RMON Ethernet Statistics Report Pack

Software Version: 3.0

HP OpenView Performance Insight

User Guide

December 2005

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Contents

1   Overview

This chapter covers the following topics:

- OVPI and the Ethernet Statistics Group
- Version history
- Integration with Network Node Manager (NNM)
- Ways to customize reports
- Sources for additional information

OVPI and the Ethernet Statistics Group

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 diagnostics, and capacity planning.

RFC2821 defines the statistics and functions that an RMON probe exchanges with a console manager. The Ethernet Statistics Group is one of several data groups defined by RFC2821. Data in the Ethernet Statistics Group is produced by the following counters:

- Drop events
- Octets
- Packets
- Broadcast packets
- Multicast packets
- CRC alignment errors
- Undersized packets
- Oversized packets
- Fragments
- Jabbers
- Collisions
- Packets containing fewer than 64 octets
- Packets containing between 65 and 127 octets
- Packets containing between 128 and 255 octets
- Packets containing between 256 and 511 octets

- Packets containing between 512 and 1023 octets
- Packets containing between 1024 and 1518 octets

The RMON Ethernet Statistics Report Pack installs on OVPI. Use the reports in this package to see what the counters listed above are picking up. The RMON Ethernet Statistics Report Pack includes the following reports:

1 Historical Broadcast/Multicast Packet Analysis

2 Near Real Time Broadcast/Multicast Packet Analysis

3 Historical Packet Size Distribution

4 Near Real Time Packet Size Distribution

5 Historical Error

6 Near Real Time Error

7 Drop Events

8 Inventory Report

Historical reports compare yesterday's performance to performance over the previous 31 days. Near Real Time reports assess performance over the previous 12 hours. The counts and percentages you see in a Near Real Time report factor in data retrieved by the most recent poll, which took place within the last few minutes.

Version History

The following table provides details about recent enhancements to RMON Ethernet Statistics.

Version	Release Date	Features/Enhancements
1.0	May 2003	8 reports; Sybase support
2.0	October 2003	OVPI Object Manager support
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
3.0	December 2005	No changes

Integration with Network Node Manager (NNM)

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

If NNM and OVPI are integrated, you should also install the optional thresholds sub-package that comes with RMON Ethernet Statistics. Installing the optional thresholds sub-package configures the Thresholds Module to monitor the database for broadcast/multicast threshold breaches and respond to a breach 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 launching an OVPI 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*.

Ways to Customize Reports

You can customize the reports in this package by applying group filters, by editing parameters, tables, and graphs, and by importing custom property data such as customers and locations. Service providers, or any organization that wants to share reports with customers, use group filters to produce customer-specific reports. Edits to parameters, tables, and graphs are temporary changes and anyone can make these changes.

Group Filters

If you intend to share reports with customers, you will need customer-specific reports. Creating customer-specific reports involves the following steps:

- Importing custom property information (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 group filters, refer to the *OVPI 5.1 Administration Guide*.

Editing Parameters

When you edit a parameter, you apply a constraint. The constraint eliminates data you do not want in the report. For example, if you edit the Customer Name parameter, data for every customer except the customer you typed in the Customer Name field will disappear.

You can apply multiple constraints at once. RMON Ethernet Statistics supports the following parameters:

- Customer Name
- Device
- Interface
- Protocol
- Location

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 **Current Value**. Type a new value and click **OK**.

Tables and Graphs

In addition to applying constraints, you can modify individual tables and graphs within a report. To do this, click the **Edit Table** and **Edit Graph** icons, or simply right-click the object if you are using the Report Viewer application. For details about view options for tables and graphs, see Chapter A, .

Custom Property Information

All the property information that pertains to an interface (interface speed, customer, location, device name, and UtilThreshold) is inherited from the Interface Reporting Report Pack. If you want to change the utilization threshold, you can let OVPI read a property import file that you create yourself or you can work with the Change Protocol Defaults form that comes with Interface Reporting. For details, see Chapter 3, Changing Thresholds.

Sources for Additional Information

The demo package that comes with RMON Ethernet Statistics 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 parameters and view options.

For information about recent enhancements to this package and any known issues, refer to:

- *RMON Ethernet Statistics Report Pack 3.0 Release Statement*

The following documents are related to this manual:

- *Interface Reporting Report Pack 5.0 User Guide*

- *Common Property Tables 3.5 User Guide*

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

Manuals for the core product, OVPI, and manuals for the reporting solutions that run on OVPI are posted to the following web site:

> **http://www.managementsoftware.hp.com**

Select **Support** > **Product Manuals** to open 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. Since we post revised manuals on a regular basis, we recommend searching 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

Installing the RMON Ethernet Statistics Datapipe configures OVPI to poll the RMON MIB. Installing the RMON Ethernet Statistics Report Pack configures OVPI to process data collected by the datapipe, generate trending analysis, and display the results of that analysis in a series of reports.

The December 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 to the Packages directory on your system. When the extract finishes, the install script prompts you to launch OVPI and start Package Manager. Before using Package Manager, review the following guidelines.

Software Prerequisites

Version 3.0 of RMON Ethernet Statistics Reporting 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 will 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 5.0
- Interface Discovery Datapipe 2.2
- Interface Reporting ifEntry Datapipe 2.2

Common Property Tables

If you are running an earlier version of Common Property Tables (version 2.2 or version 3.0), upgrade to version 3.5. Installing the "to_3.5" upgrade package for Common Property Tables is no different from installing any other upgrade package; however, you cannot install other packages when you install this upgrade package. Install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables.

Running this Package in a Distributed Environment

If you intend to run RMON Ethernet Statistics 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 the same service packs. When you finish installing packages, you must set up connections with satellite server databases and configure trendcopy pull commands. For details, see Chapter 4, Distributed Systems.

Upgrading from Version 2.0 to Version 3.0

If you are currently running an earlier version of RMON Ethernet Statistics, you can upgrade to version 3.0 by installing the "to_3.0" upgrade package. Because datapipes cannot be upgraded, you must delete your existing datapipe before installing the latest version of that datapipe. Here is the recommended sequence of events:

1   Start Package Manager; delete RMON_EthernetStatistics_Datapipe_2.0.

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

3   Start Package Manager; install UPGRADE_RMON_EthernetStatistics_to_3.0 (by itself, no other packages).

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

5   Start Package Manager; install RMON_EthernetStatistics_Datapipe_3.0.

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

Before performing the preceding steps, you may need to save configuration data related to polling policies and polling groups. In addition, you may need to delete any views of data or property tables that you created yourself. If you do not delete custom table views, the report pack upgrade process may fail.

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 or property tables, the views you created may interfere with the report pack upgrade process, 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, however, your custom table 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 custom table views before you upgrade the report pack and recreate them after the upgrade is complete.

Installing RMON Ethernet Statistics 3.0

Perform the following tasks to install RMON Ethernet Statistics on a stand-alone system:

- 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:
  — RMON_EthernetStatistics 3.0
  — RMON_EthernetStatistics_Thresholds *(optional)*
  — RMON_EthernetStatistics Datapipe 3.0
- Task 4: 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.

On 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**.

On 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 in the CD-ROM drive. On Windows, a Main Menu opens 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 RMON Ethernet Statistics and the RMON_EthernetStatistics Datapipe. The following folders appear under RMON Ethernet Statistics:

• *RMON_EthernetStatistics.ap*

• *RMON_EthernetStatistics_Demo.ap*

• *RMON_EthernetStatistics_Thresholds.ap*

• *UPGRADE_EthernetStatitiscs_to_3.0.ap*

The following folder appears under RMON_EthernetStatistics Datapipe*:*

• *RMON_EthernetStatistics Datapipe.ap*

Task 2:Upgrade Common Property Tables

RMON Ethernet Statistics 3.0 requires Common Property Tables. If you have not already upgraded Common Property Tables, install the "to_3.5" upgrade package. When you install the upgrade, do not install other packages at the same time. Install the upgrade for Common Property Tables and *only* the upgrade for Common Property Tables. If you need help with the upgrade, refer to the *Common Property Tables 3.5 User Guide*.

Task 3:Install RMON Ethernet Statistics 3.0 and the datapipe

1 From the Management Console, select **Tools > 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, if necessary, select a different directory.

