Monitoring Your Data Center

This section describes how to use Prime Central to monitor your data center. It contains the following topics:

Introduction

From Prime Central's Data Center page, you can monitor the health and performance of your data center. The components that make up your data center include compute service resources (such as bare metal blade servers and virtual machines), managed VPNs, and storage devices. To access the Data Center page, choose **Assure** > **Services** > **Data Center**.

At the top of the Data Center page, you will find four tabs:

- Overview
- Compute
- Network
- Storage

The information displayed on the Data Center page will vary, depending on which of these tabs you select. A good amount of this information is gathered from Prime Performance Manager. Keep the following in mind when viewing this page:

- After Prime Performance Manager integration with Prime Central completes:
  - It will take anywhere from one hour to a few hours for Prime Performance Manager chart data to be generated and displayed.
  - All of the necessary Prime Performance Manager reports will be enabled with the correct report settings configured. For more information, see Default Prime Performance Manager Reports, on page 2.
- After the Prime Central server starts, it might take a few hours for the charts for certain Data Center objects to become visible.

Default Prime Performance Manager Reports

Take note of the reports listed in the following table. After you integrate Prime Performance Manager with Prime Central, all of these reports should be enabled within Prime Performance Manager and configured to report data for one of the four default reporting intervals (the past 15 minutes, the past hour, the past week, and the past month). We recommend that you do not make any changes to these settings because Prime Central will not display Prime Performance Manager data properly if you do so.

Report Name	Path	Corresponding Prime Performance Manager Dashboard Path (if applicable)
SNMP/Hypervisor Ping	**Reports** > **Availability**	—
Interfaces		
Interface Status		
Interface Status Aggregate		
CPU	**Reports** > **Resources**	
Memory		
Interface	**Reports** > **Transport Statistics**	
Host Per Datastore	**Reports** > **Compute** > **VMWare** > **VMWare Cluster**	**Dashboards** > **Compute Dashboards** > **VMWare Dashboards** > **VMWare Cluster Stats**
Host Total CPU		
Host Total Memory		
vCenter Host Total CPU	**Reports** > **Compute** > **VMWare** > **vCenter**	**Dashboards** > **Compute Dashboards** > **VMWare Dashboards** > **vCenter Host Stats**
vCenter Host Per Network		
vCenter Host Per Datastore		
vCenter Host Total Memory		

Report Name	Path	Corresponding Prime Performance Manager Dashboard Path (if applicable)
vCenter VM Per Network	**Reports** > **Compute** > **VMWare** > **vCenter**	**Dashboards** > **Compute Dashboards** > **VMWare Dashboards** > **vCenter VM Stats**
vCenter VM Total Memory		
vCenter VM Total CPU		
vCenter VM Per Datastore		
vCenter Host Per Datastore	**Reports** > **Compute** > **VMWare** > **vCenter**	**Dashboards** > **Compute Dashboards** > **VMWare Dashboards** > **vCenter Host Datastore Stats**
vCenter VM Per Datastore	**Reports** > **Compute** > **VMWare** > **vCenter**	**Dashboards** > **Compute Dashboards** > **VMWare Dashboards** > **vCenter VM Datastore Stats**
CPU	**Reports** > **Resources**	**Dashboards** > **Resource Dashboards** > **CPU/Memory/Disk/Net Stats**
Memory		
Disk		
Interface	**Reports** > **Transport Statistics**	
CPU	**Reports** > **Resources**	**Dashboards** > **Server Health Dashboards** > **Server CPU/Mem/Disk/Net**
Memory		
Disk		
Interface	**Reports** > **Transport Statistics**	
L3 General VPN	**Reports** > **Transport Statistics** > **L3VPN**	**Dashboards** > **Transport Dashboards** > **L3VPN Stats**

