

Cisco IP Telephony Statistics Report Pack

Software Version: 3.2

HP OpenView Performance Insight

User Guide

April 2007



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This guide's title page contains the following identifying information:

- Software Version number, which indicates the software version.
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- Research and register for software training

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http://support.openview.hp.com/new_access_levels.jsp

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1 Overview

This chapter covers the following topics:

- [OVPI and Cisco CallManager/Gateway Statistics](#)
- [Folders and Reports](#)
- [Integration with NNM](#)
- [Ways to Customize Reports](#)
- [Package Version History](#)
- [Sources for Additional Information](#)

OVPI and Cisco CallManager/Gateway Statistics

HP OpenView Performance Insight (OVPI) is a performance management and reporting application. Long-term data collection, in-depth analysis, and automated web-based reporting are this application's primary strengths. If desired, OVPI can be integrated with network management and system management applications, including NNM and OVO. Integration will enhance your ability to isolate faults, diagnose problems, and anticipate capacity problems.

The Cisco IP Telephony Statistics Report Pack installs on OVPI. The report pack's primary purpose is to automate reporting for Cisco CallManager and Cisco gateways. The reports in this package analyze call volume and resource usage by tracking the following metrics:

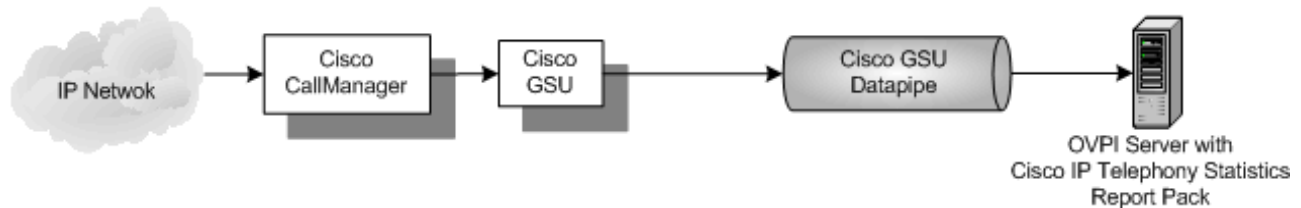
- CAS channel usage
- PRI channel usage
- FXO port usage
- FXS port usage
- Total call volume handled by an instance of a CallManager
- Time spent in different states by channels of a given gateway

Gateway Support

Cisco GSU (Gateway Statistics Utility) is a drop-in module for CiscoWorks IP Telephony Environment Monitor. Although Cisco GSU collects performance statistics for Media Gateway Control Protocol (MGCP) gateways and Cisco IOS (H323) gateways, the current version of Cisco IP Telephony Statistics supports MGCP gateways only.

Data Flow

Output from the Cisco GSU is reformatted by a preprocessor. The preprocessor is part of the Cisco GSU Datapipe. After the preprocessor reformats output from the Cisco GSU, the Cisco GSU Datapipe uses OVPI to import the results. The figure below shows a Cisco CallManager, a Cisco GSU, the Cisco GSU Datapipe, and an OVPI server running the Cisco IP Telephony Statistics Report Pack.



Folders and Reports

If the OPVI application clients are installed on your system, you can access the reports in Cisco IP Telephony Statistics by opening the Management Console and navigating the object model. If you are accessing reports on the web, you will see the following folders:

- CallManager Cluster
- CallManager
- Gateway
- Location (installed with the Gateway_Statistics_Location sub-package)

Each folder contains a mix of summary reports, top ten reports, and forecast reports. The following table provides a list of the reports in each folder.

| Folder | Reports |
|---------------------|---|
| CallManager | 1 CallManager CAS Channel Activity Summary |
| | 2 CallManager Call Activity Summary |
| | 3 CallManager Call Activity Top Ten |
| | 4 CallManager FXO Port Activity Summary |
| | 5 CallManager FXS Port Activity Summary |
| | 6 CallManager Forecast |
| | 7 CallManager PRI Channel Activity Summary |
| | 8 CallManager Port Utilization Top Ten |
| CallManager Cluster | 1 Cluster Busy Hour Utilization Correlation |
| | 2 Cluster CAS Channel Activity Summary |
| | 3 Cluster Call Activity Summary |
| | 4 Cluster Call Activity Top Ten |
| | 5 Cluster FXO Port Activity Summary |
| | 6 Cluster FXS Port Activity Summary |

| Folder | Reports |
|----------|--|
| | 7 Cluster Forecast 8 Cluster PRI Channel Activity Summary 9 Cluster Peak Utilization Correlation 10 Cluster Port Utilization Top Ten |
| Gateway | 1 DS0 Usage Summary 2 DS1 Usage Summary 3 Gateway CAS Channel Activity Summary 4 Gateway FXO Port Activity Summary 5 Gateway FXS Port Activity Summary 6 Gateway Forecast 7 Gateway PRI Channel Activity Summary |
| Location | 1 Channel Usage Summary by Location 2 DS1 Usage Correlation by Location 3 Gateway Forecast by Location 4 Gateway Summary by Location 5 Location Forecast 6 Location Summary 7 Location/Gateway Top Ten |

Top Ten reports perform a ranking function. They make it easy for you to locate heavily used CallManagers, CallManager Clusters, gateways, and locations based on yesterday's resource utilization levels.

Summary reports provide historical data for groups of devices organized by CallManager Cluster, CallManager, gateway, DS1 and other user-defined groups. Use these reports to find out whether recent high usage is a temporary event or a longer-term trend that may require corrective action.

Forecast reports show estimates for future utilization. These reports highlight items that are trending toward over-utilization or under-utilization. Use these reports to find out which CallManager Clusters, CallManagers, gateways, and locations will be over-utilized or under-utilized in the near future.

Integration with NNM

If NNM and OVPI are integrated, you should install the optional thresholds sub-package that comes with IP Telephony Statistics. The optional thresholds sub-package configures the Thresholds Module to detect threshold conditions and to respond to the threshold condition by taking an action. The default action is to send a breach trap to NNM. The breach trap received by NNM becomes an alarm in the NNM alarm browser, which the NNM operator can respond to by highlighting the alarm and launching a Near Real Time report.

If your NNM server is the correct destination for breach traps, configuring the Thresholds Module is not necessary. You do not need to define an action or specify a destination for breach traps. However, you are free to modify category, severity, and destination parameters at any time. For details about these options, refer to the *Thresholds Module User Guide*. For details about integrating NNM and OVPI, refer to the *NNM/OVPI Integration Module User Guide*.

Package Version History

The following table outlines recent changes to the Cisco IP Telephony Statistics Report Pack.

| Version | Release Date | Features/Enhancements |
|---------|--------------|---|
| 1.0 | May 2003 | 32 reports Cisco GSU Datapipe 1.0 |
| 2.0 | October 2003 | OVPI Object Manager support <i>new datapipe:</i> Cisco GSU Datapipe 2.0 <i>new change forms:</i> <ul style="list-style-type: none">• Configure a New CallManager Cluster• Assign CallManagers to Clusters• Configure Gateway Thresholds• Configure CallManager Thresholds• Configure Channel/Port Thresholds |
| 2.0 | April 2004 | OVPI 5.0 support |
| 3.0 | August 2004 | Oracle support <i>new datapipe:</i> Cisco GSU Datapipe 3.0 |
| 3.1 | June 2005 | <i>new upgrade packages:</i> <ul style="list-style-type: none">• UPGRADE_Cisco_IP_Telephony_Statistics_to_31• UPGRADE_Cisco_IPT_Statistics_Location_to_3 <i>new datapipe:</i> Cisco GSU Datapipe 3.1 |
| 3.2 | April 2007 | Location Independent Reporting (LIR) Copy Policies Report format updated Cisco GSU Datapipe 3.2 UPGRADE_Gateway_Statistics_to_32.ap UPGRADE_Cisco_IPT_Statistics_Location_to_31.ap <i>The following defects are fixed:</i> <ul style="list-style-type: none">• QXCR1000383978• QXCR1000388499 |

Ways to Customize Reports

You can change the contents of a report by applying group filters, by applying constraints, and by selecting a different view option for individual tables and graphs. For details about view options for tables and graphs, see [Appendix A, Editing Tables and Graphs](#).

Applying Group Filters

If you intend to share reports with external customers, you must configure OVPI to produce customer-specific reports. Creating customer-specific reports involves the following tasks:

- Importing customer names and device locations using Common Property Tables
- Creating a group account for all of the users affiliated with a particular customer
- Creating a group filter for the group account

For more information about using group filters, refer to the *OVPI Administration Guide*.

Applying Constraints

A constraint eliminates the data you are not interested in seeing. Apply a constraint is the same as editing a parameter. If you edit the Gateway parameter, data for all gateways except the gateway you typed in the Gateway field drops from the report. If you edit Gateway Location, data for all locations except the location you typed in the Gateway Location field drops from the report. You may apply multiple constraints at once. Cisco IP Telephony Statistics supports the following parameters:

- CallManager Cluster Name
- CallManager Name
- Gateway Name
- Gateway Location

If you are using the Web Access Server to view reports from a web browser, edit parameters by clicking the edit parameters icon at the bottom right-hand corner of the report. When the Edit Parameters window opens, enter the constraint in the field and click **Submit**.

If you are using Report Viewer, select **Edit → Parameter Values** from the menu bar. When the Modify Parameter Values window opens, click the **Current Value** field. Type a new value and click **OK**.

Sources for Additional Information

This user guide contains samples of most of the reports in the package. The demo package that comes with Cisco IP Telephony Statistics contains a sample of every report in the package. If you have access to the demo package, and you want to know what fully-populated reports look like, install the demo package. Like real reports, demo reports are interactive. Unlike real reports, demo reports are static.

For details about the latest enhancements and known problems, refer to:

Cisco IP Telephony Statistics Report Pack Release Notes

You may also be interested in the following documents:

- *Cisco IP Telephony Smart-Plug-in User Guide*
- *Common Property Tables User Guide*
- *IP Telephony Call Detail Report Pack User Guide*
- *OVPI Report Packs, Release Notes*

Manuals for the Cisco SPI and the reporting solutions that run on OVPI can be downloaded from this site:

http://ovweb.external.hp.com/lpe/doc_serv/

The user guides for report packs and datapipes are listed under **Performance Insight Reporting Solutions**; the user guide for the Cisco SPI is located under **Network Node Manager**.

The manuals listed under each product show a date, the month and year of publication. If a manual is revised and reposted, the date will change. Since we post revised manuals on a regular basis, you should check this site for updates before using any PDF that was shipped to you on the report pack CD-ROM.

2 The Upgrade Install

This chapter covers the following topics:

- [Guidelines for a Smooth Upgrade](#)
- [Upgrading to Version 3.2](#)
- [Package Removal](#)

Guidelines for a Smooth Upgrade

When you insert the report pack CD in the CD-ROM drive and launch the package extraction program, the install script extracts every package from the CD and copies the results to the Packages directory on your system. When the extract finishes, the install script prompts you to start Package Manager.

Upgrading IP Telephony Statistics is easy and straightforward:

- Install the upgrade for IP Telephony Statistics (the main package)
- Install the upgrade for the location sub-package
- Remove the old datapipe, Cisco GSU Datapipe 3.1
- Install the latest datapipe, Cisco GSU Datapipe 3.2

Before running Package Manager, review the following guidelines.

Prerequisites

Make sure the following software is already installed before upgrading:

- OVPI 5.2
- All service packs available for the version of OVPI (5.2) you are running
- Common Property Tables 3.6

Common Property Tables

If you are running an earlier version of Common Property Tables, upgrade your current version to version 3.6. Do this before upgrading the report pack. When you install the upgrade package, do not install anything else. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables.

Datapipes and Remote Pollers

Upgrading a report pack usually entails uninstalling one or more datapipes. When you uninstall an existing datapipe, the following information is lost:

- Single polling policy for a remote poller
- Cloned polling policies for multiple remote pollers
- Customized polling groups

To prevent this information from being lost, you can export existing polling policy configurations and customized polling groups by using the following commands:

- `collection_manager`
- `group_manager`

Exporting Polling Policy Configurations

If your environment contains polling policies for remote pollers, use the `collection_manager` command to export existing policy configurations to a file.

UNIX: As user `trendadm`, run the following command:

```
cd $DPIPE_HOME  
./bin/collection_manager -export -file /tmp/savePollingPolicy.lst
```

Windows: As Administrator, launch a command window. Navigate to the OVPI install directory and execute the following command:

```
bin\collection_manager -export -file \temp\savePollingPolicy.lst
```

Exporting Polling Group Configurations

If your environment contains customized polling groups, use the `group_manager` command to export groups to individual `.xml` files.

UNIX: As user `trendadm`, execute the following command:

```
cd $DPIPE_HOME  
./bin/group_manager -export_all -outfile /tmp/savePollingGroups
```

Windows: As Administrator, launch a command window, then navigate to the OVPI install directory and execute the following command:

```
bin\group_manager -export_all -outfile \temp\savePollingGroups
```

Custom Table Views

If you created custom views for data or property tables, the views you created may interfere with the report pack upgrade, causing the process to fail. Whether or not your custom views interfere with the upgrade process depends on how you created them. If you created them using SQL, the upgrade will succeed but your custom views will not be available once the upgrade is complete. If you created them using Datapipe Manager, the upgrade is likely to fail. To prevent the upgrade from failing, delete your custom views before upgrading the report pack. After the upgrade is complete, recreate these views.

Distributed Environments

If your system is distributed, every server must be running the same version of OVPI and all available Service Packs for that version of OVPI. Following is an overview of the upgrade install for a distributed environment:

- 1 Disable trendcopy on the central server.
- 2 At the central server, install these packages:
 - UPGRADE_Common_Property_Tables_to_36; deploy reports
 - UPGRADE_Gateway_Statistics_to_32; deploy reports
 - UPGRADE_Gateway_Statistics_Location_to_31; deploy reports
- 3 At each satellite server, install these packages:
 - UPGRADE_Common_Property_Tables_to_36; deploy reports
 - UPGRADE_Gateway_Statistics_to_32; deploy reports.
 - Remove Cisco GSU Datapipe 3.1.
 - Install Cisco GSU Datapipe 3.2.
- 4 Re-enable trendcopy on the central server.
- 5 Configure the central server and each satellite server. For details, see [Chapter 5, Setting Up a Distributed System](#).

Upgrading to Version 3.2

Perform the following tasks to upgrade:

- Task 1: Stop OVPI Timer and extract packages from the report pack CD
- Task 2: If necessary, upgrade Common Property Tables to version 3.6
- Task 3: Install the following package:
 - UPGRADE_Gateway_Statistics_to_32; deploy reports
 - UPGRADE_Gateway_Statistics_Location_to_31; deploy reports
- Task 4: Remove Cisco GSU Datapipe 3.1
- Task 5: Install Cisco GSU Datapipe 3.2
- Task 6: Restart OVPI Timer

Task 1: Stop OVPI Timer and extract packages from the report pack CD

- 1 Log in to the system. On UNIX systems, log in as root.
- 2 Stop OVPI Timer and wait for processes to terminate.

Windows: Select **Settings** → **Control Panel** → **Administrative Tools** → **Services**

UNIX: As root, type one of the following:

HP-UX: **sh /sbin/init.d/ovpi_timer stop**

Sun: **sh /etc/init.d/ovpi_timer stop**

- 3 Insert the report pack CD in the CD-ROM drive. On Windows, a Main Menu displays automatically; on UNIX, mount the CD, navigate to the top-level directory for the CD drive, and type the setup command.
- 4 Select OVPI report packs by typing **1** in the choice field and pressing Enter. The install script displays a percentage complete bar. When extraction finishes, the install script starts Package Manager. The Package Manager welcome window opens.

When the extract finishes, you have the option of navigating to the Packages directory on your system to see the results. These are the folders beneath the IP_Telephony folder:

- Docs
- Gateway_Statistics.ap
- Gateway_Statistics_Demo.ap
- Gateway_Statistics_Location.ap
- Gateway_Statistics_Thresholds.ap
- IPT_Admin.ap
- IPT_CallDetails.ap
- IPT_CallDetails_Demo.ap
- IPT_CallDetails_Location.ap
- IPT_CallDetails_Thresholds.ap
- NNM_Utils
- UPGRADE_Gateway_Statistics_to_32.ap
- UPGRADE_Gateway_Statistics_Location_to_31.ap
- UPGRADE_IPT_Admin_to_21.ap
- UPGRADE_IPT_CallDetails_to_3.ap
- UPGRADE_IPT_CallDetails_Location_to_21.ap

Under Cisco GSU Datapipe, you will see the following folder:

- CiscoGSU_Datapipe.ap

Task 2: [If necessary, upgrade to Common Property Tables 3.6](#)

If you are running an earlier version of Common Property Tables, upgrade to Common Property Tables 3.6. If you are not running any version of Common Property Tables, skip this task. If you are upgrading, observe these rules:

- Do not install any other package with the upgrade package; install the upgrade package for Common Property Tables upgrade package and *only* the upgrade package for Common Property Tables.
- When prompted to accept or disable the option to Deploy Reports, accept the default. If you disable the default, the forms that come with Common Property Tables will not be deployed.
- When the install finishes, click **Done** to return to the Management Console.

If you need help with the upgrade, refer to the *Common Property Tables User Guide*.

Task 3: Upgrade Cisco IP Telephony Statistics

- 1 Start Package Manager. The Package Manager welcome window opens.
- 2 Click **Next**. The Package Location window opens.
- 3 Click **Install**. Approve the default installation directory or select a different directory if necessary.
- 4 Click **Next**. The Report Deployment window opens; accept the default for Deploy Reports and enter your username and password for the OVPI Application Server.
- 5 Click **Next**. The Package Selection window opens.
- 6 Click the check box next to the following packages:
 - *UPGRADE_Gateway_Statistics_to_32*
 - *UPGRADE_Gateway_Statistics_Location_to_31*
- 7 Click **Next**. The Type Discovery window opens. Disable the default and click **Next**. The Selection Summary window opens.
- 8 Click **Install**. The Installation Progress window opens; when installation is complete, a package installation complete message appears.
- 9 Click **Done** to return to the Management Console.

Task 4: Remove the Cisco GSU Datapipe 3.1

- 1 Start Package Manager. The Package Manager welcome window opens.
- 2 Click **Next**. The Package Location window opens.
- 3 Click **Uninstall**.
- 4 Click **Next**. The Report Undeployment window opens.
- 5 Click **Next**. The Package Selection window opens.
- 6 Click the check box next to the following package:
 - *CiscoGSU_Datapipe 3.1*
- 7 Click **Next**. The Selection Summary window opens.
- 8 Click **Uninstall**. The Progress window opens. When the uninstall process is complete, a package removal complete message appears.
- 9 Click **Done**.

Task 5: Install the Cisco GSU Datapipe 3.2

- 1 Start Package Manager. The Welcome window opens.
- 2 Click **Next**. The Package Location window opens.
- 3 Click **Install**.
- 4 Click **Next**. The Report Deployment window opens. Disable the default for Deploy Reports and click **Next**. The Package Selection window opens.
- 5 Click the check box next to the following package:
 - *CiscoGSU_Datapipe 3.2*
- 6 Click **Next**. The Type Discovery window opens. Disable the default and click **Next**. The Selection Summary window opens.

7 Click **Install**. The Installation Progress window opens. When the installation finishes, a package installation complete message appears.

8 Click **Done**.

Restart OVPI Timer.

Windows:

Do the following:

- a From the Control Panel, select **Administrative Tools** → **Services**
- b Select OVPI Timer from the list of services.
- c From the Action menu, select **Start**.

UNIX:

As root, do one of the following:

- HP-UX: **sh /sbin/init.d/ovpi_timer start**
- Sun: **sh /etc/init.d/ovpi_timer start**

3 The New Install

This chapter covers the following topics:

- Guidelines for a smooth installation
- Prerequisites related to OVPI and Cisco
- Installing IP Telephony Statistics
- Accessing deployed reports; new objects in the object model
- Package removal

Guidelines for a Smooth Install

An OVPI reporting solution has at least two ingredients, a report pack and a datapipe. Some reporting solutions offer multiple datapipes. When you install a datapipe, you configure OVPI to collect a specific type of performance data at a specific interval. When you install a report pack, you configure OVPI to summarize and aggregate the data collected by the datapipe.

The report pack CD-ROM contains report packs, datapipes, and several shared packages. When you insert the report pack CD in the CD-ROM drive and launch the package extraction program, the install script extracts every package on the CD to the Packages directory on your system. When the extract finishes, the install script prompts you to start Package Manager. Review the following guidelines before using Package Manager.

