

# Cisco and VMware: Integrated Management Solutions for the Virtualized Data Center

March 2014

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## Introduction

Virtualization has helped to alleviate the pressure on IT departments to do more with less by allowing them to deploy more applications and scale existing ones with greater efficiency and speed. The primary benefit of virtualization is the improved utilization of resources through consolidation of multiple servers into a single server..

Cisco and VMware have an extensive track record of collaboration and joint innovation in the virtualized data center, and this partnership has resulted in a differentiated solution designed to deliver an agile and scalable virtual and physical architecture, providing superior manageability, security, performance, business agility, and cost savings. The cornerstone of this platform is an industry-leading data center infrastructure founded on the Cisco Unified Computing System™ (Cisco UCS®) and VMware vSphere.

### Cisco Unified Computing System

Cisco UCS is the fastest growth data center computing solution that unifies computing, networking, management, storage access, and virtualization resources into a cohesive system, that reduces cost, and eliminates error-prone redundant tasks now automated through a stateless operations model. By bringing together the data center silos into a single unified system, Cisco UCS reduces total cost of ownership (TCO) and increases business agility. Industry-leading virtual infrastructure management has proven these benefits, and its widespread adoption has demonstrated that data center teams are ready to adopt this unified architecture.

The unified management capabilities provided by Cisco UCS Manager, integrated into Cisco UCS, offers administrators flexibility and simplicity in the management of physical infrastructure similar to that of the virtual infrastructure. Cisco UCS applies familiar, critical virtualization concepts such as templates, policies, and stateless computing to the physical infrastructure. The result is a model-based management system that simplifies and automates administration, accelerates deployment and scaling, and reduces the likelihood of configuration errors that can cause downtime and long troubleshooting efforts in physical network, computing, and storage infrastructure.

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## VMware vSphere

VMware vSphere is the industry-leading virtualization platform for building cloud infrastructure. It enables IT to meet service-level agreements (SLAs) for the most demanding business-critical applications with lower TCO. VMware vSphere accelerates the shift to cloud computing for existing data centers and also supports compatible public cloud offerings, forming the foundation for the industry's only hybrid cloud model, making VMware vSphere a trusted platform for any application.

The latest release, VMware vSphere 5.5, introduces many new features and enhancements to extend the core capabilities of the VMware vSphere platform, including

- **VMware ESXi hypervisor enhancements:** Hot-pluggable SSD PCI Express (PCIe) devices, support for VMware Reliable Memory Technology, and enhancements for CPU C-states
- **Virtual machine enhancements:** Virtual machine compatibility with VMware ESXi 5.5, extended graphics processing unit (GPU) support, and graphics acceleration for Linux guests
- **Virtual VMware vCenter server enhancements:** VMware vCenter Single Sign-On (SSO) and VMware vSphere Web Client, Server Appliance, App High Availability (HA), High Availability (HA), Distributed Resource Scheduler (DRS), and Big Data Extensions)
- **VMware vSphere storage enhancements:** Support for 62 terabytes (TB) of VMware Virtual Machine Disk (VMDK) storage, Microsoft Cluster Server (MSCS) updates, 16-GB end-to-end support, and VMware vSphere flash-memory read cache and replication multipoint-in-time-snapshot retention
- **VMware vSphere networking enhancements:** Lightweight Access Control Protocol (LACP) enhancements, traffic filtering, quality-of-service (QoS) tagging, single root I/O virtualization (SR-IOV) enhancements, enhanced host-level packet capture, and 40-GB network interface card (NIC) support

## Bridging the Gap Between Virtual and Physical

As organizations embrace higher rates of virtualization, and expand their data center footprint, the management of scalable virtualized infrastructure becomes a growing challenge requiring new tools and approaches.

Although virtualization has provided great benefits in infrastructure flexibility, IT departments have discovered that the management bottleneck has shifted and operational gaps between virtual and physical now limit the efficiency of the entire solution. These domains traditionally managed in isolation of each other must now be unified within a common platform and a single pane of glass. This necessitates deeper management interworking between hypervisor and data center compute fabric with a stronger focus on automation, orchestration and simplified interworking between physical and virtual management environments.

As leaders in data center virtualization and management, VMware and Cisco understand these requirements and have invested in delivering the management platform integration required to address the requirements of today's dynamic data center.

This document discusses the solutions provided by Cisco and VMware to integrate Cisco UCS, VMware vSphere, and the VMware management portfolio. These integration solutions simplify the administration of the combined physical and virtual infrastructure, making the two environments equally easy to manage, ultimately delivering transparent administration across the complete infrastructure.

This document explores the joint integration solutions, including deployment of the VMware vSphere platform on Cisco UCS, and the use of joint cloud management integration to provide ease of management.

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## VMware vSphere Auto Deploy with Cisco UCS Service Profiles

The VMware vSphere Auto Deploy feature was introduced in VMware vSphere 5.0. It allows rapid deployment and configuration of a large number of VMware vSphere hosts by enabling the network (using a dynamic Preboot Execution Environment [gPXE] implementation) to boot the hypervisor and use a rule-based mechanism to configure the hosts at boot time. With Auto Deploy, the server PXE boots over the network and is connected to an Auto deploy server, a deployment rule defines the hypervisor configuration, and the VMware vSphere host software is provisioned directly in the host's memory. After the software has been installed on the host, it is connected to the VMware vCenter server and is configured using a host profile.

The use of Auto Deploy to provision VMware vSphere hosts on Cisco UCS servers provides a rapid, simplified, and cost-effective means of deploying new hypervisors, whether to deploy a large number of physical hosts in a short amount of time or to enable on-demand hypervisor deployment to keep up with resource consumption. In a Cisco UCS operating environment, multiple VMware vSphere servers can be deployed with a single click, by linking Cisco UCS configuration attributes to host profiles. By linking the virtual and physical infrastructure configuration attributes through Auto Deploy rules, the process of deploying multiple VMware vSphere servers can be automated, preventing human errors and deploying servers in a policy-complaint manner. The result is a dramatic savings in time and reduced potential for manual errors.

The following Cisco UCS attributes are made available to the Auto Deploy host profile by means of **oemstring** patterns:

**\$\$SPI** (service profile instance): Name of the Cisco UCS service profile

**\$\$SPT** (service profile template): Name of the Cisco UCS service profile template used to create service profile instances

**\$\$SYS** (system): Name of the physical blade or server associated with the service profile

Figure 1 shows the Cisco UCS **oemstring** patterns as part of the host profile, and Figure 2 shows a Cisco UCS blade booted with Auto Deploy.

Figure 1. Auto Deploy Host Profile with Cisco UCS Service Profile Strings

The screenshot shows a web browser window with the following content:

