CHAPTER **28**

Managing Data Center Networks

Data Center is a centralized repository, either physical or virtual for the storage, management, dissemination of data and information organized around a particular manner. In other words, it is a facility used to house computer systems and associated components, such as telecommunications and storage systems. It generally includes redundant or backup power supplies, redundant data communication connections, environmental controls such as air conditioning or fire suppression, and security devices.

Prime Network supports the following technologies as part of data center. If you cannot perform an operation that is described in these topics, you may not have sufficient permissions; see Permissions for Managing Data Center Networks, page B-24.

- Viewing Virtual Port Channel (vPC) Configurations, page 28-1
- Viewing Cisco FabricPath Configurations, page 28-5
- Viewing Virtualized Resources, page 28-10
- Viewing the Storage Area Network Support Details, page 28-37
- Monitoring Virtualized Service Module, page 28-48

Viewing Virtual Port Channel (vPC) Configurations

A Virtual Port Channel (vPC) allows links that are physically connected to two different Cisco Nexus 7000 or Cisco Nexus 5000 series network elements to appear as a single port channel by a third device as shown in Figure 28-1. The third device can be a switch, server, or any other networking device that supports port channels. A vPC can provide Layer 2 multipathing, which allows you to create redundancy and increase bisectional bandwidth by enabling multiple parallel paths between nodes and allowing load balancing traffic. You can use only Layer 2 port channels in the vPC.

Figure 28-1   *vPC Architecture*
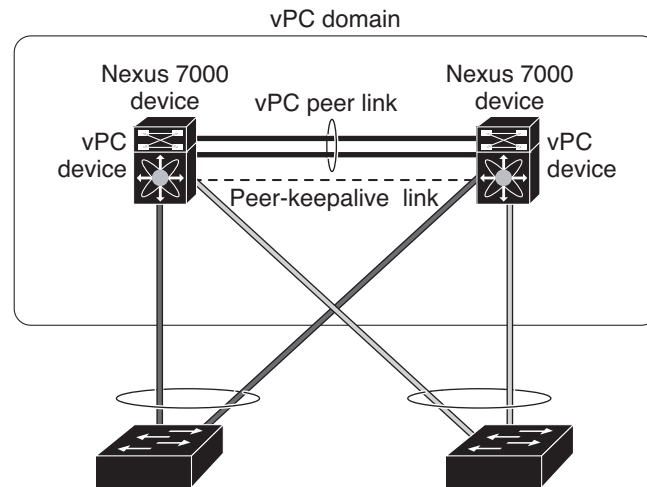
A vPC consists of the following components:

- Two vPC peer switches, among which one is primary and one is secondary. The system formed by the two peer switches is referred to as a vPC domain.

- A peer link, also known as multichassis EtherChannel trunk (MCT), which connects the vPC peer switches. A peer link is a redundant 10 Gigabit Ethernet Port Channel,which is used to carry traffic from one system to the other when needed and to synchronize forwarding tables.

- vPC member ports that form the PortChannel and are split between the vPC peers.

- A routed link, called as a vPC peer-keepalive or fault-tolerant link is a Layer 3 Gigabit Ethernet link, used to resolve dual-active scenarios where the peer link connectivity is lost.

A vPC domain is associated to a single Virtual Device Context (VDC), so all vPC interfaces belonging to a given vPC domain must be defined in the same VDC. You must have a separate vPC peer link and peer keepalive link infrastructure for each VDC deployed. Consolidating a vPC pair (two vPC peer devices of the same domain) in two VDCs of the same physical device is not supported. The vPC peer link must use 10-Gigabit Ethernet ports for both ends of the link; otherwise, the link will not be formed.

A vPC provides the following benefits:

- Allows a single device to use a port channel across two upstream devices

- Eliminates STP blocked ports

- Provides a loop-free topology

- Uses all available uplink bandwidth

- Provides fast convergence in case of link or a device failure

- Provides link level resiliency

- Assures high availability

Prime Network supports vPC on Cisco Nexus 5000 series and Cisco Nexus 7000 series network elements.

To view the vPC configuration details in Prime Network Vision:

Step 1   Right-click on the required device and choose the **Inventory** option.

Step 2   In the Inventory window, choose **Logical Inventory > VPC Domain**. The vPC domain details are displayed in the content pane as shown in Figure 28-2.
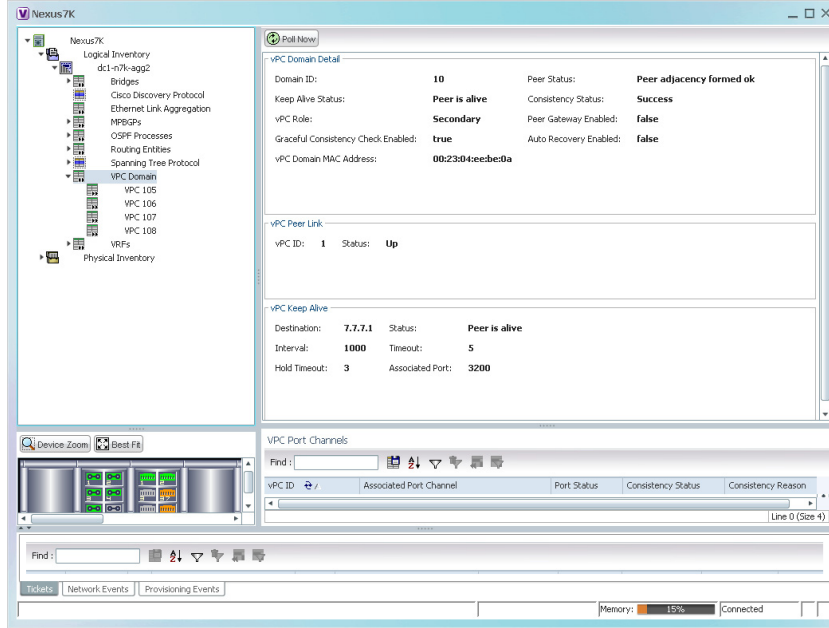
Figure 28-2   vPC Domain in Logical Inventory

Table 28-1 describes the vPC domain details.

Table 28-1   vPC Domain Properties

Field Name	Description
Domain ID	Unique ID that is used to identify the vPC peer links and ports connected to the vPC downstream devices.
Peer Status	Status of the peer link.
Keep Alive Status	Status of the keep alive link, which could be Alive or Down.
Consistency Status	Consistency status of the vPC, which could be Success or Failed.
vPC Role	Role of the vPC, which could be Primary or Secondary.
Peer Gateway Enabled	Status of the peer gateway, which could be Enabled or Disabled.
Graceful Consistency Check Enabled	Indicates whether graceful consistency check is enabled or disabled. This consistency check helps in preventing traffic drops.
Auto Recovery Enabled	Indicates whether auto recovery is enabled or disabled.
vPC Domain Mac Address	MAC address of the vPC domain.
FabricPath Switch ID	ID of the FabricPath switch connected to the vPC.
vPC Peer Link	
vPC ID	Unique ID for vPC peer link.
Status	Status of the port channel used for communication, which could be Up or Down.
Port Channel	vPC used as the port channel for communication. Click the hyperlink, to view the relevant Ethernet link aggregation node in the physical inventory.
vPC Keep Alive	
Destination	Destination IP address of the peer switch.
Status	Status of the keep alive link, which could be Alive or Down.
Interval	Interval time required to check whether the peer switch is active or inactive.
Timeout	Time taken by the peer switch to respond.
Hold Timeout	Amount of time during which the peer switch information is stored.
Port	Interface used for the communication.
VPC Port Channel	
vPC ID	Unique virtual Port Channel ID.
Port Channel	Ethernet link used as the port channel for communication. Click the hyperlink, to view the relevant Ethernet link aggregation node in the physical inventory.
Port Status	Status of the vPC, which could be Up or Down.
Consistency Status	Consistency status of the vPC, which could be Success or Failed.
Consistency Reason	Reason for the consistency status.

The following VPC commands can be launched from the inventory by right-clicking **VPC Domain** and choosing **Commands > Show.** Your permissions determine whether you can run these commands (see Permissions for Vision Client NE-Related Operations, page B-4). To find out if a device supports these commands, see the *Cisco Prime Network 5.1 Supported Cisco VNEs*.

Command	Navigation	Description
Show Port Channel Capacity	*Right-click on the VPC node >* **Commands > Show**	Use this command to view and confirm the port channel capacity details.
Show vPC		Use this command to view the vPCs available for the selected domain.
Show vPC Consistency Parameters		Use this command to view the vPC consistency parameters.

Viewing Cisco FabricPath Configurations

Cisco FabricPath is an innovation in Cisco NX-OS software that brings the stability and scalability of routing to Layer 2. It provides a foundation to build a scalable fabric—a network that itself looks like a single virtual switch from the perspective of its users. The switched domain does not have to be segmented anymore, providing data center–wide workload mobility. Because traffic is no longer forwarded along a spanning tree, the bisectional bandwidth of the network is not limited, and massive scalability is possible.

Cisco FabricPath introduces an entirely new Layer 2 data plane by encapsulating the frames entering the fabric with a header that consists of routable source and destination addresses. These addresses are the address of the switch on which the frame was received and the address of the destination switch to which the frame is heading. From there, the frame is routed until it is reaches the remote switch, where it is de-encapsulated and delivered in its original Ethernet format.

Cisco FabricPath provides the following features:

- Allows Layer 2 multipathing in the FabricPath network.
- Provides built-in loop prevention and mitigation with no need to use the Spanning Tree Protocol (STP).
- Provides a single control plane for unknown unicast, broadcast, and multicast traffic.
- Enhances mobility and virtualization in the FabricPath network.

The system randomly assigns a unique switch ID to each device that is enabled with FabricPath. After you enable FabricPath on the devices, you can configure an Ethernet interface or a port channel interface as a FabricPath interface. If one member of the port channel is in FabricPath mode, then all the other members will also be in FabricPath mode. After you configure the interface as a FabricPath interface, it automatically becomes a trunk port, capable of carrying traffic for multiple Virtual Local Area Networks (VLANs).

Prime Network supports Cisco FabricPath on Cisco Nexus 5000 series and Cisco Nexus 7000 series network elements. Figure 28-3 shows a Cisco FabricPath architecture.

Figure 28-3   Cisco FabricPath Architecture
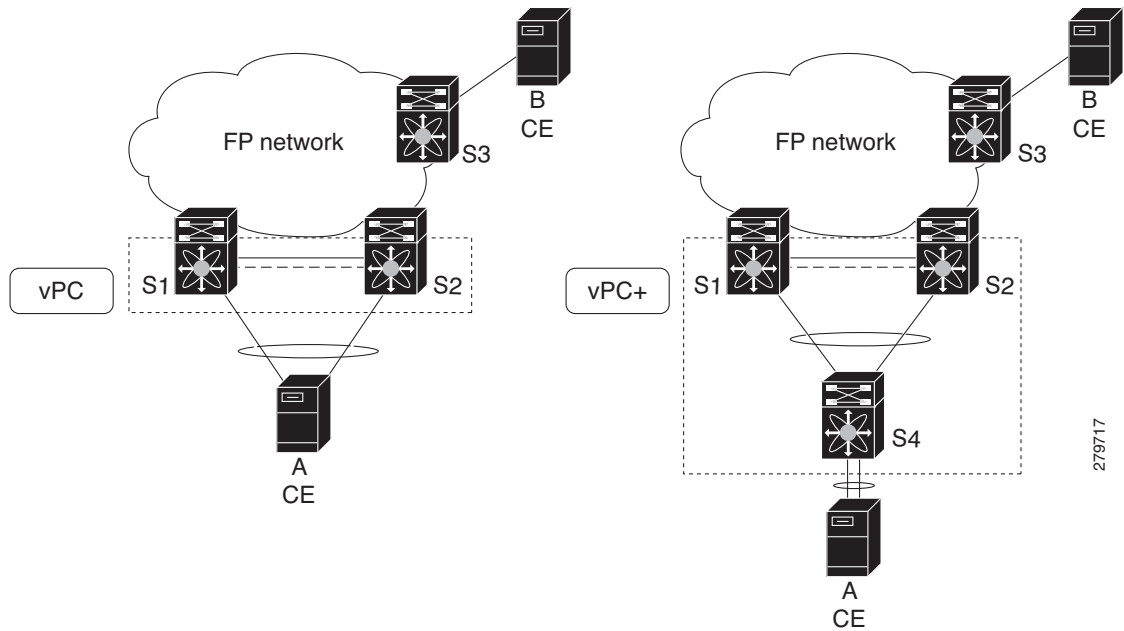
To view the FabricPath configuration in Prime Network Vision:

Step 1   Right-click on the required device and choose the **Inventory** option.

Step 2   In the Inventory window, choose **Logical Inventory > FabricPath**. The FabricPath configuration details are displayed in the content pane as shown in Figure 28-4. You can also view the properties, by right-clicking the FabricPath node and choosing **Properties**.