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:

RMON_EthernetStatistics

RMON_EthernetStatistics_Thresholds (optional)

RMON_EthernetStatistics_Datapipe

7   Click **Next**. The Type Discovery window opens; accept the default.

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

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

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

Task 4: Restart OVPI Timer

On 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**.

On 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 this report pack, you enabled the Deploy Reports option. As a result, the reports in this package (as well as any forms) 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 were not installed on your system, you must use a web browser to view reports.

For details about the client applications, 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 related to a specific object, refer to the *OVPI 5.1 Administration Guide*.

Package Removal

Follow these steps to uninstall RMON Ethernet Statistics 3.0.

1 Log in to the system. On UNIX systems, log in as root.

2 Stop OVPI timer and wait for processes to terminate.

   On 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**.

   On 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 welcome window opens.

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

5 Click **Uninstall**.

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

7 Click the check box next to the following packages:

   RMON_EthernetStatistics

   RMON_EthernetStatistics_ Thresholds (if installed)

   RMON_EthernetStatistics_Demo (if installed)

   RMON_EthernetStatistics_Datapipe

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

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

10 Click **Done**.

11 Restart OVPI Timer.

   On 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**.

   On UNIX, as root, do one of the following:

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

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

3 Changing Thresholds

When you installed RMON Ethernet Statistics 3.0 and deployed reports, you also deployed one form, the Change Threshold form. This form lets you perform a task related to an object. The object is either a device and all of its interfaces, or an individual interface.

The Change Threshold form appears under **Object Specific Tasks** in the Object/Property Management window. This form (along with other forms) will be listed under **Object Specific Tasks** any time you select a device or an interface that is running the RMON probe.

The easy way to change the Broadcast/Multicast Threshold is to use the Change Threshold form. The more difficult way to modify the threshold is to create a file that includes a new threshold value, and then let OVPI import your file and update the property table.

Putting Property Data in a File

You can create an import file by building it from scratch, by exporting the required attributes from your own provisioning database, or by letting OVPI collect some property data on its own and then exporting what was collected. Since building a property import file from scratch is not always easy, we recommend that you follow these steps:

1   Allow the system to discover a few devices on its own.

2   Export existing property data from OVPI by typing this command:

   trend_proc -f RMON_EtherStats_exportdata.pro

3   Use the results as a starting point for a property file you will modify.

4   Store your modified file in the correct directory (where OVPI expects to find it) and import the file by typing this command:

   trend_proc -f RMON_EtherStats_importdata.pro

If you do not type this command, OVPI will import your file at 4:00 a.m., well before daily, monthly, and forecasting summaries are started. If the default source and destination directories have not been modified, the import command will import data from, and the export command will export data to, the following directory:

   $DPIPE_HOME/data/PropertyData

The following table describes the format of the Property Import file. If you are creating this file yourself, make sure that your file adheres to this format. The sequence of attributes left to right must follow this sequence of attributes top to bottom and your attributes must be delimited by tabs, not spaces.

Attribute	Type	Default	Description
Node name	char_string,64	N/A	Device name.
Interface name	char_string,188	N/A	Interface name.
BcastMcastThreshold	integer	50	Broadcast/ Multicast Threshold. The percentage of traffic of type Broadcast or Multicast.

If you export this file from OVPI, the format will be correct; no checking is necessary.

Using the Change Threshold Form

The value for Broadcast/Multicast Threshold is defaulted to 50%. Follow these steps to open the Change Threshold form and modify the Broadcast/Multicast Threshold:

1   Open the Management Console.

2   Click the **Objects** icon.

3   Navigate to the interface you want to update and select it; or navigate to the device, if you want to update the threshold for all of the interfaces on that device, and select it.

4   The Change Bcast-Mcast Threshold form is listed along with other change forms under **Object Specific Tasks**.

5   Double-click the Change Bcast-Mcast Threshold form. The form opens.

6   Update the threshold as required.

7   Click **Apply** to save changes, then click **OK** to save changes and close the form. If you do not want to save the changes you made, click **Cancel**.

Conditions for Sending Traps to NNM

The thresholds sub-package that comes with RMON Ethernet Statistics 3.0 will send a threshold trap to your NNM server if the following two conditions are in effect at the same time:

- The Broadcast/Multicast Threshold is being exceeded.
- The Utilization Threshold is being exceeded.

The utilization threshold is inherited from the Interface Reporting Report Pack. To modify this threshold, use the Change Protocol Defaults form, shown below. For more information about this and other forms bundled with Interface Reporting, refer to the *Interface Reporting Report Pack 5.0 User Guide*.

4 Distributed Systems

This chapter covers the following topics:

- Proper package installation
- Configuring a central server
- Configuring a satellite server
- System clocks

Proper Package Installation

If you intend to run the RMON Ethernet Statistics package as a distributed system, you must configure all of the servers in the system. Before starting that task, use the following table to verify that your servers are running the right packages.

Central Server	Each Satellite Server
RMON_EthernetStatistics 3.0	RMON_EthernetStatistics 3.0
Common Property Tables 3.0 or higher	Common Property Tables 3.0 or higher
Interface Reporting 4.0 or higher	Interface Reporting 4.0 or higher
Interface Discovery Datapipe 2.0	Interface Discovery Datapipe 2.0
IR ifEntry Datapipe 2.0	IR ifEntry Datapipe 2.0
	RMON EthernetStatistics Datapipe 3.0
	RMON_EthernetStatistics_Thresholds
	Thresholds Module 5.0

Typically, the central server does not poll. If you want the central server in your system to poll, then you must install the RMON_EthernetStatistics Datapipe on the central server.

Configuring the Central Server

This procedure entails the following tasks:

- Task 1: Set up connections with satellite server databases
- Task 2: Disable hourly processing on the central server
- Task 3: Configure trendcopy pull commands for hourly data

- Task 4: Configure trendcopy pull commands for rate data (optional)

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 finish adding databases.

Task 2:Disable hourly processing on the central server

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

$DPIPE_HOME/scripts/EtherStats_Hourly_Process.pro

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

Task 3:Configure trendcopy pull commands for hourly data

1 Configure trendcopy pull commands for each satellite server; open the following file:

$DPIPE_HOME/scripts/EtherStats_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.

Task 4:Configure trendcopy pull commands for rate data (optional)

If you want to view the Near Real Time report from the central server, you must 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 this file:

$DPIPE_HOME/scripts/EtherStats_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 has two side-effects: the quantity of traffic between satellite servers and the central server increases, and the processing load on the central server increases.

Configuring a Satellite Server

Follow these steps to configure a satellite server.

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

2 Modify the *EtherStats_Hourly_Process.pro* trendtimer entry in the `$DPIPE_HOME/lib/trendtimer.sched` file. By default, this process starts at 40 minutes after the hour. You want the satellite server to complete hourly summarizations before the central server begins hourly summarizations. Therefore, change the start time from 1:00+40 to 1:00+25.

3 Configure polling policies for the RMON Ethernet Statistics Datapipe, making sure that each interface is polled by only one satellite server.

System Clocks

Make sure that the system clock on each satellite server is synchronized with the system clock on the central server. This step is extremely important. In distributed environments, linked processes must execute in exact sequences across independent machines.

5 The Demo Reports

The chapter contains:

- A brief overview of the contents of each report (eight reports total)
- Screen captures

The screen captures come from the demo package.

