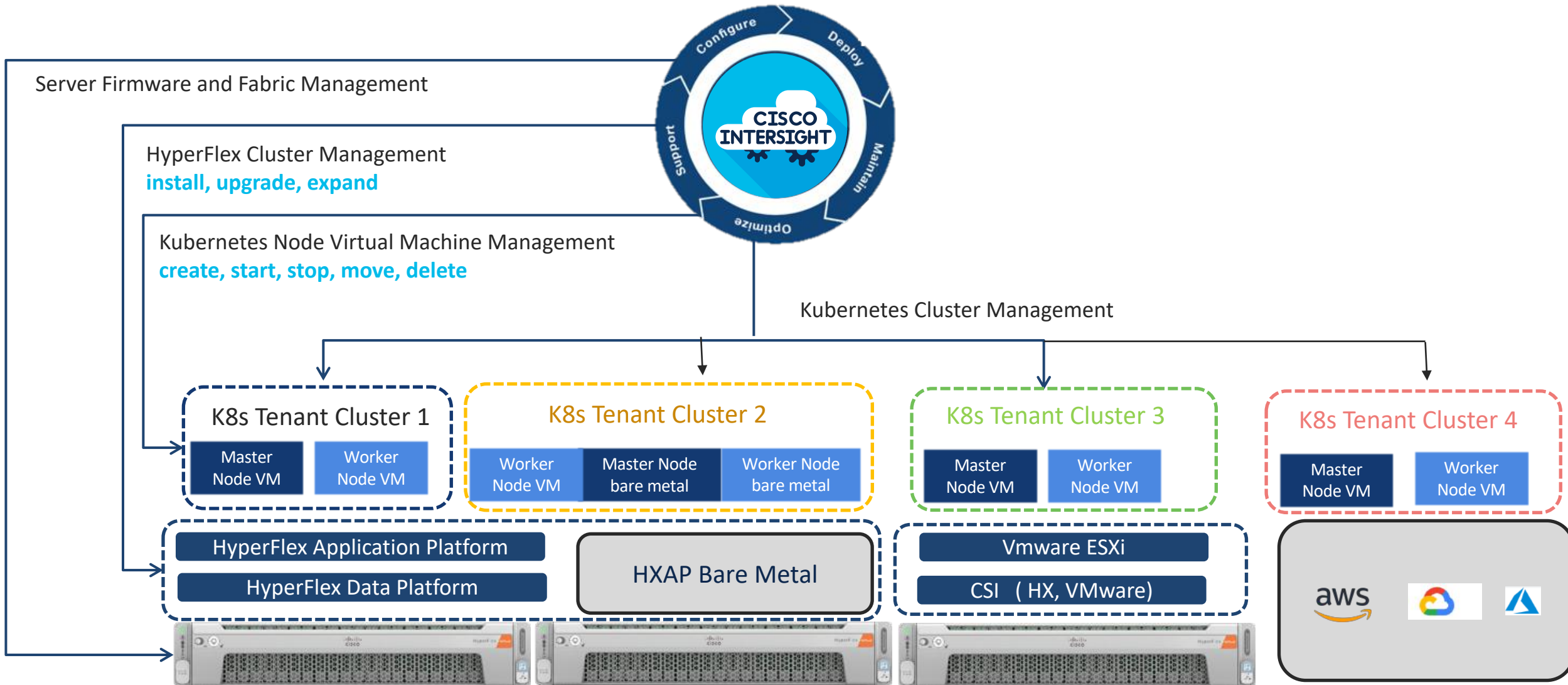


Deploy
enterprise-ready Kubernetes clusters from the cloud in minutes

Manage
the life-cycle of Kubernetes clusters across the globe from a single cloud portal