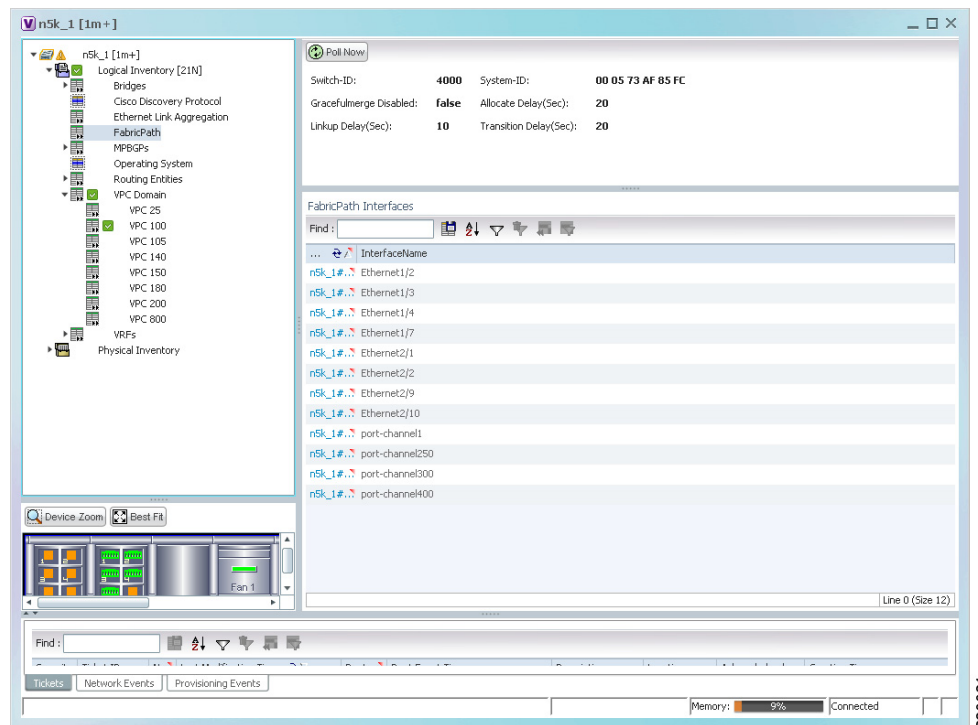***Figure 28-4   Cisco FabricPath Node in Logical Inventory***

Table 28-2 describes the FabricPath configuration details.

Table 28-2   Cisco FabricPath Configuration

Field Name	Description
Switch ID	Unique ID of the Cisco FabricPath virtual switch.
System-ID	System MAC address of the Cisco FabricPath.
Gracefulmerge Disabled	Indicates whether graceful merge feature is enabled are not. Value could be **True** or **False**. If this feature is enabled, the switch would be effectively linked to the Cisco FabricPath network. If disabled, you may experience traffic drops.
Allocate Delay (sec)	Time delay during new resource propagation.
Linkup Delay (sec)	Time delay for detecting conflicts during linkup sessions.
Transition Delay (sec)	Time delay during transition of value propagation.
FabricPath Interfaces	
Port	Ethernet link, which is configured as a Cisco FabricPath. Click the hyperlink to view the interface link in physical inventory.
Interface Name	Name of the interface for which switch port mode is configured as a Cisco FabricPath.

The following FabricPath commands can be launched from the inventory by right-clicking **FabricPath** and choosing **Commands > Show.** Your permissions determine whether you can run these commands (see Permissions for Vision Client NE-Related Operations, page B-4). To find out if a device supports these commands, see the *Cisco Prime Network 5.1 Supported Cisco VNEs*.

Command	Navigation	Description
FabricPath Conflict	*Right-click on the FabricPath node* > **Commands** > **Show**	Use this command to view the Cisco FabricPath conflicts.
MAC Address-Table Learning Mode		Use this command to view the MAC address-table learning mode.

# Viewing the Virtual Device Context and Port Allocation

The Virtual Device Context (VDC) partitions a single physical device into multiple logical devices that provide fault isolation, management isolation, address allocation isolation, service differentiation domains, and adaptive resource management. You can manage a VDC instance within a physical device independently. Each VDC appears as a unique device to the connected users. A VDC runs as a separate logical entity within the physical device, maintains its own unique set of running software processes, has its own configuration, and can be managed by a separate administrator.

In Prime Network, you can view the VDC context and port allocation details for a Nexus 7000 device. Each context will contain a list of allocated ports.

To view the VDC context details:

Step 1   Right-click on the Nexus 7000 device and choose the **Inventory** option.

Step 2   In the Inventory window, choose **Logical Inventory** > *Context*.

Step 3   In the content pane, click the **Allocated Interfaces** tab. The VDC context details are displayed in the content pane as shown in Figure 28-5. The **Interface Name** and the related **Associated Entity** are displayed in the content pane.

Figure 28-5   *Allocated Interfaces tab*
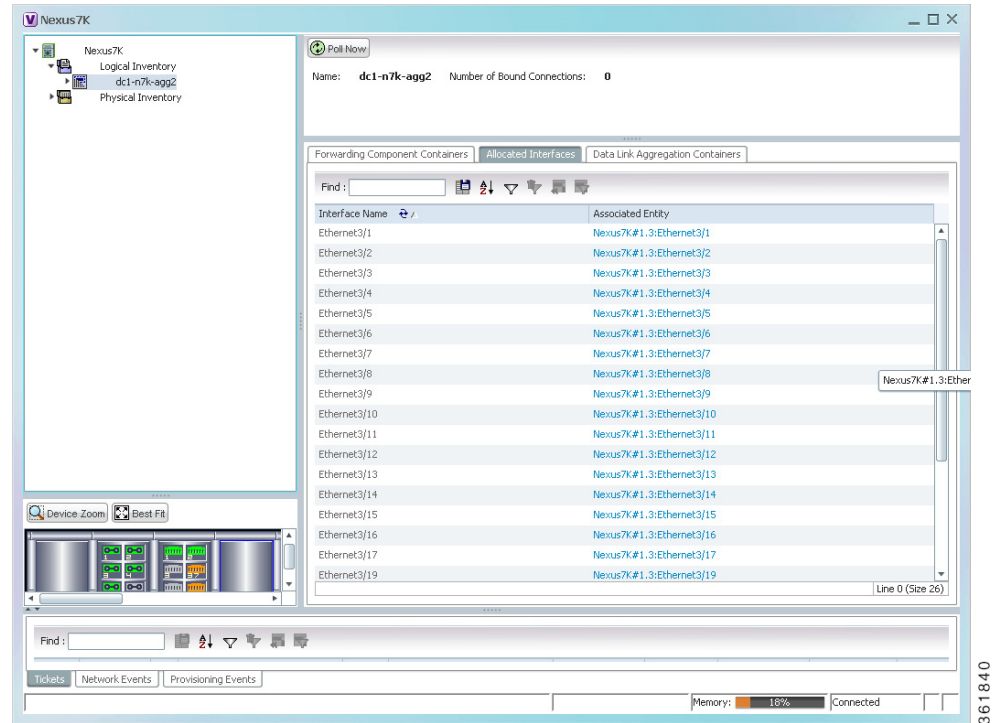
Step 4   Click the link in the **Associated Entity** field and you will be able to view the related interface node details under the Physical Inventory.

Configuring Prompts and Messages for Unconfigured VDC for a Nexus Device

You can configure prompts and messages of unconfigured Virtual Device Context (VDC) for a Cisco Nexus device by using runRegTool.

Prime Network reads these prompts at the time of switching to unconfigured VDC to avoid collectors from blocking the expected prompt. When the prompts are completely read, Prime network receives the interactive mode response from the device, say Cisco Nexus device. Prime Network detects the situation by comparing the device response with the configured messages of unconfigured VDC in the Registry. After the situation is detected, Prime Network avoids configuring the unconfigured VDC by aborting the switchto command. As soon as the current command result is marked as Valid, you can proceed with inventory discovery.

If either Unconfigured VDC is configured or Suspended VDC is activated, click **Poll Now** to view the updated inventory details.

Note   Ensure that prompts and messages must be defined with a unique name and full description.

To configure new prompts, run the below command:

```
runRegTool.sh -gs 127.0.0.1 set 0.0.0.0
"site/ciscovdc-cisco-nexus70xx-product/cisco-catalyst/nexus70xx/product/software
versions/default
version/ip_default/protocols/telnet/unconfigured_vdc_context/expected_prompts/<pro
mptentry>"  <promptvalue>


Example: runRegTool.sh -gs 127.0.0.1 set 0.0.0.0
"site/ciscovdc-cisco-nexus70xx-product/cisco-catalyst/nexus70xx/product/software
versions/default
version/ip_default/protocols/telnet/unconfigured_vdc_context/expected_prompts/prom
pt1" "[n]:"
```

To configure messages, run the below command:

```
runRegTool.sh -gs 127.0.0.1 set 0.0.0.0
"site/ciscovdc-cisco-nexus70xx-product/cisco-catalyst/nexus70xx/product/software
versions/default
version/ip_default/protocols/telnet/unconfigured_vdc_context/expected_messages/<me
ssageentry>" <messagevalue>


Example: runRegTool.sh -gs 127.0.0.1 set 0.0.0.0
"site/ciscovdc-cisco-nexus70xx-product/cisco-catalyst/nexus70xx/product/software
versions/default
version/ip_default/protocols/telnet/unconfigured_vdc_context/expected_messages/mes
sage0"  "Admin Secure Password".
```

Viewing Virtualized Resources

Virtualization is a concept of creating a virtual version of any resource, such as hardware platform, operating system, storage device, or network resources, as shown in Figure 28-6. It provides a layer of abstraction between computing, storage and networking hardware, and the applications running on it. Virtual infrastructure gives administrators the advantage of managing pooled resources across the enterprise, allowing IT managers to be more responsive to dynamic organizational needs and to better leverage infrastructure investments.

The VMware vCenter Server provides centralized management of virtualized hosts and virtual machines from a single console. With VMware vCenter Server, virtual environments are easier to manage: a single administrator can manage hundreds of workloads, more than doubling typical productivity in managing physical infrastructure.

In Prime Network, VCenter is modelled as a VNE.
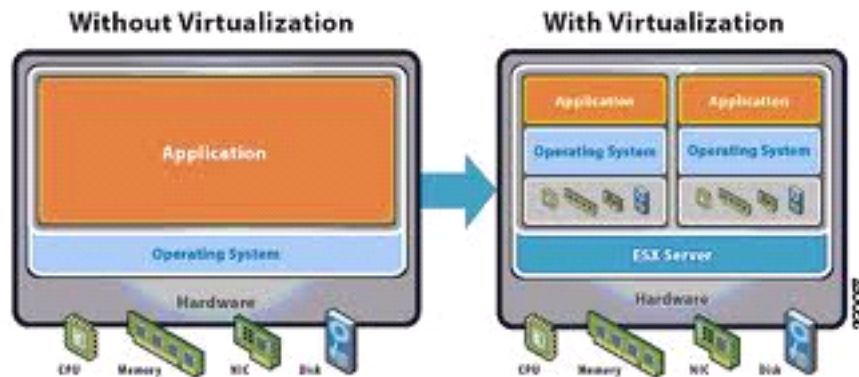
Note   VCenter is created as a separate VNE using the Administration client. For more information about creating a new VNE, see the *Cisco Prime Network 5.1 Administrator Guide*. You must specify the http credentials for VCenter. However the SNMP credentials are optional, and the SSH credentials are not required.

Note   .

Figure 28-6   Virtualization Concept

The various components of virtualization are:

Hypervisor (Host Server)

A hypervisor, also called a blade server, a virtual machine manager, or a host server, is a program that allows multiple operating systems to share a single hardware host. Each operating system appears to have the host's processor, memory, and other resources all to itself. However, the hypervisor is actually controlling the host processor and resources, allocating what is needed to each operating system in turn and making sure that the guest operating systems (called virtual machines) do not disrupt each other.

Virtual Machine

A virtual representation of a real machine using software that provides an operating environment, which can run or host a guest operating system.

Guest Operating System

An operating system running in a virtual machine environment that would otherwise run directly on a separate physical system.

Data Store

A data store represents a storage location for virtual machine files. It can be a Virtual Machine File System (VMFS) volume, a directory on Network Attached Storage, or a local file system path.

Data Center

Data Center serves as a container for hosts, virtual machines, networks, and data stores.

Cluster

A cluster is a collection of servers that operate as if it is a single machine. The primary purpose of these clusters is to provide uninterrupted access to data, even if a server loses network or storage connectivity, or fails completely, or if the application running on the server fails.

Resource Pool

A resource pool is a logical abstraction for flexible management of resources. Resource pools can be grouped into hierarchies and used to hierarchically partition available CPU and memory resources.It is the foundation of virtual data centers, virtual desktops, high availability and other options on virtual servers. Resource pools aggregate CPU processing power and memory, along with any other relevant components, then share these hardware resources among virtual machines (VMs).

The following topics explain how to view and monitor virtual data center properties in
Prime Network Vision:

- Viewing Virtual Data Centers, page 28-12
- Viewing the Data Stores of a Data Center, page 28-12
- Viewing the Host Servers of a Data Center, page 28-13
- Viewing all the Virtual Machines managed by vCenter, page 28-17
- Viewing the Virtual Machines of a Data Center, page 28-18
- Viewing the Host Cluster Details, page 28-21
- Viewing the Resource Pool Details, page 28-23

Viewing Virtual Data Centers

To view the virtual data centers in the logical inventory:

Step 1   Right-click on the required device and choose the **Inventory** option.

Step 2   In the Inventory window, choose **Logical Inventory** > **Compute Virtualization**. The virtual data centers are listed in the content pane.

Table 28-3 describes the virtual data center properties.

Table 28-3   Virtual Data Center Properties

Field Name	Description
Name	Name of the data center.
IP Address	IP address of the vCenter, which manages the virtual data center.
DNS name	The DNS name of the data center.

Step 3   Right-click the data center and choose **Properties** to view more details.

Viewing the Data Stores of a Data Center

To view the details of data stores available for a data center:

Step 1   Right-click on the required device and choose the **Inventory** option.

Step 2   In the Inventory window, choose **Logical Inventory** > **Compute Virtualization >** *Data Center* > **All Data Stores**. The available data stores are displayed in the content pane. You can view the data store properties from the table or by right-clicking the required data store and choosing **Properties**.

Table 28-4 describes the data store properties.

Table 28-4   *Data Store Properties*

Field Name	Description
Name	Name of the data store.
Storage Type	Type of data storage for the data store.
Capacity	Capacity of the data store, in GB.
Free Space	Free space of the data store, in GB.
Provisioned Space	The amount of provisioned space available for the data store.
Accessible	Indicates whether the data store is accessible or not. Value could be True or False.
Multi Host Access	Indicates whether the data store supports multi host access. Value could be True or False.
Storage Location	The location of the data store.
Uuid	The unique ID of the data store.
Associated storage device	The storage device associated to the data store.
Connected Hosts	
Host Name	The name of the host connected to the data store.
Associated Host	The link to the associated host, which when clicked will take you to the relevant host node.

