

Introduction

Novell® Cloud Manager

1.1

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About This Guide

This guide introduces concepts and terminology required to successfully install and configure Novell Cloud Manager. It includes the following sections:

Audience

This information is intended for anyone who needs to familiarize themselves with Novell Cloud Manager in order to install, configure, maintain, or use the product. Consumers of this information should be experienced Linux and Windows system administrators who are familiar with virtual machine technology and datacenter operations.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation, or go to www.novell.com/documentation/feedback.html and enter your comments there.

Documentation Updates

For the most recent version of this guide, visit the [Novell Cloud Manager 1.1 documentation Web site](http://www.novell.com/documentation/cloudmanager1) (<http://www.novell.com/documentation/cloudmanager1>).

Additional Documentation

For other Novell Cloud Manager 1.1 documentation, see the [Novell Cloud Manager 1.1 documentation Web site](http://www.novell.com/documentation/cloudmanager1) (<http://www.novell.com/documentation/cloudmanager1>).

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Introduction

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Novell Cloud Manager, a WorkloadIQ product from Novell, transforms your virtual infrastructure into a true cloud computing environment. Built to operate with your existing VMware, Hyper-V, or Xen virtual hosts, Cloud Manager accelerates delivery of services through on-demand requesting of workloads and automated provisioning of the workloads.

- ♦ [Section 1.1, “What Cloud Manager Does,” on page 7](#)
- ♦ [Section 1.2, “The Cloud Manager Environment,” on page 9](#)
- ♦ [Section 1.3, “Cloud Manager Components,” on page 10](#)

1.1 What Cloud Manager Does

Whether you are an enterprise IT department or a public service provider, your customers demand timely access to the computing resources needed to run their businesses. Even with a virtual infrastructure in place, provisioning new resources to customers can require you to find out the requirements, create the required virtual machines, and then deploy them accordingly, all of which can exhaust valuable time and effort.

Cloud Manager lets you expose the computing resources in your virtual infrastructure in a manner that enables your customers to easily consume them as business services and you to deliver the services efficiently, automatically, and on time. The following sections explain what Cloud Manager does to transform your virtual infrastructure into flexible, reliable, and secure cloud computing environment:

- ♦ [Section 1.1.1, “Provides a Catalog of Resources for Building Business Services,” on page 7](#)
- ♦ [Section 1.1.2, “Imports Existing Virtual Machines as Business Services,” on page 8](#)
- ♦ [Section 1.1.3, “Customizes Services Based on Business Groups,” on page 8](#)
- ♦ [Section 1.1.4, “Exposes Business Service Costs,” on page 8](#)

1.1.1 Provides a Catalog of Resources for Building Business Services

Typically, customers don't want to be concerned with the details of your virtual infrastructure. They simply want to select a [workload](#) that has the operating system, software, and resources (CPU, memory, network cards, and disk space) to meet their business needs. In addition, they want to ensure that you are providing the appropriate level of service based upon those needs.

Cloud Manager lets you organize your computing resources into a catalog consisting of [workload templates](#) and [service levels](#). A workload template identifies a virtual machine and its allocated resources (virtual CPUs, memory, networks, and disk space), while a service level defines the host hardware and service objectives (availability, response time, quality, and so forth) for the workload.

When a customer needs a new workload, he or she creates a [business service](#) request that includes the desired workloads and service levels based on the catalog you created. After the request is approved by a [financial sponsor](#) and a Cloud Manager administrator, the business service workloads are automatically built and deployed within your virtual infrastructure and made available to the customer for use.

1.1.2 Imports Existing Virtual Machines as Business Services

If you have existing virtual machines deployed for customers, you can import them as business services so that your customers can manage their existing and new business services through Cloud Manager.

During the import, you assign the customer as the owner of the business service and assign a service level to the imported virtual machine. If you have multiple virtual machines that should be imported to the same business service, you can do so.

1.1.3 Customizes Services Based on Business Groups

Not all individuals or organizations need the same types of business services. Cloud Manager lets you customize your offerings by creating business groups and determining which workload templates and service levels are available to each group.

