IP Access Rate Report Pack

Software Version: 3.0

HP OpenView Performance Insight

User Guide

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Contents

1 Overview

This chapter covers the following topics:

OVPI and Access Rate Reporting

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 enhances fault isolation, problem diagnosis, and capacity planning.

The IP Access Rate Report Pack installs on OVPI. This report pack supplements the Interface Reporting Report Pack, and the Interface Reporting Report Pack is a prerequisite. The reports in IP Access Rate identify interfaces with high ratios of filtered traffic. If you know which interfaces have high ratios of filtered traffic, you know which service levels need to be modified to avoid congestion on the backbone.

QoS and Committed Access Rate (CAR)

QoS refers to a network's ability to provide better service to select traffic on IP-routed networks. QoS has the following goals:

- Dedicate bandwidth to particular traffic types
- Control jitter and latency (necessary for real-time, interactive traffic)
- Improve loss characteristics

Committed Access Rate, or CAR, is a feature of Cisco IOS that lets you assign a rate limit policy to a router interface. The policy controls how much traffic gets transmitted and how much traffic gets dropped. The policy functions as a uni-directional rule, or rate-limiting object (RLO). A byte or package that exceeds the RLO will be dropped (filtered out) at the interface. If the ratio of dropped traffic is high and stays high, the customer's level of service may be incorrect. Each RLO specifies one of the following actions:

- Transmit the packet
- Drop the packet
- Set IP precedence bits and transmit

- Set QoS group and transmit
- Continue [evaluate the packet using the next rate policy]
- Rewrite the IP precedence bits in the packet header and continue

IP Access Rate Reports

IP Access Rate contains four reports:

Near Real Time Activity. Highlights interfaces with high filtering ratios, based on sample data collected over the previous six hours. Identifies switched bytes, filtered bytes, and burst rate. Any interface that appears in this report had to have at least some policing activity over the previous six hours.

Recent Activity. Filtering activity within the most recent summarized hour for managed devices, split by customer. Shows switched/filtered activity per device on an hourly basis over the previous few days.

Historical Activity Report. A list of managed devices, split by customer, highlighting devices that are doing the most filtering. Ranks devices by percentage of filtered traffic. Use this report to find out where device utilization is above the allowed service level.

Inventory. A list of every interface in the network, with RLO configuration details. Use this list to examine customer configurations or to compare interfaces on different devices.

Chapter 4, Sample Reports, contains report illustration and additional descriptions.

Data Collection

IP Access Rate uses one datapipe, the Cisco IP Access Rate Datapipe to poll the CAR MIB for the following metrics:

- Switched bytes
- Filtered bytes
- Burst rate
- Discards
- Errors

Adding and Modifying Properties

There is no separate property import for the reports in IP Access Rate. The property information that pertains to an interface, such as interface speed, customer, location, and device name, is inherited from two external sources:

- The property import utility bundled with the Interface Reporting Report Pack
- Common Property Tables

For more information about how to modify property data inherited from these two sources, refer to the following manuals:

- *Interface Reporting Report Pack 5.0 User Guide*
- *Common Property Tables 3.5 User Guide*

Integration with NNM

If you use NNM as well as OVPI, you have the option of improving your ability to isolate faults and diagnose problems by integrating OVPI with NNM. To integrate OVPI and NNM, install the Integration Module. The Integration Module includes a set of packages for NNM and a set of packages for OVPI.

If NNM and OVPI are integrated, we recommend installing the optional thresholds sub-package that comes with IP Access Rate. Installing the optional thresholds sub-package delivers a customized thresholds policy to the Thresholds Module, which uses the policy to monitor the database for threshold conditions and respond to breaches by taking an action in accordance with category, severity, and destination parameters. The default response is to send a breach trap to NNM. The breach trap received by NNM becomes an alarm in the NNM alarm browser, and by responding to the alarm the NNM operator can launch a Near Real Time report.

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 5.0 User Guide*.

Package Version History

The following table outlines recent enhancements to the IP Access Rate Report Pack.

Version	Release Date	Enhancements
1.0	May 2003	4 reports, no forms; Sybase support
2.0	October 2003	OVPI Object Manager support; thresholds sub-package
3.0	April 2004	OVPI 5.0 support; Oracle support
3.0	August 2004	Upgrade package ("to_3.0")
3.0	November 2004	No changes
3.0	June 2005	No changes

Ways to Customize Reports

You can change the contents of a report by applying group filters (not related to traffic filtering mentioned above), by updating property information, by applying constraints, and by editing tables and graphs. For details about view options for tables and graphs, see Appendix A, Editing Tables and Graphs.

Group Filters

If you want to share reports with your customers, you must configure OVPI to produce customer-specific reports. Here is an overview of the steps involved:

*   Use Common Property Tables to import customer names and device locations

*   Create a group account for all the users affiliated with each customer

*   Create a group filter for each group account

For more information about group filters, refer to the *OVPI 5.1 Administration Guide.*

Applying Constraints

When you edit a parameter, you apply a constraint to the report. If you edit the Customer Name parameter, data for all customers except the customer you typed in the Customer Name field will drop from the report. If you edit the Source Location, data for all locations except the location you typed in the Source Location field will drop from the report.

IP Access Rate 3.0 supports the following parameters:

*   Customer Name

*   Customer ID

*   Device Name

*   Interface Name

*   Admin Status

*   Location Name

You can apply multiple constraints at once. If you are viewing the report remotely (using the Web Access Server), apply a constraint 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

The demo package that comes with IP Access Rate contains a sample of each 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. Demo reports are interactive. Selection tables are linked to graphs and you can experiment with constraints and view options.

For information about the latest changes to this package and any known problems, refer to:

*   *IP Access Rate Report Pack 3.0 Release Statement*

*   *OVPI Report Packs, Version 8.0: Release Notes, June 2005*

For details about related packages, refer to the following documents:

*   *IP QoS Statistics Report Pack 3.0 User Guide*

*   *Interface Reporting Report Pack 5.0 User Guide*

- *Common Property Tables 3.5 User Guide*

Manuals for the core product, OVPI, and manuals for the reporting solutions and shared packages that run on OVPI, can be downloaded from this site:

http://www.managementsoftware.hp.com

Select **Support** > **Product Manuals** to reach the **Product Manuals Search** page. The user guides for OVPI are listed under **Performance Insight**. The user guides for report packs and datapipes are listed under **Performance Insight Reporting Solutions**.

The manuals listed under **Performance Insight Reporting Solutions** indicate the month and year of publication. If a manual is revised and reposted, the date of publication will change even if the software version number does not change. Since we post revised manuals on a regular basis, we recommend that you search this site for updates before using an older manual that might not be the latest version available.

