HP OpenView Performance Insight

NetFlow Global View Report Pack User Guide

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Reporting and Network Solutions 7.0

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1

Overview

This chapter covers the following topics:

- OVPI and network flow data
- NetFlow Preprocessor; NetFlow Global View datapipes
- Folders and reports; generic report types
- Ways to customize reports
- Sources for additional information

OVPI and Network Flow Data

A flow is a sequence of packets, of the same protocol, moving in the same direction between two devices. Many network devices, including routers and switches, are able to compile data about the flows that move through their interfaces. Typically, this data is aggregated by a flow collector application.

The NetFlow Global View Report Pack focuses on the clients and servers at the end of flows, not the routers situated between flow endpoints. The reports summarize data at the daily and monthly level, providing easy access to the following information:

- Number of flows
- Traffic volume
- Average bytes per packet
- Average throughput
- Ranking by total volume, highest to lowest
- Ranking by average throughput, lowest to highest
- Traffic volume and throughput by application for a selected server
- Traffic volume and throughput by application for a selected client-server pair

The NetFlow Preprocessor

The NetFlow Preprocessor processes data collected by the flow collector application. The NetFlow Preprocessor performs the following tasks:

- Identifies well-known applications
- Allows you to specify nonstandard or custom applications
- Identifies the client and server for each flow
- Groups multiple IP addresses into a single domain
- Filters out unwanted data produced by the flow collection application
- Aggregates data produced by the flow collection application
- Creates bi-directional records by matching flows from clients to flows from servers
- Reformats data for the NetFlow Global View Datapipe

Filtering is crucial. Filtering reduces the processing load on the OVPI server and eliminates unnecessary data pertaining to flows you do not care about. The NetFlow Preprocessor *must* be configured for filtering. As explained in more detail in the user guide for the NetFlow Preprocessor, the filtering you implement can take place either before aggregation or after aggregation. The following types of filtering take place before aggregation:

- Client/server filtering
- Application filtering

The following types of filtering take place after aggregation:

- Top x flows
- Inclusion percentile
- Minimum bytes per second

The NetFlow Global View Datapipe operates more efficiently when the data collected by the flow collection application is in Cisco CallRecord format. If the collection application outputs data in the CallDetailRecord format, the following issues arise:

- The amount of data that needs to be processed will increase significantly
- A single flow may be counted more than once

The NetFlow Global View Datapipes

NetFlow Global View uses the following datapipes:

- NetFlow Global View Datapipe
- NetFlow Interface to Global View Datapipe

We recommend installing one datapipe per OVPI server. Do not install both datapipes on the same server. The NetFlow Global View Datapipe performs three tasks:

- Calls the OVPI import process (ee_collect)
- Normalizes data into an internal database format required by the report pack
- Populates report pack base tables every 15 minutes (the default)

The NetFlow Global View Datapipe includes an optional translation utility that is disabled by default. The purpose of this utility is to map IP addresses to node names, and thereby prevent data from being lost when a device changes its IP address. For more information about the translation utility, see Chapter 4, The New Install.

The second datapipe, the NetFlow Interface to Global View Datapipe, transfers data collected and processed by the NetFlow Interface Report Pack to the NetFlow Global View Report Pack. If you install the second datapipe, you will be able to collect NetFlow data once, yet operate NetFlow Interface and NetFlow Global View simultaneously.

Version History

The following table outlines recent enhancements to the NetFlow Global View Report Pack.

Version	RNS Version and Date	Features/Enhancements
1.0	RNS 4.0 - October 2003	26 reports Sybase support OVPI Object Manager support
1.0	RNS 5.0 - April 2004	OVPI 5.0 support
2.0	RNS 6.0 - August 2004	Oracle support
2.0	RNS 7.0 - November 2004	Upgrade package (1.0-to-2.0)

Folders and Reports

NetFlow Global View contains five folders. See below for a list of the reports in each folder.

Folder	Folder Contents
Top Ten	• Daily Top Ten Summary • Monthly Top Ten Summary
Server	• Daily Server Top Ten • Monthly Server Top Ten • Daily Server Summary • Daily Server Application Distribution • Monthly Server Summary • Monthly Server Application Distribution
Client	• Daily Client Top Ten • Daily Client Summary • Monthly Client Top Ten • Monthly Client Summary
Application	• Daily Application Top Ten • Daily Application Summary • Monthly Application Top Ten • Monthly Application Summary

Folder	Folder Contents
Top Talker	• Daily Top Talker Top Ten • Monthly Top Talker Top Ten • Daily Top Talker Summary • Daily Top Talker Application Distribution • Monthly Top Talker Summary • Monthly Top Talker Application Distribution
TOS	• Daily TOS Top Ten • Daily TOS Summary • Monthly TOS Top Ten • Monthly TOS Summary

NetFlow Global View contains multiple instances of the following report types:

- Top Ten
- Element Top Ten
- Element Summary
- Application Distribution (the distribution of traffic volume by application)

The following table highlights the purpose of each report type.

Report Type	Purpose
Top Ten	• Rank multiple elements by total bytes
Element Top Ten	• Rank a single element type by total bytes • Rank a single element type by average throughput
Element Summary Reports	• Display aggregated data for: — Number of flows — Total bytes — Average bytes per packet — Average throughput • Traffic volume over time • Average throughput over time
Application Distribution	• Display traffic volume by application per server or per client-server pair • Analyze performance trends for a selected application

Ways to Customize Reports

The contents of NetFlow Global View reports can be customized by importing customers and locations, by editing parameters, and by editing tables and graphs. For more information about editing tables and graphs (selecting a different view option), see Chapter 8, Editing Tables and Graphs.

Unlike other report packs, NetFlow Global View does not support filtering by customer. You cannot produce a customer-specific report.

Importing Owners and Locations

The reports in NetFlow Global View display the following node-level property data:

- Server owner
- Server location
- Client owner
- Client location

Node-level property data is inherited from Common Property Tables. If you want to update node-level property data, use the update forms that come with Common Property Tables. You also have the option of using the batch-mode property import interface that comes with Common Property Tables. For details, refer to the *Common Property Tables 3.5 User Guide*.

Editing Parameters

Editing a parameter applies a constraint. The constraint filters out the data you do not want to see. If you edit the Client parameter, data for every client owner except the client owner you typed in the Client field drops from the report. If you edit the Server parameter, data for all servers except the server you typed in the Server field drops from the report.

NetFlow Global View supports the following parameters:

- Start-Time
- End-Time
- Client
- Server
- Application
- TOS

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

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

Sources for Additional Information

This user guide provides samples of some but not all of the reports in the package. The demo package that comes with NetFlow Global View contains a sample of every report. If you have access to the demo package and you want to know what fully-populated reports look like, install the demo package. Like real reports, demo reports are interactive. Unlike real reports, demo reports are static.

For information about the latest enhancements to NetFlow Global View and any known issues affecting this package, refer to the *NetFlow Global View Report Pack 2.0 Release Statement*. You may also be interested in the following documents:

- *NetFlow Interface Report Pack 3.0 User Guide*
- *NetFlow Preprocessor 3.0 User Guide*
- *RNS 7.0 Release Notes, November 2004*

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

http://www.hp.com/managementsoftware

Select **Support** > **Product Manuals** to reach the **Product Manuals Search** page. User guides for OVPI are listed under **Performance Insight**. User guides for report packs, datapipes, NNM SPIs, and NNM correlators are listed under **Reporting and Network Solutions**.

The manuals listed under **Reporting and Network Solutions** indicate the month and year of publication. If a user guide 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, search this site for updates before using a manual that may be out of date.

2

Crucial Performance Considerations

This chapter covers the following topics:

- Isolating the routers and interfaces that matter
- Options for filtering and aggregating data
- Using multiple OVPI servers

Isolating Routers and Interfaces

The amount of network flow data generated by a single router can be staggering. A router may handle flows from thousands of clients to thousands of servers. If you have hundreds of routers in a network, you can easily image millions or even billions of client/server/application combinations. This is why keeping network flow data to a manageable level is so crucial. If you neglect this step, the network flow data generated by just a small subset of interfaces could overwhelm OVPI.

The purpose of the NetFlow Global View Report Pack is to monitor end-to-end network flow data. Before the report pack can fulfill that purpose, you must do the following:

- Identify the routers that are at the edge of your network
- Identify the interfaces on those routers that function as ingress points
- Enable these interfaces to generate network flow data for the flow collection application

By allowing *only* these interfaces to generate network flow data, you can ensure optimal performance of NetFlow Global View.

Options for Filtering and Aggregating Data

Even when a small subset of interfaces is generating network flow data, the data generated for insignificant flows can overwhelm your resources. To prevent this from happening, you must configure the NetFlow Preprocessor to apply at least one of the filtering and aggregation techniques described below.

Client/Server Filtering

The preprocessor can filter and aggregate based on the IP addresses of the clients and servers. For example, you can configure the preprocessor to limit output to flows that originate or terminate at one IP address within a specified set of IP addresses. If you do that, the other flows will either be discarded or grouped into a DEFAULT flow.

In addition, you can group multiple IP addresses and/or address ranges together and treat them as if they were a single device. For example, the flows from all devices in a single location or sub-net can be grouped together and reported on as if they originated from a single device. This would allow you to look at capacity between sites or sub-nets at a higher level without getting lost in all the individual clients and servers.

Application Filtering

The NetFlow Preprocessor determines the application associated with a flow by looking up the protocol and port number from a list of "well-known" and registered applications. This list can be expanded to include additional applications, and shortened so that it includes only the applications that interest you. Flows for unknown applications can be discarded or grouped together as a DEFAULT application. Although doing so is **not** recommended, the preprocessor can also create arbitrary applications based on the protocol and port numbers for flows with unknown applications. Create such applications only when absolutely necessary, since doing so can be detrimental to the performance of the report pack.