Intersight Kubernetes Service (IKS) on multi-cloud



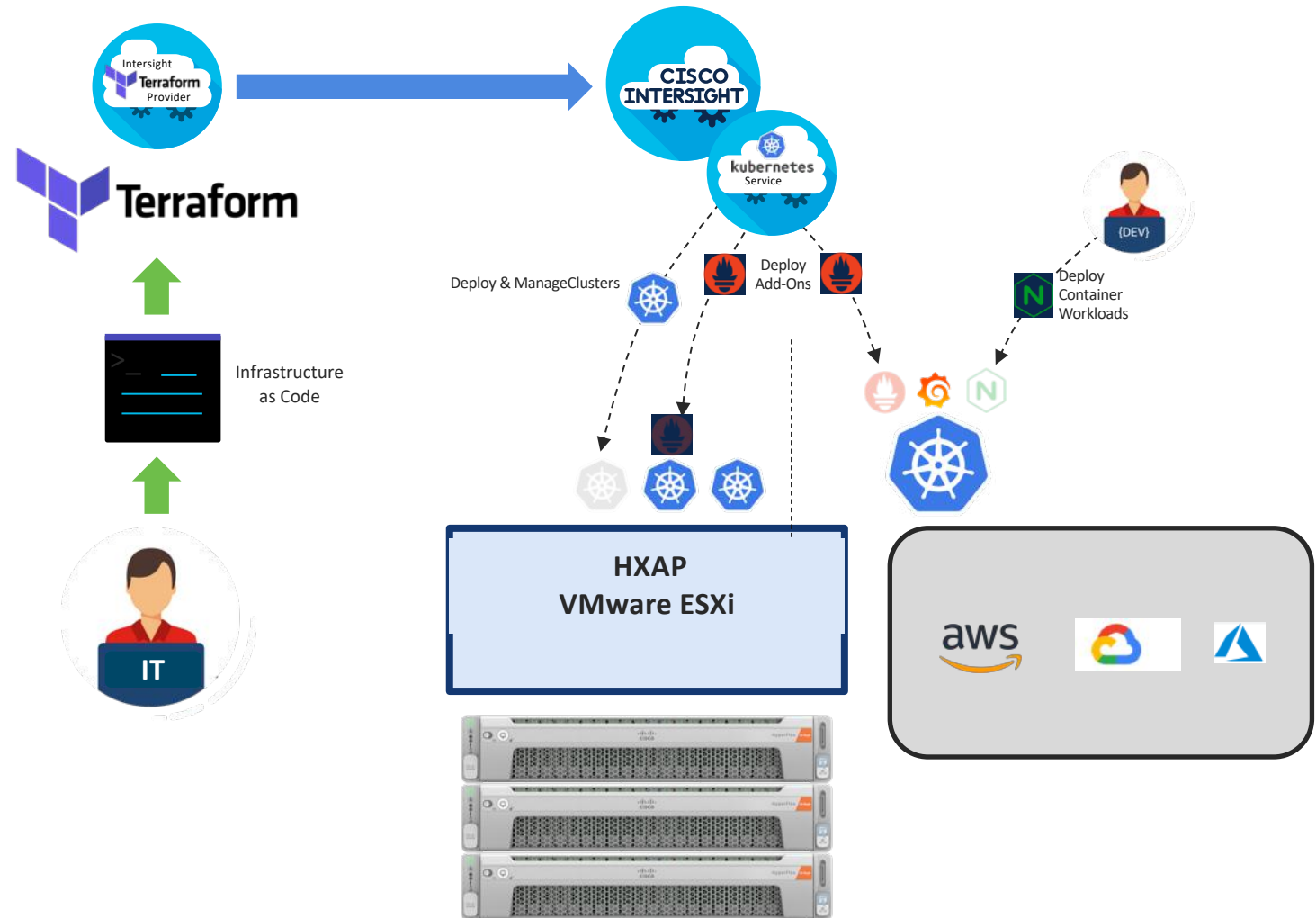
Infrastructure as Code for IKS

Developers can leverage popular infrastructure as code toolset to deploy Kubernetes clusters and common add-on workloads