Prerequisites

Cisco IP Telephony Statistics has the following prerequisites:

- OVPI 5.2
- All service packs available for the version of OVPI (5.2) you are running
- A functioning CallManager environment (Cisco CallManager 3.3 or 4.0)
- MGCP gateways
- Cisco GSU 1.0 or Cisco GSU 2.0

The Cisco IP Telephony Statistics Report Pack shares property data with the IP Telephony Call Detail Report Pack. Sharing property data eliminates duplication and simplifies administration. However, since these report packs operate independently, installing both packages is not necessary.

Upgrading Common Property Tables

If you are running an earlier version of Common Property Tables, upgrade to version 3.6. If you are not running any version of Common Property Tables, Package Manager will install the latest version of Common Property Tables for you, automatically.

Do not install the upgrade package for Common Property Tables *and* other packages at the same time. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables. For more information about installing and using Common Property Tables, refer to the *Common Property Tables User Guide*.

Distributed Environments

If you intend to run Cisco IP Telephony Statistics in a distributed environment, the installation procedure is more complicated. Here is an outline of the steps involved when installing Cisco IP Telephony Statistics in a distributed environment:

- 1 Verify that every server is running the same version of OVPI and all service packs available for that version.
- 2 Install Cisco IP Telephony Statistics on the central server:
 - a Disable trendcopy.
 - b If necessary, upgrade to Common Property Tables 3.6; deploy reports (forms).
 - c Install two packages:
 - Cisco IP Telephony Statistics 3.2; deploy reports
 - Cisco IPT Statistics Location 3.1; deploy reports
- 3 Install Cisco IP Telephony Statistics on each satellite server:
 - a If necessary, upgrade to Common Property Tables 3.6; deploy reports (forms)
 - b Install Cisco IP Telephony Statistics 3.2; deploy reports
 - c Install the Cisco GSU Datapipe 3.2.
- 4 Re-enable trendcopy on the central server.
- 5 Configure the central server and each satellite server. For details, see [Chapter 5, Setting Up a Distributed System](#).

Installing CiscoWorks

A functioning CallManager environment consists of CallManager systems and MGCP gateways.

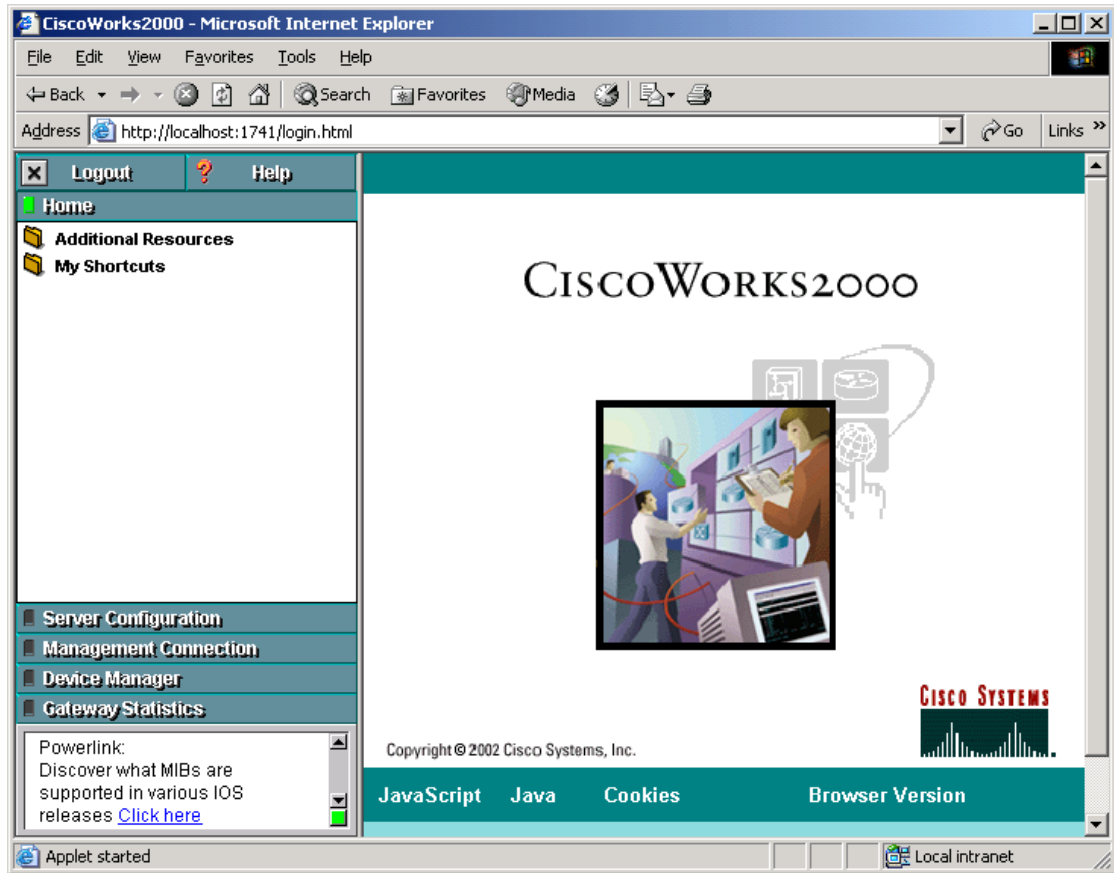
CiscoWorks is available on *Cisco CD One, Fifth Edition for Windows*. Please refer to documentation published by Cisco for more information about installing, configuring, and troubleshooting CiscoWorks.

Follow these steps to install CiscoWorks:

- 1 Download Cisco GSU from the following URL:
<http://www.cisco.com/cgi-bin/tablebuild.pl/cw-gtwystat-util>

You need a Cisco CCO login to download Cisco GSU. If you do not have a login, contact your local Cisco representative.

- 2 Download both the Cisco GSU readme and the executable installation file.
- 3 Read the readme.
- 4 Run the GSU installation file. The CiscoWorks menu window opens.



Configuring Cisco GSU

To configure Cisco GSU, perform the following tasks:

- Task 1: Create a data collection file.
- Task 2: Import the data collection file.
- Task 3: Schedule data collection.

Task 1: Creating a Data Collection File

Create a comma-separated data collection file. Your file will include a list of the gateways you want to monitor. Use the following syntax rules:

| Field | Description |
|---------------------|--|
| Device Name | Required. The device name or IP address for the CCM system. |
| Device Capabilities | Required. The only valid value is “CCM”. |

| Field | Description |
|------------------|---|
| Device Family | Optional. Describes the CCM platform. |
| Software Version | Required. The version number of the CCM software. Valid values are 3.1 and 3.2. |
| HTTP Server | Optional. The DNS name or IP address of the HTTP server in the CCM cluster. If this field is not specified, the address or the name of the CCM system is used. |

Here is an example of an entry in your data collection file:

```
CCMSys1, CCM, MCS, 3.1,
```

For more information, refer to online help.

Task 2: Importing the Data Collection File

Follow these steps to import the data collection file:

- 1 From the CiscoWorks menu, select **Gateway Statistics**.
- 2 From the Gateway Statistics menu, select **Device Management**.
- 3 From the Device Management menu, select **Device Import**. When you are prompted, enter the path and name of the data collection file you created.
- 4 Close the Device Import window.

Task 3: Scheduling Data Collection

Follow these steps to schedule data collection by defining study parameters:

- 1 From the CiscoWorks menu, select **Gateway Statistics**.

- 2 From the Gateway Statistics menu, select **Study Management**. The Define Study Parameters window opens.

Gateway Statistics - Define Study -- Web Page Dialog

Define Study Parameters

Name: FirstGatewayStudy

Description: First study of gateway data from IPT network

Devices:

Available Devices:

Selected Devices: openview-t836ng

Polling Interval: 3 minute(s)

Select an option: ☒ Once ☐ Repeat

Schedule:

Study Time

From: 17 FEB 2003 at 14 30 MST

To: 18 FEB 2003 at 14 30 MST

OK Cancel Help

- 3 Schedule data collection by accepting or modifying the defaults for polling interval and schedule.
- 4 Click **OK**.

Installing Cisco IP Telephony Statistics

This section covers the following tasks:

- Task 1: Stop OVPI Timer and extract packages from the report pack CD
- Task 2: Upgrade to Common Property Tables 3.6
- Task 3: Remove Thresholds Module
- Task 4: Install these packages:
 - Cisco IP Telephony Statistics 3.2
 - Cisco IPT Statistics Location 3.1
 - Cisco IP Telephony Statistics Thresholds (optional)
 - Cisco GSU Datapipe
- Task 5: Restart OVPI Timer

Task 1: Stop OVPI Timer and extract packages from the report pack CD

- 1 Log in to the system. On UNIX systems, log in as root.
- 2 Stop OVPI Timer and wait for processes to terminate.

Windows: Select **Settings** → **Control Panel** → **Administrative Tools** → **Services**

UNIX: As root, type one of the following:

HP-UX: **sh /sbin/init.d/ovpi_timer stop**

Sun: **sh /etc/init.d/ovpi_timer stop**

- 3 Insert the report pack CD in the CD-ROM drive. On Windows, a Main Menu displays automatically; on UNIX, mount the CD, navigate to the top-level directory for the CD drive, and type the setup command.
- 4 Select OVPI report packs by typing 1 in the choice field and pressing Enter. The install script displays a percentage complete bar. When extraction finishes, the install script starts Package Manager. The Package Manager welcome window opens.

Once the extract is done, you have the option of navigating to the Packages directory on your system to see the results. These are the folders beneath the IP_Telephony folder:

- Docs
- Gateway_Statistics.ap
- Gateway_Statistics_Demo.ap
- Gateway_Statistics_Location.ap
- Gateway_Statistics_Thresholds.ap
- IPT_Admin.ap
- IPT_CallDetails.ap
- IPT_CallDetails_Demo.ap
- IPT_CallDetails_Location.ap
- IPT_CallDetails_Thresholds.ap
- NNM_Utils

- UPGRADE_Gateway_Statistics_to_32.ap
- UPGRADE_Gateway_Statistics_Location_to_31.ap
- UPGRADE_IPT_Admin_to_21.ap
- UPGRADE_IPT_CallDetails_to_3.ap
- UPGRADE_IPT_CallDetails_Location_to_21.ap

Under Cisco GSU Datapipe, you will see the following folder:

- CiscoGSU_Datapipe.ap

You can ignore the upgrade packages. Installing the demo package is optional. You may install the demo package by itself, with no other packages, or you may install the demo package along with everything else.

Task 2: If necessary, upgrade to Common Property Tables 3.6

If you are running an earlier version of Common Property Tables, upgrade to Common Property Tables 3.6. Observe these rules:

- Do not install other package at the same time; install the Common Property Tables upgrade package and *only* the Common Property Tables upgrade package.
- Accept the Deploy Reports option. If you disable the default, the forms that come with Common Property Tables will not be deployed to the OVPI Application Server.
- When Package Manager indicates that the upgrade is complete, click **Done** to return to the Management Console.

If you need help with the upgrade, refer to the *Common Property Tables User Guide*.


Task 3: Upgrade the Thresholds Module

The latest version of the Thresholds Module is 5.1. If you are running an earlier version of the Thresholds Module, install the upgrade package by starting Package Manager and following the on-screen directions for package installation. When the upgrade is complete, click **Done** to return to the Management Console.

If the Thresholds Module is not installed, Package Manager automatically installs the newest version of the Thresholds Module when you install the thresholds sub-package that comes with Cisco IP Telephony Statistics.

Task 4: Install Cisco IP Telephony Statistics and the Cisco GSU Datapipe

- 1 Start Package Manager. The Package Manager welcome window opens.
- 2 Click **Next**. The Package Location window opens.
- 3 Click **Install**. Approve the default installation directory or use the browse feature to select a different directory if necessary.
- 4 Click **Next**. The Report Deployment window opens. Accept the default for Deploy Reports; accept the default for application server name and port. Type your username and password for the OVPI Application Server.
- 5 Click **Next**. The Package Selection window opens.

- 6 Click the check box next to the following package:
 - *Cisco IP Telephony Statistics* Cisco IP Telephony Statistics requires the IPT_Admin sub-package. Package Manager automatically installs the IPT_Admin sub-package for you.
 - *Cisco IPT Statistics Location*
 - *Cisco IP Telephony Statistics Thresholds*
 - *Cisco IP Telephony Statistics Demo* [optional]
 - *Cisco GSU Datapipe*
- 7 Click **Next**. The Type Discovery window opens. To run Type Discovery immediately after package installation, accept the default.

Type Discovery is not required for Cisco IP Telephony Statistics and CiscoGSU_Datapipe. If no other packages are to be installed at the same time, clear the Discover check box.
- 8 Click **Next**. The Selection Summary window opens.
- 9 Click **Install**. The Installation Progress window opens and the install process begins. When installation is complete, the following message appears: Report Package: Completed.
- 10 Click **Done**.
- 11 Restart OVPI Timer.

Windows: Do the following:

 - a From the Control Panel, select **Administrative Tools** → **Services**
 - b Select OVPI Timer from the list of services.
 - c From the Action menu, select **Start**.

UNIX: As root, do one of the following:

 - HP-UX: **sh /sbin/init.d/ovpi_timer start**
 - Sun: **sh /etc/init.d/ovpi_timer start**

Accessing Deployed Reports

When you installed this package, you enabled the Deploy Reports option. As a result, the reports (as well as any change forms that come with the reports) were deployed to the OVPI Application Server. Once reports reside on the OVPI Application Server, you can view reports using a web browser or one of the OVPI client applications.

If the client applications are installed on your system, you have access to Report Viewer, Report Builder, and the Management Console. If you don't have the client applications, using a web browser to view reports is the only way you can view reports.

For more information about the clients, refer to the *OVPI Installation Guide*. For details about the Management Console, including how to use the Object/Property Management view to launch reports specific to a selected object, refer to the *OVPI Administration Guide*.

New Objects for the Object Model

An object is any item that has performance data or property information associated with it. Devices, customers, and locations are objects categories that belong to OVPI's default object model. When you select an object in the object model, you refresh the right side of the Object/Property Management window. Under **General Tasks**, you will see a list of forms, under **Object Specific Tasks**, you will see a list of forms, and under **Object Specific Reports**, you will see a list of reports.

The object tree changes each time you install a new report pack. Installing the Cisco IP Telephony Statistics package adds the following object categories to the object model:

- Cluster
- CallManager
- Gateway
- DS1
- Port/Channel

Package Removal

Follow these steps to uninstall Cisco IP Telephony Statistics:

- 1 Log on to the system. On UNIX systems, log on as root.
- 2 Stop OVPI Timer and wait for processes to stop running.
Windows: Do the following:
 - a From the Control Panel, select **Administrative Tools** → **Services**
 - b Select OVPI Timer from the list of services.
 - c From the Action menu, select **Stop**.*UNIX:* As root, do one of the following:
 - HP-UX: **sh /sbin/init.d/ovpi_timer stop**
 - Sun: **sh /etc/init.d/ovpi_timer stop**
- 3 Start Package Manager. The Package Manager welcome window opens.
- 4 Click **Next**. The Package Location window opens.
- 5 Click **Uninstall**.
- 6 Click **Next**. The Report Undeployment window opens. Accept the default for Undeploy Reports; also accept the defaults for application server name and port. Type your username and password for the OVPI Application Server.
- 7 Click **Next**. The Package Selection window opens.

- 8 Click the check box next to the following packages:
 - *Cisco IP Telephony Statistics*
 - *Cisco IPT Statistics Location*
 - *IPT Admin*
 - *CiscoGSU_Datapipe*
 - *Cisco IP Telephony Statistics Thresholds* (if installed)
 - *Cisco IP Telephony Statistics Demo* (if installed)
- 9 Click **Next**. The Selection Summary window opens.
- 10 Click **Uninstall**. The Progress window opens. When the uninstall process is complete, a removal complete message appears.
- 11 Click **Done**.
- 12 Restart OVPI Timer.

Windows: Do the following:

- a From the Control Panel, select **Administrative Tools** → **Services**
- b Select OVPI Timer from the list of services.
- c From the Action menu, select **Start**.

UNIX: As root, do one of the following:

- HP-UX: **sh /sbin/init.d/ovpi_timer start**
- Sun: **sh /etc/init.d/ovpi_timer start**



Removing Cisco IP Telephony Statistics automatically removes the Cisco GSU Datapipe even if you did not select the datapipe for removal.

4 Package Configuration

This chapter covers the following topics:

- [Specifying the Source Data Directory](#)
- [CallManager Clusters](#)
- [Resource Thresholds and Change Forms](#)

Specifying the Source Data Directory

Before the Cisco GSU Datapipe can begin to collect data, it needs to know where the source data files are located. According to the default, the raw data files from Cisco Gateway Statistics Utility should be located on the server that is running the Cisco GSU Datapipe. If the raw data files are located on a remote server, the Cisco GSU Datapipe can be configured to use FTP to retrieve those files.

The default directory for the location of the raw data files is:

```
{DPIPE_HOME}/data/ImportData/CiscoGSU_Datapipe
```

The Cisco GSU Datapipe includes a preprocessor. The purpose of the preprocessor is to filter the raw data and put the raw data into a format that can be manipulated by the Cisco GSU Datapipe. The preprocessor (a perl script, `CiscoGSU_PP.pl`) produces the following output:

- `CManager.dat`
- `Gateway.dat`
- `Channel.dat`

The preprocessor stores these files in the source data directory. The Cisco GSU Datapipe reads the output from the preprocessor and imports the data into the OVPI database using the `CiscoGSU_Collection.pro` file and the following specialized configuration TEEL files:

- `CiscoGSU_Cmanager.teel`
- `CiscoGSU_gateway.teel`
- `CiscoGSU_channel.teel`

Before package installation, the TEEL files are located in:

```
{DPIPE_HOME}/packages/CiscoGSU_Datapipe/CiscoGSU_Datapipe.ap
```

After installation, the TEEL files are located in:

```
{DPIPE_HOME}/packages/CiscoGSU_Datapipe/CiscoGSU_Datapipe.ap
```

{DPIPE_HOME}/lib



If you make changes to TEEL files after installation, make the same changes in both directories.

Changing the Source Directory Path

If raw GSU data files are located on a remote system, you must modify a line in a file. Follow these steps:

1 Open the {DPIPE_HOME}/scripts/CiscoGSU_Collection.pro file

2 Locate this line:

```
{DPIPE_HOME}/bin/perl {DPIPE_HOME}/bin/CiscoGSU_PP.pl
```

3 Add this to the end of the line:

```
-f 1 -m <Remote_Host_Name> -u <Username> -p <Password> -r <Remote_directory>
```

If the data source directory is not the same as the default directory described in the preceding section, make the following changes:

1 Navigate to the appropriate directory (see the discussion above regarding which directories are involved).

2 Open the CiscoGSU_Collection.pro file.

3 Locate the following line:

```
{DPIPE_HOME}/bin/perl {DPIPE_HOME}/bin/CiscoGSU_PP.pl
```

4 Add this to the end of the line:

```
-l <new_directory_path>
```

5 Open the following files:

— CiscoGSU_Cmanager.teel

— CiscoGSU_gateway.teel

— CiscoGSU_channel.teel

6 Locate the line beginning with **Sourcefile =**

7 Change the path, replacing the existing path with the complete path name to the new directory; begin the new path name just after the equals sign (=). The source directory specified would normally be the directory created to receive the output from the Cisco Gateway Statistics Utility.



Leave the filename as specified in the original SourceFile.

Changing Source Disposition

TEEL files are also used to specify what to do with a data file once the data has been imported. The default behavior for the Cisco GSU Datapipe is to delete the preprocessed files. Because raw data files are archived, there is no need to archive data output by the preprocessor.

CallManager Clusters

Although the Cisco IP Telephony Statistics package operates without importing custom property information, none of the cluster nor location-oriented reports provide meaningful data (for example, all CallManagers would be combined into one group called “Location Unassigned”).

The Cisco IP Telephony Statistics Report Pack allows the user to place the devices (CallManagers and gateways) into logical groups:

- Groups of CallManagers (based on cluster or other criteria)
- Groups of gateways (based on geographic location or user-defined criteria)

The grouping of these objects is enabled by creating a cluster name and assigning CallManagers or gateways to the cluster. For example, if the CallManagers *s1ccm1* and *s1ccm2* are assigned to a cluster named *cluster1* and similarly if the CallManagers *s2ccm1* and *s2ccm2* are assigned a cluster named *cluster2*, the report pack aggregates the data belonging to these four CallManagers into two groups (*cluster1* and *cluster2*).

To get cluster information into reports, configure a CallManager cluster. You see clusters in reports immediately after OVPI processes your updated import file.

Configuring a CallManager Cluster

To configure a CallManager cluster, do the following:

- 1 Create a cluster name:
 - a Launch the Management Console.
 - b Click **Objects**. The Object/Property Management window opens.