Top X Flows

The NetFlow Preprocessor can restrict the number of rows of output generated for each reporting period, for each router. If you configure this restriction, the preprocessor will order the flows from largest to smallest and output only the number of rows specified. The remaining flows are discarded. Since the majority of traffic through a router is generated by a relatively small number of flows, this feature allows you to retain high-impact flows and discard low-impact flows.

Include Percentile

This filter allows you to specify the percentage of traffic to report on. Typically, the traffic in a network consists of a small number of flows that account for a high percentage of traffic and a large number of flows that constitute a small percentage of traffic. When this feature is enabled, the preprocessor will output flows, starting with the largest and descending, until the percentage of total traffic you specified has been reached. Remaining flows are discarded.

Minimum BPS

This filter eliminates all flows that do not generate a minimum amount of traffic (bytes per second) during the reporting period.

Using Multiple OVPI Servers

If the amount of data generated is more than one OVPI server can handle, even though you limited the number of monitored interfaces, and applied one or more filtering techniques, consider spreading the data out over two stand-alone OVPI servers.

NetFlow Global View 2.0 is not designed to operate as a distributed system. You do not have the option of copying processed data from satellite servers to a central server and viewing reports covering all interfaes.

3

The Upgrade Install

This chapter covers the following topics:

- Guidelines for a smooth upgrade
- Installing NetFlow Global View 2.0
- Package removal

Guidelines for a Smooth Upgrade

The RNS 7.0 CD includes components for NNM as well as OVPI report packs. When you insert the CD, launch the extraction interface, and select OVPI report packs for installation, the install script extracts every OVPI package from the CD and copies the results to the Packages directory on your system. When the extraction process finishes, the install script will prompt you to launch Performance Insight and start Package Manager.

Upgrading to NetFlow Global View 2.0 is easy. Start Package Manager, install the upgrade package, delete the original datapipes, and reinstall the newest version of these datapipes. Before starting the upgrade, review the following guidelines.

Prerequisites

Make sure the following software is already installed before beginning the upgrade:

- OVPI 5.0
- Any Service Pack available for OVPI 5.0
- NetFlow Global View Report Pack 1.0
- NetFlow Global View Datapipe 1.0
- NetFlow Interface to NetFlow Global View Datapipe 1.0 *(different server)*

If you need help installing a Service Pack, refer to the release notes for the Service Pack.

Upgrading Common Property Tables

NetFlow Global View requires Common Property Tables 3.0 or higher. If you are running an earlier version, you must upgrade to version 3.0 or higher. If you are not running any version of Common Property Tables, Package Manager will install Common Property Tables for you, automatically, when you install NetFlow Global View.

Do not install the upgrade package for Common Property Tables and other packages at the same time; instead, install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables. For details about installing and using Common Property Tables, refer to the *Common Property Tables 3.5 User Guide*.

Upgrading to NetFlow Global View 2.0

Perform the following tasks to install NetFlow Global View 2.0:

- Task 1: Stop OVPI Timer and extract packages from the RNS 7.0 CD
- Task 2: If necessary, upgrade to Common Property Tables 3.0 or higher
- Task 3: Install UPGRADE_NetFlow_Global_View_to_2.0
- Task 4: Delete the old datapipe (version 1.0)
- Task 5: Install the new datapipe (version 2.0)

  There are two datapipes for NetFlow Global View. Do not install both datapipes on the same OVPI server.

- Task 6: Restart OVPI Timer

Task 1: Stop OVPI Timer and extract packages from the RNS 7.0 CD

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

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

   UNIX: As root, type one of the following:

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

   Sun: **`sh /etc/init.d/ovpi_timer stop`**
3. Insert the RNS CD. On Windows, a Main Menu displays automatically; on UNIX, mount the CD. If the CD 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 launches Performance Insight and starts Package Manager. The Package Manager welcome window opens.

When the install script has finished extracting packages to the Packages directory, you have the option of navigating to the Packages directory to see the results. The Packages directory includes folders for:

- NetFlow Global View

- NetFlow Global View Datapipe
- NetFlow Interface to NetFlow Global View Datapipe

Under the NetFlow Global View folder are these folders:

- NetFlow_Global_View.ap
- UPGRADE_NetFlow_Global_View_to_2.0.ap
- NetFlow_Global_View_Demo.ap

Under NetFlow Global View Datapipe is this folder:

- NetFlow_Global_View_Datapipe.ap

Under NetFlow Interface to NetFlow Global View Datapipe is this folder:

- NetFlow_IF2GV_Datapipe.ap

Task 2: Upgrade to Common Property Tables 3.0 or higher

NetFlow Global View 2.0 requires Common Property Tables 3.0 or higher. If you are running Common Property Tables 2.2, upgrade to version 3.0 by installing the 2.2-to-3.0 upgrade package. If you are running Common Property Tables 3.0, upgrading to Common Property Tables 3.5 is optional. When Package Manager indicates that installation of the upgrade package is complete, click **Done** to return to the Management Console.

Task 3: Install the upgrade package for NetFlow Global View

1. Start Package Manager. The Package Manager welcome window opens.
2. Click **Next.** The Package Location window opens.
3. Click **Install**. Approve the default installation; 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:

   UPGRADE_NetFlow_Global_View_to_2.0
7. Click **Next.** The Type Discovery window opens. Disable the default.
8. Click **Next.** The Selection Summary window opens.
9. Click **Install.** The Installation Progress window opens and the install begins. When the installation finishes, a package installation complete message appears.
10. Click **Done** to return to the Management Console.

Task 4: Delete the old datapipe

1. Start Package Manager. The Package Manager welcome window opens.
2. Click **Next.** The Package Location window opens.
3. Click **Uninstall.**
4. Click **Next.** The Report Undeployment window opens. Accept the defaults for Undeploy Reports, 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 one of the following packages:

NetFlow_Global_View_Datapipe 1.0

NetFlow_Interface_to_NetFlow_Global_View_Datapipe 1.0

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

8 Click **Uninstall**. The Progress window opens and the removal begins. When removal is complete, a package removal complete message appears.

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

Task 5: Install the new datapipe

1 Start Package Manager. The Package Manager welcome window opens.

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

3 Click **Install.**

4 Click **Next.** The Report Deployment window opens.

5 Disable 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.

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

7 Click the check box next to one of the following datapipes:

NetFlow_Global_View_Datapipe 2.0

NetFlow_Interface_to_NetFlow_Global_View_Datapipe 2.0

Do not install both datapipes on the same OVPI server.

8 Click **Next.** The Type Discovery window opens. Disable the default and click **Next**. The Selection Summary window opens.

9 Click **Install**. The Installation Progress window opens and the install begins. When the installation finishes, a package installation complete message appears.

10 Click **Done**.

Task 6: Restart OVPI Timer

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

UNIX: As root, type one of the following:

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

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

Package Removal

If you remove NetFlow Global View, Package Manager will automatically remove any datapipe that depends on this package. Since the data in report pack and datapipe tables will be lost, you may want to archive that data before removing the report pack.

Follow these steps to uninstall NetFlow Global View 2.0:

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

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

   UNIX: As root, type one of the following:

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

   Sun: **`sh /etc/init.d/ovpi_timer stop`**
3. Start Package Manager. The Package Manager welcome window opens.
4. Click **Next.** The Package Location window opens.
5. Click **Uninstall.**
6. Click **Next.** The Report Undeployment window opens. Accept the defaults for Undeploy Reports, Application Server Name, and Port. Type your user name and password for the OVPI Application Server.
7. Click **Next.** The Package Selection window opens.
8. Click the check box next to the following packages:

   NetFlow Global View 2.0

   NetFlow Global View Demo [if installed]
9. Click **Next.** The Selection Summary window opens.
10. Click **Uninstall**. The Progress window opens and the removal begins. When removal is complete, a package removal complete message appears.
11. Click **Done** to return to the Management Console.
12. Restart OVPI Timer.

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

    UNIX: As root, type one of the following:

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

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

4

The New Install

This chapter covers the following topics:

- Guidelines for a smooth install
- Installing NetFlow Global View 2.0
- TEEL file directives
- IP address-to-node name mapping
- Accessing deployed reports
- Package removal

Guidelines for a Smooth Install

Each reporting solution that runs on OVPI consists of one report pack and one datapipe, or sometimes one report pack and multiple datapipes. By installing a datapipe, you configure OVPI to collect a specific type of performance data at a specific polling interval. By installing the report pack, you configure OVPI to summarize and aggregate performance data in a specific way.

The RNS CD includes components for NNM as well as report packs and datapipes for OVPI. When you insert the CD, launch the package extraction interface, and select OVPI report packs for installation, the install script extracts every OVPI package from the CD and copies the results to the Packages directory on your system. When the extraction process finishes, the install script prompts you to start Package Manager. Before running Package Manager, review the following guidelines.

Prerequisites

Make sure the following software is already installed before installing NetFlow Global View:

- OVPI 5.0
- Any service pack available for OVPI 5.0

If you need help installing a Service Pack, refer to the release notes for the service pack.

Upgrading Common Property Tables

NetFlow Global View requires Common Property Tables 3.0 or higher. If you are running an earlier version of Common Property Tables, you must upgrade your earlier version to version 3.0 or higher. If you are not running any version of Common Property Tables, Package Manager will install Common Property Tables for you when you install NetFlow Global View.

Do not install an upgrade package for Common Property Tables and other packages at the same time; install the upgrade package for Common Property Tables and *only* the upgrade package for Common Property Tables. For details about installing and using Common Property Tables, refer to the *Common Property Tables 3.5 User Guide*.

Resolving Directory Issues

There are two default directories:

- Input directory for the datapipe
- Input directory for the addr2name utility

Resolve the following directory issues before installing NetFlow Global View:

- Decide whether you want to use the optional IP address to node name conversion utility.
- Decide whether you want to archive output from the NetFlow Preprocessor.