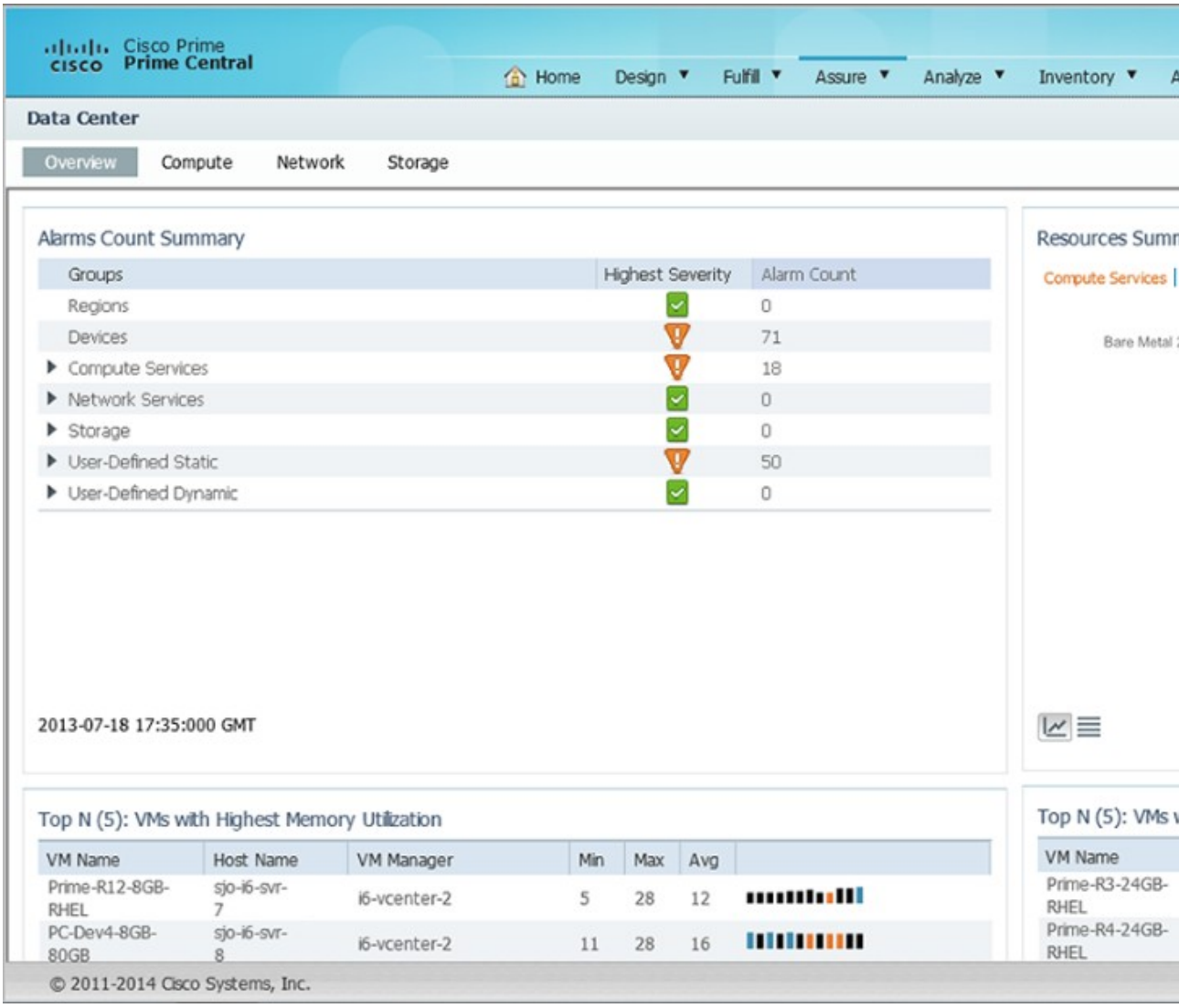
Overview Window

When monitoring your data center, begin by viewing the Overview window (see the following figure). The six portlets displayed here paint a high-level picture of your data center's performance and status, providing data such as:

- An alarm count (broken down by group)
- A chart that visualizes the compute service resources that are currently running
- Tables that list the top virtual machines by four key benchmarks: memory utilization, CPU utilization, alarm count, and I/O latency

With this information, you can identify any area within your data center that needs further attention.

Figure 1: Overview Window



Note the following regarding the Overview window:

- You cannot remove any of the default portlets displayed here.
- Any additional portlets you choose to add are automatically placed at the top of the window.
- You cannot customize the window's layout.