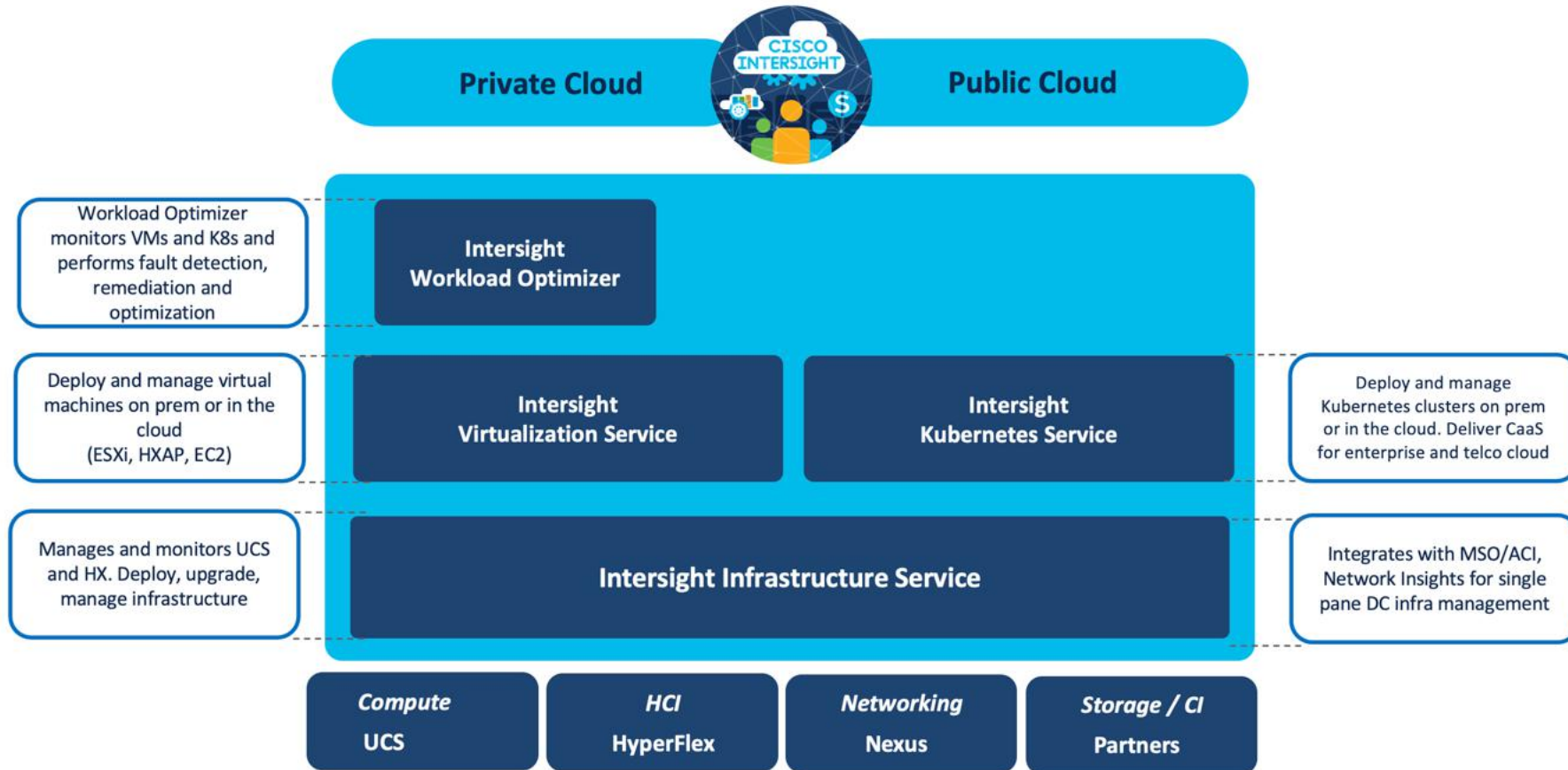
Intersight Terraform Provider translates declared infrastructure in code into required Intersight API calls

Intersight Terraform Provider published on GitHub:
<https://github.com/cisco-intersight/terraform-provider-intersight>