**Commands**

- Get iPXE Configuration
- Get boot.cfg

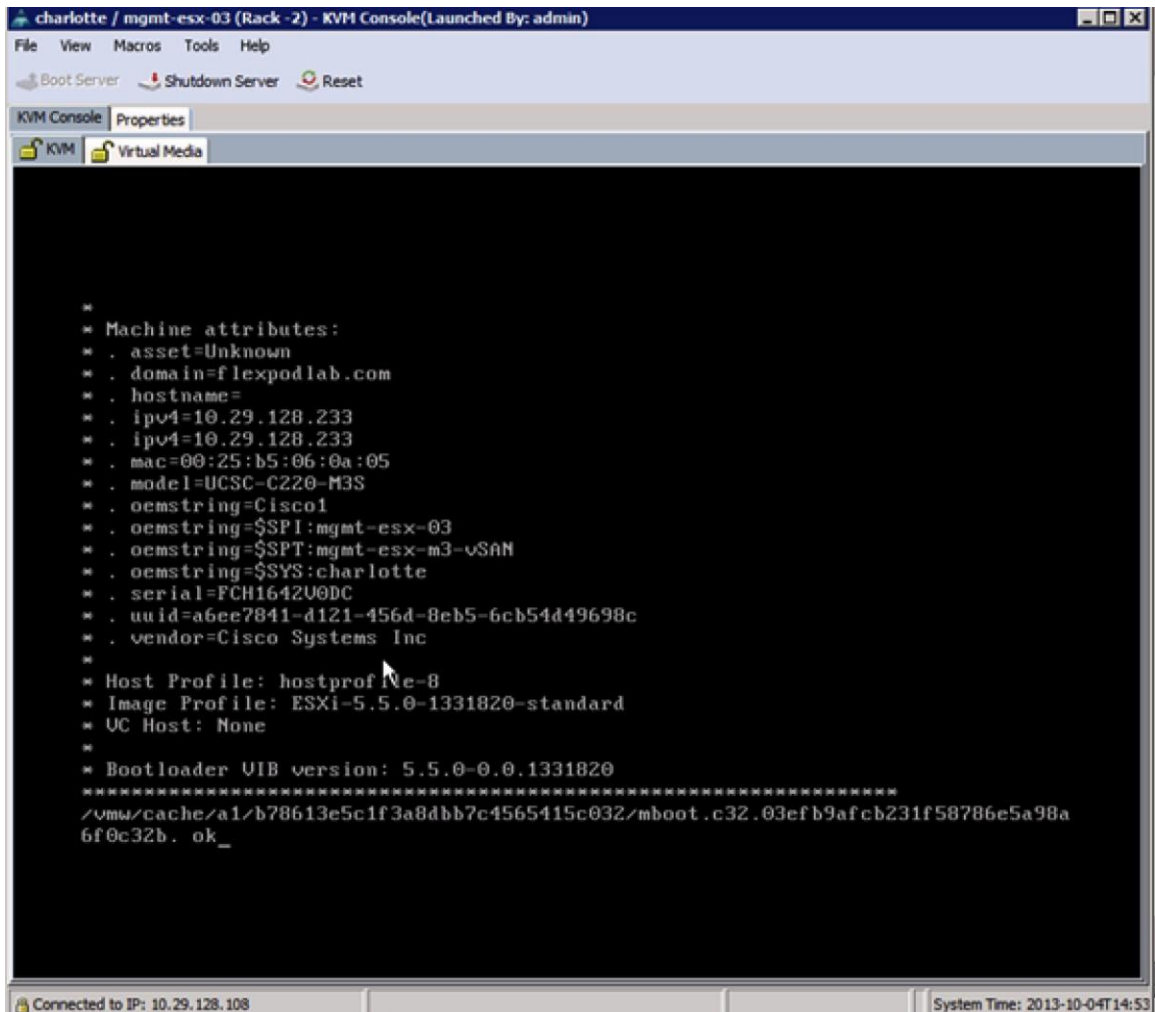
**Waiter Stats**

First seen:	2013-09-27 20:00:30
Last seen:	2013-10-04 18:27:16
VC ID:	None

**Attributes**

initiator-qn:	
domain:	flexpodlab.com
retry-delay:	20
busid:	01:11:37:00:43
ticks:	1209749/18
dhcp-server:	10.29.128.206
serial:	FCH1642V0DC
enable-watchdog:	
gateway:	10.29.128.1
skip-san-boot:	
uuid:	e8ee9788-be79-11e2-6000-000000000003
keep-san:	
hostname:	
cpuid-80000001:	ecc:0x00000001;edx:0x2c100000
filename:	https://mgmt-vc.flexpodlab.com:6501/vmw/rbd/tramp
priority:	
ipv4:	10.29.128.233
next-server:	10.29.128.190
build:	[build vmw-756170]
root-path:	
vendor:	Cisco Systems Inc
dns:	10.29.128.206
oemstring:	Cisco1
oemstring:	\$SPI:mgmt-esx-03
oemstring:	\$SPT:mgmt-esx-m3-vSAN
oemstring:	\$SYS:charlotte
pcid:	8086:3C2C
pcid:	8086:3C2A
pcid:	8086:3C28
pcid:	8086:3C08
pcid:	8086:3C02
pcid:	8086:3C45
pcid:	8086:3C44

Figure 2. Cisco Blade Booted Using Auto Deploy



With VMware vSphere 5.1, Auto Deploy supports three operating modes: stateless, stateless caching, and stateful installation. The Auto Deploy stateless mode relies on the PXE boot infrastructure and Auto Deploy server to boot the hosts. In this mode, if the PXE boot fails, or if the Auto Deploy server is unavailable, the host will not be able to boot until the outage is corrected. The stateless caching mode helps address these availability concerns, so that if a host cannot boot due to a problem with the PXE environment or Auto Deploy server, it can fall back to bootup from a cached image saved to a dedicated boot device (local disk, SAN, or USB). With Cisco UCS, this caching can be performed on NetApp FlexCache storage, which is mirrored Secure Digital (SD)-based local flash-memory storage supported for Cisco UCS blade and rack servers. NetApp FlexFlash and its mirroring capability are disabled by default in Cisco UCS servers. These features can be enabled in a local disk policy used in a service profile, as shown in the local disk policy configuration in Figures 3 and 4.

Figure 3. Local Disk Policy

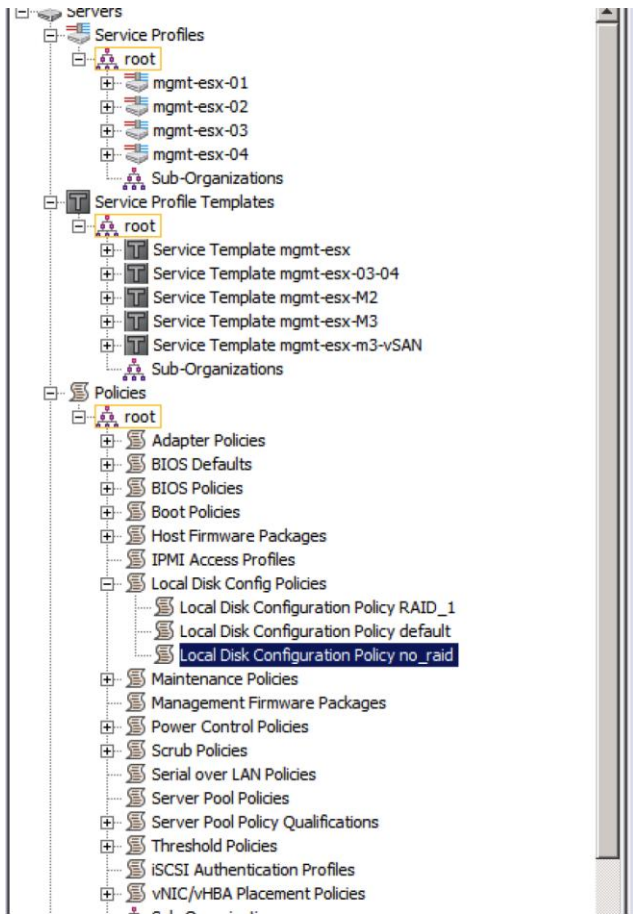
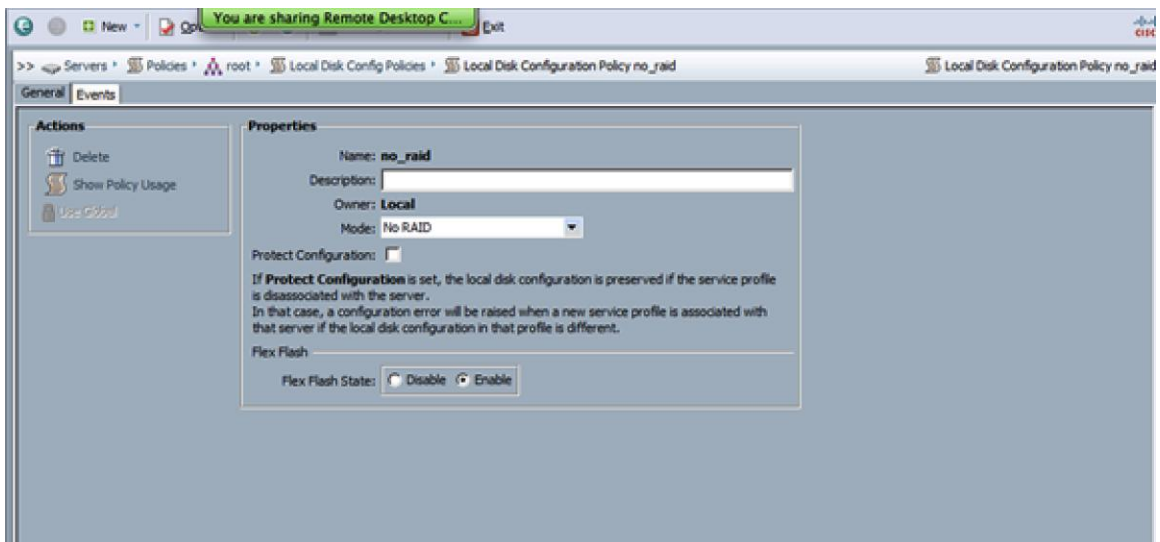


Figure 4. FLExFlash State Enabled





## Cisco UCS Manager Integration with VMware

To provide customers with management and operation efficiency, the plug-ins and content packs described here are available to address a variety of use cases.

### Cisco UCS Manager Plug-in for VMware vCenter

VMware vCenter Server provides a centralized platform for managing VMware vSphere environments, providing centralized management of virtualized hosts and virtual machines from a single console. VMware vCenter Server also enables critical VMware vSphere capabilities such as VMware vSphere vMotion, DRS, HA, and Fault Tolerance (FT). VMware vCenter Server is an extensible platform with an open plug-in architecture supporting a broad range of additional capabilities from VMware and its partners, providing comprehensive capacity management, compliance management, business continuity, and storage monitoring for the virtual and physical infrastructure combined. The VMware vCenter Server APIs allow integration of physical and virtual management tools for greater flexibility. Cisco uses this plug-in capability to enable VMware vCenter Server to be the central point of management for both the virtual and the physical infrastructure.

The Cisco UCS Manager plug-in for VMware vCenter is designed for VMware vSphere Web Client 5.1 and later and provides a single pane for VMware vCenter users to get both virtual and physical infrastructure information.

The first step is to register the Cisco UCS plug-in with VMware vCenter. The registration tool is available at the [Cisco Communities website](#) (Figure 5).

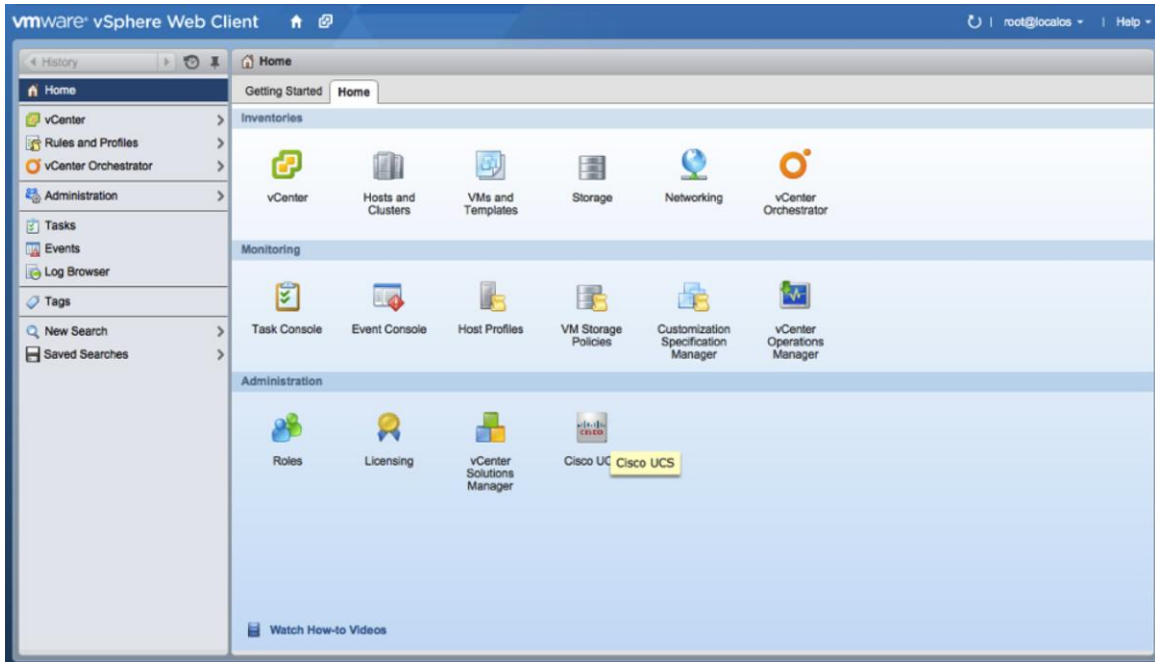
**Figure 5.** Cisco UCS Plug-in for VMware vCenter Registration Tool

The screenshot shows a Windows-style application window titled "Cisco UCS Plugin Registration Tool v0.9.3". The window contains the following elements:

- Title Bar:** Cisco UCS Plugin Registration Tool v0.9.3
- Header:** This tool registers/unregisters the Cisco UCS vCenter Plugin for VMware vSphere Web Client 5.1. A Cisco logo is visible in the top right corner.
- Action:** Two radio buttons are present: "Register Plugin" (selected) and "Unregister Plugin".
- vCenter Details:** Three text input fields: "IP/Hostname" (elmo-vc.flexpodlab.com), "Username" (root), and "Password" (masked with asterisks).
- Plugin Location:** Two radio buttons: "Use Plugin at Cisco Developer Network (developer.cisco.com)" and "Enter Plugin URL" (selected). Below the second radio button is a text input field containing the file path: file:///C:/Users/.../Downloads/Cisco/UCS\_plugin\_for\_vSphere\_Web\_Client/0.9.3/ucs-wcplugin-0.9.3.zip.
- Buttons:** "Submit" and "Cancel" buttons are located at the bottom right of the window.