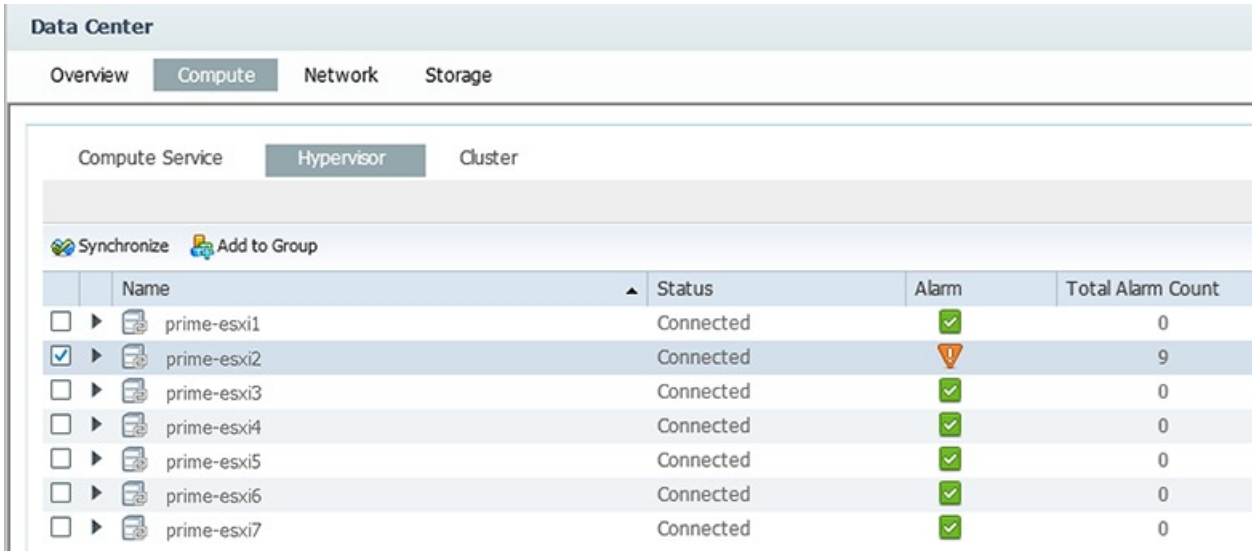
Compute Window

From the Compute window you can view information about the compute service resources that are managed within your data center. These resources include bare metal blade servers and virtual machines, hypervisors, and device clusters. At the top of the window, you will find the following tabs:

- Compute Service
- Hypervisor
- Clusters

To view information for a particular compute service resource type, click the corresponding tab.

Figure 2: Compute Window



Compute Service Pane

From the Compute Service pane, you can view information about the bare metal blade servers and virtual machines associated with your data center.

The following table describes the information provided in the Compute Service pane.

Column	Description
Name	Name of a compute service resource.
Status	Current status of a compute service resource.
Alarm	Indicates the highest severity of any alarms generated for the compute service resource.
Total Alarm Count	Total number of alarms generated for the compute service resource.
Server	Server associated with the compute service resource.
Customer	Customer associated with the compute service resource.
IP Address	IP address configured for the compute service resource.
Type	Indicates whether the compute service resource is a bare metal blade or virtual machine.

Column	Description
Hypervisor Type	Type of hypervisor configured for the selected virtual machine.
Lifecycle	Current lifecycle state for the compute service resource: Development, Production, or Staging. For more information, see Setting the Lifecycle State and Priority for a Compute Service Resource, on page 13.
Priority	Priority assigned to the compute service resource. For more information, see Setting the Lifecycle State and Priority for a Compute Service Resource, on page 13.

Hypervisor Pane

From the Hypervisor pane, you can view information about the hypervisors associated with your data center and determine if the number of alarms for any of these hypervisors is higher than normal.

The following table describes the information provided in the Hypervisor pane.

Column	Description
Name	Name of a hypervisor.
Status	Current status of the hypervisor.
Alarm	Indicates the highest severity of any alarms generated for the hypervisor.
Total Alarm Count	Total number of alarms generated for the hypervisor.
IP Address	IP address configured for the hypervisor.
VMs Count	Number of VMs associated with the hypervisor.
Active VMs	Number of VMs associated with the hypervisor that are currently active.
Suspended VMs	Number of VMs associated with the hypervisor that are currently suspended.

Cluster Pane

From the Cluster pane, you can view information about the device clusters associated with your data center and determine if the number of alarms for any of these clusters is higher than normal.

The following table describes the information provided in the Cluster pane.

Column	Description
Name	Name of a device cluster.
Host Count	Number of host associated with the device cluster.
Alarm	Indicates the highest severity of any alarms generated for the device cluster.
Total Alarm Count	Total number of alarms generated for the device cluster.

