# cisco.



## **Cisco UCS Performance Manager Getting Started Guide**

First Published: October 2014 Release 1.0.0

### Americas Headquarters Cisco Systems, Inc.

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## Preface

*Cisco UCS Performance Manager Getting Started Guide* provides detailed instructions for performing basic tasks with Cisco UCS Performance Manager Express and Cisco UCS Performance Manager.

Title	Description
Cisco UCS Performance Manager Administration Guide	Provides an overview of Cisco UCS Performance Manager architecture and features, as well as procedures and examples to help use the system.
Cisco UCS Performance Manager Installation Guide	Provides detailed information and procedures for installing and upgrading Cisco UCS Performance Manager.
Cisco UCS Performance Manager Release Notes	Describes known issues, fixed issues, and late-breaking information not already provided in the published documentation set.
Cisco UCS Performance Manager Extended Monitoring Guide	Provides detailed information about additional monitoring capabilities provided through ZenPacks.

#### **Documentation feedback**

To provide technical feedback on this document, or to report an error or omission, please send your comments to ucs-docfeedback@cisco.com. We appreciate your feedback.

## About the Cisco UCS Performance Manager

The Cisco UCS Performance Manager and its UI provides you the tools to monitor your Cisco UCS infrastructure. This means you can visualize problems, forecast potential issues, and fix or proactively prevent Cisco UCS and integrated infrastructure component problems.

The Cisco UCS Performance Manager UI provides tools and visual cues that enable you to:

- Know if there is a Cisco UCS or integrated infrastructure problem.
- Recognize and be alerted to unified fabric or component issues.
- Identify exactly where the problem is within your infrastructure.
- Identify which infrastructure components are contributing to the problem.

These topics are discussed in the section titled How to Use Cisco UCS Performance Manager to Monitor Your System.

The Cisco UCS Performance Manager UI also provides extensive information about your system that enables you to visualize and analyze both the physical and logical components of your Cisco infrastructure, network interconnections and network performance at all levels, including:

- Unified fabric connections between individual Cisco UCS components
- Bandwidth and Remaining Capacity information between various levels of component hierarchy
- Ports
- Aggregation pools (Port Channels)
- Service profiles
- Organizations
- IO modules
- FEXs
- Chassis
- Blade and Rack servers

Examples that describe how to use the UI to access and view the data are provided in the sections starting with *Topology and Performance*.

The Cisco UCS Performance Manager provides a web-based, graphical interface to display data about your system and the network. The data is presented in the form of screens, panes or dashboard portlets. There are many options concerning what data to display and how to display it. The *Cisco UCS Performance Manager Administration Guide* guide provides specific instructions about the content of each screen and its configuration.

The Cisco UCS Performance Manager is available as either the Cisco UCS Performance Manager Express or the Cisco UCS Performance Manager.

This document provides specific scenario examples to help you perform some basic tasks. The scenarios apply to both Cisco UCS Performance Manager Express and Cisco UCS Performance Manager, unless specifically noted. Additional information is available in *Cisco UCS Performance Manager Extended Monitoring Guide* and *Cisco UCS Performance Manager Administration Guide* documents.

## **Cisco UCS Performance Manager Views**

The Cisco UCS Performance Manager graphical interface enables you to view and analyze many kinds of data about your infrastructure. Among the many panes and windows available within the PM, the configurable Dashboard and Topology panes provide initial summary views into your infrastructure. These panes provide data that enable you to efficiently monitor your system. It is possible to drill down into individual components from these views to display more extensive, specific information. The Dashboard pane provides views into various types of data and can be customized by adding additional informational portlets (panes), dragging components to rearrange them, and resizing/reordering items such row headings.

The Cisco UCS Performance Manager UI also includes in many views an indicator bar with colors and numbers that provide quick visual feedback for various levels of event notification:



The event notification level or severity presented within the indicator bar includes values that indicate the number of occurrences together with the severity color. There are four possible colors that indicate relative severity, listed from most to least severe:

- Red Critical
- Orange Error
- Yellow Warning
- Blue Info

The Cisco UCS Performance Manager also provides tabular and or graphical reports about usage and performance data stored within historical databases. These reports display various data, depending on the type of report. Report filter options depend on the style of report.

The Cisco UCS Performance Manager collects and organizes data that can be used to identify and diagnose various conditions across your infrastructure, enhancing your ability to explore potential solutions. These conditions include, but are not limited to:

- Over-subscription of resources
- Under-performing components
- Out-of-balance port channel components
- Connection issues
- Overload conditions
- Sources of congestion
- Component misconfiguration

Failing or inappropriately provisioned components

For descriptions of the various available views and instructions about how to configure the Dashboard and other views, see *Cisco UCS Performance Manager Administration Guide*.

#### Initial UCS Infrastructure Console Events and Thresholds

After you add your UCS infrastructure to Cisco UCS Performance Manager, a high number of threshold-related events might be displayed in the event console. This can be caused by a UCS configuration that does not align well with the default threshold values for UCS Performance Manager. You can adjust these thresholds to make your particular UCS environment easier to view and understand. For additional information about how to adjust these thresholds see the "Thresholds" section of the *Cisco UCS Performance Manager Administration Guide*.

### **Dashboard View**

The Dashboard is the initial view that displays when you log into the Cisco UCS Performance Manager. It provides information about the status of your infrastructure. It is the primary window into devices and events that the system enables you to monitor.

The Dashboard view can be configured to provide customized data display. Additional portlets (panes) can be added to the view, including, for example:

- A Blade Server Capacity pane that helps you find servers consuming the most bandwidth
- Panes that can show Out Of Balance Issues
- A Domain Overview pane that shows Fabric Usage by Domain
- A UCS Inventory pane that shows unallocated servers by domain
- A Chassis Capacity pane that shows bandwidth consumption by chassis

See the Cisco UCS Performance Manager Administration Guide guide for directions.

The following is an example of the Dashboard view.

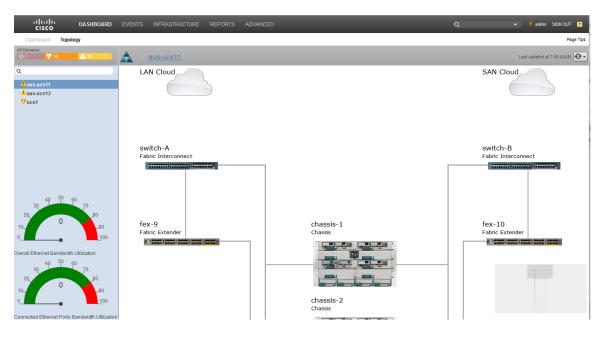
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## **Topology View**

The Topology screen provides a special view that displays a graphical view of Cisco UCS components and the unified fabric.

To launch the Topology view, click the **Topology** button.

The following figure shows an example of the Topology View:



## **Reports View**

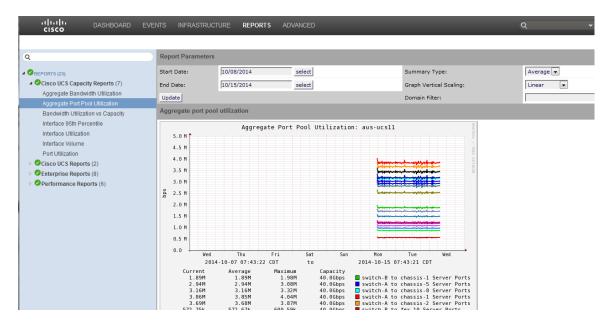
The Reports pane displays historical data about your system performance. The reports can be either tabular or graphical depending on the style of report. For addition information about the Reports view and instructions about how to configure it, see the Cisco UCS Performance Manager Administration guide.

To launch the Reports view, click the Reports button.

The following figure shows an example menu of available UCS Reports in the Reports pane:

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Hardware Inventory				
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95th Percentile				
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Data Sources in Use				
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Users Group Membership				
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The following figure shows an example Report pane:



## **Application View**

Note This functionality is only available with a Cisco UCS Performance Manager license.

The Cisco UCS Performance Manager UI enables you to add application view portlets to the dashboard to expand and enhance the UI capabilities. For additional instructions on how to add an application view, see*How to Add an Application View to the Dashboard* on page 107.

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## **Cisco UCS Performance Manager Documentation**

The Cisco UCS Performance Manager supplies a documentation set. It is available through the **User Information Area**.

### **User Information Area**

Figure 1: User Information Area



The User information area offers information and selections:

- Login ID- The ID of the user currently logged in appears at the far left of this area. Click the ID to edit user settings, such as authentication information, roles, and groups. (You also can access user settings from the Advanced > Settings > Users page.)
- Sign Out- Click to log out of the system.
- Help icon Click to access product documentation.

## How to Use Cisco UCS Performance Manager to Monitor Your System

The Cisco UCS Performance Manager enables you to survey and monitor your infrastructure for throughput, network performance, and connection issues. The graphical UI enables you to pinpoint trouble areas and drill down to access additional, expanded information about each infrastructure component.

The UI enables you to:

- Know when there is an infrastructure problem.
- Recognize and be alerted to infrastructure issues.
- Identify where in the infrastructure the problem exists.
- Identify the infrastructure components experiencing or contributing to the problem.

Understanding what information is available and how to access it through the Cisco UCS Performance Manager UI is the key to successfully using Cisco UCS Performance Manager to monitor your system.

## How do I Know There is a Problem?

The Cisco UCS Performance Manager UI helps you to determine if there is a problem in your infrastructure. The UI provides graphics and color markers that are easy to see and easy to interpret.

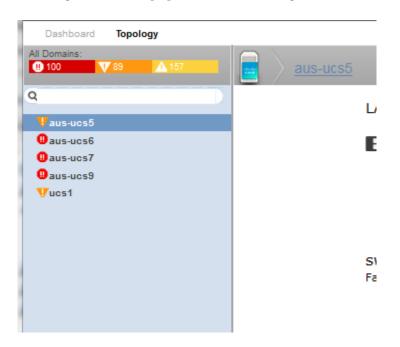
The UI includes (in many views) indicator bars with colors and numbers that provide quick visual feedback for various levels of event notification:



The event notification level or severity presented within the indicator bar includes values that indicate the number of occurrences together with the severity color. There are four possible colors that indicate relative severity, listed from most to least severe:

- Red Critical
- Orange Error
- Yellow Warning
- Blue Info

For example, the following figures show various components marked with color to signify they have a problem:



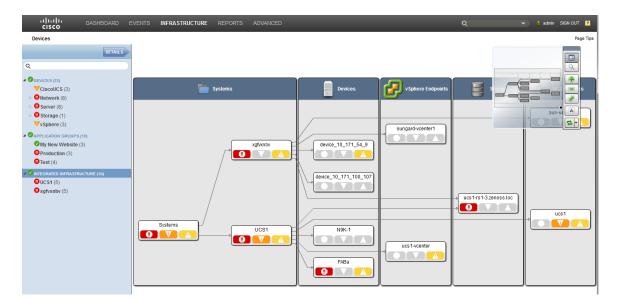
Colored icons and bars indicate issues:

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	ESXi 4 8 SAN	ok	ucs1	chassis-4/blade-8	/org-Austin Lab	38.78 %	38.73 %	37.08 %	38.78 %
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Devices show events in various state of severity together with counts:

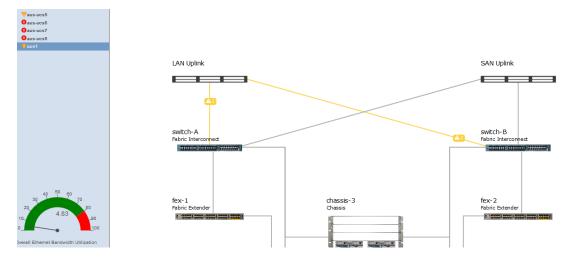
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aus-ucs6	10.87.207.93	/CiscoUCS	Production	(1) 48
aus-ucs7	10.87.207.94	/CiscoUCS	Production	(1) 48
aus-ucs9	10.87.207.96	/CiscoUCS	Production	<b>())</b> 4
device 10 171 100 107	10.171.100.107	/Network/Cisco/N	Production	
device 10 171 100 109	10.171.100.109	/Network/Cisco/N	Production	
device 10 171 100 14	10.171.100.14	/Network/Cisco/65	Production	<b>V</b> 1
device 10 171 100 47	10.171.100.47	/Network/Cisco	Production	
device 10 171 100 88	10.171.100.86	/Network/Cisco/M	Production	<b>())</b> 2
device 10 171 100 88	10.171.100.88	/Network/Cisco/N	Production	
device 10 171 54 9	10.171.100.47	/Network/Cisco	Production	<b>A</b> 2
deuties 10 07 200 187	10 07 200 187	/Convor/Linux	Production	

Colored icons indicate potential issues in various views, including the Dynamic View:

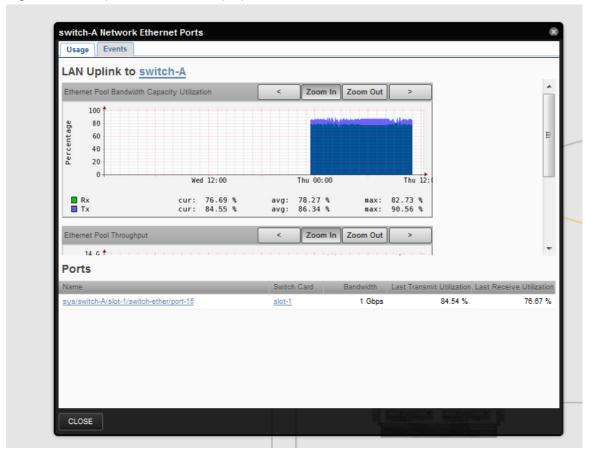


## How can I Recognize and be Alerted to Infrastructure Issues?

The Cisco UCS Performance Manager Express UI provides visual feedback and or event notification (email) for detected infrastructure component problems in the form of brightly colored fonts and/or backgrounds for component information. The visual problem indicator cues include highlighted network connection lines drawn between components in the **Dynamic** or **Topology** views. For example, the following figure shows two **yellow** connection lines in the **Topology** view that indicate a problem. One yellow connection is between the **LAN Uplink** and the **switch-A (Fabric Interconnect)** component, and the other is between the **LAN Uplink** and the **switch-B (Fabric Interconnect)** component:



To view additional information about the problem connection (*yellow* line) between components, double-click the line. For example, double-click the line between the **LAN Uplink** and the **switch-A (Fabric Interconnect)** component to display the informational window:



#### Figure 2: LAN Uplink to switch-A Pop-up Window

Additional component specific information can be displayed. Click on the **tabs** and **links** that display within the pop-up window. In this example there are two tabs and two links for **Name** and the **Switch Card**.

## How can I Identify Where the Infrastructure Problem is?

The Cisco UCS Performance Manager enables you to identify where in your infrastructure a problem or bottleneck exists. Use the queues provided within the UI to quickly and efficiently visually survey your system. Color indicators provide visual markers for problems that involve limited throughput, degraded network performance, and connection issues. The graphical UI enables you to pinpoint trouble areas and drill down to access additional, expanded information about each infrastructure component.

The available tools include the **Topology** and **Dynamic** views as well as Performance Graphs (for aggregates and individual components) and event notifications controlled through threshold trigger definitions. For additional information about how to use these tools, see the following documents:

- Cisco UCS Performance Manager Administration Guide
- Cisco UCS Performance Manager Extended Monitoring Guide

## How can I Identify Problem Infrastructure Components?

The Cisco UCS Performance Manager Express helps identify the infrastructure components experiencing or contributing to performance issues. The concepts of analyzing network capacity, determining available remaining capacity, detecting network congestion and addressing fabric constraints are discussed in *Cisco UCS Performance Manager Administration Guide*. A specific example of how to access the data and use it to determine issues is discussed in the sections that follow.

## How can I View Current Performance Data?

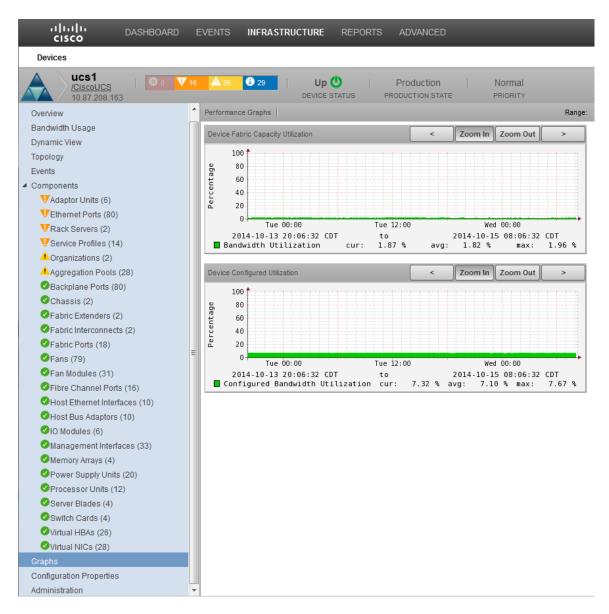
The Cisco UCS Performance Manager Express provides both current and historical performance data in the form of **Reports** and **Graphs**. This data is available in both tabular and graphical forms and various display parameters can be defined.

To access current graphical data about your system performance, perform the following:

1 Click **Infrastructure** to display the **Devices** pane on the left. For example:



- 2 Select a device from the left-hand Devices pane, for example, CiscoUCS.
- 3 Double-click a device name in the right-hand **Device** list, **usc1** for example.
- 4 Select Graphs from the left-hand pane to display the Performance Graphs pane on the right:

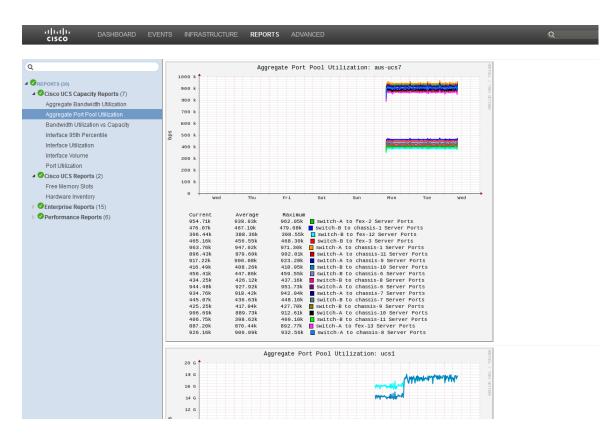


If you prefer to view the various tabular reports, with both current and historical data, depending on your defined specifications, perform the following:

1 Click **Reports** to display the left-hand **Reports** pane. For example:



2 Expand the various **Reports (nn)** available and select your choice to display the report information in the right pane. For example, **Aggregate Bandwidth Utilization**:



Depending on the available options that display, you can customize your report and the information it displays.

### How can I be Notified when there is a Problem?

The Cisco UCS Performance Manager enables you to configure alerts and traps using SNMP. These traps and events can be used to trigger notifications such as email.

#### Working with Triggers and Notifications

You can create *notifications* to send email or pages, create SNMP traps, or execute arbitrary commands in response to an event. Notifications also can be used to notify other management systems, and to execute arbitrary commands to drive other types of integration. How and when a notification is sent is determined by a *trigger*, which specifies a rule comprising a series of one or more conditions.

To set up a notification, you must:

- Create a trigger, selecting the rules that define it
- Create a notification, selecting one or more triggers that cause it to run
- Choose appropriate options and subscribers, depending on the notification type

Read the following sections to learn about:

- Setting up triggers and trigger permissions
- Setting system SMTP settings for notifications
- Setting up notifications and notification permissions

#### **Creating a Trigger**

To create a trigger:

1 Select **Events > Triggers** from the Navigation menu.

The Triggers page appears. It displays all existing triggers, indicating whether each is enabled.

2 Click the **Add** icon.

The Add Trigger dialog appears.

3 Enter a name for the trigger, and then click Submit.

The trigger is added to the list and is automatically enabled.

4 Double-click the trigger, or click Edit to open the Edit Trigger dialog.

#### Figure 3: Edit Trigger

Edit Trigger		8
Trigger	Users	
Name:	Example Service Trigg	
Enabled:		
Rule:	all 🗸 of the following rules:	
	Event Class vith v/Service/State v	
	SUBMIT CANCEL	

Enter information or make selections to define the trigger:

- **Enabled** Select this option to enable the trigger.
- **Rule** Define the rule comprising the trigger:
  - Select All or Any from the list to specify whether a notification will be triggered based on all, or any one, of the trigger rules.
  - Define the rule by making selections from each event field.

To add a rule to the trigger, click the **Add** icon.

#### **Setting Global Trigger Permissions**

You can set global permissions for viewing, editing, and managing triggers. Global permissions are given to any user with "manage" permission, which includes:

- admin, Manager, and ZenManager roles
- Trigger owner

Edit global permissions from the Users tab on the Edit Trigger dialog.

Global options are:

- Everyone can view Provides global view permission.
- Everyone can edit content Provides global update permission.
- Everyone can manage users Provides global manage permission.

#### Figure 4: Edit Trigger - Users Tab

Edit Trigger				8
Trigger Users				
Global Options				
Everyone can view				
Everyone can edit conte	nt			
Everyone can manage u	Jsers			
Users				
	Add 🗢			
Туре	Users	Write	Manage	
		SUBMIT CANCEL		

#### **Setting Individual Trigger Permissions**

You can grant permissions to individual users. For each user added, you can select:

- Write Select this option to grant the user permission to update the trigger
- Manage Select this option to grant the user permission to manage the trigger.

#### Working with Notifications

Setting up a notification involves:

- Creating the notification
- Defining notification content (for email- or page-type notifications)
- Defining the SNMP trap host (for SNMP trap-type notifications)
- Defining commands to run (for command-type notifications)
- Setting notification permissions
- Setting up notification schedules

#### **Creating or Editing a Notification**

To create or edit a notification:

- 1 Select **Events > Triggers** from the Navigation menu.
- 2 Select Notifications in the left panel.

The Notifications page appears.

#### Figure 5: Notifications

Event Console Event Archive Event	Classes <b>Triggers</b>							Page Tips
E Triggers	Notification Subscri	ptions				Notificatio	n Subscription Schedules	
E Notifications	+00					+0<	>	
	Enabled	ld	Trigger	Action	Subscribers	Enabled	ld	Start
	Yes	RemodelHostsOnMigrat		command	0			
	Yes	RemodelEndpoint		command	0			
	No	MSExchangelSWMTotal		command	0			
	Yes	RemodelHostByRef		command	0			
	Yes	RemodelOnMigration		command	0			
	Yes	rancid-run		command	0			
	No	ExampleServiceEmailNo	Example Service Trigge	email	0			

The Notifications area lists all defined notifications. For each notification, the area indicates whether the notification is enabled (Yes or No), the Action associated with the notification, and the number of notification subscribers.

To edit a notification, double-click it; or select it, and then click the Action icon.

To create a notification:

a Click the Add icon.

The Add Notification dialog appears.

- **b** Enter a name for the notification.
- **c** Select an Action associated with the notification:
  - **Command** Allows the system to run arbitrary shell commands when events occur. Common uses of a Command notification include:
    - *Auto-remediation of events.* You can use SSH to remotely restart services on a UNIX system when they fail, or winexe to do the same for Windows services.
    - Integration with external systems. This includes opening tickets in your incident management system.
    - *Extending alerting mechanisms.* Cisco UCS Performance Manager supports email and pagers as alerting mechanisms "out of the box" through normal alerting rules.
  - Email Sends an HTML or text email message to authorized subscribers when an event matches a trigger rule.
  - Page Pages authorized subscribers when an event matches a trigger rule.
  - **Syslog** Sends a message to the syslog.
  - **SNMP Trap** Sends an SNMP trap when an event matches a trigger rule.
- d Click Submit.
- e Edit your newly created notification by double-click it or by selecting it and clicking the Action icon.

The Edit Notification dialog appears.

#### Figure 6: Edit Notification

Edit Notification Subscription		8
Notification Content Subscr	ibers	
Enabled: Send Clear: Send only on Initial Occurence?:	Delay (seconds): 0 Repeat 0 (seconds):	
Trigger Example Service Trigger		
	SUBMIT CANCEL	

On the Notification tab, you can select or set:

- Enabled Select this option to enable the notification.
- Send Clear Specify to send a notification when the problem has been resolved by a clear event.
- Send only on Initial Occurrence Select this option to send the notification only on the first occurrence of the trigger.
- Delay (seconds) Specify the minimum age (in seconds) of an event before the notification will be
  executed. You might want to set a delay to prevent notifications being sent for transient problems, or to
  prevent multiple notifications being sent for the same problem.

For example, if you have five events that come in and match the trigger in 45 seconds, specifying a delay of 60 seconds will ensure that only one notification is sent. Additionally, if you have an event that matches the trigger at 15 seconds and is later cleared by another event at 45 seconds, a delay of 60 seconds will prevents notifications being sent.