- c Select **File** → **New** → **Create a new CallManager Cluster**. The Configure A New CallManager Cluster form opens.

The screenshot shows a web browser window with the address bar displaying `/admin/Cisco_IPT_Admin_Forms/CreateCluster.frep`. The page title is "Cisco IP Telephony" and the subtitle is "Configure A New CallManager Cluster". In the top right corner, there is an HP logo with the word "invent" underneath it. Below the title, a paragraph of text reads: "This form allows a new CallManager Cluster to be created. Enter the name of the new cluster; the description is optional. Click the OK button to create the cluster and close the window. Click the Apply button to create the cluster and leave the window open to create additional clusters. Click the Cancel button to cancel." Below this text is a section titled "Currently Configured Clusters" which contains a table with two columns: "Cluster Name" and "Description". The table has two rows: "default" and "Cluster1", with "Cluster1" having a description of "Cluster1". Below the table is a section titled "Add a New Cluster" which contains two input fields: "Cluster Name" (with the text "default" entered) and "Description" (which is empty). At the bottom right of the form, there are three buttons: "OK", "Apply", and "Cancel".

| Cluster Name | Description |
|--------------|-------------|
| default | |
| Cluster1 | Cluster1 |

| | |
|--------------|---------|
| Cluster Name | default |
| Description | |

- d Enter a name for the cluster and a brief description.
 - e Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.
- 2 Assign CallManagers or gateways to the cluster:
- a From the Object/Property Management window, select **View** → **Change View** → **Location**.
 - b Select a location.
 - c Highlight the Location Unassigned folder.

- d Double-click **Assign CallManagers to Clusters** under **Object Specific Tasks**. The form opens.

Cisco IP Telephony

Assign CallManagers to Clusters

This form allows to assign a CallManager to a cluster. Select a CallManager from the CallManager selection list and then choose the cluster from the drop down list below. Click the OK button to update the cluster information and close the window. Click the Apply button to update the cluster assignment and leave the window open to assign other CallManagers to clusters. Click the Cancel button to cancel.

| CallManager Name | Cluster Name |
|------------------|--------------|
| Cluster1_CCM1 | Cluster1 |

Cluster Name: default

OK Apply Cancel

- e Highlight a CallManager name in the CallManager List and select the cluster name to which it is assigned.
- f Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Resource Thresholds and Change Forms

Cisco_IP_Telephony_Statistics_Thresholds, the optional thresholds sub-package that comes with IP Telephony Statistics, imposes thresholds for resource utilization monitoring. When performance reaches one of these default thresholds, OVPI sends a trap to the Network Node Manager (NNM). The following table describes the condition behind each threshold and the severity of the alarm.

| Threshold | Default | Condition | Severity |
|---------------------|---------|---|----------|
| PRIOverUtilization | 95% | 95% of PRI channels or more were occupied for each monitored device (CallManager or Gateway) during the previous day. | Warning |
| PRIUnderUtilization | 5% | 5% of PRI channels or less were occupied for each monitored device (CallManager or Gateway) during the previous day. | Warning |
| CASOverUtilization | 95% | 95% of CAS channels or more were occupied for each monitored device (CallManager or Gateway) during the previous day. | Warning |
| CASUnderUtilization | 5% | 5% of CAS channels or less were occupied for each monitored device (CallManager or Gateway) during the previous day. | Warning |
| FXOverUtilization | 95% | 95% of FXO ports or more were occupied for each monitored device (CallManager or Gateway) during the previous day. | Warning |
| FXUnderUtilization | 5% | 5% of FXO ports or less were occupied for each monitored device (CallManager or Gateway) during the previous day. | Warning |
| FXSOverUtilization | 95% | 95% of FXS ports or more were occupied for each monitored device (CallManager or Gateway) during the previous day. | Warning |
| FXSUnderUtilization | 5% | 5% of FXS ports or less were occupied for each monitored device (CallManager or Gateway) during the previous day. | Warning |
| DeadChan | N/A | A channel was in OutofService status all the time during the previous day. | Warning |

Modifying Gateway and CallManager Thresholds

Threshold values can be modified, using forms, for a gateway or CallManager. To modify a threshold value, do the following:

- 1 Launch the Management Console.

- 2 Click **Objects**. The Object/Property Management window opens.
- 3 Select **View → Change View → Cluster**.
- 4 Select a gateway or cluster.
- 5 Under **Object Specific Tasks**, double-click **Configure Gateway Thresholds** or **Configure CallManager Thresholds**. The form opens. Both forms are similar and the Configure Gateway Thresholds form is shown below.

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Configure Gateway Thresholds

This form allows to configure the threshold values for the gateways. Enter/modify the threshold values. Click the OK button to save the values and close the window. Click the Apply button to update the values in the database and leave the window open for further modifications. Click the Cancel button to cancel.

| | |
|------------------------------|------------------------------------|
| PRI Channel Max. Util | <input type="text" value="95.00"/> |
| PRI Channel Min. Util | <input type="text" value="5.00"/> |
| CAS Channel Max. Util | <input type="text" value="95.00"/> |
| CAS Channel Min. Util | <input type="text" value="5.00"/> |
| FXO Port Max. Util | <input type="text" value="95.00"/> |
| FXO Port Min. Util | <input type="text" value="5.00"/> |
| FXS Port Max. Util | <input type="text" value="95.00"/> |
| FXS Port Min. Util | <input type="text" value="5.00"/> |

OK Apply Cancel

- 6 Modify the threshold.
- 7 Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

Modifying Channel/Port Thresholds

The channel/port threshold value (DeadChan) can be modified:

- 1 Start Report Builder.

On a Windows system, select **Programs → HP OpenView → Performance Insight → Builder**.

On a UNIX system, cd to `$OVPI_HOME/bin` and type `./builder`.

2 From Report Builder, select **File** → **Open**.

3 Open the following file:

```
%OVPI_HOME%\forms\deploy\admin\Cisco_IPT_Admin_Forms\  
Cisco_IPT_Statistics_Forms\ChannelPortThreshConfig.frep
```

The Configure Channel/Port Thresholds form opens.

The screenshot shows a Windows-style window titled "C:\OVPI\forms\deploy\admin\Cisco_IPT_Admin_Forms\Cisco_IPT_Statistics_Forms\ChannelPortThreshConfig.fr...". The form has a title bar with standard window controls. The main content area has a header "Cisco IP Telephony" and "Configure Channel/Port Thresholds" with the HP logo and "invent" text. Below the header is a paragraph of instructions: "This form allows to configure the threshold values for the Channels/Ports for all IP Telephony devices. Enter/modify the threshold values. Click the OK button to save the values and close the window. Click the Apply button to update the values in the database and leave the window open for further modifications. Click the Cancel button to cancel." The form contains two input fields: "Channel/Port" with a dropdown menu showing "s1c1gw3trk0_1" and "Max. Out of Service Channels:" with a text input field showing "1.00". At the bottom right are three buttons: "OK", "Apply", and "Cancel".

4 Modify the threshold.

5 Click **Apply** to save changes, **OK** to save changes and close the form, or **Cancel** to close the form without saving changes.

5 Setting Up a Distributed System

If you intend to run Cisco IP Telephony Statistics as a distributed system across multiple servers, and you followed the installation guidelines in the installation chapter, your central server is running the report pack and each of your satellite servers is running the report pack and the Cisco GSU Datapipe. You are now ready to perform these tasks:

- Configure the central server
- Configure each satellite server
- Verify that all system clocks are synchronized

Configuring the Central Serve

To configure the central server, perform the following tasks:

- Task 1: Register the satellite server by setting the database role
- Task 2: Enable LIR
- Task 3: Add LIR mappings
- Task 4: Verify the automatically generated copy policies

Task 1: Register the satellite server by setting the database role

- 1 Start the Management Console (log on with Administrator privileges).
- 2 Click the **Systems** icon in the navigation pane.
- 3 Navigate to the OVPI Databases folder and select the database system.
- 4 Click **Database Properties**.
- 5 From the Database Role list, select the Satellite Server role.
- 6 Enter any information necessary to configure the Satellite Server role.



To add a new database reference, you can use the Add Database Reference Wizard in the System and Network Administration application.

Task 2: Enable LIR

- 1 Start the Management Console (log on with Administrator privileges).
- 2 Click the **Systems** icon in the navigation pane.
- 3 Navigate to the OVPI Databases folder and select the central server.
- 4 Click **LIR Configuration**.
- 5 Select the **LIR enabled** check box.

Task 3: Add LIR mappings

- 1 Start the Management Console (log on with Administrator privileges).
- 2 Click the **Systems** icon in the navigation pane.
- 3 Navigate to the OVPI Databases folder and select the central server.
- 4 Click **LIR Configuration**.
- 5 Click **Add Mapping**.
- 6 From the Select Satellite Server list, select a satellite server to which to add a mapping.
- 7 Select the **Category** data table option.
- 8 Select **Cisco_IP_Telephony_Statistics** from the drop down list.
- 9 Select the **rate** data type.
- 10 Click **Add to List**.
- 11 If you want to add additional LIR mappings, click **Add to list** and repeat [step 6](#) through [step 10](#).
- 12 Click **OK**.
- 13 Click **Apply**.

A copy policy is automatically generated for the hourly data and for each LIR mapping that you add. The data type selected when adding an LIR mapping (in [step 9](#) above) determines the type of data copied that is defined in the generated copy policy (the type of data copied that is defined in the generated copy policy is for one greater than the data type selected in the LIR mapping). For example, if you select an hourly data type, a daily data copy policy is generated.

Task 4: Verify the automatically generated copy policies

Verify that a copy policy has been generated for the following tables and that the copy type is set correctly (to Property and Data):

- 1 Start the Management Console (log on with Administrator privileges).
- 2 Click the **Copy Policy** icon in the navigation pane to start the Copy Policy Manager.
- 3 Find the following tables and verify the copy type is set to Property and Data for each table:
 - SHGTW_Cmanager
 - SHGTW_gateway
 - SHGTW_gatechan

If a copy policy has not been generated for a table, do the following:

- 1 Click the **New Copy Policy** icon or select **File → New Copy Policy** from the Copy Policy Manager. The Copy Policy Wizard displays.
- 2 Click **Next**. The Satellite Server and Copy Policy Selection Page displays.
- 3 Select a satellite server from the pull down list. This is the satellite server from which data is copied to the central server.
- 4 Select **Single Table** and select the table from the pull down list.
- 5 Click **Next**. The Copy Type Selection Page displays.
- 6 Select **Property and Data**.

- 7 Click **Next**. The Summary page displays.
- 8 Verify the information in the summary window. If the information is not correct, you can modify it by clicking Back.
- 9 Click **Finish**.
- 10 Repeat [step 4](#) - [step 9](#) for all missing tables.

If the copy type is not set to Property and Data, do the following:

- 1 Double-click the copy policy.
- 2 Select the **Property and Data** copy type.
- 3 Click **OK**.

Configuring a Satellite Server

Modify the `DPIPE_HOME}/scripts/Cisco_IP_Telephony_Statistics_Daily.pro` file (where `{DPIPE_HOME}` is the directory in which OVPI is installed):

- Uncomment the block0 section, including the begin and end lines.
- Comment out the begin and end lines of block1 - block5.

System Clocks

Make sure that the system clock on each satellite server is synchronized with the system clock on the central server.

6 Top Ten Reports

Top Ten reports allow you to rank CallManagers, CallManager clusters, Gateways, and locations. The key metrics are *baseline average* and the *rate of increase*. The baseline average is calculated by averaging all the busy hours reported over the baseline period. The rate of increase is calculated by dividing the 30-day forecast value by the baseline average.

There are five Top Ten reports:

- 2 CallManager reports (one for active calls, one for port utilization)
- 2 cluster reports (one for call activity, one for port utilization)
- 1 location/gateway report

The CallManager reports provide statistics for individual CallManagers. The cluster reports aggregate statistics for multiple CallManagers. The location report aggregates statistics for groups of devices at each location. All reports contain two tables, one for utilization and one for rate of increase. The utilization table on the left looks at data for yesterday, while the rate of increase table on the right looks at baseline data, which includes data for yesterday. Top Ten reports refresh once daily.

The following table describes what each report is ranking.

| Report | Ranking |
|------------------------------|---|
| CallManager Active Calls | <ul style="list-style-type: none">• Highest average active calls• Rate of increase in active calls |
| CallManager Port Utilization | <ul style="list-style-type: none">• Highest port utilization rate• Highest rate of increase in port utilization |
| Cluster Call Activity | <ul style="list-style-type: none">• Highest average active calls• Rate of increase in active calls |
| Cluster Port Utilization | <ul style="list-style-type: none">• Highest port utilization rate• Highest rate of increase in port utilization |
| Location/Gateway | <ul style="list-style-type: none">• Highest percentage of active ports by location• Rate of increase in port utilization by location• Highest percentage of port utilization by gateway• Highest rate of increase in port utilization by gateway |

Cisco IP Telephony Statistics

Call Manager Active Calls Top Ten



The Call Manager Active Calls Top Ten Report provides lists of Call Managers which had the most active calls during the previous day. Call Managers are also listed by the projected increase rate.

Most Active Calls

Mon Apr 21 12:00 AM

| | Call Manager | Average Active Calls |
|---|--------------|----------------------|
| 1 | s2ccm2 | 28 |
| 2 | s1ccm2 | 12 |
| 3 | s1ccm1 | 12 |
| 4 | s2ccm1 | 12 |

Active Calls Increase

Mon Apr 21 12:00 AM

| | Call Manager | Baseline | + 30 / 60 / 90 Days |
|---|--------------|----------|---------------------|
| 1 | s2ccm1 | 12 | 12 / 12 / 12 |
| 2 | s1ccm1 | 12 | 12 / 12 / 12 |
| 3 | s1ccm2 | 12 | 12 / 12 / 12 |
| 4 | s2ccm2 | 27 | 27 / 27 / 26 |

Cisco IP Telephony Statistics

Call Manager Port Utilization Top Ten



The Call Manager Port Utilization Top Ten Report provides lists of Call Managers which had the highest port utilization percentage during the previous day. Call Managers are also listed by the projected increase rate.

Highest Port Utilization

Tue, Oct 26 12:00 AM



| | Call Manager | Total Active Ports Rate (%) | Total Ports |
|---|--------------|-----------------------------|-------------|
| 1 | s1ccm2 | 59.0 | 283 |
| 2 | s1ccm1 | 55.5 | 283 |

Utilization Increase

Tue, Oct 26 12:00 AM



| | Call Manager | Baseline (%) | + 30/ 60/ 90 Days |
|---|--------------|--------------|--------------------|
| 1 | s1ccm1 | 56.6 | 57.5 / 58.1 / 58.6 |
| 2 | s1ccm2 | 57.0 | 56.6 / 56.4 / 56.2 |

Cisco IP Telephony Statistics

Cluster Call Activity Top Ten



The Cluster Call Activity Top Ten Report provides lists of CallManager clusters which had the most active calls during the previous day. CallManager clusters are also listed by the projected increase rate.

Most Active Calls



Wed, Oct 20 12:00 AM

| | CallManager Cluster | Average Active Calls |
|---|---------------------|----------------------|
| 1 | default | 241 |

Active Calls Increase



Wed, Oct 20 12:00 AM

| | CallManager Cluster | Baseline | + 30/60/90 Days |
|---|---------------------|----------|-----------------|
| 1 | default | 244 | 243 / 243 / 242 |

Cisco IP Telephony Statistics

Cluster Port Utilization Top Ten



The Cluster Port Utilization Top Ten Report provides lists of CallManager clusters which had the highest port utilization rate during the previous day. CallManager clusters are also listed by the projected increase rate.

Highest Port Utilization



Wed, Oct 20 12:00 AM

| | CallManager Cluster | Total Active Ports Rate (%) | Total Ports |
|---|---------------------|-----------------------------|-------------|
| 1 | default | 54.1 | 566 |

Utilization Increase



Wed, Oct 20 12:00 AM

| | CallManager Cluster | Baseline (%) | + 30/60/90 Days |
|---|---------------------|--------------|--------------------|
| 1 | default | 55.1 | 54.8 / 54.6 / 54.5 |

Cisco IP Telephony Statistics



Location/Gateway Top Ten

The Location/Gateway Top Ten Report provides a list Locations or Gateways which had the highest port utilization rate during the previous day. Locations or Gateways are also listed by the projected increase rate of utilization.

Highest Port Utilization Locations



Wed, Oct 20 12:00 AM

| | Location | Total Active Ports Rate (%) | Total Ports |
|---|-----------|-----------------------------|-------------|
| 1 | Reston | 56.2 | 130 |
| 2 | Cupertino | 56.1 | 153 |

Utilization Increase by Location



Wed, Oct 20 12:00 AM

| | Location | Baseline (%) | + 30/60/90 Days |
|---|-----------|--------------|--------------------|
| 1 | Cupertino | 56.1 | 56.1 / 56.1 / 56.1 |
| 2 | Reston | 56.5 | 56.4 / 56.4 / 56.3 |

Highest Port Utilization Gateways



Wed, Oct 20 12:00 AM

| | Gateway | Location | Total Active Ports Rate (%) | Total Ports |
|---|-------------|-----------|-----------------------------|-------------|
| 1 | s1c1c4k-3 | Cupertino | 58.5 | 56 |
| 2 | s1c1cat4k-1 | Cupertino | 58.5 | 41 |
| 3 | s1c2c4k-2 | Reston | 57.6 | 70 |
| 4 | s1c23600-2 | Reston | 56.9 | 26 |
| 5 | s1c1c4k-4 | Cupertino | 56.6 | 56 |
| 6 | s1c2c4k-1 | Reston | 54.3 | 34 |

Utilization Increase by Gateway



Wed, Oct 20 12:00 AM

| | Gateway | Location | Baseline (%) | + 30/60/90 Days |
|---|-------------|-----------|--------------|--------------------|
| 1 | s1c1c4k-3 | Cupertino | 58.2 | 58.3 / 58.3 / 58.4 |
| 2 | s1c1c4k-4 | Cupertino | 57.8 | 57.5 / 57.3 / 57. |
| 3 | s1c1cat4k-1 | Cupertino | 57.7 | 57.9 / 58. / 58.2 |
| 4 | s1c23600-2 | Reston | 56.8 | 56.8 / 56.8 / 56.9 |
| 5 | s1c2c4k-1 | Reston | 56.2 | 55.7 / 55.3 / 55. |
| 6 | s1c2c4k-2 | Reston | 59.8 | 59.2 / 58.8 / 58.4 |

7 Summary Reports

Summary reports add depth to Top Ten Reports. They aggregate data for a particular element type and plot metrics on an hourly, daily, and monthly basis. Hourly graphs show anomalies and time-of-day usage patterns; daily and monthly graphs reveal trends derived from hourly data. Use summary reports to find out whether the performance you see in a Top Ten report reflects a temporary condition or an on-going trend.

CallManager Cluster Selection Table. Sorts clusters by busy hour call activity, from highest to lowest. This table reports events for yesterday. Selecting a cluster updates the PRI Channel Activity graph to reflect activity for the selected cluster.

PRI Channel Activity Graph. If the average or busy hour levels for PRI channel activity in the hourly graph seem unusual, compare the hourly graph to the daily graph. The daily graph gives you a feel for what was normal for the last few weeks. If the hourly graph diverges significantly from the daily graph, yesterday's levels were not typical. The daily tab includes busy hour. If conditions are normal, busy hour and average utilization will not converge.

CallManager Cluster Selection Table. Sorts clusters by busy hour calls, from highest to lowest. Use this table to see which clusters require further investigation and which type or types of metrics need more attention. This table reports events for yesterday. Select a cluster to view call activity by CallManager in the CallManager Selection table.

CallManager Selection Table. Sorts CallManagers by call activity for the selected cluster, from highest to lowest. This table reports events for yesterday.

Gateway Selection Table and DS1 Selection Table. Displays data aggregated at various levels in the hierarchy. Similar to the CallManager Cluster and CallManager selection tables. The DS1 selection table is the lowest level in the hierarchy. Selecting a DS1 updates the Channel States graph with metrics for that DS1.

Channel States Graph. Displays the percentage of time spent in various states by the channels that belong to the selected DS1. Displays data at hourly, daily and monthly levels; if the hourly graph diverges significantly from the daily graph, yesterday was not typical.

See below for samples of the following reports:

- CallManager Call Activity Summary
- Cluster PRI Channel Activity Summary
- Gateway Summary by Location
- DS0 Usage Summary
- DS1 Usage Summary

CallManager Call Activity Summary



The CallManager Call Activity Summary Report presents call activity metrics aggregated over all gateways for a given CallManager. This report can be used to view call distribution patterns across the CallManager installations.