1. Historical Broadcast + Multicast Packet Analysis

- Packet volume per interface for yesterday
- Ratio of broadcast traffic to multicast traffic for yesterday
- Multicast, broadcast, and unicast packets over two days (hourly)
- Multicast, broadcast, and unicast packets over previous 31 days (daily)
- Multicast and broadcast packet distribution for the previous 31 days
- Interface utilization over the previous 31 days

2. Near Real Time Broadcast + Multicast Packet Analysis [note: not illustrated]

- Packet volume per interface for the previous 12 hours
- The ratio of broadcast traffic to multicast traffic for the previous 12 hours
- Counts for multicast, broadcast, and unicast packets over the previous 12 hours
- Interface utilization over the previous 12 hours

3. Historical Packet Size Distribution

- Total number of packets for yesterday
- Percentage of packets with errors for yesterday
- Octets for yesterday
- LAN segment utilization for yesterday
- Packet size distribution for previous two days (hourly)
- Packet size distribution for previous 31 days (daily)
- Percentage of broadcast and multicast packets for the previous 31 days
- Interface utilization for the previous 31 days

4. Near Real Time Packet Size Distribution

- Total number of packets for the previous 12 hours
- Percentage of packets with errors for the previous 12 hours
- Octets for the previous 12 hours

- Utilization for the previous 12 hours
- Packet size distribution for previous 12 hours
- Percentage of broadcast and multicast packets for the previous 12 hours
- Interface utilization for the previous 12 hours

5. Historical Error Report

- Packet volume per interface for yesterday
- Percentage of packets with errors for yesterday
- Percentage of packages with:
  - Fragment errors
  - CRCAlign errors
  - Undersize errors
  - Oversize errors
  - Jabber errors
- Error count for the previous2 days (hourly)
- Error count for the previous 31 days (daily)
- Collisions for the previous 31 days
- Probe drop events for the previous 31 days

6. Near Real Time Error Report

- Packet volume per interface for the previous 12 hours
- Percentage of packets with errors for the previous 12 hours
- Percentage of packages with:
  - Fragment errors
  - CRCAlign errors
  - Undersize errors
  - Oversize errors
  - Jabber errors
- Error count for the previous 12 hours
- Collisions for the previous 12 hours
- Probe drop events for the previous 12 hours

7. Drop Events Report

- Customer selection list
- List of devices associated with the selected customer
- Drop events per device for yesterday
- Drop events per interface for yesterday

8. Inventory Report

- Customer selection list
- List of devices associated with the selected customer
- List of interfaces associated with the selected device

RMON Ethernet Statistics
## Historical Broadcast + Multicast Packet Analysis

This report has one entry for each interface, data in the selection table relates to all of yesterday combined. The tabbed areas graph movements over the previous hours and days. Excessive (> 10%) broadcast or multicast packets can be detrimental to network performance. % Util calculates the utilization using the provisioned ifSpeed for half duplex interfaces.

Interface Data From Yesterday

Device	Interface	Description	Pkts	% Util	Bcast %	Mcast %
Device_1298	4	FastEthernet4	5	N/A	80	20
Device_1265	80	Module 7, Port 12	207,215	0	78	22
Device_1265	78	Module 7, Port 10	207,214	0	78	22
Device_1265	75	Module 7, Port 7	207,213	0	78	22
Device_1265	94	Module 8, Port 4	207,213	0	78	22
Device_1265	69	Module 7, Port 1	207,211	0	78	22
Device_1265	71	Module 7, Port 3	207,211	0	78	22
Device_1265	74	Module 7, Port 6	207,211	0	78	22
Device_1265	66	Module 6, Port 20	207,210	0	78	22
Device_1265	58	Module 6, Port 12	207,209	0	78	22
Device_1265	53	Module 6, Port 7	207,208	0	78	22
Device_1265	52	Module 6, Port 6	207,207	0	78	22
Device_1265	42	Module 5, Port 18	207,206	0	78	22
Device_1265	43	Module 5, Port 19	207,206	0	78	22

Make	Model	Customer	AdminStatus	Protocol	Speed
Foundry Networks	NetIron Gigabit Switching Router	Customer Unassigned	Up	iso88023-csmacd	Not set.

Hourly | Daily

**Packet Type Distribution for Previous 2 Days**
For Device_1298: FastEthernet4

Legend:
- Multicast %
- Broadcast %
- Unicast %
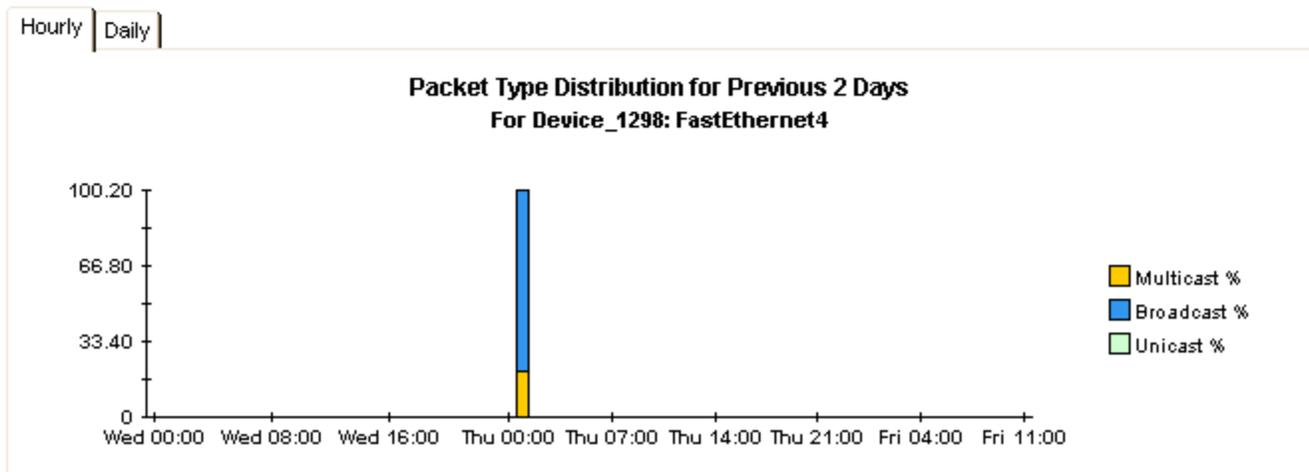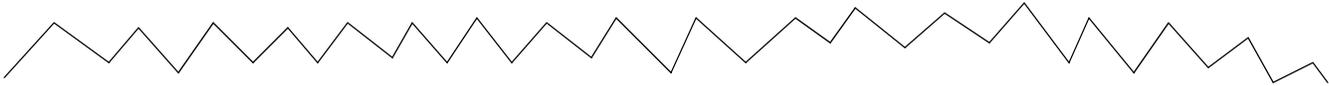
Broadcast + Multicast Packet Counts
For Previous 31 Days

Packet Counts

5.40	
3.60	
1.80	
0	

Sat
Nov 30

Mon
Dec 2

Wed
Dec 4

Time

☐ Multicast
☐ Broadcast

% Utilization for Previous 31 Days

% Utilization

37.60
28.20
18.80
9.40
0

Sat
Nov 30

Mon
Dec 2

Wed
Dec 4

Time

— UtilThreshold
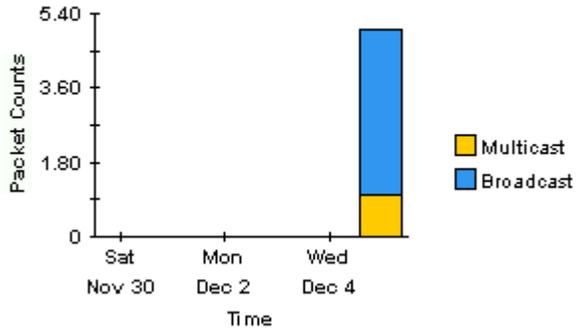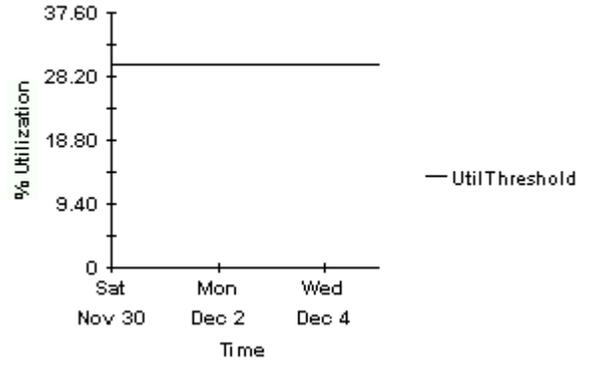
RMON Ethernet Statistics
Historical Packet Size Distribution

This report has one entry for each interface, data in the selection table relates to all of yesterday combined. The tabbed areas graph movements over the previous hours and days. % Error Pkts is the percentage of all packets which were counted as having errors. % Util calculates the utilization using the provisioned ifSpeed for half duplex interfaces.