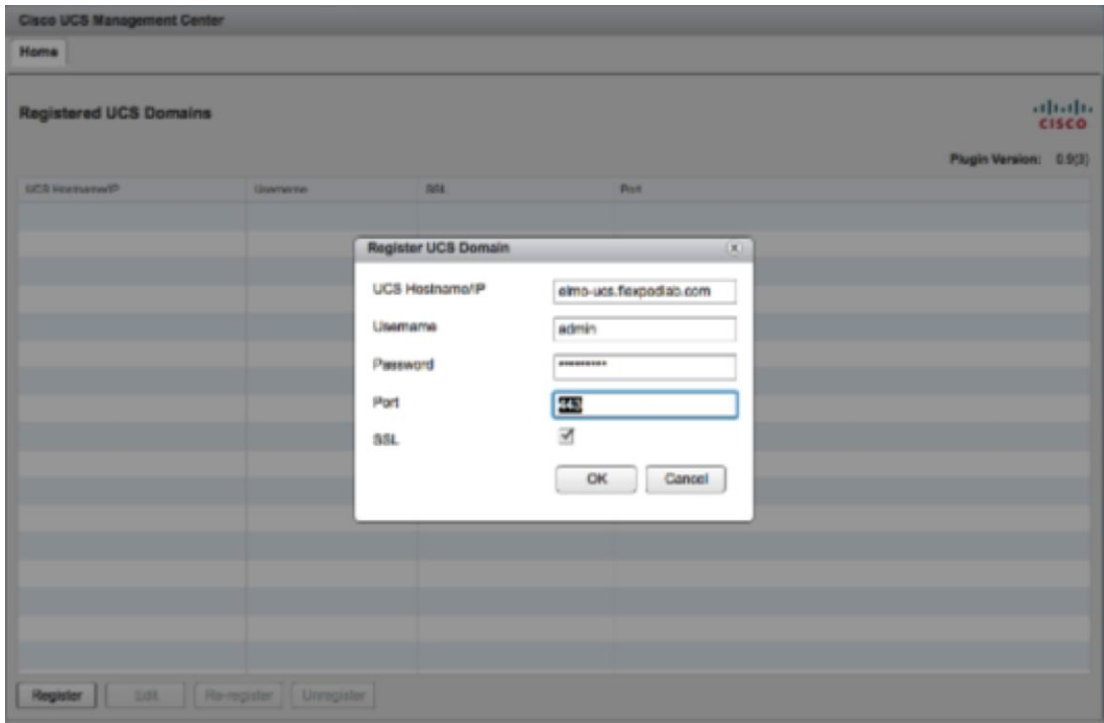
After the plug-in is registered, it will be available on the VMware vCenter homepage (Figure 6).

**Figure 6.** Cisco UCS Plug-in on the VMware vCenter Homepage



The next step is to register the Cisco UCS domain by providing the credentials (Figure 7).

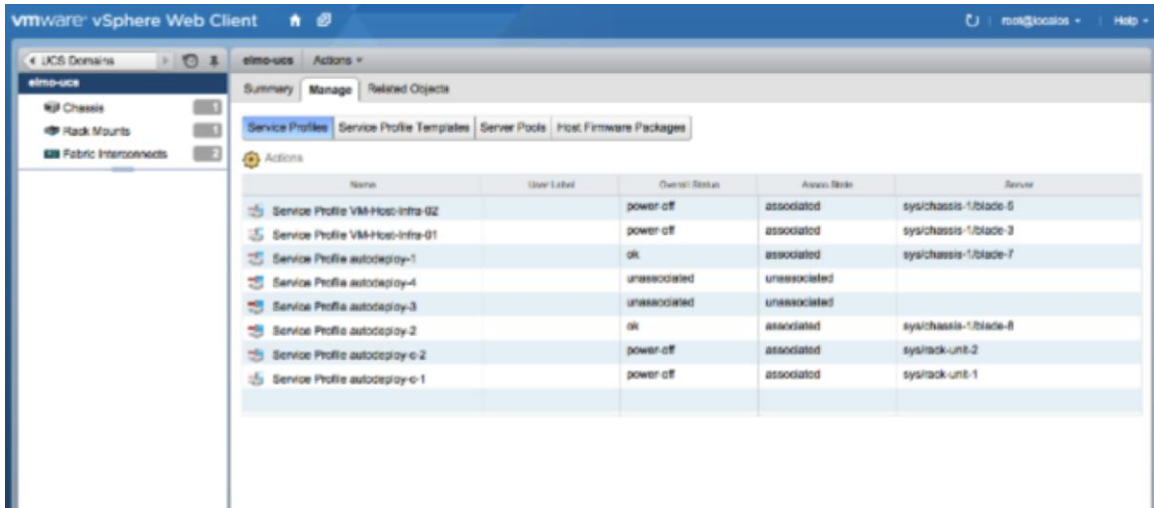
**Figure 7.** Register the Cisco UCS Domain



The following Cisco UCS information is available as part of the plug-in upon registration:

- Correlation of VMware ESXi with Cisco UCS servers
- Chassis, rack-mount, and fabric interconnect information
- Service profile and service profile templates (Figure 8)
- Server pools and host firmware packages

**Figure 8.** Service Profiles Display



The screenshot shows the VMware vSphere Web Client interface for a Cisco UCS domain named 'elmo-ucs'. The left sidebar shows a tree view with 'elmo-ucs' selected, containing 'Chassis' (1), 'Rack Mounts' (1), and 'Fabric Interconnects' (2). The main content area has tabs for 'Service Profiles', 'Service Profile Templates', 'Server Pools', and 'Host Firmware Packages'. The 'Service Profiles' tab is active, displaying a table with the following data:

Name	User Label	Current Status	Assoc. Blade	Server
Service Profile VM-Host-Info-02		power off	associated	sys/chassis-1/blade-5
Service Profile VM-Host-Info-01		power off	associated	sys/chassis-1/blade-3
Service Profile auto deploy-1		ok	associated	sys/chassis-1/blade-7
Service Profile auto deploy-4		unassociated	unassociated	
Service Profile auto deploy-3		unassociated	unassociated	
Service Profile auto deploy-2		ok	associated	sys/chassis-1/blade-8
Service Profile auto deploy-e-2		power off	associated	sys/rack-unit-2
Service Profile auto deploy-e-1		power off	associated	sys/rack-unit-1

Several operations related to Cisco UCS can be performed through the plug-in, providing virtualization administrators with valuable insight into the Cisco UCS environment. Several examples are provided here.

## Deploy New VMware ESXi Servers Instantly

With Cisco UCS, applying a predefined service profile provisions the physical blade or rack server with all the required attributes. The plug-in automatically categorizes Cisco UCS servers as either VMware ESX and not VMware ESX servers and displays servers that have not already been assigned a configuration. Directly from the Cisco UCS plug-in for VMware vCenter, system administrators can associate a new service profile with a physical Cisco UCS server. This predefined service profile completely will configure the physical infrastructure, and used in conjunction with Auto Deploy, after a reboot the server will boot with VMware ESXi installed. The installation can use Auto deploy continuously, boot from SAN or local disk, or boot from NetApp FlexFlash, according to the design of the environment (Figures 9 and 10).