Viewing the Host Servers of a Data Center

To view the host centers of a data center:

Step 1   Right-click on the required device and choose the **Inventory** option.

Step 2   In the Inventory window, choose **Logical Inventory** > **Compute Virtualization >** *Data Center* > **All Host Servers**. Choose a host server and the details are displayed in the content pane as shown in Figure 28-7.

Figure 28-7   Host Server Details

Table 28-5 describes the host server details.

Table 28-5   Host Servers of a Data Center

Field Name	Description
Name	Name of the host server.
IP Address	The IP address of the host server.
DNS Name	The domain name of the host sever.
State	Management state of the host server.
EVC Mode	Enhanced vMotion Capability (Evc) of the host server.
VMotion Enabled	Indicates whether vMotion service is enabled or not. vMotion service helps in migrating the virtual machines from one host server to another, when a particular host server is down.
Fault Tolerance Enabled	Indicates whether fault tolerance service is enabled or not. This service provides continuous availability by protecting the primary virtual machine with a secondary virtual machine that runs simultaneously on a separate host.
Fault Tolerance Version	The fault tolerance version of the host server.
MAC Address	MAC address of the host server.
UUID	The unique ID of the host server.
Hardware Model	The hardware model of the server.
Vendor	The name of the vendor of the host server.
Associated Compute Server	The compute server associated to the host server.
Associated VEM Module	The Virtual Ethernet Module (VEM) associated to the host server. Clicking this link will take you to the related UCS blade server node under the physical inventory.
Associated Cluster	The cluster associated to the host server.
System Up Time	The date and time when the router was last restarted.
Hypervisor tab	
Name	Name of the hypervisor running on the host server.
Description	Description of the hypervisor.
Hypervisor Type	Type of the hypervisor.
Software Type	Type of software used by the hypervisor.
State	State of the hypervisor, which could be Running, Runnable, Waiting, Exiting, or Other.
Processor tab	
Name	Name of the processor used by the host server.
Description	Description of the processor used by the host server.
CPU	Number of central processing units (CPUs) available for the host server.
Cores per CPU	Number of cores per CPU available for the host server.
Rated Speed	Rated speed of the processor, in GHz.
Used Speed	Actual used speed of the processor, in GHz.

Table 28-5   Host Servers of a Data Center (continued)

Field Name	Description
Hyper Threading Enabled	Indicates whether hyper threading is enabled for the host server or not. Hyper threading helps to improve parallelization of computations.
RAM Size	RAM size of the processor, in GB.
Statistics tab	
CPU Usage	CPU usage by the host server, in GHz.
Memory Usage	Memory usage by the host server, in GB.
Disk Usage	Amount of disk space used by the host server, in GB.
CPU Allocation tab	
Resource Type	The type of resource, which in this instance is CPU.
Allocatable	Maximum CPU allocation for the host center, in GHz.
Reserved	The CPU allocation reserved for the host center, in GHz.
Unallocated	The unallocated CPU allocation for the host center, in GHz.
Overhead	The overhead CPU allocation for the host center, in GHz.
Unlimited Provision	Indicates whether the unlimited CPU provision is available for the host center.
Share	Relative importance of the host server for CPU allocation, which could be High, Normal, or Low.
Custom Share Weight	The custom share weight assigned to the host server.
Unreserved	The unreserved CPU allocation for the host center, in GHz.
Memory Allocation tab	
Resource Type	The type of resource.
Allocatable	Maximum memory allocation for the host center, in GHz.
Reserved	The memory allocation reserved for the host center, in GHz.
Unallocated	The unallocated memory allocation for the host center, in GHz.
Overhead	The overhead memory allocation for the host center, in GHz.
Unlimited Provision	Indicates whether the unlimited memory provision is available for the host center.
Share	Relative importance of the host server for memory allocation, which could be High, Normal, or Low.
Custom Share Weight	The custom share weight assigned to the host server.
Unreserved	The unreserved memory allocation for the host center, in GHz.
Data Stores tab	
Data Store Name	Name of the data store associated with the host server.
Associated Data Store	Click the hyperlink to view the associated data store under the **All Data Stores** node.
Virtual Interfaces tab	
Name	Name of the network endpoint of the virtual entity.
Type	Type of the virtual entity network endpoint.

Table 28-5   Host Servers of a Data Center (continued)

Field Name	Description
IP Address	Primary IP address of the virtual entity network endpoint.
MAC Address	MAC address of the virtual entity network endpoint.
Duplex Mode	Communication mode, which could be one of the following: • Half—Transmit data in one direction at a time. • Full—Transmit data in both the directions at the same time.
Compute Resource Pool	
Provider Name	The compute resource pool name.
Description	The description of the compute resource pool.
Status	The status of the compute resource pool.
Root Pool	Indicates whether the compute resource pool is the root pool.

Viewing all the Virtual Machines managed by vCenter

To view a list of all the virtual machines managed by a data center:

Step 1   Right-click on the required device and choose the **Inventory** option.

Step 2   In the Inventory window, choose **Logical Inventory** > **Compute Virtualization >** *Data Center* > **All Virtual Machines**. A list of virtual machines is displayed in the content pane as shown in Figure 28-7.
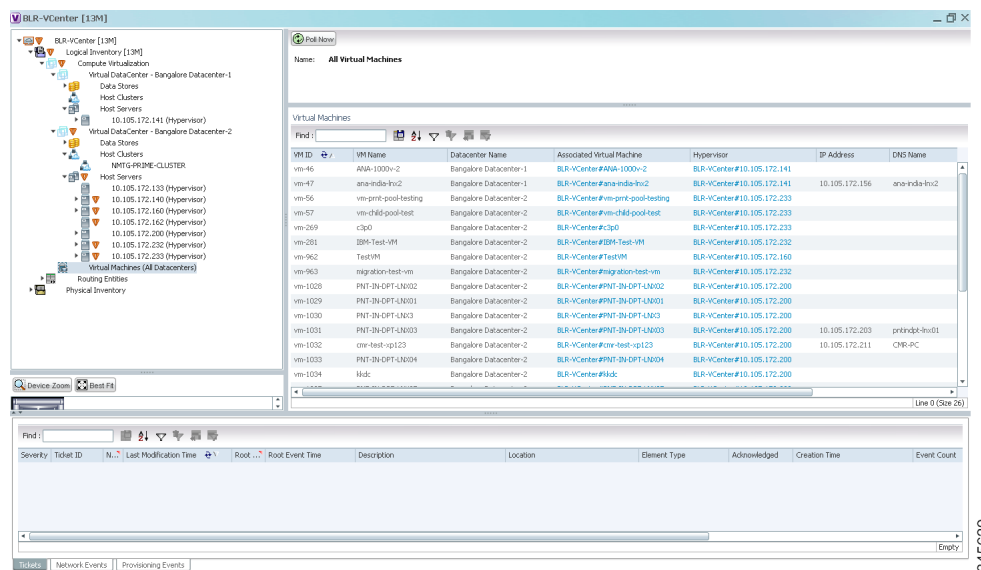

Table 28-6 describes the virtual machine details available in the list.

Table 28-6   Virtual Machines

Field Name	Description
Name	Name of the associated data center.
Virtual Machines	
VM ID	The unique identification code for the virtual machine.
VM Name	The name of the virtual machine.
Data Center Name	The name of the data center associated to the virtual machine.
Associated VM Entity	The associated virtual machine entity.
Hypervisor	The hypervisor associated tot he virtual machine.
DNS Name	The DNS name of the virtual machine.
IP Address	The IP address of the virtual machine.
MAC Address	The MAC address of the virtual machine.

Viewing the Virtual Machines of a Data Center

To view the virtual machines for a data center:

Step 1   Right-click on the required device and choose the **Inventory** option.

Step 2   In the Inventory window, choose **Logical Inventory > Compute Virtualization >** *Data Center* **> All Host > Virtual Machine**. A list of virtual machines is displayed in the content pane.

Step 3   Click the hyperlinked virtual machine name to view more details about the virtual machine. Prime Network Vision takes you to the virtual machine node under the mapped host server in the logical inventory. You can view the virtual machine properties on the content pane or by right-clicking the virtual machine and choosing **Properties**.

Table 28-7 describes the properties of the virtual machine.

Table 28-7   Virtual Machine Properties

Field Name	Description
VM ID	The unique identification code of the virtual machine.
Name	Name of the virtual machine.
IP Address	IP address of the virtual machine.
DNS Name	Domain name of the virtual machine.
MAC Address	MAC Address of the virtual machine.
State	Execution state of the virtual machine, which could be Powered On, Powered Off, or Suspended.
VM Version	Hardware version of the virtual machine.
Virtual CPU	Number of virtual CPUs configured for the virtual machine on the host server.
Minimum Required EVC Mode	Minimum required EvC of the virtual machine.
VM Template	The virtual machine template.
Management Address	The management address configured for the virtual machine.
Host Name	The host name of the virtual machine.
Virtual Data Center Name	The virtual data center name associated to the virtual machine.
Fault Tolerance Enabled	Indicates whether fault tolerance service is enabled or not. This service provides continuous availability by protecting the primary virtual machine with a secondary virtual machine that runs simultaneously on a separate host.
Software Type	Type of the software used by the virtual machine.
Source Resource Pool	The source resource pool associated to the virtual machine.
System Uptime	The date and time when the virtual machine was last booted up.
Statistics tab	
CPU Usage	CPU usage by the virtual machine, in GHz.
Memory Usage	Memory usage by the virtual machine, in GB.
Disk Usage	Amount of disk space used by the virtual machine, in GB.
Active Guest Memory Usage	Active guest memory used by the virtual machine, in GB.
CPU Allocation tab	
Resource Type	The type of resource, which in this instance is CPU.
Maximum Allocation	Maximum CPU allocation for the virtual machine, in GHz.
Startup Allocation	The startup CPU allocation for the virtual machine, in GHz.
Guaranteed Allocation	The guaranteed CPU allocation for the virtual machine, in GHz.
Overhead Allocation	The overhead CPU allocation for the virtual machine, in GHz.
Unlimited Maximum Allocation	Unlimited maximum allocation capacity availability check for the virtual machine. Value could be true or false.

Table 28-7   Virtual Machine Properties (continued)

Field Name	Description
Expandable Allocation	Expandable allocation availability for the virtual machine. Value could be true or false.
Share	Relative importance of the virtual machine for CPU allocation, which could be High, Normal, or Low.
Custom Share Weight	Custom share weight assigned to the virtual machine.
Memory Allocation tab	
Resource Type	The type of resource.
Startup Allocation	The startup memory allocation for the virtual machine, in GB.
Guaranteed Allocation	The guaranteed memory allocation for the virtual machine, in GB.
Maximum Allocation	Maximum memory allocation for the virtual machine, in GB.
Overhead Allocation	Overhead memory allocation for the virtual machine, in GB.
Unlimited Maximum Allocation	Unlimited maximum allocation capacity availability check for the virtual machine. Value could be true or false.
Expandable Allocation	Expandable allocation availability for the virtual machine. Value could be true or false.
Share	Relative importance of the virtual machine for memory allocation, which could be High, Normal, or Low.
Custom Share Weight	Custom share weight assigned to the virtual machine.
Disk Allocation tab	
Resource Type	The type of resource, which in this instance is Disk.
Startup Allocation	The startup disk allocation for the virtual machine, in GB.
Guaranteed Allocation	Guaranteed resource allocation for the virtual machine, in GB.
Maximum Allocation	Maximum disk allocation for the virtual machine, in GB.
Overhead Allocation	Overhead disk allocation for the virtual machine, in GB.
Unlimited Maximum Allocation	Unlimited maximum allocation capacity availability check for the virtual machine. Value could be true or false.
Expandable Allocation	Expandable allocation availability for the virtual machine. Value could be true or false.
Share	Relative importance of the virtual machine for memory allocation, which could be High, Normal, or Low.
Custom Share Weight	Custom share weight assigned to the virtual machine.
Data Stores tab	
Data Stores Name	Name of the data store associated with the virtual machine.
Associated Data Sore	Click the hyperlink to view the associated data store under the **All Data Stores** node.
Virtual Interfaces tab	
Name	Name of the network endpoint of the virtual entity.
Type	Type of the virtual entity network endpoint.
IP Address	Primary IP address of the virtual entity network endpoint.

Table 28-7   Virtual Machine Properties (continued)

Field Name	Description
MAC Address	MAC address of the virtual entity network endpoint.
Duplex Mode	Communication mode, which could be one of the following: • Half—Transmit data in one direction at a time. • Full—Transmit data in both the directions at the same time.
Operational Status	The operational status of the virtual machine.
Administrative Status	The administrative status of the virtual machine.
Speed	The speed of the processor in the virtual machine.
MTU	The maximum number of transmission units (in bytes) for the virtual machine.
Secondary Address	The secondary IP address of the virtual machine.

Viewing the Host Cluster Details

To view the host cluster details:

Step 1   In the Vision client, right-click on the required device and select the **Inventory** option.

Step 2   In the Inventory menu, expand the **Logical Inventory** node.

Step 3   Select **Compute Virtualization** > *Data Center* > **Host Clusters** > *Host cluster*. The host cluster details are displayed in the content pane as shown in Figure 28-8.

Figure 28-8   Host Cluster Details

Table 28-8 describes the Host Cluster details.