If you use the default directories, you do not have to change anything. If you want to use the addr2name utility and you are using the default directories, all you need to do is enable the utility by modifying the `trend_timer.sched` file. In addition, make sure that the output directory for the NetFlow Preprocessor is:

```
{DPIPE_HOME}\data\ImportData\NetFlowGVDP_addr2name
```

If you are not using the addr2name utility, make sure that the output directory for the NetFlow Preprocessor is:

```
{DPIPE_HOME}\data\ImportData\NetFlowGVDP
```

Installing NetFlow Global View 2.0

Perform the following tasks to install NetFlow Global View 2.0:

- Task 1: Stop OVPI Timer and extract packages from the RNS 7.0 CD
- Task 2: If necessary, upgrade to Common Property Tables 3.0 or higher
- Task 3: Install these packages:
  - NetFlow Global View Report Pack 2.0
  - NetFlow Global View Datapipe 2.0
  - NetFlow Interface to NetFlow Global View Datapipe 2.0
- Task 4: Restart OVPI Timer

Task 1: Stop OVPI Timer and extract packages from the RNS 7.0 CD

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

2 Stop OVPI Timer and wait for processes to terminate.

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

UNIX: As root, type one of the following:

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

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

3 Insert the RNS CD. On Windows, a Main Menu displays automatically; on UNIX, mount the CD. If the CD 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 welcome window opens.

Once the install script has finished extracting packages to the Packages directory, you can see the results by navigating to the Packages directory. The Packages directory includes folders for:

- NetFlow Global View
- NetFlow Global View Datapipe
- NetFlow Interface to NetFlow Global View Datapipe

Under the NetFlow Global View folder are these folders:

- NetFlow_Global_View.ap
- UPGRADE_NetFlow_Global_View_to_2.0.ap
- NetFlow_Global_View_Demo.ap

Under NetFlow Global View Datapipe is this folder:

- NetFlow_Global_View_Datapipe.ap

Under NetFlow Interface to NetFlow Global View Datapipe is this folder:

- NetFlow_IF2GV_Datapipe.ap

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

Task 2: Upgrade to Common Property Tables 3.0 or higher

NetFlow Global View 2.0 requires Common Property Tables 3.0 or higher. If you are running Common Property Tables 2.2, you must upgrade to version 3.0. If you are running Common Property Tables 3.0, upgrading to version 3.5 is optional.

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

Task 3: Install NetFlow Global View 2.0

1 Start Package Manager. The Package Manager welcome window opens.

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

3 Click **Install.** Approve the default 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:

   NetFlow_Global_View 2.0

   — and one of these datapipes:

   NetFlow_Global_View_Datapipe 2.0

   NetFlow_Interface_to_NetFlow_Global_View_Datapipe 2.0

   Do not install both datapipes on the same OVPI server.

7. Click **Next**. The Type Discovery window opens. Disable the default and click **Next**. The Selection Summary window opens.
8. Click **Install**. The Installation Progress window opens and the install begins. When the installation finishes, a package installation complete message appears.
9. Click **Done** to return to the Management Console.

Task 4: Restart OVPI Timer

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

UNIX: As root, type one of the following:

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

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

TEEL File Directives

Before it can collect data produced by the NetFlow Preprocessor, the NetFlow Global View Datapipe must know:

- Where output from the NetFlow Preprocessor is stored (SourceDirectory)
- What to do with the output after data collection is complete (SourceDisposition)

Source and disposition are controlled by directives in the following file:

```
NetFlowGVDP.teel
```

The source directive indicates where the data files are located. The disposition directive indicates what OVPI will do with the data files after they have been imported. The default for source disposition is to delete source data files after they have been collected. This default is valid, so no changes are necessary. However, if desired, instead of deleting source data files, you may archive them by moving them to another directory.

Changing the Source Directory Directive

If you are changing the directive *before* you install the NetFlow Global View package, there is only one instance of `NetFlowGVDP.teel`. It resides here:

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

If you are changing the directive *after* you install the NetFlow Global View package, there are two instances of NetFlowGVDP.teel.

instance 1:

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

instance 2:

```
{DPIPE_HOME}/lib
```

If you are changing directives after you install the report pack, make sure that you modify both instances of the file.

To change the directive for the source directory:

1. Navigate to the directory.
2. Locate the `NetFlowGVDP.teel` file.
3. Locate the SourceDirectory default path; look for the line beginning with `SourceDirectory =`
4. Change the path; replace the existing path with the complete path name to the datapipe input directory; begin the new path name just after the equals sign (=).

   ```
   SourceDirectory={DPIPE_HOME}\data\ImportData\NetFlowGVDP\NETFLOW-PP*
   ```

   Leave the file filter as specified in the original SourceDirectory.

Changing the Source Disposition

Follow these steps to change the SourceDisposition directive:

1. Navigate to the appropriate directory.
2. Locate the `NetFlowGVDP.teel` file.
3. Locate the SourceDisposition directive; look for the line beginning with `SourceDisposition = delete`
4. Change this line to `SourceDisposition = move,[archive path]`

   where *archive path* is the full path to the archive directory.

IP Address to Node Name Mapping

Network flow data uses IP addresses to identify clients and servers. If an IP address for a particular device changes, what happens? Unless some means of IP address-to-node name translation is available, the link between old performance data (linked to the old IP address) and new performance data (linked to the new IP address) will be lost.

The NetFlow Global View Datapipe includes a mapping utility that translates IP addresses to node names. The translation is accomplished by looking up the IP address in the HOSTS file (or a mapping file you produce yourself) and replacing the IP address with the corresponding node name, assuming the IP address is found.

Activating addr2name Mapping

By default the mapping utility is disabled. Follow these steps to enable it:

1. Navigate to the {DPIPE_HOME}/lib directory.
2. Open the directory and locate the following line in the `trendtimer.sched` file:

   ```
   #15 - - {DPIPE_HOME}/bin/trend_proc -f {DPIPE_HOME}/scripts/
   NetFlow_GVDP_addr2name.pro
   ```

3. Remove the # from the beginning of the line.

The addr2name translation utility supports a 1-to-1 mapping between IP addresses and node names. If a node has more than one IP address, then do one of the following:

- Aggregate the IP addresses (using the IP domain feature of the NetFlow Preprocessor)
- Map each IP address to a different node name: SameNode1, SameNode 2.

For more information about the IP domain feature, refer to the *NetFlow Preprocessor 3.0 User Guide*.

Changing the Default Source Directory for addr2name

If you do not want to use the default directory, follow these steps to change the directory:

1. Navigate to the `{DPIPE_HOME}/scripts` directory.
2. Open the `NetFlow_GVDP_addr2name.pro` file. Locate the line that starts with:

   ```
   {DPIPE_HOME}/bin/perl {DPIPE_HOME}/bin/addr2name.pl...
   ```

3. Change the directory path following the - i parameter to the full path of the address to name input directory. (You must configure the NetFlow Preprocessor to output its data files to this directory.)
4. Change directory path following the -o parameter to the full path to the datapipe input directory. (You must change the source directory directive in the TEEL file to this directory.)

5 *Optional.* If you are using a mapping file other than the HOSTS file, replace the `""` after the **`-m`** with the full path to the file to be used.

Your mapping file must adhere to format of a standard HOSTS file.

Accessing Deployed Reports

When you installed NetFlow Global View, you enabled the Deploy Reports option. As a result, the reports in this package (as well as any forms that come with it) were deployed to the OVPI Application Server. Once reports and forms reside on the OVPI Application Server, you have two ways to view them:

- OVPI clients
- Web browser

If the client components are installed on the user's system, the user has access to Report Viewer, Report Builder, and the Management Console. If the client components are not installed on the user's system, using a web browser to view reports is the only way the user can view reports.

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

Package Removal

If you remove NetFlow Global View, Package Manager will automatically remove any datapipe that depends on this package. Since the data in report pack and datapipe tables will be lost, you may want to archive that data before removing the report pack.

Follow these steps to uninstall NetFlow Global View 2.0:

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

2 Stop OVPI Timer and wait for processes to terminate.

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

UNIX: As root, type one of the following:

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

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

3 Start Package Manager. The Package Manager welcome window opens.

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

5 Click **Uninstall.**

6 Click **Next.** The Report Undeployment window opens. Accept the defaults for Undeploy Reports, Application Server Name, and Port. Type your username and password for the OVPI Application Server.

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

8 Click the check box next to the following packages:

NetFlow Global View

NetFlow Global View Demo [if installed]

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

10 Click **Uninstall**. The Progress window opens and the removal begins. When removal is complete, a package removal complete message appears.

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

12 Restart OVPI Timer.

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

UNIX: As root, type one of the following:

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

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

5

Top Ten Reports

Top ten reports come in two flavors:

- An overview covering all element types
- An element-specific report

The overview report is broader in scope. Whereas the overview report looks at multiple elements at once, the element-specific version looks at one element at a time. For this reason, you way want to investigate excessive volume and low throughput by launching the overview version first, then go from there to one of the element-specific reports.

There are two instances of the overview version:

- Daily Top Ten (data for multiple days, for multiple elements, and you select the day)
- Monthly Top Ten (data for a month, for multiple elements, and you select the month)

Both reports focus on total volume, with entries sorted highest to lowest

There are two instances of the element-specific report:

- Daily Top Ten (one per element type, and you select the day)
- Monthly Top Ten (one per element type, and you select the month)

Both reports provide the following statistics:

- Total volume, with entries sorted highest to lowest
- Volume in each direction (client > server :: server > client)
- Average throughput
- Average throughput in each direction (client > server :: server > client)

See below for samples of the following reports:

- Daily Server Top Ten
- Monthly Client Top Ten
- Daily Top Talker Top Ten
- Daily Application Top Ten
- Monthly Application Top Ten

NetFlow Global View

Daily Server Top Ten

The Server Top Ten Report provides lists of servers which had the highest volume or worst throughput during the selected day. This report provides a quick overview of server usage and performace across the network. For both volume and throughput, the overall value is displayed along with values for the traffic flowing in the "Client to Server" (C->S) and "Server to Client" (S->C) directions.

