

Cisco UCS Automated Lifecycle Management with HP Operations Manager and HP Operations Orchestrator

Solution Brief
February 2012



Highlights

Cisco UCS Management

- Cisco Unified Computing System™ (Cisco UCS™) has management built into its foundation. It was designed to be easily managed and to integrate with high-level management and orchestration tools to radically lower the operating costs typical of traditional servers.

Cisco UCS Manager and HP Management Integration

- Cisco UCS Manager integrates with HP Network Automation, HP Server Automation, HP Operations Manager (HP OpenView), and HP Operations Orchestrator for operational consistency for organizations using HP management and orchestration products.

Monitoring and Provisioning of Cisco UCS with HP Management Software

- Cisco UCS integrates easily into any HP management environment, enabling the consistent application of business processes and policies to Cisco UCS deployments without the need to retrain staff.

Adding a new vendor's server to the data center no longer requires separate management tools that increase operating costs and diminish efficiency. Integration of management models is now possible.

Cisco Unified Computing System™ (Cisco UCS™), with its XML API and standard network management protocols, integrates transparently with HP management software, delivering compelling data center solutions across physical and virtual environments for improved quality and availability of mission-critical services. Companies can simply and easily integrate Cisco UCS platforms into an HP systems management environment to monitor and automate deployment and configuration management using existing HP tools.

Cisco UCS Management

Cisco UCS has management built into its foundation. Designed to be easily managed and to integrate with high-level management and orchestration tools, Cisco UCS can radically lower the operating costs typically associated with traditional servers.

Single Unified System

Cisco UCS is a single unified system that brings together server, network, and storage access resources. It transcends the boundaries of blade chassis and racks, forming a physically distributed but centrally managed system (Figure 1).

Unified Fabric

A unified fabric integrates the system's computing resources with a single network that supports all I/O in the system. Cisco UCS combines IP, storage, and management networks into a single low-latency, high-bandwidth 10-Gbps Ethernet infrastructure. This radically simple, wire-once solution enables management of all features and bandwidth through software, providing policy-based, zero-touch end-to-end configuration.

Cisco Fabric Extender Architecture

Cisco fabric extenders directly connect the system's fabric interconnect ports to blade servers and individual virtual machines. The architecture lowers costs and simplifies the system by condensing three network layers into one while eliminating blade server and hypervisor-based switches. All I/O traffic meets at a single point, at which it is efficiently and consistently managed. As a result, a set of rack-mount servers and blade chassis are transformed into a single distributed, virtual system.

Unified, Model-Based Management with Cisco UCS Manager

Embedded in the Cisco UCS fabric interconnects, Cisco UCS Manager makes Cisco UCS a self-integrating, self-aware system. Unlike traditional approaches that require each system resource to be configured separately and manually through individual element managers, Cisco UCS Manager aggregates element management