You can designate a sponsor in each group who is responsible for financial approval of the group's business service requests.

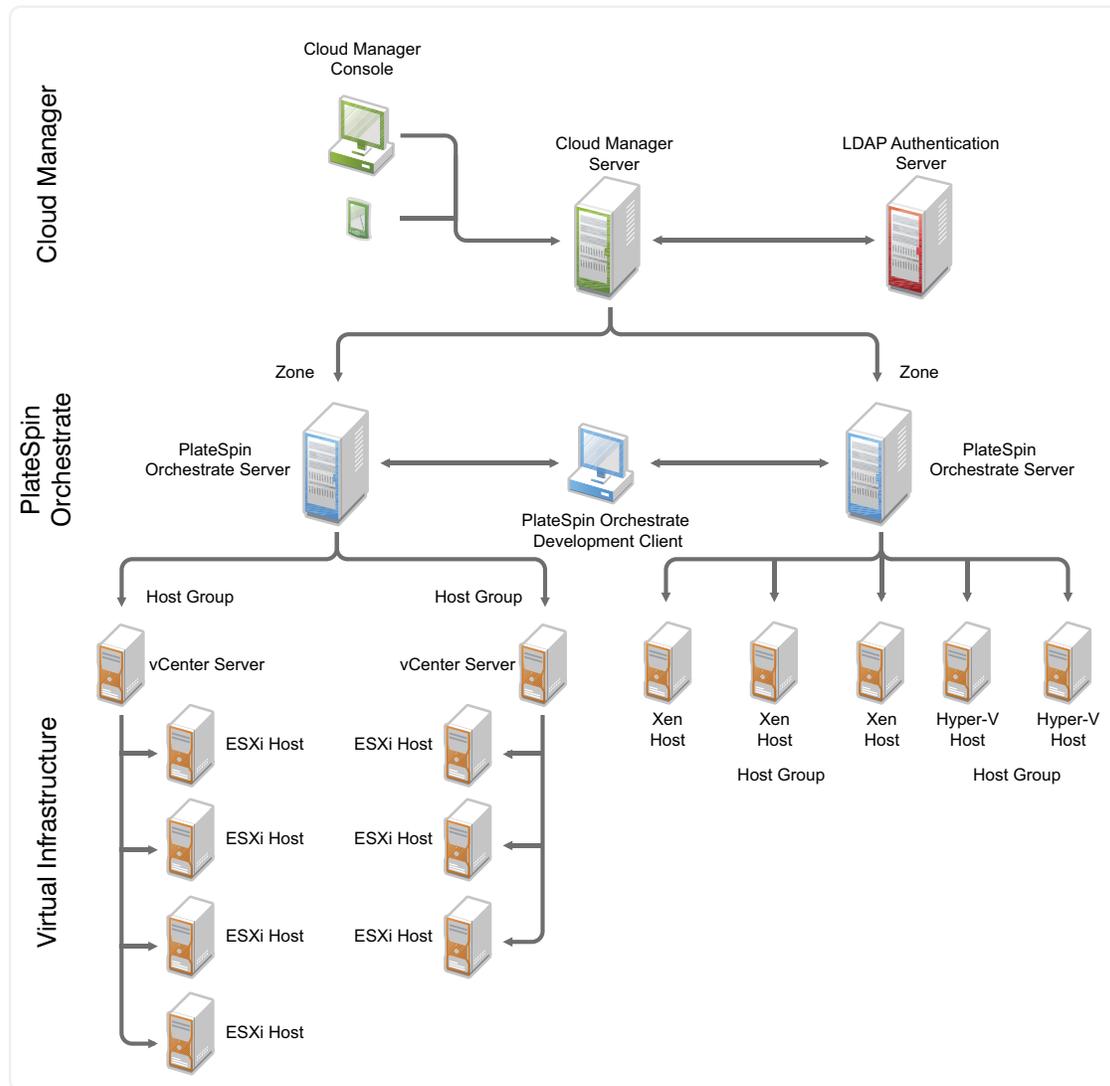
1.1.4 Exposes Business Service Costs

Cloud Manager lets you assign costs to the various components associated with running a workload, including the base software license for the workload, the host resources (CPUs, memory, network cards, and disk space), and the service level objectives. The total monthly cost for each workload is recorded in the business service and is available through cost reports.