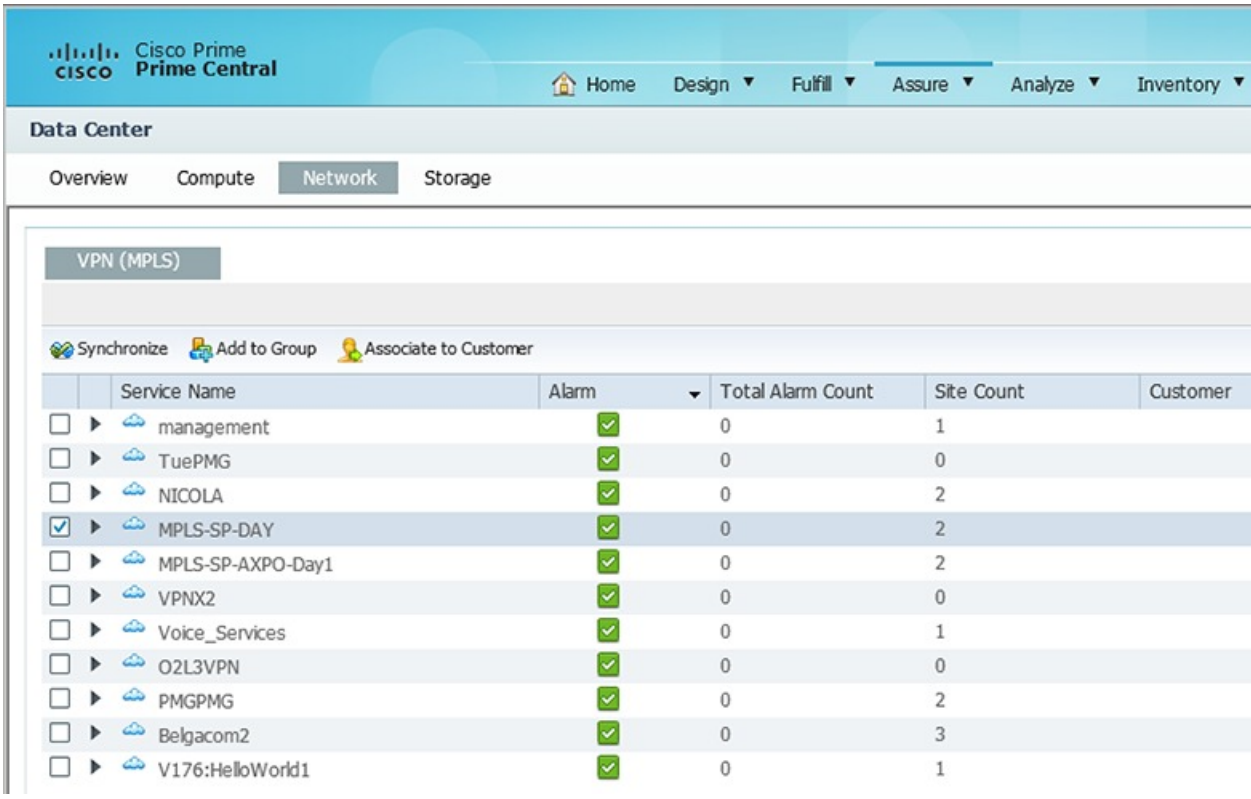
Column	Description
vMotion Events	Number of vMotion events that have occurred on the devices associated with a particular cluster. A vMotion event is triggered each time a managed virtual machine is moved from one host to another host.

Network Window

From the Network window you can view information for the VPNs managed within your data center and identify any VPNs that need to be looked at more closely (as indicated by a high alarm count). The list of VPNs provided here is gathered from Prime Network.

Note When Virtual Routing and Forwarding (VRF) is deleted from the network, the corresponding VPN is deleted automatically after 10 days.

Figure 3: Network Window



The following table describes the information provided in the VPN (MPLS) pane.