Provider is updated automatically as new features are pushed to Intersight




Intersight Cloud Platform

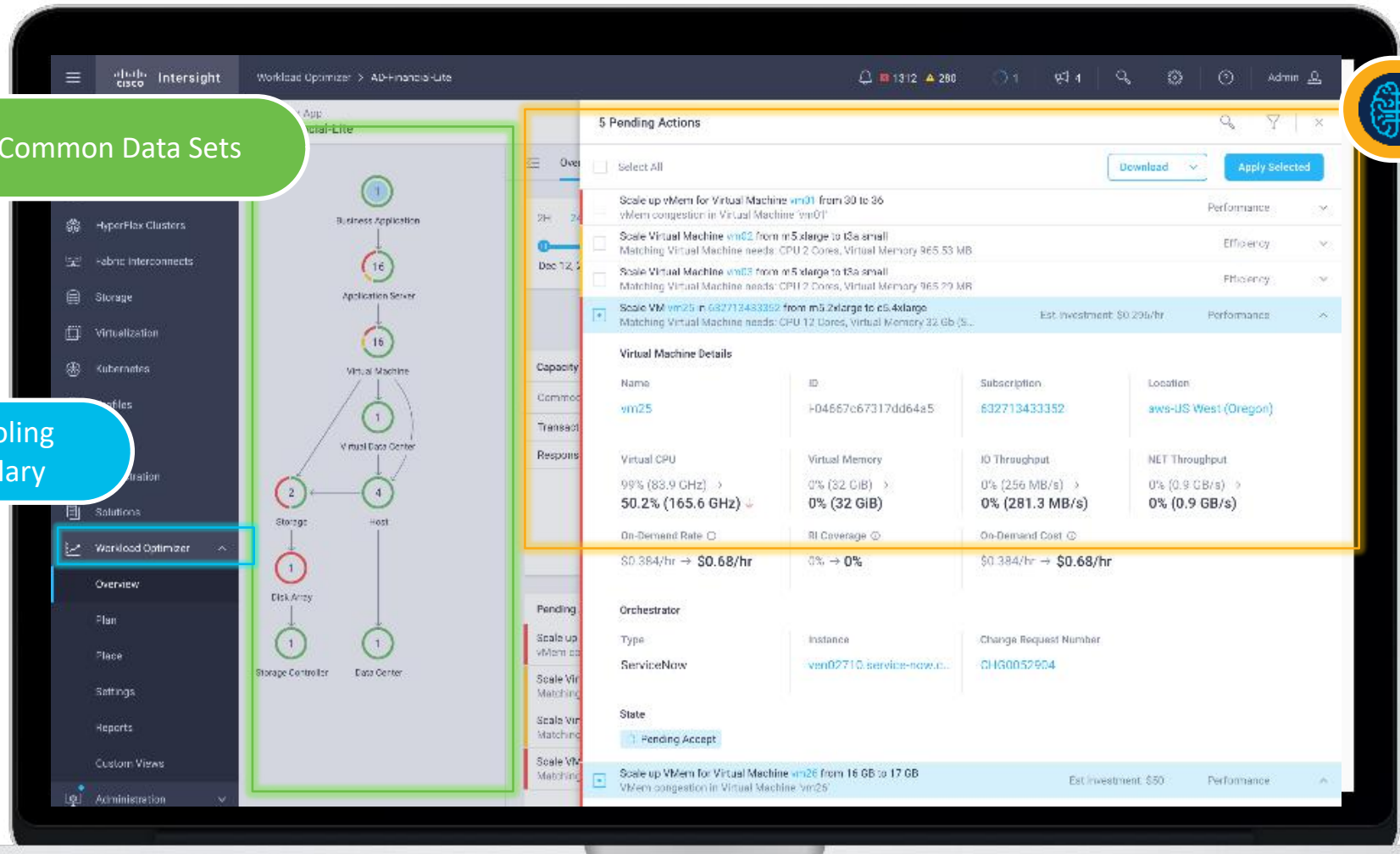


Intersight Workload Optimizer

 Common Data Sets

 Common Tooling and Vocabulary

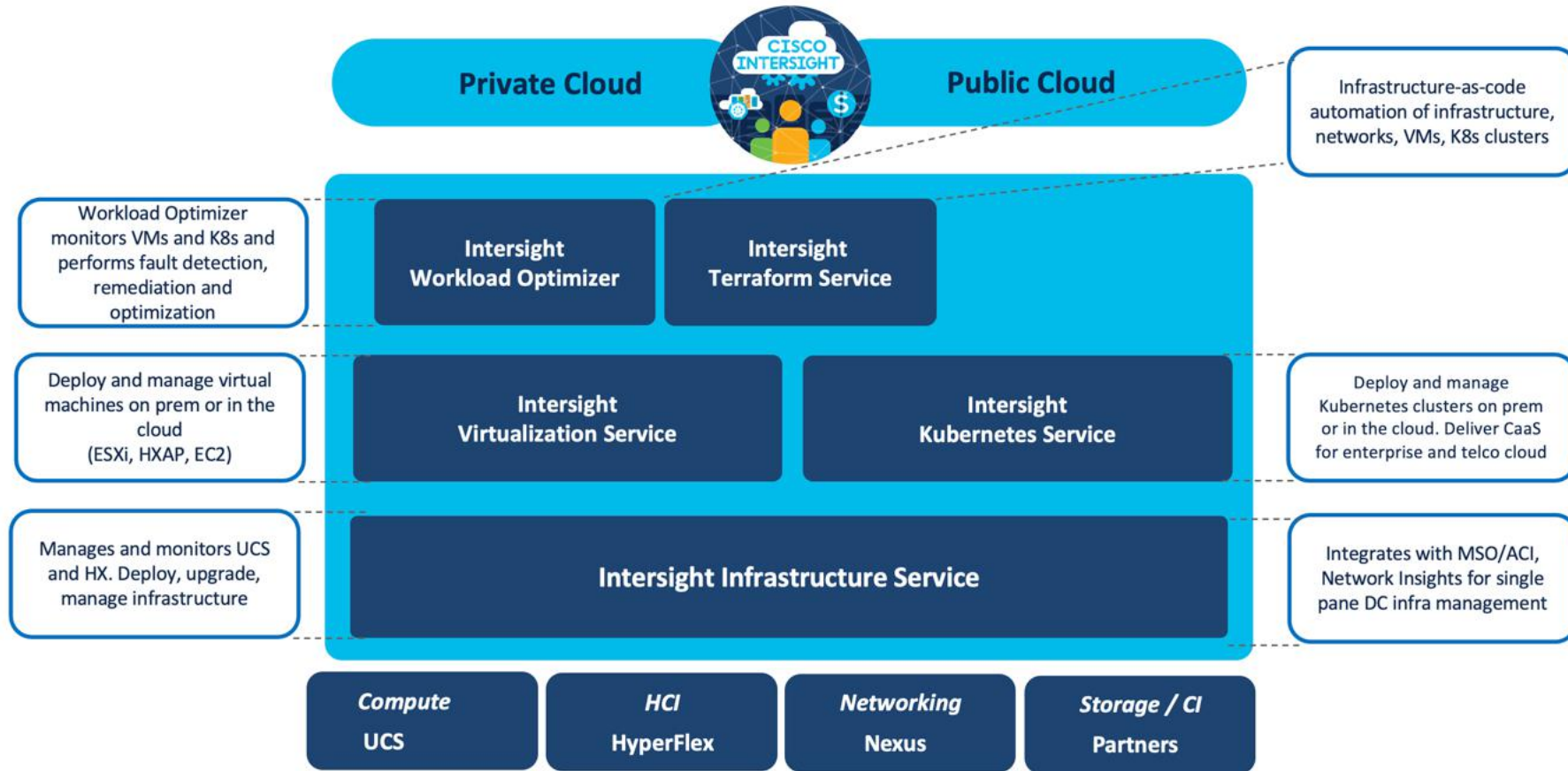
 Machine Intelligence



The screenshot displays the Intersight Workload Optimizer interface. On the left, a navigation menu includes options like HyperFlex Clusters, Fabric Interconnects, Storage, Virtualization, and Kubernetes. The main area shows a workload diagram for 'AD-Financia-Lite' with components like Business Application, Application Server, Virtual Machine, and Virtual Data Center. On the right, a '5 Pending Actions' panel lists optimization tasks such as scaling up vMem for Virtual Machine vm01 and scaling Virtual Machine vm02. Below this, a 'Virtual Machine Details' table provides specific metrics for vm25.

