



Cisco Tech Club

Intuitivní a holistický přístup ke správě a orchestraci edge-to-cloud prostředí organizací

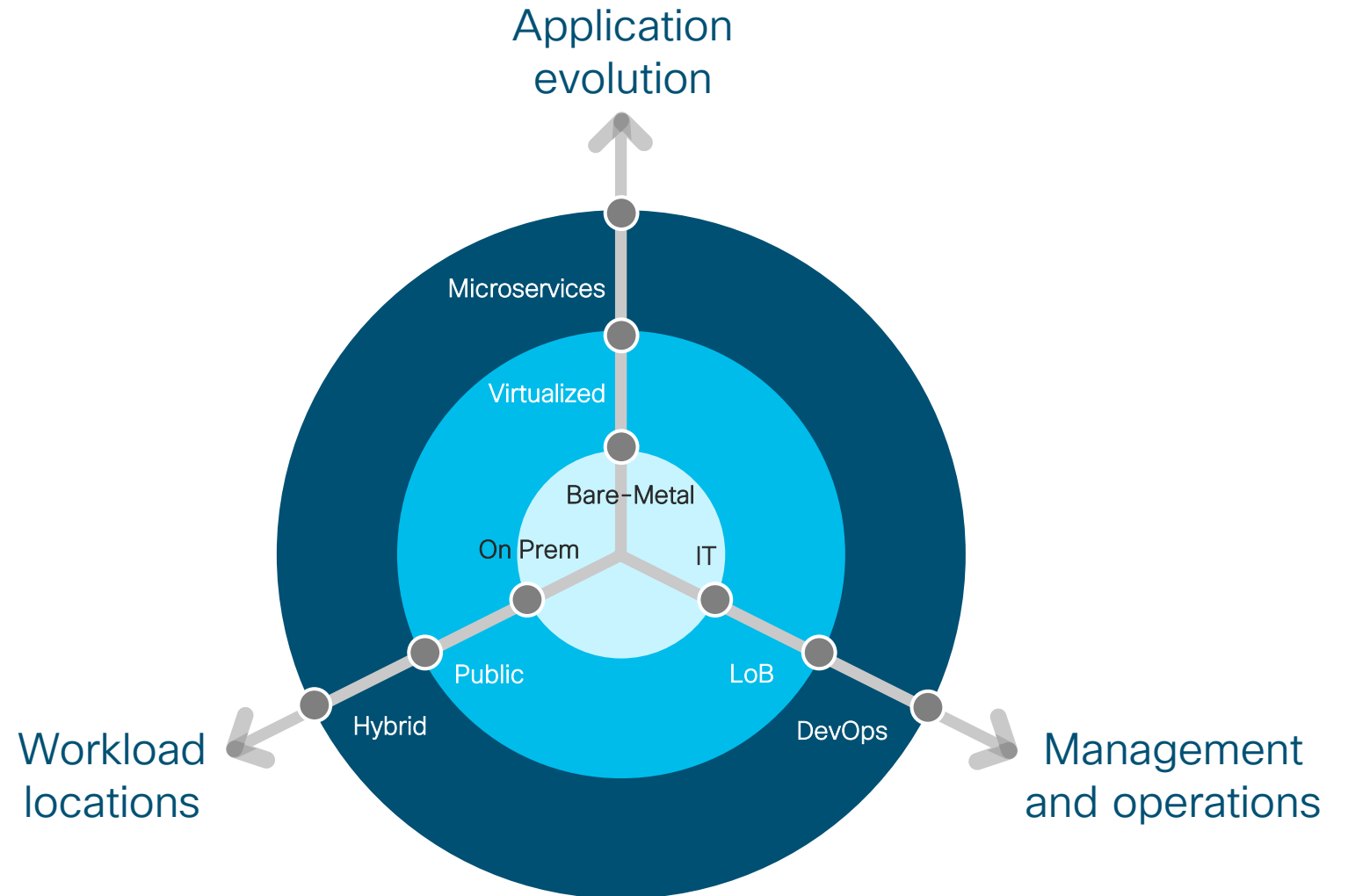
Miloš Pavlík
Cisco TSA

Impact of digital transformation

Applications
are the new
business drivers.

Developers
are the new
customers.

Multicloud
is the new
DC paradigm.



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

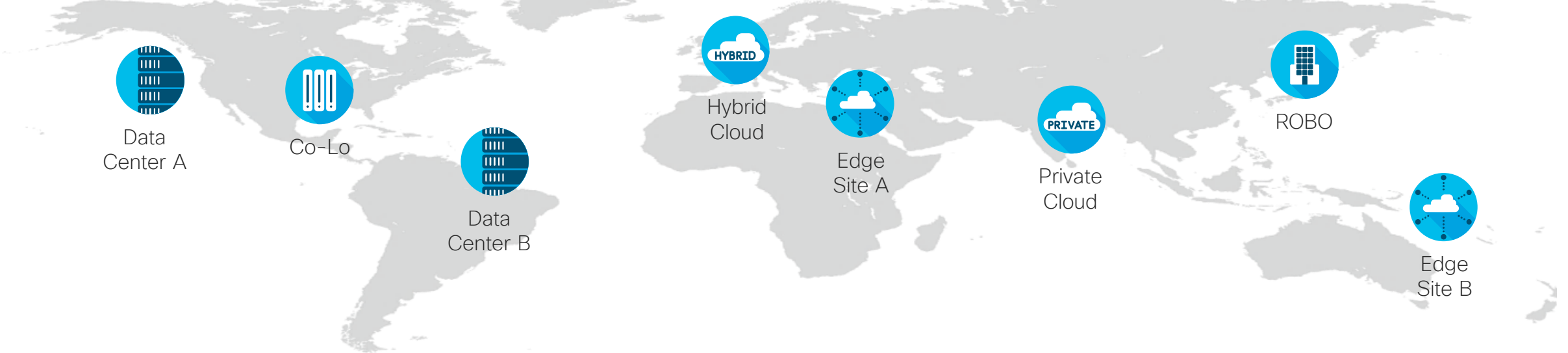
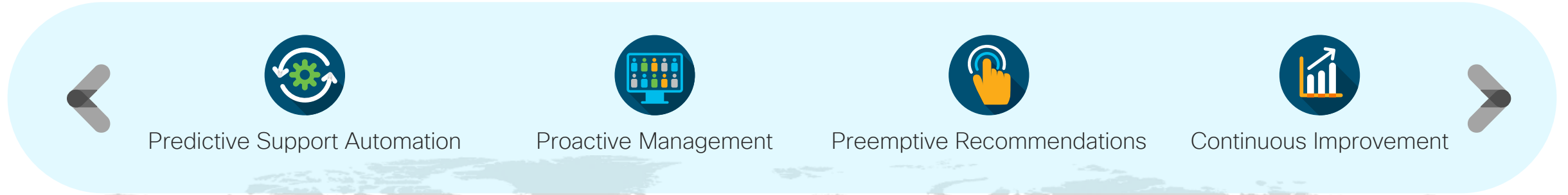
Create actionable insight