• Repeat (seconds) - Specify how often to repeat the notification until the event that triggered it is resolved.

#### **Defining Notification Content**

To define notification content, click the Content tab of the notification.

For email-type notifications, you can use the default configuration for the following fields, or customize them to your needs:

- **Body Content Type** Select HTML or text.
- Message (Subject) Format Sent as the subject of the notification.
- **Body Format** Sent in the notification.
- Clear Message (Subject) Format Sent when a notification clears.
- **Body Format** Sent when a notification clears.

- From Address for Emails Sent as email address of sender
- Various SMTP setings Used to define SMTP port, username, and password

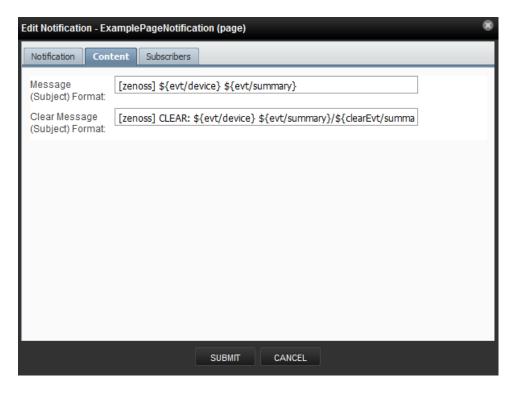
Figure 7: Define Notification Content (Email)

Edit Notification - Ex	ampleServiceEmailNotification (email)
Notification	tent Subscribers
Body Content Type:	html 🔪
Message (Subject) Format:	[zenoss] \${evt/device} \${evt/summary}
Body Format:	Device: \${ext/device} Component: \${ext/component} Severity: \${ext/jastSeen} Message: \${ext/message} <a tal:attributes="href urls/eventUrl">Event Detail</a> <a tal:attributes="href urls/eventUrl">Event Scients</a> The following events are causes of this event: <tal:block tal:repeat="item esa/causes"> Impact Chain: \${item/impactChain} Device: \${item/ext/device} Component: \${item/ext/device} Component: \${item/ext/device} Time: \${item/ext/lastSeen} Message: \${item/ext/message} <a tal:attributes="href item/urls/eventUrl">Event Detail</a> <a tal:attributes<="" td=""></a></tal:block>
Clear Message (Subject) Format:	[zenoss] CLEAR: \${evt/device} \${evt/summary}/\${clearEvt/sum
Body Format:	Event: '\${ext/summary}' Cleared by: '\${ext/id}' At: \${ext/stateChange} Device: \${ext/device} Component: \${ext/component} Severity: \${ext/severity} Message: \${ext/message} <a href="\${urls/reopenUrl}">Reopen</a>
	SUBMIT CANCEL

For page-type notifications, you can use the default configuration for the following fields, or customize them to your needs:

- Message (Subject) Format Sent as the subject of the notification.
- Clear Message (Subject) Format Sent when a notification clears.

Figure 8: Edit Notification Content (Page)



#### **Notification Content Variables**

Within the body of your email, page, and command notifications, you can specify information about the current event, in the form:

```
'${objectname/objectattribute}'
```

**Note** Do not escape event command messages and event summaries. For example, write this command as: \${evt/summary} (rather than echo '\$evt/summary').

Object names may be evt, evtSummary, or urls; or for clearing event context, clearEvt and clearEventSummary. For each object name, the following lists show valid attributes (for example, '\${evt/DevicePriority}):

- evt/ and clearEvt/
  - DevicePriority
  - agent
  - clearid
  - component
  - count
  - created
  - dedupid
  - device
  - eventClass
  - eventClassKey
  - eventGroup
  - eventKey
  - eventState

- evid
- facility
- firstTime
- ipAddress
- lastTime
- manager
- message
- ntevid
- ownerid
- priority
- prodState
- severity
- stateChange
- status
- summary

Note The message and summary names are, by default, wrapped in double quotes in event commands.

- eventSummary/ and clearEventSummary/
  - uuid
  - occurrence
  - status
  - first\_seen\_time
  - status\_change\_time
  - last\_seen\_time
  - count
  - current\_user\_uuid
  - current\_user\_name
  - cleared\_by\_event\_uuid
  - notes
  - audit\_log
  - update\_time
  - created\_time
  - fingerprint
  - event\_class
  - event\_class\_key
  - event\_class\_mapping\_uuid
  - actor
  - summary
  - message
  - severity
  - event\_key
  - event\_group
  - agent
  - syslog\_priority
  - syslog\_facility
  - nt\_event\_code
  - monitor
  - tags

- urls/
  - ackUrl
  - closeUrl
  - reopenUrl
  - eventUrl
  - eventsUrl

ZenPacks also can define additional notification actions, and can extend the context available to notifications to add additional objects or attributes.

#### **Defining the SNMP Trap Host**

For SNMP trap-type notifications, enter information or make selections on the Content tab of the notification:

- **SNMP Trap Destination** Specify the host name or IP address where the trap should be sent.
- SNMP Community- Specify the SNMP community. By default, this is public.
- SNMP Version- Select v2c (default) or v1.
- **SNMP Port** Specify the SNMP port. Typically, this is 162.

SNMP traps sent as a result of this notification are defined in the ZENOSS-MIB file. You can find this MIB file on any Cisco UCS Performance Manager server at \$ZENHOME/share/mibs/site/ZENOSS-MIB.txt.

#### Figure 9: Edit Notification Content (SNMP Trap)

Edit Notification -	· test_trap (trap)	8
Notification Con	ntent Subscribers	
SNMP Trap Destination:	traphost	
SNMP Community:	public	
SNMP Version:	v2c 👻	
SNMP Port (usually 162):	162	
(,-		
	CEL	

#### **Defining Commands to Run**

For Command-type notifications, you must specify the command to run when configured triggers are matched. Do this on the Content tab of the notification. Configure these fields:

• Command Timeout - By default, 60 seconds.

- **Command** Command to run when a trigger is matched.
- Clear Command Optional command to run when the triggering event clears.
- Environment variables -

Edit Notification -	command_notification (command)	8
Notification Cont	tent Subscribers	
Command Timeout (seconds):	60	
Command:		
Clear Command:		
Environment variables:		
	a.	

### **Setting Global Notification Permissions**

By establishing permissions, you can control which users have the ability to view, manage, and update notifications. Permissions are granted based on the user's assigned role. The following table lists account roles and their associated notification permissions:

Role	Permissions
admin, Manager, ZenManager	Users assigned the admin, Manager, or ZenManager roles can view, update, and manage any notification.
notification owner	When a user creates a notification, he is designated the owner of that notification. During the life of the notification, the owner can view, update, and manage it.
all other users (including those assigned ZenUser and ZenOperator roles)	Must be specifically granted permissions through the interface to view, edit, or manage notifications.

You can set global permissions for viewing, updating and managing a notification. Global permissions are given to any user with "manage" permission, which includes:

- admin, Manager, and ZenManager roles
- Notification owner

Edit global permissions from the Subscribers tab on the Edit Notification Subscription panel.

Global options are:

- Everyone can view Provides global view permission.
- Everyone can edit content Provides global update permission.
- Everyone can manage subscriptions Provides global manage permission.

Permission checks occur when the data is sent to the browser and when any action occurs. To determine where a user can make modifications to a particular tab, permission checks are performed on global roles, then managerial roles, and then individual roles. Any role that provides the required permission will allow that permission's associated behavior.

#### Figure 11: Edit Notification

Edit Notification Subscri	ption			8					
Notification Content	Subscribers								
Global Options									
Everyone can view	Everyone can view								
Everyone can edit o	content								
Everyone can mana	age subscriptions								
Subscribers									
	Add Ο								
Туре	Subscribers	Write	Manage						
user	admin (User)								
	SUBMIT	CANCEL							
	000								

#### **Setting Individual Notification Permissions**

You can grant permissions to individual users or groups. For each user or group added, you can select:

- Write Select this option to grant the user or group permission to update the notification.
- Manage Select this option to grant the user or group permission to manage the notification.

You can manually enter in the name of a user or group, or select one from the list of options.

#### Setting Up Notification Schedules

You can establish one or more notification schedules for each defined notification. To set up a schedule:

- 1 Select the notification in the Notifications area.
- 2 Click Add in the Notification Schedules area.

The Add Schedule Window dialog appears.

Notifications								
+00						+00	>	
Enabled	ld	Trigger	Action	Subso	ribers	Enabled	ld	Star
Yes	RemodelHostsOr	VMwareGuestM	command	0				
Yes	RemodelHostByF	VMwareHostCha	command	0				
Yes	RemodelEndpoint	VMwareDatasto	command	0				
No	ExamplePageNot		page	0				
No	ExampleSNMPTra		trap	0				
			1	Add Scl	hedule W	indow	6	0
				ld:				
					SUBMIT	CANCEL		

#### Figure 12: Add Notification Schedule

- **3** Enter a schedule ID, and then click **Submit**.
- 4 Double-click the newly added schedule to edit it. Select or enter values for the following fields:
  - **Enabled** Select to enable the schedule. By default, this schedule is not enabled.
  - Start Date- Enter or select a start date for the schedule.
  - Start Time- Enter or Select a start time for the schedule.
  - Repeat- Select a schedule repeat value: Never, Daily, Every Weekday, Weekly, Monthly, or First Sunday of the Month.
  - Duration (Minutes)- Enter a schedule duration, which is the period of time that the notification window
    is active. If a notification has notification windows specified, then notifications are sent only if one of the
    windows is active when the notification is received.
- 5 Click Submit.

#### Figure 13: Edit Notification Schedule

Notifications	;				Notification	n Schedules	
+00					+0<	>	
Enabled	ld	Trigger	Action	Subscribers	Enabled	ld	Start
Yes	RemodelHostsOr	VMwareGuestM	command	0			
Yes	RemodelHostByF	VMwareHostCha	command	0			
Yes	RemodelEndpoint	VMwareDatasto		0			
			er Edit Not	tification Scheo	lule -	8	
No	ExamplePageNot		page	0			
No	ExampleSNMPTra		trap Enabled:	0			
			Start Date:	06/27/2011			
			Start Time:	13:55		~	
			Repeat:	Never		~	
			Duration (minutes):	60			
				SUBMIT	CANCEL		

## How can I Drill Down to Determine Usage? - an Example

You can use the capabilities of the UI to drill down into component infrastructure to see important details. The following example shows you how to drill down and follow usage from the fabric interconnect back to the server.

- 1 View utilization at the Fabric Interconnect level:
  - **a** Navigate to **Infrastructure > Device** (for example UCS1)
  - **b** Expand **Components** in the left pane.
  - **c** Select **Fabric Interconnects (n)** from the list to display the Fabric Interconnect capacity utilization information in the right pane.

cisco DASHBOARD	EVENTS	INFRASTRUCTURE	REPORTS ADV	ANCED		-				Q		<b>v</b> 🔒 a	dmin SIGN	OUT ?
Devices														Page Tips
Ucs1 / <u>CiscoUCS</u> 10.87.208.163	6 🔺 26	3 29 Up		UCTION TION STATE	[	Normal PRIORITY								
Overview	Fabric	Interconnects	Select -									Q Type t	o fiter	
Bandwidth Usage	Events	Name 🔺		Mgmt IP A	ddr I	Manufacturer	Model		Total Memory	# Switch Cards	# PSUs	# Fans	# Ports	Status
Dynamic View	0	switch-A		10.87.208		Cisco	UCS-FI-6248UP							Up 🙂
Topology	0	switch-B		10.87.208	.162	Cisco	UCS-FI-6248UP		15.8GB	2	2	2	48	Up 🙂
Events														
<ul> <li>Components</li> </ul>	<u> </u>													_
VAdaptor Units (6)	Display:	Graphs					Range:	Hourly	~	Custom Range	Reset	Link Graph	s? 🗸 🛛	Refresh •
VEthernet Ports (80) VRack Servers (2)				<	( <b>-</b> .		>							*
V Rack Servers (2) V Service Profiles (14)	CPU Util	ization		<	Zoom In	Zoom Out	>							
Organizations (2)		100												
Aggregation Pools (28)	ť	80					·)····)···)···)							
Backplane Ports (80)	percent	40												E
Chassis (2)	ă	20												
Septic Extenders (2)		0 Tue 00:00	Tue 12:00			d 00:00								
Fabric Interconnects (2)		2014-10-13 20:13:15 C	DT to			15 08:13:15								
Fabric Ports (18)	Us Us	ed	cur: 0.20%	avg:	0.49%	nax:	1.60%							
Fans (79)					( <b>.</b> .									
Fan Modules (31)	Memory	Utilization		<u> </u>	Zoom In	Zoom Out	>							
Fibre Channel Ports (16)														
Host Ethernet Interfaces (10)	v 1	0 G												
Host Bus Adaptors (10)	bytes													
O Modules (6)		5 G												
Management Interfaces (33)		0 Tue 00:00	Tue 12:00		No.	d 00:00								
Memory Arrays (4) Power Supply Units (20)		2014-10-13 20:13:15 C				15 08:13:15	CDT							
Power Supply Units (20) Processor Units (12)	Av		cur: 12.79G cur: 1.49G		L2.80G 1.49G		12.81G 1.50G							
Server Blades (4)		ened		uvg.	1.450	indx.	1.500							
Server blades (4) Switch Cards (4)	Fabric I	nterconnect Utilization (bits)		<	Zoom In	Zoom Out	>							
Virtual HBAs (26)		+												
Virtual NICs (28)	v 1.	s a marminghter	mantertance	hur	m		America							
Graphs	9 1. 9 1.													
Configuration Properties	~													
Administration	0.	5 G												-

- 2 Display the Component Bandwidth Capacity to see the components using resources:
  - **a** From within the Fabric Interconnect capacity utilization information (right pane), click the **down arrow** next to **Display** to expand the drop-down list of display options.
  - **b** Choose **Component Bandwidth Capacity** to display the various entities connected to the FI, including IO Modules, Ports, and Chassis or FEX. This enables you to determine which ones are consuming the greatest resources.

cisco	VENTS INFRASTRUCTURE REPORTS ADVANCED		Q	🔹 🙎 admin SIGN OUT 🔋
Devices				Page Tips
UCS1 <u>CiscoUCS</u> 10.87.208.163	22 29 Up O     Production Nor     Device status Production state Price			
Overview	Fabric Interconnects			Q Type to filter
Bandwidth Usage	Events Name + Momt IP Addr Manut	acturer Model	Total Memory # Switch Cards # F	PSUs #Fans #Ports Status
Dynamic View	switch-A 10.87.208.161 Cisco	UCS-FI-6248UP		2 48 Up 🕐
Topology	Switch-B 10.87.208.162 Cisco	UCS-FI-6248UP	15.8GB 2 2	2 48 Up 🕐
Events				
<ul> <li>Components</li> </ul>				
VAdaptor Units (6)	Display: Graphs	Range: Hourly	Custom Range   Re	eset   Link Graphs? 🗸 🐼 Refresh 🔹
VEthernet Ports (80)	Graphs			
VRack Servers (2)	CPU Util Events < Zoom In Zo	om Out >		
VService Profiles (14)	Details			
Organizations (2)	Templates			
Aggregation Pools (28)	Ethernet Ports Fibre Channel Ports			
Backplane Ports (80)				
Chassis (2)	Fan Modules			
Fabric Extenders (2)	Power Supply Units Tue 12:00 Wed 00			
Fabric Interconnects (2)	Switch Cards DT to 2014-10-15 0 Us IO Module Capacity cur: 0.20% avg: 0.49%	8:13:15 CDT max: 1.60%		
Fabric Ports (18)	Component Bandwidth			
ØFans (79)	Memory Capacity < Zoom In Zo	om Out >		
ØFan Modules (31)	Ports Capacity			
<ul> <li>Fibre Channel Ports (16)</li> <li>Host Ethernet Interfaces (10)</li> </ul>				
Host Ethernet interfaces (10) Host Bus Adaptors (10)	10 G			
O Host Bus Adaptors (10)				
Management Interfaces (33)				
Memory Arrays (4)	0 Tue 00:00 Tue 12:00 Wed 00	00		
Power Supply Units (20)	2014-10-13 20:13:15 CDT to 2014-10-15 0	8:13:15 CDT		
Processor Units (12)	Available cur: 12.79G avg: 12.80G Cached cur: 1.49G avg: 1.49G	max: 12.81G max: 1.50G		
Server Blades (4)				
Server blades (4)	Fabric Interconnect Utilization (bits) < Zoom In Zo	om Out >		
Virtual HBAs (26)	•			
Virtual NICs (28)	y 1.5 6 to balance and a stand and	montant		
Graphs	9 · · · · · · · · · · · · · · · · · · ·			
Configuration Properties				
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- **3** Review historical usage for the Fabric Interconnect:
  - a Within the right pane, with Component Bandwidth Capacity selected, you can view historical usage data for selected components. You can choose from time frame display options in the drop-down list Last Hour, Day, or Week.

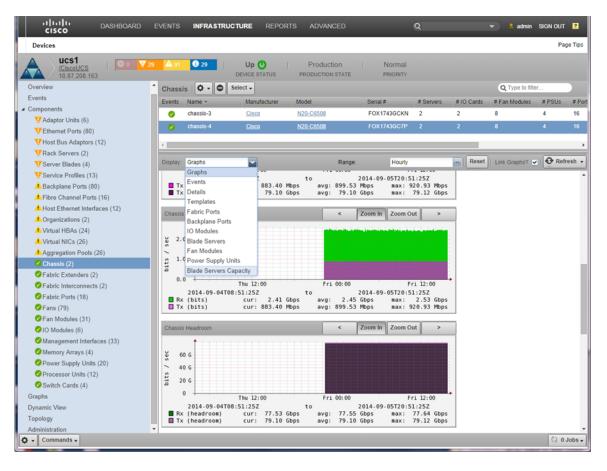
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Backplane Ports (80)	0	chassis-4	sys/cha	ssis-4	Chassis	7Gbps (8.51%)	6Gbps (7.11%)	8Gbps	s (9.94%)	7Gbps (8.86	
Chassis (2)											
Fabric Extenders (2)											
Fabric Interconnects (2)											

Note that you can change which columns display and change their sort order.

- **b** You can continue to drill down for additional information. Click the name of any component that displays in the right pane to access additional information about that component.
- 4 View component usage, for example for a particular chassis:
  - Click the name of a component that displays in the right pane to access additional information about that component. For example, click the name Chassis-4 to display information that includes Remaining Capacity, and Throughput data.

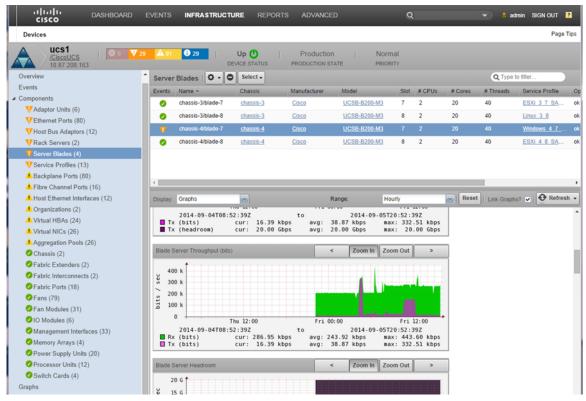
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Fabric Ports (18)	Rx Utilization (LAN) cur: 6.72 Gbps Tx Utilization (LAN) cur: 5.52 Gbps	avg: 5.58 Gbps max: 7.01				
Fans (79)	Rx Utilization (SAN) cur: 16.61 Mbps	avg: 19.42 Mbps max: 45.44	bps			
Fan Modules (31)	Tx Utilization (SAN) cur: 116.74 Mbps	avg: 114.88 Mbps max: 200.38 H	bps			
Fibre Channel Ports (16)	Chassis Remaining Capacity	< Zoom In Zoom Out	>			
Host Ethernet Interfaces (10)	Chassis Remaining Capacity	< 200mm 200m out				
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O Modules (6)	ы 60 G					
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Processor Units (12)	2014-10-13 20:19:15 CDT to	2014-10-15 08:19:15 CDT				
Server Blades (4)	Rx Remaining cur: 73.27 Gbps Tx Remaining cur: 74.36 Gbps	avg: 74.40 Gbps max: 76.61 avg: 72.89 Gbps max: 74.46				
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- 5 View server usage to determine the busiest servers:
  - **a** While viewing the right pane with the component information, for **Chassis-4** for example, click the **down arrow** next to **Display** to expand the drop-down list of display options.
  - b Select the Blade Server Capacity option to display the blade servers attached to this chassis.
  - c View and analyze the blade server usage information to determine which server is busiest.

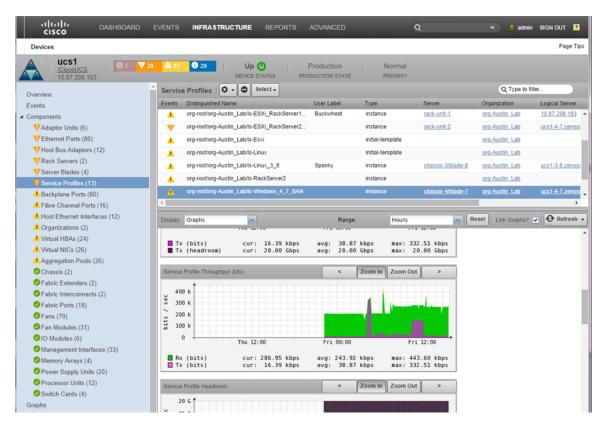


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Aggregation Pools (28)													
Backplane Ports (80)													
🗸 Chassis (2)													
Fabric Extenders (2)													
Fabric Interconnects (2)													

- 6 View a server's historical use:
  - **a** Navigate to **Infrastructure > Device** (for example *UCS1*)
  - **b** Expand **Components** in the left pane.
  - c Select Server Blades(n) from the list to display the Server Blades associated with the chassis in the right pane.



- 7 View a Server Blade service profile:
  - **a** From the list of Server Blades associated with the chassis in the right pane, locate the **Service Profile** column.
  - **b** Click the **Service Profile** name for a server of interest to display the **Service Profile** view for that server.



The top pane of this view enables you to see various information about the service profiles, including which server supports this service profile.

# **Network Capacity**

Network capacity is a measure of the maximum amount of data that can be moved between network locations. This includes data moving across or between Ethernet ports, switches, FEXs (Fabric Extenders), FIs (Fiber Interconnects) and servers over a link or network path. An additional measure that is directly related to capacity is *remaining capacity* - the amount of unused or available bandwidth in your system. This includes aggregation pools, ports, fabric interconnects, FEXs, switches, servers, etc.

Identifying potential capacities and comparing them with actual capacities derived from analyzing your system and components enables you to perform various tasks, including:

#### Determining how close to maximum capacity you are.

This enables you to plan ahead for potential expansion or restructure.

#### Determining the amount of available remaining capacity.

This enables you to determine if a device is over-subscribed or has additional resources that can be used to alleviate over-subscription or help eliminate bottlenecks.

#### Determining if IOM server ports, Ethernet Uplinks, FC Uplinks are congested now or historically.

This enables you to act to alleviate the congestion or potentially forecast when the next cyclic congested event might occur

#### Identifying sources of congestion.

This enables you to explore ways to address the congestion, such as moving service profiles between chassis.

# Determining if virtual or physical workloads and applications are affected by UCS fabric capacity constraints.

This enables you to plan for or make changes to the system configurations or hardware components.

# Determining if virtual or physical workloads and applications are affected by UCS server CPU and memory configuration.

This enables you to plan for or make changes to the server configurations or hardware components.

# Comparing current and historical performance across converged infrastructure components to determine where constraints exist.

This enables you to identify where the constraints exist and decide if and how the constraints can be removed.

#### Network Topology and Performance

One method to determine how close your system is to maximum performance capacity is to display the Topology view and analyze it for information about the connection quality between various components. The Topology view includes graphical bandwidth usage information in the form of speedometers for both Overall and Port Bandwidth usage.

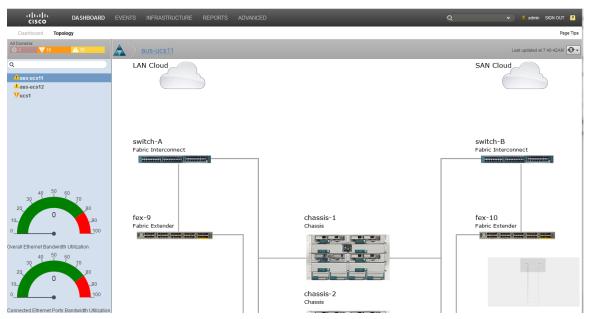
The Topology view includes a clickable diagrammatic map of your device connections.

Perform the following steps to display your network Topology and associated information:

- 1 Launch the Cisco UCS Performance Manager interface.
- 2 Log in to the Cisco UCS Performance Manager interface

#### 3 Click DASHBOARD.

4 Click the **Topology** button to display the clickable topology map in the right pane and the bandwidth speedometers in the left pane.