Virtual Machine Details			
Name	ID	Subscription	Location
vm25	F04667e67317dd64a5	632713433352	aws-US West (Oregon)
Virtual CPU	Virtual Memory	I/O Throughput	NET Throughput
99% (83.9 GHz) > 50.2% (165.6 GHz) ↓	0% (32 GiB) > 0% (32 GiB)	0% (256 MB/s) > 0% (281.3 MB/s)	0% (0.9 GB/s) > 0% (0.9 GB/s)
On-Demand Rate	RI Coverage	On-Demand Cost	
\$0.384/hr → \$0.68/hr	0% → 0%	\$0.384/hr → \$0.68/hr	

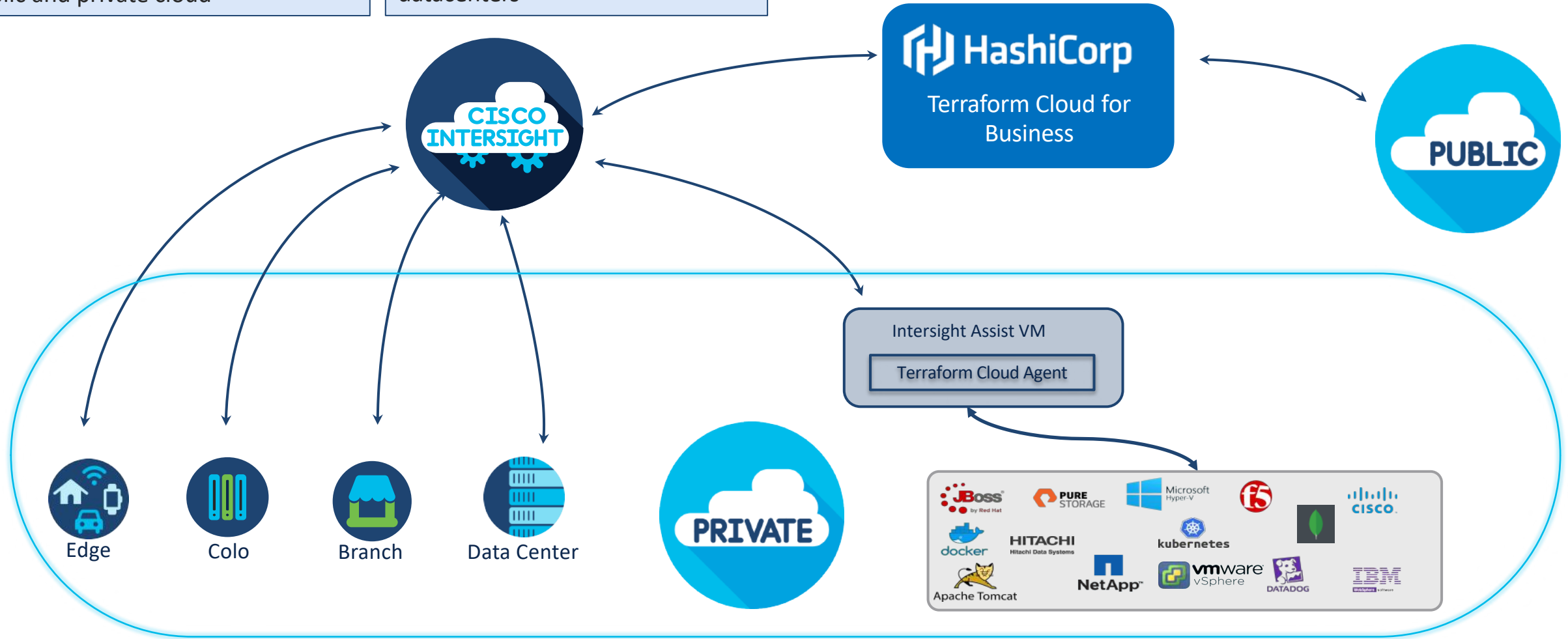
Intersight Cloud Platform



Intersight Terraform Service

Intersight can be used as a single SAAS platform for automation of public and private cloud

Intersight enables seamless extension of TFC to premise/edge datacenters



Intersight Cloud Platform