**Figure 9.** Choosing to Associate a Service Profile Using the Cisco UCS Plug-in

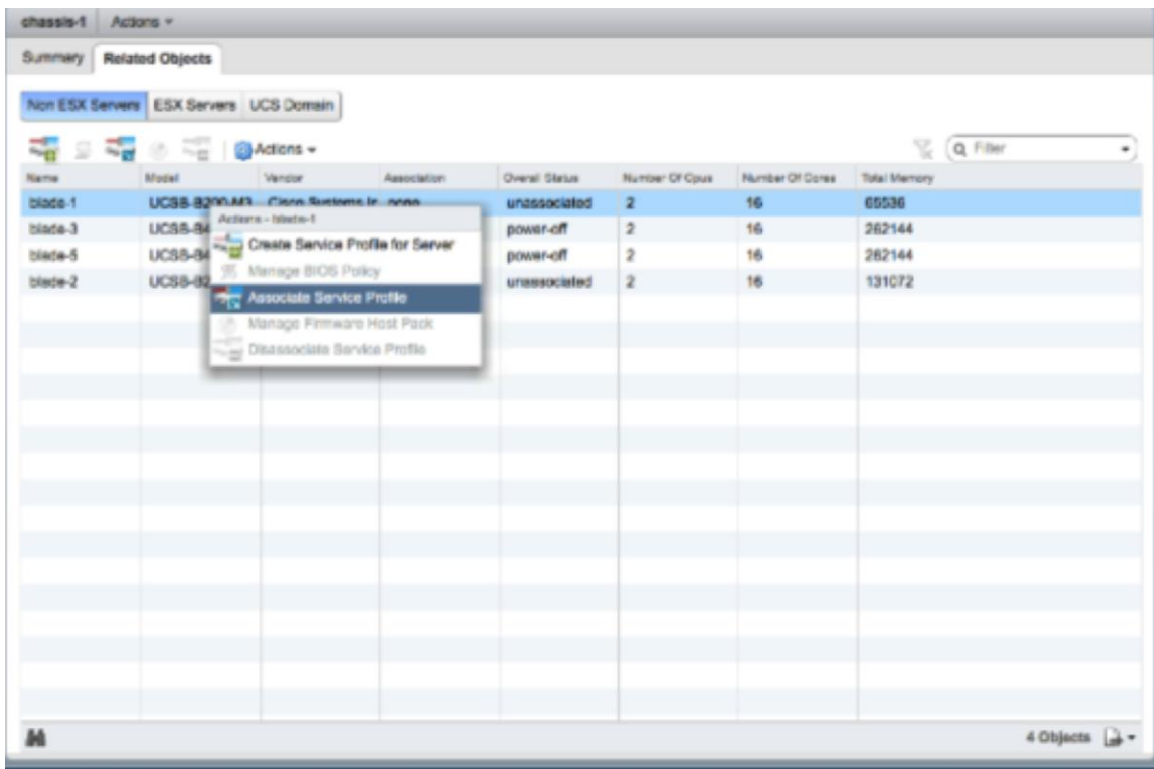
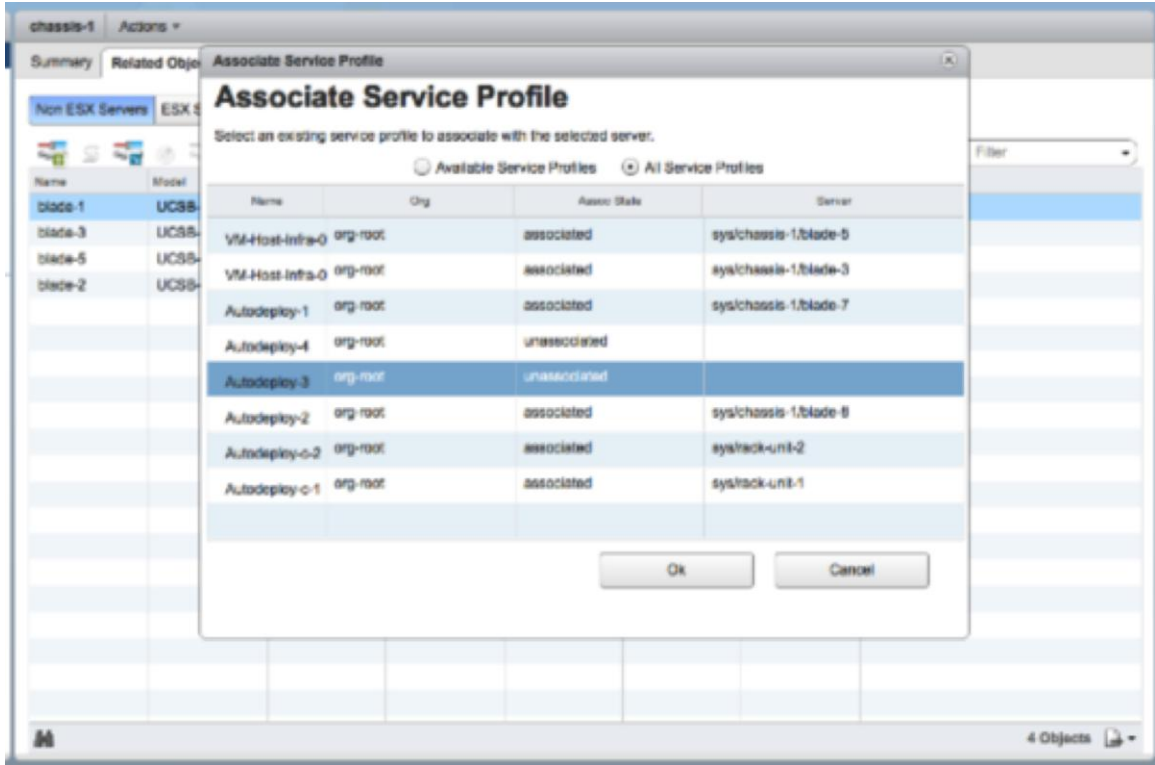


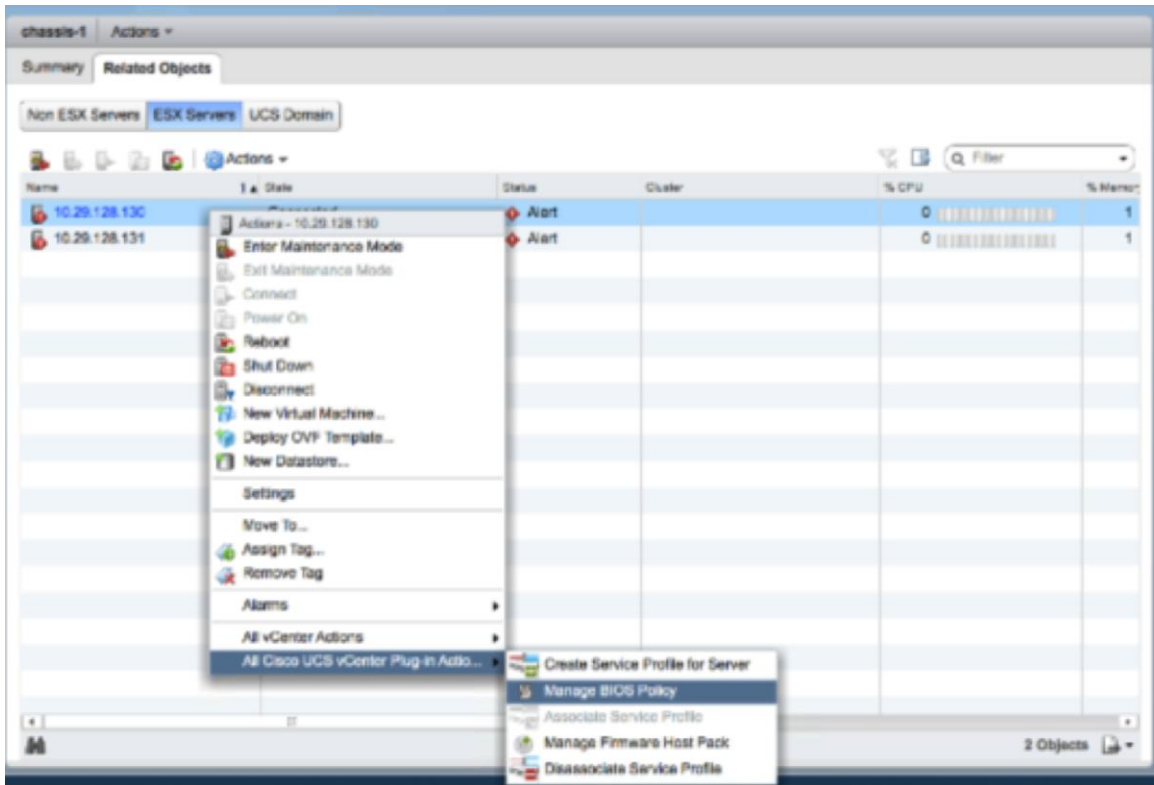
Figure 10. Associating a Service Profile Using the Cisco UCS Plug-in



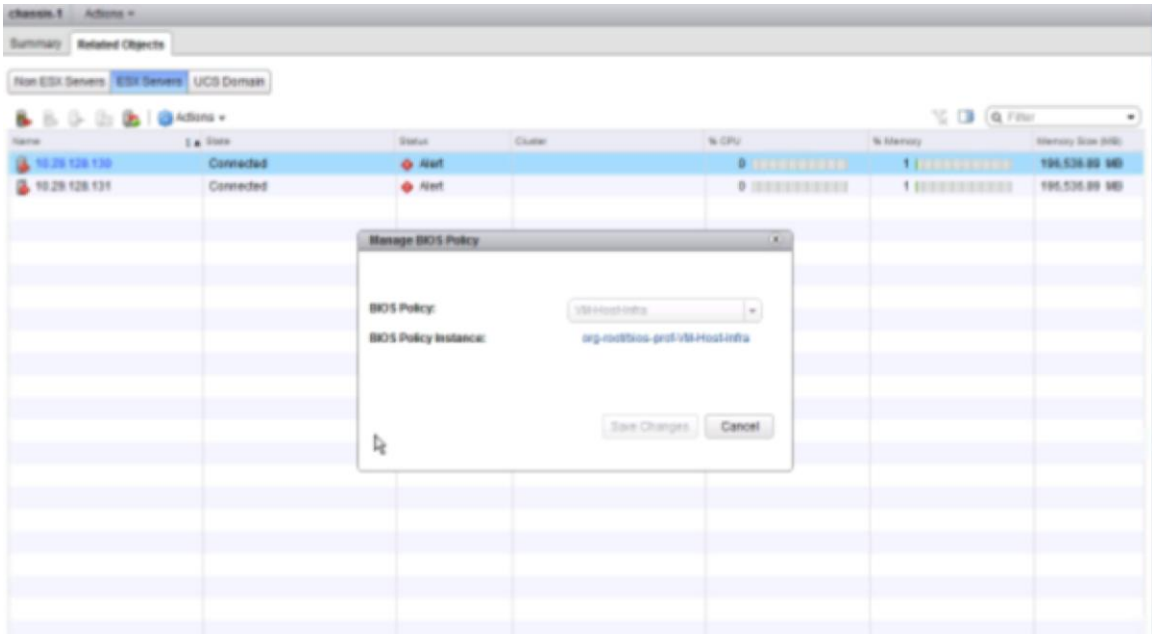
## Manage BIOS and Firmware Policies

Cisco UCS BIOS and firmware policies can be modified from the Cisco UCS plug-in for VMware vCenter, using the Actions menu (Figures 11 and 12).