If cost visibility is not important in your organization, you can hide cost information.

1.2 The Cloud Manager Environment

The Cloud Manager environment consists of three layers: Cloud Manager, PlateSpin Orchestrate, and a virtual infrastructure.



Cloud Manager

Cloud Manager provides the portal for initiating and managing business services. When a customer requests a business service, Cloud Manager sends instructions that PlateSpin Orchestrate uses to provision the service's workloads (virtual machines) through the virtual infrastructure technologies.

- ♦ **Cloud Manager Console:** The console is for both Cloud Manager administrators and users. As an administrator, you use the console to organize your computing resources so that users can consume them as business services. Users access the console to request and manage business services. Login to the Cloud Manager console occurs through an LDAP directory designated as the authentication source.

Cloud Manager provides two versions of the console. The primary console is the Web browser console. The secondary console is the mobile console, which lets you perform most console functions via a mobile device.

- ♦ **Cloud Manager Server:** The Cloud Manager Server supports the Cloud Manager console and communicates with the PlateSpin Orchestrate Servers to provide instructions for provisioning, managing, and removing workloads. It also performs user authentication with the LDAP server.

PlateSpin Orchestrate

PlateSpin Orchestrate automates the creation and management of the workloads in the virtual infrastructure. When it receives a business service request from Cloud Manager, PlateSpin Orchestrate directs the creation of the service's workloads from the appropriate VM template and the deployment of the workloads to the appropriate VM host. In addition, PlateSpin Orchestrate discovers and surfaces your virtual infrastructure resources (hypervisor technologies, VM hosts, VM templates, and so forth) in Cloud Manager so that you can organize them into the catalog components that customers use to build their business service requests.

- ♦ **PlateSpin Orchestrate Server:** Receives workload instructions from the Cloud Manager Server and directs the creation and management of those workloads by the virtual infrastructure. Depending on the size of your virtual infrastructure, you might have one or many PlateSpin Orchestrate Servers.
- ♦ **PlateSpin Orchestrate Development Client:** Monitors the activity of the PlateSpin Orchestrate Servers, enabling you to view and troubleshoot jobs associated with workload creation and management.
- ♦ **PlateSpin Orchestrate Agent:** Provides communication between the PlateSpin Orchestrate Server and the VM hosts managed by the server. The agent (not shown in the illustration) is installed on the VM hosts.

Virtual Infrastructure

The virtual infrastructure forms the foundation of the Cloud Manager environment. The hypervisor technologies (VMware, Microsoft Hyper-V, and Xen) virtualize the underlying physical resources and enable the creation and management of virtual machines.

The virtual infrastructure components are dependent on the hypervisor technology. Refer to the hypervisor documentation for information.