CallManager Cluster Selection Table

Wed, Oct 20, 2004

| CallManager Cluster Name | Busy Hour Calls | Total PRI Channels | Busy Hour Active PRI | Total CAS Channels | Busy Hour Active CAS | Total FXO Ports | Busy Hour Active FXO | Total FXS Ports | Busy Hour Active FXS |
|--------------------------------|-----------------------|-----------------------|----------------------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| default | 241 | 330 | 177 | 144 | 79 | 8 | 4 | 84 | 46 |

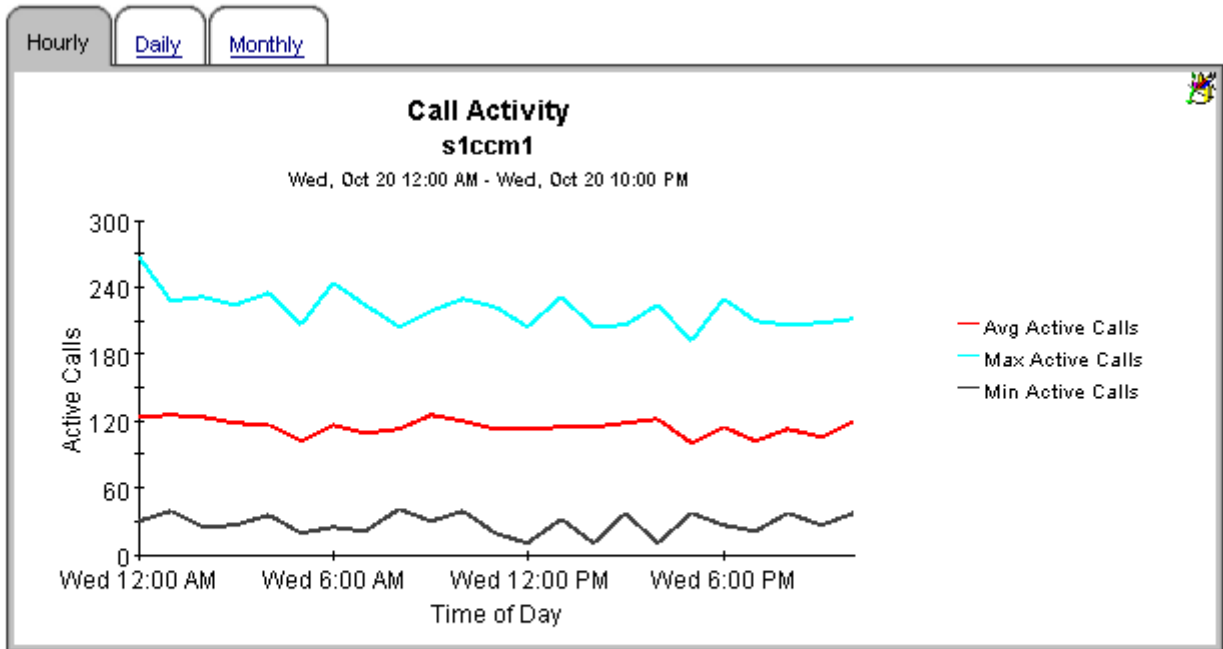
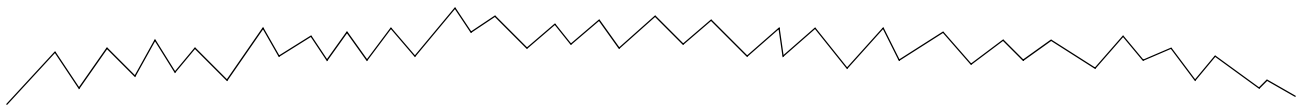
CallManager Selection Table

default

Wed, Oct 20, 2004

| CallManager Name | Busy Hour Calls | Total PRI Channels | Busy Hour Active PRI | Total CAS Channels | Busy Hour Active CAS | Total FXO Ports | Busy Hour Active FXO | Total FXS Ports | Busy Hour Active FXS |
|------------------|-----------------|--------------------|----------------------|--------------------|----------------------|-----------------|----------------------|-----------------|----------------------|
| s1ccm1 | 126 | 165 | 96 | 72 | 43 | 4 | 2 | 42 | 24 |
| s1ccm2 | 123 | 165 | 93 | 72 | 39 | 4 | 2 | 42 | 24 |





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Cisco IP Telephony Statistics

Cluster PRI Channel Activity Summary



The Cluster PRI Channel Activity Summary Report presents PRI Channel Activity metrics aggregated for all CallManager(s) for a given cluster. This report can be used to view historical trunk utilization metrics and to identify call distribution patterns across the CallManager clusters.

CallManager Cluster Selection Table

Mon Apr 21 2003

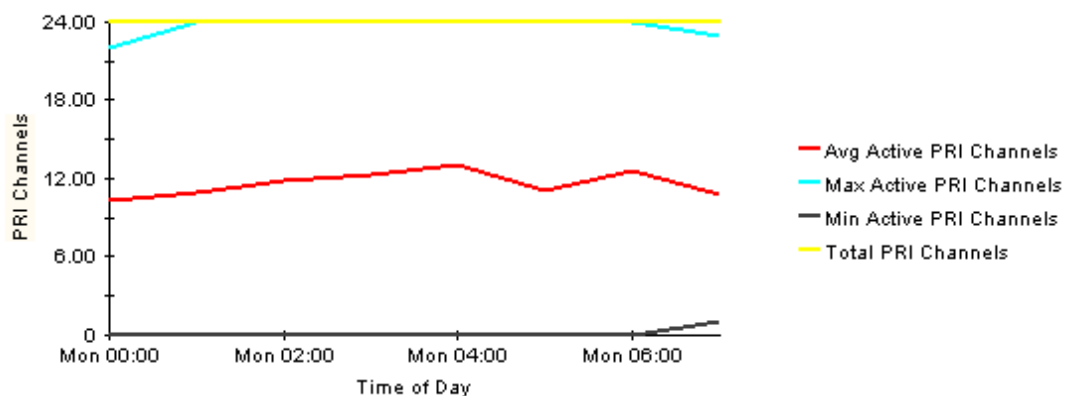
| CallManager Cluster Name | Busy Hour Calls | Total PRI Channels | Busy Hour Active PRI | Total CAS Channels | Busy Hour Active CAS | Total FXO Ports | Busy Hour Active FXO | Total FXS Ports | Busy Hour Active FXS |
|-----------------------------|--------------------|-----------------------|-------------------------|-----------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|
| West Coast Cluster1 | 24 | 0 | 0 | 0 | 0 | 12 | 7 | 36 | 21 |
| East Coast Cluster1 | 38 | 24 | 14 | 24 | 14 | 6 | 4 | 36 | 19 |

Hourly | Daily | Monthly

PRI Channel Activity

East Coast Cluster1

Mon Apr 21 12:00 AM - Mon Apr 21 07:00 AM



Cisco IP Telephony Statistics

Gateway Summary By Location



The Gateway Summary By Location Report presents gateway Statistics metrics aggregated over all ports/channels at a given location. This report can be used to drill down to individual gateways at a location in order to view historical port Statistics metrics for the selected gateway.

Location Selection Table



Wed, Oct 20, 2004

| Location Name | Total PRI Channels | Busy Hour Active PRI | Total CAS Channels | Busy Hour Active CAS | Total FXO Ports | Busy Hour Active FXO | Total FXS Ports | Busy Hour Active FXS |
|---------------|--------------------|----------------------|--------------------|----------------------|-----------------|----------------------|-----------------|----------------------|
| All Locations | 165 | 90 | 72 | 38 | 4 | 2 | 42 | 22 |
| Cupertino | 79 | 45 | 48 | 27 | 2 | 1 | 24 | 13 |
| Reston | 86 | 48 | 24 | 14 | 2 | 1 | 18 | 10 |



Gateway Selection Table

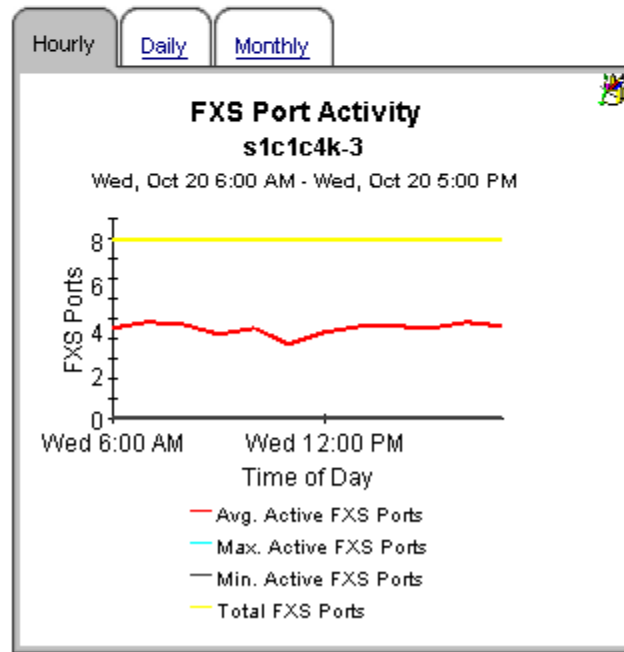
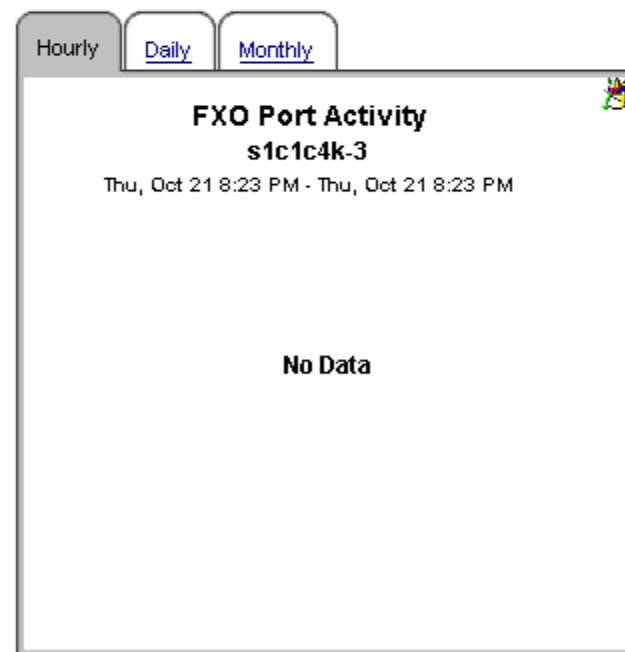
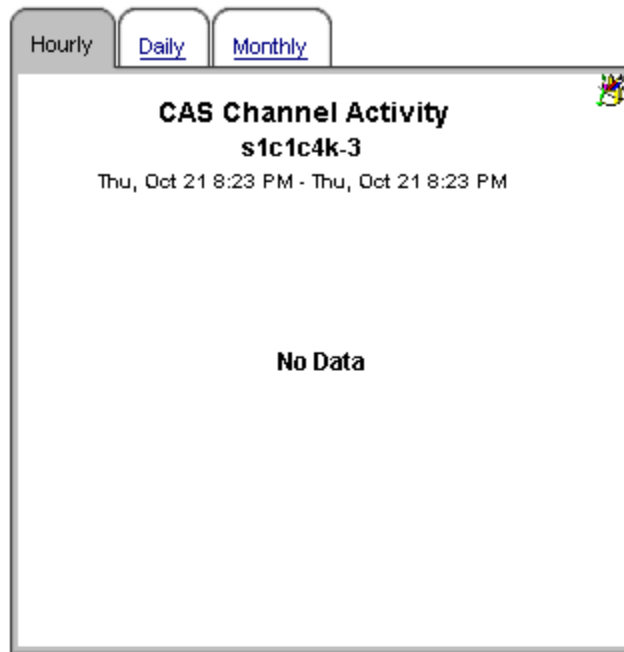
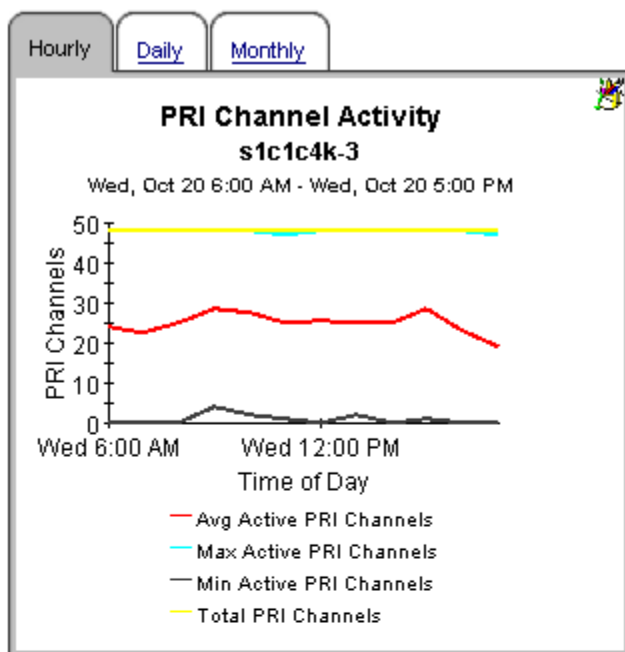


All Locations

Wed, Oct 20, 2004

| Gateway Name | Total PRI Channels | Busy Hour Active PRI | Total CAS Channels | Busy Hour Active CAS | Total FXO Ports | Busy Hour Active FXO | Total FXS Ports | Busy Hour Active FXS |
|--------------|--------------------|----------------------|--------------------|----------------------|-----------------|----------------------|-----------------|----------------------|
| s1c1c4k-3 | 48 | 28 | 0 | 0 | 0 | 0 | 8 | 4 |
| s1c1c4k-4 | 0 | 0 | 48 | 27 | 0 | 0 | 8 | 5 |
| s1c1cat4k-1 | 31 | 18 | 0 | 0 | 2 | 1 | 8 | 5 |
| s1c23600-2 | 0 | 0 | 24 | 14 | 2 | 1 | 0 | 0 |
| s1c2c4k-1 | 24 | 13 | 0 | 0 | 0 | 0 | 10 | 5 |





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Cisco IP Telephony Statistics



DS0 Usage Summary

The DS0 Usage Summary Report presents the usage metrics for a given channel. This can be used to identify heavily utilized channels of a gateway and also to identify any dramatic changes in the usage patterns of a channel (for example a sudden increase in "out of service" state).

CallManager Cluster Selection Table



Wed, Oct 20, 2004

| CallManager Cluster Name | Busy Hour Calls | Total PRI Channels | Busy Hour Active PRI | Total CAS Channels | Busy Hour Active CAS | Total FXO Ports | Busy Hour Active FXO | Total FXS Ports | Busy Hour Active FXS |
|--------------------------|-----------------|--------------------|----------------------|--------------------|----------------------|-----------------|----------------------|-----------------|----------------------|
| default | 241 | 330 | 177 | 144 | 79 | 8 | 4 | 84 | 46 |

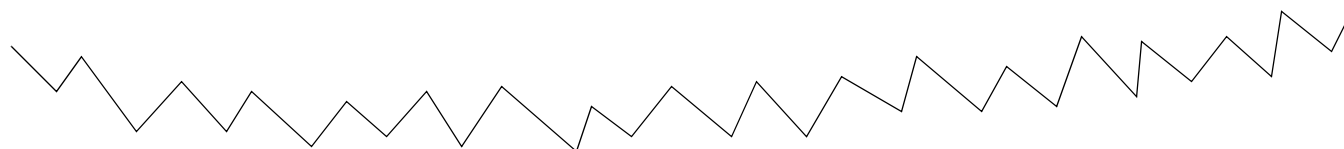
CallManager Selection Table



default

Wed, Oct 20, 2004

| CallManager Name | Avg Active Calls | Total PRI Channels | Avg. Active PRI Channels | Total CAS Channels | Avg. Active CAS Channels | Total FXO Ports | Avg. Active FXO Ports | Total FXS Ports | Avg Active FXS Ports |
|------------------|------------------|--------------------|--------------------------|--------------------|--------------------------|-----------------|-----------------------|-----------------|----------------------|
| s1ccm1 | 115 | 165 | 83 | 72 | 36 | 4 | 2 | 42 | 21 |
| s1ccm2 | 113 | 165 | 80 | 72 | 36 | 4 | 2 | 42 | 21 |



Gateway Selection Table

s1ccm1

Wed, Oct 20, 2004

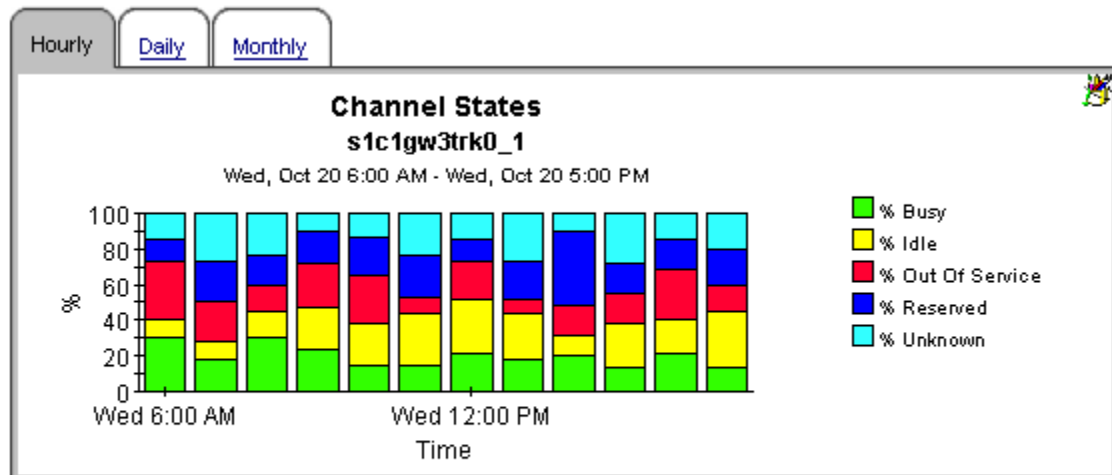
| Gateway Name | Total PRI Channels | Avg. Active PRI Channels | Avg. Active CAS Channels | Total CAS Channels | Total FXO Ports | Avg. Active FXO Ports | Total FXS Ports | Avg Active FXS Ports |
|--------------|--------------------|--------------------------|--------------------------|--------------------|-----------------|-----------------------|-----------------|----------------------|
| s1c1c4k-3 | 48 | 25 | 0 | 0 | 0 | 0 | 8 | 4 |
| s1c1c4k-4 | 0 | 0 | 23 | 48 | 0 | 0 | 8 | 4 |
| s1c1cat4k-1 | 31 | 16 | 0 | 0 | 2 | 1 | 8 | 4 |

Channel Selection Table

s1c1c4k-3

Wed, Oct 20, 2004

| Channel | % Busy State | % Idle State | % Out Of Service State | % Reserved State | % Unknown State |
|----------------|--------------|--------------|------------------------|------------------|-----------------|
| s1c1gw3trk0_1 | 20 | 21 | 20 | 20 | 19 |
| s1c1gw3trk0_10 | 18 | 21 | 22 | 18 | 20 |
| s1c1gw3trk0_11 | 18 | 18 | 18 | 25 | 20 |
| s1c1gw3trk0_12 | 19 | 20 | 24 | 17 | 20 |
| s1c1gw3trk0_13 | 20 | 21 | 19 | 20 | 20 |
| s1c1gw3trk0_14 | 20 | 22 | 17 | 19 | 22 |



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Cisco IP Telephony Statistics



DS1 Usage Summary

The DS1 Usage Summary Report presents the usage metrics for a given DS1. This can be used to view the channel utilization at the DS1 level and also to identify any dramatic changes in the usage patterns of a given DS1 (for example a sudden increase in "out of service" state).