Day

August 21, 2003
August 20, 2003
August 19, 2003

Total Volume
Bytes per Day

Server	Total Bytes	Bytes C->S	Bytes S->C
Client159	111.42 M	48.97 M	62.45 M
Client73	95.47 M	63.08 M	32.38 M
Server164	90.12 M	43.51 M	46.61 M
Server640	62.88 M	30.94 M	31.94 M
Server592	24.15 M	18.65 M	5501.01 k
Server426	23.95 M	23.95 M	0
15.1.158.40	19.87 M	19.87 M	0
Server130	19.87 M	19.87 M	0
Server13	19.87 M	19.87 M	0
Server135	19.87 M	19.87 M	0

Average Throughput
Bytes per Second

Server	Overall Throughput	Throughput C->S	Throughput S->C
Server283	9.24	8.92	9.55
Server279	9.45	9.77	9.12
Server239	9.88	10.22	9.55
Server492	9.89	9.55	10.23
Server536	10.79	11.10	10.47
Server635	14.00	14.48	13.51
Server554	14.15	14.66	13.64
Server519	16.48	17.06	15.90
Server497	23.26	24.00	22.51
Server530	84.65	87.78	81.51

NetFlow Global View

Monthly Client Top Ten

The Client Top Ten Report provides lists of clients which had the highest volume or worst throughput during the selected month. This report provides a quick overview of client usage and performace across the network. For both volume and throughput, the overall value is displayed along with values for the traffic flowing in the "Client to Server" (C->S) and "Server to Client" (S->C) directions.

Month

July, 2003

June, 2003

Total Volume
Bytes per Month

Client	Total Bytes	Bytes C->S	Bytes S->C
Client91	3250.98 M	3250.98 M	0
Client73	1692.82 M	823.69 M	869.13 M
Client27	1645.86 M	1089.83 M	556.03 M
Client155	1186.42 M	590.70 M	595.72 M
Client69	1145.09 M	981.77 M	163.31 M
Client142	785.36 M	621.53 M	163.82 M
Client07	553.85 M	276.02 M	277.83 M
Client39	446.00 M	443.31 M	2688.04 k
Client132	413.93 M	198.02 M	215.92 M
Client152	411.19 M	283.50 M	127.68 M

Average Throughput
Bytes per Second

Client	Overall Throughput	Throughput C->S	Throughput S->C
Client30	24.82	25.12	24.53
Client101	31.33	31.33	0.00
Client44	69.65	71.47	67.82
Client124	85.62	48.62	122.63
Client08	93.54	93.54	0.00
Client103	96.70	96.70	0.00
Client133	103.71	65.60	2564.62
Client72	124.07	124.07	0.00
Client81	152.39	152.39	0.00
Client116	168.14	168.14	0.00

NetFlow Global View

Daily Top Talker Top Ten

The Top Talker Top Ten Report provides lists of client / server pairs which had the highest volume or worst throughput during the selected day. This report provides a quick overview of client / server pair usage and performace across the network. For both volume and throughput, the overall value is displayed along with values for the traffic flowing in the "Client to Server" (C->S) and "Server to Client" (S->C) directions.

Day

August 21, 2003
August 20, 2003
August 19, 2003

Total Volume
Bytes per Day

Client	Server	Total Bytes	Bytes C->S	Bytes S->C
Client73	Client159	96.32 M	46.96 M	49.36 M
Client27	Client73	94.36 M	62.48 M	31.88 M
Client155	Server640	62.88 M	30.94 M	31.94 M
Client07	Server164	28.96 M	14.44 M	14.52 M
Client142	Server592	23.99 M	18.53 M	5461.84 k
Client39	Server426	23.94 M	23.94 M	0
Client132	Server164	21.88 M	10.54 M	11.34 M
Client06	Server164	21.26 M	9388.58 k	11.87 M
Client91	15.1.158.40	19.09 M	19.09 M	0
Client91	Server130	19.09 M	19.09 M	0

Average Throughput
Bytes per Second

Client	Server	Overall Throughput	Throughput C->S	Throughput S->C
Client155	Client42	5.84	5.84	0.00
Client30	Server283	9.24	8.92	9.55
Client30	Server279	9.45	9.77	9.12
Client30	Server239	9.88	10.22	9.55
Client30	Server492	9.89	9.55	10.23
Client30	Server536	10.79	11.10	10.47
Client30	Server635	14.00	14.48	13.51
Client30	Server554	14.15	14.66	13.64
Client30	Server519	16.48	17.06	15.90
Client30	Server497	23.26	24.00	22.51

NetFlow Global View

Daily Application Top Ten

The Application Top Ten Report provides lists of applications which had the highest volume or worst throughput during the selected day. This report provides a quick overview of application usage and performace across the network. For both volume and throughput, the overall value is displayed along with values for the traffic flowing in the "Client to Server" (C->S) and "Server to Client" (S->C) directions.

Day

August 21, 2003
August 20, 2003
August 19, 2003

Total Volume
Bytes per Day

Application	TOS	Total Bytes	Bytes C->S	Bytes S->C
snmp	0	450.80 M	372.26 M	78.54 M
netbios-ssn	0	125.44 M	71.75 M	53.69 M
ftp-data	0	94.40 M	62.49 M	31.92 M
vrtstrapserver	0	41.58 M	40.89 M	689.65 k
zephyr-srv	0	25.47 M	480.04 k	24.99 M
scoremgr	0	13.05 M	215.77 k	12.83 M
xinuexpansion3	0	11.04 M	181.89 k	10.85 M
orion-rmi-reg	0	10.24 M	882.94 k	9356.85 k
OTHER_APPS	0	8137.80 k	7526.80 k	611.00 k
pop3	0	6935.70 k	6740.13 k	195.57 k

Average Throughput
Bytes per Second

Application	TOS	Overall Throughput	Throughput C->S	Throughput S->C
mloadd	0	5.84	5.84	0.00
fpo-fns	0	34.09	47.70	20.44
netbios-ns	0	96.70	96.70	0.00
telnet	0	119.03	119.65	118.37
netbios-dgm	0	136.94	136.94	0.00
cplscrambler-in	0	165.82	156.85	174.92
ischat	0	250.69	259.45	242.02
x11	0	326.23	270.60	382.48
simba-cs	0	353.45	329.89	378.34
mentaserver	0	372.87	53.93	691.22

NetFlow Global View

Monthly Application Top Ten

The Application Top Ten Report provides lists of applications which had the highest volume or worst throughput during the selected month. This report provides a quick overview of application usage and performace across the network. For both volume and throughput, the overall value is displayed along with values for the traffic flowing in the "Client to Server" (C->S) and "Server to Client" (S->C) directions.

Month

July, 2003

June, 2003

Total Volume
Bytes per Month

Application	TOS	Total Bytes	Bytes C->S	Bytes S->C
snmp	0	7862.77 M	6492.93 M	1369.84 M
netbios-ssn	0	2187.93 M	1251.50 M	936.44 M
ftp-data	0	1646.56 M	1089.84 M	556.72 M
vrtstrapserver	0	725.21 M	713.19 M	12.03 M
zephyr-srv	0	444.19 M	8372.71 k	435.82 M
scoremgr	0	227.55 M	3763.36 k	223.78 M
xinuexpansion3	0	192.48 M	3172.44 k	189.30 M
orion-rmi-reg	0	178.60 M	15.40 M	163.20 M
OTHER_APPS	0	141.94 M	131.28 M	10.66 M
pop3	0	120.97 M	117.56 M	3411.07 k

Average Throughput
Bytes per Second

Application	TOS	Overall Throughput	Throughput C->S	Throughput S->C
mloadd	0	5.84	5.84	0.00
fpo-fns	0	34.09	47.70	20.44
netbios-ns	0	96.70	96.70	0.00
telnet	0	119.03	119.65	118.37
netbios-dgm	0	136.94	136.94	0.00
cplscrambler-in	0	165.82	156.85	174.92
ischat	0	250.69	259.45	242.02
x11	0	326.23	270.60	382.48
simba-cs	0	353.45	329.89	378.34
mentaserver	0	372.87	53.93	691.22

6

Element Summary: Daily and Monthly

The summary reports add depth to the element-specific top ten reports. They will tell you whether activity appearing in the element-specific top ten report is a new condition, with no history behind it, or a longer term trend that may be getting worse. These reports will also pin-point the clients, servers, applications, or TOS values where resource consumption is high and where worsening throughput is a serious risk.

While the element-specific top ten reports focus on total volume and average throughput, the element-specific summary reports are wider in scope, providing the following statistics:

- Number of flows in both directions (client > server :: server > client)
- Total bytes
- Average bytes per packet
- Average throughput

The data in an element-specific summary report has been aggregated. For example, if you are looking at the Server Daily Summary, “number of flows” means:

- Flows to any client, running any application
- Flows from any client, running any application

From each entry in the element selection table you can drill down to two graphs:

- Traffic volume, measured in bytes per day
- Throughput, measured in bytes per second

In the daily summary, these graphs show increases and decreases over the last 30 days; in the monthly summary, these graphs show increases and decreases for the previous 12 months.