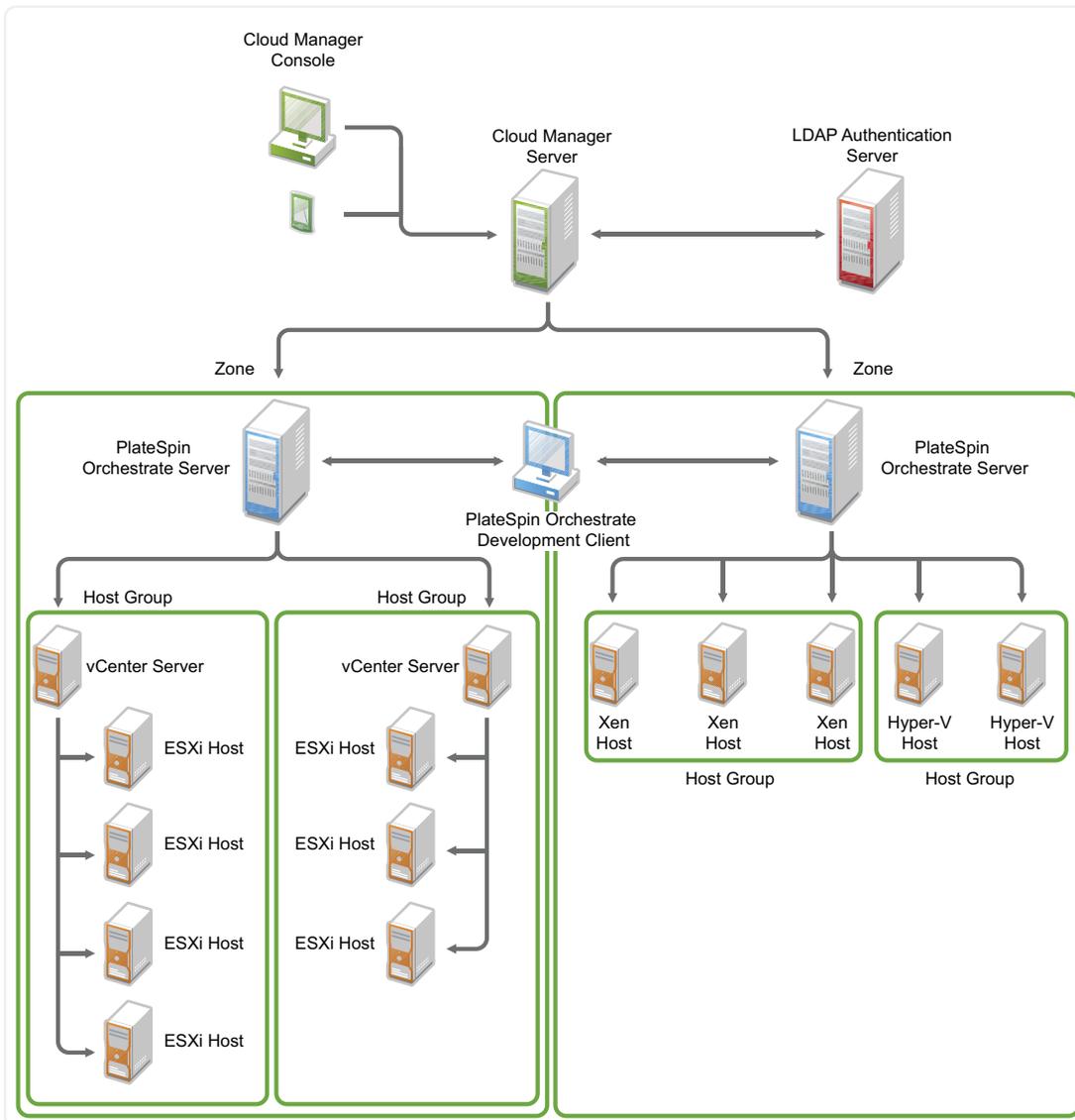
1.3 Cloud Manager Components

Cloud Manager consists of a variety of components that you will need to understand as a Cloud Manager administrator. Some of the Cloud Manager components, such as zones and host groups, provide ways to organize your virtual infrastructure resources so that Cloud Manager knows where to run business services. These components are mostly hidden to users. Other components, such as service levels and workload templates, form the core of business services and are readily visible to users. The following sections introduce these key components:

- ♦ [Section 1.3.1, “Zones and Host Groups,” on page 11](#)
- ♦ [Section 1.3.2, “Service Levels,” on page 12](#)
- ♦ [Section 1.3.3, “Workload Templates,” on page 13](#)
- ♦ [Section 1.3.4, “Business Groups,” on page 14](#)

1.3.1 Zones and Host Groups

Cloud Manager defines a PlateSpin Orchestrate Server and its managed resources as a zone. Within a zone, hosts are organized into host groups, as shown in the following illustration.