Interface Data From Yesterday

Device	Interface	Description	Pkts	% Error Pkt	Octets	% Util
Device_1266	1	GigabitEthernet1/1	285,661,849	0.00000	120.6 GB	1
Device_1266	129	FastEthernet3/1	247,398,123	0.00000	115.4 GB	12
Device_1262	7	Summit7iTx-Port 7	145,181,610	0.00000	99.2 GB	11
Device_1289	25	RMON Port 25 on Unit 1	158,230,014	0.00000	95.1 GB	1
Device_1290	25	RMON Port 25 on Unit 1	158,265,132	0.00000	95.1 GB	1
Device_1288	25	RMON Port 25 on Unit 1	155,187,730	0.00000	93.1 GB	1
Device_1287	25	RMON Port 25 on Unit 1	155,179,749	0.00000	93.1 GB	1
Device_1293	13	FastEthernet13	1,398,119,759	0.00000	84.6 GB	8
Device_1282	11	RMON Port 11 on Unit 1	213,507,666	0.00000	81.6 GB	8
Device_1283	11	RMON Port 11 on Unit 1	213,500,099	0.00000	81.6 GB	8
Device_1282	2	RMON Port 2 on Unit 1	515,516,670	0.00000	64.4 GB	6
Device_1283	2	RMON Port 2 on Unit 1	515,517,548	0.00000	64.4 GB	6
Device_1300	113	RMON:10/100 Port 13 on Unit 1	503,081,263	0.00000	62.5 GB	6
Device_1282	18	RMON Port 18 on Unit 1	93,284,251	0.00000	56.3 GB	6

Make	Model	Customer	AdminStatus	Protocol	Speed
Foundry Networks	Router	Customer Unassigned	Up	gigabitEthernet	1.0 Gb/s

Hourly | Daily

Packet Size Distribution for Previous 2 Days
For Device_1266: GigabitEthernet1/1

Legend:
- Pkts 64
- Pkts 65-127
- Pkts 128-255
- Pkts 256-511
- Pkts 512-1023
- Pkts 1024-1518
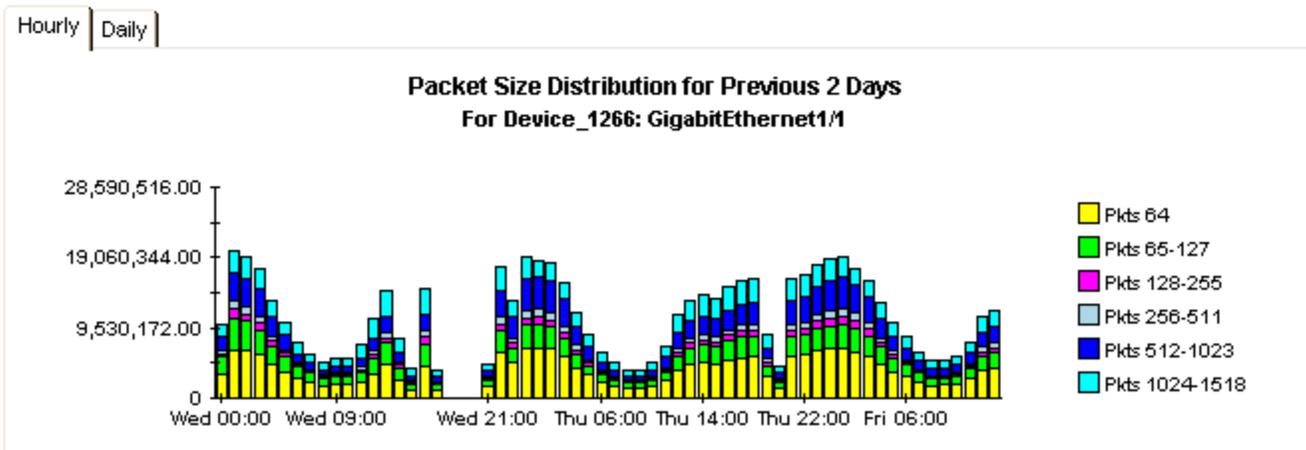
Broadcast + Multicast Packets
For Previous 31 Days

**Broadcast %**
Multicast %

% Utilization for Previous 31 Days
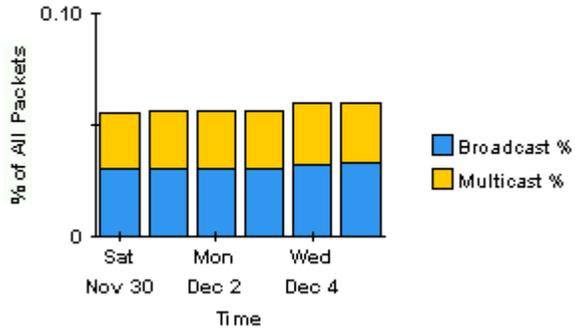
— % Util
— UtilThreshold

RMON Ethernet Statistics
Near Real Time Packet Size Distribution

This report has one entry for each interface, data is displayed for the most recent poll cycle and the graphs show the previous 12 hours. % Error Pkts is the percentage of all packets which were counted as having errors. % Util calculates the utilization using the provisioned fSpeed for half duplex interfaces.

Interface Data From Most Recent Poll Cycle
Change Constraints to Modify the List

Device	Interface	Description	Pkts	% Error Pkt	Octets	% Util
Device_1262	10	Summit7iTx-Port 10	393,619	0.00000	195.3 MB	2
Device_1282	10	RMON Port 10 on Unit 1	384,820	0.00000	283.5 MB	3
Device_1283	10	RMON Port 10 on Unit 1	384,635	0.00000	283.4 MB	3
Device_1244	10	10	267,653	0.00000	149.3 MB	1
Device_1242	10	GigabitEthernet10	9,086	0.00000	873.5 KB	0
Device_1288	10	RMON Port 10 on Unit 1	4,287	0.00000	504.7 KB	0
Device_1287	10	RMON Port 10 on Unit 1	4,286	0.00000	504.5 KB	0
Device_1289	10	RMON Port 10 on Unit 1	4,284	0.00000	504.5 KB	0
Device_1290	10	RMON Port 10 on Unit 1	4,279	0.00000	504.0 KB	0
Device_1293	10	FastEthernet10	4,224	1.60985	515.3 KB	0
Device_1286	10	B2	1,629	0.00000	149.2 KB	0
Device_1298	10	FastEthernet10	507	0.00000	51.0 KB	0
Device_1276	10	Summit48i-Port 10	212	0.00000	18.4 KB	0

| Customer	AdminStatus	Protocol	Speed	Poll Cycle Start	Duration (sec)
Customer Unassigned	Up	ethernet-csmacd	100.0 Mb/s	Fri Dec 06 13:15:00 EST 2002	896

Packet Size Distribution For Previous 12 Hours
### For Device_1262: Summit7iTx-Port 10
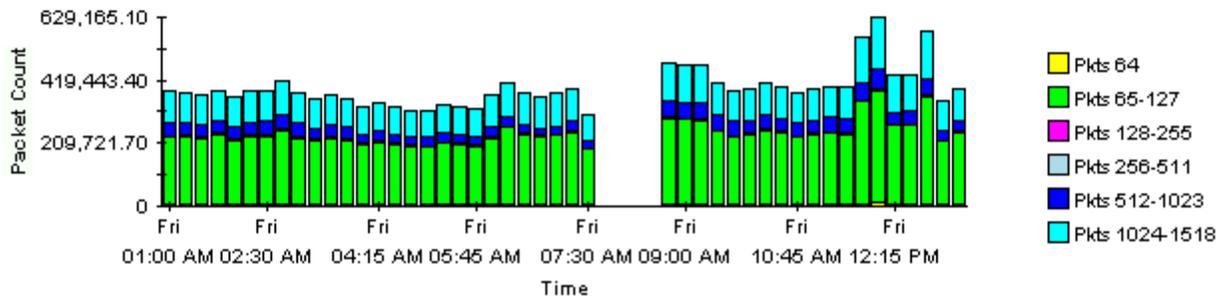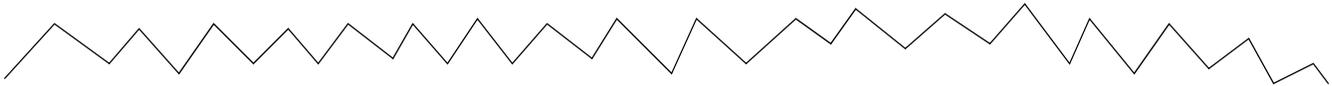
Broadcast + Multicast
For Previous 12 Hours