Table 28-8   Host Cluster Details

Field Name	Description
Name	The name of the host cluster.
Data Center Name	The name of the associated data center.
Description	The description of the host cluster.
State	The status of the host cluster, which can be any one of the following: • Unknown • Normal • Warning • Alert
DRS Enabled	Indicates whether the VMware Distributed Resource Scheduler (DRS) feature is enabled for the host cluster.
DPM Enabled	Indicates whether the VMware Distributed Power Management (DPM) feature is enabled for the host cluster.
HA Enabled	Indicates whether the VMware High Availability (HA) feature is enabled for the host cluster.
No. of VM Migration	The number of virtual machines that have been migrated from one server to another within the same cluster.
EVC Mode	The Enhanced vMotion Compatibility (EVC) mode of the host cluster.
Migration Threshold	The migration threshold for the host cluster.
Automation Level	Indicates that the placement and migration recommendations run automatically for the host cluster.
Current Load Std dev	The current host load standard deviation for the host cluster.
Target Load Std dev	The target hot load standard deviation for the host cluster.
CPU Allocation	
Allocatable	The maximum CPU allocation for the virtual machine, in GHz.
Reserved	The CPU allocation reserved for the virtual machine, in GHz.
Unreserved	The unreserved CPU allocation for the virtual machine, in GHz.
Unlimited Provision	Indicates whether the unlimited CPU provision is available for the virtual machine.
Share	Relative importance of the virtual machine for CPU allocation, which could be High, Normal, or Low.
Custom Share Weight	The custom share weight assigned to the virtual machine.
Memory Allocation	
Allocatable	The maximum memory allocation for the virtual machine, in GB.
Reserved	The memory allocation reserved for the virtual machine, in GB.
Unreserved	The unreserved memory allocation for the virtual machine, in GB.
Unlimited Provision	Indicates whether unlimited memory allocation provision is available for the virtual machine.

Table 28-8   Host Cluster Details (continued)

Field Name	Description
Share	The relative importance of the virtual machine for memory allocation, which could be High, Normal, or Low.
Custom Share Weight	The custom share weight assigned to the virtual machine.
Statistics tab	
CPU Usage	CPU usage by the virtual machine, in GHz.
Memory Usage	Memory usage by the virtual machine, in GB.
Disk Usage	Amount of disk space used by the virtual machine, in GB.
Active Guest Memory Usage	Active guest memory used by the virtual machine, in GB.
Clustered Hosts	
Host Name	The name of the host server in the clustered host.
Associated Host	The link to the associated host, which when clicked will take you to the relevant host server.
Compute Resource Pool	
Provider Name	The compute resource pool name.
Description	The description of the compute resource pool.
Status	The status of the compute resource pool.
Root Pool	Indicates whether the compute resource pool is the root pool.

Viewing the Resource Pool Details

To view the resource pool details:

Step 1   In the Vision client, right-click on the required device and select the **Inventory** option.

Step 2   In the Inventory menu, expand the **Logical Inventory** node.

Step 3   Select **Compute Virtualization** > *Data Center* > **Host Clusters** > *Host cluster.* The host cluster details are displayed in the content pane.

Note   Alternatively, you can also view the host cluster details by selecting **Compute Virtualization** > *Data Center* > **All Host** > **Host**.

Step 4   In the Compute Resource Pools tab in the content pane, click on a resource pool link in the **Resource Pool** field. The **Compute Resource Pool Properties** window is displayed.In

Table 28-10 describes the resource pool details.

Table 28-9   Resource Pool Properties

Field Name	Description
Name	The compute resource pool name.
Provider Name	The description of the compute resource pool.
Status	The status of the compute resource pool.
Root Pool	Indicates whether the compute resource pool is the root pool.
CPU Allocation tab	
Resource Type	The type of resource, which in this instance is CPU.
Allocatable	The maximum CPU allocation for the virtual machine, in GHz.
Reserved	The CPU allocation reserved for the virtual machine, in GHz.
Unreserved	The unreserved CPU allocation for the virtual machine, in GB.
Unlimited Provision	Indicates whether unlimited CPU allocation provision is available for the virtual machine.
Share	The relative importance of the virtual machine for CPU allocation, which could be High, Normal, or Low.
Configured Reservation	The CPU reservation configured for the virtual machine.
Available Reservation	The CPU reservation available for the virtual machine.
Overhead	The overhead CPU allocation for the virtual machine, in GHz.
Custom Share Weight	The custom share weight assigned to the virtual machine.
Memory Allocation tab	
Resource Type	The type of resource.
Allocatable	The maximum memory allocation for the virtual machine, in GHz.
Reserved	The memory allocation reserved for the virtual machine, in GHz.
Unallocated	The memory not allocated for the virtual machine.
Overhead	The overhead memory allocation for the host center, in GHz.
Unlimited Provision	Indicates whether unlimited memory allocation provision is available for the virtual machine.
Unreserved	The unreserved memory allocation for the virtual machine, in GB.
Share	The CPU reservation configured for the virtual machine.
Custom Share Weight	The CPU reservation available for the virtual machine.
Configured Reservation	The memory reservation configured for the virtual machine.
Available Reservation	The memory reservation available for the virtual machine.

Viewing the Map Node for an UCS Network Element

Using the Vision client, you can view the physical layout and topology among the multi-chassis devices on the map. The multi-chassis devices have more than one physical chassis, but they are represented as a single entity in Prime Network. In a map, this device is shown as an aggregation of all the device chassis. For more information on viewing multi-chassis devices, see Viewing Multi-Chassis Devices, page 8-5.

For a Cisco Unified Computing Service (UCS) device, you can view its chassis along with the other elements relevant to the UCS device, such as Blade Server and IO Modules.

Another important component of the UCS is the Fabric InterConnect. The Fabric InterConnect is a core part of the UCS device. It provides both network connectivity and management capabilities to all attached blades and chassis. All chassis, and therefore all blades, attached to the interconnects become part of a single, highly available management domain.

To view the physical inventory of a UCS:

Step 1   Right-click on the UCS device and choose the **Inventory** option.

Step 2   In the Inventory window, expand the **Physical Inventory** node. The Chassis and Fabric Interconnect chassis are displayed below the node as shown in Figure 28-9.

Figure 28-9   Physical Inventory Node for a UCS Device
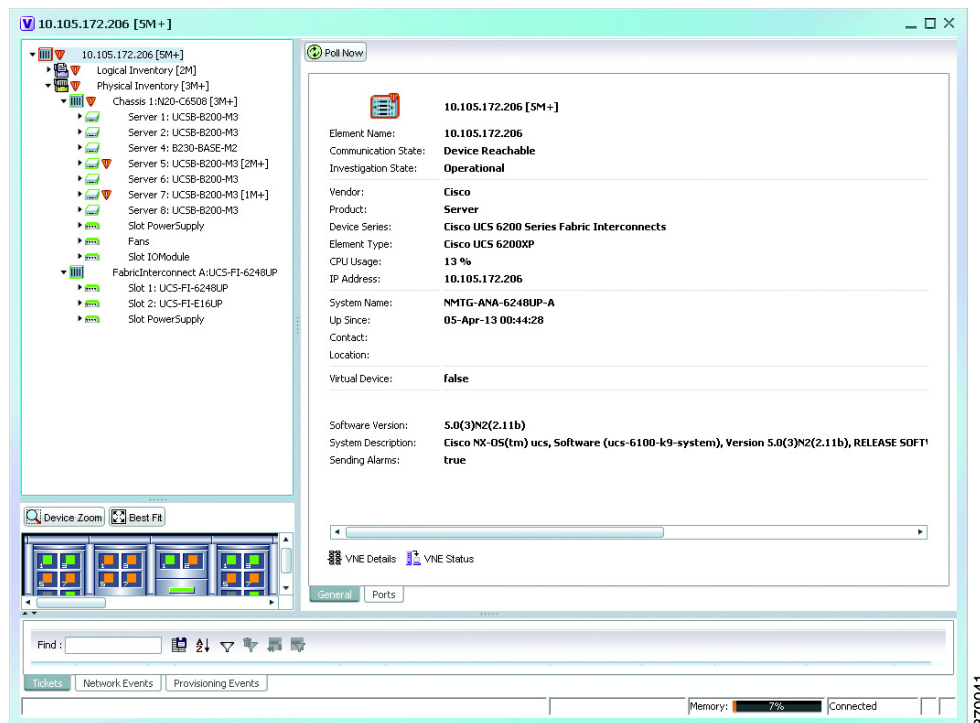
Step 3   Expand the **Chassis** node. The Blade servers, Fans, and the IO Modules that make up the Chassis are displayed under this node.

Step 4   Expand the **Fabric InterConnect** node.The slots and the power supply are available here. You can click on each individual node under these nodes to view more details.

Step 5   Close the inventory window.

Each of these parts, i.e. the blade servers, Fabric InterConnect chassis, and IO Modules, can be connected to each other internally. For example, an IO Module can be connected to a blade server or there could also be a link between the IO Module and Fabric InterConnect chassis.

The Ethernet links between the different components of a UCS can be categorized as:

- Backplane links—The links that connect a chassis to a backplane port via the IO Module.
- Fabric links—The links that connect a chassis to a Fabric InterConnect port via the IO Module.

You can also view this link in a map that contains a separate map node for each of the following elements:

- Fabric Interconnect Chassis
- Blade Server Chassis
- Cisco Blade Server
- IO Module

The blade server chassis is shown as an aggregation that also contains the IO Module.

To view the map for a UCS device:

Step 1   In the Vision client, open a map with a UCS device. The UCS device is displayed with a plus (+) sign. Click on the + sign. The map containing the links between each element in the UCS device is shown in the window as shown in Figure 28-10.

Figure 28-10   *UCS Map Node with Aggregation Links*
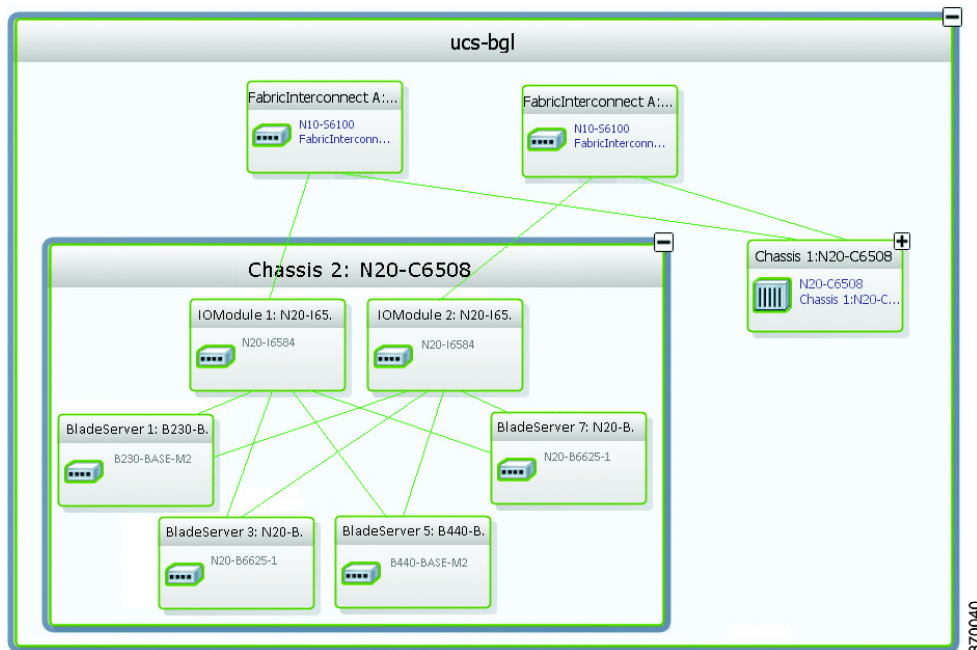
Note   Sub-nodes are available for the chassis that have blade servers under them. You can expand/contract these sub-nodes to view more details. However, the elements under the Fabric InterConnect chassis will not be displayed in the map.You can also view the inventory for an element by double-clicking on a node in the map. The inventory window will open with the selected node.

Step 2   Hover your mouse cursor over the required link in a map. A link tooltip is displayed. The tooltip displays the link endpoints identified by the element or service name and the number of links represented by the line on the map.

Step 3   To view additional link information, click the tooltip. The link quick view window is displayed. Alternatively, you can also double-click the link to view the link quick view window.

Note   You can view links belonging to a specific type by clicking the Filter icon in the navigation pane and selecting the relevant check box. Open the link again and only the selected type of link is displayed. For more information about filtering a map, see Using Link Filters to Find Links, page 7-21.

Step 4   Close the window.

Step 5   In the map, double-click an element icon to open the Physical inventory and view the ports under it. For example, if you double-click on an IO Module element, the Inventory window is displayed along with the Backplane and Fabric ports under the IO Module node.

Step 6   In the map, double click on a link to view it's properties such as the link type, port alias, and port location. For more information on link properties, see Viewing Link Status and Detailed Link Properties, page 7-25.

Note   The links between the UCS components can also be viewed in the Cisco Unified Computing System Manager application.

Discovering the UCS Devices by Network Discovery

The Network Discovery feature automatically discovers network devices by traversing the network. The required information is an IP address for a seed device, and the SNMPv 2 or SNMPv 3 credentials. This information is added to a discovery profile that specifies the IP and SNMP information, along with any additional protocols or filters you want Prime Network to use.

You can also discover the UCS devices by Network Discovery. To manage a UCS device, the CLI and http credentials are required. However, the existing network discovery does not support http.

Since the CLI and http credentials are identical most of the times, the CLI credentials will be copied into http. You need to create a new discovery profile (using telnet or SSH credentials) for the UCS device and execute it. For more information about adding devices using Network Discovery, see the *Cisco Prime Network 5.1 Administrator Guide*.