See below for samples of the following reports:

- Daily Server Summary
- Monthly Server Summary
- Daily Client Summary
- Daily Top Talker Summary
- Monthly Top Talker Summary
- Monthly Application Summary

NetFlow Global View

Daily Server Summary

The Server Summary Report presents server performance metrics aggregated over all clients and applications for the selected time period. This report can be used to view historical server performance and identify servers with excessive demand or degrading performance. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C"

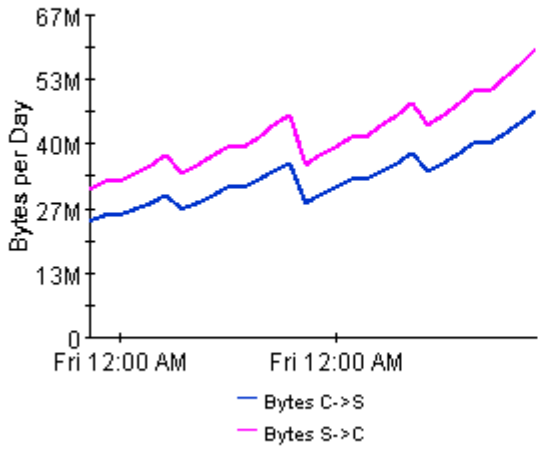
Day

August 21, 2003
August 20, 2003
August 19, 2003

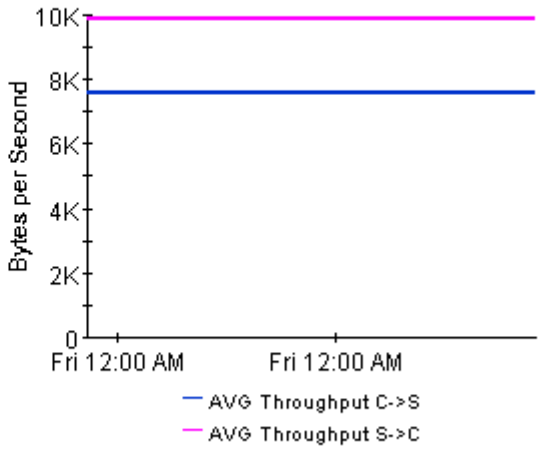
Servers

Server	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
Client159	16 / 15	48.97 M / 62.45 M	584.20 / 728.39	7604.18 / 9861.42
Client73	152 / 149	63.08 M / 32.38 M	1088.24 / 708.39	48.47 k / 26.07 k
Server164	223 / 254	43.51 M / 46.61 M	294.55 / 297.47	2814.49 / 2847.59
Server640	27 / 27	30.94 M / 31.94 M	774.29 / 797.62	18.11 k / 18.67 k
Server592	120 / 123	18.65 M / 5501.01 k	757.18 / 290.57	8999.45 / 3148.60
Server426	1630 / 0	23.95 M / 0	369.04 /	24.19 k / 0.00
15.1.158.40	51 / 0	19.87 M / 0	391.92 /	33.06 k / 0.00
Server130	51 / 0	19.87 M / 0	391.92 /	10.16 k / 0.00
Server13	51 / 0	19.87 M / 0	391.91 /	25.99 k / 0.00

Bytes
Client159
Wed Jul 23 2003 - Thu Aug 21 2003



Throughput
Client159
Wed Jul 23 2003 - Thu Aug 21 2003



NetFlow Global View

Daily Client Summary

The Client Summary Report presents client performance metrics aggregated over all servers and applications for the selected time period. This report can be used to view historical client performance and identify clients with excessive demand or degrading performance. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C"

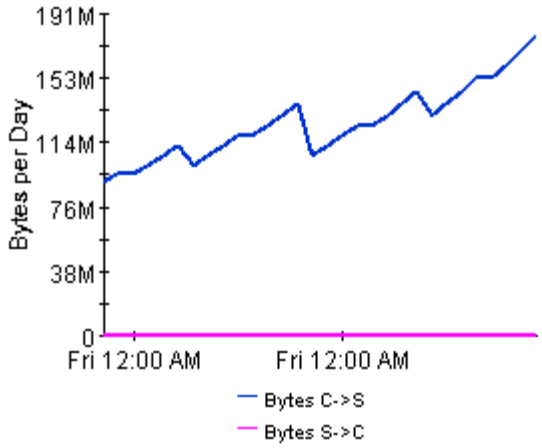
Day

August 21, 2003
August 20, 2003
August 19, 2003

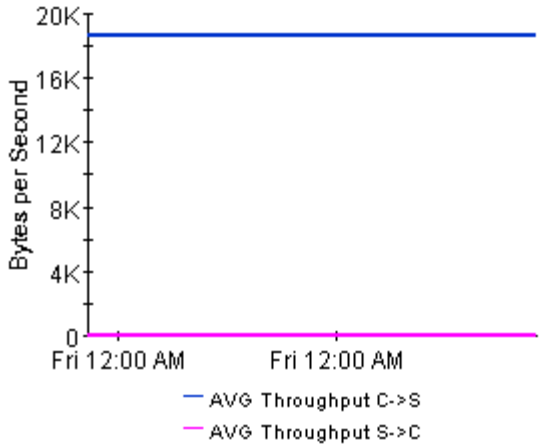
Clients

Client	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
Client91	637 / 0	186.39 M / 0	390.93 /	18.59 k / 0.00
Client73	39 / 38	47.23 M / 49.83 M	824.28 / 895.17	14.29 k / 15.68 k
Client27	3 / 4	62.48 M / 31.88 M	1135.17 / 739.47	58.87 k / 30.03 k
Client155	167 / 176	33.87 M / 34.15 M	754.32 / 756.31	8001.97 / 13.41 k
Client69	164 / 3	56.29 M / 9363.37 k	348.61 / 388.59	11.90 k / 4184.46
Client142	211 / 215	35.63 M / 9392.71 k	833.68 / 247.02	8278.48 / 2219.18
Client07	97 / 97	15.83 M / 15.93 M	294.53 / 296.47	2816.86 / 2836.20
Client39	2462 / 9	25.42 M / 154.12 k	357.62 / 295.24	4916.34 / 573.60
Client132	105 / 137	11.35 M / 12.38 M	292.34 / 297.69	2769.68 / 2854.80

Bytes
Client91
Wed Jul 23 2003 - Thu Aug 21 2003



Throughput
Client91
Wed Jul 23 2003 - Thu Aug 21 2003



NetFlow Global View

Daily Top Talker Summary

The Top Talker Summary Report presents performance metrics for the client / server pairs that generate the most traffic during the selected time period. Selecting a client / server pair from the list of top talkers allows the user to see the historical traffic and throughput for the selected pair. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C".

Day

August 21, 2003
August 20, 2003
August 19, 2003

Top Talkers

Client	Server	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
Client73	Client159	6 / 5	46.96 M / 49.36 M	882.04 / 951.39	21.60 k / 24.01 k
Client27	Client73	3 / 4	62.48 M / 31.88 M	1135.17 / 739.47	58.87 k / 30.03 k
Client155	Server640	27 / 27	30.94 M / 31.94 M	774.29 / 797.62	18.11 k / 18.67 k
Client07	Server164	49 / 49	14.44 M / 14.52 M	295.67 / 297.43	2816.90 / 2833.54
Client142	Server592	106 / 109	18.53 M / 5461.84 k	761.91 / 293.65	9326.56 / 3292.57
Client39	Server426	1618 / 0	23.94 M / 0	368.96 /	24.18 k / 0.00

Client Owner

HP

Client Location

New York

Server Owner

HP

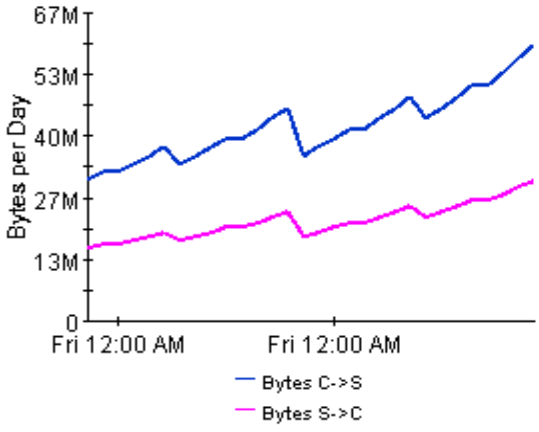
Server Location

Paris

Bytes

Client27 : Client73

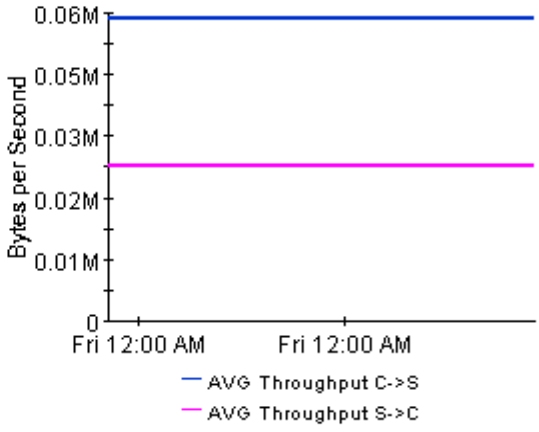
Wed Jul 23 2003 - Thu Aug 21 2003



Throughput

Client27 : Client73

Wed Jul 23 2003 - Thu Aug 21 2003



NetFlow Global View

Monthly Top Talkers Summary

The Top Talker Summary Report presents performance metrics for the client / server pairs that generate the most traffic during the selected time period. Selecting a client / server pair from the list of top talkers allows the user to see the historical traffic and throughput for the selected pair. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C".

Month

July, 2003

June, 2003

Top Talkers

Client	Server	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
Client73	Client159	105 / 87	819.01 M / 860.90 M	882.04 / 951.39	21.60 k / 24.01 k
Client27	Client73	52 / 70	1089.83 M / 556.03 M	1135.17 / 739.47	58.87 k / 30.03 k
Client155	Server640	471 / 471	539.72 M / 557.09 M	774.29 / 797.62	18.11 k / 18.67 k
Client07	Server164	855 / 855	251.83 M / 253.33 M	295.67 / 297.43	2816.90 / 2833.54
Client142	Server592	1849 / 1901	323.21 M / 95.26 M	761.91 / 293.65	9326.56 / 3292.57
Client39	Server426	28.22 k / 0	417.62 M / 0	368.96 /	24.18 k / 0.00

Client Owner

HP

Client Location

Chicago

Server Owner

"ABC, Ltd."