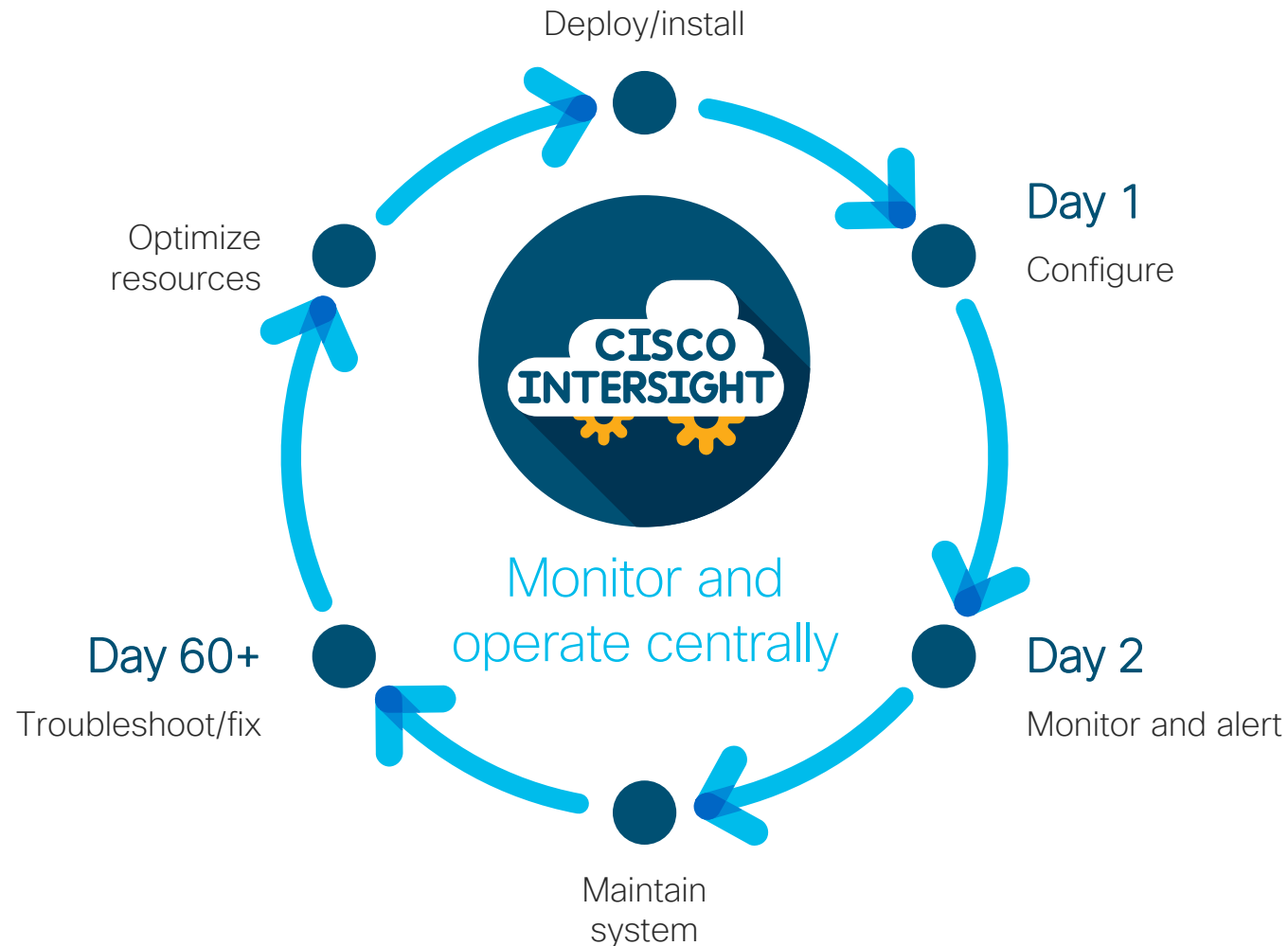
Combine insight
with automation

Have machines
manage machines

Proactive systems management anywhere



Cisco Intersight: Connect and Use the Data



Benefits

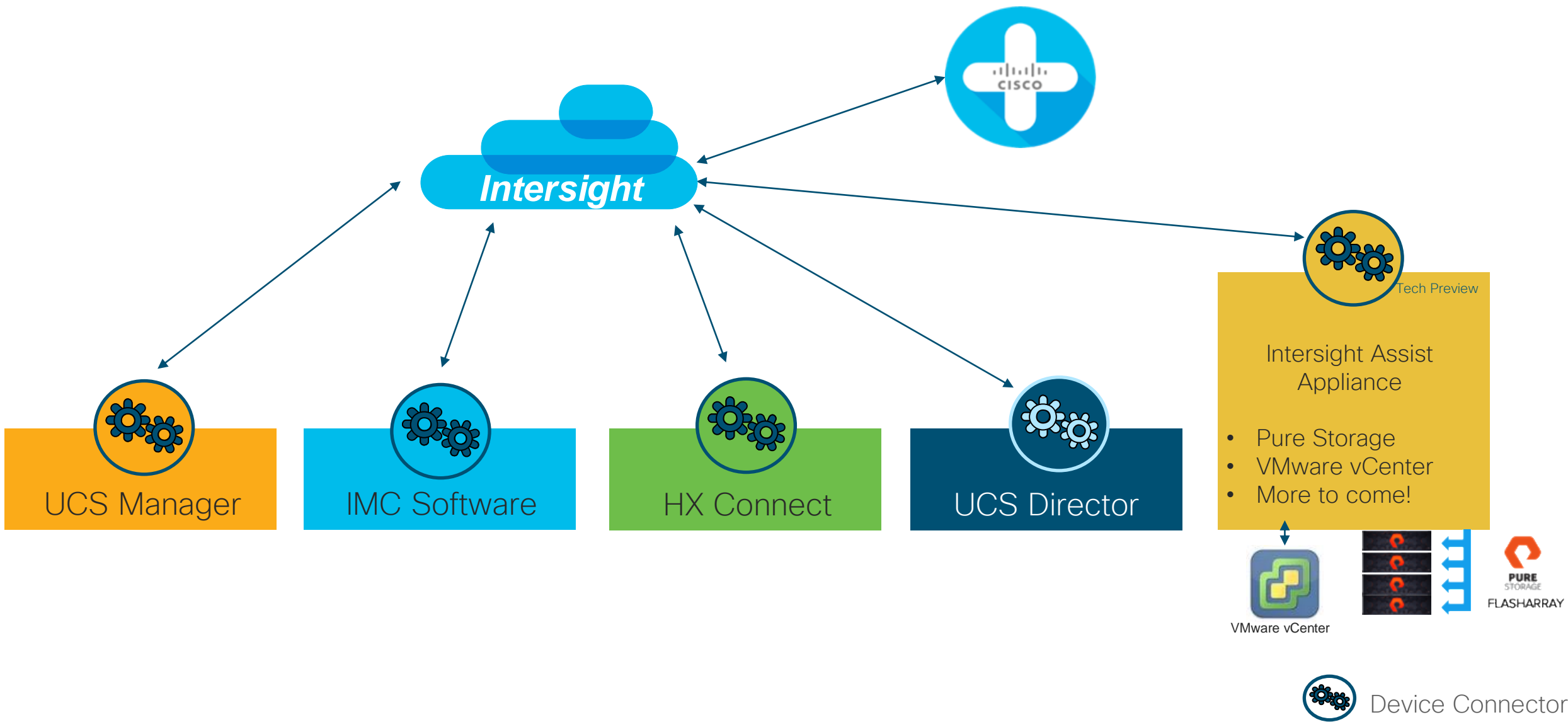
- ✓ Quicker deployment times
- ✓ Fewer tools
- ✓ Lower administration costs
- ✓ Lower configuration risk
- ✓ Faster Problem Resolution

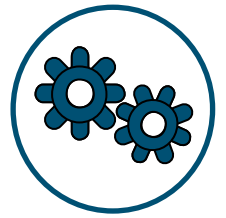
Cisco
Intersight

technical stuff

Device Connectors

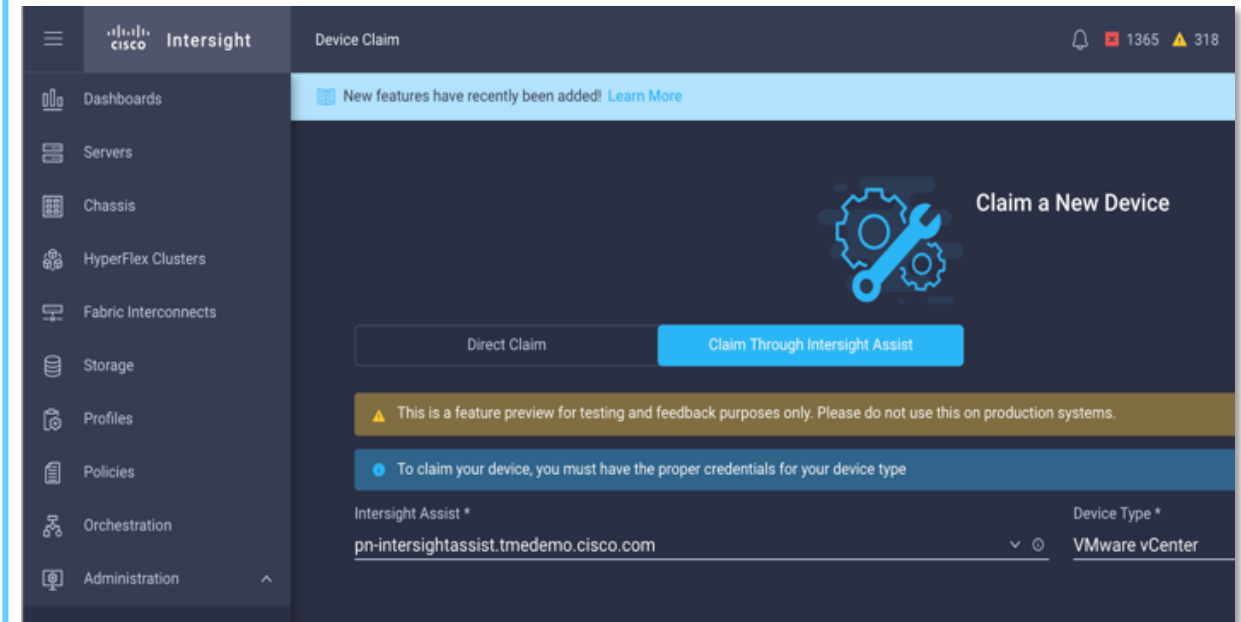
Device Connectors





Intersight Assist

- Manages connections to 3rd party devices
- Installed via Intersight Appliance OVA
 - Persona Intersight Assist
- Device Connector running inside assist facilitates the secure channel to Intersight
- Intersight communicates to the 3rd party API's through this device.
- Claim Process
 - Intersight Assist is first claimed in Intersight.com
 - 3rd party devices are then claimed on Intersight.com through Assist



Minimum Deployment footprint (Tiny Deployment)
8 vCPU, 16GB RAM, 500GB Disk Space

Intersight Users/Groups, Organizations, and Role- Based Access Control (RBAC)

Users, Groups, and Roles

Settings->Access & Permissions to manage Users and Groups

- Users can be added using configured Identity Providers
 - Cisco or SAML 2.0 with SaaS
 - LDAP/AD or SAML 2.0 with Virtual Appliance
- Groups can be added using the Group Name provided by the Identity Provider (groups.cisco.com for managing Cisco)

Users or Groups can be configured with multiple Roles

Add User

Identity Provider *

Cisco

Email *

Role *

Device Administrator

Role *

Device Administrator

Device Technician

DevNet-Role

Save

Organizations

Settings->Access & Permissions->Organizations

- Enables multi-tenancy by placing devices into logical groups
- Only Account Admins can create Orgs
- Devices can be in multiple orgs
 - All devices are in the default Org
 - Devices in a Custom Org are also in the default Org
- Organization column is in table views (e.g., Servers, Policies, Profiles)

Create Organization
Create an organization to manage access to your logical and physical resources.