A host group serves both technical and business purposes:

- ◆ Defines a collection of hosts with the same computing capacity and performance. When a workload is deployed, it is assigned to the host group and deployed to any of the member hosts. It should be able to run equally well on all hosts.
- ◆ Identifies the costs associated with the host resources (CPUs, memory, storage, and networks). The cost of running a workload in the host group is determined by the amount of resources required by the workload.

As an example, you might form a Business Critical host group that consists of high-performance hosts intended for critical production workloads. At the same time, you might have a Lab host group that consists of standard-performance hosts intended for non-production workloads. The cost of the Business Critical host group's resources could be greater than the cost of the Lab host group's resources, reflecting the difference in the computing capacity and performance.

You should be aware of the following considerations when organizing host groups:

- ◆ A host group can include standalone hosts and clusters.
- ◆ All members of a host group must reside in the same zone as the group. For example, if Host Group A is in Zone 1, Host Group A can only include hosts located in Zone 1.
- ◆ All hosts in a group must be identical in terms of hypervisor technology and version, operating system version, network configuration, storage repository configuration, and hardware capabilities. This enables a workload to run on any of the group's hosts.
- ◆ All hosts that share the same repository must belong to the same host group. In other words, two different host groups cannot include hosts that share the same repository.
- ◆ VMware host group can contain hosts from one vCenter Server only. Including hosts from multiple vCenter Servers in the same host group is not supported.

1.3.2 Service Levels

When a user creates a business service workload, he or she selects a level of service for the workload. The service level determines:

- ◆ The host group in which the workload runs.
- ◆ Objectives related to performance characteristics such as availability, throughput, frequency, response time, and quality.

Consider the following service levels:



The Platinum service level runs workloads in the Business Critical host group and sets service objectives of 99% availability and 2 hour response time for support issues. The other two levels provide slightly lower service for the workloads.

As with host groups, you assign a cost to service level objectives. By varying the objective costs, along with the host group costs, you can establish a cost structure appropriate for the levels of service being provided.

1.3.3 Workload Templates

When a user creates a business service workload, he or she selects from a catalog of predefined workload templates. A workload template defines the following:

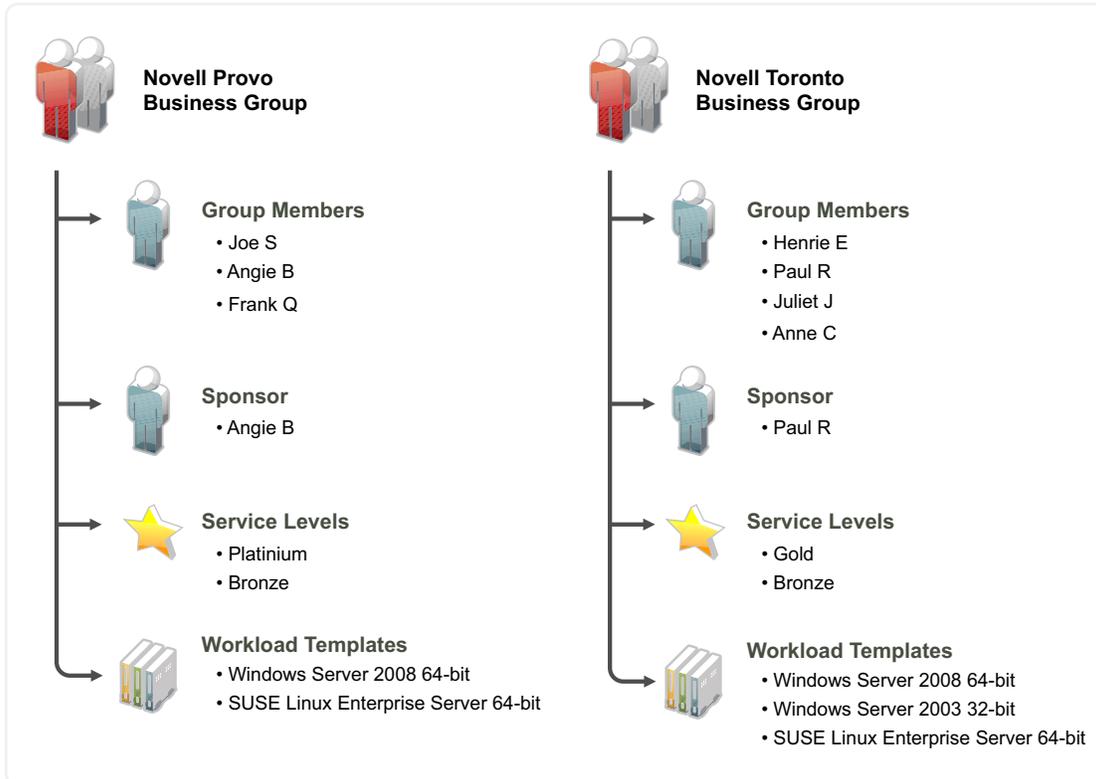
- ♦ The VM template used to create the workload.
- ♦ Resource customizations to apply to the workload. For example, if the VM template provides 2 CPUs, you can increase that number to 4 CPUs. You can lock the resources so that users can't change them, or you can keep them unlocked to allow user customizations.
- ♦ The license costs associated with the VM template software.