**Figure 11.** Choosing to Manage BIOS Policy



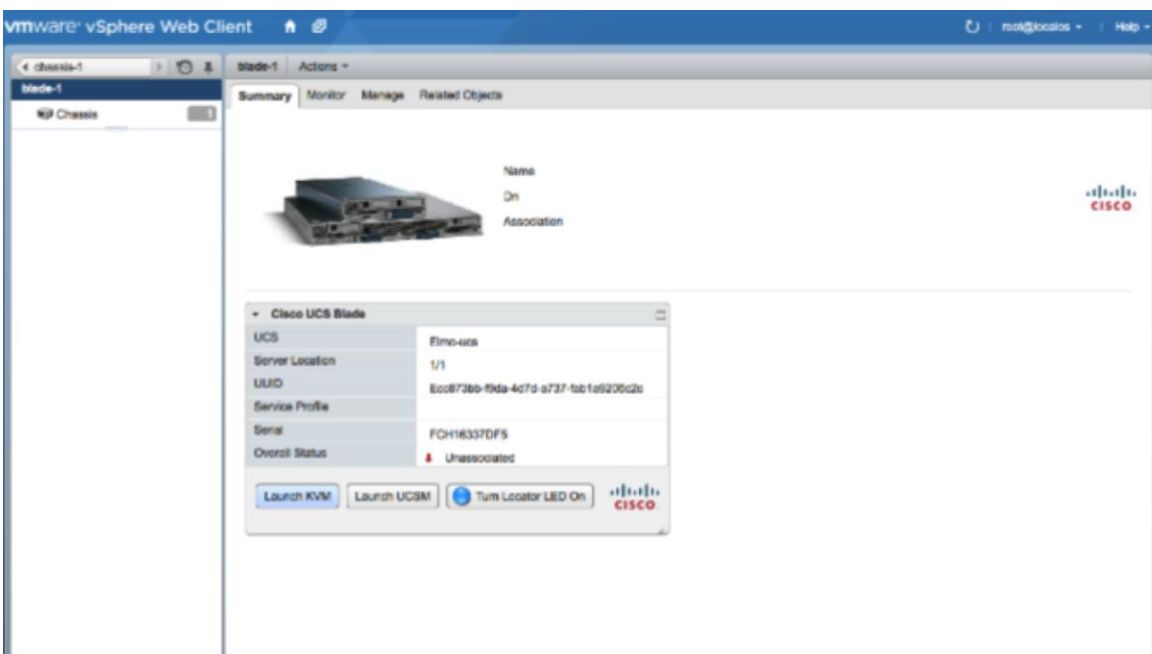
**Figure 12.** Managing BIOS Policy



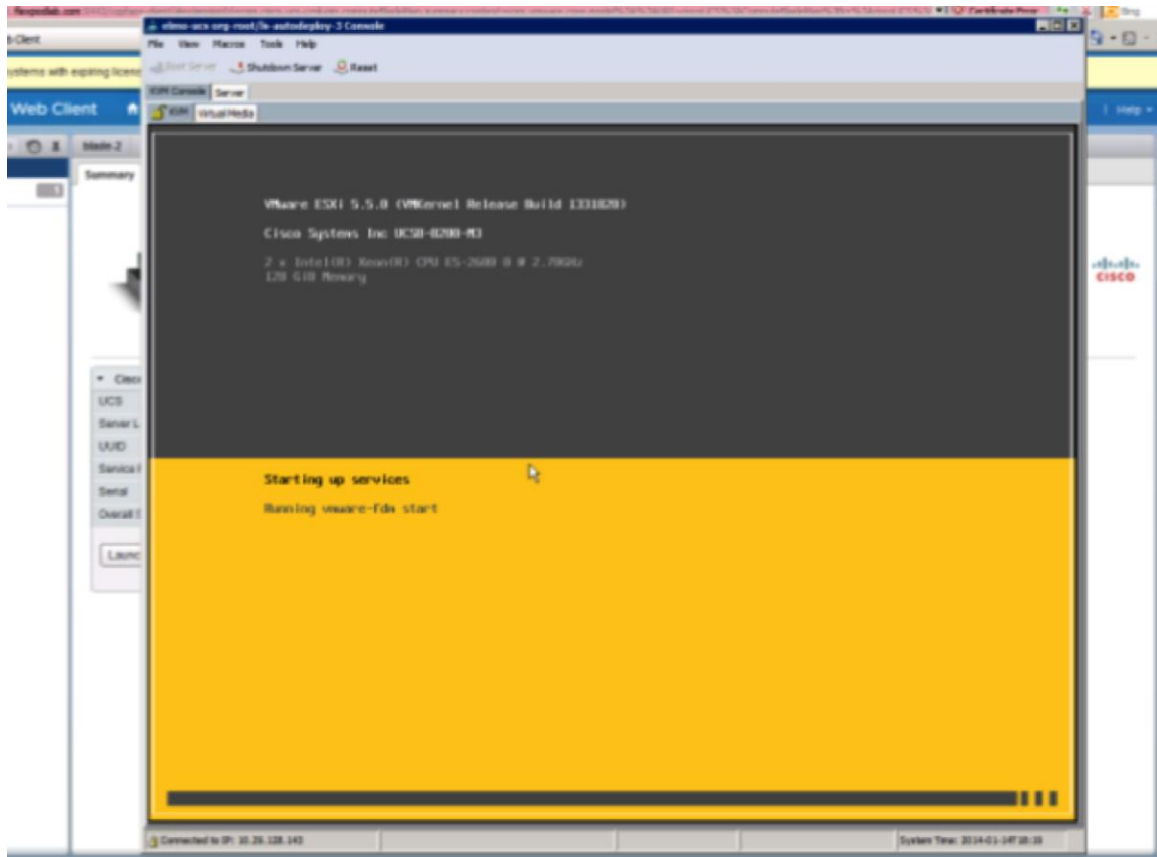
Launch the Kernel-Based Virtual Machine Console

As shown in Figures 13 and 14, the Kernel-Based Virtual Machine (KVM) console can be launched from the Cisco UCS plug-in for VMware vCenter. Administrators can also launch Cisco UCS Manager from here and can turn on a locator LED to easily identify the physical hardware that supports the selected hypervisor.

**Figure 13.** Choosing to Launch the KVM Console



**Figure 14.** Launching the KVM Console



### Cisco UCS Manager Plug-in for VMware vCenter Orchestrator

VMware vCenter Orchestrator is a development- and process-automation platform that provides a library of extensible workflows to allow users to create and run automated, configurable processes to manage the VMware vSphere infrastructure as well as other VMware and third-party technologies. VMware vCenter Orchestrator exposes every operation in the VMware vCenter Server API, allowing users to integrate all these operations into an automated process. VMware vCenter Orchestrator also allows users to integrate with other management and administration solutions through its open plug-in architecture.

VMware vCenter Orchestrator is composed of three distinct layers:

- An orchestration platform that provides the common features required for an orchestration tool
- A plug-in architecture to integrate control of subsystems
- A library of workflows

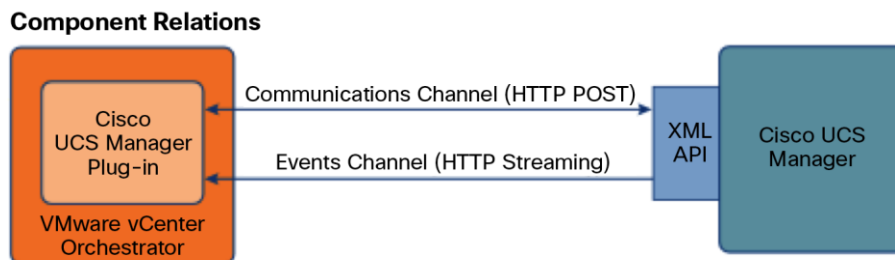


## Plug-in Integration

The Cisco UCS Manager plug-in for VMware vCenter allows interaction between VMware vCenter Orchestrator and Cisco UCS Manager. This interaction enables VMware vCenter Orchestrator to run workflows that automate the manipulation of physical infrastructure based on Cisco UCS. The plug-in contains a set of standard workflows and allows creation of custom workflows that implement the necessary API interactions to automate tasks in a Cisco UCS environment.

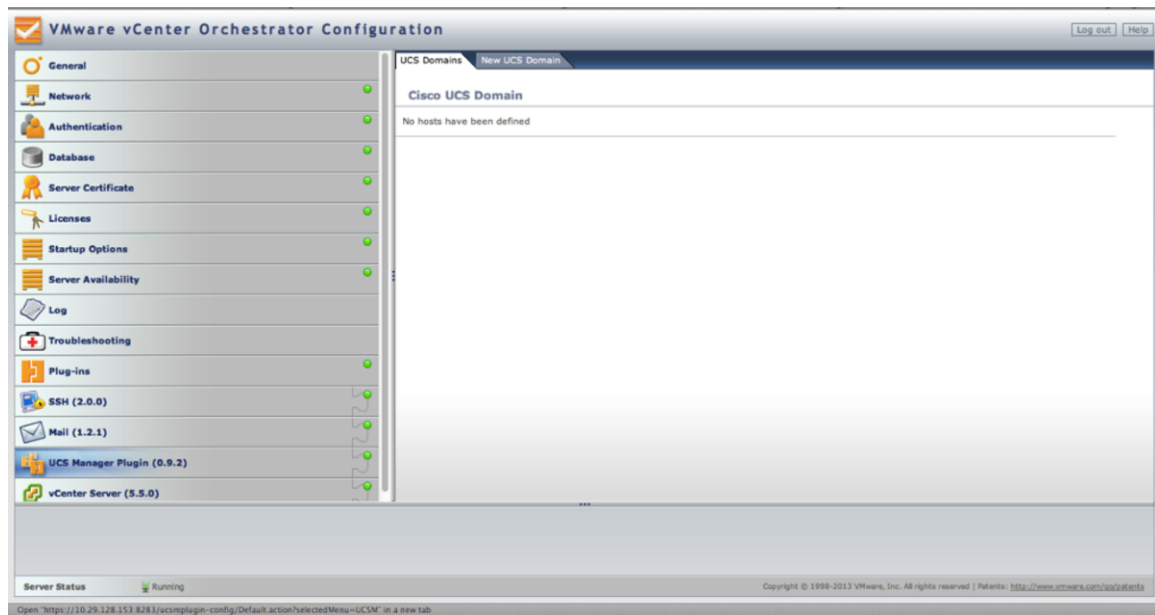
As shown in Figure 15, the plug-in communicates with the Cisco UCS Manager XML API by using the POST request method. The plug-in receives information about events through HTTP streaming.