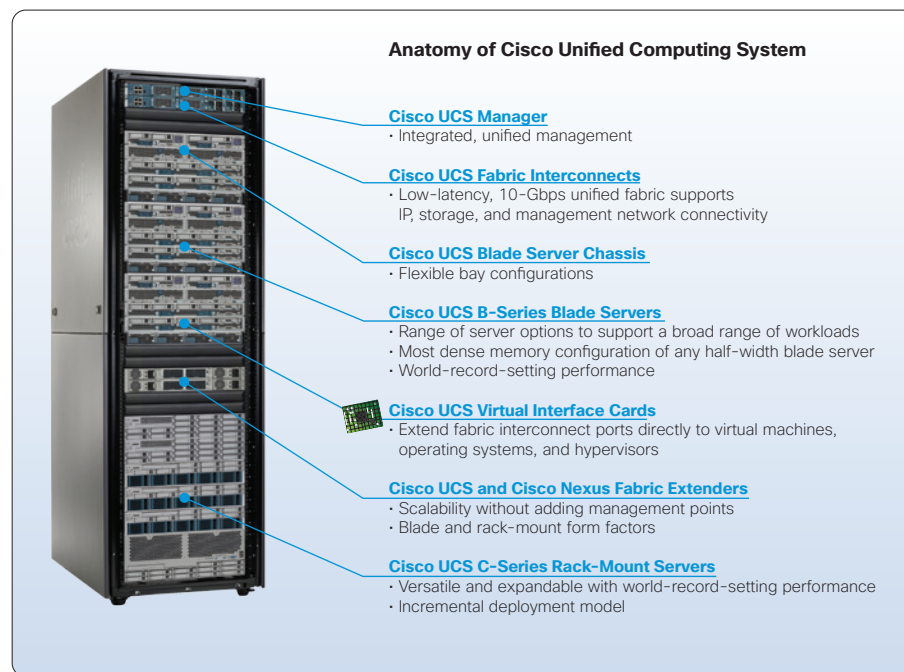


Figure 1. Cisco UCS is a Single Unified System

for every device in the hardware and I/O stack. Role- and policy-based management preserves current roles (server, network, and storage administrators) when managing Cisco UCS, yet offers the flexibility to modify roles as needed.

The intelligent infrastructure enabled through Cisco UCS Manager abstracts the personality, configuration, and connectivity of server and I/O resources so that these attributes can be programmed automatically for complete alignment of policy and configuration with workloads. Administrators create a model of a desired server (using Cisco service profiles and templates)

and instantiate that server and its I/O connectivity by associating the model with physical resources. This process transforms the physical infrastructure into a pool of resources that can be provisioned or reprovisioned to support any workload at a moment's notice, improving business agility and eliminating a major source of errors that can cause downtime.

The model is the source of truth about the system, and Cisco UCS Manager prevents creating configurations inconsistent with the model. This reduces the risk of noncompliant configurations in the data center. After deployment, the system is

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monitored efficiently through a single interface. In addition, the model describing the system is accessible and programmable through an intuitive GUI or an open standards-based XML API, enabling integration with higher-level orchestration and management tools to facilitate compliance with existing data center best practices and staff knowledge.

Cisco UCS Manager and HP Management Integration

As shown in Figure 2, Cisco UCS Manager integrates with four HP management tools: HP Network Automation, HP Server Automation, HP Operations Manager (HP OpenView), and HP Operations Orchestrator.

HP Operations Manager and Cisco UCS

Cisco UCS simply and easily integrates into the HP Operations Manager management environment to enable consistent fault and performance monitoring and analysis of the system. Cisco UCS platforms are shown in the HP Operations Manager topology view. Cisco UCS Manager, with a single API call, aggregates and forwards Simple Network Management Protocol (SNMP) traps from the entire Cisco UCS infrastructure. HP Operations Manager associates events with a view of business services, applications, and infrastructure. When a fault is detected, fault correlation is shown in the topology view. HP Operations Manager regularly performs topology discovery, integrating new resources discovered by Cisco UCS Manager into the HP management realm.

Cisco provides the HP Operations Manager plug-in as a free download on the Cisco® Developer Network: http://developer.cisco.com/web/unifiedcomputing/hp_mgmt.

HP Network Automation and Cisco UCS

HP Network Automation integrates with Cisco UCS Manager to collect logical network inventory information about both the physical and virtual network configuration and state. This network monitoring helps ensure that the system's internal network complies with business policy. HP Network Automation has deep Cisco networking support, because Cisco Network