% of All Packets

0.10

0

Fri
01:00 AM

Fri
05:30 AM

Fri
10:00 AM

Time

■ Broadcast %
■ Multicast %

% Utilization
For Previous 12 Hours

% Utilization

39.60

29.70

19.80

9.90

0

Fri
01:00 AM

Fri
06:00 AM

Fri
11:00 AM

Time
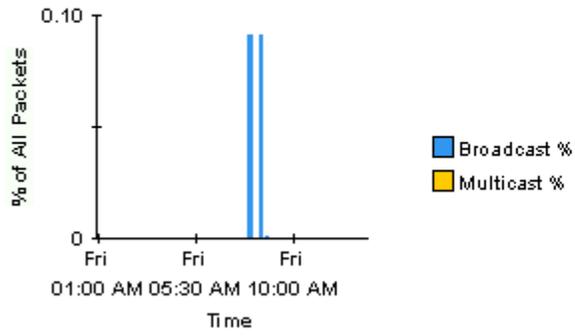
— % Util
— UtilThreshold
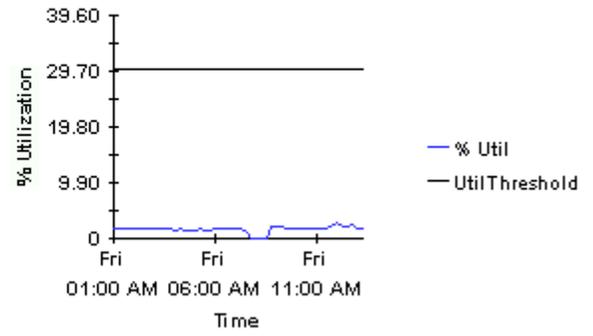
RMON Ethernet Statistics
Historical Error Report

This report allows you to select interfaces based on their performance yesterday. The graphs below the selection table show data for the previous hours and days for the selected interface. % Error Pkts is the percentage of all packets which were counted as having errors. Of the error packets, % Frag is the ratio which were fragmented - the same applies to % CRC Align, % Under, % Over and % Jabbers. Drop events signify when the RMON agent was unable to maintain the counters and had to ignore sets of packets.

Interface Data From Yesterday

Device	Interface	Pkts	% Error Pkt	% Frag	% CRCAlign	% Under	% Over	% Jabbers
Device_1263	8	1	100.00000	0	100	0	0	0
Device_1293	10	20,575,326	12.06186	100	0	0	0	0
Device_1243	102	32,595,144	8.02741	100	0	0	0	0
Device_1301	1003	105,883	7.17679	46	54	0	0	0
Device_1294	1003	105,885	7.17665	46	54	0	0	0
Device_1294	1006	258,201	7.11771	95	5	0	0	0
Device_1301	1006	258,219	7.11721	95	5	0	0	0
Device_1265	21	286,785	6.98537	0	100	0	0	0
Device_1247	1014	1,456,458	3.86616	100	0	0	0	0
Device_1246	1014	1,456,459	3.86616	100	0	0	0	0
Device_1293	8	542,695	3.66283	100	0	0	0	0
Device_1293	6	829,206	2.51337	94	6	0	0	0
Device_1263	200	325,932	1.65280	99	1	0	0	0
Device_1293	12	854,523	1.55572	7	93	0	0	0

Make	Model	Customer	AdminStatus	Protocol	Speed
Foundry Networks	Router	Customer Unassigned	Up	gigabitEthernet	Not set.

Hourly | Daily


Error Counts for Previous 2 Days
For Device_1263: GigabitEthernet1/8
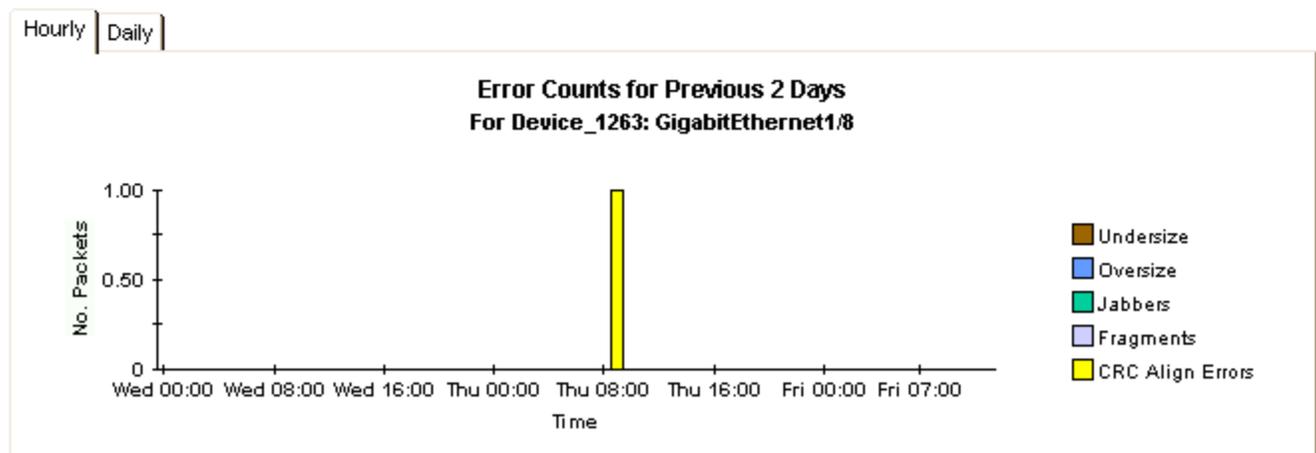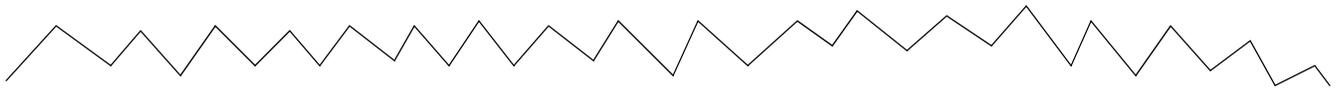
Packet Collision Counts for Previous 31 Days
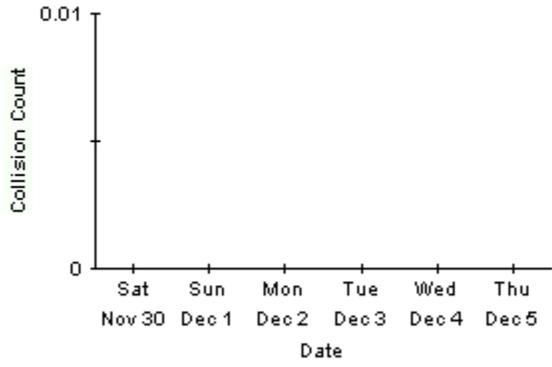
Probe Drop Events for Previous 31 Days
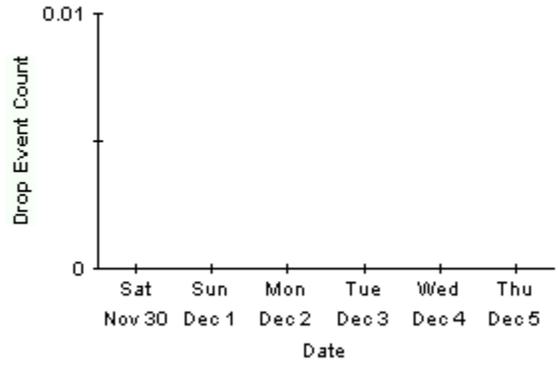
RMON Ethernet Statistics
Near Real Time Error Report

This report has one entry for each interface, data is displayed for the most recent poll cycle and the graphs show the previous 12 hours. % Error Pkts is the percentage of all packets which were counted as having errors. Of the error packets, % Frag is the ratio which were fragmented - the same applies to % CRC Align, % Under, % Over and % Jabbers.