5 To access additional information about a component, click the component name in the Topology view in the right pane. For example, clicking on **Fabric Interconnect Switch-A** displays the following information window:

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0100		0 %	
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30 <b>40 50 60 7 70 20 17.42 80</b>	CLOSE CLOSE	376	
	Chassis		

# Identifying Remaining Capacity in Your System

Identifying available remaining capacity enables you to determine where available remaining capacity exists in your system. This enables you to alter resource allocation to make use of the available remaining capacity and alleviate over-subscription to other components

Bandwidth usage and available remaining capacity data is available for individual ports, or collectively by role in the Aggregation Pools view. Aggregation pools are logical bundles of multiple physical network interfaces, commonly known as a port channels. For more information about Aggregation pools, see *Cisco UCS Performance Manager Administration Guide* 

## **Network Congestion**

Network congestion occurs when an increase in data transmissions results in a proportionately smaller increase or throughput reduction across the network. Congestion can result from more data being sent across a network than it can handle. Applications send the data as packets across the network, traversing network devices such as FEXs, FI, Ethernet ports, routers, and switches. The buffers on over-subscribed devices can fill up and overflow so data packets are lost. This state can cascade into even greater congestion because applications must retransmit lost packets that result in additional data traffic across the network. If this cyclic cascade continues, the network can become paralysed and fall into a state of congestive collapse. This is the state that ensues when congestion increases to the point that throughput drops to and remains at very low levels and adversely impacts the performance of applications and devices.

The Cisco UCS Performance Manager provides tools to help you identify active network congestion issues and address them. It can also provide data (both historical and projected) to plan and prevent potential network congestion issues in the future.

#### **Exploring Options to Correct Congestion**

Correcting or preventing congestion is important to keeping a network running smoothly for users and applications. The tools provided by the Cisco UCS Performance Manager enable you to analyze collected data to make informed decisions about how to correct the issue(s). The available data includes performance data, both current and historical, component, connection and provisioning data. When these are analyzed, potential inadequacies or pinch points in your network can be identified and isolated for rehabilitation.

The options available to you to address network congestion issues include:

- Identifying and reconfiguring service profiles that contribute to low performance or moving service profiles between servers to enhance server performance.
- Identifying and rectifying server provisioning, including processor and memory configurations.
- Locating and correcting bandwidth inequities. This means identifying those network components with critically small available remaining capacity and bringing the network in-balance by redistributing bandwidth between components with appropriate available remaining capacity - or adding additional equipment.
- Using historical data from the various performance logs to determine patterns and cycles to plan for future network stress.

#### **Components Affect Congestion**

Because the Cisco UCS Performance Manager provides a view into the network fabric, it enables you to view performance data that network management tools cannot access. This includes performance data for server ports, Ethernet links, FC uplinks, etc. The data returned from these types of sources can be analyzed and used to determine if congestion exists and what additional effects the congestion is generating. Congestion can be detected by observing the performance data of specific network components that show low throughput or exceptionally high usage rates.

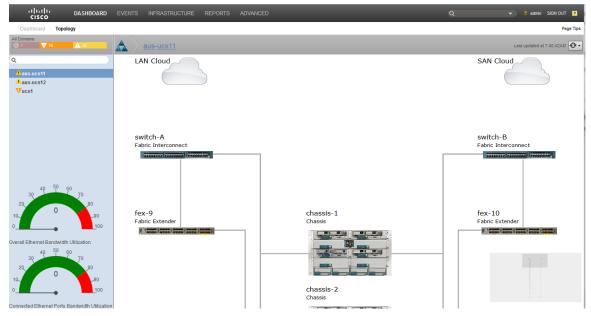
Low performing or over-subscribed components can contribute to or be the result of congestion.

#### How to Determine the Effects of Congestion on a Network Component

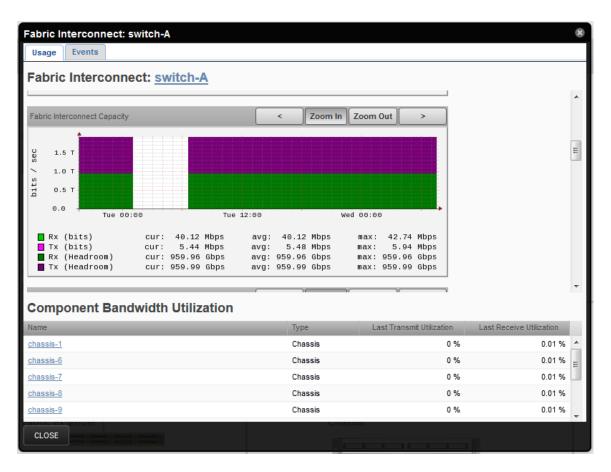
The following example shows how to select a component, in this case switch-A, and drill down into the performance data for its Ethernet ports. The display shows a graphical interpretation of the switch performance and tabular data for each Ethernet port. The tabular data includes the port slot location, bandwidth and utilization information. If additional information is required, in this example, click on the port name to display the Infrastructure data page for that port.

Perform the following steps to view the performance information for example switch-A and its Ethernet ports:

1 Navigate to **DASHBOARD > Topology**. This displays the Topology view, for example:

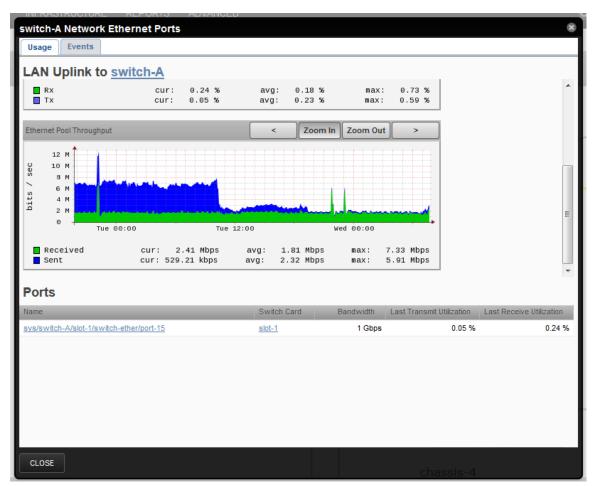


2 In the right-hand pane, click a component name, in this case switch-A Fabric Interconnect, to display the popup information window. For example:

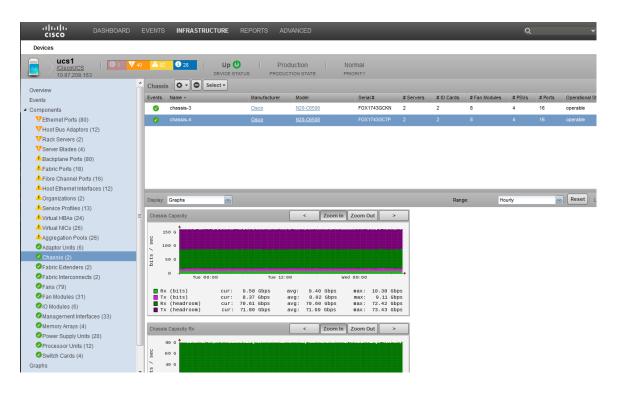


Analyze the data to determine if the component and its associated connections are performing appropriately. Identifying and correcting components that do not perform as required helps to prevent and/or alleviate congestion in the network.

For reference, the following example shows the relative congestion of the LAN Uplink to switch-A connection. Because the current values are  $\sim$ 7.3Mbps for received and 5.9Mbps for sent data, they are not yet close to the maximum available bandwidth of 10Gbps so congestion is very low. If these values increase to approach the 10Gbps maximum available bandwidth, congestion increases and will eventually lead to network issues.



3 If you require additional information about a component, click the name of a component in the pop-up information window to display the Infrastructure information page for that component. For example, click on **Chassis4** to display the **Infrastructure** view:



### How to Display Reports to View Historical Congestion

The Cisco UCS Performance Manager provides usage and performance data. The data can be current or data that stored within historical logs. The historical logs are used by the Cisco UCS Performance Manager to generate reports to display various data, depending on the type of report. Additional report options depend on the style of report. For example, to view the historical log for Interface Utilization, perform the following:

1 From the Cisco UCS Performance Manager UI, navigate to: Reports > (left pane) Reports > Cisco UCS Capacity Reports > Interface Utilization.

This displays the Report Parameters pane on the right.

- 2 In the Report Parameters pane:
  - a Define the Root Organizer. Select /Devices/Network from the drop-down list.
  - **b** Define the **Start Date:** and **End Date:** values for the report. You must use the **Select** button to launch a selection calendar and chose from available dates.
  - c Click Update to display the report in the lower pane. For example:

Q	Report Paramete	rs											
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Interface Volume	10.171.100.107	Ethernet107 1 10		23.1Kb	1.6b	1.4b	N/A	N/A	0.5b	0.3b			
Interface volume	10.171.100.107	Ethernet107 1 11		23.2Kb	1.4b	1.4b	N/A	N/A	0.3b	0.4b			
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© Enterprise Reports (17)	10.171.100.107	Ethernet107 1 15		1000.0Mb	1.8b	1.6b	N/A	N/A	0.5b	0.4b			
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	10.171.100.107	Ethernet107 1 22		23.5Kb	1.5b	1.4b	N/A	N/A	0.3b	0.3b			
	10.171.100.107	Ethernet107 1 23		22.7Kb	1.6b	1.8b	N/A	N/A	0.5b	0.4b			

# **Fabric Constraints Affect Congestion**

The network fabric consists of the collection of components and their interconnects and interfaces that make up your network. For the network to function at its theoretical maximum, efficient performance, all components/parts must function effectively individually and together as a cooperative unit. Constraints are any limitations within the fabric that affects performance of the network, measured as throughput or relative available remaining capacity. Constraints that affect data flow within the network can result in network congestion and potentially network paralysis or collapse. These constraints can take the form of component over-subscription, component misuse, inadequate provisioning or configuration, or failing component(s) or architecture.

## How to Determine Fabric Constraint Effects on Virtual & Physical Workloads

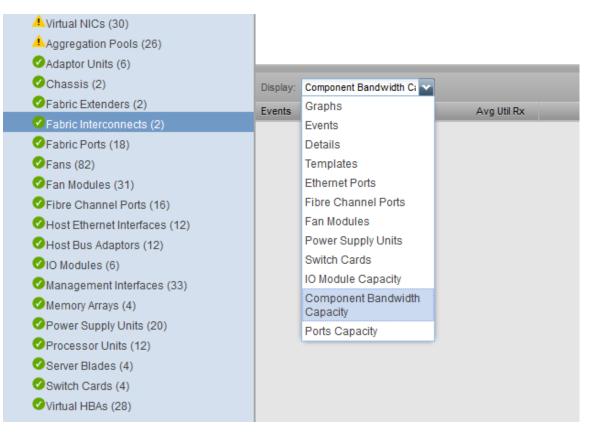
Note This functionality is only available with a Cisco UCS Performance Manager license.

Perform the following steps to display the Fabric Interconnect information for an example component, 10.87.208.163:

- 1 Navigate to Infrastructure > Components.
- 2 Click a component name in the right pane, 10.87.208.163, for example.
- 3 Navigate to **Components >Fabric Interconnects** to display the Fabrics Interconnects pane, for example:

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Aggregation Pools (28)	0	chassis-3		sys/cha	ssis-3	Chassis	6Gbps (7.14%)	7Gbps (8.63%)	7Gt	ps (8.87%)	8G	ibps (10
Backplane Ports (80)	0	chassis-4		sys/cha	ssis-4	Chassis	7Gbps (8.51%)	6Gbps (7.11%)	) 8Gb	ips (9.94%)	70	Gbps (8
Chassis (2)												
Fabric Extenders (2)												

4 Use the drop-down menu to select the type of display you require:



If you select **Component Bandwidth Capacity**, or **Ports Capacity** you can view and analyze the current graphs for those capacities.

#### How to Display Dynamic Views

The Cisco UCS Performance Manager enables you to display a dynamic view of network component interconnections. This dynamic view is automatically updated. It helps you to understand the interrelationships between all network components, from the operating system through the chassis.

To display a Dynamic view for a device, perform the following:

- 1 In the Cisco UCS Performance Manager Express interface, click INFRASTRUCTURE.
- 2 Click a device name in the **Device** pane, for example **CiscoUCS**.
- 3 Click a device name in the right-hand pane, for example ucs1.
- 4 Click Dynamic View in the left pane to display the Dynamic View.

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Devices		Page Tips
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Fabric Extenders (2)		
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Fabric Ports (18)		
Fans (79)		
Fan Modules (31)		
Fibre Channel Ports (16)		
Host Ethernet Interfaces (10)		
Host Bus Adaptors (10)		
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Management Interfaces (33)		
Memory Arrays (4)		
Power Supply Units (20)		
Processor Units (12)		
Server Blades (4)		
Switch Cards (4)		
Virtual HBAs (26)		
Virtual NICs (28)	Contract Con	
Graphs		
Configuration Properties	590(37,597	0101033007
Administration		

This view has clickable icons for additional information. It displays connect status between the components. The view can be adjusted using zoom and drag.

## How to Determine Fabric Constraint Effects on Application Performance

Note This functionality is only available with a Cisco UCS Performance Manager license.

The Cisco UCS Performance Manager enables you to create application groups. These application groups can be used to identify sources of congestion that affect application performance. Perform the following to create an application group:

- 1 Navigate to Infrastructure > Application Groups.
- 2 Click Application Groups
- 3 Click an application group name, for example **test**. The list of devices that make up this application group displays in the right pane.

Devices					Page
DETA	LS /Rest				
	0 6 V17 △ G   🖳 - ○ Select -		S Refresh	h - Actions - I	Comman
DEVICES (28)	Device +	IP Address	Device Class	Production State	Events
CiscoUCS (3)					
UNetwork (4)	10.175.211.0	10.175.211.0	/Server/Linux	Production	<b>()</b> 1
Server (19)	10.87.207.96	10.87.207.96	/Server/Linux	Production	<b>V</b> 1
V Storage (1)	colo3560g.zenoss.loc	10.175.211.2	/Server/Linux	Production	<b>V</b> 1
VSphere (1)	esxwin2.zenoss.loc	10.175.211.4	/Server/Linux	Production	<b>V</b> 1
test (19)     kvm     converged (0)	gatecolo.zenoss.loc	10.175.211.1	/Server/Linux	Production	<b>V</b> 1
	kvm.zenoss.loc	10.175.211.5	/Server/SSH/Linux	Production	<b>V</b> 3
	phone zenoss.loc	10.175.211.11	/Server/Microsoft/Window	Production	
	ga-ss-set1-zen.zenoss.loc	10.175.210.172	/Server/SSH/Linux	Production	
	test-cent4-64-1.zenoss.loc	10.175.211.112	/Server/Linux	Production	<b>()</b> 1
	test-sles11-54-1.zenoss.loc	10.175.211.15	/Server/Microsoft/Window	Production	0 1
	tilde.zenoss.loc	10.175.211.10	/Server/Microsoft/Window	Production	
	train-cent5-1.zenoss.loc	10.175.211.13	/Server/Microsoft/Window	Production	0 1
	train-cent5-2 zenoss.loc	10.175.211.14	/Server/Microsoft/Window	Production	<b>0</b> 1
	vpn-client1.zenoss.loc	10.175.211.6	/Server/SSH/Linux	Production	<b>V</b> 7
	vpn-client2.zenoss.loc	10.175.211.7	/Server/SSH/Linux	Production	V S
	vpn-client3.zenoss.loc	10.175.211.8	/Server/SSH/Linux	Production	V 7
	vpn-cīent4.zenoss.loc	10.175.211.9	/Server/SSH/Linux	Production	<b>V</b> 4
		.0.110.211.0			A. 4

- 4 To add additional devices to this group, click the (+) (plus sign) to launch the Add Device dialog.
- 5 Enter the appropriate information for your device. For example, name the device esxwin2.zenoss.loc
- 6 Click OK to save and Exit the dialog. Your new device should display in the list.
- 7 Click the device name, for example esxwin2.zenoss.loc, to display the edit/informational panel for the device:

CISCO DASHBOARD	EVENTS INFRASTRUCTURE REPORTS ADVANCED	_	Q 🔹 🕴 admin SIGN OUT 💈
Devices			Page Tips
esxwin2.zenoss.loc		Production Normal DUCTION STATE PRIORITY	
Overview Events Components Processors (4) Onterfaces (23) Graphs Dynamic View Administration	Device ID: 10.175.211.4 Connection Information sat: public Uptima: Unknown First Seen: 2014/02/18 06.39.55 Last Change: 2014/02/20 00.47.37 Locking: Unlocked Memory/Swap: 16.0GB/Unknown	Device Title:           exwink7zanossioc           Production State:           Serial Number:           Rack Slot:           0	Collector stil: localmost Hardware Manufacturer stil: Microsoft Hardware Model stil: 1.3.6.14.1.311.1.3.1.2 OS Model stil: Windows Version 6.1
	Systems sdf: None Groups sdf: data Links: Comments:		SNIMP SysName: eaxwin2 SNIMP Location: SNIMP Contact: SNIMP Contact: SNIMP Contact: COMPATBLE: Software: Windows Version 6.1 (Build 7600 Multiprocessor Free) SNIMP Community: public SNIMP Version: v2c

4

# **Network Capacity Scenarios**

The following scenarios show you how to perform capacity related tasks. The scenarios are examples and show just one of potentially many ways to perform a task.

# How to Identify Available Remaining Capacity for a Component

You can determine available remaining capacity values for most system components. The following example shows how to determine capacity for a particular Ethernet port:

- 1 Navigate to Infrastructure > Device {a component, for example } CiscoUCS.
- 2 In the right pane click a device name from the list, **ucs1**, for example.

The information pane for that device displays:

uluulu DashBoard	EVENTS INFRASTRUCTURE REPORTS ADVANCED		Q	👻 🤌 admin SIGN OU
Devices				P
Ucs1 Ciscolucs 10.87.208.163	0 🛆 92 1 Up 🕐   Production Device status Production state	Normal PRIORITY		
Overnew Events • Components VEIhernet Ports (80) Vhost Bus Adaptors (12) VRack Servers (2) VRack Servers (2) VRack Servers (3) Asciptane Ports (80) AFabric Ports (18) Affabric Channel Ports (15) Affabric Ports (18) Affabric Port	Device ID: uc31 Connection Information sdf: ucs_idewer***** 80 Failse Uptime: Unknown First Seen: 2014/08/18 00:36:23 Last Change: 2014/08/20 00:47:11 Model Time: 2014/08/20 00:47:12 Locking: Unkocked	Device Title: ucs1 Production State: Production State: Production Main Priority: Normal Tag: Serial Number: Rack Slot: 0 Save Cancel	Collector est localmost Hardware Manufacturer: Cisco Hardware Model: UCS	
Adaptor Units (6)     Chassis (2)     Chassis (2)     Fabric Interconneds (2)     Fabric Interconneds (2)     Fan Modules (31)     Ol Modules (6)     Management Interfaces (33)     Memory Arrays (4)     Power Supply Units (20)     Processor Units (12)     Switch Cards (4)     Coasts	Systems sst None Links: Comments:			

3 In the left pane, click Ethernet Ports (nn).

The Ethernet Ports information pane for that device displays:

evices UCISCOUCS 10.87.208.163						Page Tip
		Production Normal DUCTION STATE PRIORITY				age n
rview	Ethernet Ports O Select -			G	Q Type to filter	
ints	Events Distinguished Name	Port + MAC Address Switch Card	Fabric Interconnect Operational Speed	Port Channel	Monitored Adminis	strativ
oonents	sys/switch-A/slot-2/switch-ether/port-1					
Ethernet Ports (80)	y sys/switch-A/slot-1/switch-ether/port-1	1 00:2A:6A:87:F8:08 slot-1	switch-A 10Gbps	switch-A to chassis-3 Server Ports	enabled	8
Host Bus Adaptors (12)	sys/switch-B/slot-2/switch-ether/port-1	1 00:2A:6A:85:EB:50 slot-2	switch-B 10Gbps		✓ enabled	3
Rack Servers (2)	y sys/switch-B/slot-1/switch-ether/port-1	1 00:2A:6A:90:66:28 slot-1	switch-B 10Gbps	switch-B to chassis-3 Server Ports	enabled	đ
Server Blades (4)	sys/switch-A/slot-2/switch-ether/port-2	2 00:2A:6A:89:32:51 slot-2	switch-A 10Gbps		✓ enabled	d
Backplane Ports (80) Fabric Ports (18)	ys/switch-A/slot-1/switch-ether/port-2	2 00:2A:6A:87:F8:09 slot-1	switch-A 10Gbps	switch-A to chassis-3 Server Ports	enabled	d
Tibre Channel Ports (16)	sys/switch-B/slot-2/switch-ether/port-2	2 00:2A:6A:85:EB:51 slot-2	switch-B 10Gbps		enabled	d
Host Ethernet Interfaces (12)	<					
Organizations (2)	Display: Graphs		Range:	Hourly Reset Link	k Graphs? 🥃 🛛 🚱 Re	fres
Service Profiles (13)			runge.			
Virtual HBAs (24)	Ethernet Port Throughput	< Zoom In Zoom Out	>			
Virtual NICs (26)	1.0					
Aggregation Pools (26)	0.8					
Adaptor Units (6)	0.6					
Chassis (2)	0.4 20.2					
Fabric Extenders (2)						
Fabric Interconnects (2)	0.0 Tue 00:00 Tue 1	::00 Wed 00:00				
Fans (79)						
Fan Modules (31)	Received cur: 0.00 Bps Sent cur: 0.00 Bps	avg: 0.00 Bps max: 0.00 avg: 0.00 Bps max: 0.00	Bps Bps			
IO Modules (6)						
Management Interfaces (33)	Ethernet Port Capacity	< Zoom In Zoom Out	>			
Memory Arrays (4)						
Power Supply Units (20)	20 G	ار ا بوی رویی و میروی و میروی				
Processor Units (12)	6 15 G					
	> 10.6					
Switch Cards (4)	1 5 G					

- 4 Click a port name that has a value listed in the **Port Channel** column.
- 5 Select **Graphs** from the **Display:** drop-down to display graphs that include total bandwidth usage, available remaining capacity and throughput values.