2 Package Installation

This chapter covers the following topics:

- Guidelines for a Smooth Install
- Guidelines for a Smooth Upgrade to Version 3.0
- Installing IP Access Rate 3.0 [New Install]
- Accessing Deployed Reports
- Package Removal

Guidelines for a Smooth Install

The June 2005 report pack CD contains the latest report packs and datapipes. When you insert the CD in the CD-ROM drive and launch the package extraction program, the install script on the CD extracts every package from the CD and copies the results to the Packages directory on your system. After the extract finishes, the install script prompts you to launch OVPI and start Package Manager. Before using Package Manager, review the following guidelines.

Prerequisites for Installation

Version 3.0 of IP Access Rate has a combination of core-product requirements and package-level requirements. The core product requirements are as follows:

- OVPI 5.0 or higher
- All available Service Packs for the version of OVPI (5.0 or 5.1) you are running

You can find information about each service pack, including installation instructions, in the release notes for the service pack. The package-level prerequisites are as follows:

- Common Property Tables 3.5
- Interface Reporting 4.0 or higher
- Interface Discovery Datapipe 2.2
- Interface Reporting ifEntry Datapipe 2.2

Common Property Tables

If you are running Common Property Tables 2.2 or 3.0, upgrade to the latest version by installing the "to_3.5" upgrade package. Installing this upgrade package is no different from installing other upgrade package; however, do not install the "to_3.5" upgrade 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.

Distributed Environments

If you are running IP Access Rate as a distributed system across multiple servers, the central server, every satellite server, and every remote poller must be running the same version of OVPI and all available service packs for the version you are running. Following is a summary of the install procedure for distributed environments:

* Disable trendcopy on the central server.

* Install IP Access Rate 3.0 on the central server; enable the Deploy Reports option.

* Install the following packages on each satellite server:

    — IP Access Rate 3.0; do not deploy reports

    — IPAccessRate_Reporting_Thresholds (optional)

    — Cisco IP Access Rate Datapipe 3.0

* Re-enable trendcopy on the central server.

When you finish installing packages, configure each server by following the steps in Chapter 3, Distributed Systems. If you recently upgraded from OVPI 4.6 to OVPI 5.0 or OVPI 5.1, you must repeat the configuration steps you performed when you installed version 2.0. Repeating these steps is necessary because the technique for setting up connections with satellite servers has changed since OVPI 4.6 was released.

Optional Thresholds Sub-Package

If OVPI and NNM are integrated, you have the option of launching IP Access Rate reports from NNM in response to alarms that show up in the NNM alarm browser. To enable this option, install this package:

IPAccessRate_Reporting_Thresholds

The thresholds sub-package cannot operate without the Threshold and Event Generation Module, commonly known as the Thresholds Module. If you select the thresholds sub-package for installation, Package Manager will select and install the Thresholds Module for you.

Guidelines for a Smooth Upgrade to Version 3.0

If you are currently running IP Access Rate version 1.0 or version 2.0, you can upgrade to version 3.0 by installing the "to_3.0" upgrade package. Datapipes cannot be upgraded, so in addition to installing the upgrade package, you must delete the existing datapipe.

Before deleting the existing datapipe, you may need to save configuration data related to polling policies and polling groups. In addition, you may need to delete any custom table views you created yourself.

Datapipes and Remote Pollers

When you uninstall an existing datapipe, the following information will be lost:

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

You can export existing polling policy configurations and customized polling groups by using the collection_manager and group_manager commands.

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 tables or property tables, the views you created may interfere with the report pack upgrade process. 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 views will not be available after 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, then recreate them after the upgrade is complete.

Upgrading to IP Access Rate 3.0

Follow these steps to upgrade IP Access Rate 3.0:

1 Start Package Manager; delete Cisco IP Access Rate Datapipe 2.0.

2 Click **Done** when the removal finishes.

3 Start Package Manager; install the following package by itself, with no other packages:

UPGRADE_IPAccessRate_Reporting_to_3.0

4 Click **Done** when the install finishes.

5 Start Package Manage; install Cisco IP Access Rate Datapipe 3.0.

6 Click **Done** when the install finishes.

Installing IP Access Rate 3.0 [New Install]

Perform the following tasks to install the IP Access Rate Report Pack for the first time:

- Task 1: Stop OVPI Timer and extract packages from the report pack CD
- Task 2: If necessary, upgrade Common Property Tables
- Task 3: Install the following packages:
  - *IP Access Rate 3.0*
  - *Cisco IPAccessRate Datapipe 3.0*
  - *IPAccessRate_Reporting_Thresholds* (optional)

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 **Control Panel > Administrative Tools > Services**

UNIX: As root, do one of the following:

HP-UX: `sh /sbin/ovpi_timer stop`

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

3 Insert the report pack CD. On Windows, a Main Menu displays automatically. On UNIX, the CD may or may not mount automatically; if it does not mount automatically, navigate to the top level directory on the CD, and run the **./setup** command.

4 Type **1** in the choice field and press **Enter**. The install script displays a percentage complete bar. When the copy is complete, the install script starts Package Manager. The Package Manager install wizard opens.

When the copy to the Packages directory is complete, you have the option of navigating to the Packages directory to see the results. The Packages directory contains separate folders for the report pack and the datapipe. The following folders appear under IP Access Rate:

- *IPAccessRate_Reporting.ap*
- *IPAccessRate_Reporting_Demo.ap*
- *IPAccessRate_Reporting_Thresholds.ap*
- *UPGRADE_IPAccessRate_Reporting_to_3.0*

You can ignore the upgrade package. The following folder appears under Cisco IPAccessRate Datapipe:

- *Cisco_IPAccessRate_Datapipe.ap*

IP Access Rate 3.0 requires Common Property Tables. If you are currently using an earlier release, start Package Manager and install the "to_3.5" upgrade package. When Package Manager indicates that installation of the upgrade package is complete, click **Done** to return to the Management Console.

If you are not running any version of Common Property Tables, skip this task and let Package Manager install the latest version of Common Property Tables for you, automatically.

Task 3:   Install IP Access Rate, the datapipe, and the optional thresholds package

1   Start Package Manager. The Package Manager install wizard 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 defaults for application server name and port; type your user name 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:

   IPAccessRate_Reporting

   IPAccessRate_ Reporting_Thresholds (optional)

   IPAccessRate_Reporting_Demo

   Cisco_IPAccessRate_Datapipe

7   Click **Next**. The Type Discovery window opens. Keep the default and click **Next**. The Selection Summary window opens.

8   Click **Install**. The Install Progress window opens. When installation finishes, an install complete message appears.