General

Name * Description

Memberships

Custom All

Select devices to create a Custom Organization. Profiles and Policies that are created within a Custom Organization are applicable only to devices in the same Organization.

| <input type="checkbox"/> | Name | Status | Type | Device IP | Device ID |
|-------------------------------------|-------------------|-----------|----------------------|------------------------|--------------------------------|
| <input type="checkbox"/> | C240-FCH2023V33F | Connected | Standalone M4 Server | 10.29.189.107 | FCH2023V33F |
| <input type="checkbox"/> | C220-WZP22420B7P | Unclaimed | Standalone M5 Server | 2001:420:282:202f:1... | WZP22420B7P |
| <input type="checkbox"/> | cc1ucsd.cisco.com | Connected | UCS Director | cc1ucsd.cisco.com | 2cdd229f-2d83-4717-a9cd-efd... |
| <input checked="" type="checkbox"/> | C220-WZP2204097Z | Connected | Standalone M5 Server | 172.28.224.106 | WZP2204097Z |

Intersight Identity Providers and SSO

- Intersight SaaS and the Virtual Appliance support external Identity Providers (IdPs)
- IdPs supporting SAML 2.0 can be configured in Intersight to authenticate users
- Intersight supports use of IdP groups so that individual users can authenticate through their group permissions (does not require per user config in Intersight)

The screenshot shows the 'Add Identity Provider' configuration page in Intersight. The page has a light blue header with the title 'Add Identity Provider'. Below the title, there are three main sections:

- Name ***: A text input field with a blue underline and a small 'T' icon on the right.
- Domain Name ***: A text input field with a blue underline.
- Organization IdP Metadata ***: A section with a 'Browse' button and the text 'No file selected'.

At the bottom of the page, there are two buttons: 'Cancel' and 'Save'. A tooltip is overlaid on the right side of the page, titled 'Click Name', with a close button (X) in the top right corner. The tooltip text reads 'Enter a name for the Identity Provider.' Below the text, it says '6 of 9' and has a 'Continue' button.