For example, the following screen displays:

Aurits Events Distinguished Name Pert + MAC Adverse Switch Carl Fabric Interconnect Operational Speed Port Channel Montered Administrative State Operational State Interface Role Pere Distinguished	Dverview	Ethernet Ports   🗘 - 🔘 Select -										0	Type to filter
Service Profiles (7)         Profi	Events	Events Distinguished Name	Port +	MAC Address	Switch Card	Fabrio Interconnect	Operational Speed	Port Channel	Monitored	Administrative State	Operational State	Interface Role	Peer Distingu Lookir
• Opposition (2)         • Opposite Standard register)         • Opposite         • Op	Components	Sys/switch-A/slot-2/switch-ether/port-1	1	00:00:0C:01:02:01	slot-2	switch-A	10Gbps		1	disabled	admin-down	unknown	
All-generations (2)       Op systematic Binds Standard Unit (1)       0 000 000 000 000 000 000 000 000 000	VService Profiles (2)	sys/switch-A/slot-1/switch-ether/port-1	1	00:00:0C:01:01:01	slot-1	switch-A	10Gbps	switch-A to chassis-1 Server Ports	V	enabled	up	server	sys/chas
Bidagotic Inter (1)       Image: Inter (1)		svs/switch-B/slot-2/switch-ether/port-1	1	00-00-00-02-02-01	slot-2	switch-B	10Gbps			disabled	admin-down	unknown	
Channels (1)         Standard Andre Standard (2)         Standard (2) <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>· · · ·</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>							· · · ·						
C Enversion		sys/switch-B/slot-1/switch-ether/port-1	1	00:00:0C:02:01:01	slot-1	switch-B		switch-B to chassis-1 Server Ports		enabled		server	sys/chas
Carbon Interconduct (1)         Display Complex United Aside Interconductory 2         Display Loss Status		sys/switch-A/slot-2/switch-ether/port-2	2	00:00:0C:01:02:02	slot-2	switch-A	10Gbps		$\checkmark$	disabled	admin-down	unknown	
Partice Interconvector (2)             Partinteronvector (2)             Partit		sys/switch-A/slot-1/switch-ether/port-2	2	00:00:0C:01:01:02	slot-1	switch-A	10Gbps	switch-A to fex-2 Server Ports	1	enabled	up	server	sys/fex-2
Carbon Confort (1)         Deptity         Carbon         Range         Nourly         Nill         Rest         Link Oragental         Image         Nill         Rest         Link Oragental         Rest <thlink oragental<="" td="" th<=""><td></td><td>sys/switch-B/slot-2/switch-ether/port-2</td><td>2</td><td>00:00:00:02:02:02:02</td><td>slot-2</td><td>switch-B</td><td>10Gbps</td><td></td><td>17</td><td>disabled</td><td>admin-down</td><td>unknown</td><td></td></thlink>		sys/switch-B/slot-2/switch-ether/port-2	2	00:00:00:02:02:02:02	slot-2	switch-B	10Gbps		17	disabled	admin-down	unknown	
Channel (10)         Notice Three Port Throughput         C Zoom In         Zoom Dut         >           Channel (Interfaces (20)         User Port Throughput         C Zoom In         Zoom Dut         >           Channel (Interfaces (20)         User Port Throughput         C Zoom In         Zoom Dut         >           Channel (Interfaces (20)         User Port Throughput         C Zoom In         Zoom Dut         >           Channel (Interfaces (20)         User Port Throughput         C Zoom In         Zoom Dut         >           Channel (Interfaces (20)         User Port Throughput         C Zoom In         Zoom Dut         >           Channel (Interfaces (20)         User Port Throughput         C Zoom In         Zoom Dut         >           Channel (Interfaces (20)         User Port Throughput         C Zoom In         Xee Port Throughput         C Coom Dut           Channel (Interfaces (20)         User Port Throughput         Vee Port Throughput         Vee Port Throughput         Vee Port Throughput           Channel (Interfaces (20)         Enterred Corr 139:43 https         Some Throughput         Vee Port Throughput           Channel (Interfaces (20)         Enterred Exactly Utacator         Z Zoom In         Zoom Dut           Channel (Interfaces (20)         Enterest Exactly Channel (Carred Lagenty Utacator)		Disalars Gracks							Danas	Heady		Reset Link	Grander 2 - 1 🚱 R
Canadical (a)     Element Fam Theoregipul      Zoom Int     >       Charles (b)     Liberate Fam Theoregipul       >       Charles (b)     Liberate Fam Theoregipul       >       Charles (b)     Liberate Fam Theoregipul       >       Charles (b)     Liberate Eanderich Cappany Usitation		Display. Display							realige.	Houry	MUL	HEACT   LINK	
General Bandwater (d)         100 h         100 h<		Ethernet Port Throughput		< Zoom In	Zoom Out	>							
Construction         Construction         Text 12:00         Verd 12:00           Chance Analysis (0)         Feedback         Feedback         Verd 12:00           Chance Analysis (0)         Feedback         Zoom Not         Feedback	Host Ethernet Interfaces (36)	• • • • • • • • • • • • • • • • •											
Circle (4)     5 00 / 6 0.00       Circle (5)     10 / 6 0.00       Circle (5)     5 ext       Circle (5)													
Operation (s)         0         Ter 12:00         wet 80:00         wet 12:00           Operation (s)         0         Fer 12:00         wet 80:00         wet 12:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 12:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 2:00         Top 14:00         Wet 90:00           Operation (s)         0         Top 10:00         Vet 90:00         Vet 90:00	Host Bus Adaptors (4)	ម 150 k											
Operation (s)         0         Ter 12:00         wet 80:00         wet 12:00           Operation (s)         0         Fer 12:00         wet 80:00         wet 12:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 12:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 12:00         wet 90:00         wet 90:00           Operation (s)         0         Fer 2:00         Top 14:00         Wet 90:00           Operation (s)         0         Top 10:00         Vet 90:00         Vet 90:00		ě,											
OProcessor Units (15)              Received             curr: 19:43 kBps             wag: 149:53 kBps             wag: 149:53 kBps             wag: 19:83 kBps	OIO Modules (4)	3 100 k											
Grad Steam (2)         Beck Vet         Curr 1 39:43 Mps         evgr 1 10;43 Mps         evgr 1 10;43 Mps         evgr 1 10;43 Mps           Grand Stass (2)         Enternet Standardh Capacity Utilization         < Zoom In	GIO Modules (4) Management Interfaces (37)	3 100 k											
Grand Server (2)     Sent     curr: 19.43 kBps     weg: 19.81 kBps     max: 20.87 kBps       General Case (4)     Ethernet Bandwich Capacity Utilization     < Zoom fm	©IO Modules (4) @Management Interfaces (37) @Memory Arrays (6)	5 100 k 5 50 k		Wed (0: 00	Med	12:00							
O Server Blades (0)  Server Blades (0) Ethermet Bandwidth Capacity Utilization  Coom In Zoom In Zoom Out	Olo Modules (4) Management Interfaces (37) Memory Arrays (6) OPower Supply Units (4)	0 100 k 50 k 0 Tue 12:00											
Sowith Case (4) Ethanes Bandwich Capacity Utilization < Zoom Int Zoom Out >	OIO Modules (4) Management Interfaces (37) Memory Arrays (6) OPower Supply Units (4) OProcessor Units (18)	0 Tee 12:00 ■ Received cur: 139.63 kBpt	avg	140.50 kBps	max: 147.19	k8ps							
Virtual HBAs (2)	OIO Modules (4) Management Interfaces (37) OMemory Arrays (8) Power Supply Units (4) OProcessor Units (18) ORack Servers (2)	0 Tee 12:00 ■ Received cur: 139.63 kBpt	avg: avg:	140.50 kBps	max: 147.19	k8ps							
	O Modules (4) Management Interfaces (37) Memory Arrays (6) Prower Supply Units (4) Processor Units (18) Prack Servers (2) Server Blades (6)	5         100 k           2         50 k           0         Twe 12:00           Received         cur: 139.63 kBp:           Sent         cur: 19.43 kBp:	avg: avg:	140.50 kBps 19.81 kBps	max: 147.19 max: 20.87	k8ps							

# How to Identify Available Remaining Capacity for an Aggregate Pool

The following example shows how to determine capacity for an Aggregation Pool:

- 1 Navigate to Infrastructure > Device {a component, for example } CiscoUCS..
- 2 In the right pane click a device name from the list, ucs1, for example.
- 3 In the left pane, click Aggregation Pools (nn).

The Aggregation Pools information pane displays:

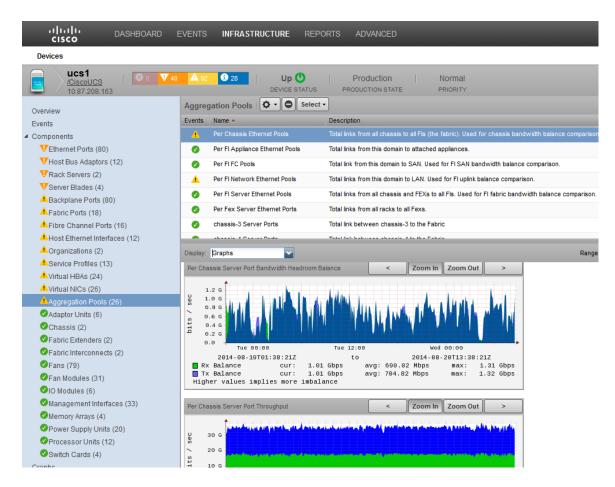
راندان DASHBOARD CISCO	EVENTS INFRASTRUCTURE REPORTS ADVANCED Q	•	💄 admin S	ign out 🦻
Devices				Page Tips
UCS1 (CiscoUCS 10.87.208.163	Acc 22 Up C Production Normal DEVICE STATUS PRODUCTION STATE PROMITY			
Overview	Aggregation Pools O Select -	0	χ Type to filter	
Bandwidth Usage	Events Name + Description	Link Speed	Monitored	Locking
Dynamic View	fex-1 to rack-unit-1 ports The total link between fex-1 and rack-unit-1	10Gbps		*
Topology		10Gbps		
Events				
<ul> <li>Components</li> </ul>	fex-2 to rack-unit-1 ports The total link between fex-2 and rack-unit-1	10Gbps	$\checkmark$	
VAdaptor Units (6)	switch-A Direct Attached Storage P Total links between switch-A to directly attached storage.	16Gbps	$\checkmark$	=
UEthernet Ports (80)	A switch-A Network Ethernet Ports Total link bandwidth from switch-A to the outside LAN.	1Gbps	$\checkmark$	
VRack Servers (2)	Switch-A Server Ports Total link bandwidth from switch-A to the Fabric	100Gbps	$\checkmark$	
VService Profiles (14)	🔗 switch-A to chassis-3 Server Ports The total link between switch-A and chassis-3	40Gbps	<b>V</b>	
Organizations (2)				
Aggregation Pools (28)	Display: Graphs 🗠 Range: Hourly 💌 Custom Range	Reset Link	Graphs? 🔽	🚱 Refresh 🔸
<ul> <li>Backplane Ports (80)</li> <li>Chassis (2)</li> </ul>	Ethernet Pool Bandwidth Capacity Utilization < Zoom In Zoom Out >			
Septic Extenders (2)	100 †			
Separation of the second secon				
Pablic Interconnects (2)     Spabric Ports (18)	80 E 60 C 40 A 20			
✓Fans (79)	5 40			
San Modules (31)	20			
Fibre Channel Ports (16)	0 Tue 00:00 Tue 12:00 Wed 00:00			
Host Ethernet Interfaces (10)	2014-10-13 21:08:53 CDT to 2014-10-15 09:08:53 CDT			
Host Bus Adaptors (10)	IP         Rx         cur:         0.29 %         avg:         0.29 %         max:         0.52 %           IP         Tx         cur:         0.07 %         avg:         0.07 %         max:         0.11 %			
O Modules (6)				
Management Interfaces (33)	Ethernet Pool Utilization < Zoom In Zoom Out >			
Memory Arrays (4)				
Power Supply Units (20)	400 M			
Processor Units (12)	300 M			
Server Blades (4)	200 M			
Switch Cards (4)				
Virtual HBAs (26)	0 Tue 00:00 Tue 12:00 Wed 00:00			
Virtual NICs (28)	2014-10-13 21:08:54 CDT to 2014-10-15 09:08:54 CDT			
Graphs	Received cur: 117.24 Mbps avg: 115.76 Mbps max: 208.57 Mbps Sent cur: 26.34 Mbps avg: 26.15 Mbps max: 43.99 Mbps			
Configuration Properties				

4 Select Graphs from the **Display:** drop-down to display the graphs that include the total bandwidth usage, available remaining capacity and throughput.

For example, the following example displays:

ululu DASHBOARD	EVENTS INFRASTRUCTURE REPORTS ADVANCED Q	¥	💄 admin S	ign out 🦻
Devices				Page Tips
Ucs1 CiscoUCS 10.87.208.163	Acc 0 23 Up 0 Production Normal Device status PRODUCTION STATE PROMITY			
Overview	Aggregation Pools	G	ζ Type to fiter	
Bandwidth Usage	Events Name - Description	Link Speed	Monitored	Locking
Dynamic View	fex-1 to rack-unit-1 ports     The total link between fex-1 and rack-unit-1	10Gbps	<b>V</b>	*
Topology	fex-2 Server Ports     Total link bandwith from fex-2 to all racks	10Gbps	V.	
Events				
<ul> <li>Components</li> </ul>	fex-2 to rack-unit-1 ports The total link between fex-2 and rack-unit-1	10Gbps	1	E
VAdaptor Units (6)	📀 switch-A Direct Attached Storage P Total links between switch-A to directly attached storage.	16Gbps	1	=
VEthernet Ports (80)	🔺 switch-A Network Ethernet Ports Total link bandwidth from switch-A to the outside LAN.	1Gbps	1	
VRack Servers (2)	📀 switch-A Server Ports Total link bandwidth from switch-A to the Fabric	100Gbps	1	
VService Profiles (14)	📀 switch-A to chassis-3 Server Ports The total link between switch-A and chassis-3	40Gbps	<b>V</b>	
Organizations (2)				-
Aggregation Pools (28)		Reset   Link	Graphs? 🔽 🛛	• Refresh
Backplane Ports (80)	Graphs tation < Zoom In Zoom Out >			
Chassis (2) Fabric Extenders (2)	Events Zoom un			
Sebric Interconnects (2)				
Sebric Ports (18)	Templates Members 40 20			
Gens (79)				
Fan Modules (31)	ž 20			
Fibre Channel Ports (16)	0 Tue 00:00 Tue 12:00 Wed 00:00			
Host Ethernet Interfaces (10)	2014-10-13 21:08:53 CDT to 2014-10-15 09:08:53 CDT			
Host Bus Adaptors (10)	Rx         cur:         0.29 %         avg:         0.29 %         max:         0.52 %           Tx         cur:         0.07 %         avg:         0.07 %         max:         0.11 %			
O Modules (6)				
Management Interfaces (33)	Ethernet Pool Utilization < Zoom In Zoom Out >			
Memory Arrays (4)				
Power Supply Units (20)				
Processor Units (12)				
Server Blades (4)	∑ 200 М <u>№</u> 100 И			
Switch Cards (4)				
Virtual HBAs (26)	0 Tue 00:00 Tue 12:00 Wed 00:00			
✓Virtual NICs (28)	2014-10-13 21:08:54 CDT to 2014-10-15 09:08:54 CDT Received cur: 117.24 Mbps avg: 115.70 Mbps max: 208.57 Mbps			
Graphs	Received cur: 117.44 mbps avg: 115.70 mbps max: 030.57 mbps Sent cur: 26.34 mbps avg: 26.15 mbps max: 43.99 Mbps			
Configuration Properties				

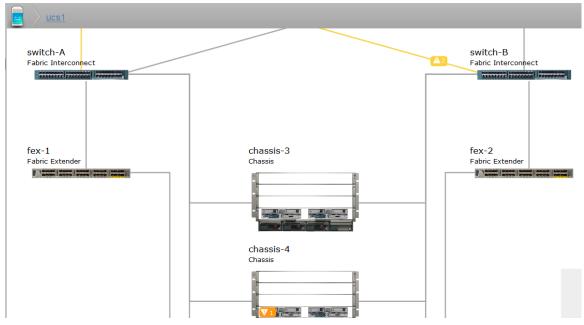
5 Scroll through the graphs in the lower pane to view the **Per Chassis Bandwidth Remaining Capacity Balance** graph. For example:



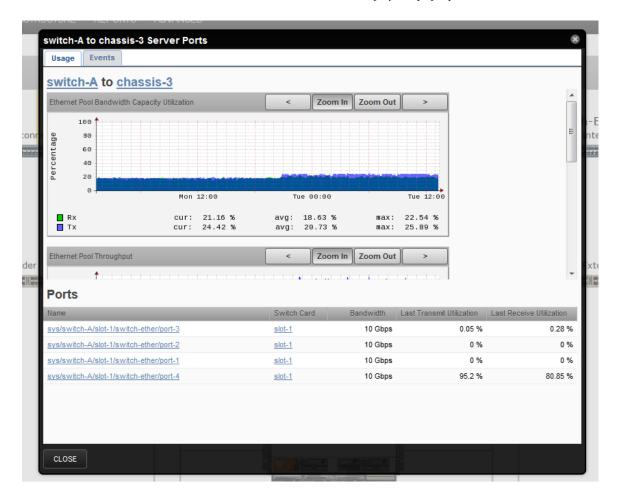
# How to Determine if a Chassis is Used to Full Capacity

If you want to determine if a selected chassis is being used to its full capacity, you can use the **Topology** view and explore the chassis information.

1 From within the UI, click **Topology**.

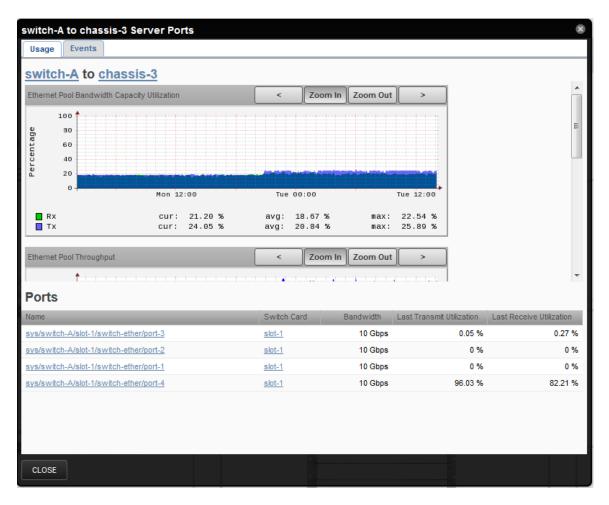


2 Within the **Topology** view, double-click your component or connection. For example, **switch-A Fabric Interconnect** is connected to **Chassis3**. Click the connection to display the pop-up information window.



The pop-up window displays various graphs that show information such as capacity utilization (%), data transferred (in Gbps) and relative remaining capacity. In this example, there are four ports connected from Switch-A to Chassis-3. The information shows each port has a maximum capacity of 10Gbps or a total capacity of 4 x 10Gpps to yield a maximum capacity of 40 Gbps for both receiving and sending data.

If the RX value shows 100%, then all 40 Gbps is used and there is no additional capacity available. If the Rx value shows 15%, then the ports have available bandwidth to support additional transactions.



Other graphs in the information pop-up provide the number of bits transferred. For example, the **Ethernet Pool Throughput** graph shows if the Rx value is 9.02 Gbps and the Tx value is 10.35 Gbps, then out of the total available 40 Gbps, only 10.35 Gbps is used.

switch-A to chassis-3 s	Server P	orts						8
switch-A to chass	i <mark>s-3</mark> cur	: 21.20 %	avg:	18.67 %	max	: 22.54 %		*
TX	cur		avg:		max			
Ethernet Pool Throughput			<	Zoom li	n Zoom Ou	it >		
Dits C								E
0 -	Mon	12:00	Tu	e 00:00		Tue 12:00		
Received Sent	cur: cur:	8.48 Gbps 9.62 Gbps		7.47 Gbps 8.34 Gbps	max: max:	9.02 Gbps 10.36 Gbps		
Ports								
Name				h Card	Bandwidth	Last Transmit U		Last Receive Utilization
sys/switch-A/slot-1/switch-eth			<u>slot-1</u> slot-1		10 Gbps 10 Gbps		0.05 %	0.27 %
sys/switch-A/slot-1/switch-eth			slot-1		10 Gbps		0 %	0 %
sys/switch-A/slot-1/switch-eth			slot-1		10 Gbps		96.03 %	82.21 %
CLOSE								

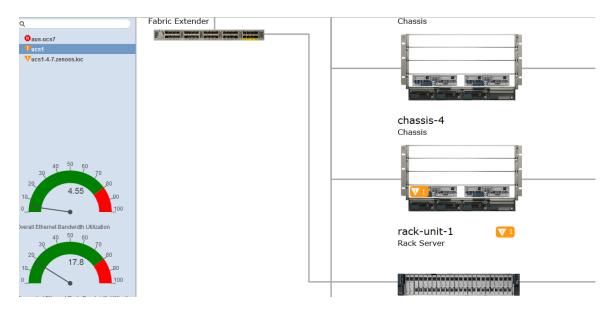
The remaining capacity value can also be determined. In general, the greater the remaining capacity value, the better. In this example, the **Ethernet Port Bandwidth Remaining Capacity** graph shows if the remaining capacity is very low, for example 0.1 Gbps, and the Rx and Tx values are ~34.0 Gbps, then the chassis is being used at 85%% capacity.

SWITCH-A	to <u>chassis-3</u>							
Receive Sent	d cur: cur:	8.48 Gbps 9.62 Gbps		7 Gbps 4 Gbps	max: max:	9.02 Gbps 10.36 Gbps		
Ethernet Pool Ba	indwidth Headroom		<	Zoom In	Zoom O	ut >		
0 G G G G G G G G G G G G G G G G G G G								ſ
0 +	Mon	12:00	Tue O	):00		Tue 12:00		:
Rx Tx	cur: cur:		avg: 32.5 avg: 31.6			34.09 Gbps 33.24 Gbps		
orts								
lame			Switch Ca	rd	Bandwidth	Last Transmit	Utilization	Last Receive Utilization
ys/switch-A/slo	ot-1/switch-ether/port-3		slot-1		10 Gbps	3	0.05 %	0.27 %
	ot-1/switch-ether/port-2		slot-1		10 Gbps	3	0 %	0 %
ys/switch-A/slo	ot-1/switch-ether/port-1		slot-1		10 Gbps	3	0 %	0 %
	ot-1/switch-ether/port-4		slot-1		10 Gbps	3	96.03 %	82.21 %

# How to Determine Congestion between a Fabric Extender and a Rack Server?

If you want to determine if there is congestion between a FEX and a Rack Server, you can use the **Topology** view and analyze the *throughput*, *capacity* and *remaining capacity* values. For example:

- 1 From within the UI, click **Topology**.
- 2 Click UCS1 in the left-pane to display the topographical layout for UCS1 in the right-hand pane.
- 3 To view the connection between Fex-1 and Rack-Server 1, click on the connection line between the two.

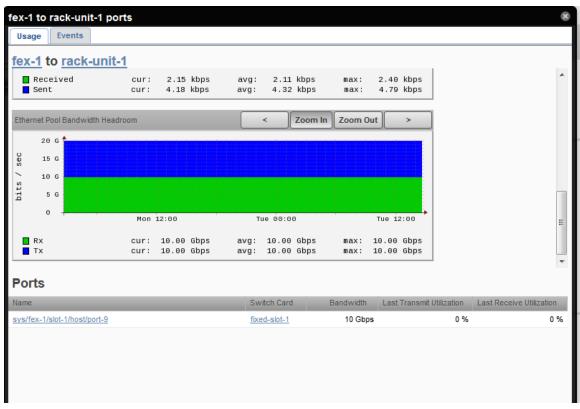


The following information pop-up displays:



This shows the connecting port and its capacity is 10 Gbps. This link supports 10 Gbps for both receiving and sending data

4 Scroll through the graphs in the pop-up window until you find the **Ethernet Pool Bandwidth Remaining Capacity** graph.



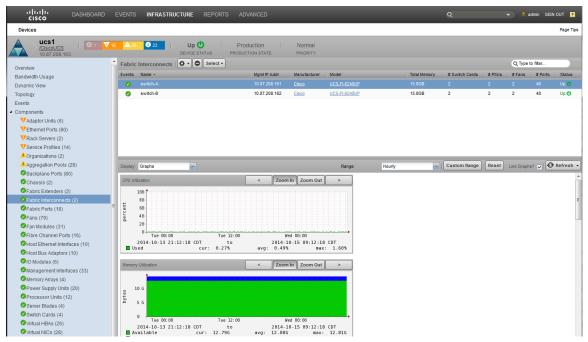
In our example, the RX and TX values are ~10Gbps. This implies the connection is operating at maximum capacity and there is no additional remaining capacity or bandwidth available.

In another example, if the remaining capacity value for receiving is 9 Gbps, it would imply that only 10% of available capacity is used for receiving data. If the remaining capacity value for transmission (sending) is 8 Gbps, it would imply that 20% of the available bandwidth is used to send data and there is room in both cases to accommodate additional data.

# How to Display Fabric Usage Data

The Fabric Interconnects panel enables you to display graphs that show total bandwidth use against the capability of the FI and various switch/chassis capacities to help you identify the heaviest consumers of bandwidth in the domain. Remaining capacity data is also available that indicates how much unused bandwidth capacity is available for each chassis.

- 1 Navigate to Infrastructure > Device {a component, for example } CiscoUCS..
- 2 In the right pane click a device name from the list, ucs1, for example.
- 3 In the left pane, click Fabric Interconnects (nn). The Fabric Interconnects information pane displays:



- 4 Click a switch name, for example switch-A.
- 5 Select Graphs from the **Display:** drop-down and browse down to the **Fabric Interconnect Capacity Utilization** graph. This graph shows the total bandwidth use against the capability of the FI. For example:

cisco DASHBOARD	EVENTS INFRASTRUCTURE REPO						👃 admin SIG	
Devices								Page
UCS1 /CiscoUCS 10.87.208.163	16 🛕 26 🔮 23   Up Ů DEVICE STATUS	Production PRODUCTION STATE	Normal					
erview	Fabric Interconnects	•				Q	Type to filter	
indwidth Usage	Events Name -	Mgmt IP Addr	Manufacturer Model	Total Memory	# Switch Cards	#PSUs #F	ans # Ports	Stat
namic View	🔗 switch-A	10.87.208.161	Cisco UCS-FL6248UP	15.8GB				
bology	switch-B	10.87.208.162	Cisco UCS-FI-6248UP	15.8GB	2	2 2	48	Up
ents								
mponents								
Adaptor Units (6)								
VEthernet Ports (80)								
VRack Servers (2)								
VService Profiles (14)								
Organizations (2)								
Aggregation Pools (28)	Display: Graphs		Range:	Hourly	Custom Range	Reset   Link	2mmha2 m l	Refre
Backplane Ports (80)				iliuii)				
Chassis (2)	Fabric Interconnect Utilization (bits)	< Zoom I	n Zoom Out >					
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Fabric Interconnects (2)	_ ¥ 1.5 G	and the second						
Fabric Ports (18)	- 1.0 G							
Fans (79)	1 0.5 G							
Fan Modules (31)								
Fibre Channel Ports (16)			00:00					
Host Ethernet Interfaces (10)	2014-10-13 21:18:18 CDT Rx Utilization cur: 1.65		-15 09:18:18 CDT max: 1.75 Gbps					
Host Bus Adaptors (10)	Tx Utilization cur: 1.54		max: 1.64 Gbps					
O Modules (6)								
Management Interfaces (33)	Fabric Interconnect Remaining Capacity	< Zoom I	n Zoom Out >					
Memory Arrays (4)	<b>1</b>							
Power Supply Units (20)	រដ្ឋ 300 G							
Processor Units (12)	> 200 G							
Server Blades (4)	100 G							
Switch Cards (4)								
Virtual HBAs (26)			00: 00					
Virtual NICs (28)	2014-10-13 21:17:54 CDT Rx Utilization cur: 389.34		-15 09:17:54 CDT max: 389.54 Gbps					

6 Select Component Bandwidth Capacity from the **Display:** drop-down to display data for the components within the switch. The Remaining Capacity columns indicate how much unused bandwidth capacity is available for each chassis, based on the configured connections.