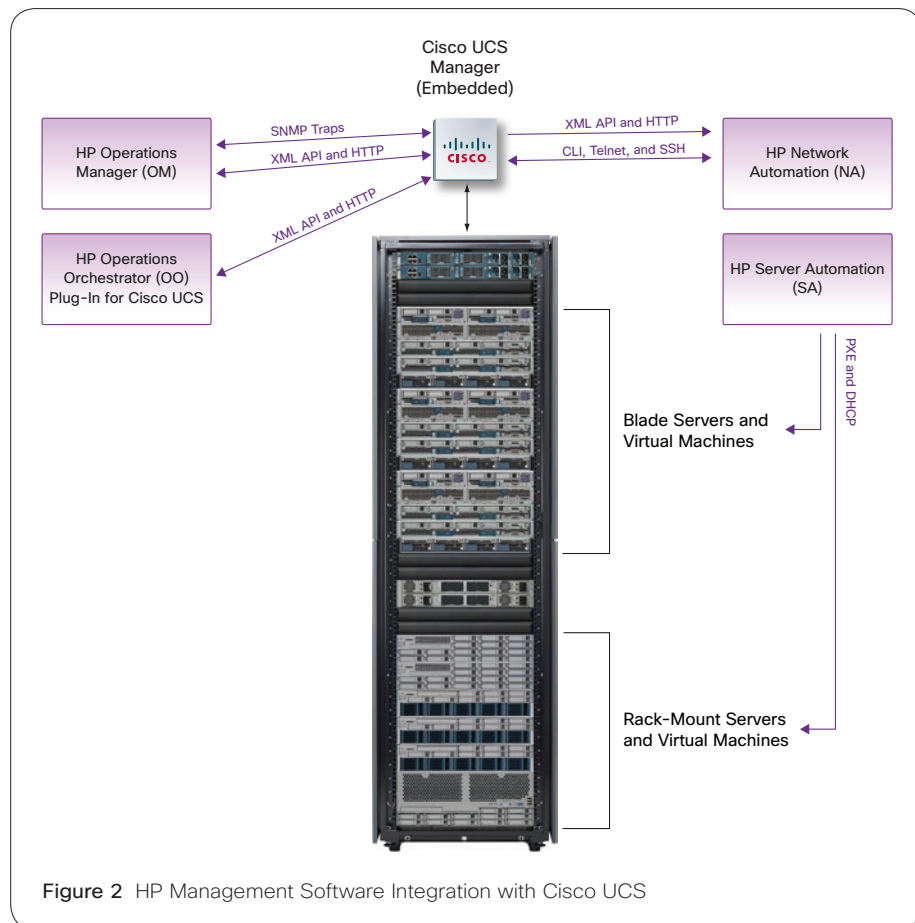


Figure 2 HP Management Software Integration with Cisco UCS

Cisco UCS Automated Lifecycle Management with HP Operations Manager and HP Operations Orchestrator

Connectivity Monitor has been an HP Network Automation original equipment manufacturer (OEM) product since 2006.

HP Server Automation and Cisco UCS

HP Server Automation delivers automated server lifecycle management and application deployment for Cisco UCS, including automated provisioning, patching, configuration management and compliance management of operating systems and applications for physical and virtual servers. HP Server Automation runs an inventory of a Cisco UCS platform using the system's XML API to correctly match the physical configuration and application workload. HP Server Automation then performs either bare-metal or hypervisor installation using Cisco UCS I/O drivers with operating system profiles. HP Server Automation agents (using preboot execution environment [PXE] boot) are available for Microsoft Windows, Linux, and VMware for operation on Cisco UCS servers. This integration was qualified in HP labs by HP and Cisco.

HP Operation Orchestrator and Cisco UCS

HP Operation Orchestrator automates data center tasks and processes using workflows through three components:

- HP Operations Orchestrator Studio: Tool for authoring workflows
- HP Operations Orchestrator Central: The engine used to run and manage flows
- HP Operations Orchestrator Content: Content for prepackaged flows, out-of-the-box integration, and orchestration for Cisco UCS and other systems

HP Operations Orchestration can apply workflows that configure Cisco service profiles by using the XML API directly or by using a template. After the service profile is configured, it can be applied to a Cisco UCS server, to give the server its personality. After the personality is applied, HP Server Automation deploys the software layers to automatically provision new servers to meet business needs.

Cisco UCS Integrates Transparently into an HP Management Environment

Cisco UCS with HP systems management tools delivers data center solutions for applications, operating systems, and physical and virtual server environments. Cisco UCS model- and policy-based management combined with the system's high-bandwidth, low-latency Ethernet and Fibre Channel over Ethernet (FCoE) unified network and XML API make these solutions possible. The solutions help organizations use in-house skills and best practices with HP tools to improve quality and availability of mission-critical data center services.

For More Information

For more information about Cisco UCS, please visit <http://www.cisco.com/go/ucs>.

To download free HP management plug-ins for Cisco UCS, please visit <http://developer.cisco.com/web/unifiedcomputing/hpimgmt>.



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