**Figure 15.** Cisco UCS Manager Plug-in Communication with VMware vCenter Orchestrator



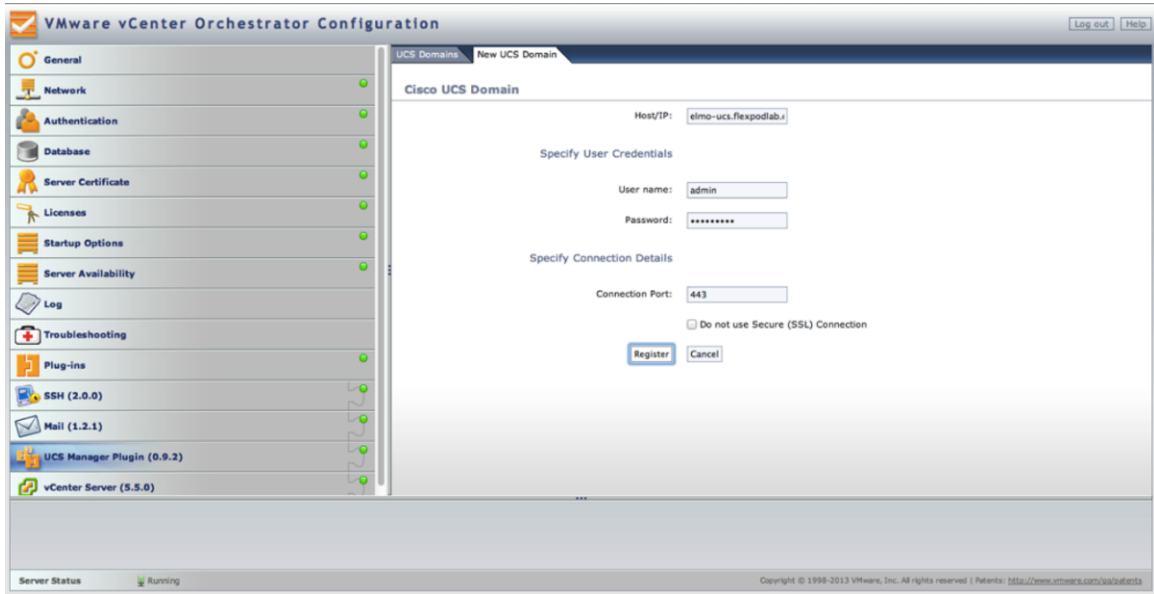
The Cisco UCS Manager Plug-in for VMware vCenter Orchestrator is currently in the beta version, and with plans to release a general-availability version in the second half of 2014 through the Cisco Communities website. Upon import, the Cisco UCS Manager plug-in is visible under VMware vCenter Orchestration Plug-ins as shown in Figure 16.

**Figure 16.** Cisco UCS Manager Plug-in on the VMware vCenter Orchestrator Homepage



The first step is to register a new Cisco UCS domain for the plug-in by providing Cisco UCS Manager connection information (Figure 17).

**Figure 17.** Cisco UCS Domain Registration



## Cisco UCS Manager Workflow for VMware vCenter Orchestrator

The plug-in provides a set of generic VMware vCenter Orchestrator workflows, which can be used to manage Cisco UCS Manager (Figure 18). These workflows include processes to get, set, add, remove, rename, and clone service profiles; disassociate a service profile for a blade; bind and unbind a service profile from a template; and export and import a Cisco UCS backup instance. You can also access a library of Cisco UCS Manager workflows (Figure 19). Additional workflows are planned for future releases.

**Figure 18.** Cisco UCS Manager Workflow

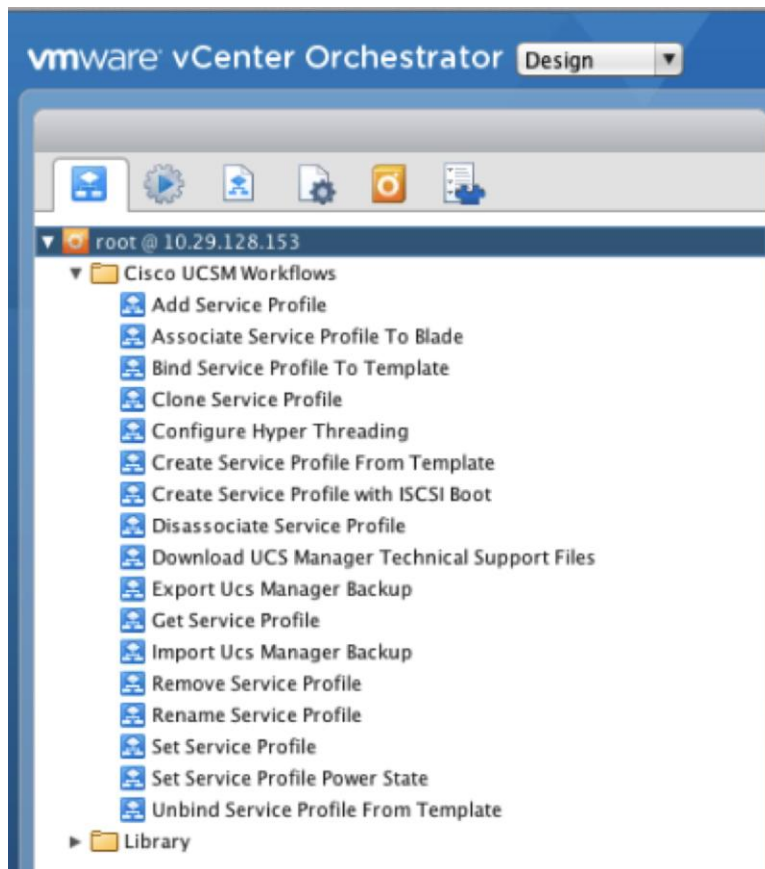
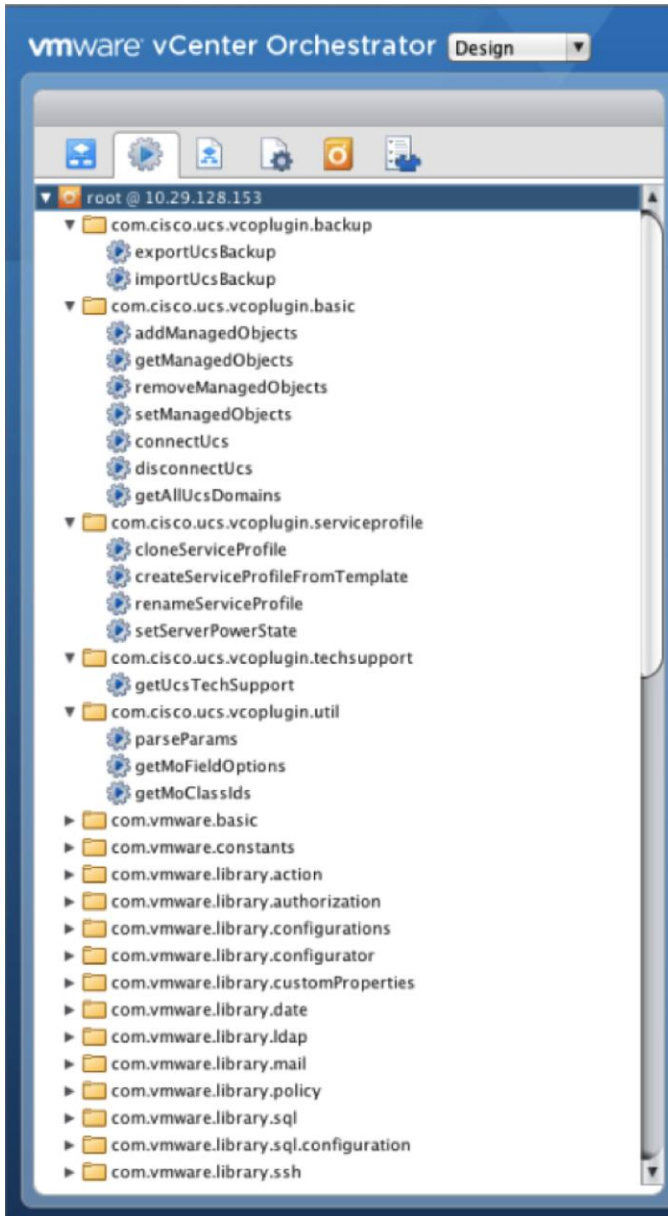


Figure 19. Cisco UCS Manager Libraries



The current Cisco UCS Manager workflows are listed here:

- Add Service Profile: Adds a service profile in the selected organization in Cisco UCS Manager
- Associate Service Profile to Blade: Associates a service profile with a blade server
- Bind Service Profile to Template: Binds a service profile to a service profile template
- Clone Service Profile: Makes a copy of the selected service profile and stores it in the selected organization
- Configure Hyper-Threading: Selects a host registered in the VMware vCenter plug-in, determines its associated service profile from the selected Cisco UCS Manager, and enables or disables hyper-threading on that service profile