Devices											Page Ti
ucs1 / <u>CiscoUCS</u> 10.87.208.163	<b>▼</b> 16 🔺 26	29   Up 🕐 DEVICE STATU	Production IS PRODUCTION STATE	Normal							
Overview	<sup>*</sup> Fabric	c Interconnects   🗘 - 🔘 S	elect -						Q Type to	filter	
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Topology	0	switch-B	10.87.208.162	Cisco	UCS-FI-6248UP	15.8GB	2	2	2	48	Up 🔿
Events											
Components										_	_
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VEthernet Ports (80)	Events	Name +	Distingui	shed Name	Type	Ava Util Rx	Ava Util Tx		lax Util Rx		Max Util T
VRack Servers (2)						Avg our loc	Avgourix		nax ou rox		max our i
VService Profiles (14)	V	rack-unit-2	sys/rack		Rack Server						
Organizations (2)	0	fex-1	sys/fex-	1	Fabric Extender	1Mbps (0.01%)	10Mbps (0.10%)	17M	bps (0.17%)	12M	Mbps (0.1)
Aggregation Pools (28)	0	chassis-3	sys/cha	ssis-3	Chassis	6Gbps (7.14%)	7Gbps (8.63%)	7G	bps (8.87%)	8Gb	bps (10.0
Backplane Ports (80)	0	chassis-4	sys/cha	sis-4	Chassis	7Gbps (8.51%)	6Gbps (7.11%)	8G	bps (9.94%)	70	Gbps (8.8
Chassis (2)											
Fabric Extenders (2)											
Fabric Interconnects (2)											

# How to Determine Blade Server Capacity

The Chassis panel enables you to display graphs that identify which blade servers are the heaviest users of chassis bandwidth within a chassis

- 1 Navigate to Infrastructure > Components > Chassis.
- 2 Click a chassis name.
- **3** Select Blade Server from the **Display:** drop-down and browse down to the Fabric Capacity Utilization graph. This graph shows the total bandwidth use against the capability of the FI. For example:

CISCO DASHBOARD	EVENTS INFRASTRUCTURE REPORT	S ADVANCED			Q		💄 admin 🛛 SIGN	
levices								Page
UCS1 /CiscoUCS 10.87.208.163	16 🛕 26 🕄 23   Up Ů   DEVICE STATUS	Production Non PRODUCTION STATE PRIO						
erview	Fabric Interconnects					Q	ype to filter	
ndwidth Usage	Events Name +	Mgmt IP Addr Manufa	cturer Model	Total Memory	# Switch Cards	# PSUs # Fa	ns # Ports	Statu
namic View	📀 switch-A	10.87.208.161 <u>Cisco</u>	UCS-FL6248UP	15.8GB				Up (
pology	📀 switch-B	10.87.208.162 Cisco	UCS-FI-6248UP	15.8GB	2	2 2	48	Up
ents								
mponents								
VAdaptor Units (6)								
VEthernet Ports (80)								
VRack Servers (2)								
VService Profiles (14)								
Organizations (2)								_
Aggregation Pools (28)	Display: Graphs		Range:	Hourly	Custom Range	Reset   Link G	raphs? 🗸 🖸	Refre
Backplane Ports (80)	Fabric Interconnect Utilization (bits)	< Zoom In Zoo	m Out >					_
Chassis (2)	radic interconnect duization (dits)							
Fabric Extenders (2)	- houndary and	inder the and the second second	maninon					
Fabric Interconnects (2)	1.5 G	man der ander son the start of the						
Fabric Ports (18)	E _ 1.0 G							
🖉 Fans (79)	1 0.5 G							
Fan Modules (31)	0.0							
Fibre Channel Ports (16)	Tue 00:00 Tue 2014-10-13 21:18:18 CDT	12:00 Wed 00:00 to 2014-10-15 05	18-18 CDT					
Host Ethernet Interfaces (10)	Rx Utilization cur: 1.65 Gb	os avg: 1.63 Gbps ma	x: 1.75 Gbps					
Host Bus Adaptors (10)	Tx Utilization cur: 1.54 Gb	os avg: 1.51 Gbps ma	x: 1.64 Gbps					
O Modules (6)	Fabric Interconnect Remaining Capacity	< Zoom In Zoo	um Out					
Management Interfaces (33)	abite interconnect wemaning Capacity	200min 200						
Memory Arrays (4)								
Power Supply Units (20)	ស្តី 300 G							
Processor Units (12)	> 200 G							
Server Blades (4)	100 G							
Switch Cards (4)								
	0							
Virtual HBAs (26)	0 Tue 00:00 Tue 2014-10-13 21:17:54 CDT	12:00 Wed 00:00 to 2014-10-15 09	17:54 CDT					

4 Select Chassis Capacity from the **Display:** drop-down to display data for chassis within the switch. The Remaining Capacity columns indicate how much unused bandwidth capacity is available for each chassis, based on the configured connections.

Devices											Page Ti
UCS1 / <u>CiscoUCS</u> 10.87.208.163	<b>▼</b> 16 ▲ 26	1 Up 🕑 19 DEVICE STATUS	Production PRODUCTION STATE	Normal							
Dverview	<sup>1</sup> Fabric	c Interconnects   🗘 - 🗢 Select	•						Q Type to f	iter	
Bandwidth Usage	Events	Name 🔺	Mgmt IP Addr	Manufacturer	Model	Total Memory	# Switch Cards	# PSUs	# Fans	# Ports	Status
Dynamic View	0	switch-A	10.87.208.161	Cisco	UCS-FI-6248UP	15.8GB				48	Up 🙂
Topology	0	switch-B	10.87.208.162	Cisco	UCS-FI-6248UP	15.8GB	2	2	2	48	Up 🔿
Events Components VAdaptor Units (6)							_	_	0		_
VEthernet Ports (80)	Display:	Component Bandwidth Ci				Range:	Last Hour	~	Q Type to f	iter	_
VRack Servers (2)	Events	Name 🔺	Distin	guished Name	Туре	Avg Util Rx	Avg Util Tx	Ma	ax Util Rx	Me	ax Util 1
VService Profiles (14)	V	rack-unit-2	sys/r	ack-unit-2	Rack Server						
Organizations (2)	0	fex-1	sys/f	ex-1	Fabric Extender	1Mbps (0.01%)	10Mbps (0.10%)	17Mbp	ps (0.17%)	12Mbp	os (0.1
Aggregation Pools (28)	0	chassis-3	sys/c	hassis-3	Chassis	6Gbps (7.14%)	7Gbps (8.63%)	7Gbp	ps (8.87%)	8Gbps	s (10.0
Backplane Ports (80)	0	chassis-4	sys/c	hassis-4	Chassis	7Gbps (8.51%)	6Gbps (7.11%)	8Gbp	os (9.94%)	7Gbr	ps (8.8
Chassis (2)											
Fabric Extenders (2)											
Fabric Interconnects (2)											

# How to Find the Server Using the Most Bandwidth in a Domain

To find the server with the highest bandwidth usage within a domain, you can consult the dashboard and its portlets. By default the dashboard provides current usage views for the following:

- Domains
- Fabric Interconnects
- Fabric Extenders
- Servers
- Service Profiles

The default dashboard includes the following portlets:

#### Domain Overview portlet -

Shows utilization and open event counts.

#### Service Profiles portlet -

Shows current fabric utilization across all domains (or any single domain).

#### Chassis Capacity portlet -

Shows utilization by chassis for a single domain.

#### UCS Inventory portlet -

Shows total number of blades and how many are associated with service profiles.

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Da	shboard	Topolog	(											Pa	ge Tips
Last up	pdated 2014-	09-05 14:07	:16.	_			_	_		R	eset Portlets	Configure layout.	Add port	et Stop P	Refresh
Welco	ome to Cis	CO UCS P	erformance Ma	nager					٥	Chassi	s Capacity				¢
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Servia Events	Esxi         un           ESXI         un           ESXI         ok           ESXI         ok           ESXI         ok	associ <u>ur</u> associ <u>ur</u> associ <u>ur</u> <u>ur</u>	s1 s1 s1 s1 g s1 g s1 g	Server hassis-3/blade-7 hassis-4/blade-2 chassis-4/blade-2 ack-unit-2	Organization (org-Austin Lab (org-Austin Lab (org-Austin Lab (org-Austin Lab (org-Austin Lab (org-Austin Lab	A	vg Util Rx 0.00 % 0.00 % 4.53 % 4.41 % 0.00 % 0.00 % DISPLA	Avg Ubil Tx 0.00 % 0.00 % 4.38 % 4.51 % 0.02 % 0.00 % YING 1 - 8 of 13 RC		7.07	ucs aus k	11 +-ucs13		6 0	,
														0 0	Jobs 🗸

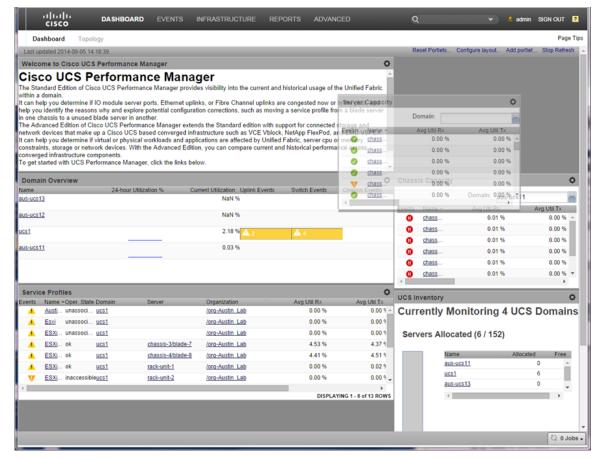
You can add additional portlets to enhance the dashboard capabilities.

To discover the server that is using the most bandwidth in a domain, perform the following:

- 1 Add the *Server Capacity* portlet to the dashboard:
  - a On the dashboard, click Add Portlet. This displays the Add Portlet dialog.
  - b Within the Add Portlet dialog, click the arrow to access the drop-down list.

CISCO DASHBOARD EVENTS IN					
Dashboard Topology					Page Tips
Last updated 2014-09-05 14:07:16.			Reset Portlets	Configure layout Add por	tlet Stop Refresh
Welcome to Cisco UCS Performance Manager		0	Chassis Capacity		0
Cisco UCS Performance Manag	er	-		Domain: aus-ucs11	~
The Standard Edition of Cisco UCS Performance Manager provides within a domain.	visibility into the current and historical usage of	the Unified Fabric	Events Name -	Avg Util Rx	Avg Util Tx
It can help you determine if IO module server ports, Ethernet uplink	s, or Fibre Channel uplinks are congested now o	or in the past, and	0 <u>chass</u>	0.01 %	0.00 %
help you identify the reasons why and explore potential configuratio one chassis to a unused blade server in another.	n corrections, such as moving a service profile f	rom a blade server in	0 <u>chass</u>	0.01 %	0.00 %
The Advanced Edition of Cisco UCS Performance Manager extends			0 <u>chass</u>	0.01 %	0.00 %
network devices that make up a Cisco UCS based converged infras It can help you determine if virtual or physical workloads and applic			0 <u>chass</u>	0.01 %	0.00 %
constraints, storage or network devices. With the Advanced Edition,			Chass	0.01 %	0.00 %
converged infrastructure components. To get started with UCS Performance Manager, click the links below	v.		() <u>chass</u>	0.01 %	0.00 %
Dennele Quantieur				-	ö
Domain Overview Name 24-hour Utilization % Cu	rrent Utilization	Circuite Events	,		
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	Chassis Capacity		Servers Alloc	ateu (07 152)	
<u>ucs1</u>	2.17 Chassis Link Events		Nar	ne Alloca	ated Free
aus-ucs11	0.03 Daemon Processes		aus	-ucs11	0 ^
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▲ ESXi ok ucs1 chassis-4/blade-8	/org-Austin La Site Window %	4.51 9			
▲ ESXI ok ucs1 rack-unit-1	/org-Austin La Top Level Organizers %	0.02 %	207		
V ESXi inaccessibleucs1 rack-unit-2	/org-Austin Lab 0.00 %	0.00 % 🛫			
<b>I</b>	DISDI	AYING 1 - 8 of 13 ROWS			
	DISPL	ATING 1 - 0 01 13 KUWS			_
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**c** Select **Server Capacity** from the drop-down list. The added portlet displays at the top of the right hand column in the dashboard. You can click the title bar of the portlet to drag it to another location, for example the top of the left hand column.



**d** To configure the portlet layout that best suits your needs, click *Configure Layout on the dashboard* to display the Configure Layout dialog.

Dee	CISCO	opology									Page
	dated 2014-09-05							Reset Portlet	Configure layout	Add portlet	-
Server	Capacity						O Cha	ssis Capac	ity		(
					Domain: aue	-ucs11	~		Domain:	s-ucs11	
Events	Name -	Avg Util Rx	Avg Util Tx	Max Util Rx	Max Util Tx	Avg Headroom Rx	A Ever	s Name 🔺	Avg Util Rx		vg Util Tx
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0	chass	0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps		chass	0.01 9	6	0.00 %
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0	chass	0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps		chass	0.01 9	6	0.00 %
v	chass	0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps		chass	0.01 9	6	0.00 %
0	chass	0.00 %	0.00 %	0.00 %	0.00.94	29.00 Gbps	- (	chass	0.01 9	6	0.00 %
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- e Choose the layout that presents the portets the way you want. For example, chose the single column layout to maximize space for the portlet.
- 2 Focus on the domain of interest:
  - **a** Click the domain name within the Server Capacity portlet. Note that all servers in the domain, both blade and rack, are shown together with their current utilization information.
  - **b** Mouse over a column heading to display column options. Click on the arrow.
  - **c** Choose to **Sort Descending** to bring the servers using most bandwidth to the top. This enables you to determine which server has the heaviest bandwidth consumption. Note that columns can be resized, selected and/or removed for your convenience.

Server Capacity           Events         Avg Util R -         Max Util R -         Avg Headroom Rx         Avg Headroom Tx         Max Headroom Rx         Avg Headroom Tx         Max Headroom Rx         Avg Headroom Rx         Avg Headroom Rx         Avg Headroom Rx         Max Util Rx         Max	asi apua								Reset Portlets	Configure layout Add p	portlet Stop Refresh
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# How to Explore Current and Historical Capacity of Domain Port Channels

You can explore both current and historical data to analyze and forecast various cycles and trends within your infrastructure. For example you access both current and historical data about capacity usage of domain port channels. You can use the domain details information to investigate and drill down into each component with a domain:

1 Navigate to the **Domain Details**. You can either click the domain name on the **Infrastructure** tab or within a dashboard **portlet**.

Clicking the Infrastructure tab displays:

Devices					Page T
DET	AILS Devices				
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C DEVICES (24)	Device +	IP Address	Device Class	Production State Even	ts
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V Network (8)	10.87.110.135	10.87.110.135	/Server/Linux	Production ()	1
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VvSphere (3)	aus-ucs13	10.87.208.13	/CiscoUCS	Production	38
APPLICATION GROUPS (7)	device 10 171 100 107	10.171.100.107	/Network/Cisco/Nexus/6000	Production	
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	device 10 171 54 9	10.171.100.47	/Network/Cisco	Production A	2
	jenkins-tb2.zenoss.loc	10.87.208.222	/Server/Linux	Production	
	perf2-switch	10.87.207.10	/Network/Cisco	Production	
	perf2-switch	10.171.100.45	/Network/Cisco	Production A	2
	perf2-vcenter		/vSphere	Production V	2
	sungard-vcenter1		/vSphere	Production	
	<u>ucs1</u>	10.87.208.163	/CiscoUCS	Production	29
	ucs1-4-7 zenoss loc	10.87.208.168	/Server/Microsoft/Windows	Production	
	ucs1-linux1	10.87.208.175	/Server/Linux	Production	
	ucs1-rs1-1 zenoss loc	10.87.208.185	/Server/Linux	Production	
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Viewing the Dashboard portlets:

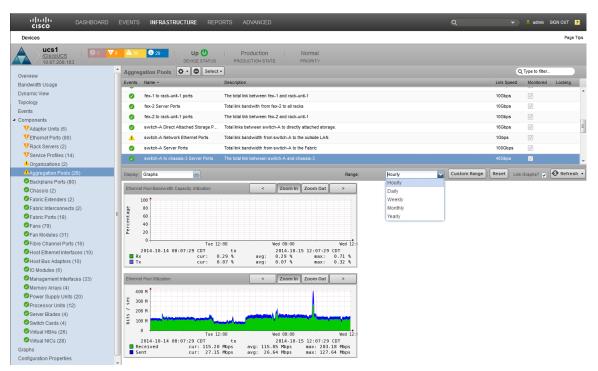
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The Domain Details view includes:

- A top bar that provides domain status information.
- An overview pane that provides general information about your selected domain.
- The ability to view events specific to the selected domain by clicking **Events** in the left column.
- A component list that enables you to navigate to all parts of the domain model.

Devices			Page Tips
UCS1 / <u>CISCOUCS</u> 10.87.208.163		Production   Normal RODUCTION STATE PRIORITY	
Overview           Bandwidth Usage           Dynamic View           Topology           Events           • Components           VAdaptor Units (6)           VEmemet Ports (80)           VRack Servers (2)           Visorice Profiles (14)           • Organizations (2)           • Aggregation Pools (28)           • Backgrame Ports (80)           • Chassis (2)           • Fabric Extenders (2)	Device ID: uc51 Connection Information sdf: uc5_Verver****** 80 False Uptime: Unknown First Seen: 2014/10/13 11:50.43 Last Change: 2014/10/15 00:08.41 Model Time: 2014/10/15 00:08.42 Locking: Unlocked	Device Title: ucs 1 Production State: Production State: Production Market Normal Tag. Serial Number: Rack Slot: 0 Save Cancel	Collector est: Iocalhost Hardware Manufacturer: Cisco Hardware Model: UCS UCSM Version est: [object Object]
Fabric Ports (18)     Fans (79)     Fans (79)     Fans (70)     Fibre Channel Ports (16)     Host Ethernet Interfaces (10)     Host Bus Adaptors (10)     Old dudes (6)	E Systems edit AUCS1 Links: Comments:		

2 Click **Aggregation Pools** in the left column to view **LAN Uplink** information. Note that you can select which data you want view from the drop-down list.



**3** You can view the aggregation pool uplink members and their information. Select **Members** from the dropdown list in the right pane.

CISCO DASHBOARD	EVENTS	INFRASTRUCTURE REPO	RTS ADVANCED Q -	💄 admin	SIGN OUT 🔋
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VAdaptor Units (6)	0	Per FI Appliance Ethernet Pools	Total links from this domain to attached appliances.	1	_
VEthernet Ports (80)		Per FI FC Pools	Total link from this domain to SAN. Used for FI SAN bandwidth balance comparison.		_
VHost Bus Adaptors (12)	<b>_</b>				_
VRack Servers (2)	<u> </u>	Per FI Network Ethernet Pools	Total links from this domain to LAN. Used for FI uplink balance comparison.	2	
VServer Blades (4)	0	Per FI Server Ethernet Pools	Total links from all chassis and FEXs to all FIs. Used for FI fabric bandwidth balance c.	🗹	
V Service Profiles (13)	0	Per Fex Server Ethernet Ports	Total links from all racks to all Fexs.	1	
Backplane Ports (80)	0	chassis-3 Server Ports	Total link between chassis-3 to the Fabric	1	
Fibre Channel Ports (16)	4				×.
Host Ethernet Interfaces (12) Organizations (2)	Display:	Members 😽			
Virtual HBAs (24)					Turne
Virtual NICs (26)	Events	Name			Type Aggregation Pool
Aggregation Pools (26)		switch-B Network Ethernet Ports			Ethernet Port
Chassis (2)		port-15     witch-A Network Ethernet Ports			Aggregation Pool
Septembers (2)		Leg port-15			Ethernet Port
Septic Interconnects (2)		- <u>pon-15</u>			Ethemet Port
Septic Ports (18)					
Fans (79)					
Fan Modules (31)					
O IO Modules (6)					
Management Interfaces (33)					
Memory Arrays (4)					
Power Supply Units (20)					
Processor Units (12)					
Switch Cards (4)					
Graphs					
Dynamic View					
Topology					
Administration	*				
🗘 🗸 Commands 🗸					🗸 0 Jobs 🗸

4 You can view information about aggregation pool chassis members. Select a chassis name from the top right pane, for example **Chassis-3 Server Ports** and select **Members** from the drop-down list in the right pane. This displays the chassis member info in the bottom right pane.

cisco DASHBOARD	EVENTS INFRASTRUCTURE REPORTS ADVANCED Q	•	🙎 admin	SIGN OUT
Devices				Page Ti
UCS1 / <u>CiscoUCS</u> 10.87.208.163	76 ▲ 20 0 29   Up 🕘   Production   Normal DEVICE STATUS PRODUCTION STATE PRIORITY			
Overview	Aggregation Pools Sciect	9	λ Type to filter	
Bandwidth Usage	Events Name - Description	Link Speed	Monitored	Locking
Dynamic View	Per FI FC Pools Total link from this domain to SAN. Used for FI SAN bandwidth balance comparison.	0		
Topology	A Per FI Network Ethernet Pools Total links from this domain to LAN. Used for FI uplink balance comparison.	2Gbps	1	
Events	Per FI Server Ethernet Pools Total links from all chassis and FEXs to all Fis. Used for FI fabric bandwidth balance comparison.	200Gbps	1	
Components	Per FI Storage FC Ports Total links from this domain to SAN. Used for FI uplink balance comparison.	0	1	
VAdaptor Units (6)	Per Fex Server Ethernet Ports Total links from all racks to all Fexs.	20Gbps	1	
VEthernet Ports (80)	chassis-3 Server Ports     Total link between chassis-3 to the Fabric	80Gbps		
VRack Servers (2)	Chassis-4 Server Ports     Total link between chassis-4 to the Fabric	80Gbps		
VService Profiles (14)	fex-1 Server Ports     Total link bandwith from fex-1 to all racks	10Gbps		
Organizations (2)		TUGBDS	1VI	
Aggregation Pools (28)	Display: Members			
<ul> <li>Backplane Ports (80)</li> <li>Chassis (2)</li> </ul>	Events Name			Туре
<ul> <li>Chassis (2)</li> <li>Fabric Extenders (2)</li> </ul>	G a G Switch-B to chassis-3 Server Ports			Aggregation F
Fabric Interconnects (2)				Ethernet Port
Fabric Ports (18)	E 🖉 🗁 port-2			Ethernet Port
Pans (79)	e port-3			Ethernet Port
Fan Modules (31)				Ethernet Port
Fibre Channel Ports (16)	Geographic Server Ports			Aggregation
Host Ethernet Interfaces (10)				Ethernet Port
Host Bus Adaptors (10)				Ethernet Port
O Modules (6)				Ethernet Port Ethernet Port
Management Interfaces (33)				culemet Port
Memory Arrays (4)				
Power Supply Units (20)				
Processor Units (12)				

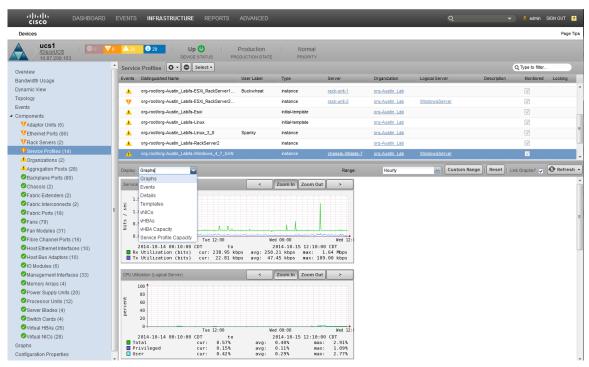
The various graphs that are available to you include:

- Capacity Utilization Utilization % of configured capacity
- Capacity Utilization Balance the degree to which usage of different ports in the pool is not equal
- Remaining Capacity Available capacity less amount used useful in identifying spare capacity
- Remaining Capacity Balance Inverse of Capacity Utilization Balance
- Port Pool Throughput utilization in bits/second of entire port pool

# How to Determine Virtual Adapter Capacity

The UI provides you with tools that enable you to view information about virtual adapters in your infrastructure, including associated service profiles and historical capacity data. Perform the following to view the historical capacity information for a virtual adapter:

- 1 View adapter capacity:
  - a Navigate to Infrastructure > Device (for example UCS1)
  - **b** Expand **Components** in the left pane.
  - **c** Select **Service Profiles(n)** from the list to display the Service Profiles associated with the device (in this example, *ucs1*) in the right pane.
  - **d** While viewing the right pane with the service profile information, for **ucs1** for example, click the **down arrow** next to **Display** to expand the drop-down list of display options.
  - e Select vHBA Capacity from the options list to display usage by vHBA for this service profile.



f To drill down and display additional information about an adapter, click on an adapter name, fc1 for example.