You create a catalog of workload templates from which users can choose when requesting business services. Depending on the needs of your users, you might have many workload templates. The examples in the following illustration are based on workload operating system, but you might have workload templates that provide not only the operating system but also applications or other services.

 <p>Windows Server 2008 64-bit</p> <p>VM Template: WinServer2008_64 Operating System: Microsoft Windows Server 2008 64-bit Hypervisor: Hyper-V CPUs: 2 Memory: 4 GB NICs: 2 Additional Disks: 2 (800 GB)</p>	 <p>Windows Server 2003 32-bit</p> <p>VM Template: WinServer2003_32 Operating System: Microsoft Windows Server 2003 32-bit Hypervisor: VMWare CPUs: 4 Memory: 12 GB NICs: 4 Additional Disks: 2 (2000 GB)</p>
 <p>SUSE Linux Enterprise Server 10 64-bit</p> <p>VM Template: SLES10_64 Operating System: SUSE Linux Enterprise Server 10 SP2 64-bit Hypervisor: Xen CPUs: 4 Memory: 8 GB NICs: 3 Additional Disks: 3 (1500 GB)</p>	

1.3.4 Business Groups

Users are organized into business groups. A business group defines the service levels and workload templates that are available to members of the group. It also defines the group member who is the sponsor for the group. The sponsor is responsible for financial approval of business services requested by the group's members.



What's New in Version 1.1

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If you are upgrading from Novell Cloud Manager 1.0, you'll want to be aware of the following enhancements for version 1.1:

- ◆ [Section 2.1, “Import Existing Virtual Machines,” on page 15](#)
- ◆ [Section 2.2, “Modify a Deployed Business Service’s Workloads,” on page 15](#)
- ◆ [Section 2.3, “Add Multiple Workload Disks,” on page 16](#)
- ◆ [Section 2.4, “Copy Workloads,” on page 16](#)
- ◆ [Section 2.5, “View Host and Cluster Information,” on page 16](#)
- ◆ [Section 2.6, “Configure the Currency Display Symbol,” on page 16](#)
- ◆ [Section 2.7, “VMware vSphere 4.1 Support,” on page 16](#)
- ◆ [Section 2.8, “Cloud Manager Mobile,” on page 17](#)

2.1 Import Existing Virtual Machines

You can import existing virtual machines as business services so that your customers can manage their existing and new business services through Cloud Manager.

During the import, you assign the customer as the owner of the business service and assign a service level to the imported virtual machine. If you have multiple virtual machines to import to the same business service, you can do so.

For detailed information, see [“Importing a Virtual Machine as a Business Service”](#) in the *Novell Cloud Manager 1.1 Administration Guide*.

2.2 Modify a Deployed Business Service’s Workloads

When initiating a change request for a deployed business service, users can modify the business service’s workload to change any of its unlocked resources (vCPUs, RAM, and NICs). Additional disks can be added but not removed.

