



## Managing a Cohesive System

Cisco® UCS Manager provides unified, centralized, embedded management of all software and hardware components of the Cisco Unified Computing System™ across multiple chassis and thousands of virtual machines.

By enabling better automation of processes, Cisco UCS Manager allows data center managers to achieve greater agility and scale in their server operations while reducing complexity and risk. Cisco UCS Manager provides flexible role- and policy-based management using service profiles and templates and facilitates processes based on IT Infrastructure Library (ITIL) concepts.

Cisco UCS Manager provides focused integration with industry-leading systems management partners and their solutions and helps ensure easy adoption of the Cisco Unified Computing System using existing IT staff skills, tools, and processes. Cisco UCS Manager enables custom development with an extensive XML API that exposes several thousand points of integration and provides increased system visibility and control.

## Flexible, Role-Based Management

Cisco UCS Manager offers role-based management that helps organizations make more efficient use of their limited administrator resources. Cisco UCS Manager allows organizations to maintain IT disciplines while improving teamwork, collaboration, and overall effectiveness. Server, network, and storage administrators maintain responsibility and accountability for their domain policies within a single integrated management environment. Compute infrastructure can now be provisioned without the time-consuming manual coordination between multiple disciplines previously required. Roles and privileges in the system can easily be modified and new roles quickly created.

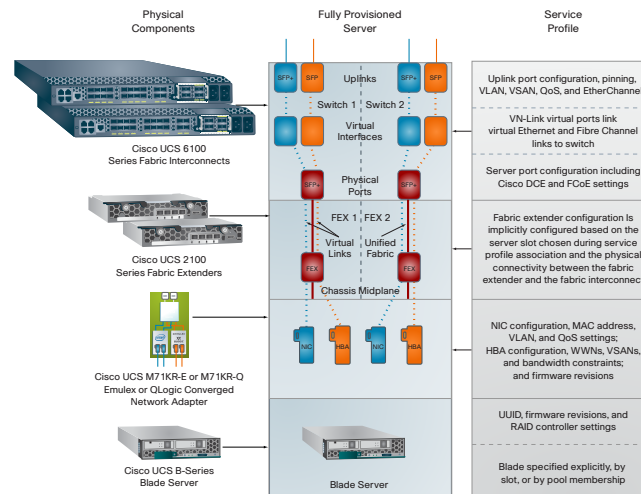
Administrators focus on defining policies needed to provision compute infrastructure and network connectivity.

Administrators can collaborate on strategic architectural issues, and implementation of basic server configuration can now be automated.

## Provisioning of Server and Network Resources

Cisco UCS Manager uses service profiles to provision servers and their I/O properties. Service profiles are created by server, network, and storage administrators and are stored in the Cisco UCS 6100 Series Fabric Interconnects. Infrastructure policies needed to deploy applications, such as power and cooling, security, identity, hardware health, and Ethernet and storage networking, are encapsulated in the service profile. The policies coordinate and automate element management at every layer of the hardware stack (Figure 1), including RAID levels, BIOS settings, firmware revisions and settings, adapter identities and settings, VLAN and VSAN network settings, network quality of service (QoS), and data center connectivity.

**Figure 1. Service Profiles Provide Automatic, End-to-End Configuration of the Entire Hardware Stack**



Service profile templates are used to simplify the creation of service profiles, helping ensure consistent policies within the system for a given service or application. This approach makes it just as easy to configure one server or hundreds of servers with thousands of virtual machines, decoupling scale from complexity. This automation reduces the number of manual steps needed, helping reduce the chance for human error, improving consistency, and reducing server and network deployment times.

## Enhanced Virtualization Support

Cisco UCS Manager's implementation of Cisco VN-Link technology enables policy-based virtual machine connectivity, mobility of network and security properties during VMware VMotion migration, and a nondisruptive operating model in which network administrators perform network tasks and server administrators perform server tasks.