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Devices								Page
UCS1 <u>ICiscoUCS</u> 10.87.208.163	<b>A</b> 91	29	Up O DEVICE STATUS	Production PRODUCTION STAT	Normal E PRIORITY			
Verview	Servic	e Profiles	🗘 - 🗢 Select -				Q Type to	filter
vents	Events	Distinguishe	d Name	User Label	Туре	Server	Organization	Logical Serve
components	<b>A</b>	org-root/org-	-Austin_Lab/Is-Austin		initial-template		org-Austin Lab	
VAdaptor Units (6)		org-root/org-	-Austin_Lab/Is-ESXi_3_7	SAN Alfalfa	instance	chassis-3/blade-7	org-Austin Lab	10.87.208.16
VEthernet Ports (80)		org-root/org-	Austin_Lab/ls-ESXi_3_7	old	instance		org-Austin Lab	
VHost Bus Adaptors (12)			Austin Lab/Is-ESXi_4_8		instance	chassis-4/blade-8	org-Austin Lab	10.87.208.16
VRack Servers (2)			Austin_Lab/ls-ESXI_Raci		instance	rack-unit-1	org-Austin Lab	10.87.208.18
VServer Blades (4)	<b></b>							
V Service Profiles (13)	V		-Austin_Lab/Is-ESXi_Racl	kServer2	instance	rack-unit-2	org-Austin Lab	ucs1-4-7.zen
Backplane Ports (80)	<b></b>	org-root/org-	-Austin_Lab/Is-Esxi		initial-template		org-Austin Lab	
Fibre Channel Ports (16)	•						_	
Host Ethernet Interfaces (12)	Display:	vHBA Capac	city 🗠		Range:	Last Hour	C Type to	filter
Organizations (2)	Events	Name	Avg Util Rx	Avg Util Tx	Max Util Rx	Max Util Tx Avg H	eadroom Rx Avg	Headroom Tx
Virtual HBAs (24)	0	<u>fc0</u>	0.03 %	0.23 %	0.04 %	0.92 %	9.98 Gbps	9.98 Gbps
Virtual NICs (26)	0	fc1	0.00 %	0.00 %	0.00 %	0.00 %	10.00 Gbps	10.00 Gbps
Aggregation Pools (26)								
Fabric Extenders (2)								
Separation Contents (2)								
Septic Ports (18)								
S Fans (79)								
Fan Modules (31)								
O Modules (6)								
Management Interfaces (33)								
Memory Arrays (4)								
Power Supply Units (20)								
Processor Units (12)								
Processor Units (12)								
<ul> <li>Processor Units (12)</li> <li>Switch Cards (4)</li> </ul>								

2 View adapter historical usage:

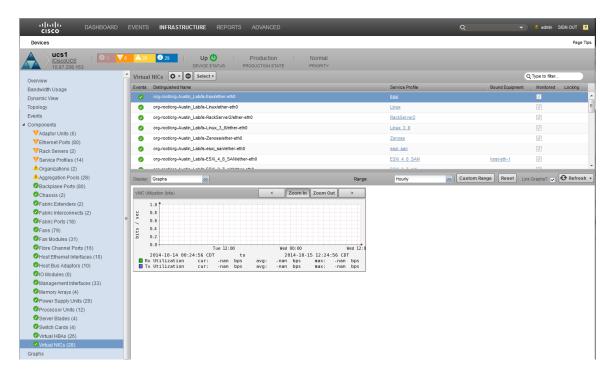
- **a** Expand **Components** in the left pane.
- **b** Select **Virtual HBAs(n)** from the list to display the Virtual HBAs associated with the device (in this example, *ucs1*) in the right pane.

vices ucs1								
								Page
/CiscoUCS 10.87.208.163	6 🔺 26		duction Normal					
view	- Virtua	I HBAs O Select -					Q Type to filter.	
dwidth Usage	Events	Distinguished Name			Service Profile	Bound Equipment	t Monitored	Locking
amic View	0	org-root/org-Austin_Lab/ls-Esxi/fc-fc0			Esxi		<b>V</b>	
blogy	0	org-root/org-Austin_Lab/Is-Linux/fc-fc0			Linux		<b>V</b>	
nts	0	org-root/org-Austin_Lab/Is-RackServer2/fc-fc0			RackServer2		1	
nponents	0	org-root/org-Austin Lab/Is-Linux 3 8/fc-fc0			Linux 3 8		7	
Adaptor Units (6)	0	org-root/org-Austin_Lab/Is-Zenoss/fc-fc0			Zenoss		V	
Ethernet Ports (80)		org-root/org-Austin_Lab/ls-esxi_san/fc-fc0			esxi san			
Rack Servers (2) Service Profiles (14)		org-root/org-Austin_Lab/Is-ESXi_4_8_SAN/fc-fc0			ESXI 4 8 SAN	host-fc-1	V	
Organizations (2)		and the second s			50% 0.7 H	III III III III	(V)	
Aggregation Pools (28)	Disatau	Graphs		Range:	Hourly	Custom Range Reset	Link Graphs? 🔽	
Backplane Ports (80)	Display.	Graphs		Range.	Houny	Custom Range		
Chassis (2)	VHBA	Utilization (bits)	< Zoom In Zoom Out	>				
Fabric Extenders (2)		1.0 ↑						
Fabric Interconnects (2)		0.8						
Fabric Ports (18)	N	0.6						
Fans (79)	11	0.4						
Fan Modules (31)		0.0						
Fibre Channel Ports (16)		Tue 12:00 2014-10-14 00:24:14 CDT to	Wed 00:00 2014-10-15 12:24:14 CD	Wed 12:0				
Host Ethernet Interfaces (10)	🗖 R:	x Utilization cur: -nan bps a	vg: -nan bps max: -nan	bps				
Host Bus Adaptors (10) IC Modules (6)	<b>T</b>	x Utilization cur: -nan bps a	vg: -nan bps max: -nan	bps				
Management Interfaces (33) Memory Arrays (4)								
Memory Arrays (4) Power Supply Units (20)								
Power Supply Units (20) Processor Units (12)								
Processor Units (12) Server Blades (4)								
Server Blades (4) Switch Cards (4)								
Virtual HBAs (26)								

The right hand pane provides overview information about the selected domain. If you want to view events that are specific to the selected domain, click **Events** in the left-hand pane.

- **3** View virtual NIC (vNIC) use:
  - **a** Expand **Components** in the left pane.
  - **b** Select **Virtual NICs(n)** from the list to display the vNICs associated with the device (in this example, *ucs1*) in the right pane.

The right-hand pane displays usage information for each vNIC. You can sort the **Service Profile** column to conveniently group the vNICs.



# How to Display Operating System Performance

The Cisco UCS Performance Manager UI enables you to survey and monitor your operating system performance. You can use it to review historical and real time performance and usage data of components such as CPU and memory. The following example scenario describes how to review the OS performance information for your system.

1 Within the Cisco UCS Performance Manager UI, navigate to Infrastructure > Devices > Server (n) to display the Server Device pane on the right.

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DETAIL	s Server							
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VCiscoUCS (3)								
Network (8)	10.87.110.135	10.87.110.135	/Server/Linux	Production	🕕 1			
Server (8)	jenkins-tb2.zenoss.loc	10.87.208.222	/Server/Linux	Production				
Ulinux (7)	Linux16GB	10.87.208.172	/Server/Linux	Production				
Microsoft (1)	LinuxServer1	10.87.208.167	/Server/Linux	Production				
SSH (0) Windows (0)	LinuxServer2	10.87.208.185	/Server/Linux	Production				
Storage (1)	LinuxServer24gb	10.87.208.171	/Server/Linux	Production				
Vsphere (3)	LinuxServer32qb	10.87.208.170	/Server/Linux	Production	1			
PAPPLICATION GROUPS (10)	WindowsServer	10.87.208.168	/Server/Microsoft/Windows	Production				
My New Website (3)								
OProduction (3)								
Test (4)								
OINTEGRATED INFRASTRUCTURE (10)								
<b>UCS1</b> (5)								
xgfvxnbv (5)								

- 2 Select a device name that you want to learn details about. In this example, LinuxServer1 is selected.
- 3 Double-click the device name, in this case, LinuxServer1 to display the Overview pane for that device.

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Devices				Page Tips
LinuxServer1 /Server/Linux 10.87.208.167	Up Up Production			
Overview Dynamic View Events Graphs Configuration Properties Administration	Device ID: ucs1-3-8 Connection Information sdf: public Uptime: Uninovm First Seen: 2014/10/13 11:10-18 Last Change: 2014/10/13 11:10-15 Model Time: Not Modeled Locking: Unicovm/Unknown	Device Title: LinusGener1 Production State: Production State: Normal m Serial Number: Rack Stot: Save Cancel	Collector sdl: localhost Hardware Manufacturer sdl: None OS Manufacturer sdl: None OS Model sdl: None	Ē
	Systems sdl: None Groups sdl: <u>dhr New Website</u> Links: Comments:		SNMP SysName: SNMP Location: SNMP Contact: SNMP Community: public SNMP Version: v2c	

Within this pane you can view details such as the OS version and links to service profiles.

4 To view CPU and memory usage, click **Graphs** in the left pane. This displays the **Performance Graphs** pane on the right side. This pane includes information about CPU and memory usage reported directly by the operating system. You can also specify which data to display and what time frame to use.

cisco DASHBOARD	EVENTS INFRASTRUCTURE REPORTS /	ADVANCED	Q	👻 💄 admin SIGN OUT 🛛 🔁
Devices				Page Tips
LinuxServer1 / <u>Server1Linux</u> 10.87.208.167	Up O Device status	Production Normal PRODUCTION STATE PRIORITY		
Overview	Performance Graphs	Range:	Hourly Custom Range Reset	Link Graphs?: 🔽   🚱 Refresh 👻
Dynamic View	CPU Utilization	< Zoom In Zoom Out >		
Events Craphs Configuration Properties Administration	1.0 + 0.8 0.6 0.2 0.0 2014-10-14 00:27:52 CDT to System Curr:-nam% User Curr:-nam% Wait Curr:-nam% I date Curr:-nam%	Wed 00:00         Wed 12:0           2014-10:15 12:27:52 C0T           avg: -nan%           avg: -nan%		
	Memory Ullization 100 50 40 20 	< Zoom In Zoom Out >		

# 5

# Integrated Infrastructure

Note This functionality is only available with a Cisco UCS Performance Manager license.

If you have integrated infrastructure, the Cisco UCS Performance Manager UI enables you to view your integrated infrastructure (or many) and analyze collected data about each one as a unit. Because each integrated infrastructure is a collection of hardware that functions as a server, it is convenient to view its information as a whole instead of as individual resources. For example, an integrated infrastructure can provide information about such included device types as:

- computation
- network
- storage
- virtual

# Using Cisco UCS Performance Manager with Integrated Infrastructure Components

The Cisco UCS Performance Manager can automatically discover your integrated infrastructure(s), or you can manually define them. The Cisco UCS Performance Manager can provide views into your integrated infrastructure KPIs (key performance indicators) and applications running within the integrated infrastructure. This enables you to quickly determine and identify constraints in the system that are contributing to or will eventually result in performance degradation. Historical data can be defined in terms of scope and time frame so you can quickly arrive at useful data.

The Cisco UCS Performance Manager also enables you to view service profiles, virtual machines, and operating systems running within each integrated infrastructure. This means you can quickly identify and evaluate resource derived constraints and component faults, either current of historical. You can access finer detail in terms of the resources consumed by individual CPUs, interfaces, and memory. This means you can detect/identify for example, if a particular virtual machine in your integrated infrastructure is using either the most resources or too much of the available resources. Using historical data in this case enables you to evaluate the severity, longevity, and periodicity of issues. This enables you to reassign resources or make changes to profiles to prevent or fix potential issues.

The Cisco UCS Performance Manager UI has the **Topology** view that also extends to the integrated infrastructure. This means you can view a graphical display of the LAN and SAN devices associated with your integrated infrastructure(s) and access historical data by clicking links associated with each integrated infrastructure.

CISCO DASHBOARD I	VENTS INFRASTRUCTURE REPORTS ADVANCED Q 🖌 🖌 admin SIGN OUT 🛐 Page Tips
UC\$1 Integrated Infrastructure SEE ALL Dynamic View	
	Systems Devices VSphere Endpoints UCS Domains UCS 1-center UCS 1 Integrated Intrastructure UCS Integrated Intrastructure UCS Integrated Intrastructure
Dynamic View	2 Jobs (24 Pending) •

Historical data enables you to determine cyclic and periodic trends within your system. Using historical data together with an integrated infrastructure enables you to leverage the data for a complete collection of components and services. This extends your problem detection and analysis very quickly and efficiently.

# **Creating Integrated Infrastructure Views**

The Cisco UCS Performance Manager UI enables you to create specialized views of your integrated infrastructure that enable you to understand and detect issues within the infrastructure. Perform the following to create an example integrated infrastructure view:

1 Click the Infrastructure tab to display the Infrastructure view.

CISCO DASHBOARD	EVENTS INFRASTRUCTURE REPORTS ADV	ANCED	_	-	Q
Devices					
DETAILS	Devices				
٩	0 7 V9 ▲ 46				
▲ S DEVICES (23)	Device 🔺	IP Address	Device Class	Production State	Events
VCiscoUCS (3)					]
▶      D Network (8)	<u>10.87.110.135</u>	10.87.110.135	/Server/Linux	Production	<b>!!</b> 1
Berver (8)	aus-ucs11	10.87.208.11	/CiscoUCS	Production	<b>A</b> 5
B Storage (1)	aus-ucs12	10.87.208.12	/CiscoUCS	Production	<b>A</b> 5
Vsphere (3)	<u>Cisco 10.171.100.14</u>	10.171.100.14	/Network/Cisco/6500	Production	<b>V</b> 1
APPLICATION GROUPS (10)	device 10 171 100 107	10.171.100.107	/Network/Cisco/Nexus/6000	Production	
My New Website (3) Production (3)	device 10 171 100 88	10.171.100.88	/Network/Cisco/Nexus/1000V	Production	
Test (4)	device 10 171 54 9	10.171.54.9	/Network/Cisco	Production	<b>A</b> 2
OINTEGRATED INFRASTRUCTURE (10)	FABa	10.171.100.86	/Network/Cisco/MDS/9000	Production	<b>())</b> 2
UC S1 (5)	jenkins-tb2.zenoss.loc	10.87.208.222	/Server/Linux	Production	
<b>u</b> xgfvxnbv (5)	Linux16GB	10.87.208.172	/Server/Linux	Production	
	LinuxServer1	10.87.208.167	/Server/Linux	Production	
	LinuxServer2	10.87.208.185	/Server/Linux	Production	
	LinuxServer24gb	10.87.208.171	/Server/Linux	Production	

- 2 In the left hand *Devices* pane, click **Integrated Infrastructure(n)** to highlight it.
- 3 In the left-hand pane, at the bottom, click the plus sign (+) to display the Add System dialog.

Devices						
	.s /					
ι	<b>●</b> 8 <b>▼</b> 7 <b>▲</b> 37	Select -				4
DEVICES (23)	Device 🔺	IP Address	Device Class	Production State	Events	
VCiscoUCS (3)					] .	
• • • • • • • • • • • • • • • • • • •	aus-ucs12	10.87.208.12	/CiscoUCS	Production		
Server (8)	device 10 171 100 107	Add System		Production		
🖻 🕕 Storage (1)	device 10 171 54 9	Name: 10.171.54.9	/Network/Cisco	Production		
Vsphere (3)	FABa			Production	<b>1</b> 2	
APPLICATION GROUPS (10)	<u>N9K-1</u>	Description:	to/Nexus/9000	Production		
My New Website (3)	sungard-vcenter1		<u>/vSphere</u>	Production		
Production (3)     Test (4)	ucs1	SUBMIT CANCEL	/CiscoUCS	Production	<b>V</b> 6	
INTEGRATED INFRA STRUCTURE (10)	ucs1-rs1-3.zenoss.loc	10.87.208.187	/Storage/EMC/VNX	Production	<b>()</b> 3	
<b>U</b> UCS1 (5)	ucs1-vcenter		/vSphere	Production	<b>V</b> 1	
uxqfvxnbv (5)						

4 Enter a name and description for the new system, for example:

Name = My UCS Description = My Development Lab

5 Click **Submit** to save and dismiss the dialog box. Your new system name displays in the left pane under **Integrated Infrastructure(n)**.

	DASHBOARD	EVENTS	INFRAS
Devices			
	DETAILS	/My UCS	- My Develop
Q			<b>V</b> 0 <b>A</b>
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VCiscoUCS (3)			
Network (8)			
Server (8)			
Storage (1)			
Vsphere (3)			
	°S (10)		
My New Websit	e (3)		
Production (3)			
🛄 Test (4)			
	TRUCTURE (10)		_
🗸 My UCS (0) 🚽	-		
UC S1 (5)			
🛄 xgfvxnbv (5)			

Your new system and its contents display in the right hand pane. It is empty because no members are defined yet.

uluulu dashboard e	EVENTS INFRASTRUCTURE	REPORTS AD	VANCED		-	Q	🗸 🤞 admin	SIGN OUT 🔋
Devices								Page Tips
DETAILS	/My UCS - My Development Lab							
٩		Select -					Refresh • Actions •	Commands •
✓ ØDEVICES (23)	Device 🔺		IP Address	Device Class	Production State	Events		
VCiscoUCS (3)						]		
Network (8)								
Server (8)								
Storage (1)								
Vsphere (3)								
APPLICATION GROUPS (10)								
My New Website (3)								
Production (3)								
Test (4)								
✓ ØINTEGRATED INFRASTRUCTURE (10)								
My UCS (0)								
UCS1 (5)								
gfvxnbv (5)								

- **6** Add members to your new system:
  - a Navigate to Infrastructure > Devices to display available devices in the right hand pane.

**b** Select the devices you want to add to your new system. Drag and drop them onto the new system name in the left hand pane. For example, the following graphic shows several selected devices being dragged over and dropped on the system called **My UCS**.



**c** When you drop the selected device(s) on the target system, the **Move Devices** confirmation dialog displays. Click **OK** to confirm and close the dialog.

CISCO DASHBOARD						
Devices						Page Tips
	LS Devices					
Q	<b>0</b> 7 <b>V</b> 9 <b>▲</b> 46 <b>⊡</b> .	Select -				Refresh + Actions + Commands +
OEVICES (23)	Device A	IP Address	Device Class	Production State	Events	
VCiscoUCS (3)						
Network (8)		10.87.110.135	/Server/Linux	Production	🕕 1	
🖻 💷 Server (8)		10.87.208.11	/CiscoUCS		<b>A</b> 5	
🖻 🕕 Storage (1)	aus-ucs12	Move Devices	8	Production	<b>A</b> 5	
VySphere (3)	Cisco 10.171.100.14	Are you sure you want to move My UCS?	these 3 device(s) to	Production	<b>V</b> 1	
OAPPLICATION GROUPS (10)	device 10 171 100 107	10.171_100.107	/Network/Cisco/Nexus/1000	Production		
My New Website (3)	device 10 171 100 88	OK CANCEL 00.88	/Network/Cisco/Nexus/ 000V	Production		
Test (4)	device 10 171 54 9	10.171.54.9	/Network/Cisco	Production	<b>A</b> 2	
INTEGRATED INFRASTRUCTURE (10)	FABa	10.171.100.86	/Network/Cisco/MDS/9000	Production	🙂 2	
My UCS (0)	jenkins-tb2.zenoss.loc	10.87.208.222	/Server/Linux	Production		
UCS1 (5)	Linux16GB	10.87.208.172	/Server/Linux	Production		
() xgfvxnbv (5)	LinuxServer1	10.87.208.167	/Server/Linux	Production		
	LinuxServer2	10.87.208.185	/Server/Linux	Production		
	LinuxServer24gb	10.87.208.171	/Server/Linux	Production		

**d** Your system now displays the devices as they are added. The right hand pane includes the devices and various types of information, including a listing of open events and their severity.

CISCO DASHBOARD	EVENTS INFRASTRUCTURE REPORTS ADV	ANCED	_		Q	🗙 🤌 admin SIGN OUT 🦻
Devices						Page Tips
DETAILS	/My UCS - My Development Lab					
Q	0 0 V 0 ▲ 5   ★ - O Select -					Refresh • Actions • Commands •
▲ ØDEVICES (23)	Device +	IP Address	Device Class	Production State	Events	
VCiscoUCS (3)					]	
Network (8)	aus-ucs11	10.87.208.11	/CiscoUCS	Production	🛦 5	
Derver (8)	FABa	10.171.100.86	/Network/Cisco/MDS/9000	Production	🕕 2	
Storage (1)						
VvSphere (3)						
APPLICATION GROUPS (10)						
My New Website (3)						
Production (3)						
Test (4)						
✓ ♥INTEGRATED INFRASTRUCTURE (10)						
My UCS (0)						
OUCS1 (5)						
grvxnbv (5)						

Note that you can refresh the view as necessary by right clicking the new system name in the left hand pane and selecting **Refresh Tree**.

7 View your new system devices. Highlight the system name in the left hand pane, for example *My UCS* and click the **Details** arrow at the top to display the Device pane that shows all the devices that are part of your new system.

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Devices										Page Tips
My UCS	SEE ALI	/My UCS -	My Development Lab							
Dynamic View		<b>8</b> 2	Vo 🔺 🤊	± • Select •	•				Refresh - Act	tions • Commands •
Dynamic view		Device 🔺			IP Address	Device Class	Production State	Events		
								]		
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		FABa			10.171.100.86	/Network/Cisco/MDS/900	0 Production	<b>!!</b> 2		

- 8 View the integrated infrastructure dynamic view. When you have successfully created and populated your new system, there are various useful views and displays you can use. One of these is the dynamic view. To view the dynamic view for your new system:
  - **a** Highlight the system name in the left hand pane, for example *My UCS* and click the **See All** arrow at the top to display the new system listed in the left pane.
  - **b** Click **Dynamic View** to display the dynamic view of your new system in the right hand pane.

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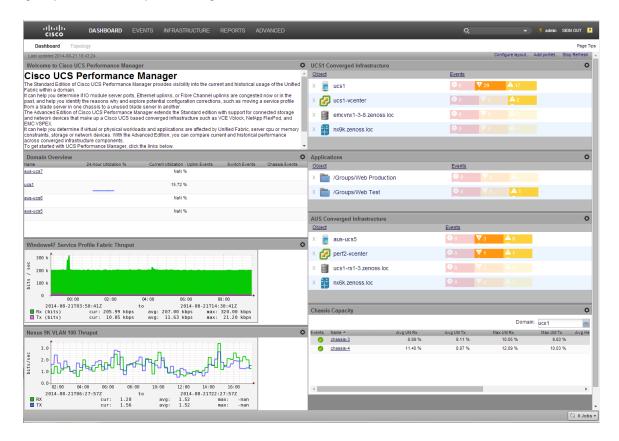
The dynamic view enables you to view components organized by type. You can click on a name to bring up a navigation pop-up dialog and components that have open events display an event rainbow.

# How to View Performance Data for Integrated Infrastructures

Note This functionality is only available with a Cisco UCS Performance Manager license.

The Cisco UCS Performance Manager UI enables you to unify performance and capacity management across all components of a UCS integrated infrastructure and eliminate the need for multiple investigation tools. This means you can detect infrastructure issues quickly and efficiently and reduce your time to repair. The following scenario describes how to use the Cisco UCS Performance Manager UI integrated infrastructure portlet.

The dashboard portlet provides a quick status overview that identifies critical events that affect each device. It provides a unified view of the various components that make up your integrated infrastructure. It enables you to quickly drill down to any of the component data.



The Cisco UCS Performance Manager UI enables you to view your integrated infrastructure It displays various information together with clickable links that enable you to drill down for more specific, granular information.