9   Click **Done** to return to the Management Console.

10 Restart OVPI Timer.

   Windows: Select **Control Panel** > **Administrative Tools** > **Services**

   UNIX: As root, do one of the following:

      HP-UX: **sh /sbin/ovpi_timer start**

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

Accessing Deployed Reports

When you installed IP Access Rate, you enabled the Deploy Reports option. As a result, the reports in this package (as well as any forms associated with the package) were deployed to the OVPI Application Server. Once reports reside on the OVPI Application Server, you have two ways to view them:

• OVPI client applications

• Web browser

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

For more information about the clients, refer to the *OVPI 5.1 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 5.1 Administration Guide*.

Package Removal

Follow these steps to uninstall IP Access Rate and the Cisco IP Access Rate Datapipe:

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 **Control Panel** > **Administrative Tools** > **Services**

UNIX: As root, do one of the following:

HP-UX: **sh /sbin/ovpi_timer stop**

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

3   Start Package Manager. The Package Manager window opens.

4   Click **Next**. The Package Location window opens.

5   Click **Uninstall**. Keep the defaults.

6   Click **Next**. The Package Selection window opens.

7   Click the check box next to the following packages:

IPAccessRate_Reporting

IPAccessRate_ Reporting_Thresholds (if installed)

IPAccessRate_Reporting_Demo (if installed)

Cisco_IPAccessRate_Datapipe

8   Click **Next**. The Selection Summary window opens.

9   Click **Uninstall.** The Progress window opens. When the removal finishes, a removal complete message appears.

10   Click **Done** to return to the Management Console.

11   Restart OVPI Timer.

Windows: Select **Control Panel** > **Administrative Tools** > **Services**

UNIX: As root, do one of the following:

HP-UX: **sh /sbin/ovpi_timer start**

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

3 Distributed Systems

If you intend to run IP Access Rate as a distributed system, and you followed the instructions in the previous chapter, the central server is running IP Access Rate and each satellite server is running IP Access Rate, the thresholds sub-package, and the Cisco IPAccessRate Datapipe. Your next task is to configure the central server and each satellite server. This chapter covers the following topics:

- Configuring the central server
- Configuring each satellite server
- System clocks

Configuring the Central Server

Perform these tasks to configure the central server:

- Set up connections with satellite server databases
- Switch off hourly processing on the central server
- Configure trendcopy pull commands for hourly data
- Configure trendcopy pull commands for rate data (optional)

In addition to performing these tasks, it is important to verify that the system clock on the central server is synchronized with system clocks on the satellite servers.

Task 1: Set up connections with satellite server databases

1 Start the Management Console.

2 Click the **Systems** icon on the lower left. The System/Network Administration pane opens.

3 Right-click the **Databases** folder. When prompted, select **Add OVPI Database**. The Add Database Wizard opens.

4 Click **Next**.

5 Type the host name and port number for the database you want to add; click **Next**.

6 Review the Summary. Repeat Steps 4 and 5 for each additional database.

7 Click **Finish** when you are done.

Task 2: Switch off hourly processing on the central server

1 Modify the hourly process file; open the following file:

    $DPIPE_HOME/scripts/IPAR_Hourly_Process.pro

2 Comment out block1 by adding the comment sign ("#") before the word **begin** and the word **end**.

1 Open the following file:

`$DPIPE_HOME/scripts/IPAR_Hourly_Process.pro`

2 Modify block2 as follows:

- Remove "#" before the word **begin** and before the word **end**
- Replace *SATELLITE_SERVER_1_DATABASE* with the satellite server name
- Replace *THIS_MACHINE_DATABASE* with the central server name

3 If there is more than one satellite server, create a copy of block2 for each satellite server and repeat step 2 for each copy of block2.

If you want to view the Near Real Time report from the central server, you need to copy rate data from each satellite server to the central server. To do that, configure trendcopy pull commands from the central server for each satellite server.

1 Open the following file:

`$DPIPE_HOME/scripts/IPAR_Hourly_Process.pro`

2 Modify block3 as follows:

- Remove "#" before the word **begin** and before the word **end**
- Replace the *SATELLITE_SERVER_1_DATABASE* with the satellite server name
- Replace *THIS_MACHINE_DATABASE* with the central server name

3 If there is more than one satellite server, create one copy of block3 for each satellite server and repeat Step 2 for each copy of block3.

> Pulling rate data from satellite servers increases traffic between satellite servers and the central server and increases the processing load on the central server.

Configuring a Satellite Server

Follow these steps to configure a satellite server.

1 Switch off daily aggregations by commenting out the lines referencing `IPAR_DMF_Process.pro` in the `$DPIPE_HOME/lib/trendtimer.sched` file.

2 Modify the `IPAR_Hourly_Process.pro` trendtimer entry in the `$DPIPE_HOME/lib/trendtimer.sched` file.

By default, this process starts at 40 minutes after the hour. Since you want the satellite server to complete its hourly summarizations before the central server begins its hourly summarizations, change the start time from 1:00+40 to 1:00+25.

3 Configure polling policies for the Cisco IPAccessRate Datapipe. Make sure that each interface is polled by one satellite server only.

System Clocks

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

4 Sample Reports

Near Real Time Interface Activity

This report highlights RLO interfaces with a high proportion of filtered traffic. The entries in the selection table sort according to the filtered/switched ratio, highest to lowest. If you see an interface with a high proportion of filtered traffic, you can inspect the rate limiting rules that apply to the interface.

The graphs provide details for the ratio of filtered traffic to all traffic (in bytes), the ratio of filtered traffic to switched traffic, and the current burst traffic rate. The graphs show data collected over the previous six hours, for switched traffic, filtered traffic, and burst rate. The graph at the bottom shows utilization, errors, and discards over the previous six hours.

Recent IP Access Rate Activity

The design of this report is unusual compared to most OVPI reports. If you select a customer from the pick-list, the table to the right populates with a list of devices operated by that customer that have seen rate-limited interfaces with activity during the previous hour. The list of devices also indicates the amount of traffic filtered, the amount switched, and the ratio of filtered to switched traffic expressed as a percentage. Once you select a device from the list of devices, the three tables below update simultaneously, showing:

- Provisioning information at the device level
- The rate-limited interfaces on the selected device
- The RLOs configured for each interface

The graph at the bottom of the report compares the volume of conform traffic to the volume of exceed traffic from multiple perspectives—the device, the interface, and the RLO.

Historical IP Access Rate Activity

This report looks at yesterday's filtering activity and sorts devices by filtering from highest to lowest. The list of devices indicates totals for switched packages, filtered packets, switched bytes, and filtered bytes. Drill down on a selected device to display a list of rate limited interfaces.

Use this report to determine which devices are exceeding rate limits and which customers may be transmitting more data than their service level can accommodate. Use the hourly chart at the bottom of the report to find out exactly when filtering took place. Compare the hourly chart to the daily and monthly charts to find out whether yesterday's filtering activity is consistent with a longer-term trend, or an isolated incident.