## Pooling of Resources

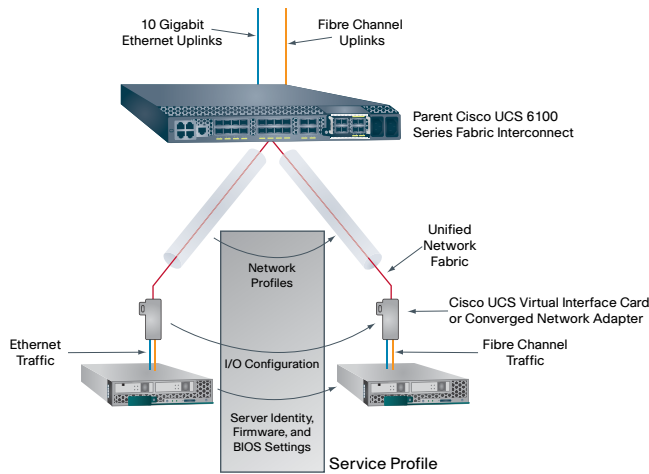
Server resources can be placed in pools based on various criteria, such as memory or CPU type. Cisco UCS Manager service profiles and templates may require the use of servers from specific pools, and discovery policies can be created so that servers are automatically placed in an appropriate pool the moment they are inserted into a chassis.

## Workload Portability

Service profiles benefit both virtualized and nonvirtualized environments. Workloads may need to be moved from server to server to change the hardware resources assigned to a workload or take a server offline for service or upgrade. Service profiles can be used to increase the mobility of nonvirtualized workloads directly (Figure 2). They also can be used in conjunction with virtualization clusters to bring new resources online easily, complementing existing virtual machine mobility.

For example, a database management system may be moved from a server with 72 GB of main memory to one with 384 GB of memory to run the entire database in memory. With Cisco UCS Manager, service profiles can be applied, enabling faster provisioning and consistency of configuration policies for new servers and applications.

**Figure 2.** Cisco UCS Manager Uses Service Profiles to Support Workload Mobility Through Just-in-Time, Dynamic Resource Provisioning



## Cisco UCS Manager in Operation

Cisco UCS Manager resides on a pair of Cisco UCS 6100 Series Fabric Interconnects using a clustered, active-standby configuration for high availability. The manager participates not only in server provisioning, but also in device discovery, inventory, configuration, diagnostics, monitoring, fault detection, auditing, and statistics collection. The manager can export the system's configuration information to configuration management databases (CMDBs), facilitating processes based on ITIL concepts. Cisco UCS Manager's XML API also facilitates coordination with third-party provisioning tools that can deploy virtual machines as well as install operating systems and application software on servers configured with Cisco UCS Manager.

## Cisco Unified Computing Services

Using a unified view of data center resources, Cisco and its industry-leading partners deliver services that accelerate your transition to a unified computing architecture. Cisco Unified Computing Services help you quickly deploy your data center resources, simplify ongoing operations, and optimize your infrastructure to better meet your business needs. For more information about these and other Cisco Data Center Services, visit <http://www.cisco.com/go/unifiedcomputingservices>.

## Why Cisco?

The Cisco Unified Computing System continues Cisco's long history of innovation in delivering integrated systems for improved business results based on industry standards and using the network as the platform. Recent examples include IP telephony, LAN switching, unified communications, and unified I/O. Cisco began the unified computing phase of our Data Center 3.0 strategy several years ago by assembling an experienced team from the computing and virtualization industries to augment our own networking and storage access expertise. As a result, Cisco delivered foundational technologies, including the Cisco Nexus® Family, supporting unified fabric and server virtualization. The Cisco Unified Computing System completes this phase, delivering innovation in architecture, technology, partnerships, and services. Cisco is well-positioned to deliver this innovation by taking a systems approach to computing that unifies network intelligence and scalability with innovative application-specific integrated circuits (ASICs), integrated management, and standard computing components.

## For More Information

Visit <http://www.cisco.com/go/unifiedcomputing>.

## Cisco UCS Manager Benefits and Features

- A centralized management interface that integrates the entire set of Cisco Unified Computing System components
- Role-based administration that builds on existing skills and best practices and supports collaboration across disciplines
- Policy-based management that shifts IT's focus from maintenance to strategic initiatives
- Service profiles for fast, consistent, compliant, and accurate configuration
- Service profile templates that help ensure consistent policies within the system for a given service or application
- Physical and virtual machine mobility through just-in-time provisioning
- High-availability configuration when two fabric interconnects are used
- Scalability to support up to 320 servers per manager instance
- XML API, which facilitates coordination with third-party provisioning tools
- Autodiscovery, which allows Cisco UCS Manager to detect, inventory, manage, and provision any system component that is added or changed