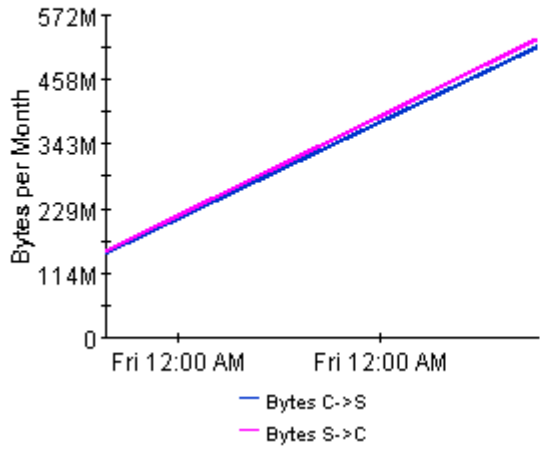
Server Location

Paris

Bytes

Client155 : Server640

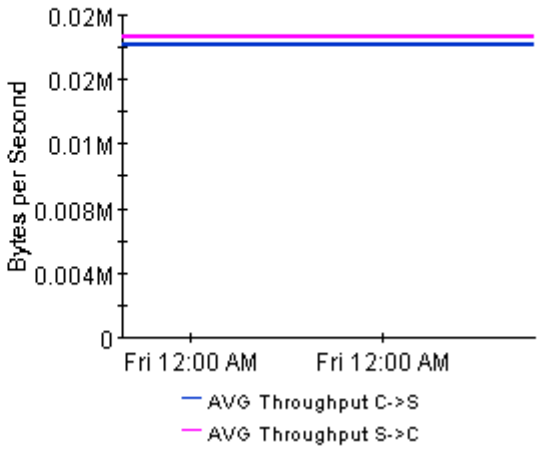
Sun Jun 01 2003 - Tue Jul 01 2003



Throughput

Client155 : Server640

Sun Jun 01 2003 - Tue Jul 01 2003



NetFlow Global View

Monthly Application Summary

The Application Summary Report presents application performance metrics aggregated over all clients and servers for the selected time period. This report can be used to view historical application performance and identify applications with excessive demand or degrading performance. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C".

Month

July, 2003

June, 2003

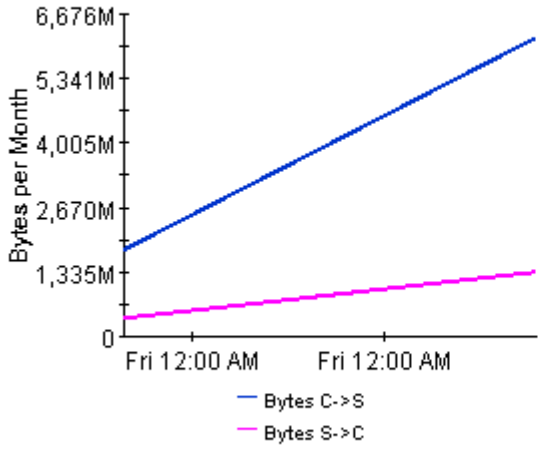
Applications

Application	TOS	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
snmp	0	182.61 k / 66.26 k	6492.93 M / 1369.84 M	361.11 / 314.40	4424.36 / 2009.43
netbios-ssn	0	15.91 k / 16.74 k	1251.50 M / 936.44 M	704.58 / 542.42	7357.98 / 5379.51
ftp-data	0	87 / 105	1089.84 M / 556.72 M	1134.79 / 739.77	58.83 k / 30.04 k
vrtstrapserver	0	17 / 17	713.19 M / 12.03 M	1405.29 / 40.00	45.57 k / 768.55
zephyr-srv	0	35 / 35	8372.71 k / 435.82 M	45.72 / 1402.90	729.86 / 37.99 k
scoremgr	0	17 / 17	3763.36 k / 223.78 M	40.00 / 1404.99	797.65 / 47.43 k
xinuexpansion3	0	17 / 17	3172.44 k / 189.30 M	40.00 / 1404.99	785.49 / 46.87 k
orion-rmi-reg	0	70 / 70	15.40 M / 163.20 M	44.49 / 416.66	430.23 / 4537.02
OTHER_APPS	0	18.75 k / 453	131.28 M / 10.66 M	460.41 / 133.93	701.26 / 1652.34

Bytes

snmp

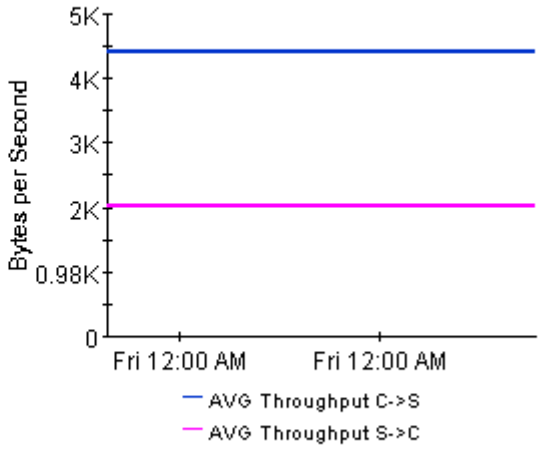
Sun Jun 01 2003 - Tue Jul 01 2003



Throughput

snmp

Sun Jun 01 2003 - Tue Jul 01 2003



NetFlow Global View

Monthly Server Summary

The Server Summary Report presents server performance metrics aggregated over all clients and applicationsfor the selected time period. This report can be used to view historical server performance and identify servers with excessive demand or degrading performance. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C"

Month

July, 2003

June, 2003

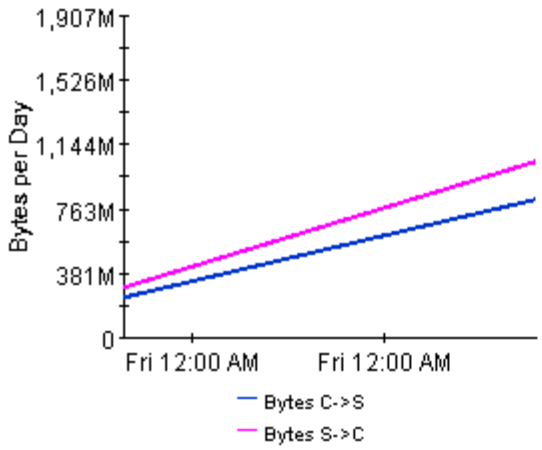
Servers

Server	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
Client159	279 / 262	854.11 M / 1089.18 M	584.20 / 728.39	7604.18 / 9861.42
Client73	2651 / 2599	1100.28 M / 564.82 M	1088.24 / 708.39	48.47 k / 26.07 k
Server164	3889 / 4430	758.83 M / 813.02 M	294.55 / 297.47	2814.49 / 2847.59
Server640	471 / 471	539.72 M / 557.09 M	774.29 / 797.62	18.11 k / 18.67 k
Server592	2093 / 2145	325.32 M / 95.95 M	757.18 / 290.57	8999.45 / 3148.60
Server426	28.43 k / 0	417.78 M / 0	369.04 /	24.19 k / 0.00
15.1.158.40	890 / 0	346.53 M / 0	391.92 /	33.06 k / 0.00
Server130	890 / 0	346.53 M / 0	391.92 /	10.16 k / 0.00
Server13	890 / 0	346.53 M / 0	391.91 /	25.99 k / 0.00

Bytes

Client159

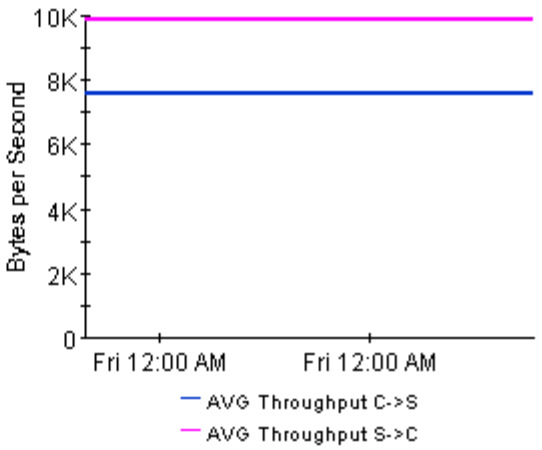
Sun Jun 01 2003 - Tue Jul 01 2003



Throughput

Client159

Sun Jun 01 2003 - Tue Jul 01 2003



7

Application Distribution

NetFlow Global View includes four application distribution reports:

- Daily Server Application Distribution
- Monthly Server Application Distribution
- Daily Top Talkers Application Distribution
- Monthly Top Talkers Application Distribution

These reports answer the following questions:

- Where is demand highest, and what does the trend look like?
- Where is performance worsening, and what does the trend look like?

These questions are answered by breaking down total volume on a per-application basis. The server report provides volume and throughput information for each application hosted by a server, while the top talker report provides volume and throughput information for each application running between a particular client/server pair.

Once you select a day or month, the server version of the report displays a list of servers ranked by total volume. For each server, you have the following statistics:

- Number of flows (client > server :: server > client)
- Total bytes (client > server :: server > client)
- Average bytes per packet (client > server :: server > client)
- Average throughput (client > server :: server > client)

Select a server to find out who owns it, where it is located, and which applications hosted by the server are responsible for most of the traffic volume. The list of applications sorts by total volume for the time period. Select an application to look at graphs for volume and throughput. The graphs in the daily version show ups and downs over the previous thirty days, while the graphs in the monthly version show ups and downs over the previous 12 months.

The top talker report is nearly identical, although the context is different. When you select a client/server pair, the report will tell you who owns the client and where the client is located, in addition to server owner and server location. Use this report to find out which applications are responsible for high demand, what the volume trend looks like application by application, and what the performance trend looks application by application.

NetFlow Global View

Daily Server - Application Distribution

The Server - Application Distribution Report presents server / application performance metrics aggregated over all flow sources. This report can be used to view the distribution of application traffic on a selected server. It also alows the user to view historical server / application pair performance and identify pairs with excessive demand or degrading performance. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C".