Interface Data From Most Recent Poll Cycle
Change Constraints to Modify the List

Device	Interface	Pkts	% Error Pkt	% Frag	% CRCAlign	% Under	% Over	% Jabbers
Device_1293	10	4,224	1.60985	100	0	0	0	0
Device_1251	10	0	0.00000	0	0	0	0	0
Device_1252	10	0	0.00000	0	0	0	0	0
Device_1249	10	0	0.00000	0	0	0	0	0
Device_1244	10	267,653	0.00000	0	0	0	0	0
Device_1287	10	4,286	0.00000	0	0	0	0	0
Device_1288	10	4,287	0.00000	0	0	0	0	0
Device_1289	10	4,284	0.00000	0	0	0	0	0
Device_1290	10	4,279	0.00000	0	0	0	0	0
Device_1286	10	1,629	0.00000	0	0	0	0	0
Device_1284	10	3	0.00000	0	0	0	0	0
Device_1282	10	384,820	0.00000	0	0	0	0	0
Device_1283	10	384,635	0.00000	0	0	0	0	0

Customer	AdminStatus	Protocol	Speed	Poll Cycle Start	Duration (sec)
Customer Unassigned	Up	iso88023-csmacd	10.0 Mb/s	Fri Dec 06 13:15:00 EST 2002	895

Error Packets
#### Total Packet Counts for Previous 12 Hours
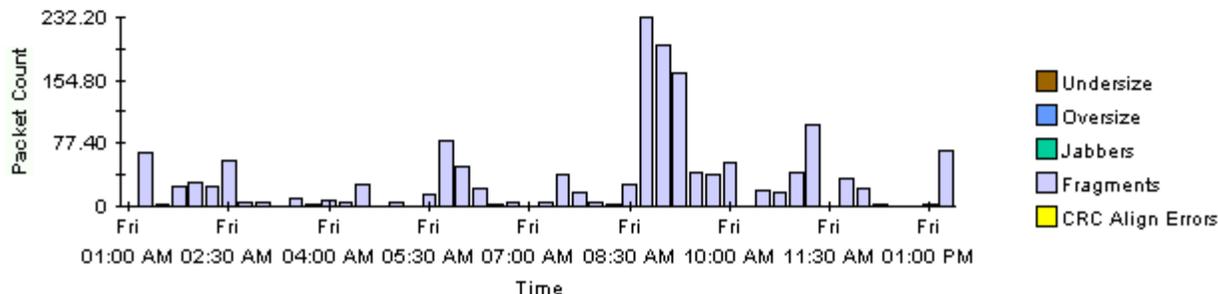
Packet Collision Counts
For Previous 12 Hours
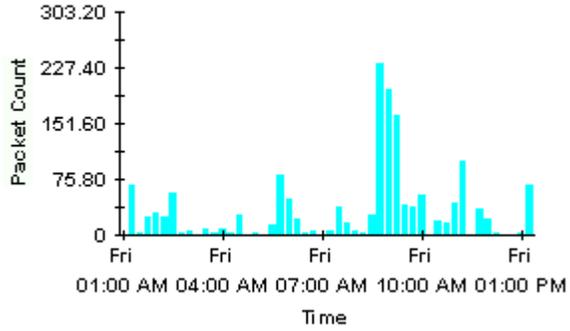
Probe Drop Events
For Previous 12 Hours
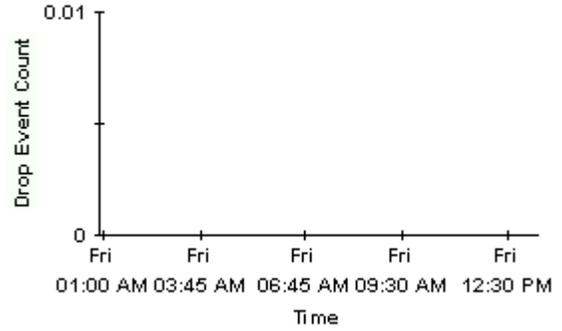
RMON Ethernet Statistics
Drop Events Report

This report has one entry for each customer and provides information on aggregated Drop Events for each RMON Ethernet Statistics enabled device. A 'DropEvent' is defined as "The total number of events in which packets were dropped by the probe due to lack of resources. Note that this number is not necessarily the number of packets dropped; it is just the number of times this condition has been detected." Modify the report constraints to limit the number of interfaces displayed. Only devices polled yesterday will be displayed.

Customer	Customer Id
Customer Unassigned	-2

Devices Associated the Selected Customer
With DropEvents Yesterday

Device	Make	Model	Drop Events
Device_1284	Intel Corporation	460T Standalone Switch (24 port).	45

Interfaces Associated with 64.42.232.1: Intel Express 460T Standalone Switch (24 port).
Change Constraints to Modify the List

Interface	etherStatsIndex	AdminStatus	Protocol	Full/Half	Speed	Drop Events
1	1	Up	ethernet-csmacd	H	100.0 Mb/s	45

RMON Ethernet Statistics
Inventory Report

This report has one entry for each customer and provides inventory information for the provisioned interfaces supporting RMON Ethernet Statistics data. Modify the report constraints to limit the number of interfaces displayed. Only interfaces which were polled yesterday will be displayed.

Customer	Customer Id
Customer Unassigned	-2

Devices Associated with the Chosen Customer

Device	Make	Model	sysDescr
Device_1160	Wellfleet	N/A	Image: rel/13.10/ Created on M...
Device_1161	Xylan Corp.	Alcatel OmniSwitch	Alcatel OmniSwitch
Device_1162	Extreme Networks	Summit48i	Summit48i - Version 6.2.2 (Bui...
Device_1163	Extreme Networks	Summit48	Summit48 - Version 4.1.19 (Bui...
Device_1242	Foundry Networks	ServerIron Switch	Foundry Networks, Inc. ServerI...
Device_1243	3Com	SuperStack II	3Com SuperStack II
Device_1244	Hewlett Packard	J4813A ProCurve Switch 2524	HP J4813A ProCurve Switch 2524...
Device_1245	Intel Corporation	550T Express 550T Switch	(c) Intel Corporation, 550T Ex...
Device_1246	Extreme Networks	Alpine3808	Alpine3808 - Version 6.2.2 (Bu...
Device_1247	Extreme Networks	Alpine3808	Alpine3808 - Version 6.2.2 (Bu...
Device_1248	Wellfleet	N/A	Image: rev/14.00/1D5 Created o...
Device_1249	Extreme Networks	Summit48	Summit48 - Version 4.1.19 (Bui...
Device_1250	Extreme Networks	Summit48	Summit48 - Version 4.1.19 (Bui...
Device_1251	Extreme Networks	Summit48	Summit48 - Version 4.1.19 (Bui...
Device_1252	Extreme Networks	Summit48	Summit48 - Version 4.1.19 (Bui...
Device_1255	Cisco	7206VXR	Cisco Internetwork Operating S...

Interfaces Associated with the Chosen Device
65.113.244.1: Image: rel/13.10/ Created on Mon Nov 23 19:10:42 EST 1998.

Interface	etherStatsIndex	AdminStatus	Protocol	Full/Half	Speed	Location
4	1	Up	other	F	In: 100.0 Mb/s Out: 100.0 Mb/s	Location Unassigned

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.

```
Set Time Period...
Change Constraint Values...
Select Nodes/Interfaces...

Change Max Rows...
View in new Frame

Print Table...
Export Element as CSV...
Delete Table
```
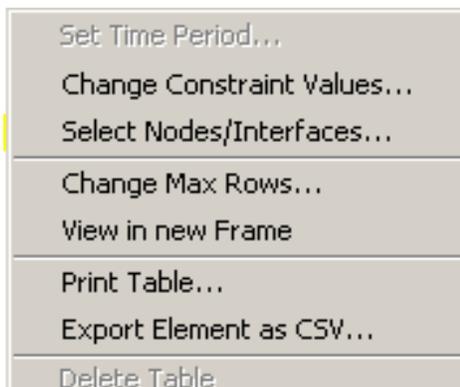
Select **Set Time Period** to alter the relative time period (relative to now) or set an absolute time period. The Set Time Period window opens.