Inventory Report

This report provides a list of all the interfaces in the network and the rate limit objects configured for each interface. Use this report to examine customer configurations or to compare individual interfaces on different devices. The details about interfaces and rate limit objects are updated after every poll cycle. The list of customers is refreshed every evening.

Selecting a customer from the pick-list displays a list of the interfaces belonging to that customer that are configured with rate-limit objects. Select an interface from this list to display values for:

- Direction
- Rate index
- Conformance action
- Exceed action
- Limit
- Extended limit
- Access list number

IP Access Rate Reporting
Near Real Time Interface Activity

The IP Access Rate Near Real Time report provides a detailed look at the performance of individual IP Access Rate Limit Objects and the interfaces on which they reside, up to the last poll cycle. Select an interface from the list to see filtered and switched metrics per Rate Limit object along with utilization, discards and error counts for the parent interface over the previous 6 hours.

Rate Limiting Interfaces
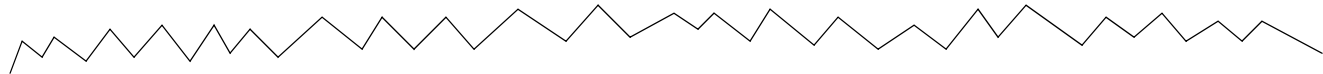#### Active Interfaces With Rate Limits Over Previous 6 Hours

Device	Interface	ifSpeed	Admin Status	Customer	Filtered / Switched	Filtered %
63.237.13.1	Hssi1/0	In: 44.2 Mb/s Out: 44.2 Mb/s	Up	Customer 2	305.9 Mb : 677.7 Mb	31
64.214.129.1	Serial5/0/0	In: 44.2 Mb/s Out: 44.2 Mb/s	Up	Customer Unassigned	2.3 Mb : 50.5 Mb	4
64.214.130.1	Serial5/0/0	In: 44.2 Mb/s Out: 44.2 Mb/s	Up	Customer Unassigned	2.3 Mb : 50.5 Mb	4
63.238.176.1	Serial1/0:19	In: 512.0 Kb/s Out: 512.0 Kb/s	Up	Customer Unassigned	11.4 Mb : 376.0 Mb	3
65.211.170.1	Ethernet0/1	10 Mb/s	Up	Customer Unassigned	1.6 Mb : 69.0 Mb	2
65.171.113.1	FastEthernet0/0	100 Mb/s	Up	Customer Unassigned	441.0 Kb : 31.4 Mb	1
63.238.176.1	Serial1/0:5	In: 512.0 Kb/s Out: 512.0 Kb/s	Up	Customer Unassigned	3.0 Kb : 3.3 Mb	0
66.205.94.1	FastEthernet5/0/0	100 Mb/s	Up	Customer 4	0 bytes : 206.5 Kb	0
63.238.176.1	Serial1/0:1	In: 256.0 Kb/s Out: 256.0 Kb/s	Up	Customer Unassigned	0 bytes : 0 bytes	0
65.242.400.4	Serial0/0	In: 4.500 Mb/s Out: 4.500 Mb/s	Up	Customer Unassigned	0 bytes : 0 bytes	0

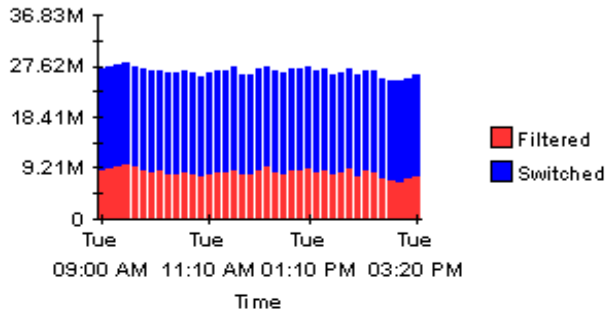### Rate Limit Objects on '63.237.13.1: Hssi1/0' Over Previous 6 Hours

Dir	RateIndex	Conform Act.	Exceed Act.	Limit	Rate	ExtLimit	Type	AccIdx	Filtered / Switched	Filter %
Output	2	Continue	drop	64,000	256,000	64,000	All	-	305.9 Mb : 677.7 Mb	31.101

Filtered / Switched Bytes
Over Previous 6 Hours

36.83M
27.62M
18.41M
9.21M
0

Tue   Tue   Tue   Tue
09:00 AM 11:10 AM 01:10 PM 03:20 PM

Time

■ Filtered
■ Switched

Burst Rate | Permitted Prob |

Burst Rate

63,836.10
42,557.40
21,278.70
0

Tue   Tue   Tue   Tue   Tue
09:00 AM 10:30 AM 12:00 PM 01:30 PM 03:00 PM
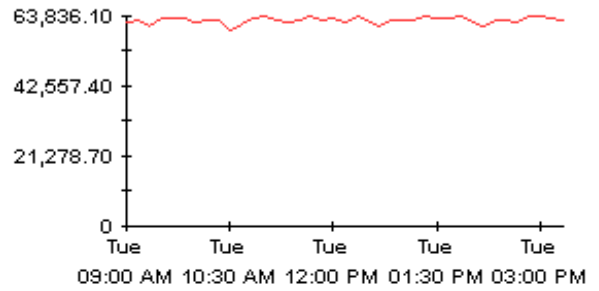
bound | Outbound | Both (Half Duplex Only) |

Average Inbound Utilization, Discards and Errors for 63.237.13.1: Hssi1/0
% of Available Bandwidth in the Previous 6 hours

0.01

% of Available Bandwidth

0

Tue   Tue   Tue   Tue   Tue   Tue
09:00 AM   10:00 AM 10:40 AM 11:20 AM 12:00 PM   01:00 PM

—— Avg Utilization
—— Avg Discards
—— Avg Errors
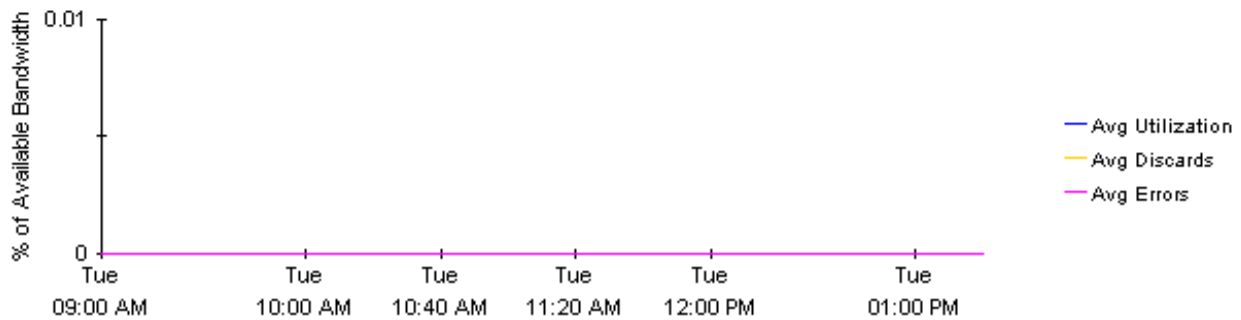
IP Access Rate Reporting
Recent IP Access Rate Activity

The Recent IP Access Rate Devices Activity provides lists of managed devices, split by customer, and focuses on filtering activity within the most recent summarized hour. An 'X' to the left of a device name indicates that a summary has not been performed recently and it should be investigated. Use this report to look at hourly activity on a device over the previous few days. Use the lower selection lists to narrow in on exactly which Rate Limit is dropping the traffic.