Day

August 21, 2003
August 20, 2003
August 19, 2003

Servers

Server	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
Client159	16 / 15	48.97 M / 62.45 M	584.20 / 728.39	7604.18 / 9861.42
Client73	152 / 149	63.08 M / 32.38 M	1088.24 / 708.39	48.47 k / 26.07 k
Server164	223 / 254	43.51 M / 46.61 M	294.55 / 297.47	2814.49 / 2847.59
Server640	27 / 27	30.94 M / 31.94 M	774.29 / 797.62	18.11 k / 18.67 k
Server592	120 / 123	18.65 M / 5501.01 k	757.18 / 290.57	8999.45 / 3148.60
Server426	1630 / 0	23.95 M / 0	369.04 /	24.19 k / 0.00

Server Owner

HP

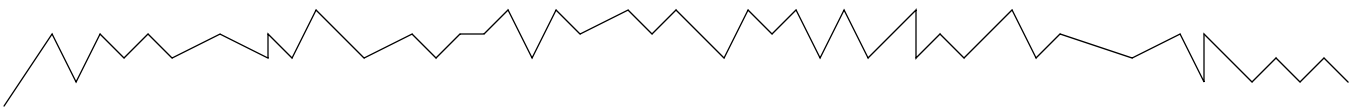
Server Location

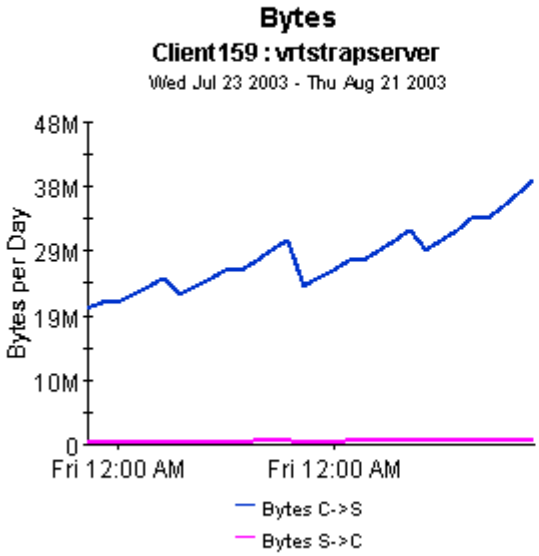
Chicago

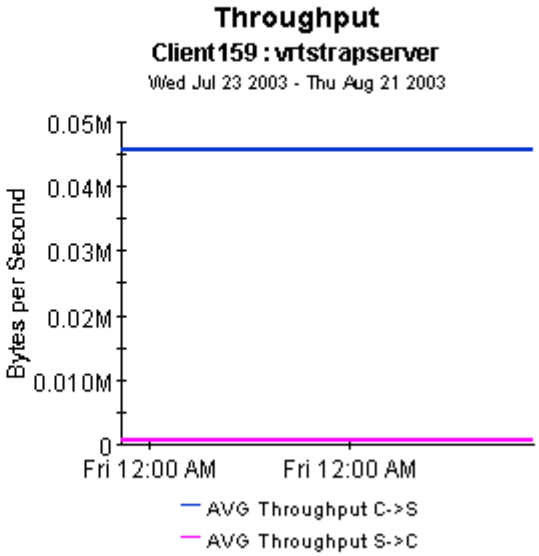
Supported Applications

Client159

Application	TOS	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
vrtstrapserver	0	1 / 1	40.89 M / 689.65 k	1405.29 / 40.00	45.57 k / 768.55
zephyr-srv	0	1 / 1	418.25 k / 24.99 M	40.00 / 1405.32	637.23 / 38.07 k
scoremgr	0	1 / 1	215.77 k / 12.83 M	40.00 / 1404.99	797.65 / 47.43 k
xinuexpansion3	0	1 / 1	181.89 k / 10.85 M	40.00 / 1404.99	785.49 / 46.87 k
orion-rmi-reg	0	2 / 2	880.16 k / 9288.46 k	44.43 / 414.59	429.61 / 4511.45
OTHER_APPS	0	2 / 1	5251.68 k / 168	1403.07 / 42.00	44.24 k / 875.00
cdn	0	4 / 4	360.42 k / 3463.24 k	44.39 / 378.66	179.00 / 1719.74
sdt-lmd	0	1 / 1	742.31 k / 74.92 k	370.41 / 44.28	4153.67 / 419.01
active-net	0	3 / 3	29.31 k / 261.59 k	44.96 / 428.84	1201.55 / 10.45 k




Bytes
Client159 : vrtstrapserver
Wed Jul 23 2003 - Thu Aug 21 2003
48M
38M
29M
19M
10M
0
Bytes per Day
Fri 12:00 AM
Fri 12:00 AM
Bytes C->S
Bytes S->C


Throughput
Client159 : vrtstrapserver
Wed Jul 23 2003 - Thu Aug 21 2003
0.05M
0.04M
0.03M
0.02M
0.010M
0
Bytes per Second
Fri 12:00 AM
Fri 12:00 AM
AVG Throughput C->S
AVG Throughput S->C

NetFlow Global View

Monthly Server - Application Distribution

The Server - Application Distribution Report presents server / application performance metrics aggregated over all flow sources. This report can be used to view the distribution of application traffic on a selected server. It also alows the user to view historical server / application pair performance and identify pairs with excessive demand or degrading performance. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C".

Month

July, 2003

June, 2003

Servers

Server	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
Client159	279 / 262	854.11 M / 1089.18 M	584.20 / 728.39	7604.18 / 9861.42
Client73	2651 / 2599	1100.28 M / 564.82 M	1088.24 / 708.39	48.47 k / 26.07 k
Server164	3889 / 4430	758.83 M / 813.02 M	294.55 / 297.47	2814.49 / 2847.59
Server640	471 / 471	539.72 M / 557.09 M	774.29 / 797.62	18.11 k / 18.67 k
Server592	2093 / 2145	325.32 M / 95.95 M	757.18 / 290.57	8999.45 / 3148.60
Server426	28.43 k / 0	417.78 M / 0	369.04 /	24.19 k / 0.00

Server Owner

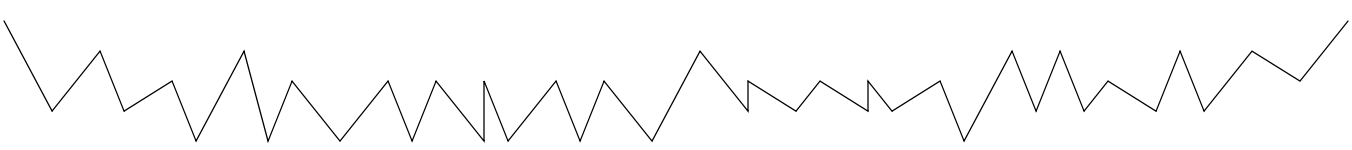
HP

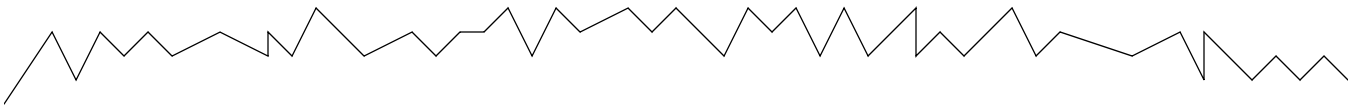
Server Location

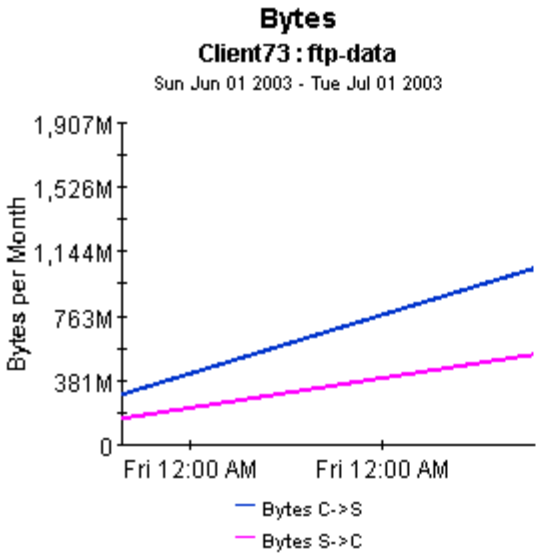
Paris

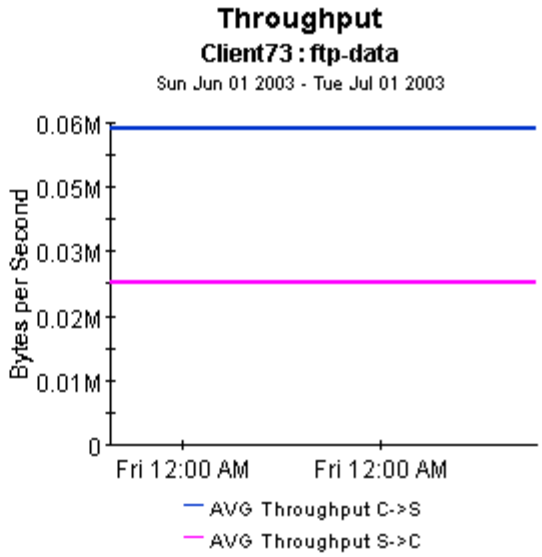
Supported Applications
Client73

Application	TOS	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
ftp-data	0	87 / 105	1089.84 M / 556.72 M	1134.79 / 739.77	58.83 k / 30.04 k
snmp	0	2529 / 2494	8113.56 k / 8103.67 k	185.33 / 181.00	2804.80 / 2585.33
netbios-ssn	0	35 / 0	2322.00 k / 0	337.04 /	1810.69 / 0.00






Bytes
Client73 : ftp-data
Sun Jun 01 2003 - Tue Jul 01 2003
1,907M
1,526M
1,144M
763M
381M
0
Bytes per Month
Fri 12:00 AM
Fri 12:00 AM
Bytes C->S
Bytes S->C


Throughput
Client73 : ftp-data
Sun Jun 01 2003 - Tue Jul 01 2003
0.06M
0.05M
0.03M
0.02M
0.01M
0
Bytes per Second
Fri 12:00 AM
Fri 12:00 AM
AVG Throughput C->S
AVG Throughput S->C

NetFlow Global View

Daily Top Talkers - Application Distribution

The Top Talker - Application Distribution Report presents performance metrics for the client / server pairs that generate the most traffic during the selected time period. Selecting a client / server pair from the list of top talkers allows the user to see the distribution of application traffic generated by the pair. Selecting a application displays the historical traffic and throughput for the selected client / server / application combination. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C".