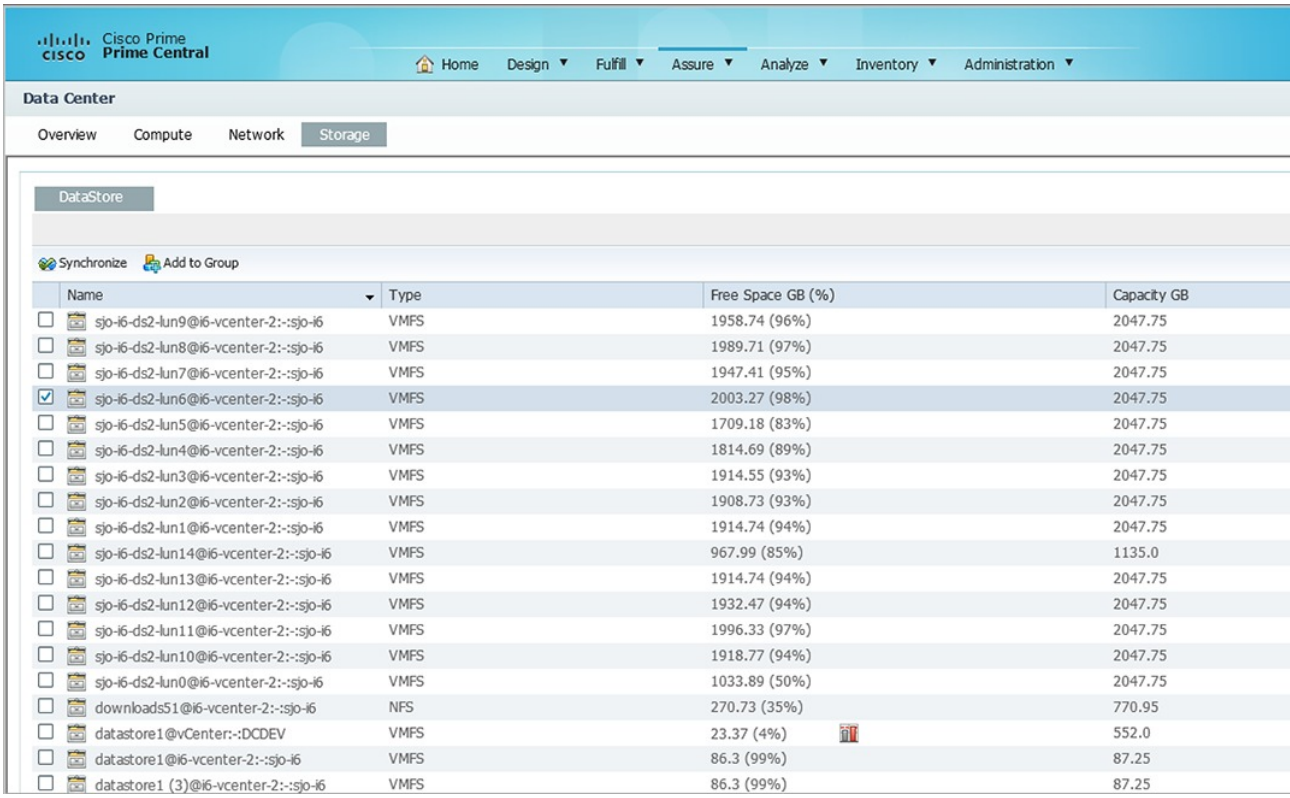
Column	Description
Service Name	Name of the VPN.

Column	Description
Alarm	Indicates the highest severity of any alarms generated for the VPN.
Total Alarm Count	Number of alarms generated for the VPN.
Site Count	Number of sites the VPN is associated with.
Customer	Indicates the customer associated with the VPN. Note that only one customer can be associated with a VPN at any given time.

Storage Window

From the Storage window you can view information for the storage devices associated with your data center and quickly determine if you need to free up space on any of these devices. The list of devices displayed here is gathered from Prime Network.

Figure 4: Storage Window



The following table describes the information provided in the Storage window.

Column	Description
Name	Device name.
Type	Device type.