Security

Ensuring data is
transmitted and stored
securely

Key features in Cisco Intersight security architecture



Use of industry-standard security protocols

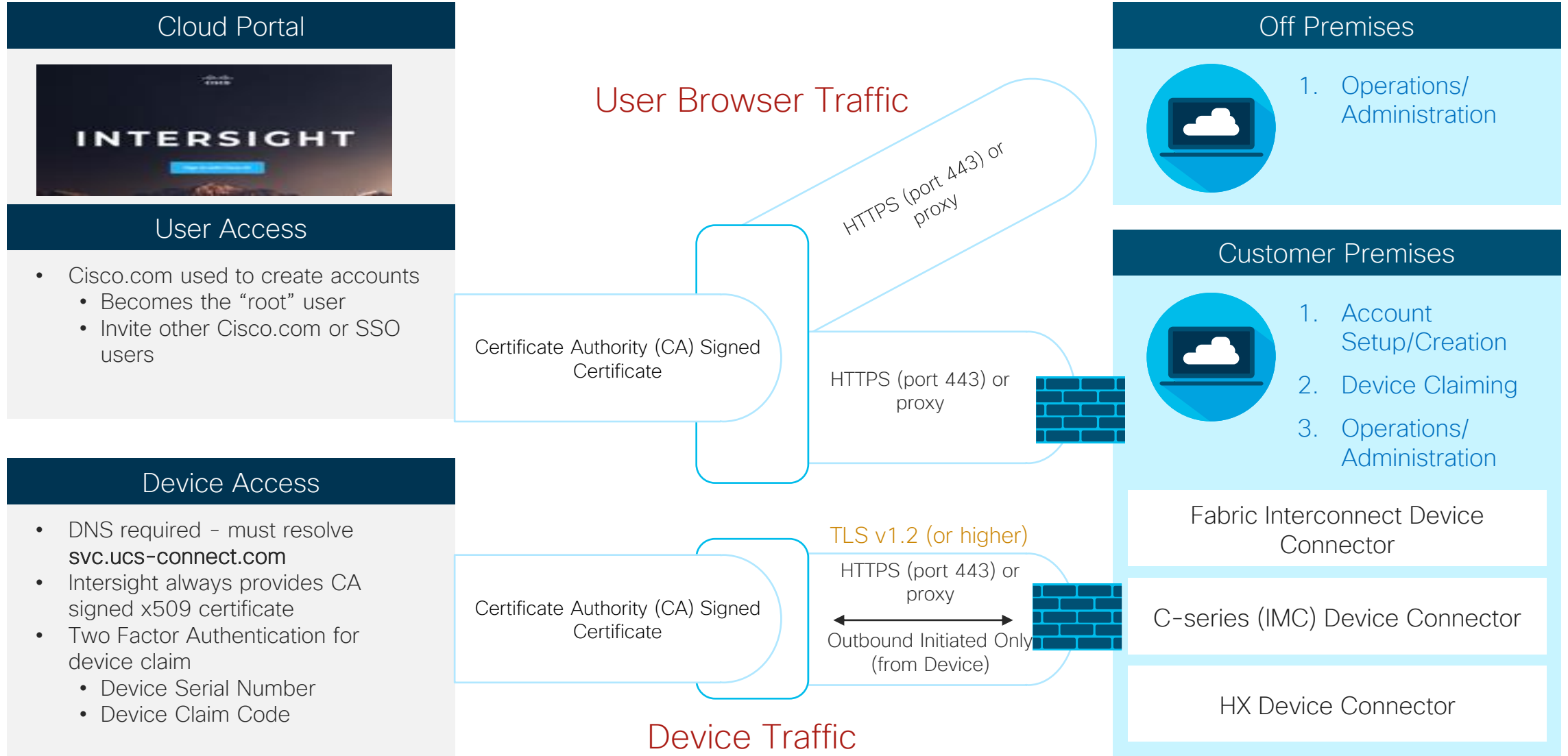


Encryption of all data



Compliance with stringent Cisco® InfoSec security and data handling standards

Intersight Device/Browser Connectivity



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



Connected TAC and Proactive Support

Cisco Intersight + TAC real-world example



Case opened:
XXXXXX244



Diagnostic data
automatically collected



Diagnostic results
automatically gathered



Firmware upgrade
identified to resolve known
issue

2018-12-DD 01:25



+12 Minutes



+16 Minutes

Total: 28 minutes
to diagnose issue

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

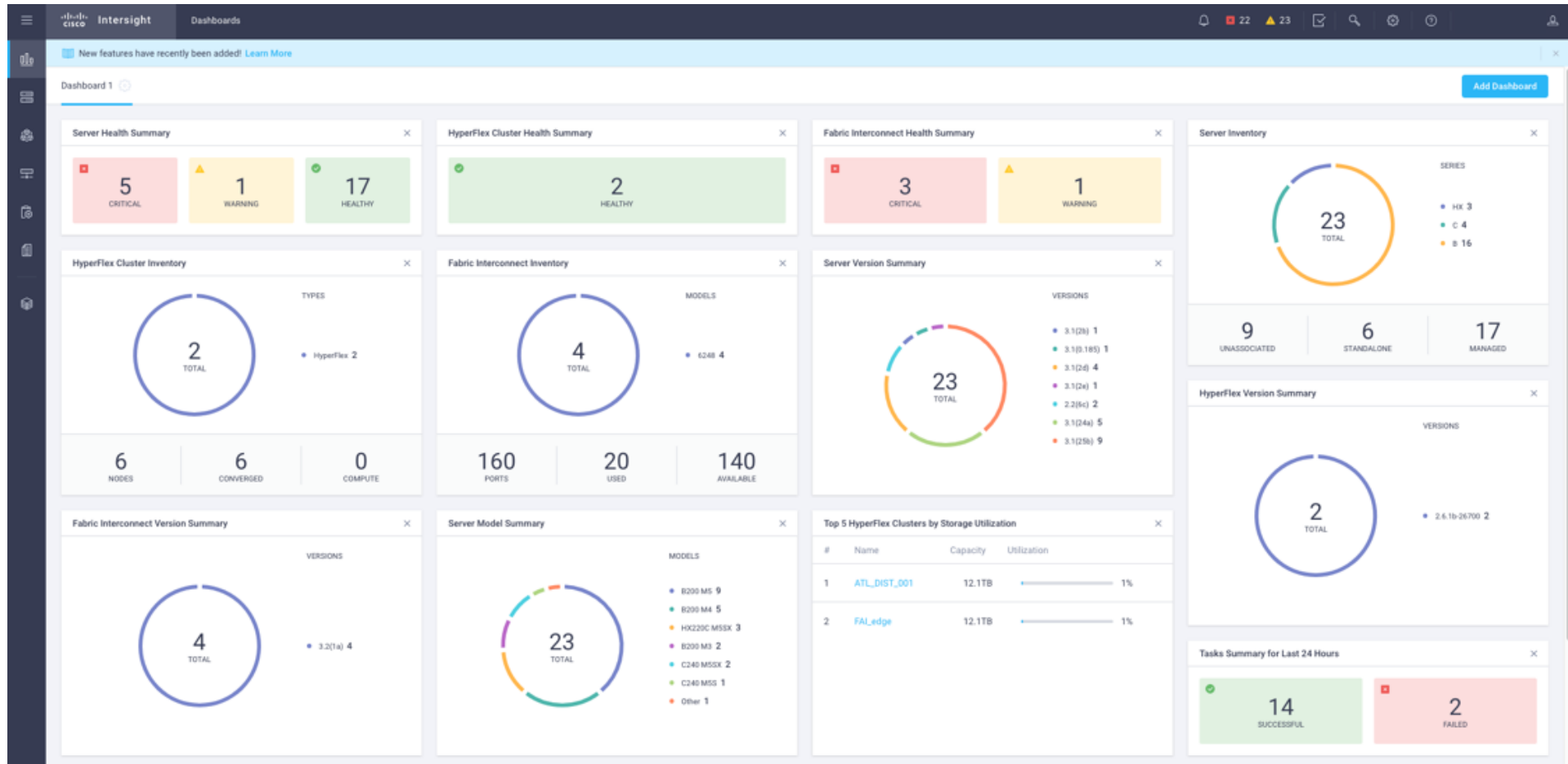


E-mail from cisco-proactive-rma@cisco.com with instructions for user

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

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 'Server Inventory' section with a '9 UNASSOCIATED' status and a 'HyperFlex Version Summary' section. At the bottom, there is a 'Tasks Summary for Last 24' section showing '14 SUCCESSFUL' tasks. A 'View All' link is located at the bottom right of the Alarms panel.

- 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

Cisco Intersight Server Overview

The screenshot shows the Cisco Intersight interface for a server. The top navigation bar includes the Cisco Intersight logo and the 'Servers' tab. A notification banner at the top indicates that new features have been added. The main content area is divided into several sections:

- Server Profile:** Shows the server name (C220-WZP21330G65), serial number (WZP21330G65), PID (UCSC-C220-MSL), vendor (Cisco Systems Inc), and revision.
- Health:** Displays a 'Healthy' status with a green checkmark.
- Properties:** Lists various hardware and software details, including CPU count (2), threads (72), cores (36), total memory (192.0 GB), and speed (82.8 GHz).
- Server Actions:** A dropdown menu on the right side of the server image provides various management options such as Power Off, Power Cycle, Shut Down OS, Hard Reset, Reboot IMC, Turn On Locator, Launch KVM, Launch Cisco IMC, Add/Edit Asset Tags, and Add/Edit User Label.


| Property | Value |
|-----------------------|-------------------|
| Name | C220-WZP21330G65 |
| Serial | WZP21330G65 |
| PID | UCSC-C220-MSL |
| Vendor | Cisco Systems Inc |
| Revision | |
| Server Profile | Demo-Profile_1 |
| Server Profile Status | OK |
| Firmware Version | 3.1(2d) |
| Firmware Status | Pending |

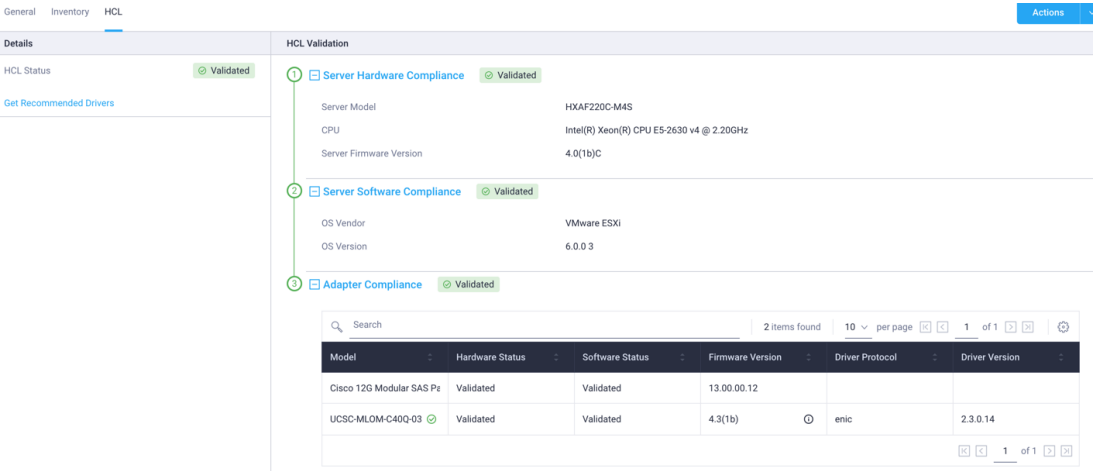
| Property | Value |
|-------------------|--------------------------------------|
| CPU | 2 |
| Threads | 72 |
| Cores | 36 |
| Enabled Cores | 36 |
| Total Memory (GB) | 192.0 |
| Speed (GHz) | 82.8 |
| ID | 1 |
| Adapters | 1 |
| NICs | 2 |
| HBA | 2 |
| UUID | A19EFD0F-C126-44AE-89B6-64DC1ED60A22 |
| Firmware | 3.1(2d) |

- Server name, model, serial number, and other basic properties are displayed
- Health overlay for front/back/top views can be turned on/off as needed
- Alarms/Faults visible on right hand side
- Server Actions available as well – IMC cross launch, KVM, tunneled vKVM, power operations, tagging

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\

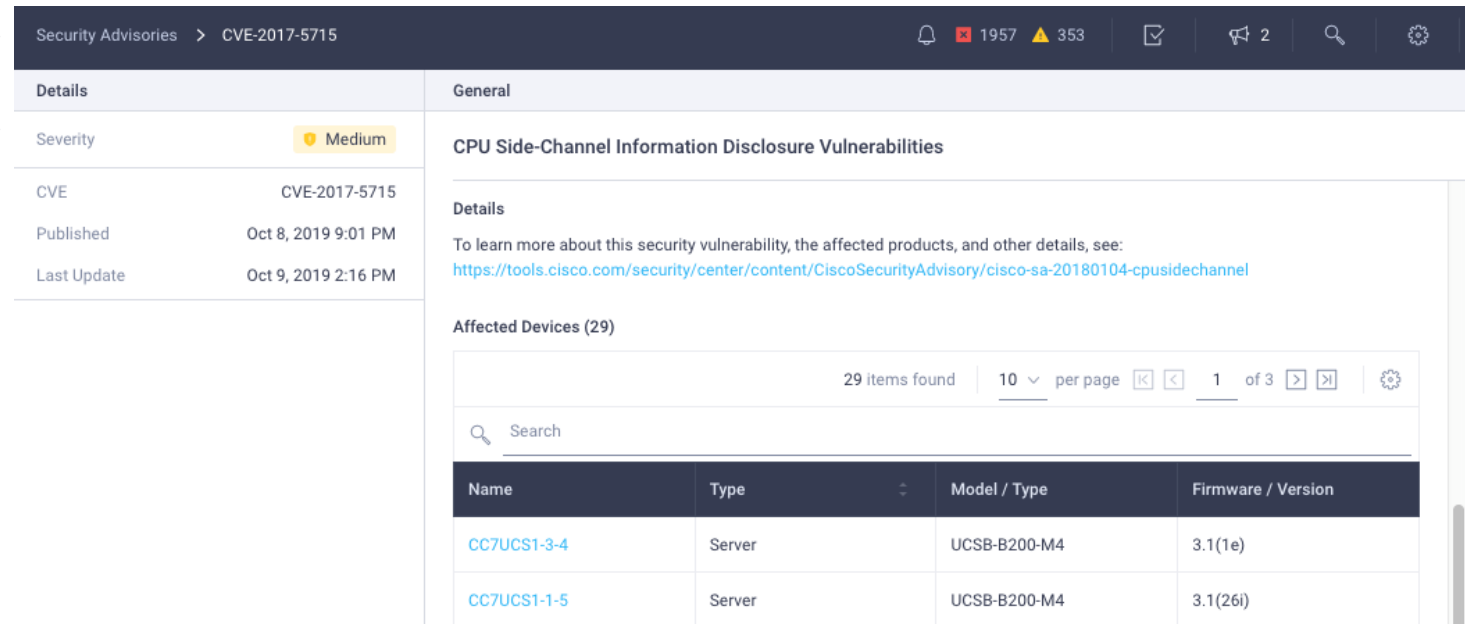


The screenshot shows the 'HCL Validation' section of the Intersight UI. It is divided into three main compliance areas, each with a 'Validated' status:

- Server Hardware Compliance:** Server Model: HXAF220C-M4S, CPU: Intel(R) Xeon(R) CPU E5-2630 v4 @ 2.20GHz, Server Firmware Version: 4.0(1b)C.
- Server Software Compliance:** OS Vendor: VMware ESXi, OS Version: 6.0.0.3.
- Adapter Compliance:** (Details are partially obscured by a table below).