# Viewing the Virtual Network Devices of a Data Center

Prime Network supports the following virtual network devices of a data center:

- Cisco Cloud Service Router (CSR) 1000v
- Cisco Nexus 1000V
- Virtual Security Gateway

Viewing the CSR 1000v Properties

The Cisco Cloud Services Router (CSR) 1000V is a single-tenant router in virtual form-factor that delivers comprehensive WAN gateway functionality to multi-tenant provider-hosted clouds. It is a software router that an enterprise or a cloud provider can deploy as a virtual machine (VM) in a provider-hosted cloud.The Cisco CSR 1000V provides selected Cisco IOS XE features on a virtualization platform. It also provides secure connectivity from the enterprise premise (such as a branch office or data center) to the public or private cloud. Figure 28-11 depicts the deployment of CSR 1000v on a provider hosted cloud:

Figure 28-11   Deployment of CSR 1000v on a Provider Hosted Cloud
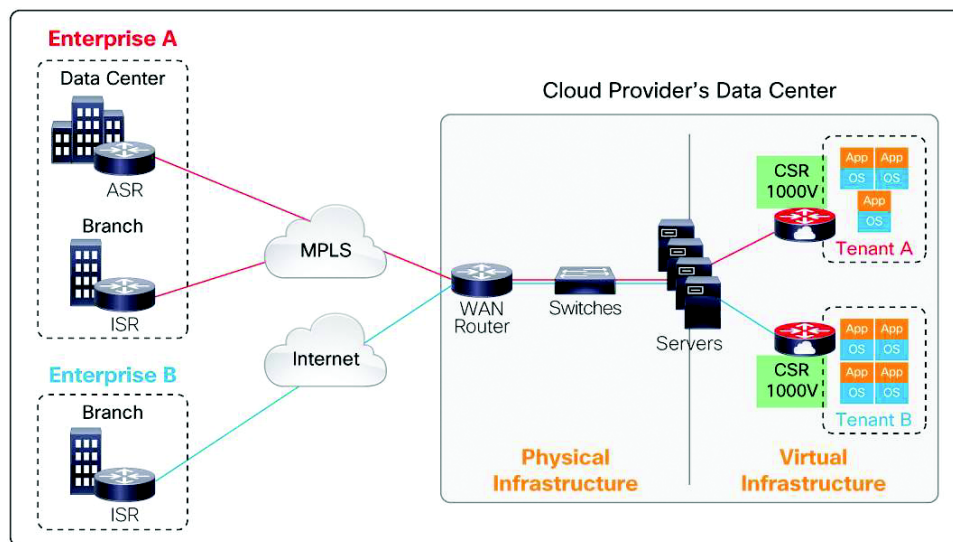
The Cisco CSR 1000V serves primarily as a router per tenant. In other words, since the CSR 1000v is situated on the tenant's side, each tenant gets its dedicated routing instance and services (along with its own VPN connections, firewall policies, QoS rules, access control, and so on).

To view the CSR 1000v properties:

Step 1   In the Vision client, open a map that contains the CSR 1000v device.

Step 2   Right-click and choose the **Inventory** option to open the Inventory window.

Step 3   In the **Inventory** window, click the device name to view the Element properties as shown in Figure 28-12. For more information about the properties window, see Drilling Down into the Properties of a Network Element, page 8-2.

Figure 28-12   Element Properties Window
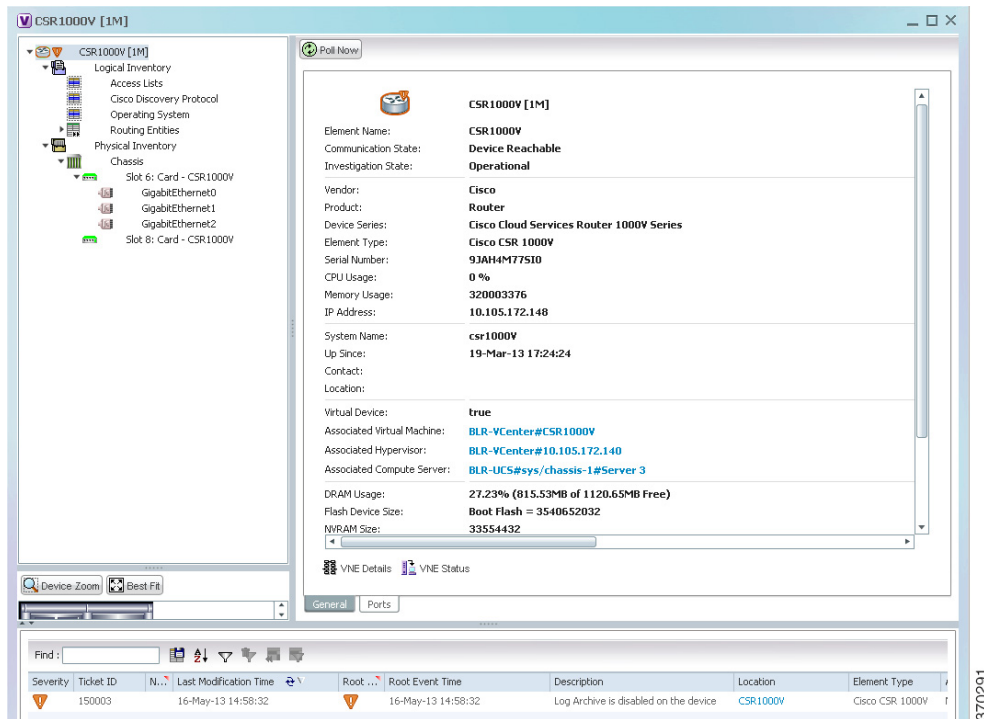
> **Note**   The CSR 1000v device is associated with a hypervisor and physically available on a blade server. The links to the hypervisor and blade server are displayed in the Properties window.

Step 4   Under the **Logical Inventory** node, you can view the Access Lists, Cisco Discovery Protocol, Operating System requirements, and Routing Entities. For more information about the logical inventory properties, see Viewing the Logical Properties of a Device (Traffic, Routing, Information, Tunnels, Data Link Aggregations, Processes), page 8-21.

Step 5   Under the **Physical Inventory** node, you can view the two slots under the Chassis node.

> **Note**   The first slot contains the Route Processor with three interface ports—one for management and the other two for data traffic. The second slot contains the Embedded Services Processor.

Viewing the Nexus 1000V Properties

The Cisco Nexus 1000V device is a a distributed virtual switch solution that is fully integrated within VMware Virtual Infrastructure, including VMware vCenter for the virtualization administrator. This solution off loads the configuration of the virtual switch and port groups to the network administrator to enforce a consistent datacenter network policy. It manages a data center defined by a VirtualCenter. Each server in the data center is represented as a module and can be managed as if it were a module in a physical Cisco switch.

The Cisco Nexus 1000V has the following components that can virtually emulate a 66-slot modular Ethernet switch with redundant supervisor functions:

- Virtual Ethernet module (VEM)—The Virtual Ethernet Module (VEM) is one part of the Cisco Nexus 1000V device that actually switches data traffic. Several VEMs are controlled by one VSM. All the VEMs that form a switch domain should be in the same virtual Data Center as defined by VMware VirtualCenter.

- Virtual supervisor module (VSM)—The VSM is a standalone, external, physical or virtual appliance that performs the following functions for the Cisco Nexus 1000V system (that is, the combination of the VSM itself and all VEMs it controls):

    - Configuration.

    - Management

    - Monitoring.

    - Diagnostics.

    - Integration with VMware vCenter

In the Cisco Nexus 1000V, traffic is switched between virtual machines locally at each VEM instance. Each VEM also interconnects the local virtual machine with the rest of the network through the upstream access-layer network switch (blade, top-of-rack, end-of-row, and so forth). The VSM runs the control plane protocols and configures the state of each VEM accordingly, but it never forwards packets.

In Prime Network, you can view the connectivity between the Nexus 1000V device and the host and blade server as shown in Figure 28-13.

Figure 28-13   Connectivity between Nexus 1000V and host/blade server
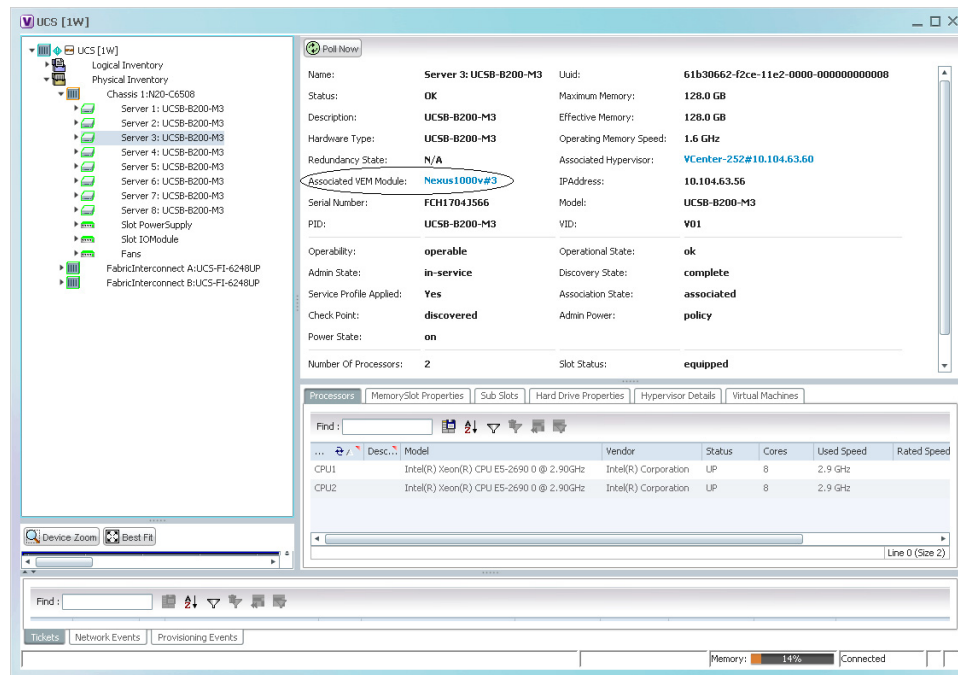
In other words, you can view the hosts under vCenter to which the device provides switching support and the underlying blade servers that are connected to the device.

To view the connectivity:

Step 1   Right-click on the vCenter device and choose the **Inventory** option.

Step 2   In the Inventory window, choose **Logical Inventory > Compute Virtualization > Virtual Data Center > Host Servers >** *Host Server.*

Step 3   In the content pane, click the link in the **Associated VEM Module** field. You can view the details of the UCS blade server of the Nexus 1000v device to which the vCenter is connected to.

Viewing the VSG Properties

The Cisco Virtual Security Gateway (VSG) is a virtual firewall appliance that provides trusted access to virtual data center and cloud environments. The Cisco VSG enables a broad set of multi tenant workloads that have varied security profiles to share a common compute infrastructure in a virtual data center private cloud or in a public cloud. By associating one or more virtual machines (VMs) into distinct trust zones, the Cisco VSG ensures that access to trust zones is controlled and monitored through established security policies.

Figure 28-14 depicts the deployment of VSG:

Figure 28-14   Deployment of VSG
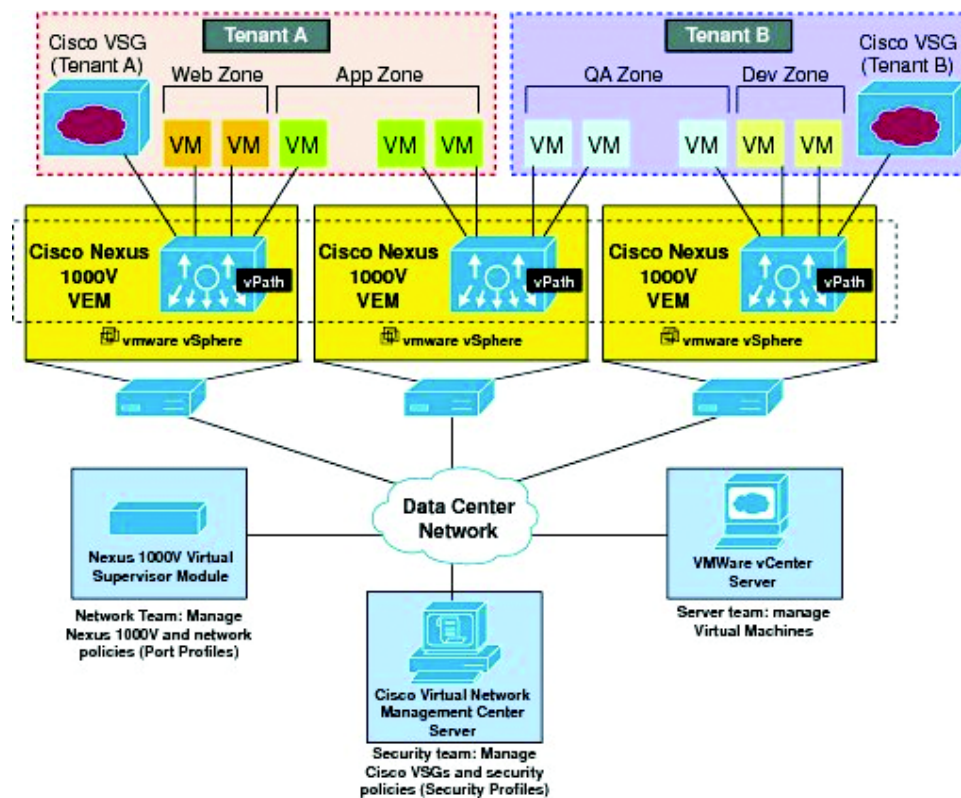
The Cisco VSG operates with the Cisco Nexus 1000V in the VMware vSphere hypervisor, and the Cisco VSG leverages the virtual network service datapath (vPath) that is embedded in the Nexus 1000V Virtual Ethernet Module (VEM). A VEM can be associated to a Cisco VSG.

To view the VSG Properties:

Step 1   In the Vision client, open a map that contains the VSG device.

Step 2   Right-click and choose the **Inventory** option to open the Inventory window.

Step 3   In the **Inventory** window, click the device name to view the Element properties. For more information about the properties window, see Drilling Down into the Properties of a Network Element, page 8-2

> ✎
> **Note**   The VSG device is associated with a hypervisor and physically available on a blade server. The links to the hypervisor and blade server are displayed in the Properties window.