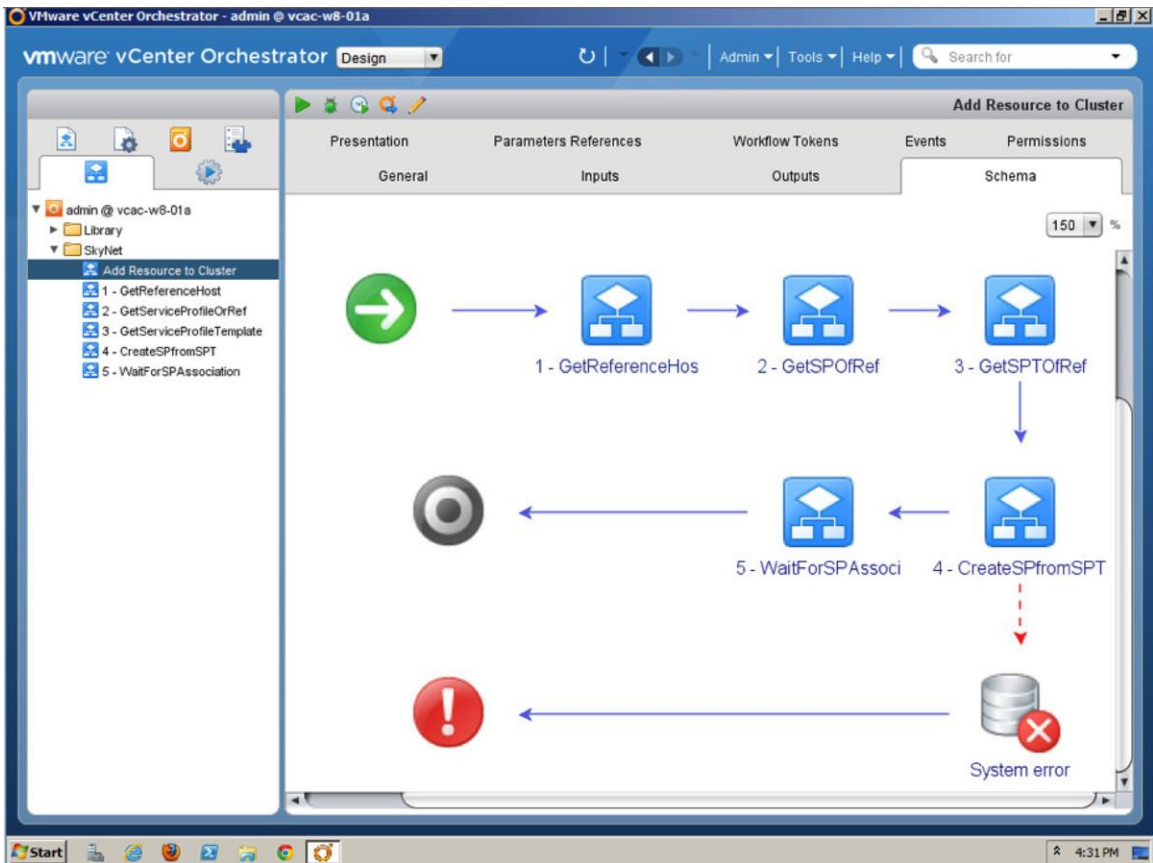
- 
- **Create Service Profile from Template:** Selects a service profile template as input and creates multiple service profiles from that template in the selected organization based on an array of names or a combination of prefixes and counters; this workflow works only with Cisco UCS Manager Release 2.1(2a) and later
  - **Create Service Profile with iSCSI Boot:** Creates a service profile in the selected organization and configures it with the Small Computer System Interface over IP (iSCSI) boot option.
  - **Disassociate Service Profile:** Disassociates a service profile from any blade server association
  - **Download Cisco UCS Manager Technical Support Files:** Creates and downloads multiple types of technical support files with technical support data for:
    - **ucsManager:** The entire Cisco UCS Manager instance
    - **ucsMgmt:** Cisco UCS Manager management services except fabric interconnect services
    - **Chassis Id:** Chassis I/O module or Cisco Integrated Management Controller (IMC)
    - **Rack Server Id:** Rack server and adaptor
    - **Fex id:** Fabric interconnect
  - **Get Service Profile:** Gets the existing service profile from Cisco UCS Manager
  - **Export Cisco UCS Manager Backup:** Exports the current backup of the Cisco UCS Manager instance specified; four types of backups are available:
    - **Full-state:** Creates a binary file that includes a snapshot of the entire system; you can use the file generated from this backup to restore the system during disaster recovery
    - **Config-logical:** Creates an XML file that includes all logical configuration settings such as service profiles, VLANs, VSANs, pools, and policies
    - **Config-system:** Creates an XML file that includes all system configuration settings such as usernames, roles, and locales
    - **Config-all:** Creates an XML file that includes all system and logical configuration settings
  - **Import Cisco UCS Manager Backup:** Imports a configuration backup XML file to Cisco UCS Manager; the merge option merges the configuration with the current configuration, and otherwise, the new configuration replaces the current configuration
  - **Remove Service Profile:** Removes the selected service profiles from Cisco UCS Manager
  - **Rename Service Profile:** Renames the selected service profile; this workflow works only with Cisco UCS Manager 2.1(1a) and later
  - **Set Service Profile:** Modifies the properties of the selected service profiles
  - **Set Service Profile Power State:** Uses an array of service profiles as input and sets their power state, which results in a change in the power state of the associated blade server; the change has no effect until a blade is associated with a selected service profile
  - **Unbind Service Profile from Template:** Unbinds a service profile from a service profile template

In addition to the built-in workflows, VMware vCenter Orchestrator provides an API explorer to allow the Cisco UCS Manager plug-in API to be searched to for documentation for JavaScript objects that can be used to create custom workflows. Please refer to [Cisco UCS Manager XML API guide](#).

## Elastic Capacity Workflow

You can create a custom VMware vCenter Orchestrator workflow that uses the Cisco UCS plug-in to dynamically add Cisco UCS computing resources to a VMware vSphere cluster (Figure 20).

**Figure 20.** Cisco UCS Plug-in for VMware vCenter Orchestrator: Example of Elastic Capacity Workflow

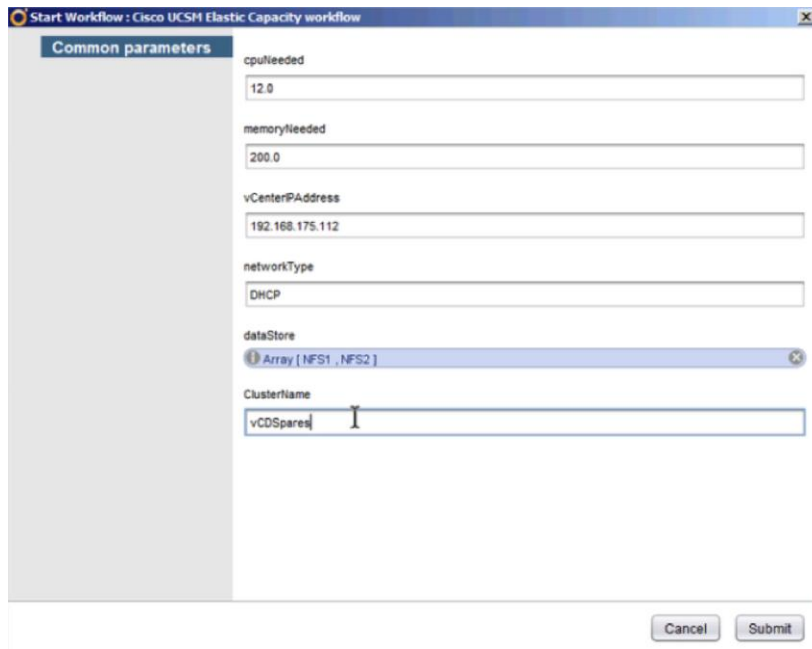


This workflow uses Cisco UCS Manager APIs and accepts the amount of CPU and memory required as input parameters (Figures 21 and 22).

**Figure 21.** Starting the Elastic Capacity Workflow



**Figure 22.** Input Parameters



The screenshot shows a dialog box titled "Start Workflow: Cisco UCSN Elastic Capacity workflow". It contains a "Common parameters" section with the following fields:

- cpuNeeded: 12.0
- memoryNeeded: 200.0
- vCenterIPAddress: 192.168.175.112
- networkType: DHCP
- dataStore: Array [ NFS1 , NFS2 ]
- ClusterName: vCDSpares

At the bottom right of the dialog box, there are "Cancel" and "Submit" buttons.

The workflow then queries Cisco UCS Manager to determine the server that best satisfies the request. It then selects the appropriate server and creates a service profile and associates it with the server. The service profile provides each server with its identity by applying parameters such as World Wide Port Name (WWPN), World Wide Node Name (WWNN), MAC address, and universal user ID (UUID). This unique concept is what makes elasticity in the physical infrastructure possible with Cisco UCS.

The workflow then boots the server using VMware Auto Deploy as discussed in the previous section, which installs the VMware ESXi image on the server and adds the server to the requested cluster in VMware vCenter.

After the server is available in VMware vCenter, the workflow returns a report to the VMware Elastic capacity plug-in indicating the amount of CPU and memory that have been added, along with other data of interest.



### Cisco UCS Content Pack for VMware vCenter Log Insight

VMware vCenter Log Insight provides consolidated logging and analytics information for any device that supports syslog with a built-in content pack for VMware vCenter Server, VMware vSphere, and VMware vCenter Operations Manager. VMware vCenter Log Insight is also extensible, allowing the addition of third-party content packs, providing management of physical servers, storage, and network devices. Cisco UCS Content Pack for VMware vCenter Log Insight is available for download from the [VMware Solution Exchange](#) website.

Cisco UCS Content Pack for VMware vCenter Log Insight provides data about the Cisco UCS infrastructure and allows administrators to generate comprehensive analytics for Cisco UCS components (blades, chassis, I/O modules, fabric extenders, and fabric interconnects). With Cisco UCS Manager, this data collection is simplified because Cisco UCS Manager is a single source of data and is responsible for gathering data from the entire Cisco UCS domain. Syslog output is pointed to the VMware vCenter Log Insight appliance for enable comprehensive analytics to be performed (Figure 23).

**Figure 23.** Detailed Cisco UCS System View: VMware vCenter Log Insight



Cisco UCS Manager Content Pack for VMware vCenter Log Insight is useful for monitoring, troubleshooting, and securing customer data centers and divides analytics into dashboards for various Cisco UCS components:

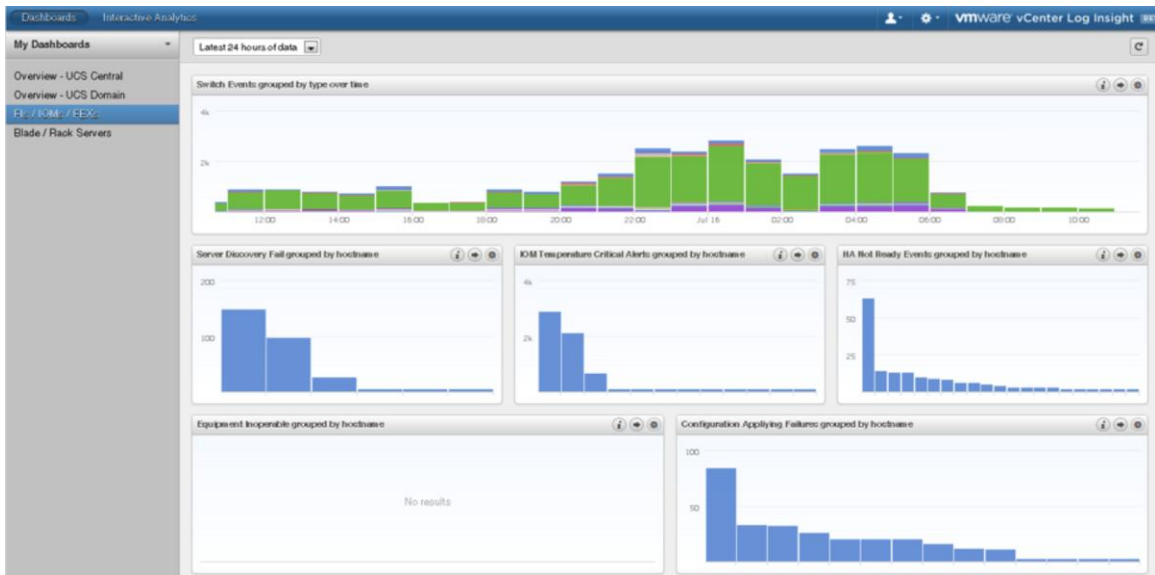
- **Blade and rack servers dashboard:** The blade and rack server dashboard provides administrators with multiple views into the physical systems. Figure 24 shows service profile events grouped by hostname and type, rack events grouped by hostname and rack unit, and blade events grouped by hostname and blade unit. These categories can be viewed in greater detail to obtain specific log messages.