Below the compliance sections is a table with 2 items found. The table has columns for Model, Hardware Status, Software Status, Firmware Version, Driver Protocol, and Driver Version.

| Model | Hardware Status | Software Status | Firmware Version | Driver Protocol | Driver Version |
|--------------------------|-----------------|-----------------|------------------|-----------------|----------------|
| Cisco 12G Modular SAS Pi | Validated | Validated | 13.00.00.12 | | |
| UCSC-MLOM-C400-03 | Validated | Validated | 4.3(1b) | enic | 2.3.0.14 |



The screenshot shows the Cisco Security Advisory page for CVE-2017-5715. The severity is 'Medium'. The page includes a 'General' section with the title 'CPU Side-Channel Information Disclosure Vulnerabilities' and a link to the full advisory. Below this is a table of affected devices.

Details

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

General

CPU Side-Channel Information Disclosure Vulnerabilities

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 HTTP/S

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

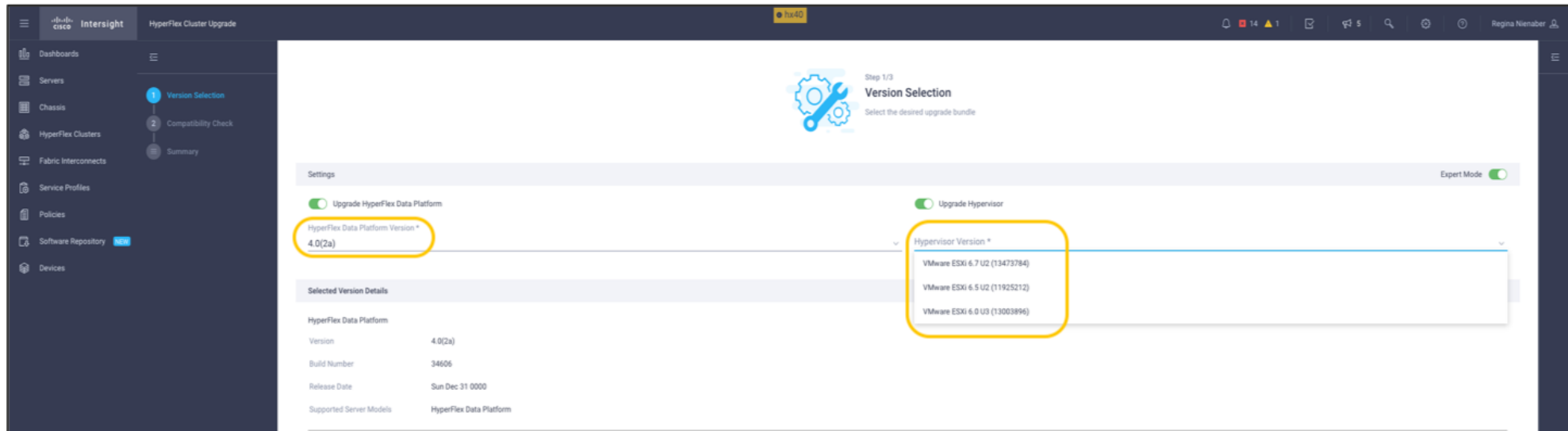
- ✓ Checking Cluster Profiles
- ✓ Initiating Cluster Pre-upgrade validations
- Waiting for Cluster Pre-upgrade Validations to Complete
- 🕒 Verifying Configuration Results
- 🕒 Retrieving Configuration Result Details

The screenshot displays the 'Compatibility Check' step (Step 2/3) of a HyperFlex upgrade. A red error banner at the top states: 'ucs659cip-1GB: Cannot downgrade Hyperflex Data Platform version from 4.0.2a-34671 to 4.0(2a)-34606'. Below this, a table lists the upgrade details for the selected cluster.

| Name | HyperFlex Version | Upgrade Length | Hypervisor Version |
|---------------|-------------------|----------------|----------------------------------|
| ucs659cip-1GB | 4.0.2a-34671 | | VMware (ESX 6.5.0 U2 (13004031)) |

ESXi Upgrades from Intersight

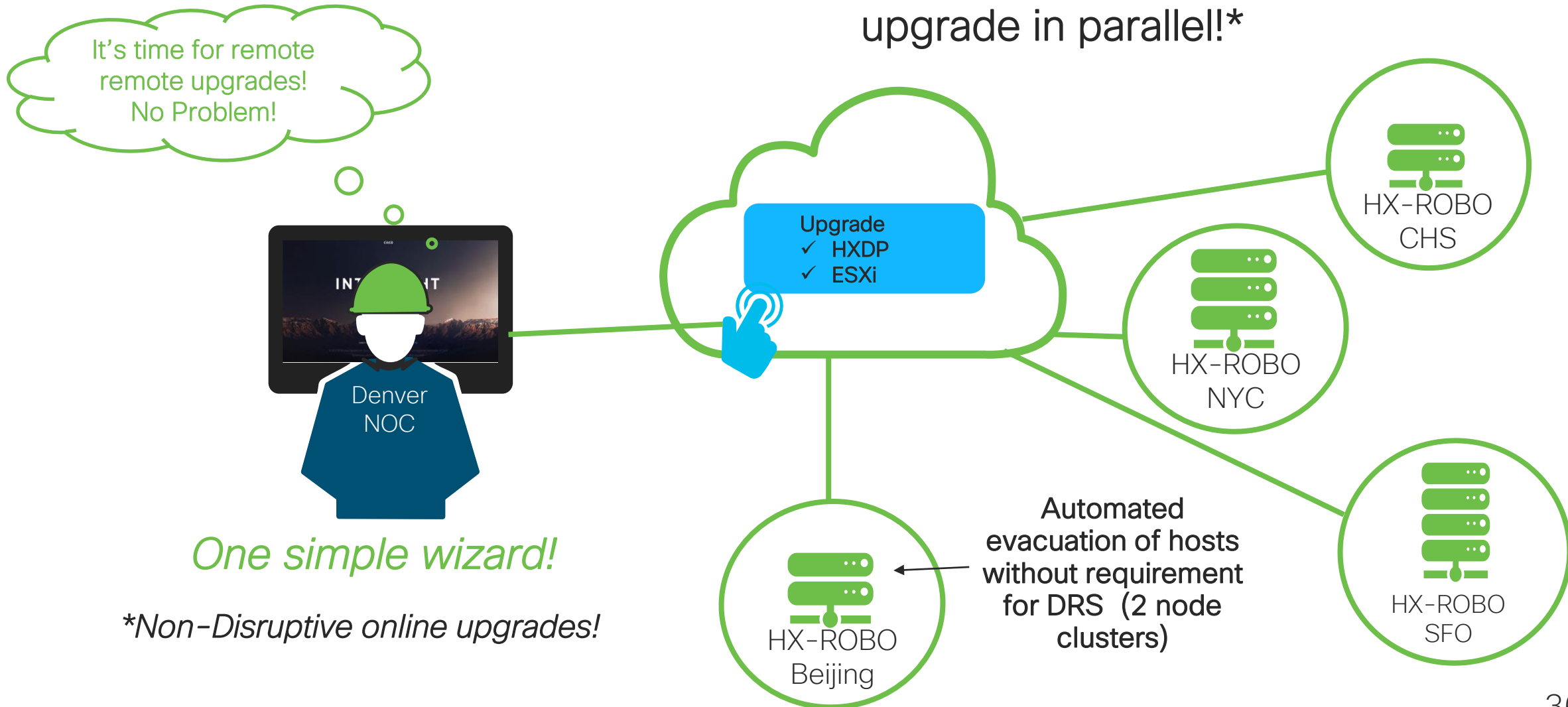
- Upgrade ESXi for Hyperflex clusters in Intersight
- Choose from the following options with or without HXDP upgrade
 - Recommended ESXi versions to upgrade to the latest patch
 - Specific ESXi versions
- Images to upgrade to are readily available in Intersight