Step 4   Under the **Logical Inventory** node, you can view the Access Lists, Cisco Discovery Protocol, Operating System requirements, and Routing Entities. For more information about the logical inventory properties, see Viewing the Logical Properties of a Device (Traffic, Routing, Information, Tunnels, Data Link Aggregations, Processes), page 8-21.

Step 5   Under the **Physical Inventory** node, you can view only one slot.

Viewing the Compute Server Support Details

Prime Network provides support for the following compute servers:

- UCS B-Series Servers—The Cisco UCS B-Series Blade Servers are crucial building blocks of the Cisco Unified Computing System and are designed to increase performance, energy efficiency, and flexibility for demanding virtualized and non virtualized applications. Each Cisco UCS B-Series Blade Server uses converged network adapters (CNAs) for access to the unified fabric. This design reduces the number of adapters, cables, and access-layer switches while still allowing traditional LAN and SAN connectivity.

- UCS C-Series Servers—Cisco UCS C-Series Rack Servers deliver unified computing in an industry-standard form factor to reduce total cost of ownership and increase agility

- Third party or Non-Cisco servers—Includes support for non-UCS servers such as HP, Dell or IBM.

In Prime Network, the UCS B-Series and UCS C-Series servers are modelled as part of the UCS VNE. The UCS C-Series (standalone) and non-Cisco servers are modelled as individual VNEs.

> ✎
> **Note**   For a Cisco UCS device, you can also view the physical inventory, which includes the blade server, Fabric InterConnect and IO Modules. You can also view the physical layout and topology for the UCS device on the map. For more information, see Viewing the Map Node for an UCS Network Element, page 28-25.

> ✎
> **Note**   There is also a direct correlation between the blade server and its associated virtual entities. For instance, if the blade server is shut down, then the associated entities such as the virtual machines and hypervisor will also be shut down.

To view the UCS server details:

Step 1   In the Vision client, right-click a UCS device and choose the **Inventory** option.

Step 2   In the Inventory window, expand the **Physical Inventory** node.

Step 3 Select *Chassis* > *Blade Server*. The blade server configuration details are displayed in the content pane as shown in Figure 28-15.

Figure 28-15   Blade Server Configuration Details
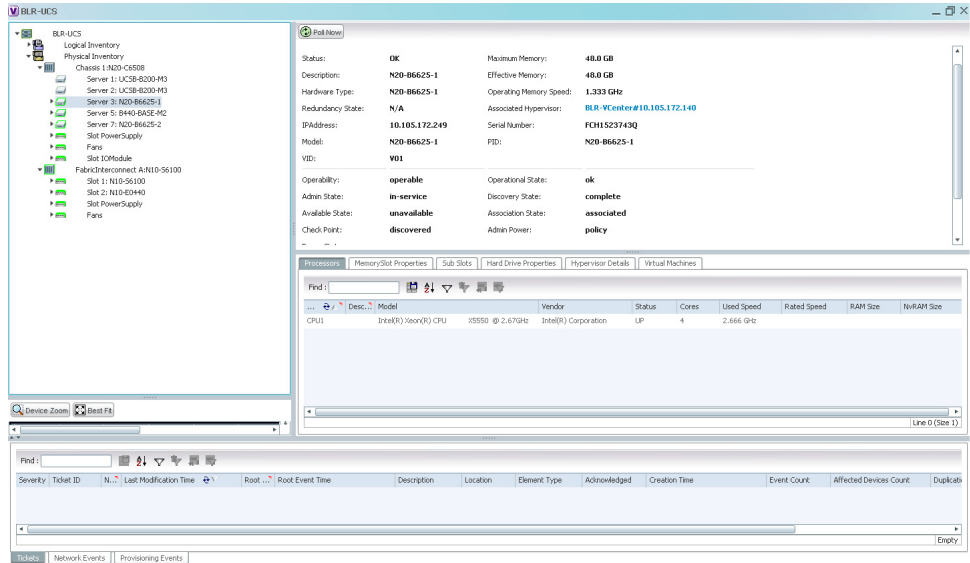
Table 28-10 describes the configuration details of a blade server.

Table 28-10   Blade Server Configuration Details

Field Name	Description
Name	The name of the blade server.
Uuid	The unique ID of the blade server.
Status	The status of the server.
Maximum Memory	The total amount of memory (in gigabytes) available on the server.
Description	The description of the server.
Effective Memory	The amount of memory (in gigabytes) currently available to the server.
IP Address	The IP address of the blade server.
Operating Memory Speed	The speed (in GHz) at which the operating memory can be accessed.
Redundancy State	The redundancy state of the server, which can be Online or Offline.
Associated Hypervisor	The hypervisor associated to the blade server. Click this link to view the hypervisor details.
Associated VEM Module	The Virtual Ethernet Module (VEM) associated to the server.
Sub Slots tab	
Equipment	The name of the equipment.
Type	The type of equipment.
Processors tab	
Name	The name of the processor used by the blade server.

Table 28-10   *Blade Server Configuration Details (continued)*

Field Name	Description
Description	The description of the processor used by the blade server.
Model	The processor model used by the blade server.
Vendor	The vendor of the processor.
Status	The status of the processor.
Cores	The number of cores used by the blade server.
Used Speed	The actual used speed of the processor, in GHz.
Rated Speed	The rated speed of the processor, in GHz.
RAM Size	The RAM size of the processor, in GB.
NvRAM Size	The NvRAM Size of the processor, in GB.
Memory Slot Properties tab	
Slot Name	The name of the memory slot.
Speed	The memory slot speed, in GHz.
Memory Capacity	The maximum memory capacity of the hard drive, in GB.
Serial Number	The serial number of the memory slot.
Status	The status of the memory slot.
Hard Drive Properties	
Model Name	The model name of the hard drive.
Storage Capacity	The total storage capacity of the hard drive, in GB.
Free Space	The total space available for usage in the hard drive.
isFRU	Indicates whether the hard drive is removable.
Drive Type	The type of hard drive, which can be any one of the following: • Fixed Disk • RAM Disk • Flash Memory • Network Disk • Removable Disk
Status	The status of the hard drive.
Hypervisor tab	
Fault Tolerance Version	The fault tolerance version of the hypervisor.
Uuid	The unique ID of the hypervisor.
Model	The model of the hypervisor.
EvcMode	The Enhanced vMotion Capability (Evc) mode of the hypervisor.
Virtual Data Center Name	The name of the virtual data center of the hypervisor.
Isv Motion Enabled	Indicates whether the Lsv motion is enabled.
MAC Address	The MAC address of the hypervisor.

Table 28-10   Blade Server Configuration Details (continued)

Field Name	Description
Fault Tolerance Enabled	Indicates whether fault tolerance service is enabled or not. This service provides continuous availability by protecting the primary virtual machine with a secondary virtual machine that runs simultaneously on a separate host.
Software Type	The type of software used by the hypervisor.
IP Address	The IP address of the hypervisor.
Name	The name of the hypervisor.
State	The status of the hypervisor, which could be Running, Runnable, Waiting, Exiting, or Other.
Vendor	The name of the vendor for the hypervisor.
Virtual Machines tab	
Virtual Machine	The name of the virtual machine associated with the blade server. The severity of the blade server is also displayed along with the name.
IP Address	The IP address of the virtual machine.
DNS Name	The domain name of the virtual machine.
MAC Address	The MAC address of the virtual machine.
State	The status of the virtual machine, which could be Powered On, Powered Off, or Suspended.
VM Version	The hardware version of the virtual machine.
Virtual CPU	The number of virtual CPUs configured for the virtual machine on the virtual machine.
Fault Tolerance Enabled	Indicates whether fault tolerance service is enabled or not.

Note   The Hypervisor and Virtual Machine tabs will be displayed only if the compute server is managed by a VMware VCenter, which is monitored by the same instance of Prime Network.

Viewing the Non Cisco Server Details

In Prime Network, non Cisco servers such as IBM, HP, and Dell are modeled as individual VNEs. These servers are modeled based on the operating system installed on them, and not on the native hardware or management applications running on these hardware.

The following operating systems are supported for modeling:

- Windows
- Linux
- VMWare ESXi
- Any other operating system that supports MIB2, RFC-1213-MIB, HOST-RESOURCE-MIB

> ✎
>
> **Note**   When ESXi is modeled on VMWare, ensure that SSH is also modeled along with it.

To view the non Cisco server details:

Step 1   In the Vision client, right-click Non-Cisco device and choose the **Inventory** option.

Step 2   In the Inventory window, expand the **Physical Inventory** node.

Step 3   Select the **Server** node. The server configuration details are displayed in the content pane along with the details of the operating system available in the server. The following tabs are also available:

- Ports
- Processors
- Hard Drive Properties
- Memory Slot Properties
- Hypervisor Details

Viewing the Mapping between the Compute Server and Hypervisor

The Cisco and non Cisco servers also support hypervisory functions to support various operating systems. Prime Network allows you to view the mapping details between the compute server and the hypervisor.

To view the mapping between the compute server and hypervisor:

Step 1   In the Vision client, right-click a UCS device and choose the **Inventory** option.

Step 2   In the Inventory window, expand the **Physical Inventory** node.

Step 3   Select **Chassis** > *Blade Server*. The blade server configuration details are displayed in the content pane.

Step 4   Click the link in the **Associated Hypervisor** field to go to the relevant hypervisor under the vCenter node. The details of the hypervisor are displayed in the content pane, which also includes the **Associated Compute Server** field that contains a link to the relevant compute server.

Each blade server under the Chassis in the Physical inventory will link to the associated hypervisor. This is also applicable to the third party servers. In other words, the third party server also contains a link to the associated hypervisor.
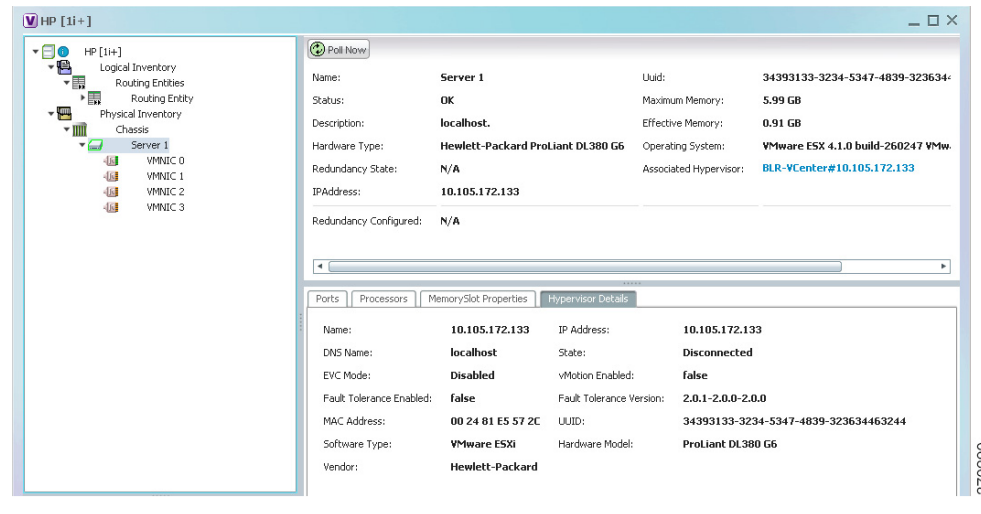
Viewing the Storage Area Network Support Details

A storage area network (SAN) is a dedicated network that provides access to consolidated, block level data storage. SANs are primarily used to make storage devices, such as disk arrays, tape libraries, and optical jukeboxes, accessible to servers so that the devices appear like locally attached devices to the operating system. A SAN typically has its own network of storage devices that are generally not accessible through the local area network by other devices.

A virtual storage area network (VSAN) is a collection of ports from a set of connected Fibre Channel switches, that form a virtual fabric. Ports within a single switch can be partitioned into multiple VSANs, despite sharing hardware resources. Conversely, multiple switches can join a number of ports to form a single VSAN.

Most storage networks use the SCSI protocol for communication between servers and disk drive devices. A mapping layer to other protocols is used to form a network.

In Prime Network, the following technologies are used for storage area networks:

- Fibre Channel (FC)—Fibre Channel is a high-speed network technology (commonly running at 2-, 4-, 8- and 16-gigabit speeds) primarily used for storage networking. It was primarily used in the supercomputer field, but has now become the standard connection type for storage area networks (SAN) in enterprise storage. Fibre Channel can help with design of large-scale, storage-intensive systems. It can also provide a solution that allows rapid storage and retrieval of information, while simplifying the interconnection of different components in the system

- Fibre Channel over Ethernet (FCoE)—Fibre Channel over Ethernet is an encapsulation of Fibre Channel frames over Ethernet networks. This allows Fibre Channel to use 10 Gigabit Ethernet networks (or higher speeds) while preserving the Fibre Channel protocol. It drastically reduces the number of I/O adapters, cables, and switches in the data center, while providing a wire-once, agile infrastructure. Based on lossless, reliable 10 Gigabit Ethernet, FCoE networks combine LAN and multiple storage protocols on a single converged network.

For information on the devices that support VSAN, refer to *Cisco Prime Network 4.1 Supported VNEs*.

Note   The Cisco Fabric InterConnect UCS devices only supports the Fibre Channel over Ethernet technology.

Viewing the Storage Area Network Configuration Details

To view the VSAN configuration details:

Step 1   In the Vision client, right-click the required device and choose the **Inventory** option.

Step 2   In the Inventory window, expand the **Logical Inventory** node.

Step 3   Select **VSANs >** *VSAN service*. The VSAN configuration details are displayed in the content pane as shown in the Figure 28-16.

Figure 28-16   VSAN Configuration Details

Table 28-10 describes the VSAN configuration details.