Customer	Id
Customer Unassigned	-2
Hewlett Packard	4
Huge Corp	2

Device Rate Limit Figures
For Most Recent Summarized Hour

Device	Location	Volume Filtered/Switched	Filtered %
65.171.113.1	Location Unassigned	8.1 Mb : 88.9 Mb	8.375
66.205.94.1	Location Unassigned	8.4 Mb : 99.6 Mb	7.771
64.214.130.1	Location Unassigned	137.1 Kb : 2.4 Mb	5.282
64.214.129.1	Location Unassigned	137.1 Kb : 2.4 Mb	5.275
65.194.90.1	Location Unassigned	0 bytes : 38.5 Kb	0.000
65.194.91.1	Location Unassigned	0 bytes : 38.5 Kb	0.000
63.238.176.1	Location Unassigned	0 bytes : 630.6 Kb	0.000
65.207.187.1	Location Unassigned	0 bytes : 38.5 Kb	0.000
65.211.170.1	Location Unassigned	0 bytes : 3.6 Mb	0.000
65.212.180.1	Location Unassigned	0 bytes : 0 bytes	0.000
65.216.159.1	Location Unassigned	0 bytes : 38.5 Kb	0.000

Sys Contact	Sys Name	Sys Location	Sys Descr
N/A	ICS-327Main	N/A	Cisco Internetwork O ...

Rate Limiting Interface Data
For Most Recent Summarized Hour

Interface	ifSpeed	Admin Status	Protocol	Filtered / Switched	Filtered %
FastEthernet0/0	100 Mb/s	Up	ethernet-csmacd	8.1 Mb : 88.9 Mb	8.375

Rate Limit Objects on '65.171.113.1: FastEthernet0/0'
For Most Recent Summarized Hour

Dir	RateIndex	Conform Act.	Exceed Act.	Limit	Rate	ExtLimit	Type	AccIdx	Filtered / Switched	Filter %
Output	1	Transmit	Drop	8,000	128,000	8,000	All	-	4.3 Mb : 43.5 Mb	9.049
Input	1	Transmit	Drop	8,000	128,000	8,000	All	-	3.8 Mb : 45.3 Mb	7.719

Devices | Interfaces | Rate Limits |

Hourly Filtering for 65.171.113.1: -2
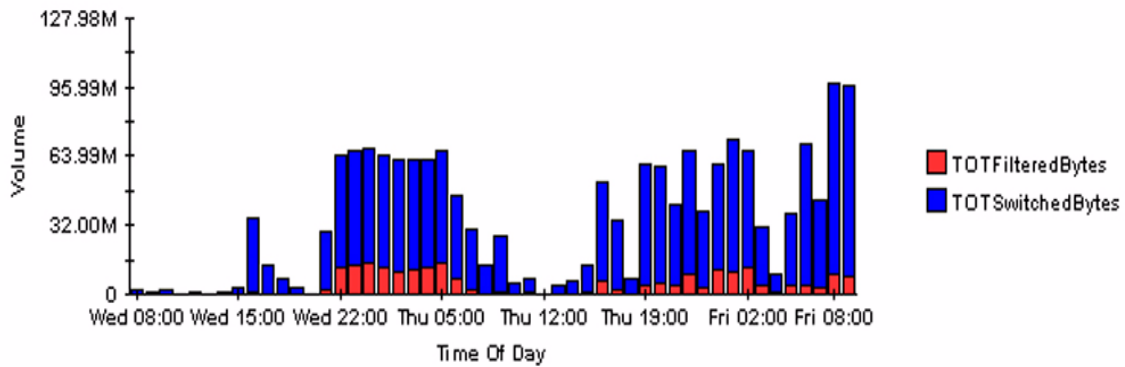
IP Access Rate Reporting
Historical IP Access Rate Activity

The Historical IP Access Rate Devices Activity provides lists of managed devices, split by customer, and focuses on those devices which are filtering the highest proportion of their traffic due to Rate Limit objects. Use the report to decide which devices are more heavily utilized than their current service level allows. Filter the display using the built in parameters.

Customer	Id
All Customers	-1
Customer Unassigned	-2
Hewlett Packard	4
Huge Corp	2

Device Rate Limit Figures For Yesterday

Device	Vendor Name	Volume Filtered/Switched	Packets Filtered/Switched	Filtered %
63.237.13.1	Cisco 3640	479.5 Mb : 912.5 Mb	820049 : 15291143	34
65.171.113.1	Cisco 2620	55.8 Mb : 301.5 Mb	42603 : 297332	16
64.214.130.1	Cisco 7513z	4.4 Mb : 130.0 Mb	3353 : 441922	3
64.214.129.1	Cisco 7513z	4.4 Mb : 130.1 Mb	3353 : 441931	3
63.238.176.1	Cisco 7204	8.9 Mb : 365.8 Mb	8156 : 878962	2
65.211.170.1	Cisco 2611	7.7 Mb : 515.8 Mb	5672 : 957606	1
65.194.90.1	Cisco 2620	0 bytes : 1.8 Mb	0 : 24645	0
65.194.91.1	Cisco 2620	0 bytes : 1.8 Mb	0 : 24645	0
66.205.94.1	Cisco 7507	0 bytes : 201.4 Kb	0 : 1614	0
65.207.187.1	Cisco 2620	0 bytes : 1.8 Mb	0 : 24645	0
65.212.180.1	Cisco 2620	0 bytes : 0 bytes	0 : 0	0
65.216.159.1	Cisco 2620	0 bytes : 1.8 Mb	0 : 24643	0

Rate Limiting Interfaces

Interface	ifSpeed	Admin Status	Protocol
Hssi1/0	In: 44.2 Mb/s Out: 44.2 Mb/s	Up	propPointToPointSerial