Simple Worldwide HyperFlex Edge Upgrades

from Cisco Intersight

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



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

UCS Standalone Management Simplification

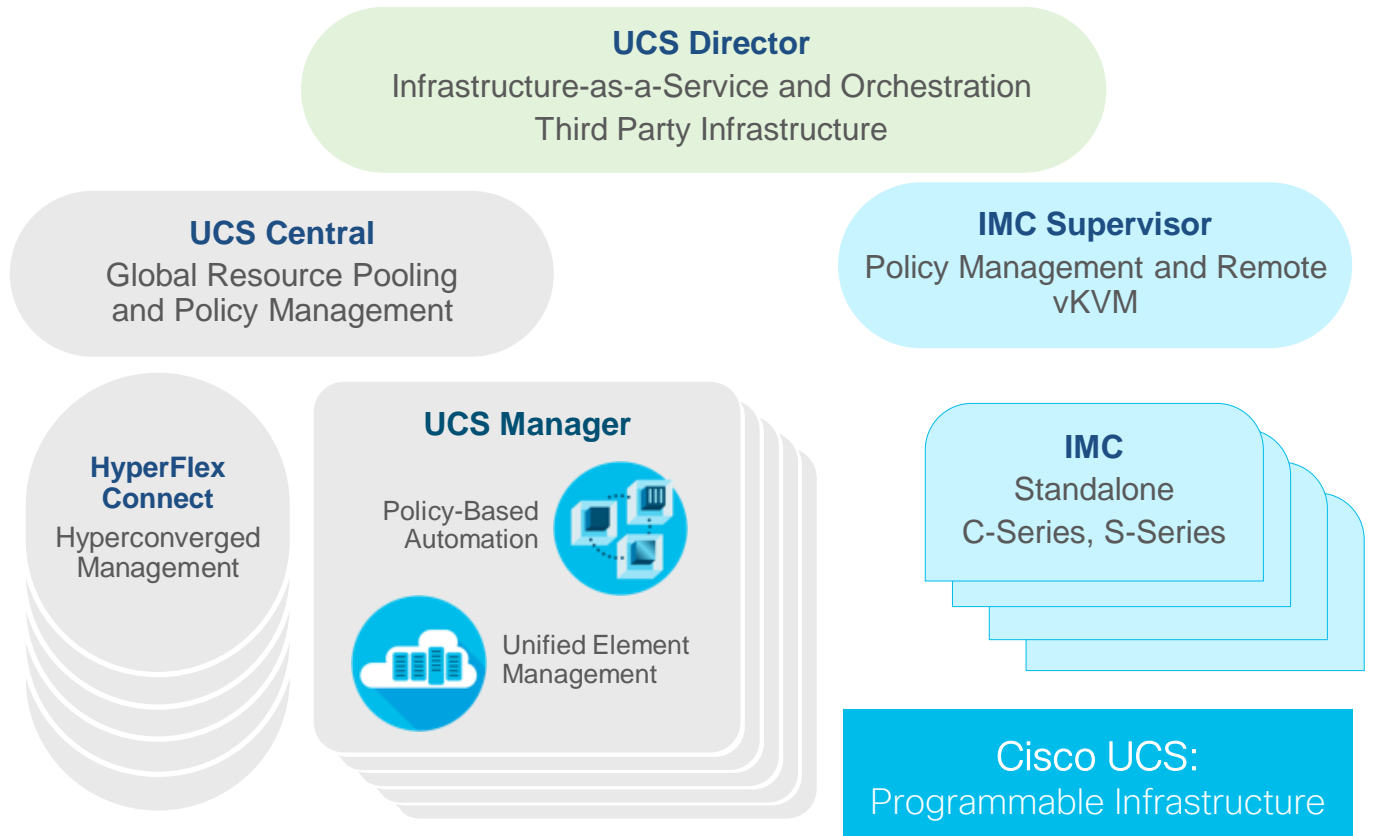
Cisco Intersight Core Features and Functionality

Familiar Capabilities from IMCS

Cisco Intersight Enhanced Functionality



- Platform Hardware Inventory
- Hardware Health Status
- vKVM Launcher (Incl. vMedia)
- Firmware Inventory + Management
- Call-Home (Email Alerting)
- Cisco Smart Call Home
- Policy/Profile Based Framework
- **C-Series + HX Standalone Only**



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

| Name | Status | Server | Server Health | Last Update |
|---------------------|--------------|------------------|---------------|-----------------------|
| SP-C220-WZP22040093 | 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 |
| hghgv | Not Assigned | | | Nov 2, 2019 8:36 PM |
| SP-East | Not Assigned | | | Oct 25, 2019 12:20 PM |
| SP-TestB14 | 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)

Preview flow (Assisted Using SCU)

The screenshot shows the Cisco Intersight Software Repository interface. The left sidebar contains navigation options: Dashboards, Servers, HyperFlex Clusters, Fabric Interconnects, Service Profiles, Policies, Devices, and Software Repository. The main content area is titled 'Software Repository' and includes a notification banner for new features, tabs for 'Operating Systems Images' and 'Server Configuration Utilities', a warning banner for a feature preview, and a table of OS images. A table with columns for Name and Vendor is visible, listing 'TME CentOS' and 'OSI Demo CentOS7'.

| Name | Vendor |
|------------------|--------|
| TME CentOS | CentOS |
| OSI Demo CentOS7 | CentOS |

1) Browse to Software Repository

2) Upload SCU

3) Input OS Media meta-data (on-prem details, CIFS, NFS, HTTP(s))

Preview flow (Embedded)

The screenshot displays the Cisco Intersight Software Repository interface. On the left is a dark sidebar with a menu containing: Dashboards, Servers, HyperFlex Clusters, Fabric Interconnects, Service Profiles, Policies, Devices, and Software Repository (highlighted with a blue bar). The main content area is titled 'Software Repository' and features a light blue notification banner at the top: 'New features have recently been added! Learn More'. Below this are two tabs: 'Operating Systems Images' (active) and 'Server Configuration Utilities'. A brown warning banner reads: 'This is a feature preview for testing and feedback purposes only'. Underneath is a search bar with a magnifying glass icon and a search input field. A table lists OS images with columns for Name and Vendor. The table contains three rows: a header row with 'Name' and 'Vendor', a row for 'TME CentOS' with 'CentOS' as the vendor, and a row for 'OSI Demo CentOS7' with 'CentOS' as the vendor. Each row has a checkbox on the left. Green arrows indicate the flow: one points from the 'Software Repository' menu item to the main content area, and another points from the 'Operating Systems Images' tab to the table.

| | Name | Vendor |
|--------------------------|------------------|--------|
| <input type="checkbox"/> | TME CentOS | CentOS |
| <input type="checkbox"/> | OSI Demo CentOS7 | CentOS |

1) Browse to Software Repository

2) Input OS Media meta-data (on-prem details, CIFS, NFS, HTTP(s))

Initiating the OS Install from Server Actions

The screenshot displays a server management dashboard for a Cisco UCSC-C220-M5SX server. The interface includes a top navigation bar with user information (Christopher Atkinson) and system status (1439 alerts, 398 warnings). The main content area is divided into several sections:

- Properties:** Shows the server model (Cisco UCSC-C220-M5SX) and a front view image of the server. Below the image are controls for Power (On), Locator LED (Off), and Health Overlay (On).
- Alarms:** Lists active alarms, including 'UCS-F120 Flex Flash replace' and 'UCS-F120 Flex Flash please check'.
- Specifications Table:** A table listing hardware details for the server.
- Actions Menu:** A dropdown menu is open, showing various server actions. The 'Install Operating System' option is highlighted with a yellow 'PREVIEW' badge.

| Property | Value | Property | Value |
|----------------------|-------|----------------|--------------------------------------|
| CPU | 1 | ID | 1 |
| Threads | 6 | Adapters | 1 |
| CPU Cores | 6 | NIC Interfaces | 2 |
| CPU Cores Enabled | 6 | HBA Interfaces | 2 |
| Memory Capacity (GB) | 8.0 | UUID | 71870185-BA97-4124-B541-0A7C4BC8FF82 |
| CPU Capacity (GHz) | 10.2 | | |

Intersight Orchestration and UCS Director

Intersight Orchestration

Native Intersight Orchestration features including

- Pure Storage Orchestration
- VMware vCenter Orchestration
- Additional 3rd party integrations as they become available
- Compute Orchestration when available

Intersight Workflow Designer (all task view)

The screenshot displays the Intersight Workflow Designer interface. The browser address bar shows the URL `intersight.com/an/workflow/workflow-definitions/new/`. The interface is divided into several sections:

- Left Sidebar:** A navigation menu with categories like Dashboards, Servers, Chassis, HyperFlex Clusters, Fabric Interconnects, Storage, Virtualization, Profiles, Policies, **Orchestration** (highlighted), Solutions, Administration, Devices, UCS Director, and Software Repository.
- Task List:** A central panel listing various tasks under 'Storage' and 'Virtualization' categories. The 'Storage' tasks include actions like 'Add Host to Storage Host Group', 'Connect Volume to Storage Host', and 'Expand Storage Volume'. The 'Virtualization' tasks include 'Confirm OVA Installation', 'Deploy Virtual Machine from OVF', and 'New Hypervisor Cluster'.
- Workflow Canvas:** A central workspace showing a workflow diagram. It starts with a 'Start' node, followed by a task node 'Add Host to Storage Host Group' (highlighted with a yellow box). Below this task are two nodes labeled 'Completed' and 'Failed', connected by dashed lines.
- Right Panel:** A 'Workflow Properties' panel with tabs for 'General', 'Inputs', and 'Outputs'. It contains fields for 'Organization', 'Workflow Name', 'Description', and 'Version'.
- Bottom:** A 'Close Designer' button on the left and 'Save to validate workflow' and 'Save Workflow' buttons on the right.