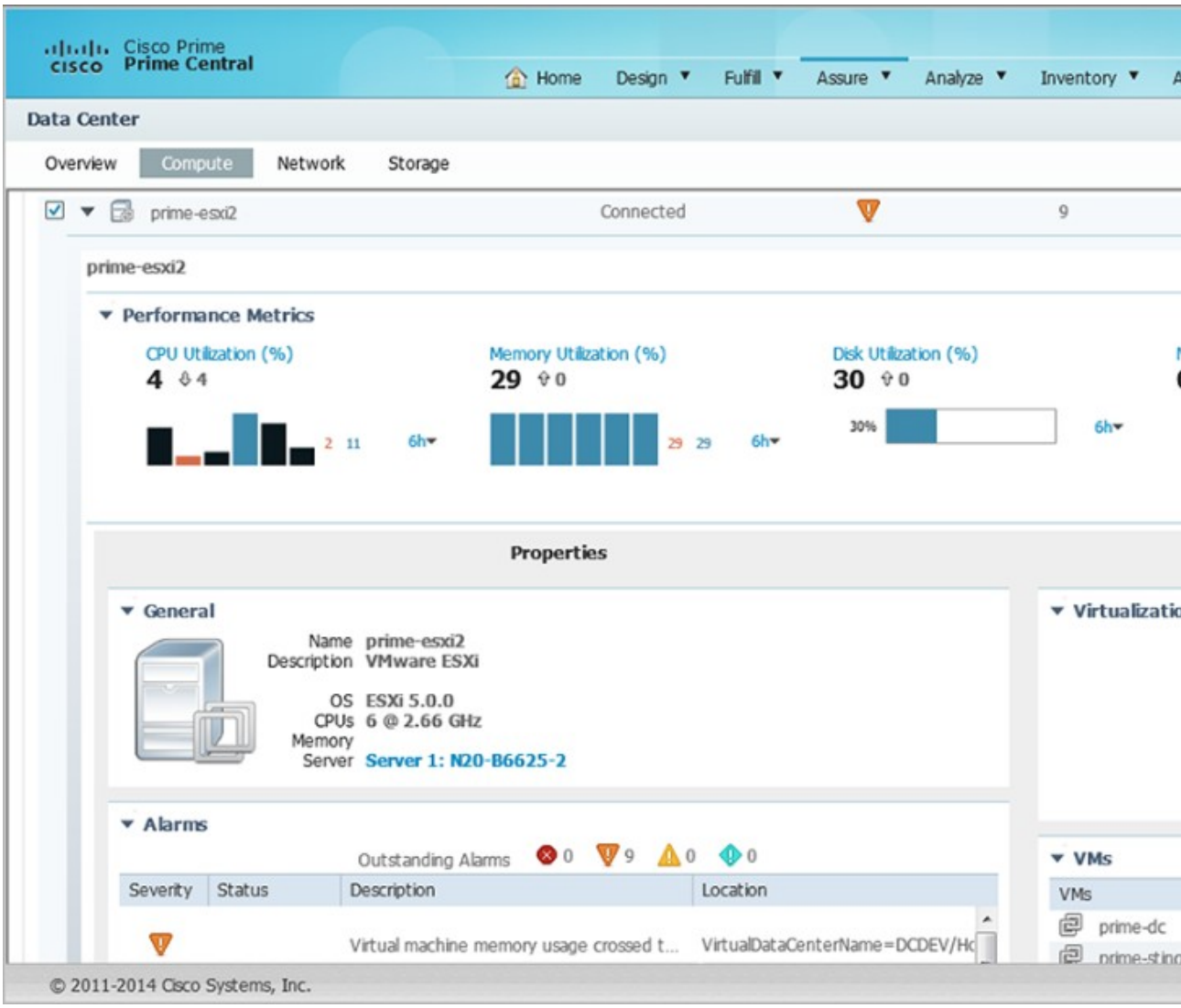
Column	Description
Free Space GB (%)	Percentage of available free space on a device.
Capacity GB	Total storage capacity of a device.

Data Center Dashboards

When monitoring your data center, you can view dashboards that provide a higher level of detail for the selected compute service resource or VPN (see the following figure). In addition to information that is specific to the type of resource you selected (such as the number of active virtual machines running on a hypervisor or the status of physical interfaces on a VPN), these dashboards provide alarm information and performance metric charts.

Note The Data Center dashboard for Prime Optical devices does not include performance metric charts.

Figure 5: Data Center Dashboard



To access these dashboards:

Procedure

Step 1 From the Prime Central menu, choose **Assure** > **Services** > **Data Center**.

Step 2 Do one of the following:

- Click the **Compute** tab and proceed to Step 3.
- Click the **Network** tab and skip ahead to Step 4.

Step 3 Click the **Compute Service**, **Hypervisor**, or **Cluster** tab.

Step 4 To the left of the compute service resource or VPN name, click the **Expand** icon to open the corresponding dashboard.

When viewing a VPN dashboard, you can cross-launch the application that manages the selected VPN or a VRF instance configured on that VPN and retrieve even more detailed information for it by clicking the appropriate source icon. Note the following:

- There are two sets of source icons. The icons in the top-right corner of the dashboard apply to the selected VPN, and the icons in the Properties table apply to the VRF selected in the VPN table.
- If multiple instances of Prime Network and Prime Optical are running and you click an icon, the instance with the highest priority associated with the VPN or VRF is launched.