CallManager Cluster Selection Table

Mon Apr 21 2003

| CallManager Cluster Name | Busy Hour Calls | Total PRI Channels | Busy Hour Active PRI | Total CAS Channels | Busy Hour Active CAS | Total FXO Ports | Busy Hour Active FXO | Total FXS Ports | Busy Hour Active FXS |
|-----------------------------|--------------------|-----------------------|-------------------------|-----------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|
| West Coast Cluster1 | 24 | 0 | 0 | 0 | 0 | 12 | 7 | 36 | 21 |
| East Coast Cluster1 | 38 | 24 | 14 | 24 | 14 | 6 | 4 | 36 | 19 |

CallManager Selection Table

West Coast Cluster1

Mon Apr 21 2003

| CallManager Name | Avg Active Calls | Total PRI Channels | Avg. Active PRI Channels | Total CAS Channels | Avg. Active CAS Channels | Total FXO Ports | Avg. Active FXO Ports | Total FXS Ports | Avg Active FXS Ports |
|---------------------|---------------------|-----------------------|--------------------------------|-----------------------|--------------------------------|--------------------|--------------------------|--------------------|-------------------------|
| s1ccm1 | 11 | 0 | 0 | 0 | 0 | 6 | 3 | 18 | 9 |
| s1ccm2 | 11 | 0 | 0 | 0 | 0 | 6 | 3 | 18 | 9 |

Gateway Selection Table

s1ccm1

Mon Apr 21 2003

| Gateway Name | Total PRI Channels | Avg. Active PRI Channels | Total CAS Channels | Avg. Active CAS Channels | Total FXO Ports | Avg. Active FXO Ports | Total FXS Ports | Avg Active FXS Ports |
|-----------------|-----------------------|-----------------------------|-----------------------|--------------------------------|--------------------|--------------------------|--------------------|-------------------------|
| s1c1gw1 | 24 | 12 | 0 | 0 | 0 | 0 | 10 | 5 |
| s1c1gw2 | 31 | 16 | 0 | 0 | 0 | 0 | 8 | 4 |

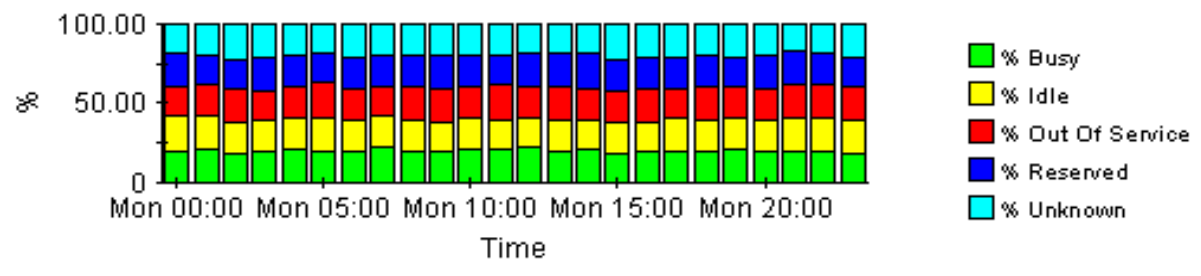




Channel States

s1c1gw1trk0

Mon Apr 21 12:00 AM - Mon Apr 21 11:00 PM



8 Forecast Reports

Forecast reports alert you to conditions where port over-utilization or port under-utilization is developing. All forecast reports include a selection table followed by graphs. The selection table performs a ranking function, allowing you to see which elements are seeing the highest rates of increase based on data in the rolling baseline. The selection table sorts items from highest rate of increase to lowest rate of increase. In addition to baseline values, the selection table includes projections for:

- F30
- F60
- F90

The graphs below the selection table provide more detail about the item highlighted in the selection table. Each graph has three tabs:

Standard. Compares the baseline to F30, F60, and F90 values.

Day of Week. Aggregates data by day and shows whether overall growth is generally the same throughout the week or significantly different one day to the next. Because this view factors “downdays” out of the calculation, you can see what the forecasts are like when they are not skewed by abnormally low levels of utilization.

History. Displays the busy hour metrics that were used to calculate values for F30, F60, and F90.

See below for samples of the following reports:

- CallManager Forecast
- CallManager Cluster Forecast
- Gateway Forecast by CallManager
- Gateway Forecast by Location
- Location Forecast

Cisco IP Telephony Statistics

Call Manager Forecast



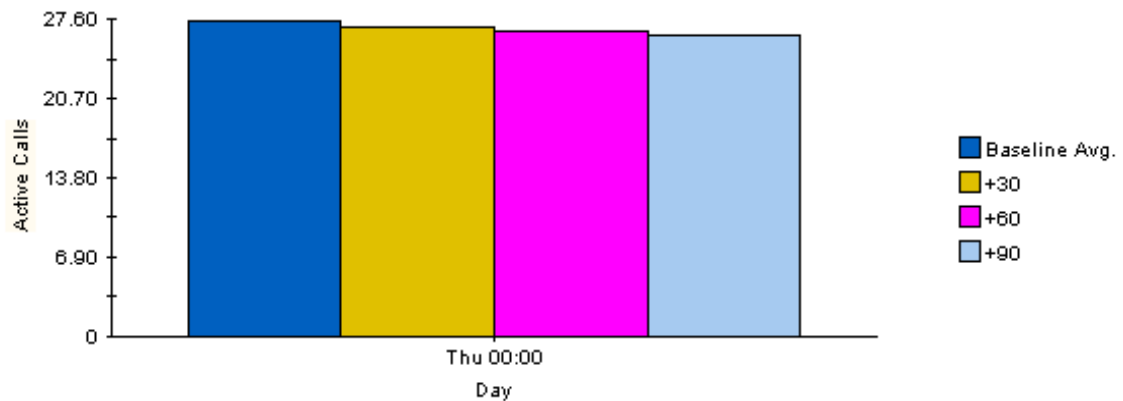
The Call Manager Forecast Report enables the user to quickly identify Call Managers with the greatest projected increase in call volume. The list of call managers are sorted by rate of increase in number of calls processed. Drill down charts present forecasted overall call volume metrics for the selected Call Manager.

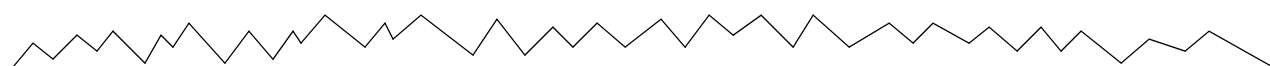
Call Manager Selection Table

| Call Manager Name | Call Activity Baseline | Active Ports Baseline, % | F30 Active Ports Rate, % | F60 Active Ports Rate, % | F90 Active Ports Rate, % |
|-------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| s2ccm2 | 27 | 57.5 | 56.8 | 56.4 | 55.9 |
| s2ccm1 | 12 | 57.8 | 58.3 | 58.6 | 59.0 |
| s1ccm1 | 12 | 57.6 | 56.3 | 55.3 | 54.4 |
| s1ccm2 | 12 | 57.7 | 55.9 | 54.6 | 53.3 |

Standard | Day of Week | History |

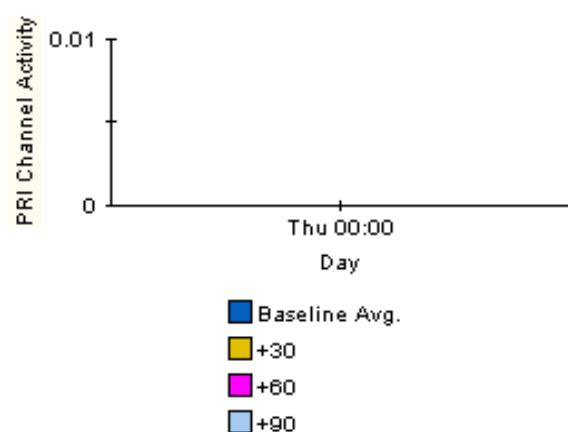
Call Activity Forecast
s2ccm2





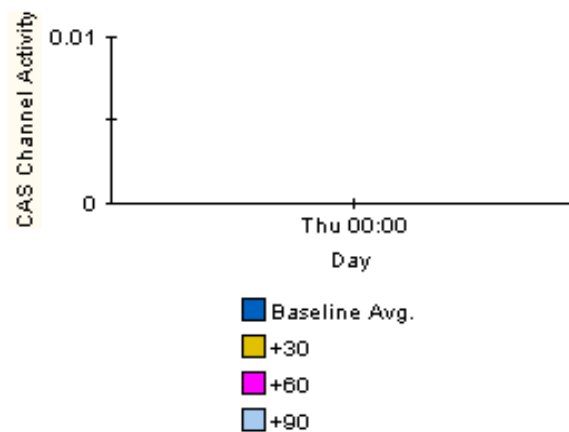
Standard | Day of Week | History |

PRI Channel Activity Forecast s1ccm1



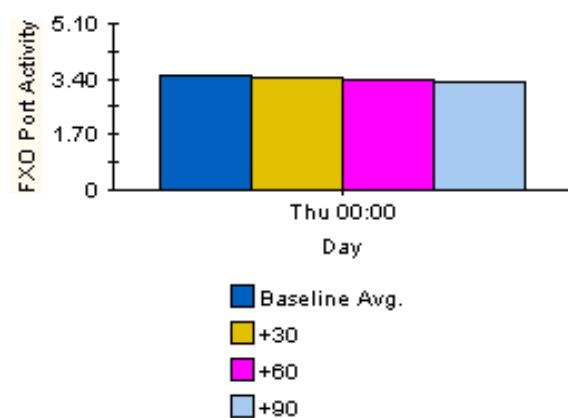
Standard | Day of Week | History |

CAS Channel Activity Forecast s1ccm1



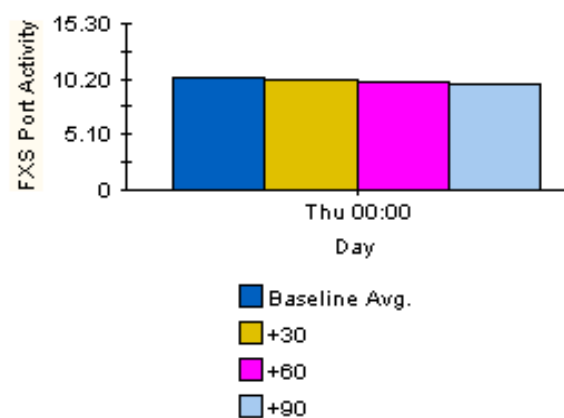
Standard | Day of Week | History |

FXO Port Activity Forecast s1ccm1



Standard | Day of Week | History |

FXS Port Activity Forecast s1ccm1



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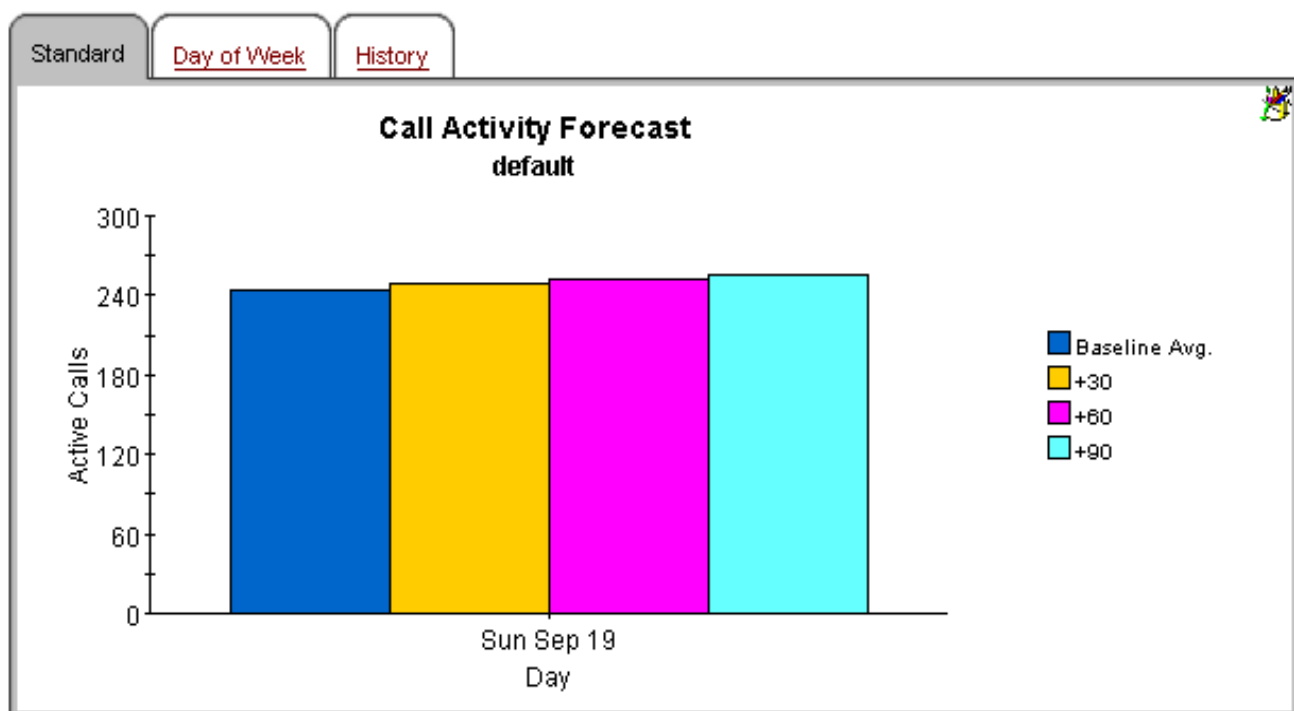
CallManager Cluster Forecast

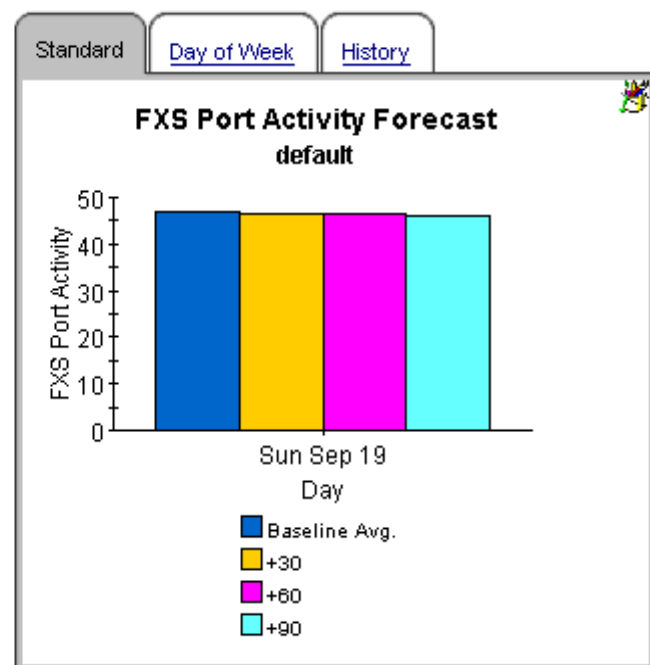
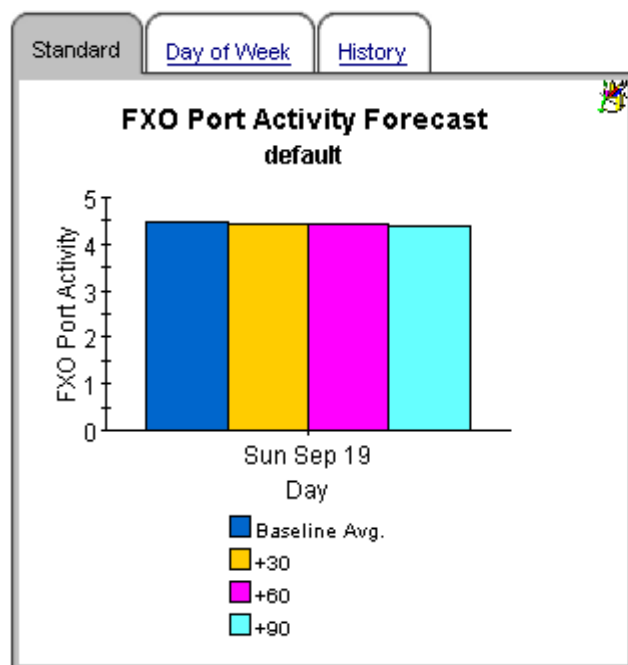
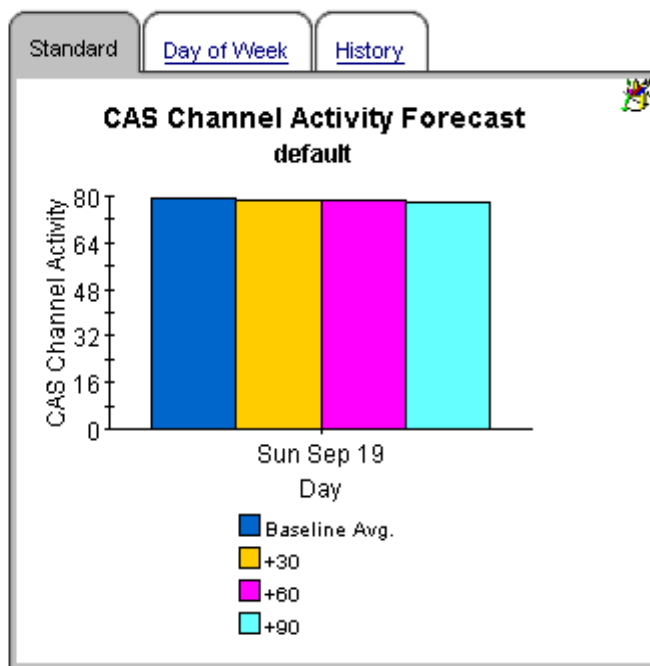
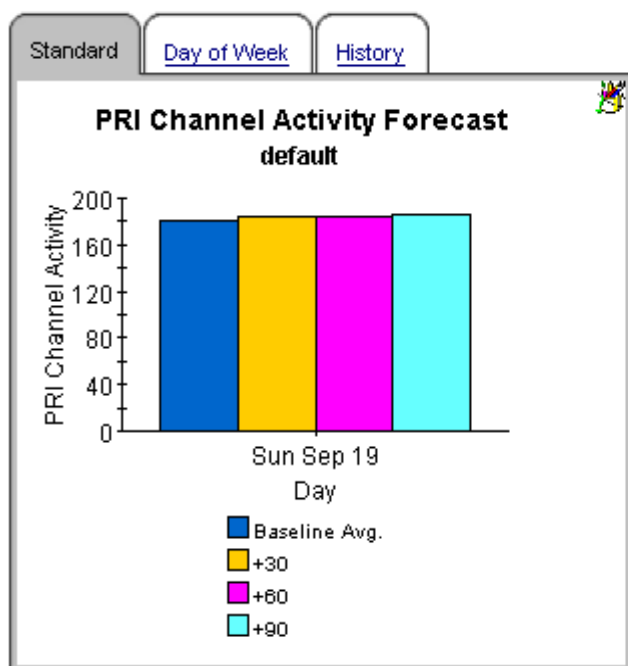
The CallManager Cluster Forecast Report enables the user to quickly identify CallManager Clusters with the greatest projected increase in call volume. The list of call managers are sorted by rate of increase in number of calls processed. Drill down charts present forecasted overall call volume metrics for the selected Call Manager.

CallManager Cluster Selection Table



| CallManager Cluster Name | Call Activity Baseline | Active Ports Baseline, % | F30 Active Ports Rate, % | F60 Active Ports Rate, % | F90 Active Ports Rate, % |
|--------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| default | 246 | 55.1 | 55.4 | 55.5 | 55.6 |





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Cisco IP Telephony Statistics

Gateway Forecast by CallManager



The Gateway Forecast by Call Manager Report enables the user to quickly identify Gateways associated to a given Call Manager with the greatest projected increase in number of ports used. The list of gateways are sorted by rate of increase in number of ports used. Drill down charts present forecasted overall port occupancy metrics for the selected gateway.