Intersight Storage Orchestration

The screenshot displays the Cisco Intersight interface for Storage Orchestration. On the left, a navigation sidebar lists various components, with 'Orchestration' selected. A table lists several orchestration tasks, with 'New VMFS Datastore' highlighted by a green box. The main area shows a workflow designer for 'New VMFS Datastore' with the following steps:

- Start
- New Storage Volume (NewStorageVolume)
- Connect Volume to Storage Host (ConnectVolumeToStorageHost)
- Connect Volume to Storage Host Group (ConnectVolumeToStorageHostGroup)
- New VMFS Datastore (NewVMFSDatastore)
- Completed
- Failed

The 'JSON View' on the right shows the configuration for the 'Storage Device' step:

```
1 {
2   "AccountMoid": "5c4a74693935687776d94f98",
3   "Ancestors": [],
4   "Catalog": {
5     "Moid": "5c81e342696f6e2d309e5ddd",
6     "ObjectType": "workflow.Catalog",
7     "link": "https://www.intersight.com/api/v1/workflow/Catalogs/5c81e342696f6e2d309e5ddd",
8   },
9   "CreateTime": "2019-07-12T00:30:43.186Z",
10  "DefaultVersion": true,
11  "Description": "Create a storage volume and build VMFS datastore on the volume",
12  "DomainGroupMoid": "5c4a74693935687776d94f99",
13  "InputDefinition": [
14    {
15      "Default": null,
16      "Description": "Storage device for this workflow execution.",
17      "Label": "Storage Device",
18      "Name": "StorageDevice",
19      "ObjectType": "workflow.TargetDataType",
20      "Properties": [
21        {
22          "DisplayAttributes": [
23            "DeviceHostname",
24            "Vendor"
25          ],
26          "ObjectType": "workflow.MoReferenceProperty",
27          "Selector": "/api/v1/asset/DeviceRegistrations?$filter=PlatformType eq 'VMware ESX'",
28        }
29      ]
30    }
31  ]
32 }
```

HyperFlex Usability & Mgmt Enhancements

HyperFlex Capacity Forecasting and Trending

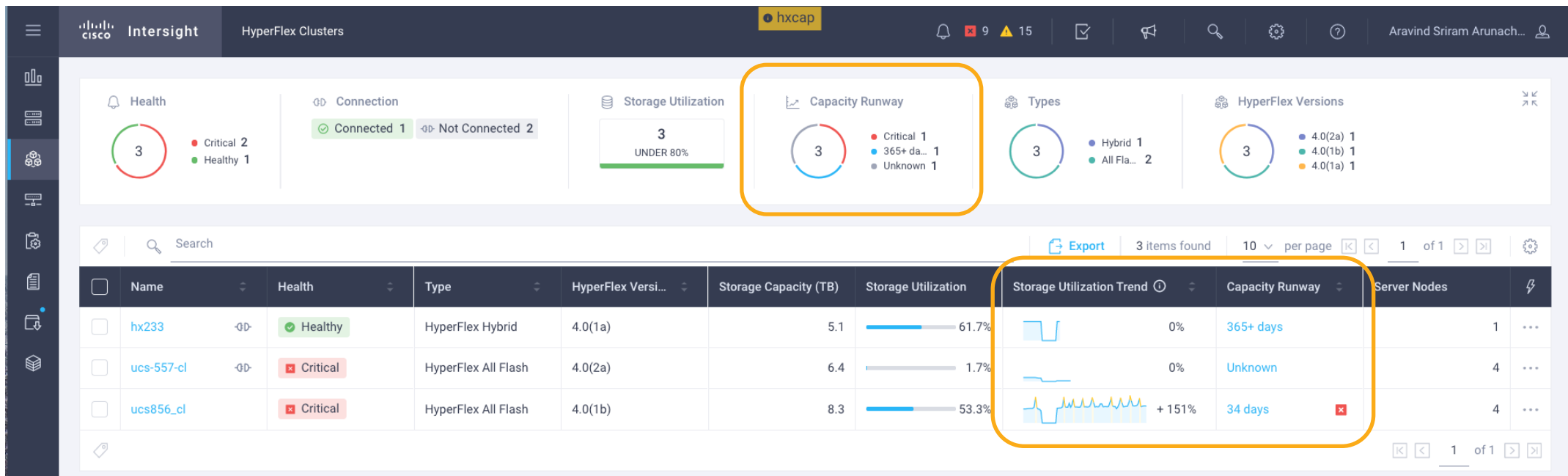
Storage Capacity Forecast and Trending

- 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



HyperFlex Proactive Health Monitoring

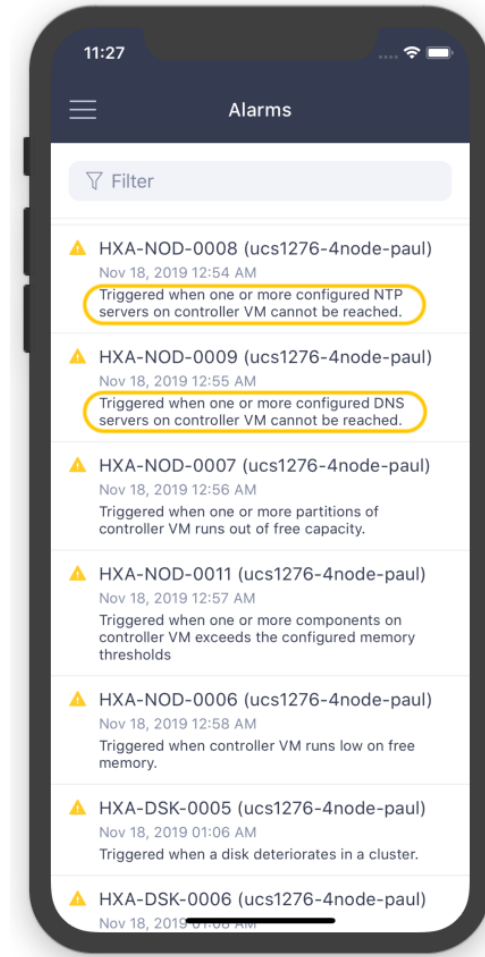
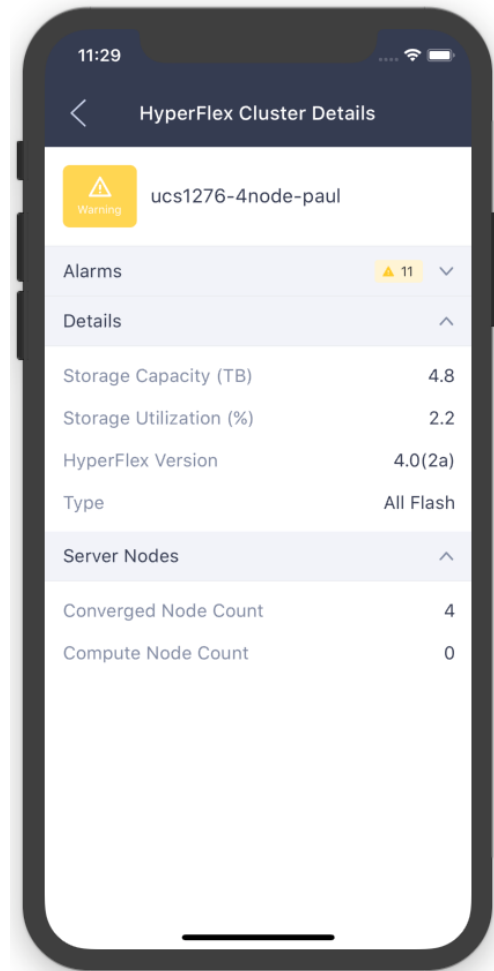
Proactive Health Monitoring

- 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

| Severity | Source | Description | Time | Acknowledged | Acknowledged By |
|----------|---|--|------------------------------|--------------|-----------------|
| Warning | Type:HDD- SN:6000c294461a668335e577913a4c6e7d- Slot:0.0.7- Host:SpringpathController1IQ5U57I3T | Disk health has deteriorated. SSD with UUID: 6000c294461a668335e577913a4c6e7d and S/N: 6000c294461a668335e577913a4c6e7d on host SpringpathController1IQ5U57I3T (10.198.47.250) has 0% remaining life. SSD must be replaced. Disk Information - Serial Number: 6000c294461a668335e577913a4c6e7d Model Number: Virtual_disk Disk Type: HDD Slot Number: 0.0.7 Host Uuid: 564DDFAF-8DA5-9D9E-4748-69F1B3700734 Host: SpringpathController1IQ5U57I3T | 11/17/2019 1:00:11 AM | | |
| Warning | 10.198.47.248 | One or more components reset on HX Controller VM 10.198.47.248 due to memory pressure | 11/14/2019 11:22:53 PM | | |
| Warning | 10.198.47.248 | HX controller VM 10.198.47.248 low on free memory | 11/14/2019 11:22:11 PM | | |
| Warning | 10.198.47.252 | Not enough free capacity on one or more partitions of HX controller VM 10.198.47.252 | 11/14/2019 11:20:11 PM | | |
| Warning | 10.198.47.252 | One or more NTP servers configured on HX controller VM 10.198.47.252 not responding | 11/14/2019 11:18:27 PM | | |
| Warning | 10.198.47.250 | One or more DNS servers configured on HX controller VM 10.198.47.250 not responding | 11/14/2019 11:16:17 PM | | |