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The following scenarios describe how to use the Cisco UCS Performance Manager UI Integrated Infrastructure portlet.

#### Using the Cisco UCS Performance Manager Integrated Infrastructure Portlet

To view the information for an integrated infrastructure, for example UCS1, perform the following:

- 1 From the Cisco UCS Performance Manager UI Dashboard view a portlet. For example, the **UCS1 portlet**. The information that displays for this integrated infrastructure includes its components and such things as:
  - a UCS domain
  - a VMware farm
  - EMC storage
  - a Nexus 6000
- 2 Click on a component of the integrated infrastructure to navigate to and view information about it, for example **emcvnx**. This displays information about the storage array for this integrated infrastructure.
- **3** To display statistics and performance information for data devices such as LUNs (logical unit number), batteries, hard disks, and power supplies, click **Data Devices**.
- 4 To display informational statistics and performance information for storage pools, click **Storage Pools**.
- 5 To display information about your storage processors, for example the number of operations per second, click **Storage Processors** and scroll through the list to **op throughput**.

The Cisco UCS Performance Manager UI provides access to this historical data for a generalized integrated infrastructure administrator to quickly identify unusual behavior without the need to become a specially trained storage administrator.

#### Using the Cisco UCS Performance Manager Integrated Infrastructure Events Portlet

The Cisco UCS Performance Manager UI includes various specialized portlets that can be added to the dashboard to view various kinds of information. The **Integrated Infrastructure Events** portlet enables you to quickly access

information concerning events that are monitored for your integrated infrastructure. The event information that displays for an integrated infrastructure includes:

- Storage Events
- Network Events
- Virtualization Events
- Compute Events

You can use the **Integrated Infrastructure Events** portlet to view and drill down into event information for an integrated infrastructure, for example **UCS1**.

1 From the Cisco UCS Performance Manager UI Dashboard view the Integrated Infrastructure Events portlet.

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2 Click on an event type to navigate to and view information about it, for example **Storage**. This displays the Event Console window with information about storage related events for this integrated infrastructure.

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From this console you can access additional information by clicking the various links, such as **Resource**, **Component**, or **Status**.

#### **Viewing Switch Information**

The Cisco UCS Performance Manager UI provides a consistent, similar look that enables an integrated infrastructure administrator to navigate between dissimilar devices to display statistics and data and drill down into the various devices. In the case of switches, the UI alleviates the need to telnet into the switch console and issue commands. To view switch information, perform the following.

- 1 From the Cisco UCS Performance Manager UI Dashboard view, locate and click on a switch name in the integrated infrastructure, for example, the **Nexus 6K**. This displays the information about the switch.
- 2 To display information about physical components in the switch, click the component name, for example:
  - Click **Supervisor Modules** to display module information.
  - Click an Ethernet interface name to display performance data for logical components, for example VLAN or VLAN100.

**3** To view information about aggregated components such as port channels, click on the aggregated component name, for example click **Port Channels**.

#### **Viewing VMware Farm Information**

The Cisco UCS Performance Manager UI enables easy display of information about VMware farms. It is not necessary to use VSphere that requires credentials. This means it is not necessary to provide vSphere credentials to the entire integrated infrastructure operations team because they can immediately access the VMware farm information they require. The UI provides information that includes the *top datastores* (by percentage used) and the *top hosts* (based on CPU and memory usage).

- 1 To display the CPU and memory usage for each host, click on hosts.
- 2 To view the resource usage by each VM, click **VMs**. The information that displays can help you identify excessive resource usage by a VM that can lead to performance issues.
- 3 To display the OS information for a VM, scroll down and click on the device name, for example ucs1-rs1-1.

#### **Viewing Application Performance**

In addition to keeping the infrastructure performing at optimum, it is also important to ensure that customer applications are running efficiently. Underlying integrated infrastructure issues can contribute to application performance issues. The Cisco UCS Performance Manager UI enables you to view key performance metrics and critical system messages that relate to applications. Additionally the Cisco UCS Performance Manager provides *USCPM applications* that are a representations of groups of operating systems running together.

The Cisco UCS Performance Manager UI provides an **Application** portlet that can be added to the **Dashboard** view to provide quick access to application information. Within the portlet various applications display, for example **Groups/test** and **Groups/Production**.

- 1 From the Cisco UCS Performance Manager UI Dashboard, view the Application portlet.
- 2 To view device information associated with an application group, click the name, for example **Production**. This displays the devices in the **Production** group.
- 3 Click on a *device name* to view detailed information, for example ucs1-4-8.
- 4 Click Graphs to view various data, including Events.

#### **Viewing Event Information**

Viewing event information enables you to view events that affect a particular component and can have an effect on the performance of the associated application. To display event information about a particular component associated with your application:

- 1 From the Cisco UCS Performance Manager UI Dashboard, view the Application portlet.
- 2 To view device information associated with an application group, click the name, for example **Production**. This displays the devices in the **Production** group.
- 3 Click on a *device name* to view detailed information, for example ucs1-4-8.
- 4 Click **Display Events** to show events relating to the component.
- 5 Click the name of an event to display the details.

#### **Viewing Service Profile Information**

The Cisco UCS Performance Manager UI enables you to view either summary or detailed information for current and normal usage of service profiles. To display service profile information:

- 1 From the Cisco UCS Performance Manager UI Dashboard, view the Application portlet.
- 2 To view device information associated with an application group, click the name, for example **Production**. This displays the devices in the **Production** group.

- 3 Click on a device name to view detailed information, for example ucs1-4-8.
- 4 Click **Display Service Profile > Graph** to view various data, including **Capacity**. Use the drop-down to specify a date range to filter/define the information display.
- 5 To display greater detail about a particular service profile, click on the service profile *name* and select **Display Graph**.

#### **Viewing Logical Server Information**

Logical servers within the integrated infrastructure can affect application performance. The Cisco UCS Performance Manager UI enables you to view detailed performance information for logical servers. To display logical server information:

- 1 From the Cisco UCS Performance Manager UI Dashboard, view the Application portlet.
- 2 To view device information associated with an application group, click the name, for example **Production**. This displays the devices in the **Production** group.
- 3 Click on a *logical name* to view detailed information, for example ucs1-4-8.
- 4 Click **Graphs** to view various data, including **operating system** information. This enables you to determine how various logical servers and their components are performing and thus impacting associated application performance.

#### Viewing Performance Reports

The Cisco UCS Performance Manager UI enables you to view reports that display historical and current metrics across the application. This enables you to discover under- or over-provisioned systems that can affect performance. To display performance report information:

- 1 From the Cisco UCS Performance Manager UI Dashboard, view the Application portlet.
- 2 To view device information associated with an application group, click the name, for example **Production**. This displays the devices in the **Production** group.
- 3 Click on a *logical name* to view detailed information, for example ucs1-4-8.
- 4 Click Reports to view various report data options.
- 5 Select Performance Reports to display the report information pane.
- 6 Select various report options, including date ranges and, from the drop-down list, a report topic. For example, to view CPU usage:
  - a Click CPU Utilization.
  - b Select, for example: Root organizer/groups/production
  - c Click Generate to display the CPU Utilization report.

#### Viewing Memory Usage

The Cisco UCS Performance Manager UI enables you to view reports that display historical and current metrics across the application. This enables you to discover under- or over-provisioned systems that can affect performance. To display memory performance report information:

- 1 From the Cisco UCS Performance Manager UI Dashboard, view the Application portlet.
- 2 To view device information associated with an application group, click the name, for example **Production**. This displays the devices in the **Production** group.
- 3 Click on a logical name to view detailed information, for example ucs1-4-8.
- 4 Click Reports to view various report data options.
- 5 Select **Performance Reports** to display the report information pane.
- 6 Select various report options, including date ranges and, from the drop-down list, a report topic. For example, to view memory usage:

- a Click Memory Utilization.
- b Select, for example: Root organizer/groups/production
- c Click Generate to display the Memory Utilization report.

# **Integrated Infrastructure Scenarios**

6

The following scenarios show you how to perform integrated infrastructure related tasks. The scenarios are examples and show just one of potentially many ways to perform a task.

**Note** This functionality is only available with a Cisco UCS Performance Manager license.

# How to Configure a Watch List Dashboard Portlet to Check for Errors

The Cisco UCS Performance Manager UI enables you configure portlets that add functionality to the dashboard. The following example describes how to add a portlet and use it to check for errors within your integrated infrastructure.

- 1 From the Cisco UCS Performance Manager UI dashboard view, click **Add Portlet** to display the **Add Portlet** dialog.
- 2 Click the down arrow on the dialog box to display the drop down list of options.

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3 Select Watch List and click Submit to save and close the dialog. The new Object Watch List portlet displays in the top right hand pane. To display the settings, click the gear wheel icon at the top right of the pane.

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4 The settings dialog enables you to set your parameters and save the settings. You should change the default **Title**, confirm or change the **Refresh Rate**, and define **Zenoss Objects**, in this case the *UCS* domain.

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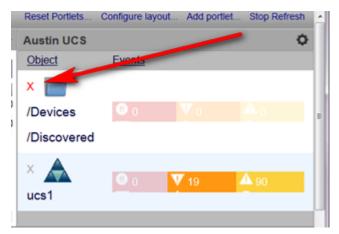
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Title = Austin UCS
Refresh Rate = 600
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5 Click Save Settings to display your new Austin UCS domain.

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Note that you can remove the unnecessary /**Devices**/**Discovered** by clicking the red "x"



6 To add additional objects, click the gear icon and enter the object information, such as *network name*. For example, to add a *VMware farm*, enter its network name, in this example **ucs1-vcenter**, in the **Zenoss Objects** field.

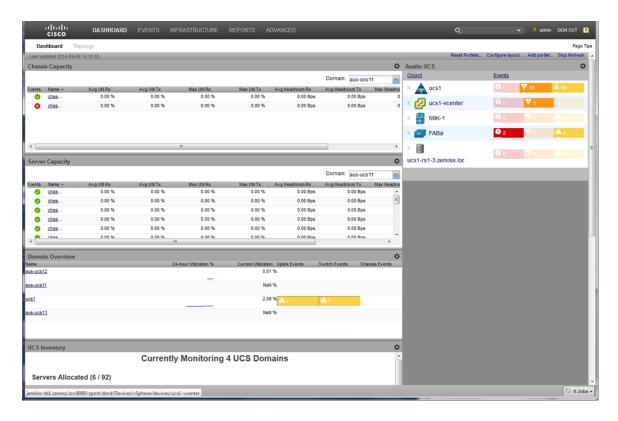
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7 Click **Save Settings** to save the data and close the settings dialog. Your new object, in this example, **ucs1vcenter** displays together with **ucs1** within the **Austin UCS** integrated infrastructure object.

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Note that you can continue to add additional elements such as network and storage devices, as you require.

8 When you have completed your additions to the portlet, the dashboard displays the devices and event status for the **Austin UCS** integrated infrastructure components.



# How to Review Network Device Performance with a Portlet

The Cisco UCS Performance Manager UI enables you to use dashboard portlets to quickly access information about components in your integrated infrastructure. The following example describes how to use the Watch List portlet on the dashboard to review network device performance within your integrated infrastructure.

With the Watch List dashboard portlet configured, it displays the devices and event status for the example **Austin UCS** integrated infrastructure components, including network devices.

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ŏ	chas	0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps	0.00 Bps						
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0	chas	0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps	0.00 Bps						
< <sup>^</sup>	chas	0.00.%	0.00.%	0.00 %	0.00.%	0.00 Bos	0.00 Res	+					1
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aus-ucs1	2			_	0.0	1%							
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aus-ucs1	3				Na	N %							
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jenkins-t	tb1.zenoss.lo	oc:8080/zport/dmd/Devices/	VSphere/device	s/ucs1-vcenter								Č2 0.	lobs -

1 To drill down into network device information for our example **Austin UCS** integrated infrastructure, click the network object icon, for example **N9K-1**.

Reset Portlets.	Configure layo	ut Add por	tlet Stop Re	fresh _
Austin UCS				0
Object	Events			
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Х 🛐 N9К-1				
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×	<b>O</b> 0			
ucs1-rs1-3.zenoss.loc				

This displays the **Overview** page for the network device, in this example, **N9K-1**.

CISCO DASHBOARD E	VENTS INFRASTRUCTURE REPORTS ADVANCE	ED	Q 🔹 sdmin SIGN OUT 👔
Devices			Page Tips
10.171.100.109		Production Normal RODUCTION STATE PRIORITY	1
Overview Dynamic View Exvents 4 Components 4 Components 4 Components 4 Components 4 Components 4 Components 4 Component Interfaces (1) 4 Consent Interfaces (3) 4 Port Channels (3) 4 Condiguration Properties Administration 4 Condiguration	Device ID: 10.171.100.109 Connection Information set: public admin ****** Uptime: 61d.16h.16m.208 First Saen: 2014/10/15 12.07.43 Model Time: 2014/10/15 12.07.44 Locking: Unlocked Memory/Swap: UnknownUnknown Systems set: <u>4UG31</u> Links: Comments:	Device Title: NKK-1 Production State Production Priority: Normal Tag: Srige T73400A7 Rack Slot: Save Cancel	Collector edi: localmost Hardvare Manufacturer edi: Clisco Hardvare Model edi: Neus 5508 Switch O St Manufacturer edi: Clisco O St Model edi: NKCOS n9500 6.1(2)/1(1) SNMP SysName: NKC1 SNMP Location: Lab-7
			SIMIP Contact: moon SIMIP Description: Gloco Kx-OS(Im) ri8000. Software (ri8000-dx8), Version 6.1(2)11(1), Interim version 6.1(2)1(0.278), RELEASE SOFTWARE Coopright (c) 2002-2013 by Cloco Systems, Inc. Complete 2026/2013 2.00.00 SIMIP Community: public SIMIP Version: v2c

Note that the **Overview** page includes the right hand **Overview** pane that displays high level information. The information is populated when the device is loaded and refreshed automatically by default every 12 hours.

2 Click Graphs in the left pane to display the Performance Graphs pane on the right.

LIIIII DASHBOARD E	EVENTS INFRASTRUCTURE REPORTS AI	DVANCED	Q	👻 🤱 admin 🛛 SIGN OUT 🛛 🖓
Devices				Page Tips
N9K-1 Network/Cisco/Nexus/9000 10.171.100.109	Device status	Production Normal PRODUCTION STATE PRIORITY		
Overview	Performance Graphs	Range:	Hourly Sel Custom Range	Reset   Link Graphs?: 🔽 🐼 Refresh 🔸
Dynamic View	CPU Utilization	< Zoom In Zoom Out >		
Events Components CLine Cards (1) Supervisor Modules (1) Grans (3) Power Supplies (2) VLANs (6) Changement Interfaces (1) Ethernet Interfaces (36) Port Channels (3) Chassis (1)	100         -           100	Wed 00:00         Wed 12:00           2014-10-15 12:51:31 CDT           avg: -nan%         max: -nan%           avg: -nan%         max: -nan%           avg: -nan%         max: -nan%           avg: -nan%         max: -nan%		
Graphs Configuration Properties Administration	100 5 5 5 5 5 5 5 5 5 5 5 5 5	Wed 00:00 Wed 12:00 2014-10-15 12:51:31 CDT avg: -nan%		

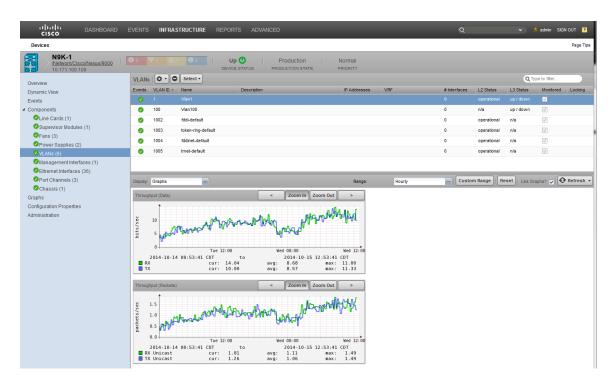
Note that you can select the time range for the graphical data by using the drop down list in the top right of the **Performance Graphs** pane.

CISCO DASHBOARD	EVENTS INFRASTRUCTURE REPORTS A	DVANCED	Q	👻 💄 admin SIGN OUT 🔋
Devices				Page Tips
N9K-1 <u>Network/Cisco/Nexus/9000</u> 10.171.100.109	O O O O O O O O O O O O O O O O O O O	Production Normal PRODUCTION STATE PRIORITY	$\frown$	
Overview	Performance Graphs	Range:		eset   Link Graphs?: 🔽 🐼 Refresh 🔹
Dynamic View	CPU Utilization	< Zoom In Zoom Out >	Hourly	
Events	160 1		Weekly	
<ul> <li>Components</li> </ul>	80		Monthly	
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Supervisor Modules (1)	40 40			
Fans (3)	20			
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Ethernet Interfaces (36)	5 Second cur: -nan%	avg: -nan% max: -nan%		
Port Channels (3)				
Chassis (1)	Memory Utilization	< Zoom In Zoom Out >		
Graphs	100 1			
Configuration Properties	80			
Administration	60 60			

**3** To view details about your integrated infrastructure physical components, click the component name in the left hand **Overview** pane. For example, click **Ethernet Interfaces (n)** to display performance data:

cisco DASHBOARD	EVENTS INFRASTRU	CTURE REPORTS A	DVANCED			C	2	*	💄 admin 🖇	SIGN OUT
Devices										Page Ti
N9K-1 <u>/Network/Cisco/Nexus/9000</u> 10.171.100.109	<b>0</b> 0 <b>V</b> 0 <b>A</b> 0	0 Up O DEVICE STATUS	Production PRODUCTION STATE	Normal PRIORITY						
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rents	C Ethernet8/1								<b>V</b>	
imponents	Ethernet8/10						0	down / down		
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Supervisor Modules (1)	Ethernet8/12						0	down / down		
Fans (3)	Ethernet8/13						0	down / down		
<ul> <li>Power Supplies (2)</li> <li>VLANs (6)</li> </ul>	Ethernet8/14						0	down / down		
Management Interfaces (1)	Ethernet8/15						0	down / down		
Ethernet Interfaces (36)	Cham-10/40									
Port Channels (3)	Display: Graphs	~		Range:	Hourly		ustom Range	Reset   Link (		Refres
Chassis (1)	Display. Graphs			Kaliye.	nouny				arapiis: VII	•
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	RX TX	cur: 0.65% cur: 0.80%	avg: 0.53% avg: 0.52%	max: 0.73% max: 0.66%						
		Cur: 0.80%	avg: 0.52%	max: 0.00%						
	Throughput (Data)		< Zoom In	coom Out >						
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	2014-10-14 00: RX	cur: 10.57	avg: 8.59	12:52:24 CDT max: 11.75						
	TX	cur: 12.99	avg: 8.42	max: 10.69						

4 To view details about your integrated infrastructure logical components, click the component name in the left hand **Overview** pane. For example, click **VLANs (n)** to display performance data:



# How to Review Storage Device Performance for an Integrated Infrastructure

The Cisco UCS Performance Manager UI enables you to quickly access information about components in your integrated infrastructure. The following example describes how to review storage device performance within your integrated infrastructure.

With the integrated infrastructure configured, it displays the devices and event status for the example **Austin UCS** integrated infrastructure components, including storage devices.

 Navigate to Infrastructure > Devices > your\_integrated\_infrastructure\_name. In this example, UCS1 to display the Device pane in the right hand side.

CISCO DASHBOARD	EVENTS INFRASTRUCTURE REPORTS A					🗙 💄 admin 🛛 SIGN OUT 🛛 🦻
Devices						Page Tips
DETAILS	/UCS1					
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▲ ODEVICES (23)	Device +	IP Address	Device Class	Production State	Events	
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Network (8)	FABa	10.171.100.86	/Network/Cisco/MDS/9000	Production	( <b>!)</b> 2	
D Server (8)	<u>N9K-1</u>	10.171.100.109	/Network/Cisco/Nexus/9000	Production		
D Storage (1)	ucs1	10.87.208.163	/CiscoUCS	Production	<b>V</b> 6	
VySphere (3)	ucs1-rs1-3.zenoss.loc	10.87.208.187	/Storage/EMC/VNX	Production	<b>()</b> 3	
A OAPPLICATION GROUPS (10)	vcenter		/vSphere	Production	<b>V</b> 1	
My New Website (3)					V .	
Production (3)						
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2 Click a storage device name to display its details. For example, click ucs1-rs1-3.zenoss.loc.

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Devices										
	DETAILS	/UCS1								
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		Device 🔺				IP Address	Device Class	Production State	Events	
VCiscoUCS (3)		1							]	
Network (8)		FABa				10.171.100.86	/Network/Cisco/MDS/9000	Production	( <b>!!</b> ) 2	
Server (8)		<u>N9K-1</u>				10.171.100.109	/Network/Cisco/Nexus/9000	Production		
Storage (1)		ucs1				10.87.208.163	/CiscoUCS	Production	<b>V</b> 6	
Vsphere (3)	6	ucs1-rs1-3	zenoss.loc			10.87.208.187	/Storage/EMC/VNX	Production	<b>(!)</b> 3	
	0)	vcenter					/vSphere	Production	<b>V</b> 1	
My New Website (3)									A 1	
Production (3)										
Test (4)										
	TURE (10)									
🙂 UC S1 (5)										
uxgfvxnbv (5)										

This displays the **Overview** page for that device. In this example, **ucs1-rs1-3.zenoss.loc**.

uluulu DASHBOARD E	VENTS INFRASTRUCTURE REPORTS ADVANCED	)	Q • sdmin SIGN OUT P
Ucs1-rs1-3.zenoss.loc Storace-EMACNAX Dar Zode 187 Overview Physical Storage View Events • Components • Hard Disks (36) • Storage Enclosures (2) • Arrays (1) • Data Devices (3) • Batteries (2) • Power Supplies (4) • Storage Processors (2) • Storage Processors (2)	Oracle of the status       Device ID:       1987 208.187       Connection Information edit:       admin "************************************	Production Normal Production State: Production State: Production State: Production State: Production State: Production State: Production Rack Stot: 0 Save Cancel	Collector sd: locahost Hardware Manufacturer sd: None OS Manufacturer sd: EMC OS Model sd: SMI-S Provider V4.6.2.3 (SE V7.6-1808.2.8) EM
Logical Storage View Administration	Systems sdf: UCS1 Vathonby Links: Comments:		SIMP SysName: ucs1rs1-32moss1sc SIMP Location: SIMP Contact: owner_emailgour-company.com SIMP Description: SIMP Community: public SIMP Version: v2c

**3** From the **Overview** page for the device you can select various components to view their performance data. For example:

#### a To View Data Device Information:

For the storage device ucs1-rs1-3.zenoss.loc, click Data Devices (n) in the left pane to display the Data Devices pane on the right.

CISCO	EVENTS I	NFRASTRUCTURE	REPORTS A	DVANCED						C	2	Y	🔒 admin SIG	NOUT 🦻
Devices														Page Tips
Ucs1-rs1-3.zenoss.loc <u>/Storage/EMC/VNX</u> 10.87.208.187	<b>Ø</b> 3	<b>V</b> • • • • •	DEVICE ST/		Production PRODUCTION ST		Normal PRIORITY							
Overview	Data Devic	es   🗘 • 🔘 Select	t •									9	Type to fiter	
Physical Storage View	Events Arra	ау	Name						WWN			Storage Pool	Owning SP	Monitored
Events	🧭 emo													<b>V</b>
<ul> <li>Components</li> </ul>	🧭 emo	>vnx1	LUN 1						600601607F	C038005890F	60865EBE311	Capacity	SP_B	<b>V</b>
Hard Disks (36)	🥥 emo	>-vnx1	LUN 2						6006016013	3C038009CCC	2AC716ECE311	Performance	SP_A	$\checkmark$
Storage Enclosures (2)														
Arrays (1)     Arrays Data Devices (3)														
Batteries (2)														
Power Supplies (4)														
Storage Pools (2)														
Link Control Cards (2)	Display: Grap	phs 💽					Range:	Hour	ty		ustom Range	Reset   Link	Graphs? 🔽 🛛	Refresh +
Storage Processors (2)	-													
SP Ports (12)	Time Utilizatio	n		<	Zoom In Z	oom Out	>							
Graphs	100													
Configuration Properties Logical Storage View	09 time 09 08													
Administration	다 40													
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	0+	Ti	ue 12:00	Wed	60:00		Wed 12:00							
	2014	-10-14 01:09:12 CD	T to ur: 0.31%		2014-10-15 0.31%	13:09:12 C max:	DT 0.35%							
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Within this pane you can select a **Data Device** from the list and view performance for each individual LUN, including which data to display and what time frame to use. This example shows the performance information for the **emc-vnx1 LUN** device.