**Figure 24.** Cisco UCS Blade and Rack Servers Dashboard



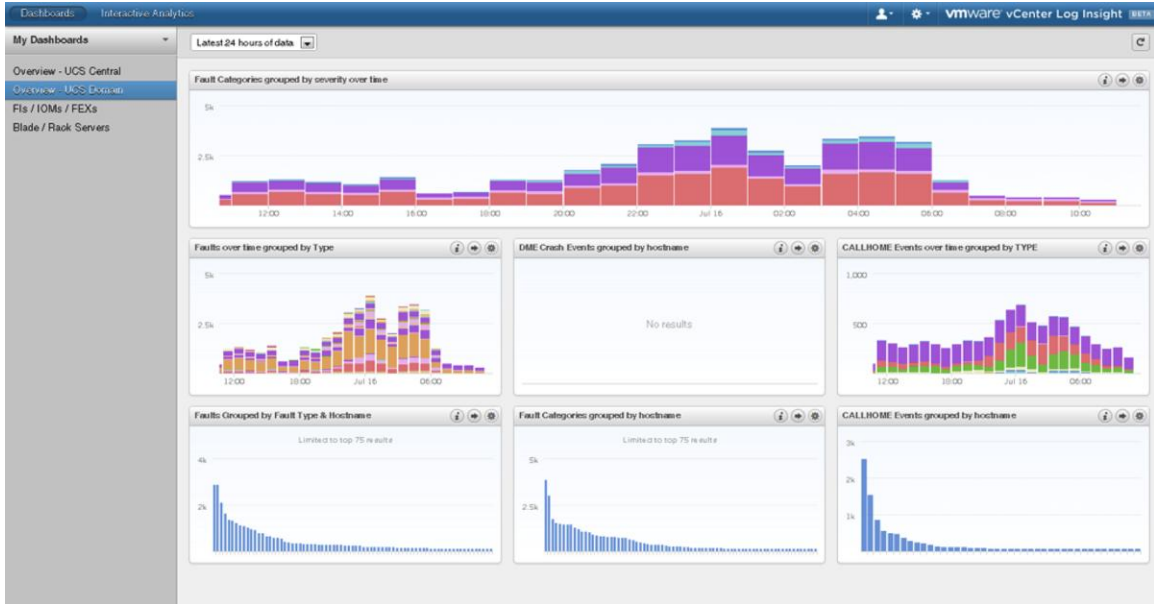
- Fabric interconnect, I/O module, and fabric extender dashboard:** Events also can be viewed at the fabric interconnect, I/O module, and fabric extender levels, providing comprehensive monitoring information and allowing analytics to be applied for critical subcomponents. Analytics include I/O module temperature alerts and server discovery failure group alerts (providing an alert if a server fails to be discovered), with specific error messages presented to assist with detailed troubleshooting (Figure 25).

**Figure 25.** Cisco UCS Fabric Interconnect, I/O Module, and Fabric Extender Dashboard



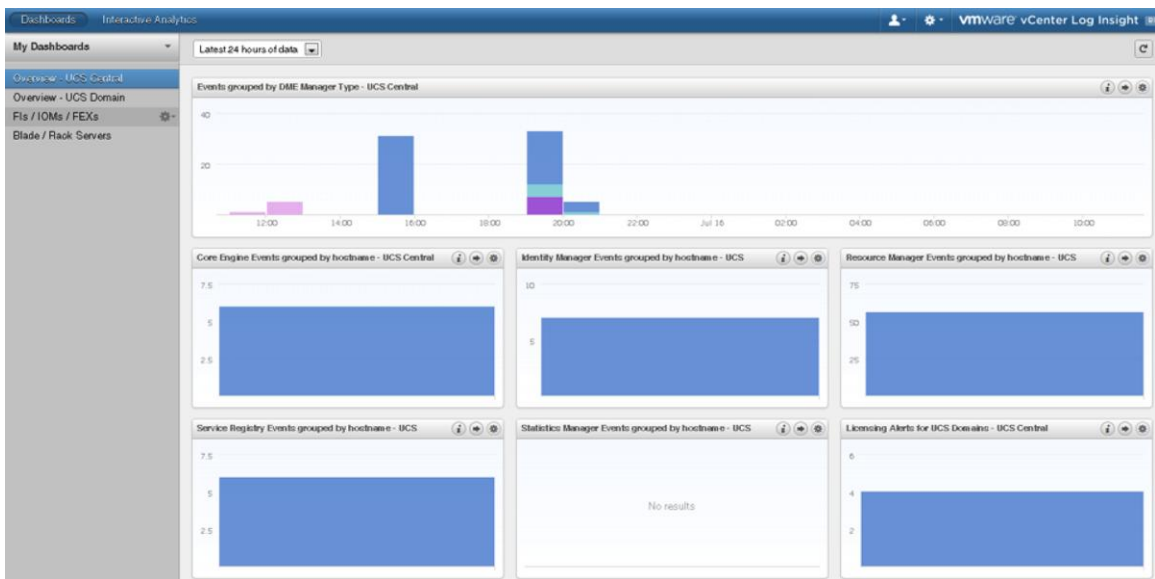
- Cisco UCS domain dashboard:** A higher-level dashboard providing coverage of the entire Cisco UCS domain is also available. This dashboard is configured to provide a view of multiple fault events grouped by type of fault, by fault category, or by hostname. Administrators can also list CALLHOME events grouped by type of hostname as shown in Figure 26.

**Figure 26.** Cisco UCS Domain Dashboard



- Cisco UCS Central Software dashboard:** The content pack also provides a dashboard for Cisco UCS Central Software. Cisco UCS Central Software allows management of multiple Cisco UCS domains within a single site or across multiple global sites. It builds on the capabilities provided by Cisco UCS Manager and requires Cisco UCS Manager to be in place to make changes in individual domains. As shown in Figure 27, Cisco UCS Content Pack for VMware vCenter Log Insight provides a dashboard that operates at the Cisco UCS Central Software level, providing insights into events that can be grouped by individual Cisco UCS Manager instance. This dashboard provides the highest level of visibility into the Cisco UCS environment. It allows administrators to quickly perform analytics across multiple Cisco UCS domains.

**Figure 27.** Cisco UCS Central Software Dashboard



## Conclusion

Cisco and VMware cloud management solutions integrate and extend many innovative technologies pioneered by both companies. These innovations, as well as technology leadership, offer significant business benefits for customers building private cloud infrastructure. Cisco UCS Manager and VMware vSphere work together to make virtual machine deployment fast, consistent, and easy to manage across a variety of IT teams.

By using VMware Cloud Management Suite and Cisco UCS Manager integration solutions, customers can achieve on-demand provisioning in the data center, apply dynamic network policies to increase efficiency, and gain the benefits of an integrated management experience for the core components of a private cloud.

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**Bhumik Patel**, Partner Architect, VMware, Inc.

**John Kennedy**, Technical Marketing Engineer, Cisco Systems.

**Roger Barlow**, Cisco UCS Product Manager, Cisco Systems.

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## For More Information

- Cisco UCS Manager Plug-in for VMware vCenter: <https://communities.cisco.com/docs/DOC-36989>
- Cisco UCS Content Pack for Log Insight: <https://solutionexchange.vmware.com/store/products/cisco-ucs-content-pack-for-log-insight-.UwLtV3l1XeM>
- Understanding VMware vSphere Auto Deploy: [http://kb.vmware.com/selfservice/microsites/search.do?language=en\\_US&cmd=displayKC&externalId=2005131](http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=2005131)
- Implementing VMware vSphere 5 Auto Deploy on the Cisco Unified Computing System: [http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/ns944/whitepaper\\_c11-701953.html](http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/ns944/whitepaper_c11-701953.html)
- VMware vCenter Orchestrator Administrator Guide: [http://www.vmware.com/pdf/vco\\_410\\_admin\\_guide.pdf](http://www.vmware.com/pdf/vco_410_admin_guide.pdf)
- Using the VMware vCenter Orchestrator Plug-in for Cisco UCS Manager: [http://www.vmware.com/pdf/ucs\\_plugin\\_10\\_users\\_guide.pdf](http://www.vmware.com/pdf/ucs_plugin_10_users_guide.pdf)
- End Your Data Center Logging Chaos with VMware vCenter Log Insight: <http://www.vmware.com/files/pdf/End-Your-Data-Center-Logging-Chaos-with-VMware-vCenter-Log-Insight.pdf>
- Cisco and VMware Joint Solution Brings Unprecedented Innovation to Create Flexible Virtual Environments: [http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/ns955/ns971/c22-599617-01\\_vSphere\\_sOview.pdf](http://www.cisco.com/en/US/solutions/collateral/ns340/ns517/ns224/ns955/ns971/c22-599617-01_vSphere_sOview.pdf)
- What's New in VMware vSphere 5.5: <http://www.vmware.com/files/pdf/vsphere/VMware-vSphere-Platform-Whats-New.pdf>



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