Daily | Hourly | Monthly |

Daily Filtering for 63.237.13.1: All

TOTFilteredBytes
TOTSwitchedBytes
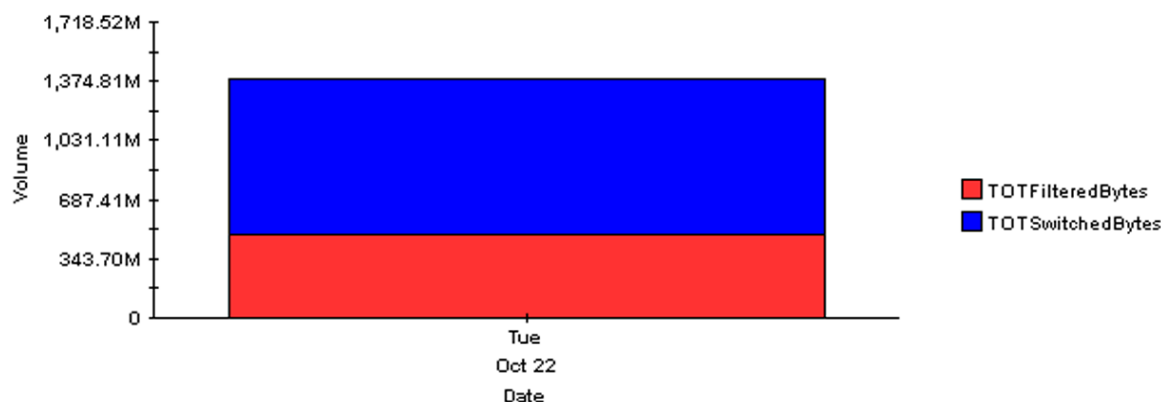
IP Access Rate Reporting
IP Access Rate Inventory

The IP Access Rate Inventory report provides a list of all interfaces on the network with Rate Limiting Objects configured. Use the report to examine the configurations for entire customers or to compare individual interfaces on different devices. The interface and Rate Limit object details are updated after every poll cycle. The Customer list is refreshed every evening.

Customer	Customer Id
Customer 2	2
Customer 4	4
Customer Unassigned	-2

Rate Limiting Interfaces

Device	Interface	ifSpeed	Admin Status	Protocol
63.237.13.1	Hssi1/0	In: 44.2 Mb/s Out: 44.2 Mb/s	Up	propPointToPointSerial

Rate Limit Objects on '63.237.13.1: Hssi1/0'

Dir	RateIndex	Conform Act.	Exceed Act.	Limit	Rate	ExtLimit	Type	AccIdx
Output	2	Continue	Drop	64,000	256,000	64,000	All	-

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 display 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.

| Set Time Period... |
| Change Constraint Values... |
| Select Nodes/Interfaces... |
| Change Max Rows... |
| View in new Frame |
| Print Table... |
| Export Element as CSV... |
| Delete Table |
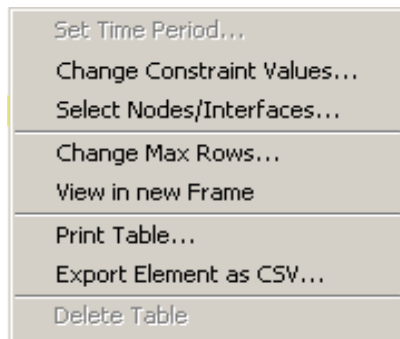
Select **Set Time Period** to alter the relative time period (relative to now) or set an absolute time period. The Set Time Period window opens.

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.

Table Viewer

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

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.

| Add Overlay... |
| Remove Overlay |
| Set Time Period... |
| Change Constraint Values... |
| Select Nodes/Interfaces... |
| Displayed Data ▶ |
| Grid ▶ |
| Legend ▶ |
| Style ▶ |
| Change Max Rows... |
| Display Data Table |
| Export Element as CSV... |
| Display Overlay Data Table |
| Export Graph Overlay Data as CSV... |
| View in new Frame |
| Print Graph... |
| Delete Graph |
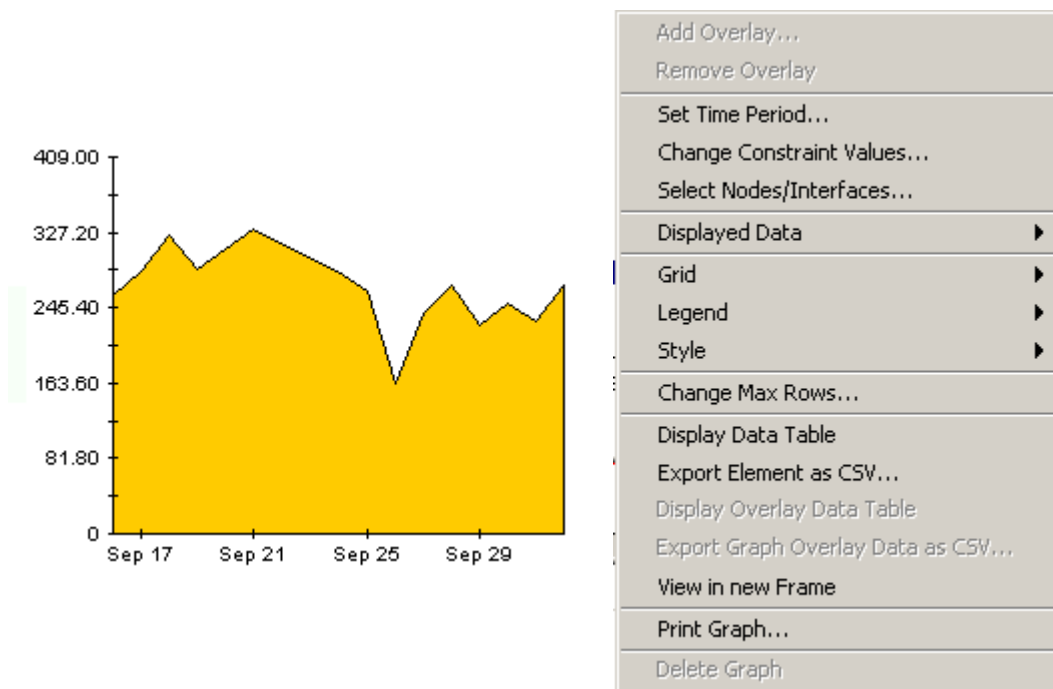
The following table provides details about each option.