CallManager Selection Table



| Call Manager Name | Call Activity Baseline | Active Ports Baseline, % | F30 Active Ports Rate, % | F60 Active Ports Rate, % | F90 Active Ports Rate, % |
|-------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| s1ccm2 | 127 | 57.0 | 56.6 | 56.4 | 56.2 |
| s1ccm1 | 124 | 56.6 | 57.5 | 58.0 | 58.6 |



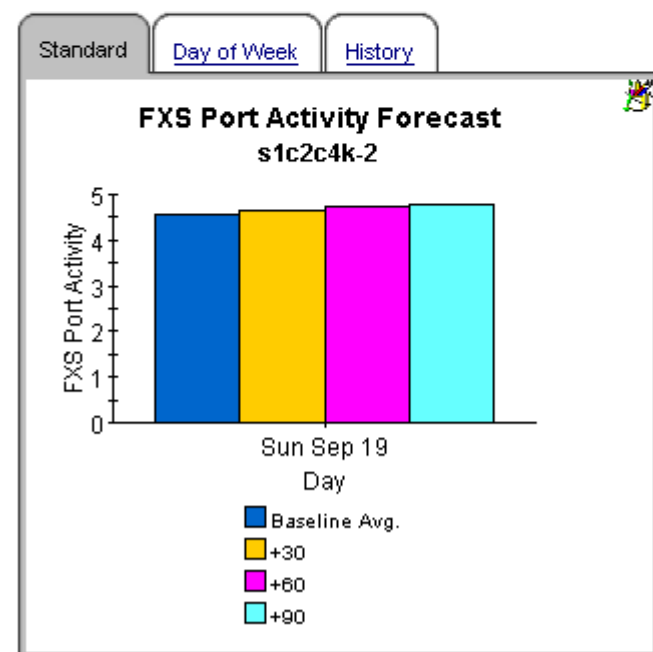
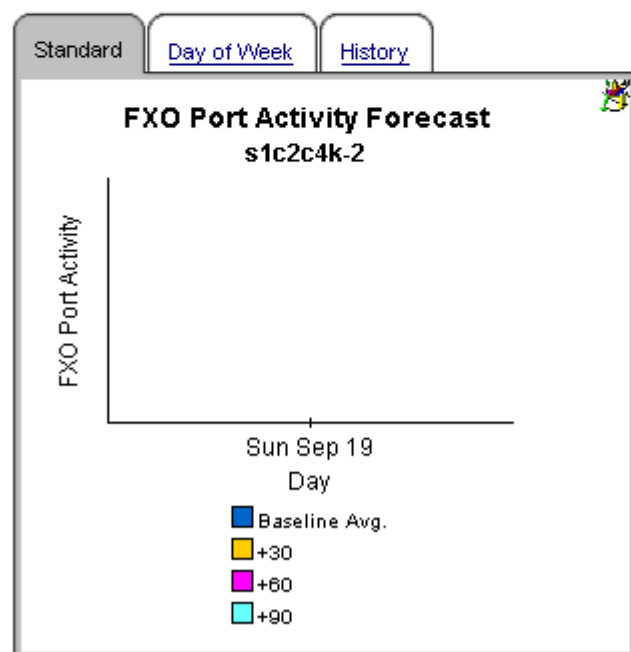
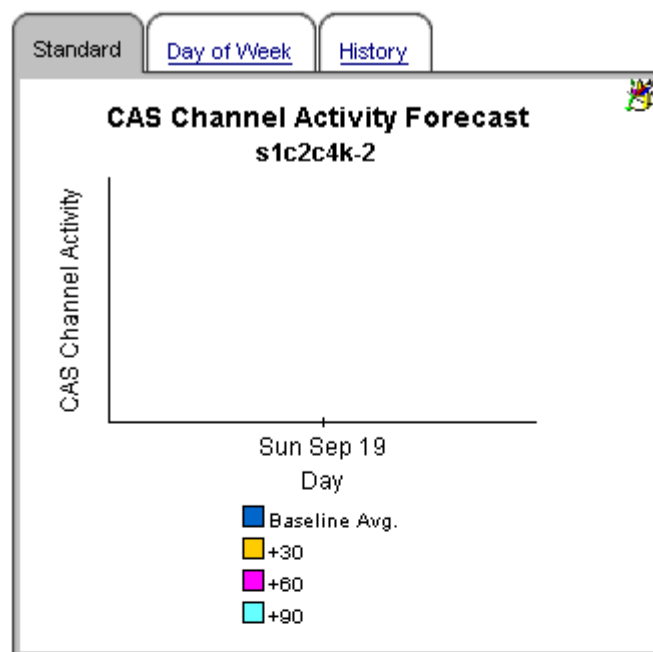
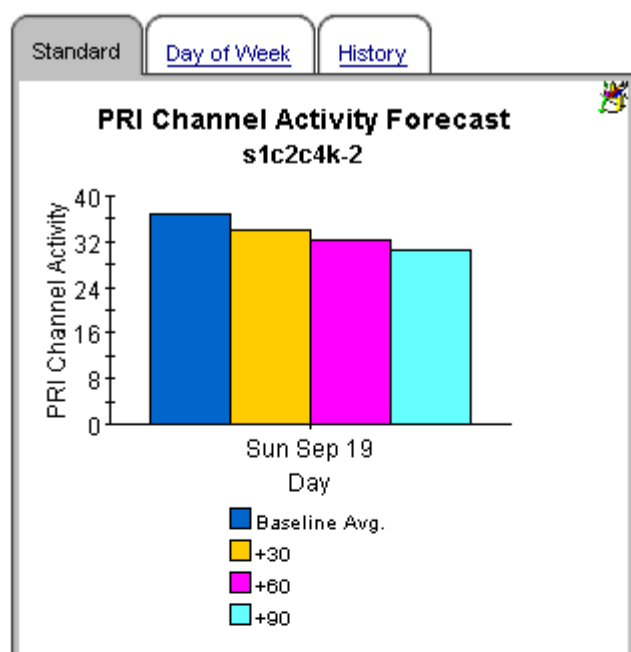
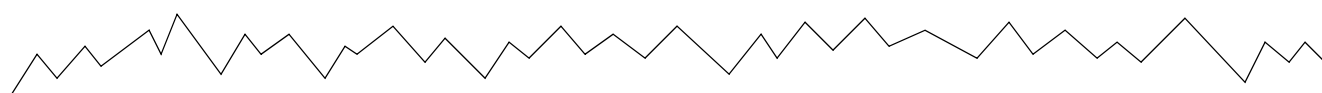
Gateway Selection Table



s1ccm2

| Gateway Name | Active Ports Baseline % | F30 Active Ports Rate % | F60 Active Ports Rate % | F90 Active Ports Rate % |
|--------------|-------------------------|-------------------------|-------------------------|-------------------------|
| s1c2c4k-2 | 59.2 | 55.4 | 53.0 | 50.6 |
| s1c23600-2 | 56.6 | 55.7 | 55.1 | 54.6 |
| s1c2c4k-1 | 56.2 | 55.7 | 55.4 | 55.1 |





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Cisco IP Telephony Statistics



Gateway Forecast By Location

The Gateway Forecast By Location Report enables the user to quickly identify locations with the greatest projected increase in number of ports used. Drill down charts present forecasted overall port Statistics metrics for the selected gateway in a given location.

Location Selection Table



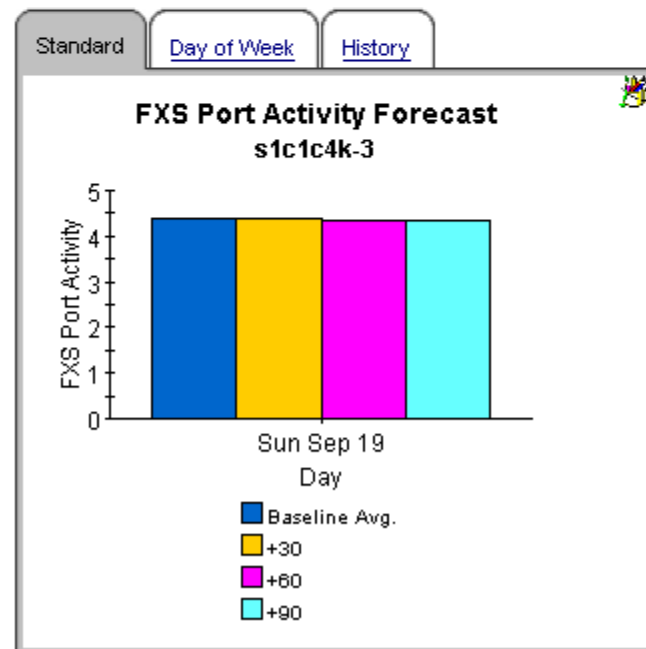
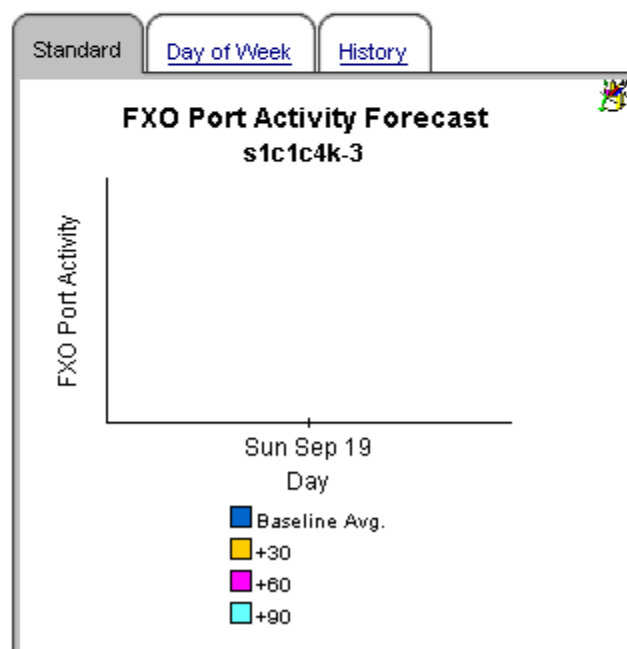
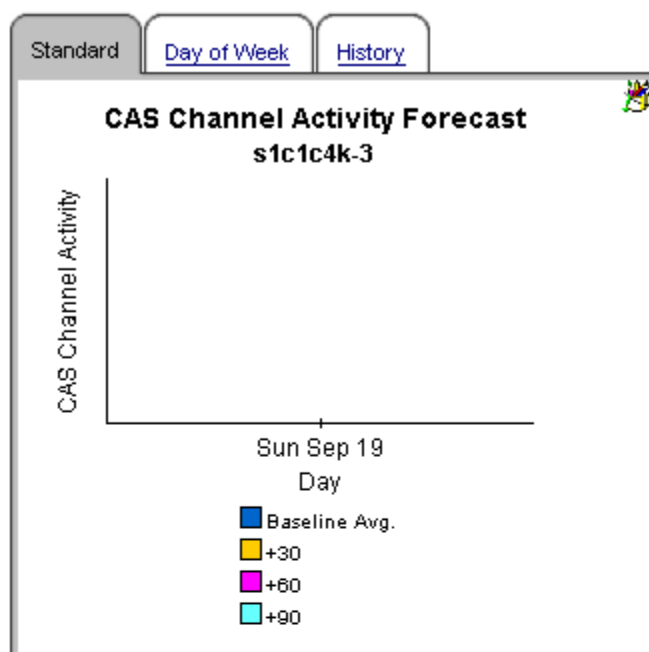
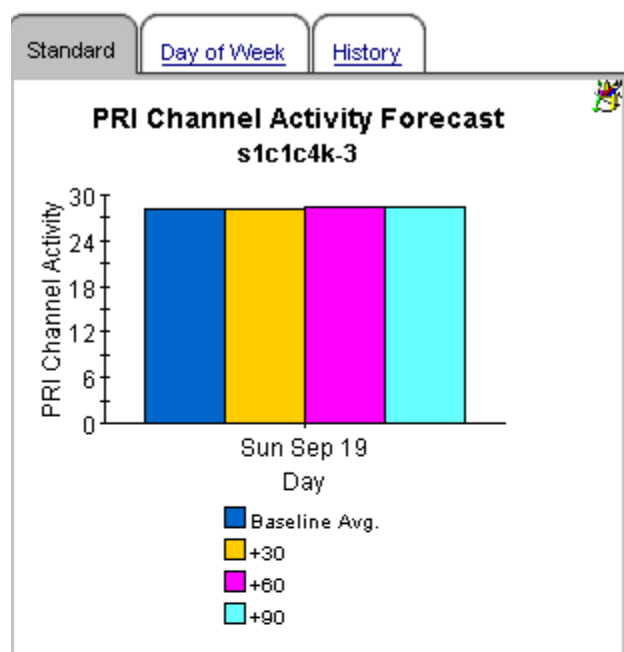
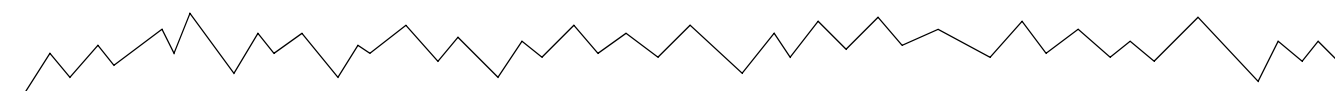
| Location Name | Active Ports Baseline (%) | F30 Active Ports Rate (%) | F60 Active Ports Rate (%) | F90 Active Ports Rate (%) | |
|---------------|------------------------------|------------------------------|------------------------------|------------------------------|--|
| All Locations | 54.0 | 54.1 | 54.1 | 54.1 | |
| Cupertino | 56.1 | 56.1 | 56.1 | 56.1 | |
| Reston | 56.5 | 56.4 | 56.4 | 56.3 | |

Gateway Selection Table



All Locations

| Gateway | Active Ports Baseline (%) | F30 Active Ports Rate (%) | F60 Active Ports Rate (%) | F90 Active Ports Rate (%) | |
|-------------|------------------------------|------------------------------|------------------------------|------------------------------|--|
| s1c1c4k-3 | 58.2 | 58.3 | 58.3 | 58.4 | |
| s1c1c4k-4 | 57.8 | 57.5 | 57.3 | 57.0 | |
| s1c1cat4k-1 | 57.7 | 57.9 | 58.0 | 58.2 | |
| s1c23600-2 | 56.8 | 56.8 | 56.8 | 56.9 | |
| s1c2c4k-1 | 56.2 | 55.7 | 55.3 | 55.0 | |
| s1c2c4k-2 | 59.8 | 59.2 | 58.8 | 58.4 | |



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Cisco IP Telephony Statistics



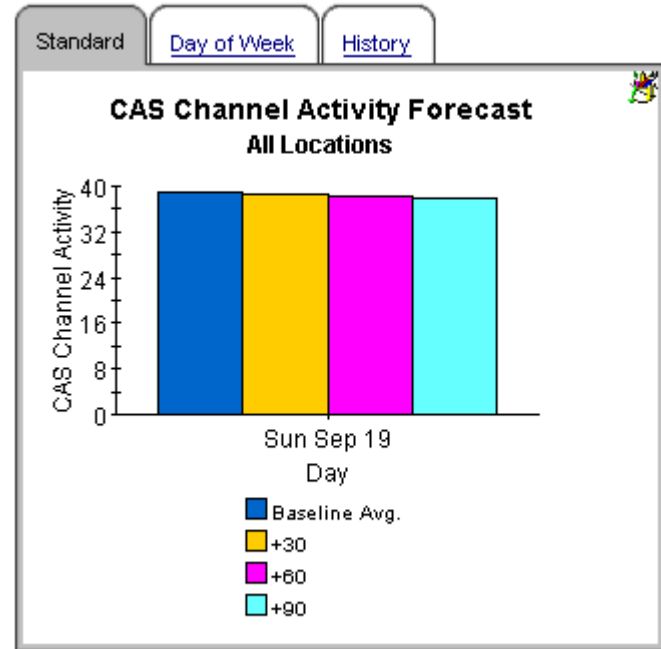
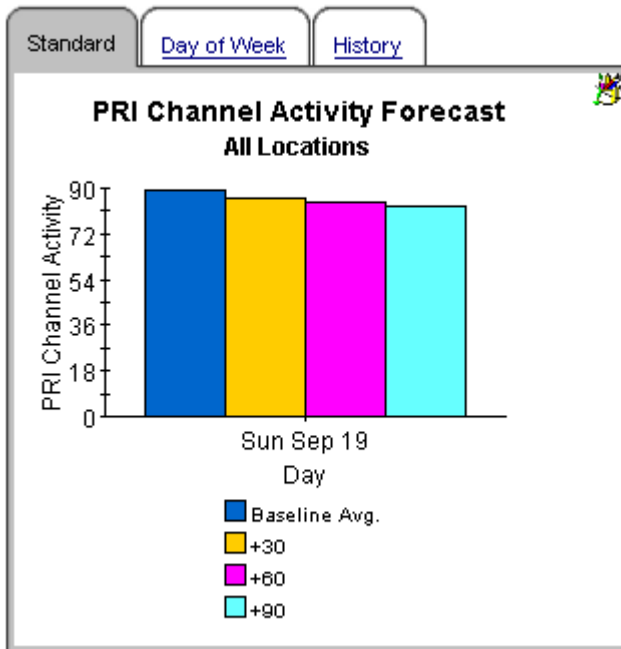
Location Forecast

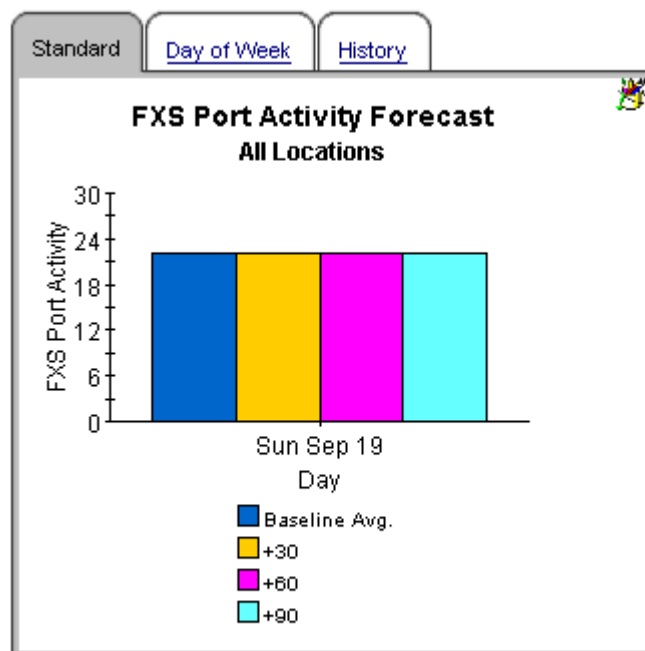
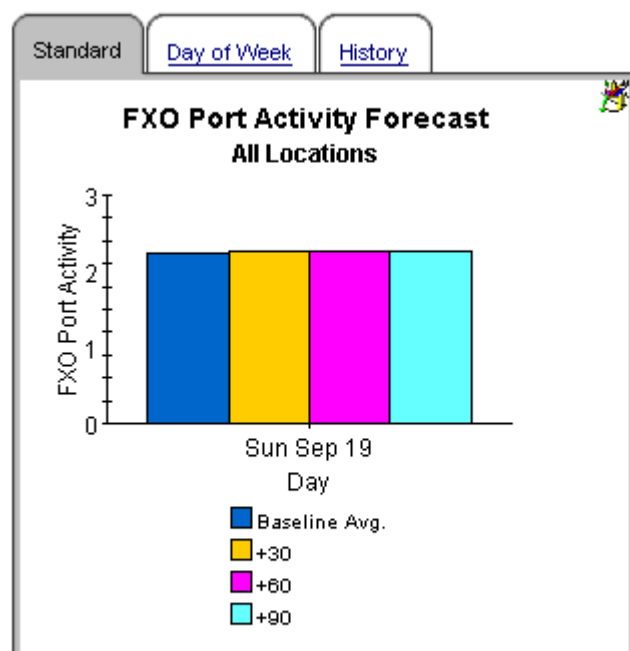
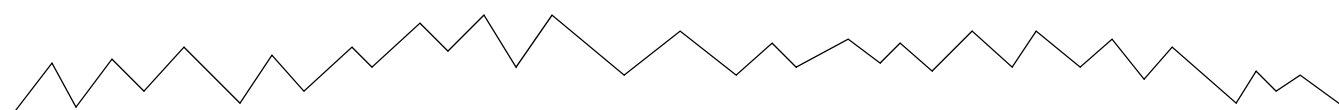
The Location Forecast Report enables the user to quickly identify locations with the greatest projected increase in number of ports used. The list of locations are sorted by rate of increase in number of ports used. Drill down charts present forecasted overall port Statistics metrics for the selected location.