VSAN Configuration Details

Field Name	Description
VSAN ID	The unique identification code of the VSAN.
Name	The name of the VSAN.
Admin Status	The administrative status of the VSAN, which can be any one of the following: • Active—Indicates that the VSAN is configured and enabled and that you can activate the services of the VSAN. • Suspended—Indicates that the VSAN is configured, but not enabled. Any port configured in this VSAN will also be disabled.
Oper Status	The operational status of the VSAN, which can be any one of the following: • Up • Down
Load Balancing Type	The method used for load balancing path selection in the VSAN, which can be any one of the following: • Source destination ID • Originator Exchange OX ID
Inter Oper Mode	The inter operations mode.
Associated VLAN	The name of the VLAN associated to the VSAN.
In Order Delivery	The in order delivery of the VSAN.
MTU	The maximum number of transmission units (in bytes) of the VSAN.
Fibre Channel Domain	
Domain ID	The domain ID of the Fibre Channel domain.
Oper Status	The operational status of the Fibre Channel domain, which can be any one of the following: • Stable • Enable • Disable
Running Priority	The assigned priority of the switch. This field defaults to 128.
Local Switch WWN	The local switch World Wide Name (WWN) for the Fibre Channel, which is a unique identifier in the SAN.
Running Fabric Name	The WWN number of the Fabric to which the switch belongs.
VSAN Interfaces	
Name	The name of the VSAN technology interface.
Associated Entity	The associated Fibre Channel interface, which when clicked will take you to the relevant Fibre channel node under the Chassis node.

VSAN Configuration Details (continued)

Field Name	Description
Admin Status	The administrative status of the interface, which can be any one of the following: • Up • Down
Oper Status	The operational status of the interface, which can be any one of the following: • Up • Down • Trunking
Trunk Oper Mode	The operational status of the trunk mode for a VSAN interface, which can be any one of the following: • On • Off • Auto
Trunk Admin Mode	The status of the trunk administrative mode.
Admin Port Mode	The administrative port mode of the interface, which can be any one of the following: • E—Expansion port, where the interface functions as a fabric expansion port. This port may be connected to another E port to create an Inter-Switch Link (ISL) between two switches. • F—Fabric port, where an interface functions as a fabric port. This port may be connected to a peripheral device (host or disk) operating as an N port. • NP—When the switch is operating in NPV mode, the interfaces that connect the switch to the core network switch are configured as NP ports. • TE—Trunking E port, where the interface functions as a trunking expansion port. It may be connected to another TE port to create an extended ISL (EISL) between two switches. • TF—Trunking fabric port, where an F port with trunk mode enabled becomes operational. • TNP—Trunking NP port, where an NP port with trunk mode enabled becomes operational. • SD—SPAN Destination port, where the interface functions as a switched port analyzer. • FX—An interface configured as FX port can operate in either F port or FL port mode. • Auto—An interface configured in auto mode can operate in F port, E port, or TE port, which is determined during interface initialization.

VSAN Configuration Details (continued)

Field Name	Description
Oper Port Mode	The operational port mode of the port.
Allowed VSANs	The VSANs that are active and allowed to receive data for the specified VSAN range. The port will allow traffic for the VSANs specified here.
Native VSAN	The VSAN ID to which the FC port belongs.
Virtual Interface	The VFC ID, which is displayed only if the VFC is configured to a port and the port is bound to a VF.
Fibre Channel	The fibre channel associated to the VSAN.
FCS Database Entries tab	
Local Interface Name	The name of the local interface for VSAN.
Local Connected Interface	The local interface connected to the VSAN.
Local Port	The name of the local port for the VSAN.
Remote Port	The name of the remote port for the VSAN.
Remote Node	The remote node for the VSAN.
Remote Permanent Port	The name of the remote permanent port.
Remote Node IP Address	The IP address of the remote node.
Remote Port Name	The name of the remote port.

Note   For more information about the alarms relating to FC and FCoE, see the *Cisco Prime Network 5.1 Supported Service Alarms*.

Viewing the FC Interface Details

To view the FC Interface details:

Step 1   In the Vision client, right-click the required device and choose the **Inventory** option.

Step 2   In the Inventory window, expand the **Physical Inventory** node.

Step 3   Select **Chassis** > *Module Slot* > *Fibre channel interface*. The FC interface details are displayed in the content pane.

Table 28-11 describes the FC configuration details.

Table 28-11   FC Configuration Details

Field Name	Description
Location Information	
Type	The type of fibre interface, which can be any one of the following: • Fibre Channel
Location	The location of the FC/FCoE interface.
Sending Alarms	Indicates whether the port is sending all alarms correctly.
Port Alias	The port alias of the interface.
Managed	The managed status.
Status	The status of the FC/FCoE interface.
Pluggable Transceiver	
Connector Type	The type of connector used for the interface.
Pluggable Port State	The status of the pluggable port in the interface.
VSAN Interface	
Name	The name of the VSAN technology interface.
Admin Status	The administrative status of the interface, which can be any one of the following: • Up • Down
Oper Status	The operational status of the interface, which can be any one of the following: • Up • Down • Trunking
Trunk Oper Mode	The operational status of the trunk mode for a VSAN interface, which can be any one of the following: • On • Off • Auto
Admin Port Mode	The administrative port mode of the interface.
Native VSAN	The VSAN ID to which the FC port belongs.
Fibre Channel	
Name	The name of the fibre channel.
TxB2B Credit	The Transmit Buffer to Buffer Credit value for the fibre channel. **Note** Buffer to Buffer credit is a flow control mechanism that ensure that fibre channel switches do not run out of buffers so that the switches do not drop frames.

Table 28-11   FC Configuration Details (continued)

Field Name	Description
RxB2B Credit	The Receive Buffer to Buffer Credit value for the fibre channel. This value is configured for each interface.
Admin Status	The administrative status of the fibre channel, which can be any one of the following: • Up • Down
Oper Status	The operational status of the fibre channel, which can be any one of the following: • Up • Down
Port WWN	The World Wide Name (WWN) of the port for the Fibre Channel.

Viewing the FCoE Interface Details

To view the FCoE Interface details:

Step 1   In the Vision client, right-click the required device and choose the **Inventory** option.

Step 2   In the Inventory window, expand the **Physical Inventory** node.

Step 3   Select **Chassis** > *Fixed Slot* > *FCoE interface*. The FCoE interface details are displayed in the content pane. The following information is displayed in the content pane:

Table 28-12 describes the FCoE configuration details.

Table 28-12   FCoE Configuration Details

Field Name	Description
VLAN Interface tab	
Mode	The VLAN interface configuration mode, which can be any one of the following: • Unknown • Access • Dynamic Auto • Dynamic Desirable • Trunk • Dot 1Q Tunnel
VLAN Type	The VLAN interface type, such as Layer 2 VLAN.
Native VLAN ID	VLAN Identifier (VID) associated with this VLAN. The range of the VLAN ID is 1 to 4067.

Table 28-12   FCoE Configuration Details (continued)

Field Name	Description
Allowed VLANs	The list of the VLANs allowed on this VLAN interface.
TenGigabit Ethernet	
MAC Address	The MAC address.
Ethernet LMI Enabled	Indicates whether the Ethernet Local Management Interface (LMI) is enabled.
Discovery Protocols	
Discovery Protocol Type	The type of discovery protocol, which can be CDP or LLDP.
Info	Displays more information about the protocol type, which can be any one of the following: • for CDP—Up or Down • for LLDP—Tx (Enabled/Disabled) or Rx (Enabled/Disabled)
Ethernet CSMA/CD	
Admin Status	The administrative status of the Ethernet Carrier sense multiple access with collision detection (CSMA/CD).
Oper Status	The operational status of Ethernet CSMA/CD.
Port Type	The type of port.
Last Changed	The date and time when the ethernet status was last changed.
Maximum Speed	The maximum bandwidth.
Port Description	The description of the port as defined by the user.
MTU	The size of the Maximum Transmission Unit (MTU) for the interface.
Internal Port	Indicates whether an internal port is available.

Note   For more information about the other sections in this window, see Table 28-11.

Viewing the Fibre Channel Link Aggregation

To view the Fiber Channel Link Aggregation details:

Step 1   In the Vision client, right-click the required device and choose the **Inventory** option.

Step 2   In the Inventory window, expand the **Logical Inventory** node.

Step 3   Select the **Fibre Channel Link Aggregation** option. The list of aggregations are displayed in the content pane.

Step 4   Double-click on an aggregation. The **Fibre Channel Link Aggregation Properties** window is displayed as shown in Figure 28-17.

Figure 28-17   Fibre Channel Link Aggregation
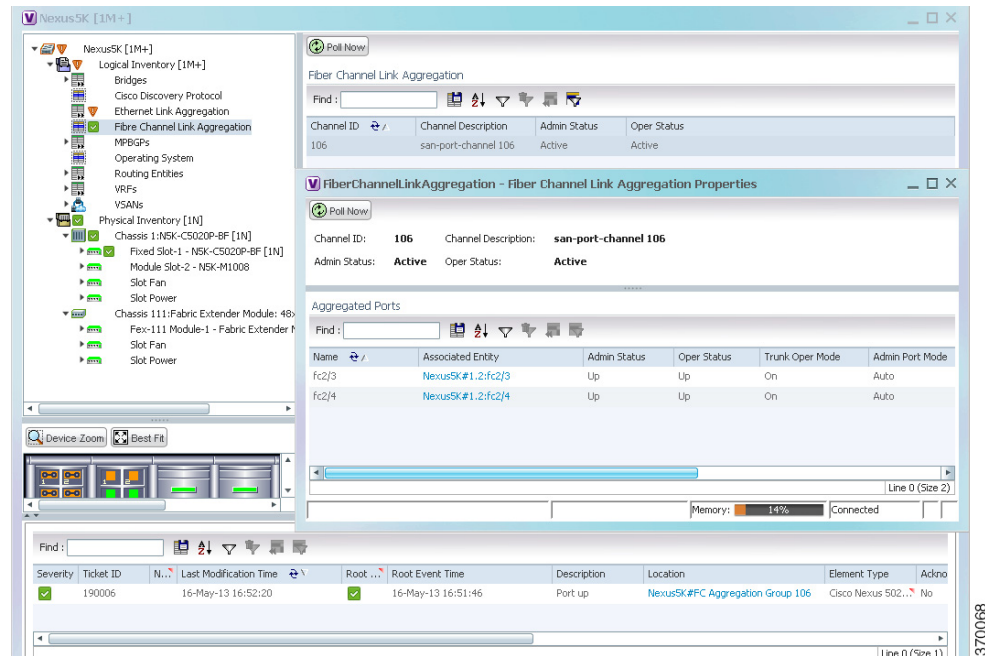
Table 28-13 describes the Fibre Channel Link Aggregation Properties.

Table 28-13   Fibre Channel Link Aggregation Properties

Field Name	Description
Channel ID	The unique identification code for the aggregation.
Channel Description	The description of the aggregation.
Admin Status	The administrative status of the aggregation.
Oper Status	The operational status of the aggregation.
Aggregated Ports	
Name	The name of the port that is included in the aggregation.
Associated Entity	The associated port, which when clicked will take you to the relevant FC or FCoE port.
Admin Status	The administrative status of the associated port.
Oper Status	The operational status of the associated port.
Trunk Oper Status	The Trunk operational status of the associated port.
Admin Port Mode	The administrative port mode of the associated port.
Oper Port Mode	The operational port mode of the associated port.
Allowed VSANs	The number of VSANs that are active and allowed to receive data.
Native VSAN	The number of native VSANs.
Virtual Interface	The name of the virtual interface for the VSAN.

Viewing Fibre Channel Links Between Devices in a Map

To view the FC links between devices in a map:

Step 1 In the Vision client, open the map that contains the Fibre Channel links.

Step 2 Click on the Filter icon in the navigation menu and select only the **Fibre Channel** check box. Click **OK**. The map that you have opened only displays the Fibre Channel links between devices. For more information about viewing these link properties, see Viewing the Map Node for an UCS Network Element, page 28-25.

Searching for Compute Services

The Compute Services Search feature in Prime Network allows you to search for the following entities:

- Virtual Machines (can be found in the VCenter device)
- Hypervisors (can be found in the VCenter device)
- Bare Metal (For example, the blade servers, which can be found in a UCS device)

To use the Compute services search feature:

Step 1 In the Vision client, select **Network Inventory > Compute Services**.

Step 2 In the **Compute Services** window, select the **Search** radio button.

Step 3 From the Search drop down box, select any one of the following options:

- DNS Name
- IP Address
- Name

Step 4 In the text box available, enter the name based on the option selected in the Search drop-down box.

Step 5 Click **Go**. The entity details are displayed in the table below as shown in Figure 28-18.

Figure 28-18   Compute Service Search
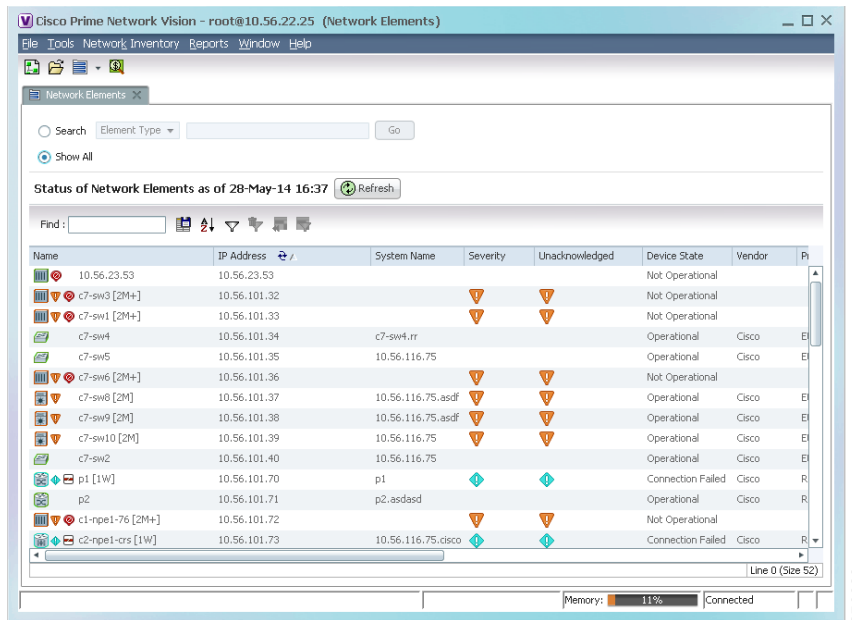
> **Note**   You can also click the **Show All** radio button to view a list of devices with hypervisors, blade servers, and virtual machines.