In the dashboard for a bare metal server or a hypervisor, the CPUs field shows the number of CPU cores at a given CPU speed. Bare metal servers can have multiple CPU listings that might appear to be identical, but are unique per CPU.

Data Center 360° View

To quickly view additional information for a compute service resource, VPN, or storage device, open its 360° view. To do so, place your cursor over the resource's table entry and then click the radio button in one of the following columns:

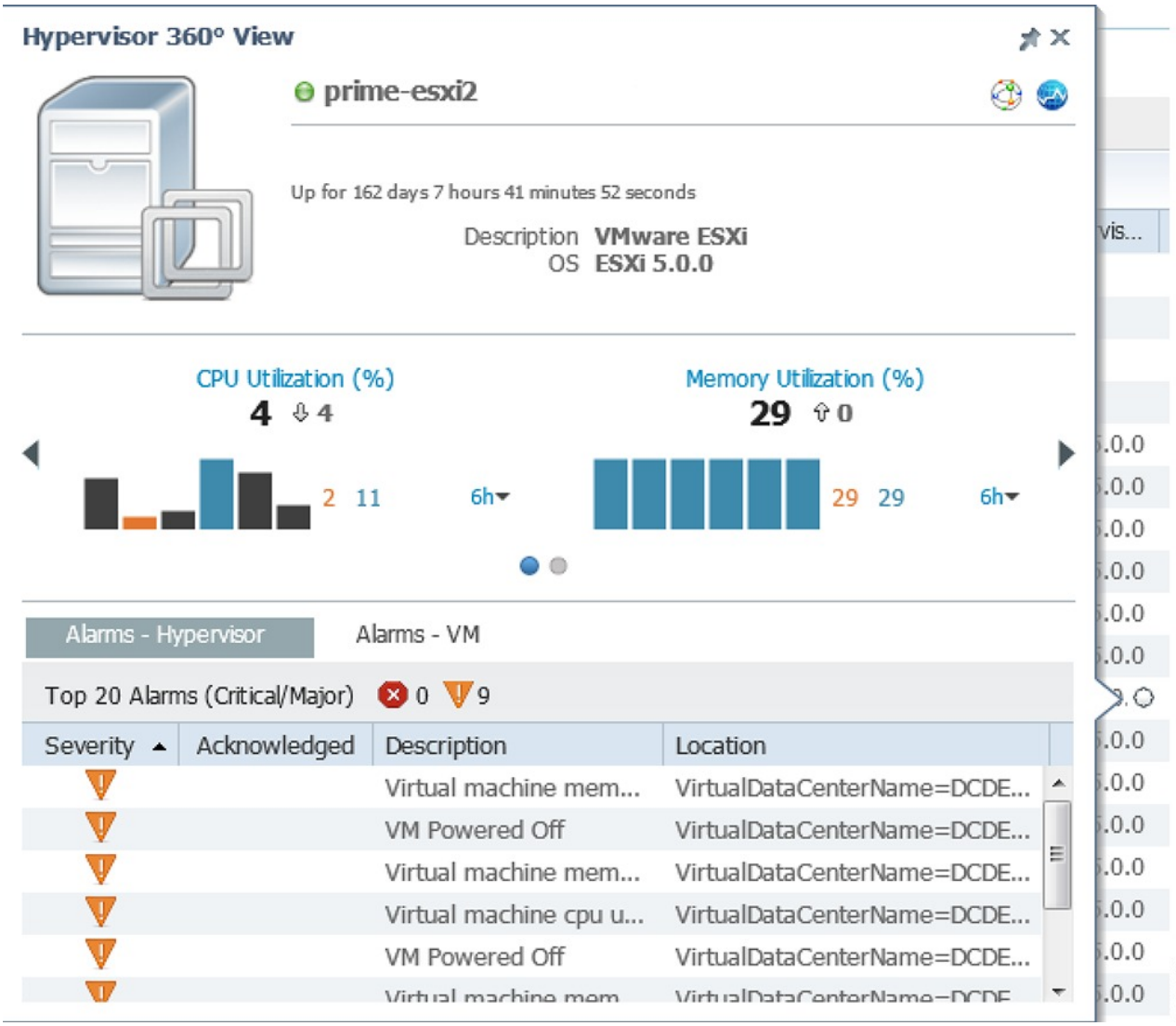
- Name column (Compute Service pane, Hypervisor pane, Clusters pane, and Storage window)
- Service Name column (Network window)
- Hypervisor Type (when launching a hypervisor's 360° view in the Compute Service pane)

The information displayed will vary (depending on the resource type you select), but typically the 360° view provides alarm information and performance metric charts. You can cross-launch the application that manages the resource and retrieve even more detailed information for it by clicking the appropriate source icon.