Location Selection Table



| Location | Baseline (%) | + 30/60/90 Days | |
|---------------|--------------|--------------------|--|
| All Locations | 53.9 | 52.7 / 52.1 / 51.4 | |
| Cupertino | 55.8 | 53.3 / 51.8 / 50.3 | |
| Reston | 56.2 | 54.7 / 53.7 / 52.8 | |





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9 Correlation Reports

Correlation Reports allow you to compare:

- Peak utilization for CallManagers within the same cluster
- Busy hour utilization for CallManagers within the same cluster
- DS1 usage on a location-by-location basis

These reports will help you see where utilization is not balanced. See below for samples of the following reports:

- CallManager Cluster Peak Utilization Correlation
- CallManager Cluster Busy Hour Utilization Correlation
- DS1 Usage Correlation by Location

Cisco IP Telephony Statistics



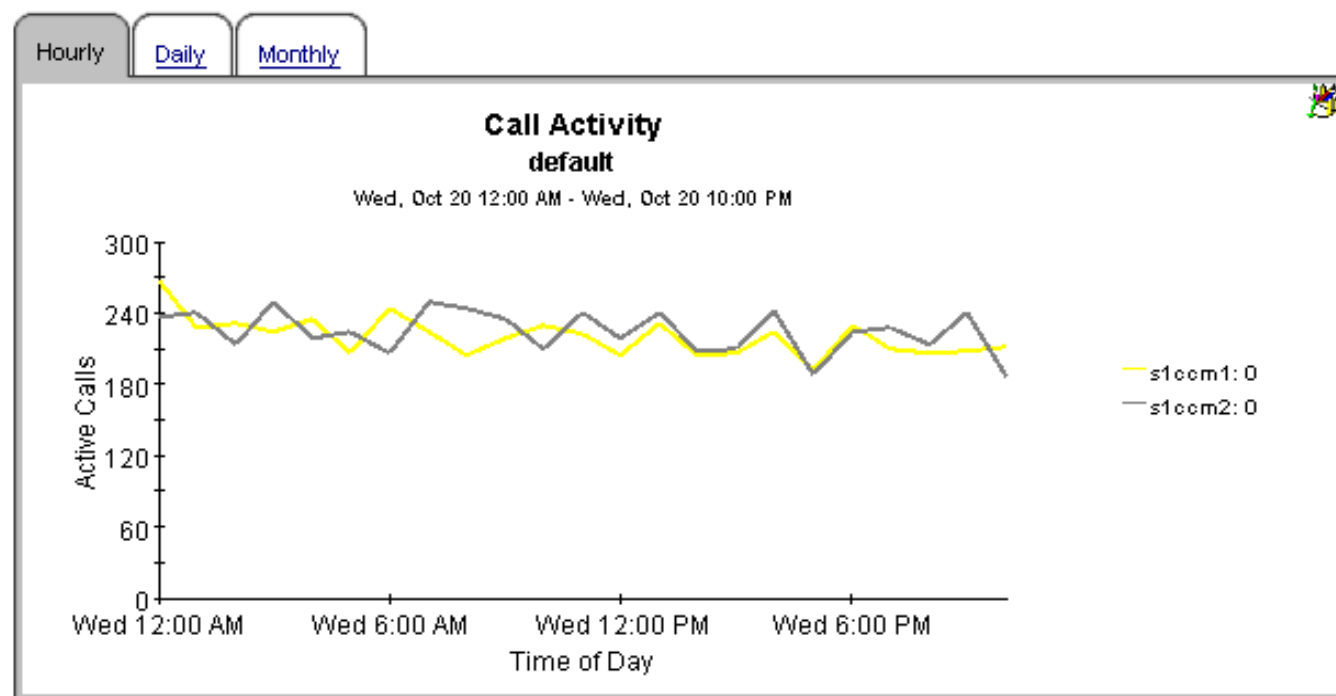
CallManager Cluster Peak Utilization Correlation

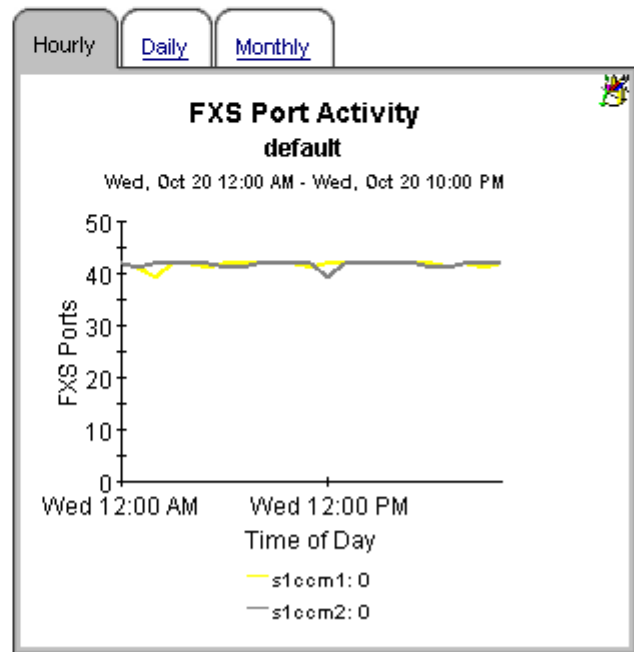
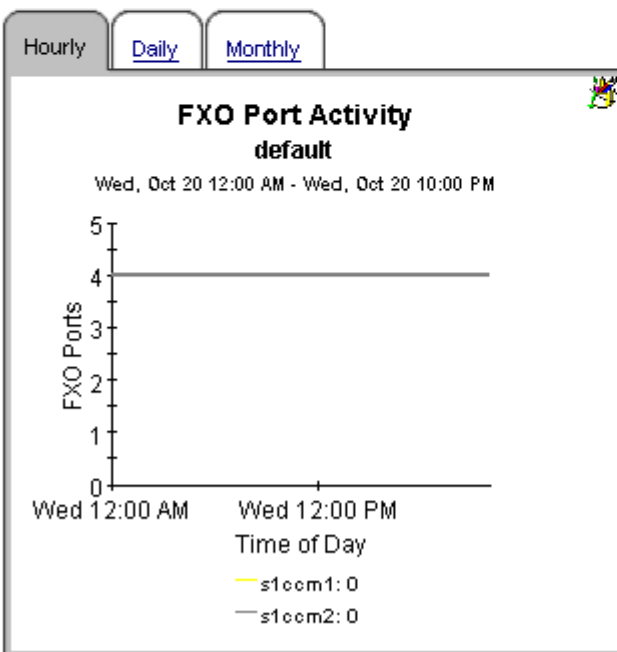
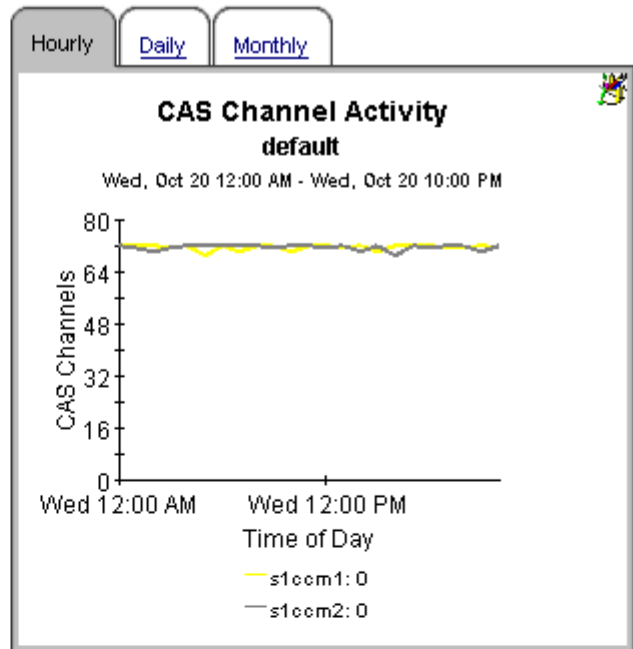
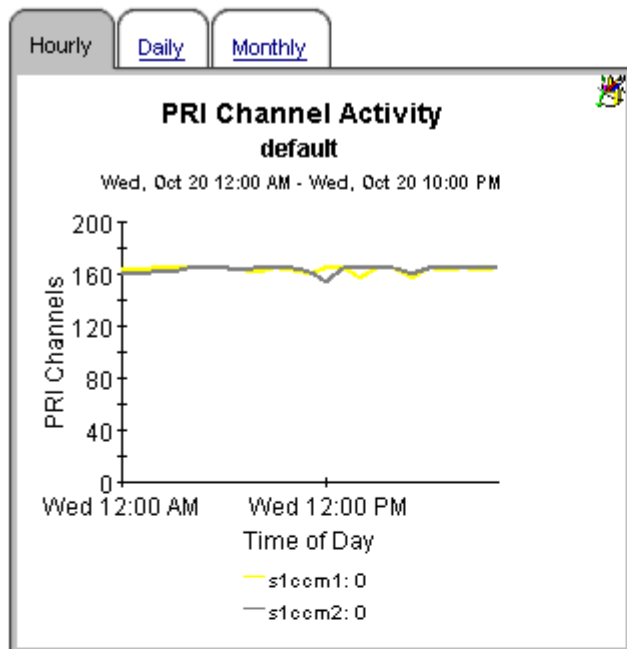
This report presents the peak utilization metrics for all the CallManagers that belong to a particular cluster. This would help in identifying imbalanced utilization of resources across the CallManagers in a given cluster.

CallManager Cluster Selection Table

Wed, Oct 20, 2004

| CallManager Cluster Name | Busy Hour Calls | Total PRI Channels | Busy Hour Active PRI | Total CAS Channels | Busy Hour Active CAS | Total FXO Ports | Busy Hour Active FXO | Total FXS Ports | Busy Hour Active FXS |
|--------------------------|-----------------|--------------------|----------------------|--------------------|----------------------|-----------------|----------------------|-----------------|----------------------|
| default | 241 | 330 | 177 | 144 | 79 | 8 | 4 | 84 | 46 |





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Cisco IP Telephony Statistics

CallManager Cluster Busy Hour Utilization Correlation



This report presents the busy hour utilization metrics for all the CallManagers that belong to a particular cluster. This would help in identifying imbalanced utilization of resources across the CallManagers in a given cluster.

CallManager Cluster Selection Table

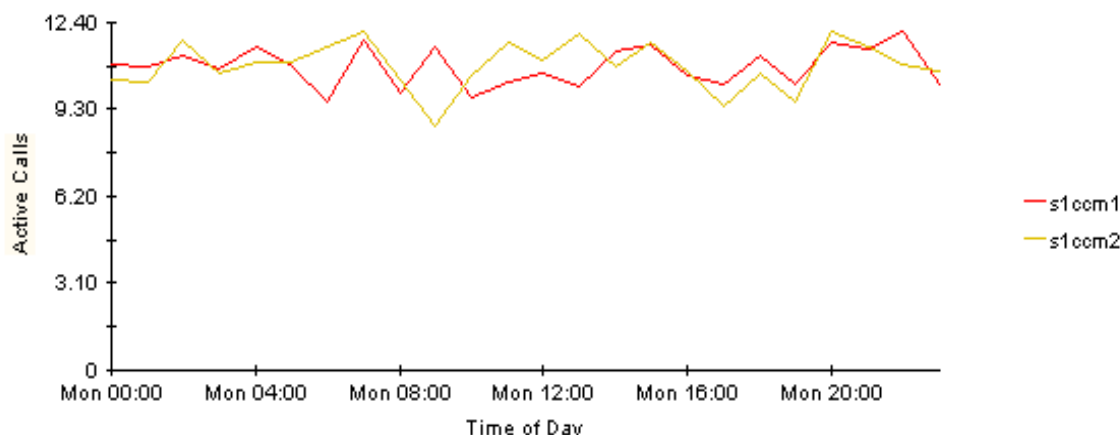
Mon Apr 21 2003

| CallManager Cluster Name | Busy Hour Calls | Total PRI Channels | Busy Hour Active PRI | Total CAS Channels | Busy Hour Active CAS | Total FXO Ports | Busy Hour Active FXO | Total FXS Ports | Busy Hour Active FXS |
|-----------------------------|--------------------|-----------------------|-------------------------|-----------------------|-------------------------|--------------------|-------------------------|--------------------|-------------------------|
| West Coast Cluster1 | 24 | 0 | 0 | 0 | 0 | 12 | 7 | 36 | 21 |
| East Coast Cluster1 | 38 | 24 | 14 | 24 | 14 | 6 | 4 | 36 | 19 |

Hourly | Daily | Monthly |

Call Activity West Coast Cluster1

Mon Apr 21 12:00 AM - Mon Apr 21 11:00 PM



Cisco IP Telephony Statistics



DS1 Usage Correlation By Location

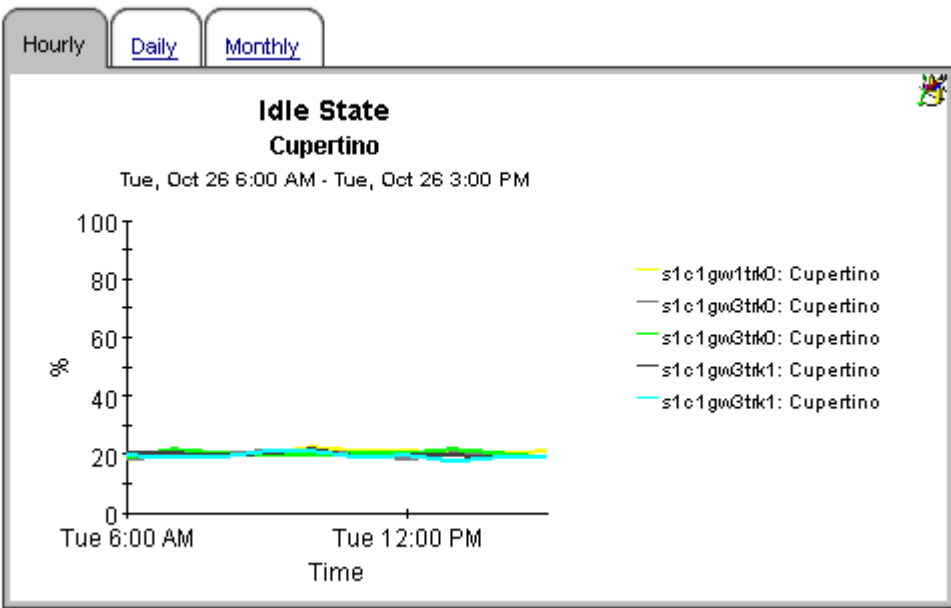
The DS1 Usage Correlation By Location Report presents the usage metrics for the individual DS1(s) that belong to a given location. This can be used to identify imbalanced usage of the T1/E1 lines.

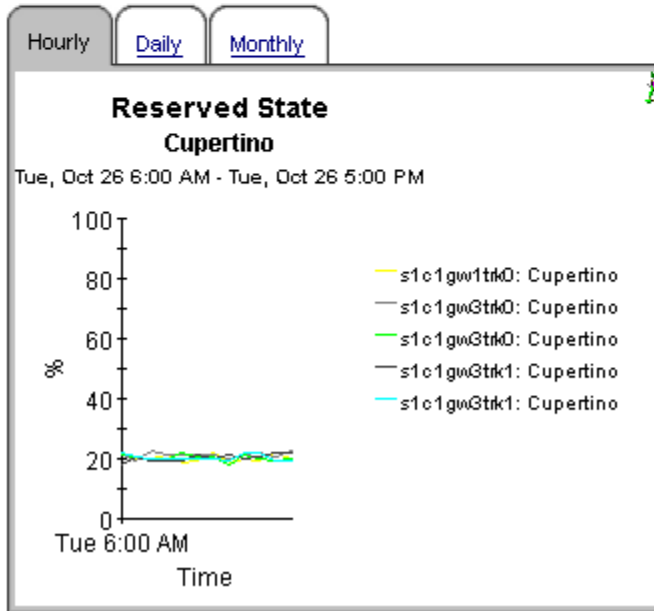
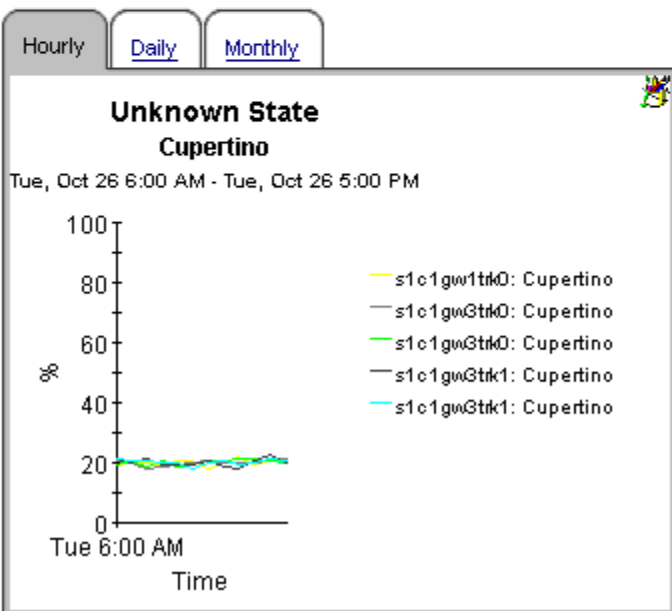
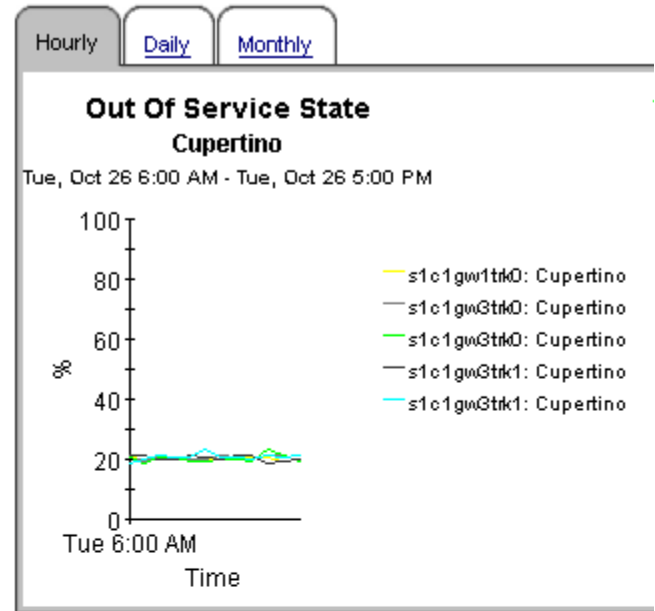
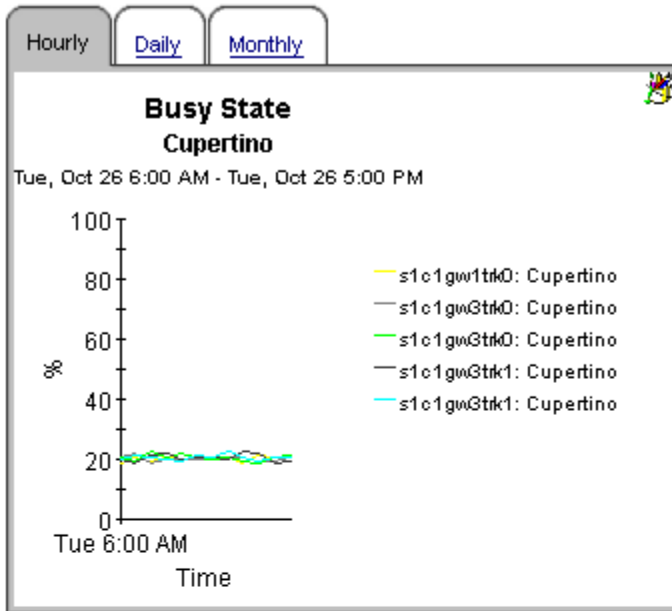
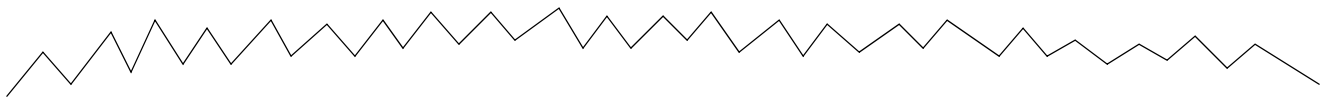
Location Selection Table



Tue, Oct 26, 2004

| Location | % Busy State | % Idle State | % Out Of Service State | % Reserved State | % Unknown State |
|-----------|--------------|--------------|------------------------|------------------|-----------------|
| Cupertino | 20 | 20 | 20 | 20 | 20 |
| Reston | 20 | 20 | 20 | 20 | 20 |





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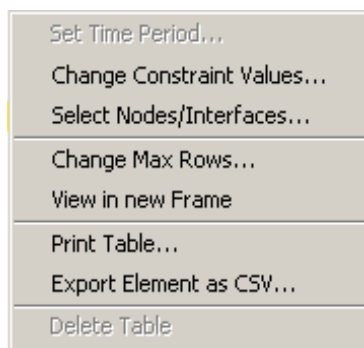
A Editing Tables and Graphs

Any table or graph can be viewed in several ways. While the default view is usually adequate, you can easily change to a different view. If you are using Report Viewer, right-click the object to open a list of view options. If you are using the Web Access Server, follow these steps to change the default view of a table or graph:

- 1 Click **Preferences** on the links bar.
- 2 Expand **Reports** in the navigation frame.
- 3 Click **Viewing**.
- 4 Select the **Allow element editing** box.
- 5 Click **Apply**.
- 6 Click the Edit icon next to the table or graph.

View Options for Tables

Right-clicking a table, or selecting the Edit Table icon if you are using the Web Access Server, opens a list of table view options.



Select **Set Time Period** to alter the relative time period (relative to now) or set an absolute time period. The Set Time Period window opens.

You may shorten the period of time covered by the table from, for example, 42 days to 30 days or to 7 days. If you are interested in a specific period of time that starts in the past and stops *before* yesterday, click **Use Absolute Time** and select a Start Time and an End Time.

Select **Change Constraint Values** to loosen or tighten a constraint, thereby raising or lowering the number of elements that conform to the constraint. The Change Constraint Values window opens. To loosen a constraint, set the value lower; to tighten a constraint, set the value higher.

The **Select Nodes/Interfaces** allows you to change the scope of the table by limiting the table to specific nodes, specific interfaces, or a specific group of nodes or interfaces. The Select Node Selection Type window opens.