Table 28-14 describes the compute services search results.

Table 28-14   Compute Services Search Result

Field Name	Description
Severity	The severity of the device.
Name	The name of the device.
Service Type	The service type, which can be Virtual Machine, Hypervisor, or Bare Metal.
IP Address	The IP address of the device.
DNS Name	The DNS name of the device.
State	The status of the device.
Host	The host server associated to the device, which when clicked will take you to the relevant host node.
Compute Server	The compute server associated to the device, which when clicked will take you to the relevant node.
Compute System	The device where the blade server is available, which when clicked will take you to the relevant node.

Monitoring Virtualized Service Module

Virtualized Service Module (VSM)

The Cisco ASR 9000 VSM Card is a service card built specifically for the Cisco ASR9000 platform. The Cisco ASR 9000 VSM Card is supported on any slot on the Cisco ASR 9000 Series Aggregation Services Router (ASR90xx and ASR99xx). The Cisco ASR 9000 VSM Card has the capability to run a hypervisor on it. The hypervisor (example KVM) can host a single VM.

Service Enablement

Service Enablement provides the ability to install and uninstall a service without impacting the other services running on the Cisco ASR 9000 VSM Card. Service enablement allows you to instantiate a service instance by specifying the name and location of the service image package and the target of the service.

For more information on virtual service package and its installation, refer Configuring Virtual Services on the Cisco ASR 9000 Series Router.

Viewing VSM Properties in Physical Inventory

To view VSM properties in the physical inventory:

Step 1   In the Vision client, double-click the device in which the VSM card is configured.

Step 2   In the inventory window, expand the Physical Inventory node.

Step 3   Choose **Chassis** > **Server <Number>: Card A9K-VSM-500**. The server configuration details are displayed in the content pane.

Table 28-15 describes configuration details of the server configured with ASR 9000 series VSM service information.

Table 28-15   Server Configuration Details with ASR 9000 series VSM Service

Field Name	Description
Name	The name of the server.
Uuid	The unique ID of the server.
Status	The status of the server.
Maximum Memory	The total amount of memory (in gigabytes) available on the server.
Description	Description of the VSM card. For example, ASR9000 series Virtualized Services Module.
Effective Memory	The amount of memory (in gigabytes) currently available to the server.
Hardware Type	Hardware type of the VSM card. For example, cevModuleA9KVSM500.
Hardware Version	Hardware version of the VSM card. For example,V00.
Software Version	Operating system software version.

Table 28-15   Server Configuration Details with ASR 9000 series VSM Service (continued)

Field Name	Description
Redundancy State	The redundancy state of the server: • Online • Offline • N/A—Redundancy state is not supported.
Serial Number	The serial number of the ASR 9000 series VSM card.
Cores	The number of cores used by the server.
Redundancy Configured	Redundancy configured on the server: • Working—Redundancy is configured and enabled. • None—Redundancy is not configured • N/A—Redundancy is not supported
Associated Host	The Kernal Virtual Machine (KVM) associated to the server. Click this link to view the related KVM host server node under the logical inventory.
Processors tab	
Name	The name of the KVM associated server.
Description	The description of the processor used by the server.
Model	The processor model used by the server.
Vendor	The vendor of the processor.
Status	The status of the processor.
Cores	The number of cores used by the server.
Used Speed	The actual used speed of the processor, in GHz.
Rated Speed	The rated speed of the processor, in GHz.
RAM Size	The RAM size of the processor, in GB.
NvRAM Size	The NvRAM Size of the processor, in GB.
Memory Slot Properties tab	
Slot Name	The name of the memory slot.
Speed	The memory slot speed, in GHz
Memory Capacity	The maximum memory capacity of the hard drive, in MB.
Serial Number	The serial number of the memory slot.
Status	The status of the memory slot.
Sub Slots tab	
Equipment	The name of the equipment in the sub slot.
Type	The type of equipment in the sub slot.
Hardware Type	Name of the sub slot hardware card.
Hard Drive Properties tab	
Model Name	The model name of the hard drive.

Table 28-15   Server Configuration Details with ASR 9000 series VSM Service (continued)

Field Name	Description
Storage Capacity	The total storage capacity of the hard drive, in GB.
Free Space	The total space available for usage in the hard drive.
FRU	Indicates whether the hard drive is removable.
Drive Type	N/A—Drive Type is not supported.
Status	The status of the hard drive.

Step 4   Choose **Server <Number>: Card A9K-VSM-500 > Subslot <Number>: Subcard –
A9K-MODULEv**. The slot details configured with VSM card is displayed in the content pane.

Table 28-16 describes slot configuration details with ASR 9000 series VSM service information.

Table 28-16   Slot Configuration Details

Field Name	Description
Name	The name of the slot configured in the server.
Status	The status of slot in the server.
Description	The description for the slot configured in the server. For example, Virtual Module.
Hardware Type	Hardware type of the VSM card. For example, cevModuleA9KVSM500.
Hardware Version	None.
Software Version	None.
Redundancy State	N/A—Redundancy state is not supported.
Serial Number	N/A—Serial number is not supported.
Redundancy Configured	N/A—Redundancy configured property is not supported.
Ports	
Location	Location of the port in the device, using the format slot.module/port, such as 2.0TenGigE0/2/1/0.
Type	Port type. For example, fiber optic port.
Sending Alarms	Whether or not the element is configured for sending alarms (True or False)
Pluggable Transceiver	For the Pluggable port type, indicates that the port can hold a pluggable transceiver.
Port Alias	Name used in the device CLI for the port.

Table 28-16   Slot Configuration Details (continued)

Field Name	Description
Managed	Whether or not the port is managed: True or False.
Status	Port status: OK or one of the following: • Major—Port is operationally down • Disabled—Port is administratively down (someone purposely shut the port down) • Out—Port has been physically removed

Step 5   Choose **Server No: Card A9K-VSM-500 > Subslot <Number>: Subcard – A9K-MODULEv > Interface Name**. The port details configured with VSM card is displayed in the content pane.

You can view the information displayed for the interface in the physical inventory.

The following information is displayed, depending on the interface and its configuration:

- Location information that includes the physical interface port number with status.
- TenGigabit Ethernet details.
- Discovery Protocols details.
- Ethernet CSMA/CD that includes the port description with ASR 9000 series VSM card information.
- DWDM properties.

Viewing VSM Properties in Logical Inventory

To view VSM properties in the logical inventory:

Step 1   In the Vision client, double-click the device in which the VSM card is configured.

Step 2   In the inventory window, expand the Logical Inventory node.

Step 3   Choose **Compute Virtualization> Virtual DataCenter - Default > Host Servers > Host server (KVM)**. The configuration details of KVM host server are displayed in the content pane.

Table 28-17 describes KVM host configuration details.

Table 28-17   KVM Host Configuration Details

Field	Description
Uuid	The unique ID of the KVM host server.
Model	The model name of the KVM host server. For example, A9K-VSM-500.
Isv Motion Enabled	Indicates whether the Isv motion is enabled.
Software Version	Software version used by KVM host server.

Table 28-17   KVM Host Configuration Details (continued)

Field	Description
Fault Tolerance Enabled	True or False. Indicates whether the fault tolerance service is enabled or not. This service provides continuous availability by protecting the primary virtual machine with a secondary virtual machine that runs simultaneously on a separate host.
Host Description	The description of the KVM host server.
Name	The name of the KVM host server.
State	The status of the hypervisor that can be Running, Runnable, Waiting, Exiting, Connected, or Disconnected.
Vendor	The name of the vendor for the KVM host server.
Associated Compute Server	The compute server associated to the KVM host server. Click this link to view the related host server node configured with the Cisco ASR 9000 series VSM service information under the physical inventory.
Hypervisor tab	
Name	Name of the hypervisor running on the host server.
Hypervisor Type	Type of the hypervisor.
Software Type	Type of software used by the hypervisor.
State	State of the hypervisor that can be Running, Runnable, Waiting, Exiting, or Other.
Version	Software version running on KVM host server.
Processors tab	
Name	The name of the KVM associated server.
CPU	Number of CPUs running in the hypervisor.
Cores Per CPU	Number of threads running in the processor.
Hyper Threading Enabled	Whether the processor uses Hyper-Threading Technology, which allows multithreaded software applications to execute threads in parallel within each processor. This can be one of the following: • False—The processor does not permit hyperthreading. • True—The processor allows for the parallel execution of multiple threads.
Statistics Tab	
CPU Usage	CPU usage of the virtual machine, in GHz.
Memory Usage	Memory usage of the virtual machine, in MB.

Table 28-17   KVM Host Configuration Details (continued)

Field	Description
CPU Allocation tab	
Allocatable	Maximum CPU allocation for the virtual machine, in GHz.
Reserved	The overhead CPU allocation for the virtual machine, in GHz.
Unlimited Provision	Unlimited maximum allocation capacity availability check for the virtual machine. The value is either true or false.
Memory Allocation tab	
Allocatable	Memory allocation for the virtual machine, in MB.
Unallocated	Memory unallocated for the virtual machine, in MB.
Reserved	The overhead memory allocation for the virtual machine, in MB.
Unlimited Provision	Unlimited maximum allocation capacity availability check for the virtual machine. The value is either true or false.
Interfaces tab	
Name	Interface name.
Physical Termination Point	Associated link to the physical interface.
Virtual Machine tab	
Name	The name of the virtual machine.
State	Execution state of the virtual machine, which could be Powered On, Powered Off, or Suspended.
VM Version	Hardware version of the virtual machine.
Virtual CPU	Number of virtual CPUs configured for the virtual machine on the host server.
Fault Tolerance Enabled	Indicates whether fault tolerance service is enabled or not. This service provides continuous availability by protecting the primary virtual machine with a secondary virtual machine that runs simultaneously on a separate host.
Software Type	Type of the software used by the virtual machine.
UUID	The unique ID of the virtual machine.
VM ID	The unique identification code for the virtual machine.
Profile Name	The name of the profile created for monitoring the virtual service gateway configuration. This property is not supported.

Step 4   Choose **Compute Virtualization > Virtual DataCenter - Default > Host Servers > Host server (KVM) > WSG**. The configuration details of virtual service gateway such as Wireless Security Gateway (WSG) are displayed in the content pane.

Table 28-18 describes virtual service gateway configuration details.

Table 28-18   Virtual Service Gateway Configuration Details

Field	Description
Name	The name of the virtual service gateway.
State	Execution state of the virtual machine that can be Powered On, Powered Off, or Suspended.
VM Version	Hardware version of the virtual machine.
Virtual CPU	Number of virtual CPUs configured for the virtual machine on the host server.
Fault Tolerance Enabled	True or False. Indicates whether fault tolerance service is enabled or not. This service provides continuous availability by protecting the primary virtual machine with a secondary virtual machine that runs simultaneously on a separate host.
Software Type	Type of the software used by the virtual machine. For example, StarOS Security Gateway.
UUID	The unique identification of the virtual service gateway.
VM ID	The unique identification code of the virtual machine.
Profile Name	The name of the profile created for monitoring the virtual service gateway configuration.This property is not supported.
Manage Virtual Entity	The associated link to service inventory (WSG). Click this link to open the wireless service gateway instance inventory window. In this window, there are associated links for host service, virtual machine, hypervisor, and physical inventory of the VSM card. Using these associated links, you can navigate between virtual instance and VSM card.
Statistics tab	
CPU Usage	CPU usage by the virtual machine, in GHz.
Memory Usage	Memory usage by the virtual machine, in MB.
Disk	Amount of disk space used by the virtual machine, in MB.
CPU Allocation tab	
Maximum Allocation	Maximum CPU allocation for the virtual machine, in GHz.

Table 28-18   *Virtual Service Gateway Configuration Details (continued)*

Field	Description
Overhead Allocation	The overhead CPU allocation for the virtual machine, in GHz.
Unlimited Allocation	Unlimited maximum allocation capacity availability check for the virtual machine. The value is either true or false.
Expandable Allocation	Expandable allocation availability for the virtual machine. The value is either true or false.
Memory Allocation tab	
Maximum Allocation	Maximum memory allocation for the virtual machine, in MB.
Overhead Allocation	The overhead memory allocation for the virtual machine, in MB.
Unlimited Allocation	Unlimited maximum allocation capacity availability check for the virtual machine. The value is either true or false.
Expandable Allocation	Expandable allocation availability for the virtual machine. The value is either true or false.
Disk Allocation tab	
Maximum Allocation	Maximum disk allocation for the virtual machine, in MB.
Overhead Allocation	The overhead disk allocation for the virtual machine, in MB.
Unlimited Allocation	Unlimited maximum allocation capacity availability check for the virtual machine. The value is either true or false.
Expandable Allocation	Expandable allocation availability for the virtual machine. The value is either true or false.
Interfaces	
Interfaces	Interfaces associated to virtual machine are listed. Click the associated interface link to view the KVM page. From there the link takes you to actual physical interface.

Step 5   Choose **Compute Virtualization> Virtual Machines (All Datacenters)**. The virtual machine details are displayed in the content pane.

Table 28-19   *Virtual Machine Details*

Field	Description
VM ID	The name of the KVM host server.
VM Name	The name of the virtual service gateway.

Table 28-19   Virtual Machine Details

Field	Description
Datacenter Name	The virtual data center name associated to the virtual machine.
Associated Virtual Machine	Associated link to wireless service gateway virtual instance.
Hypervisor	Associated link to KVM host server.
IP Address	The IP address of the virtual machine.
DNS Name	The DNS name of the virtual machine. This property is not supported.
MAC Address	The MAC address of the virtual machine. This property is not supported.