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.
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.
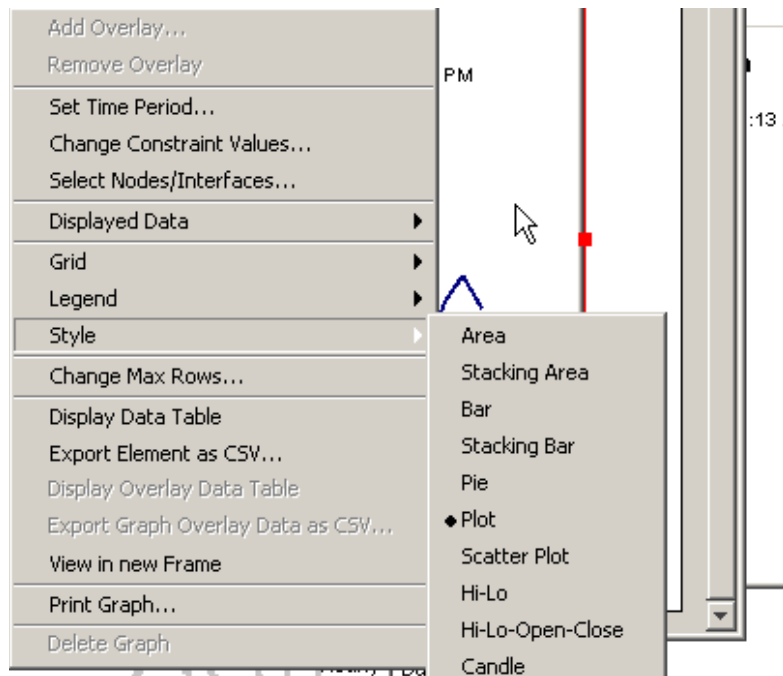
Style > Area

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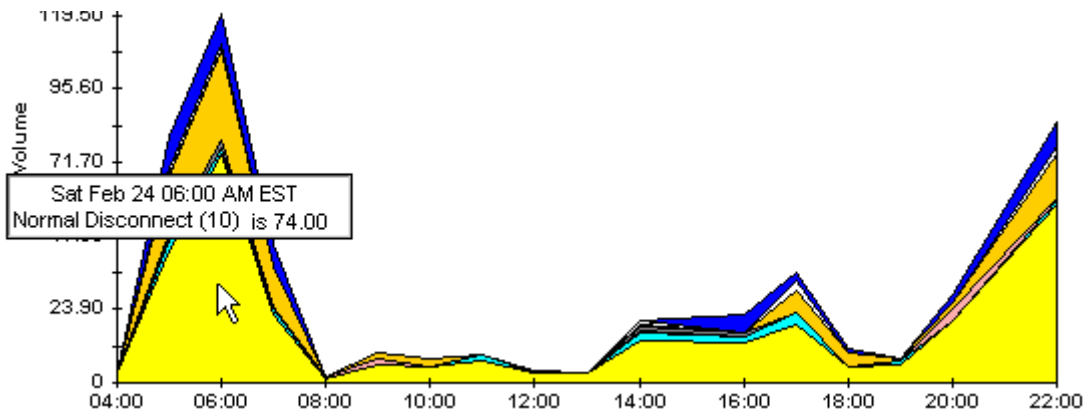
To shorten the time span of a graph, press SHIFT+ALT and use the left mouse button to highlight the time span you want to focus on. Release the mouse button to display the selected time span.

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.
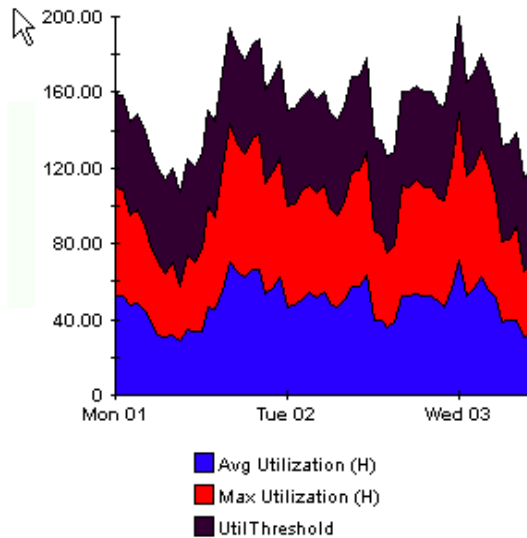
Style > Bar

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.
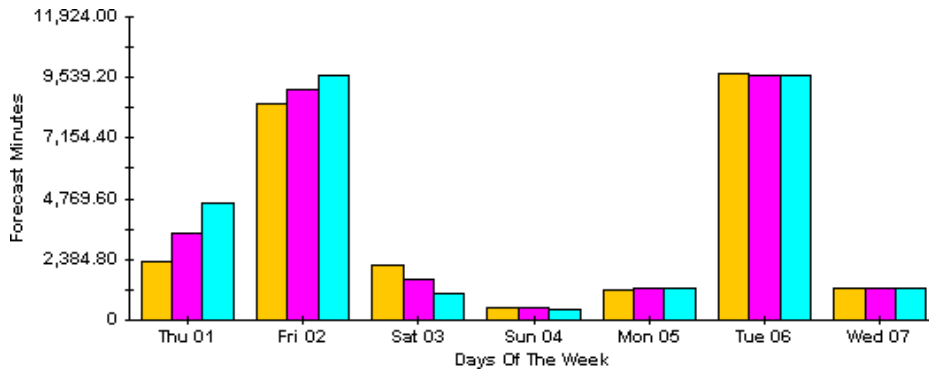
Style > Stacking Bar

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.
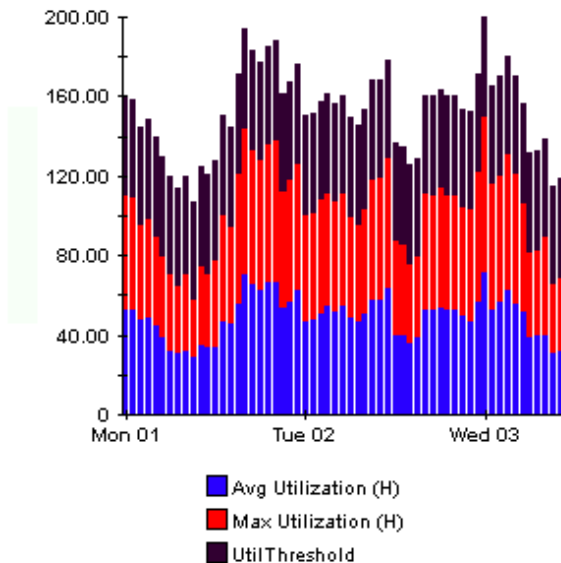
Style > Plot