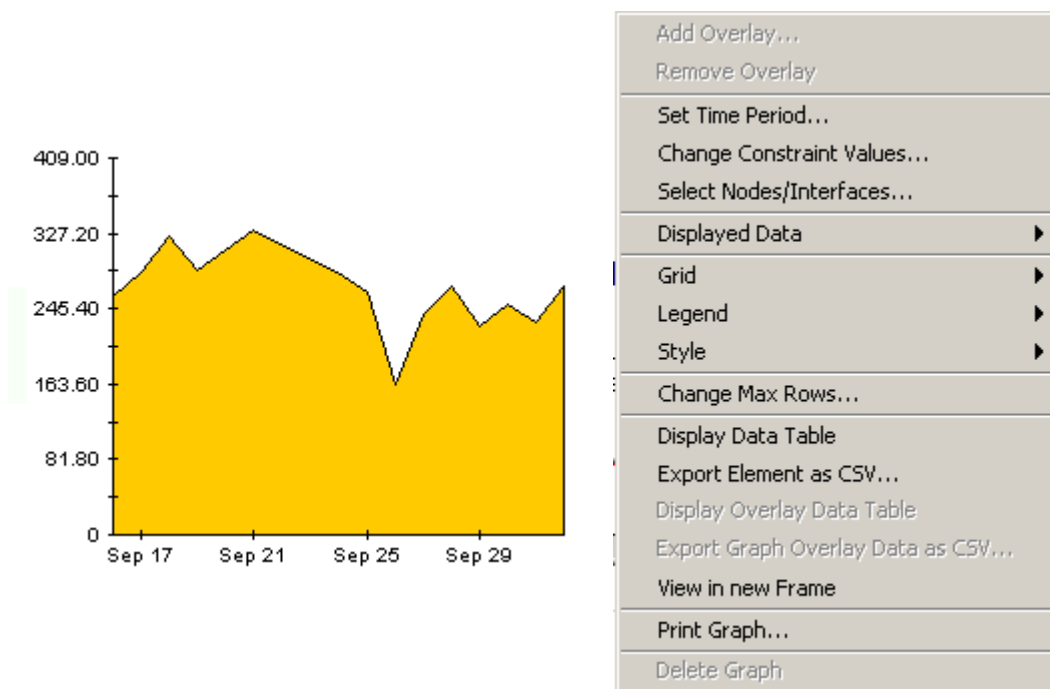
Change Max Rows increases or decreases the number of rows in a table. The default is 50. If you expand the default, the table may take more time to open. If you are trending a large network, using the default ensures that the table opens as quickly as possible.

View in new Frame opens the table in a Table Viewer window, shown below. If necessary, make the data in the table more legible by resizing the window.

| Polled IP QoS Statistics Data - Input Over Previous 6 Hours | | | | | |
|--|--------------|----------------|---------------|---------------------|--|
| Direction | IpPrecedence | Switched Bytes | Switched Pkts | Time Period | |
| Input | 0 | 105,688 | 675 | Tue Oct 29 07:00 AM | |
| Input | 1 | 0 | 0 | Tue Oct 29 07:00 AM | |
| Input | 2 | 0 | 0 | Tue Oct 29 07:00 AM | |
| Input | 3 | 0 | 0 | Tue Oct 29 07:00 AM | |
| Input | 4 | 0 | 0 | Tue Oct 29 07:00 AM | |
| Input | 5 | 0 | 0 | Tue Oct 29 07:00 AM | |
| Input | 6 | 600 | 5 | Tue Oct 29 07:00 AM | |
| Input | 7 | 0 | 0 | Tue Oct 29 07:00 AM | |
| Input | 0 | 98,334 | 638 | Tue Oct 29 06:45 AM | |
| Input | 1 | 0 | 0 | Tue Oct 29 06:45 AM | |
| Input | 2 | 0 | 0 | Tue Oct 29 06:45 AM | |
| Input | 3 | 0 | 0 | Tue Oct 29 06:45 AM | |
| Input | 4 | 0 | 0 | Tue Oct 29 06:45 AM | |
| Input | 5 | 0 | 0 | Tue Oct 29 06:45 AM | |
| Input | 6 | 0 | 0 | Tue Oct 29 06:45 AM | |
| Input | 7 | 0 | 0 | Tue Oct 29 06:45 AM | |
| Input | 0 | 97,539 | 648 | Tue Oct 29 06:30 AM | |
| Input | 1 | 0 | 0 | Tue Oct 29 06:30 AM | |
| Input | 2 | 0 | 0 | Tue Oct 29 06:30 AM | |
| Input | 3 | 0 | 0 | Tue Oct 29 06:30 AM | |
| Input | 4 | 0 | 0 | Tue Oct 29 06:30 AM | |
| Input | 5 | 0 | 0 | Tue Oct 29 06:30 AM | |
| Input | 6 | 120 | 1 | Tue Oct 29 06:30 AM | |
| Input | 7 | 0 | 0 | Tue Oct 29 06:30 AM | |
| Input | 0 | 90,744 | 564 | Tue Oct 29 06:15 AM | |
| Input | 1 | 0 | 0 | Tue Oct 29 06:15 AM | |
| Input | 2 | 0 | 0 | Tue Oct 29 06:15 AM | |
| Input | 3 | 0 | 0 | Tue Oct 29 06:15 AM | |
| Input | 4 | 0 | 0 | Tue Oct 29 06:15 AM | |
| Input | 5 | 0 | 0 | Tue Oct 29 06:15 AM | |
| Input | 6 | 0 | 0 | Tue Oct 29 06:15 AM | |
| Input | 7 | 0 | 0 | Tue Oct 29 06:15 AM | |

View Options for Graphs

Right-clicking a graph, or clicking the Edit Graph icon if you are using the Web Access Server, opens the following list of view options.



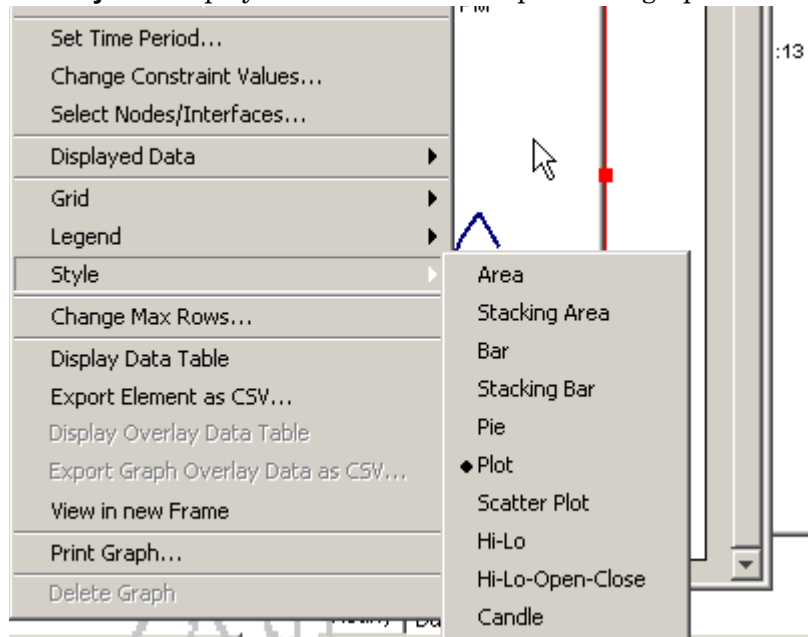
The following table provides details about each option.

| Option | Function |
|--------------------------|--|
| Set Time Period | Same as the table option shown above. |
| Change Constraint Values | Same as the table option shown above. |
| Select Nodes/Interfaces | Same as the table option shown above. |
| Displayed Data | For every point on a graph, display data in a spreadsheet. |
| Grid | Add these to the graph: X axis grid lines Y axis grid lines X and Y axis grid lines |
| Legend | Delete or reposition the legend. |
| Style | See the illustrations below. |
| Change Max Rows... | Same as the table option shown above. |
| Display Data Table | See below. |

| Option | Function |
|--------------------------|---------------------------------------|
| Export Element as CSV... | Same as the table option shown above. |
| View in New Frame | Opens graph in a Graph Viewer window. |
| Print Graph | Same as the table option shown above. |

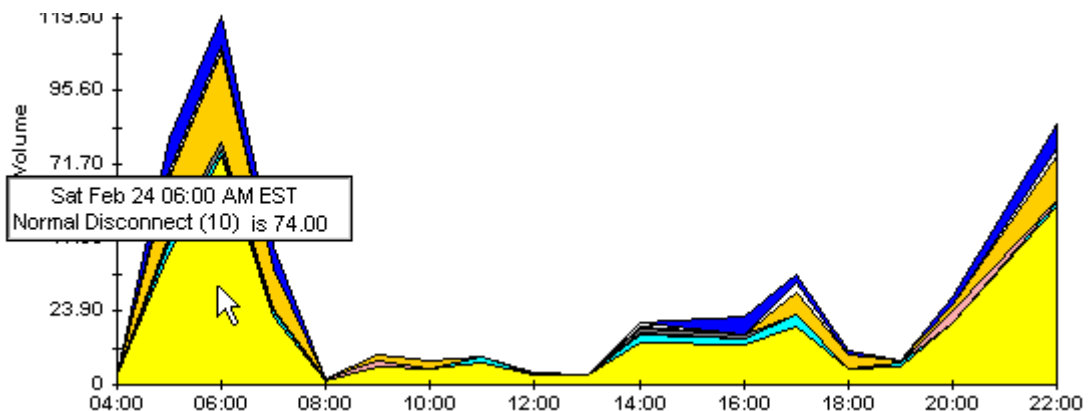
Style Options

Select **Style** to display a list of seven view options for graphs.



Style > Area

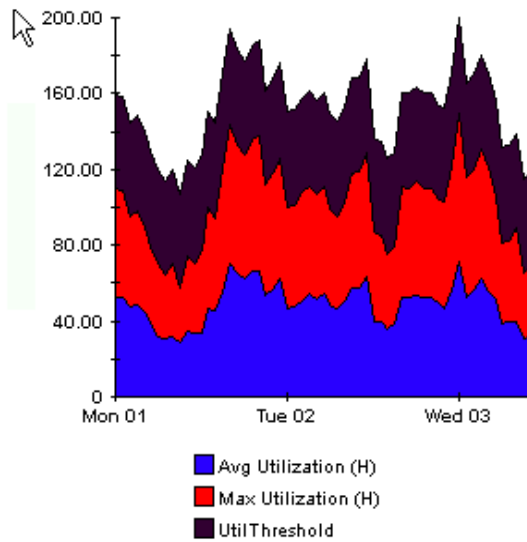
The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location



To shorten the time span of a graph, press SHIFT+ALT and use the left mouse button to highlight the time span you want to focus on. Release the mouse button to display the selected time span.

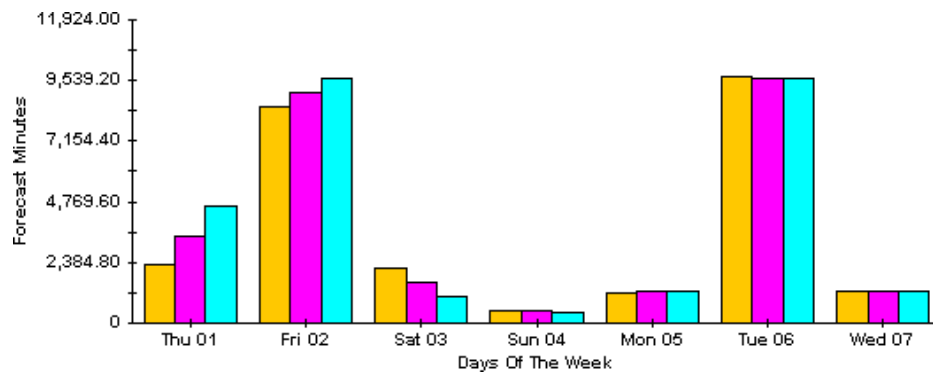
Style > Stacking Area

The area or plot graph changes to a stacking area graph. This view is suitable for displaying a small number of variables.



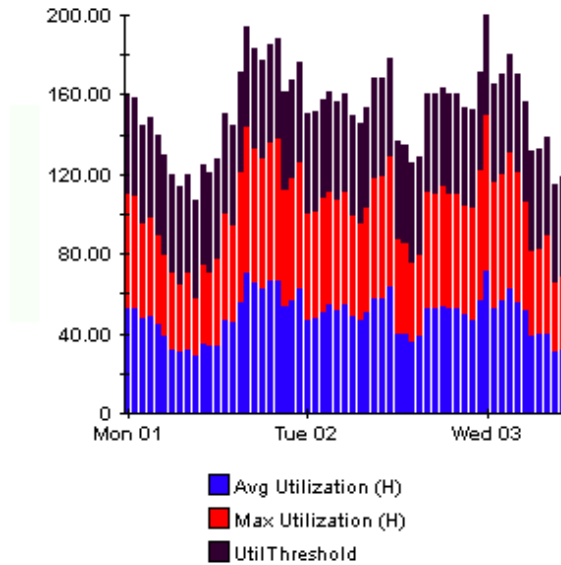
Style > Bar

The graph changes to a bar chart. This view is suitable for displaying relatively equal values for a small number of variables. There are three variables in the graph below.



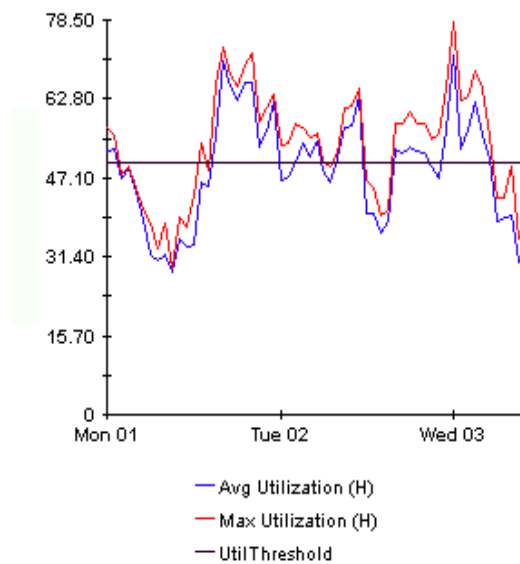
Style > Stacking Bar

The plot or area graph changes to a stacking bar chart. If you increase the width of the frame, the time scale becomes hourly. If you increase the height of the frame, the call volume shows in units of ten.



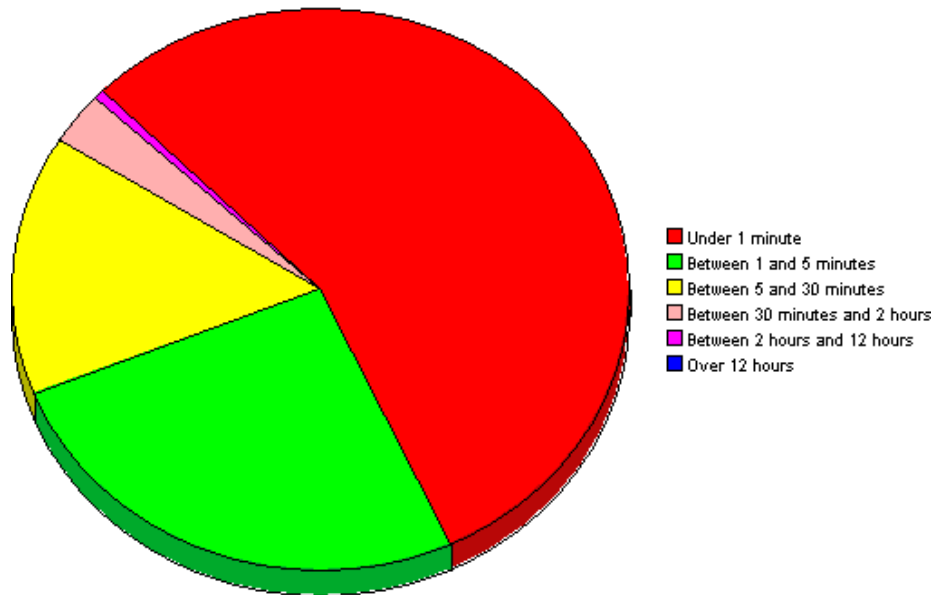
Style > Plot

Bands of color in an area graph change to lines. If you adjust the frame width, you can make the data points align with hour; if you adjust the frame height, you can turn call volume into whole numbers.



Style > Pie

An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.



If you are looking at data for more than one day, you will see multiple pie graphs, one for each day.

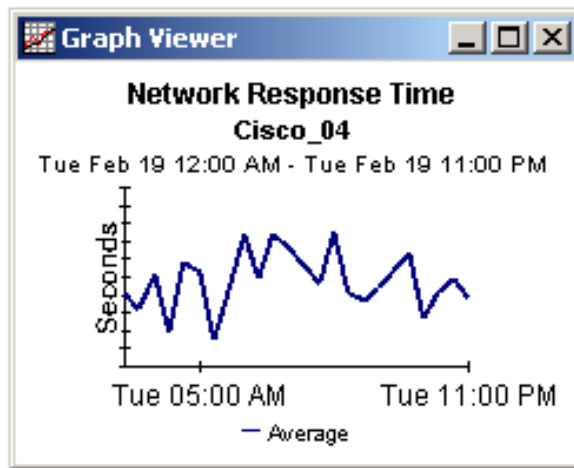
Display Data Table

This option changes a graph into a spreadsheet.

| Data table for 8.1 | |
|--------------------|---------|
| X Axis | Average |
| Tue Feb 19 ... | 0.809 |
| Tue Feb 19 ... | 0.621 |
| Tue Feb 19 ... | 1.026 |
| Tue Feb 19 ... | 0.362 |
| Tue Feb 19 ... | 1.171 |
| Tue Feb 19 ... | 1.051 |
| Tue Feb 19 ... | 0.284 |
| Tue Feb 19 ... | 0.826 |
| Tue Feb 19 ... | 1.483 |
| Tue Feb 19 ... | 0.967 |
| Tue Feb 19 ... | 1.471 |
| Tue Feb 19 ... | 1.308 |
| Tue Feb 19 ... | 1.123 |
| Tue Feb 19 ... | 0.93 |
| Tue Feb 19 ... | 1.497 |
| Tue Feb 19 ... | 0.806 |
| Tue Feb 19 ... | 0.725 |

View in New Frame

The graph opens in a Graph Viewer window. Improve legibility by resizing the window.



Glossary

active ports rate

A measure of the percentage of total active channels/ports divided by the total channels/ports.

baseline average

The average of all samples during the baseline period. The baseline period is a rolling period comprising the previous 91 days

busy hour

Busy hour is the maximum hourly average for the day. This value is the basis for calculating future performance. Unlike the average for the day, this value does not smooth out daily peaks and valleys. In addition, unlike the daily maximum, or peak, and the daily minimum, this value represents a relatively persistent phenomenon, not a momentary condition. Since busy hour is an average, actual utilization could have been well above the average for a portion of that particular hour, as well as well below the average for a portion of that particular hour.

Cisco IP Telephony Statistics calculates a busy hour for the following metrics:

- Number of calls
- Active PRI channels
- Active CAS channels
- Active FXO ports
- Active FXS ports

CallManager

A Cisco AVVID IP Telephony service whose primary function is the control and routing of calls from voice-enabled IP devices.

CAS

Channel Associated Signaling. A scheme for transmission of call signaling information that relies on interleaving the call signaling within the media information that the interface transmits.

channel name

The concatenation of DS1Name and Channel Index.

daily

Performance over the preceding 30 days for the following metrics:

- PRI channel activity
- CAS channel activity
- FXO port activity
- FXS port activity

The most recent day in this view is yesterday.

day of week

A forecast, derived from baseline data, that correlates growth rate to each day of the week.

F30, F60, F90

The level where utilization is expected to be 30, 60, and 90 days from now. Calculated by applying linear regression to busy-hour levels over the baseline period.

FXO

Foreign Exchange Office. A VoIP gateway providing analog access to central office's line termination.

FXS

Foreign Exchange Station. A VoIP gateway providing analog to a Plain Old Telephone Service (POTS) station.

gateway

A device that provides real-time, two-way communications between the packet-based network and other stations on a switched network.

growth rate

Also known as rate of increase. F30 utilization divided by average busy-hour utilization.

hourly

A view of yesterday's performance for the following metrics:

- PRI channel activity
- CAS channel activity
- FXO port activity
- FXS port activity

location

The place where gateways are located. Value imported by the Common Property Tables provisioning process. If not provisioned, field reads *unassigned*.

PRI

Primary Rate Interface. An ISDN interface containing 24 or 32 channels for the communication of media and signaling information.

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