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
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
Input	0	103,775	656	Tue Oct 29 06:00 AM
Input	1	0	0	Tue Oct 29 06:00 AM
Input	2	0	0	Tue Oct 29 06:00 AM
Input	3	0	0	Tue Oct 29 06:00 AM
Input	4	0	0	Tue Oct 29 06:00 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.
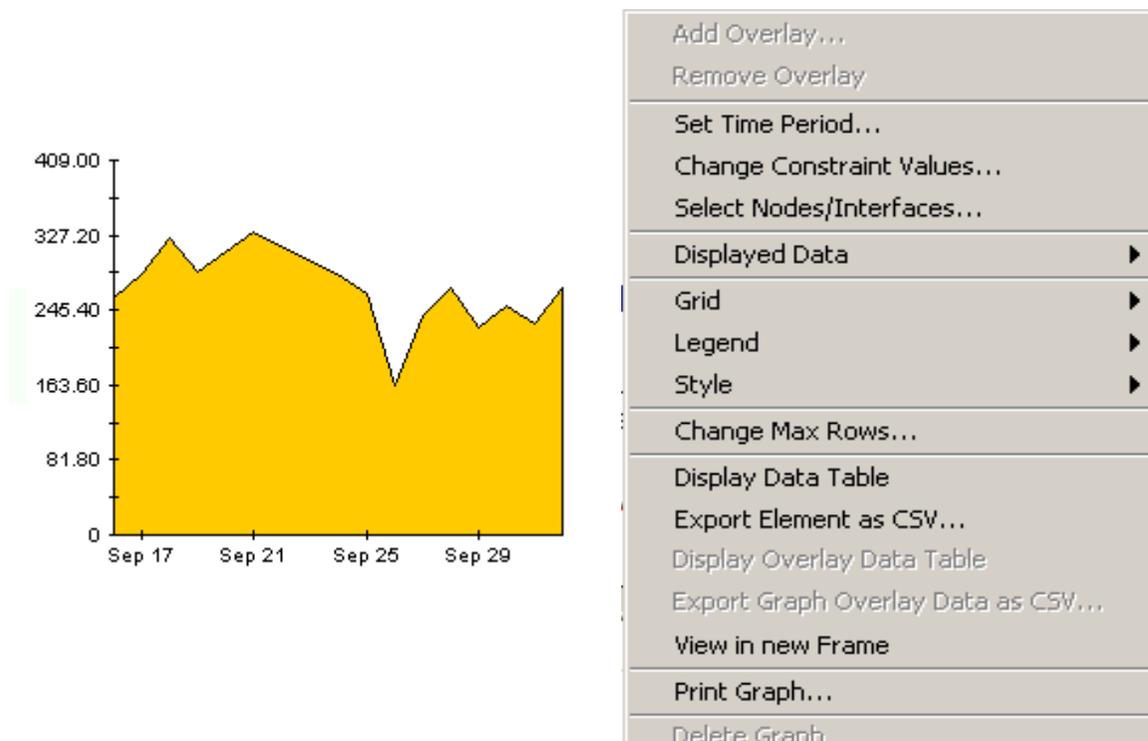
The following table provides details about each option.

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.
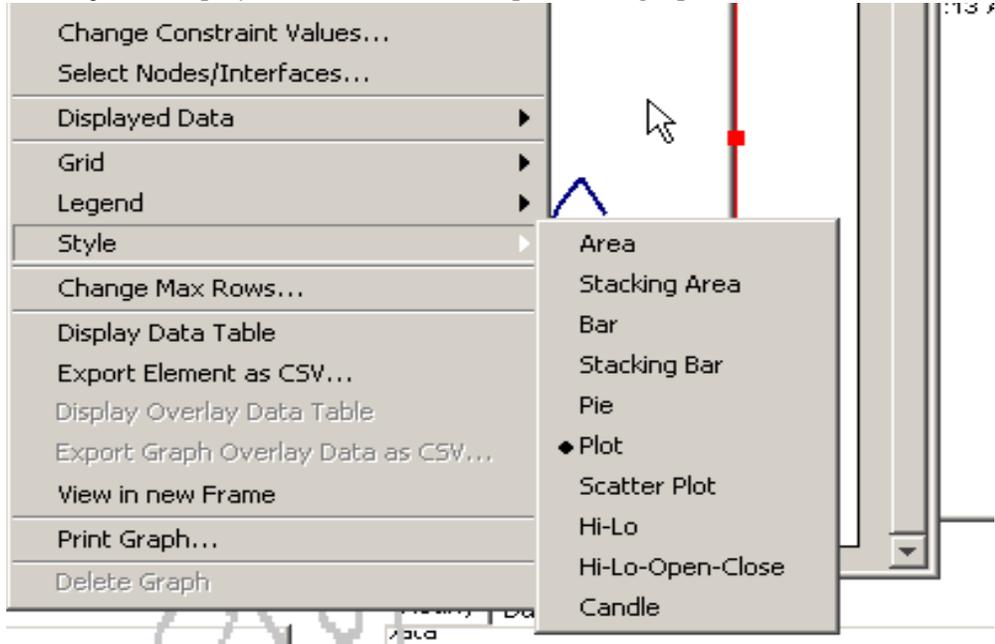
Style > Area

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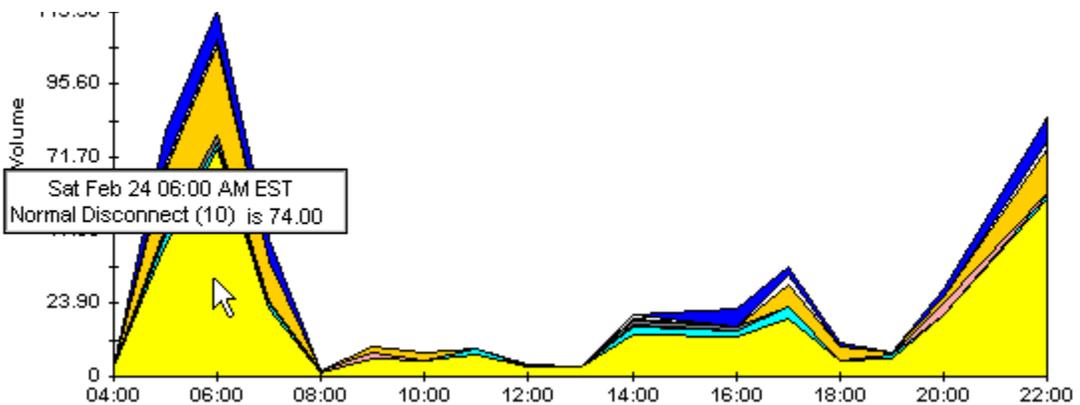
To shorten the time span of a graph, press SHIFT+ALT and use the left mouse button to highlight the time span you want to focus on. Release the mouse button to display the selected time span.

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.
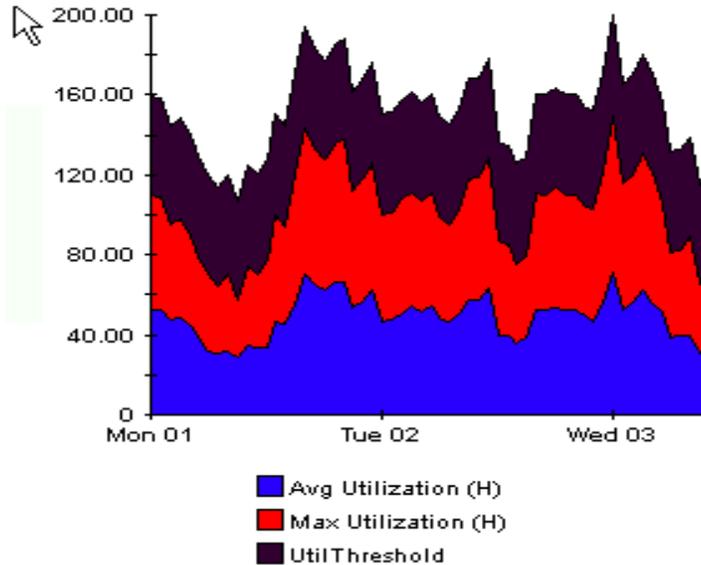
Style > Bar

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.
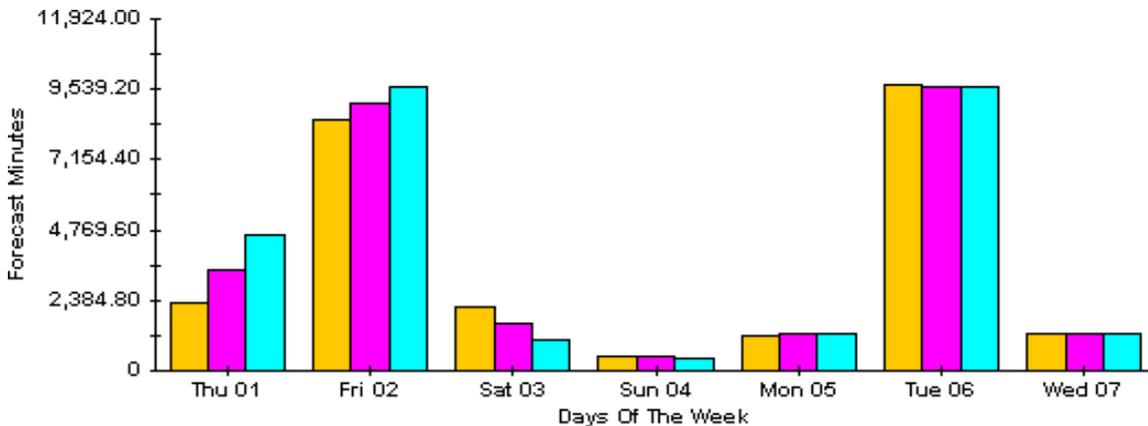
Style > Stacking Bar