For detailed information, see [“Changing a Provisioned Business Service”](#) in the *Novell Cloud Manager 1.1 Administration Guide*.

2.3 Add Multiple Workload Disks

Significant changes were made to improve disk support in workload templates and workloads:

- ♦ You can charge for any disks that are included in the VM template (from which the workload template is created). For example, if the VM template includes three disks, you can charge for one, two, or all three of them.
- ♦ In addition to the disks included in the VM template, you can add 10 more disks to a workload template and designate them as mandatory or optional. Mandatory disks are always created with the workload. Optional disks are created only if the user selects them. For each disk you add, you can choose whether or not to charge for it.

For detailed information, see “[Creating a Workload Template](#)” in the *Novell Cloud Manager 1.1 Administration Guide*.

2.4 Copy Workloads

When requesting a business service that requires multiple copies of the same workload, the requestor can create the workload once and then copy it. All workload properties are copied with the exception of static IP addresses, which are changed to DHCP. The requestor can give each copy a unique workload name.

For detailed information, see “[Create a Request \(User\)](#)” in the *Novell Cloud Manager 1.1 Administration Guide*.

2.5 View Host and Cluster Information

The Hosts list distinguishes between hosts and clusters. The host details is reworked to better present the host information and a new cluster details includes the cluster type and, if applicable, the DRS facts.

For detailed information, see “[Viewing the Hosts List](#)” and “[Viewing Host or Cluster Details](#)” in the *Novell Cloud Manager 1.1 Administration Guide*.

2.6 Configure the Currency Display Symbol

You can select the currency display symbol used in the Cloud Manager console. The currency setting affects only the display symbol. It does not affect the format of the currency fields. All fields are formatted as 00.00 regardless of the currency symbol. It also does not affect the currency symbol used in reports.

For detailed information, see “[Configuring the Currency Display Symbol](#)” in the *Novell Cloud Manager 1.1 Administration Guide*.

2.7 VMware vSphere 4.1 Support

VMware vSphere 4.1 is a supported hypervisor environment.

For detailed information about hypervisor support, see “[Supported Environments](#)” in the *Novell Cloud Manager 1.1 Installation Guide*.

2.8 Cloud Manager Mobile

The Cloud Manager console is now available as an iPhone application.

For detailed information, see “[Cloud Manager Mobile Client](#)” in the *Novell Cloud Manager 1.1 Administration Guide*.

Terminology

3

business group

An association of one or more users with the resources (workload templates, service levels, and networks) from which they can build business services. Each business group supports a sponsor assignment for financial approval. A user must be a member of a business group to request a business service.

A business group might represent a cost center, department, or company.

business service

A collection of workloads that are deployed together.

host

A Virtual Machine (VM) host. In Cloud Manager, a host can represent a single host or a cluster.

host group

A collection of hosts with the same hypervisor technology, operating system version, storage repositories, and networks. All hosts in a group provide the same level of service for a workload.

service level

The level of service associated with a workload. A service level identifies the class of hardware (host group) used to host a workload as well as objectives that provide specific measurable characteristics for the workload such as availability, throughput, frequency, response time, and quality. The cost of a service level is determined by the cost of its host group and objectives.

service level objective

A measurable characteristic such as availability, throughput, frequency, response time, or quality. Each of these characteristics typically has multiple objectives that identify a different level of service.

For example, you might define three availability objectives (97%, 98%, and 99%) and associate them with different service levels (Silver, Gold, and Platinum). By associating different costs with the objectives, you can establish the desired cost structure for your service levels.

sponsor

The member of a business group who is responsible for financial approval of the group's business services.

workload

A virtual machine.

workload template

A template used to create a workload. The template defines the VM template from which the workload is created and allows for customizing of the VM template settings to increase or decrease the resources (vCPUs, memory, disk storage, and networks) allocated to the workload.

zone

A PlateSpin Orchestrate Server and its associated resources (VM hosts, VM templates, and so on).