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.
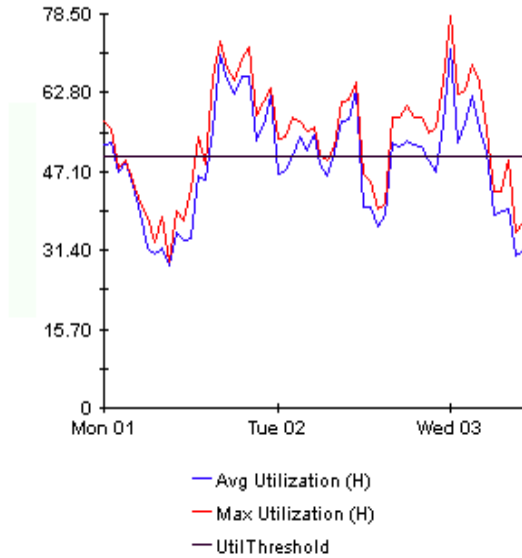
Style > Pie
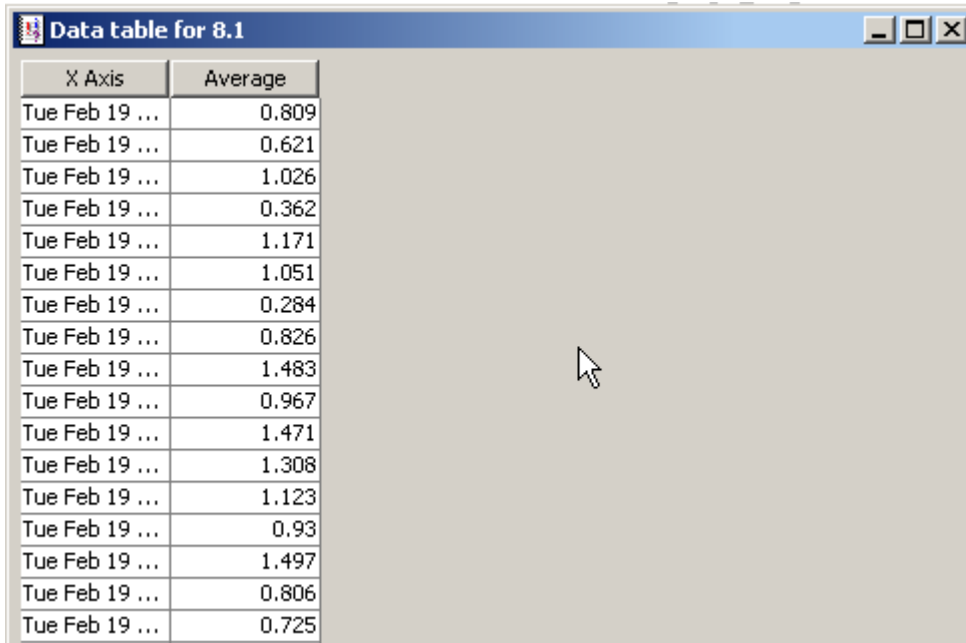
An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.
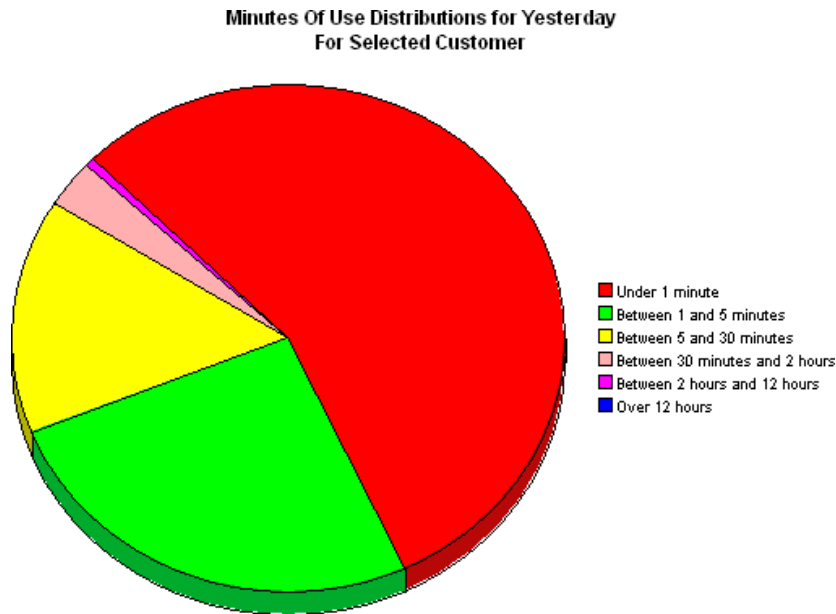
If you are looking at data for more than one day, you will see one pie graph for each day.

Display Data Table

This option changes a graph into a spreadsheet.

View in New Frame

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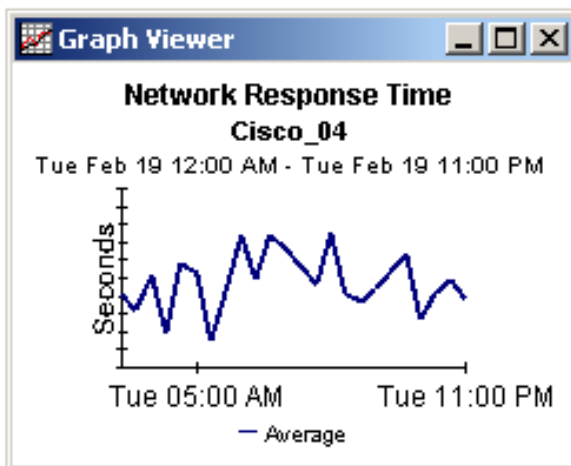
Glossary

accIdx

Access List Number. The index to the access list if Rate Limit Type is either quickAcc or standardAcc.

conform act

Conform Action. The action taken for those packets that conformed with the rate limit.

exceed act

Exceed Action. The action taken for those packets that exceeded the rate limit.

ext limit

Extended limit. The excess burst size in bytes. The amount of traffic, in bytes, in excess of the burst limit that may be permitted by the rate limit rule.

filtered

A byte or packet that exceeded the rate limit and was dropped at the interface.

filtered/switched ratio

A low ratio indicates that few packets are being dropped, a high ratio indicates that many packets are being dropped. The end user wants to keep the ratio low. The service provider wants to prevent congestion on the backbone to a minimum. A high ratio could indicate that a customer needs a different service level.

limit

Traffic above the CIR that is instantly permitted by the rate limit rule. Synonymous with normal burst size measured in bytes.

Near Real Time (NRT)

A report containing a rolling average for performance over the last six hours. The most recent data in this report was collected by the most recent poll, which probably took place within the last 15 minutes.

rate data

This is an OVPI term. Rate data is data as it was collected; the actual samples, without summarizing the data by hour. Rate data appears in Near Real Time reports.

rate index

An arbitrary index for rate limit objects. It will increase as the list is traversed, but may skip.

rate

Transmission rate or sustained rate permitted by the rate limit rule.

rate limit object

A rule or regulator applied to traffic at the interface level, moving in a given direction. Rate limiters are defined by a series of settings and actions. Typically, lower priority traffic will pass by multiple limiters, while higher priority traffic will be subject to one limiter only.

switched

A byte or packet that was transmitted normally and was not dropped.

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