#### b To View Storage Pool Information:

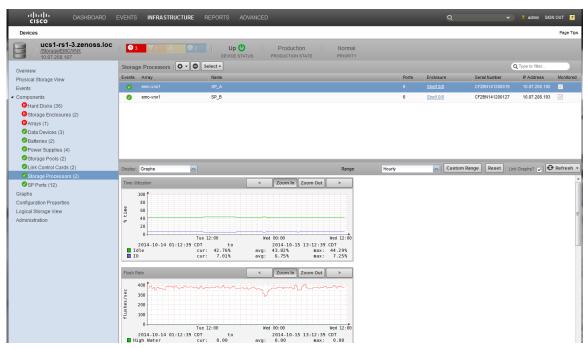
For the storage device ucs1-rs1-3.zenoss.loc, click Storage Pools (n) in the left pane to display the Storage Pools pane on the right.

dashBoard	EVENTS INFRASTRUCTURE	REPORTS ADVAN	CED	-	_	Q	👻 💈 ad	min SIGN OUT 🦻
Devices								Page Tips
Ucs1-rs1-3.zenoss.loc		Up 🕛 DEVICE STATUS	Production		Ormal			
Overview	Storage Pools	-]					Q Type to	filter
Physical Storage View	Events Array	Pool Name				Data Devices	Managed Space	Status Monitored
Events	emc-vnx1	Capacity					18.19TB	ок 🔽
Components	g emc-vnx1	Performance				2	6.28TB	ок 🗸
Hard Disks (36)	-							
Storage Enclosures (2)								
Arrays (1)								
Oata Devices (3)								
Batteries (2)								
Power Supplies (4)								
Storage Pools (2)								
Link Control Cards (2)	Display: Graphs			R	Range: Hourly	Custom Range	Reset   Link Graphs	Refresh
Storage Processors (2)	Space Utilization		< Zoom In	Zoom Out >				
SP Ports (12)			20011111	20011001				
Graphs	100							
onfiguration Properties	e 60							
.ogical Storage View	p 60 5 40							
Administration	20							
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	2014-10-14 01:10:12 CDT	12:00 to		wed 12 i 13:10:12 CDT	2:00			
	Subscribed cur	: 28.24% a	wg: 28.24%	max: 28.24				
			ivg: 28.08%	max: 28.08 max: 19.16				
			-					
	Managed Space Usage		< Zoom In	Zoom Out >				
	t							
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Within this pane you can select a **Storage Pool** from the list and view performance for each individual pool, including which data to display and what time frame to use. This example shows the performance information for the **emc-vnx1 Performance** pool device.

c To View Storage Processor Information:

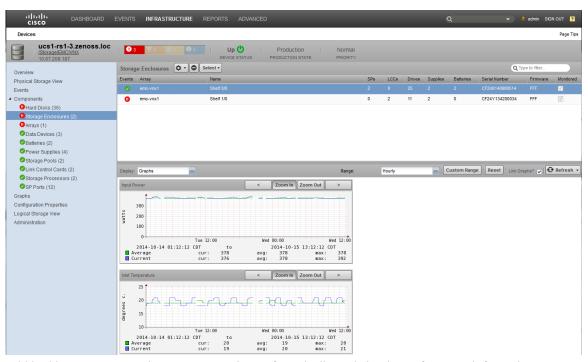
For the storage device ucs1-rs1-3.zenoss.loc, click Storage Processors (n) in the left pane to display the Storage Processors pane on the right.



Within this pane you can select a storage processor from the list and view its performance information, including which data to display and what time frame to use. You can also view IOPs and additional metrics for storage processors. This example shows the performance information for the **emc-vnx1 SP\_A** storage processor.

#### d To View Storage Enclosure Information:

For the storage device **ucs1-rs1-3.zenoss.loc**, click **Storage Enclosures (n)** in the left pane to display the **Storage Enclosures** pane on the right.



Within this pane you can select a storage enclosure from the list and view its performance information, including which data to display and what time frame to use. You can also view power and temperature

metrics for each storage enclosure. This example shows the performance information for the **emc-vnx1 Shelf 0/0** storage enclosure.

# How to Display Integrated Infrastructure Components of an OS

The Cisco UCS Performance Manager UI enables you to survey and monitor your operating systems and their associated integrated infrastructure components. You can use it to view components that are being used by real or virtual operating systems. The following example scenario describes how to display the integrated infrastructure components each operating system is using within your system.

1 Within the Cisco UCS Performance Manager UI, navigate to **Infrastructure > Devices > Server (n)** to display the **Server Device** pane on the right.

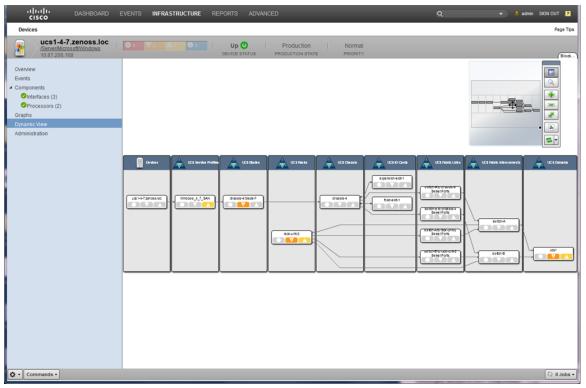
Devices							Page T
DETAILS	Server						
Q	● 2 V • ▲ • • • • • • • • • • • • • • • • •					🔂 Refresh 🔸 🗚	ctions - Command
ODEVICES (23)	Device +	IP Address	Device Class	Production State	Events		
VCiscoUCS (3)					]		
Network (8)	10.87.110.135	10.87.110.135	/Server/Linux	Production	🕕 1		
⊿ 🛄 Server (8)	jenkins-tb2.zenoss.loc	10.87.208.222	/Server/Linux	Production			
Linux (7)	Linux16GB	10.87.208.172	/Server/Linux	Production			
Microsoft (1)	LinuxServer1	10.87.208.167	/Server/Linux	Production			
SSH (0) Windows (0)	LinuxServer2	10.87.208.185	/Server/Linux	Production			
Storage (1)	LinuxServer24gb	10.87.208.171	/Server/Linux	Production			
VySphere (3)	LinuxServer32qb	10.87.208.170	/Server/Linux	Production	1		
APPLICATION GROUPS (10)	WindowsServer	10.87.208.168	/Server/Microsoft/Windows	Production			
My New Website (3)							
Production (3)							
😃 Test (4)							
SINTEGRATED INFRA STRUCTURE (10)							

- 2 Select a device name that you want to learn details about. In this example, ucs1-4-7.zenoss.loc is selected.
- 3 Double-click the device name, in this case, ucs1-4-7.zenoss.loc to display the Overview pane for that device.

cisco DASHBOARD	EVENTS INFRASTRUCTURE REPORTS ADVANCED			👻 💄 admin SIGN OUT 💦
Devices				Page Tips
Linux Server1 /Server/Linux 10.87.208.167	Up O Produc Device status Productio			
Orenterr Dynamic Vlew Events Graphs Configuration Properties Administration	Device ID: us13-8 Connection Information self: public Unixown First Seen: 2014/01/31110-18 Last Change: 2014/01/31110-05 Model Time: Not Modeled Locking: Unixocked Memory/Swap: Unixocked Memory/Swap: Unixocked Systems self: None Groups self:	Device Title: LinuSever1 Production State: Production State: Production M Pronty: Normal M Tag: Serial Number: Serial Number: Save Cancel	Collector sdf: locathost Hardware Manufacturer sdf: None OS Manufacturer sdf: None OS Model sdf: None	
	Competition Violation Links : Comments :		SNMP Contact: SNMP Description: SNMP Community: public SNMP Version: v2c	

Within this pane you can view details such as the OS version and links to service profiles.

4 From the left hand pane, click **Dynamic View** to display the dynamic view pane on the right.



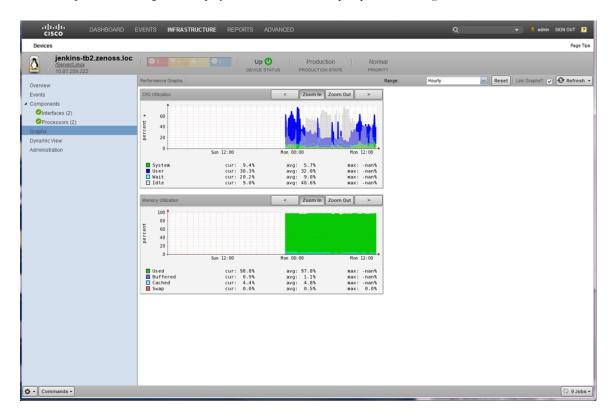
This view displays the integrated infrastructure devices your OS is using. These are supporting components that are automatically discovered and dynamically updated if they change. The upper right corner of this pane contains a small view that aids in navigation as the dynamic view grows to contain more items than can be easily viewed in the screen. It also houses a small toolbar the enables you to Navigate, Resize, Refresh and Export the view.

5 To view components of a virtualized OS, within the Cisco UCS Performance Manager UI, navigate to Infrastructure > Devices (n) to display the Devices pane on the right.

DETAIL	S Devices					
l.	● 5 V 123 ▲ 228 ● Select •					Refresh - Actions - Con
OEVICES (23)	Device +	IP Address	Device Class	Production State	Events	
CiscoUCS (4)					]	
Network (4)	aus-ucs11	10.87.208.11	/CiscoUCS	Production	1 3	
V Server (11)	aus-ucs12	10.87.208.12	/CiscoUCS	Production	₩ 40	
Storage (1)	aus-ucs13	10.87.208.13	/CiscoUCS	Production	<b>V</b> 56	
Vsphere (3)	Cisco 10.171.100.14	10.171.100.14	/Network/Cisco/6500	Production	<b>V</b> 1	
APPLICATION GROUPS (6)	FABa	10.171.100.86	/Network/Cisco/MDS/9000	Production	02	
Production (2)	jenkins-tb1	10.87.208.221	/Server/Linux	Production		
Test (4)	jenkins-tb2 zenoss loc	10.87.208.222	/Server/Linux	Production		
CONVERGED (5)	jenkins-tb3	10.87.208.223	/Server/Linux	Production	<b>V</b> 1	
V Ausun UCS (5)	N9K-1	10.171.100.109	/Network/Cisco/Nexus/9000	Production		
	perf2-switch	10.87.207.10	/Network/Cisco	Production		
	perf2-vcenter		/vSphere	Production	<b>V</b> 3	
	sungard-vcenter1		/vSphere	Production	<b>V</b> 3	
	ucs1	10.87.208.163	/CiscoUCS	Production	<b>V</b> 19	
	ucs1-4-7.zenoss.loc	10.87.208.168			<b>V</b> 19	
			/Server/Microsoft/Windows	Production		
	ucs1-linux1	10.87.208.175	/Server/Linux	Production		
	ucs1-rs1-1.zenoss.loc	10.87.208.185	/Server/Linux	Production		
	ucs1-rs1-2	10.87.208.186	/Server/Linux	Production	<b>V</b> 1	
	ucs1-rs1-3.zenoss.loc	10.87.208.187	/Storage/EMC/VNX	Production		
	ucs1-vcenter		/vSphere	Production	<b>V</b> 1	
	ucsx-16GB.zenoss.loc	10.87.208.172	/Server/Linux	Production		
	ucsx-24GB.zenoss.loc	10.87.208.171	/Server/Linux	Production		
	ucsx-32GB.zenoss.loc	10.87.208.170	/Server/Linux	Production		
	ucsx-8ab	10.87.208.173	/Server/Linux	Production		

In this example, the jenkins-tb2-zenoss.loc Linux server is selected.

- 6 Click the device name, for example, jenkins-tb2-zenoss.loc, to display the device details page.
- 7 In the left pane, click **Graphs** to display the Performance Graphs pane on the right.



This pane displays various performance graphs, including CPU and memory utilization. You can also specify which time frame to use for the graphical displays.

# How to Create an Integrated Infrastructure Application Group

The Cisco UCS Performance Manager enables you to create integrated infrastructure application groups. These application groups can be used to monitor application performance. Perform the following to create an application group for your integrated infrastructure:

1 Navigate to Infrastructure > Devices > Application Groups (n). In this example, several application groups display in the right hand Device pane.

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CiscoUCS (4)		IP Address			Refresh - Actions - Comman
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V Server (11)	ucs1-4-7.zenoss.loc	10.87.208.168	/Server/Microsoft/Windows	Production	
Storage (1)	ucs1-rs1-1.zenoss.loc	10.87.208.185	/Server/Linux	Production	
Vsphere (3)	ucsx-16GB.zenoss.loc	10.87.208.172	/Server/Linux	Production	
APPLICATION GROUPS (6)	ucsx-24GB.zenoss.loc	10.87.208.171	/Server/Linux	Production	
<ul> <li>Production (2)</li> <li>Test (4)</li> </ul>	ucsx-32GB zenoss loc	10.87.208.170	/Server/Linux	Production	
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2 To create or add a new application group, click the plus (+) icon in the bottom of the left pane. This displays the **Add Group** dialog.

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Network (4)	jenkins-tb2.zenoss.loc	10.87.208.222	/Server/Linux	Production	
Server (11)	ucs1-4-7.zenoss.loc	10.87.208.168	/Server/Microsoft/Windows	Production	
Storage (1)	ucs1-rs1-1.zenoss.loc	10.87.208.185	/Server/Linux	Production	
VvSphere (3)	ucsx-16GB.zenoss.loc	10.87.208.172	/Server/Linux	Production	
APPLICATION GROUPS (6)	ucsx-24G8.zenoss.loc	10.87.208.171	/Server/Linux	Production	
Production (2) Test (4)	ucsx-32GB.zenoss.loc	10.87.208.170	/Server/Linux	Production	
namic View					DISPLAYING 1 - 6 of 6 F

3 Enter a value for Name and a short description into the Description field, in this example:

Name = Website Description = A set of servers

Click **Submit** to save and exit the dialog to display the new application group. The right hand pane is empty because it has no defined members yet

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4 To add members to your new application group, navigate to **Infrastructure > Devices > Server (n)**. In this example, several servers display in the right hand **Device** pane.

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V Server (11)							
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APPLICATION GROUPS (6)		ucs1-linux1					
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		ucsx-32GB.zenoss.loc	10.87.208.170	/Server/Linux	Production		
		ucsx-Sab	10.87.208.173	/Server/Linux	Production		
amic View							DISPLAYING 1 - 11 of 11

Select your server(s) for the new application group. Drag and drop them onto the new application group, in this example, **Website** in the left pane. For this example 5 servers are selected for addition to the new **Website** application group.

5 When you drop the selected files onto the new application group (**Website**) in the left pane, the Move Devices dialog displays.

Image: Server (1)       Im	Q       Image: Conversion of the sector of the	Devices						Page
Octore:     Device +     P Address     Device Class     Production State     Events       OCtore:     Intervent (4)     Intervent (5)     Intervent (5)     Intervent (5)     Production       O Storage (1)     reducts-link     10.87.200.221     Intervent (1)     Production       O Storage (1)     reducts-link     10.87.200.222     Intervent (1)     Production       O Storage (1)     reducts-link     10.87.200.223     Intervent (1)     Production       O Address     10.87.200.123     Intervent (1)     Production       O Address     10.87.200.126     Intervent (1)     Intervent (1)       O Address     Intervent (1)     Intervent (1)     Intervent (1)     Intervent (1)       O Address     Intervent (1)     Intervent (1)	Outwork (2)       Device +       P Address       Device Class       Production State       Events         O ClocoUCS (4)       interacting       10.87.200.221       Server(1)       Interacting       Production         I Server (13)       extensibility       10.87.200.222       Server(1)       Interacting       Production         V Sphrer (3)       yet Lat_rectors los       10.87.200.223       Server(1)       V         V Sphrer (3)       yet Lat_rectors los       10.87.200.123       Server(1)       V         O'Abreu (2)       yet Lat_rectors los       10.87.200.123       Server(1)       V         V Sphrer (3)       yet Lat_rectors los       10.87.200.126       Server(1)       V         O'Abreu (2)       yet Lat_rectors los       10.87.200.126       Server(1)       V         O'Abreu (2)       yet Lat_rectors los       10.87.200.126       Server(1)       Production         O'Abreu (2)       yet Lat_rectors los       10.87.200.116       Server(1)       Production       V1         Velosite (0)       yet Lat_rectors los       10.87.200.126       Server(1)       Production       V1         Velosite (0)       yet Lat_rectors los       10.87.200.126       Server(1)       Production       V1         Velosit		Server					
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				04N05L	/Server/Linux	Production		

6 Click **OK** to add the devices to your new application group and close the dialog box. The new list of servers that exist within your new application group display in the right **Website - A set of Servers** pane.

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Network (4)	jenkins-tb2.zenoss.loc	10.87.208.222	/Server/Linux	Production		
VServer (11)	jenkins-tb3	10.87.208.223	/Server/Linux	Production	<b>V</b> 1	
Storage (1)	ucs1-4-7.zenoss.loc	10.87.208.168	/Server/Microsoft/Windows	Production		
VySphere (3)	ucs1-linux1	10.87.208.175	/Server/Linux	Production		
APPLICATION GROUPS (6)	ucs1-rs1-1.zenoss.loc	10.87.208.185	/Server/Linux	Production		
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Note that you can right-click on an application group name in the left pane to display a drop-down menu. This menu enables you to Refresh the tree or change how you view the information.

### How to Add an Application View to the Dashboard

The Cisco UCS Performance Manager UI enables you to add application view portlets to the dashboard to expand and enhance the UI capabilities.

Perform the following to create an application view for your dashboard:

1 From your **Dashboard** view, click **Add Portlet** at the top right.

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0 chassis-2		0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps	0.00 Bps	0.00 Bps	0.00 Bps	× 🛃 ucs1-vcenter	<b>O</b> 0		
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chassis-1blade-5		0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps	0.00 Bps	0.00 Bps	0.00 Bps				
chassis-1/blade-7		0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps	0.00 Bps	0.00 Bps	0.00 Bps				
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		Name						AB	ocated Free				
		aus-ucs11							0 18				
		ucs1							6 0 0 48				
		aus-ucs13 aus-ucs12							0 48				
		999-95912							v 20				

2 When the Add Portlet dialog box displays, click the down arrow to display the list of available portlets and select Watch List.

							c
						Domain:	aus-ucs11 👻
Util Rx	Avg Util Tx	Max Util Rx	Max Util Tx	Avg Headroom Rx	Avg Headroom Tx	Max Headroom Rx	Max Headroom Tx
0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps	0.00 Bps	0.00 Bps	0.00 Bps -
0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps	0.00 Bps	0.00 Bps	0.00 Bps =
0.00 %	0.00 %	0.00 %	0.00 %	0.00 Bps	0.00 Bps	0.00 Bps	0.00 Bps
0.00 %	0.00 %	0.00 %	0.00 %	0.00 844	0.00 800	0.00 Bps	0.00 Bps
0.00 %	0.00 %	0.00 %	0.00 %	Add Portle	rt	8 0.00 Bps	0.00 Bps
0.00 %	0.00 %	0.00 %	0.00 %	Portlet	100 000	0.00 Bps	0.00 Bps
0.00.97	0.00.9/	0.00.9/	0.00.97	Watch List	×	0.00 844	0.00 800
			24-hour Utilizal	ADD PORT	LET CLOSE	nts Svitch Events	s Chassis Events
					2.16 % 🛕 2	<b>A</b> 6	
					NaN %		
							c
	Currently	Monitoring 4	<b>UCS</b> Domai	ns			
	,						

3 Click Add Portlet to save and close the dialog box. Your new portlet displays in the dashboard.

		0	Objec	t Watch List				0
	Domain: aus	s-ucs11	Object	1	Events			
mTx	Max Headroom Rx	Max Headroom Tx	x 🖿	/Devices/Discovered	<b>O</b> 0			- 1
00 Bps	0.00 Bps	0.00 Bps		-				-
00 Bps	0.00 Bps	O LO BLA						
		0	Austin	UCS				 0
	Domain: aus	<b>0</b> 3-ucs11	Object		Events			0
×	000		Object		Events	<b>V</b> 19	<b>A</b> 92	٥
x I 3ps	000	s-ucs11 🗠	Object	ucs1	<b>0</b> 0		<b>▲</b> 92	0
	Max Headroom Rx Mi	s-ucs11 ~	Object X	1		V 19 V 1	<mark>▲</mark> 92	•
Bps	Max Headroom Rx Ma 0.00 Bps	s-ucs11 ax Headroom Tx 0.00 Bps ^	Object X X X	ucs1 ucs1-vcenter	<b>0</b> 0		▲ 92 ▲ 0 ▲ 0	
3ps 3ps	Max Headroom Rx Ma 0.00 Bps 0.00 Bps	s-ucs11 ax Headroom Tx 0.00 Bps 0.00 Bps	Object X	ucs1 ucs1-vcenter	<b>0</b> 0 <b>0</b> 0 <b>0</b> 0		▲ 0 ▲ 0	
Bps Bps Bps	Max Headroom Rx Mi 0.00 Bps 0.00 Bps 0.00 Bps	ax Headroom Tx 0.00 Bps 0.00 Bps 0.00 Bps	Object X X X	ucs1 ucs1-vcenter N9K-1	<b>()</b> 0		▲ 92 ▲ 0 ▲ 0	
Bps Bps Bps Bps	Max Headroom Rx Mx 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	S-UCS 11 ax Headroom Tx 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	Object X X X	ucs1 ucs1-vcenter N9K-1 FABa	© 0 0 0 0 2		▲ 0 ▲ 0	

4 Click the gear icon (top right) to edit the settings for your new portlet.

		Reset Portlets	Configure layout	Add portlet	Stop Refresh
Ł	Object Watch List				0
s	Title Application Refresh Rate 600	Remove Portlet Save Settings			1
s	Zenoss Objects /grou				
	/Groups /Groups/Production /Groups/Test /Groups/Website	<u>Events</u>			
ł					
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1	Austin UCS				0
	Object	Events			
	X 🛕 ucs1	<b>0</b> 0	<b>1</b> 9 🛕 9:	2	
1	v 🛺 west weater	 0.	V. A.		

Enter a **Title**, verify or specify a **Refresh Rate**, and add your application group to the **Zenoss Objects** field. For example:

Title = Application Refresh Time = 600 Zenoss Objects = /Groups/Website

5 Click Save Settings to save and exit the settings dialog. Your new portlet displays in the dashboard.

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							۹	👻 🙎 admin SKON OUT [
x UN Rx 0.00 % 0.00 %	Max Util Tx 0.00 % 0.00 %	Avg Headroom Rx 0.00 Bps 0.00 Bps	Avg Headroom Tx 0.00 Bps 0.00 Bps		s Neadroom Tx 0.00 Bps	Application Object X i /Groups/Website	Reset Portiels_ Configure is	PeperTpa
					•	Austin UCS		•
				Domain:		Austin UC S Doted	Events	0
			Avg Headroom Tx	Max Headroom Rx	aus-ucs11 minimized			0
00 %	0.00 %	0.00 Bps	0.00 Bps	Max Headroom Rx 0.00 Bps	aus-ucs11 Max Headroom Tx 0.00 Bps	Object X Aucs1	• 0 <b>V</b> 19	
10 % 10 %	0.00 %	0.00 Bps 0.00 Bps	0.00 Bps 0.00 Bps	Max Headroom Rx 0.00 Bps 0.00 Bps	aus-ucs11 Max Headroom Tx 0.00 Bps = 0.00 Bps =	Object		
10 % 10 %	0.00 % 0.00 % 0.00 %	0.00 Bps 0.00 Bps 0.00 Bps	0.00 Bps 0.00 Bps 0.00 Bps	Max Headroom Rx 0.00 Bps 0.00 Bps 0.00 Bps	aus-ucs11 Max Headroom Tx 0.00 Bps 0.00 Bps 0.00 Bps	Object X Aucs1	• 0 <b>V</b> 19	
10 % 10 % 10 %	0.00 % 0.00 % 0.00 %	0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	Max Headroom Rx 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	aus-ucs11 Max Headroom Tx 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	Object           X	● 0 ▼ 19 ● 0 ▼ 1 ● 0 ▼ 0	
00 % 00 % 00 % 00 %	0.00 % 0.00 % 0.00 % 0.00 %	0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	Max Headroom Rx 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	aus-ucs11 Max Headroom Tx 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	Object X A UCS1 X Ø UCS1-vcenter	• 0 <b>V</b> 19	
Rx 00 % 00 % 00 % 00 % 00 %	0.00 % 0.00 % 0.00 %	0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	Max Headroom Rx 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	aus-ucs11 Max Headroom Tx 0.00 Bps 0.00 Bps 0.00 Bps 0.00 Bps	Object           X	● 0 ▼ 19 ● 0 ▼ 1 ● 0 ▼ 0	

Note that you can rearrange the dashboard to suit your needs or taste.