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.
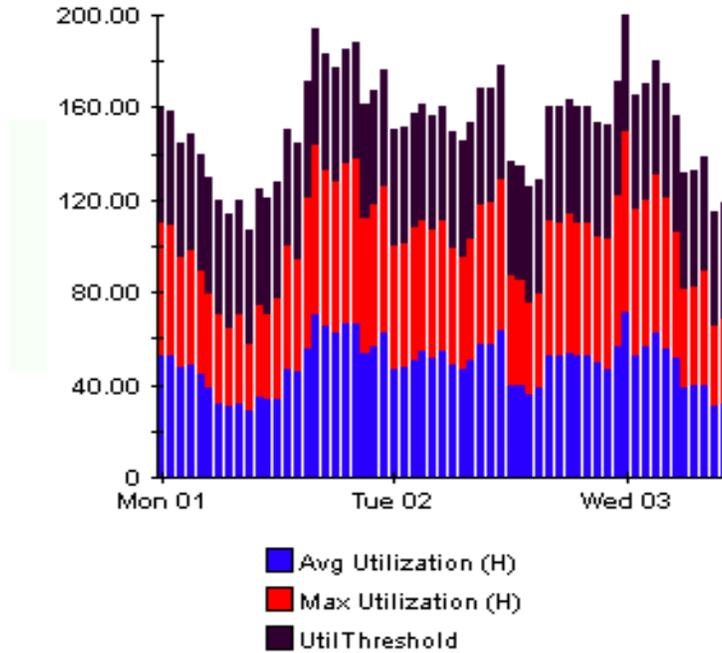
Style > Plot

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.
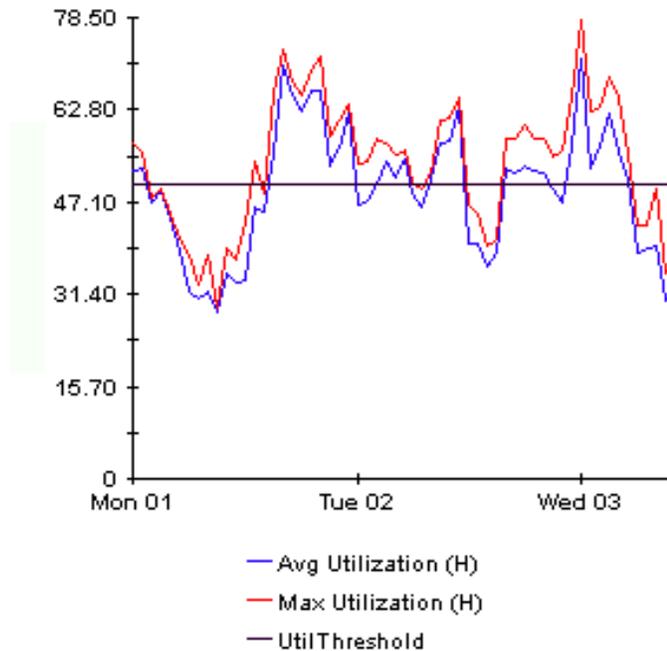
Style > Pie

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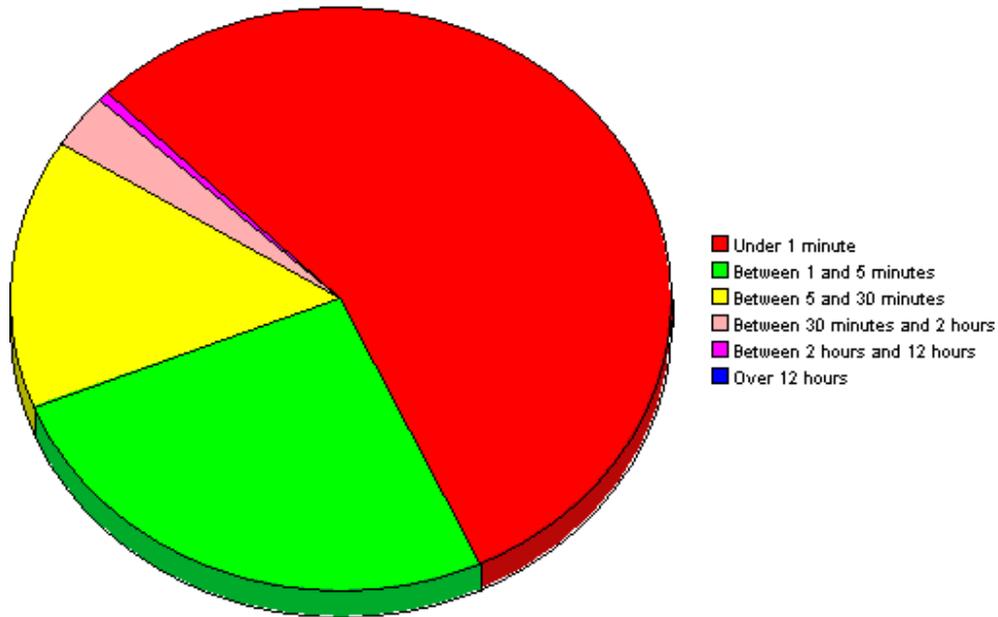
If you are looking at data for more than one day, you will see multiple pie graphs, one for each day.

Display Data Table

This option changes a graph into a spreadsheet.

View in New Frame

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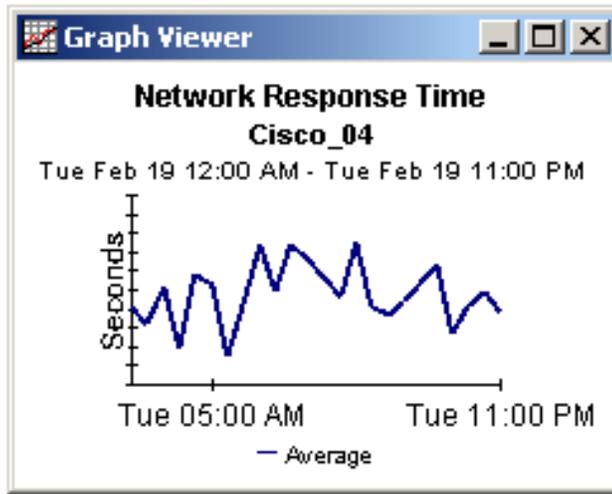
Glossary

broadcast packet

A packet that is transmitted to all hosts on an Ethernet. The reports in the RMON Ethernet Statistics package show the ratio of broadcast packets to other types of packets.

collision

A collision is the result of two devices on the same Ethernet network attempting to transmit data at exactly the same time.

drop event

An overrun at a port. The RMON port could not receive and process the traffic at full line rate and had to drop some packets from the counters. Changes in drop events can be caused by an overburdened RMON infrastructure.

fragment

A piece of a packet. Sometimes a communications packet being sent over a network has to be temporarily broken into fragments; the packet is reassembled at the destination.

jabbers

Packets that were longer than 1518 octets and also contained alignment errors.

multicast packet

Communication between a single sender and multiple receivers on a network. The reports in the RMON Ethernet Statistics package show the ratio of multicast packets to other types of packets.

packet

A unit of data formatted for transmission on a network. Data is broken up into packets for sending over a packet switching network. Packet counts are shown with discard ratios.

port

Any frame relay interface on any network device that supports MIB-II.

octet

Eight bits. The term "octet" is sometimes used instead of the term "byte" to avoid confusion, because not all computer systems use bytes that are eight bits long. The reports in the RMON Ethernet Statistics package show octet counts on the LAN segment.

oversize packets

The number of packets received that were longer than 1518 octets but otherwise well formed.

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