Note

- If multiple Prime Network or Prime Optical instances are running, the instance with the highest priority will be launched.
- The 360° view for Prime Optical devices does not include performance metric charts.

Figure 6: Data Center 360° View



Synchronizing Scopes and Inventory Data

Administrators can perform an on-demand, manual synchronization of user device scopes and inventory. When you first add a vCenter to Prime Network, you must manually synchronize the data center logical inventory to see the updates immediately in Prime Central. Alternately, you can wait for the automatic inventory synchronization, which occurs every two days. (Manual synchronization is not required when you add a virtual machine or ESX server to a vCenter that is already present in Prime Central.)

To synchronize scopes and inventory data:

Procedure

Step 1 From the Prime Central menu, choose **Assure** > **Services** > **Data Center**. The Data Center page opens.

Step 2 Click the **Compute**, **Network**, or **Storage** tab.

Step 3 Click the **Synchronize** icon.

Note Only administrators can see the Synchronize icon, which is hidden for all other users.

Step 4 In the Synchronize dialog box, do the following:

a) Click the appropriate radio button:

- Scopes—Lets you synchronize device scopes for all Prime Central users.
- Scope and Logical Inventory—Lets you synchronize all device scope and logical inventory data.

  Note When an application goes down, its inventory data can get out of sync with the data center. To ensure that you are viewing the latest inventory data, we recommended that you perform an on-demand synchronization with this radio button selected. We also recommend that you do this after completing the upgrade to Prime Central 1.5.2.

- Scope and Physical Inventory—Lets you synchronize only the device scope and physical inventory data that was received since the last synchronization.

The time stamp of the last synchronization is displayed for all of these options.

b) Click **Sync Now**.

Step 5 In the top-right corner of the Data Center page, click the **Refresh** icon. The synchronized data is displayed.

Setting the Lifecycle State and Priority for a Compute Service Resource

In the Compute Service pane, you can assign lifecycle states and priority values to resources that are associated with customers. Note that the values set for these parameters have no effect on how Prime Central manages the resources. Their purpose is to allow you to logically group resources and quickly identify the resources of a particular lifecycle state or priority when necessary. It is up to you to define what the various lifecycle states and priority values mean for your data center.

Procedure

Step 1 From the Prime Central menu, choose **Assure** > **Services** > **Data Center**.

Step 2 From the Data Center page, click the **Compute** tab.

Step 3 In the Compute Service pane, check the check box for the appropriate resources, and then click the **Set Lifecycle and Priority** icon.

Step 4 Select the lifecycle state you want to assign to the resources.

Step 5 Select the priority (P1 - P6) you want to assign to the resources.

Step 6 Confirm that the resources you selected are listed and then click **Set**.

Performing a Contextual Cross-Launch to the Common Inventory Portlet

While monitoring your data center, you can perform a contextual cross-launch to the Common Inventory portlet and view detailed inventory information for a particular blade server.

Procedure

Step 1 From the Prime Central menu, choose **Assure** > **Services** > **Data Center**. The Data Center Overview window opens.

Step 2 Click the **Compute** tab. The Compute Service pane is displayed.

Step 3 Do one of the following:

- To view inventory information for a particular blade server, proceed to Step 4.
- To view inventory information for the blade server associated with a particular hypervisor, click the **Hypervisor** tab. The Hypervisor pane is displayed.

Step 4 To the left of the appropriate blade server or hypervisor, click the **Expand** icon to open the corresponding dashboard.

Step 5 From the General section, click the blade server's link. The Common Inventory portlet opens, displaying detailed inventory information for the selected blade server.

Note This link is not displayed for a hypervisor that is not associated with a blade server.

Adding Data Center Resources to Groups

You can add a compute service resource, VPN, or storage device to any of the static groups configured in the Group Management portlet (**Administration** > **Group Management** > **Groups**). See Adding a Group Member.

Associating Data Center Resources with Customers

Prime Central allows you to associate a compute service resource or VPN with a particular customer. See Associating Resources to Customers.