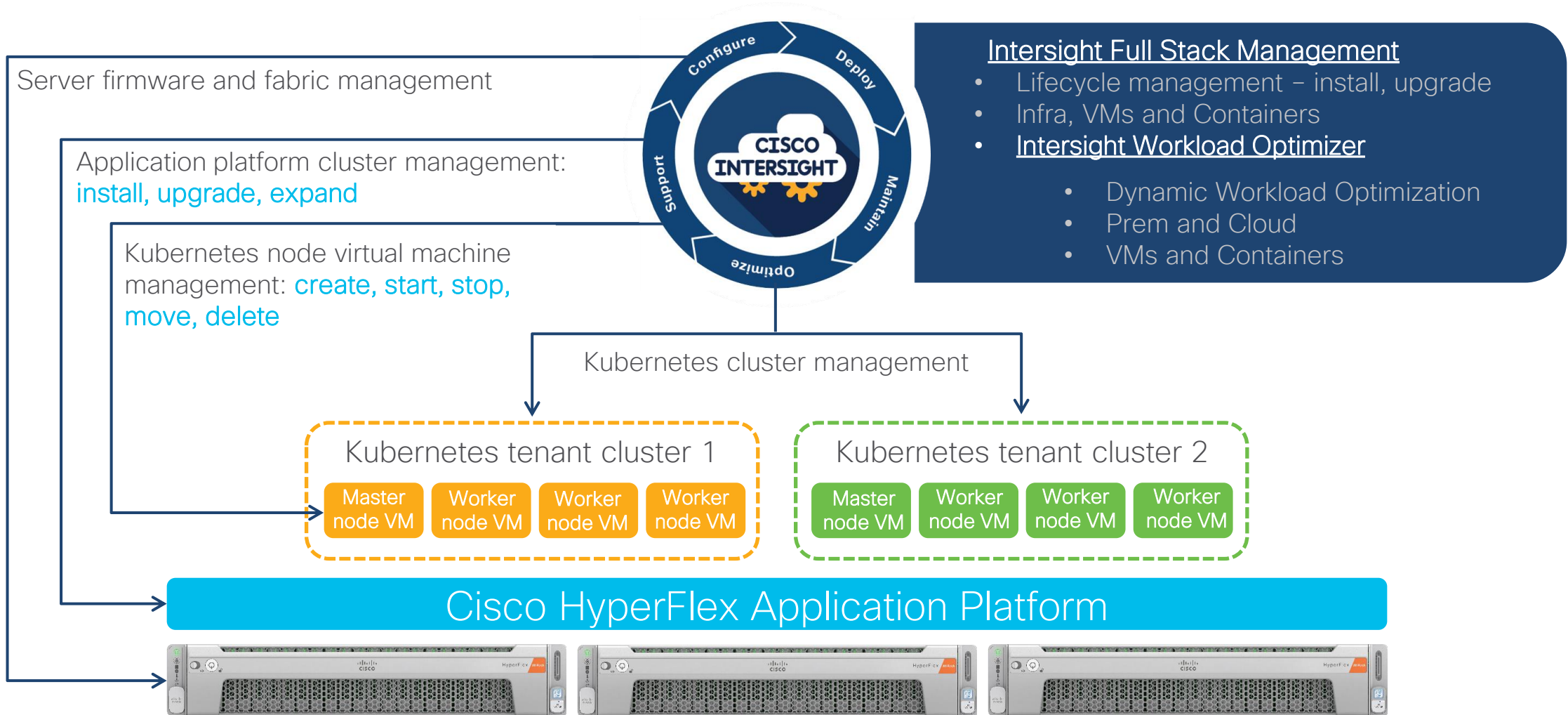
Proactive Health Monitoring





Cisco HyperFlex AP and Intersight Workload Optimizer

Intersight Cloud Based Management for HyperFlex Application Platform



Expanded Intersight capabilities with Intersight Workload Optimizer

Single Interface / Single API

The screenshot displays the Intersight Workload Optimizer interface. A central callout box highlights the 'Intersight Workload Optimizer (Application Resource Management)' section. The interface includes a sidebar with navigation options like Dashboards, Inventory, Configure, and Workload Optimizer. The main content area shows a dashboard with several key metrics: Storage Health Summary (44 Alerts, 34 Alerts, 63 Alerts), Hypervisor Cluster Health Summary (4 Alerts, 4 Alerts), and Workload Optimizer Recommendations Summary (8 Recommendations, 50 Hosts Limited, 3 Hosts Not Limited). Other metrics include Storage Services (141 Alerts), Hypervisor Cluster Inventory (8 Alerts), and Power Cost Savings (\$32,400). A bar chart at the bottom shows metrics over time from 12:00 PM to 12:00 PM.

The screenshot displays the AppDynamics interface, which is used for Application Performance Management. It features a central callout box labeled 'AppDynamics (Application Performance Mgt)'. The interface includes a sidebar with navigation options like Home, Reports, and Settings. The main content area shows a dashboard with a central flow diagram and various performance metrics and charts.

Integration with AppD for even deeper app insights

Intersight Workload Optimizer



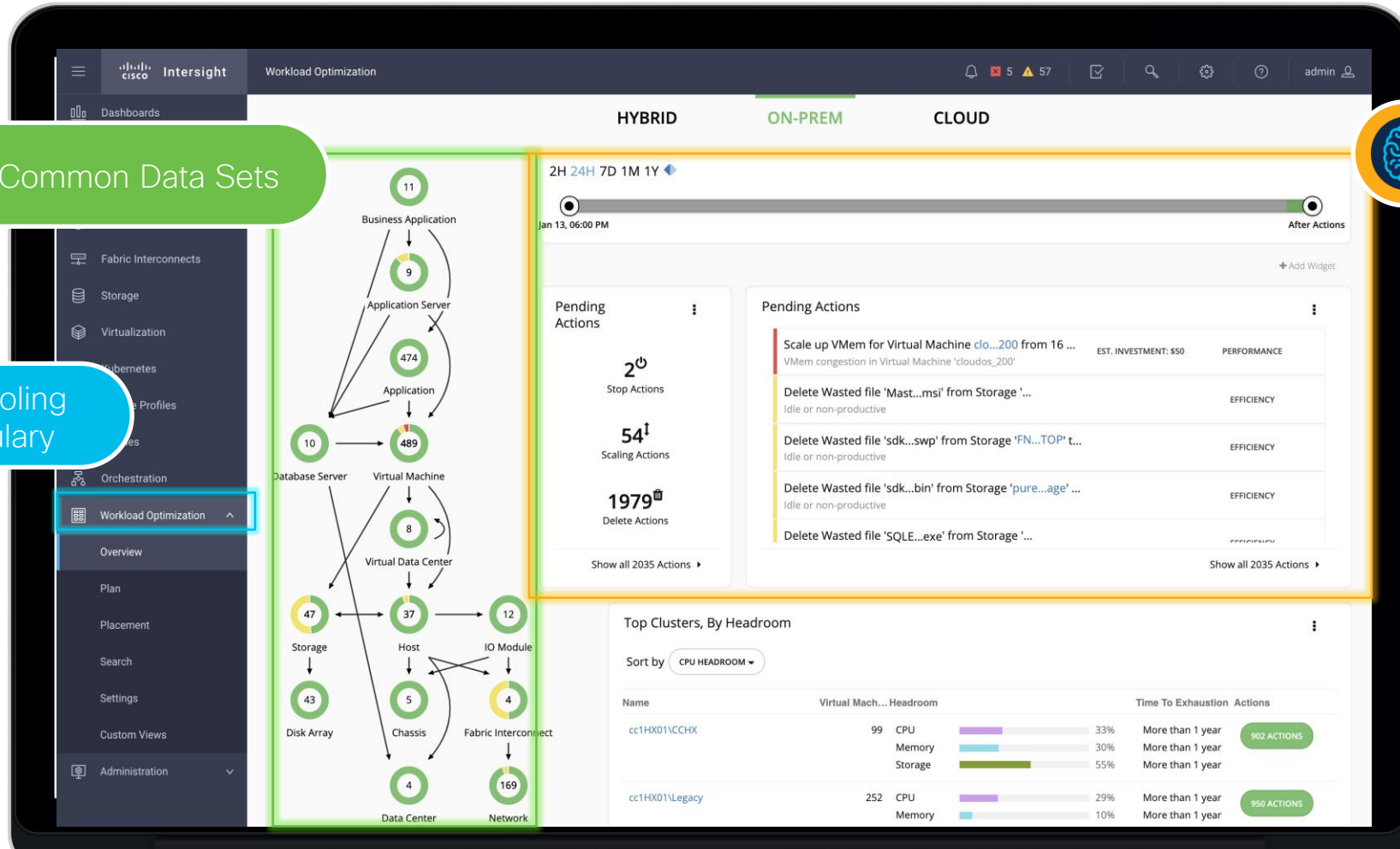
Common Data Sets



Common Tooling and Vocabulary



Machine Intelligence





Thank you