Day

August 21, 2003
August 20, 2003
August 19, 2003

Top Talkers

Client	Server	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
Client73	Client159	6 / 5	44.61 M / 46.89 M	882.04 / 951.39	21.60 k / 24.01 k
Client27	Client73	3 / 4	59.36 M / 30.29 M	1135.17 / 739.47	58.87 k / 30.03 k
Client155	Server640	26 / 26	29.40 M / 30.34 M	774.29 / 797.62	18.11 k / 18.67 k
Client07	Server164	47 / 47	13.72 M / 13.80 M	295.67 / 297.43	2816.90 / 2833.54
Client142	Server592	101 / 104	17.60 M / 5188.75 k	761.91 / 293.65	9326.56 / 3292.57
Client39	Server426	1537 / 0	22.75 M / 0	368.96 /	24.18 k / 0.00

Client Owner

HP

Client Location

Paris

Server Owner

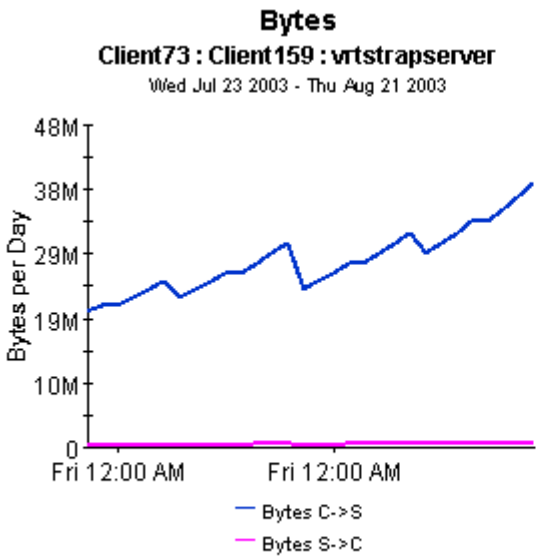
HP

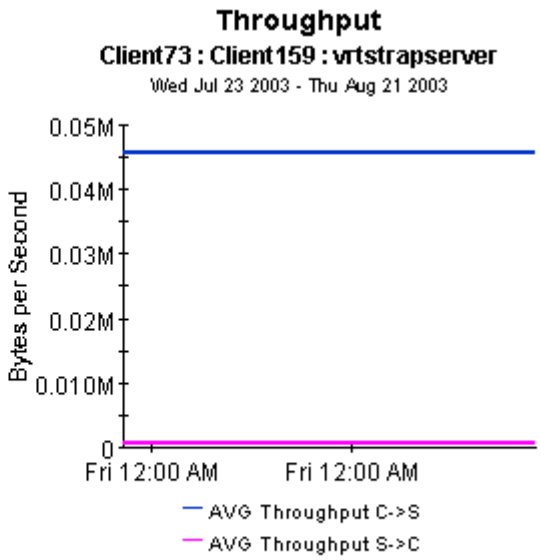
Server Location

Chicago

Applications
Client73 : Client159

AppName	TOS	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
vrtstrapserver	0	1 / 1	38.85 M / 655.17 k	1405.29 / 40.00	45.57 k / 768.55
zephyr-srv	0	1 / 1	397.34 k / 23.74 M	40.00 / 1405.32	637.23 / 38.07 k
scoremgr	0	1 / 1	204.98 k / 12.19 M	40.00 / 1404.99	797.65 / 47.43 k
xinuexpansion3	0	1 / 1	172.79 k / 10.31 M	40.00 / 1404.99	785.49 / 46.87 k
OTHER_APPS	0	2 / 1	4989.10 k / 160	1403.07 / 42.00	44.24 k / 875.00





NetFlow Global View

Monthly Top Talker - Application Distribution

The Top Talker - Application Distribution Report presents performance metrics for the client / server pairs that generate the most traffic during the selected time period. Selecting a client / server pair from the list of top talkers allows the user to see the distribution of application traffic generated by the pair. Selecting a application displays the historical traffic and throughput for the selected client / server / application combination. All statistics are displayed for both the "Client to Server" (C->S) and "Server to Client" (S->C) directions as "C->S / S->C".

Month

July, 2003

June, 2003

Top Talkers

Client	Server	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
Client73	Client159	105 / 87	819.01 M / 860.90 M	882.04 / 951.39	21.60 k / 24.01 k
Client27	Client73	52 / 70	1089.83 M / 556.03 M	1135.17 / 739.47	58.87 k / 30.03 k
Client155	Server640	471 / 471	539.72 M / 557.09 M	774.29 / 797.62	18.11 k / 18.67 k
Client07	Server164	855 / 855	251.83 M / 253.33 M	295.67 / 297.43	2816.90 / 2833.54
Client142	Server592	1849 / 1901	323.21 M / 95.26 M	761.91 / 293.65	9326.56 / 3292.57
Client39	Server426	28.22 k / 0	417.62 M / 0	368.96 /	24.18 k / 0.00

Client Owner

HP

Client Location

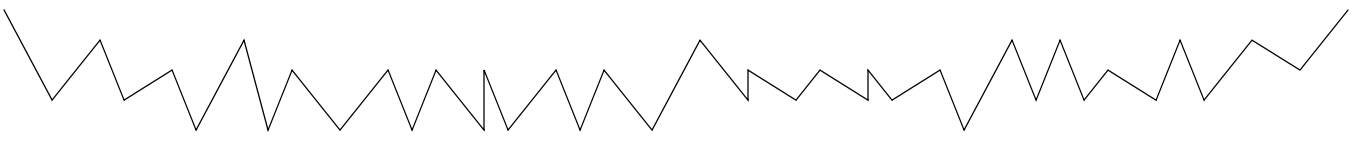
Paris

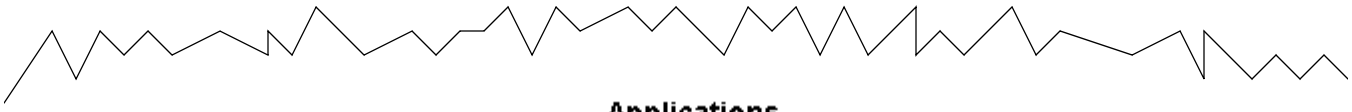
Server Owner

HP

Server Location

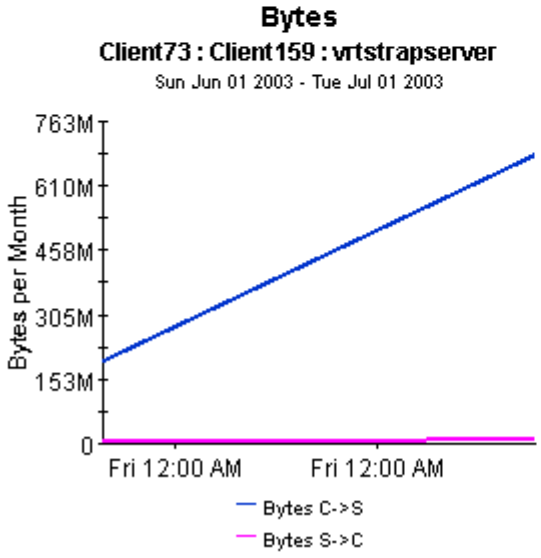
Chicago

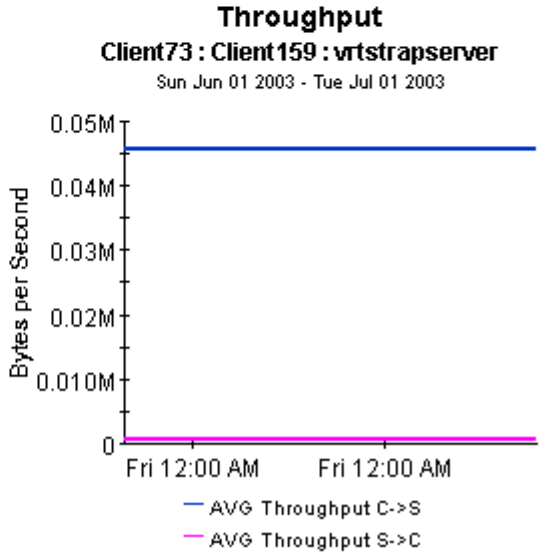




Applications
Client73 : Client159

ApplName	TOS	Number of Flows	Total Bytes	Average Bytes per Packet	Average Throughput (Bps)
vrtstrapserver	0	17 / 17	713.19 M / 12.03 M	1405.29 / 40.00	45.57 k / 768.55
zephyr-srv	0	17 / 17	7294.96 k / 435.78 M	40.00 / 1405.32	637.23 / 38.07 k
scoremgr	0	17 / 17	3763.36 k / 223.78 M	40.00 / 1404.99	797.65 / 47.43 k
xinuexpansion3	0	17 / 17	3172.44 k / 189.30 M	40.00 / 1404.99	785.49 / 46.87 k
OTHER_APPS	0	35 / 17	91.60 M / 2930	1403.07 / 42.00	44.24 k / 875.00





8

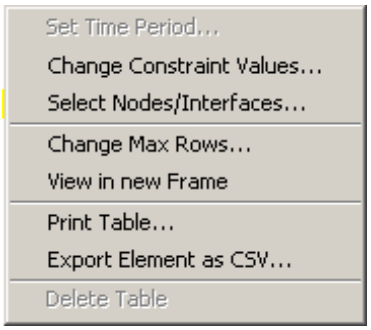
Editing Tables and Graphs

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.



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.

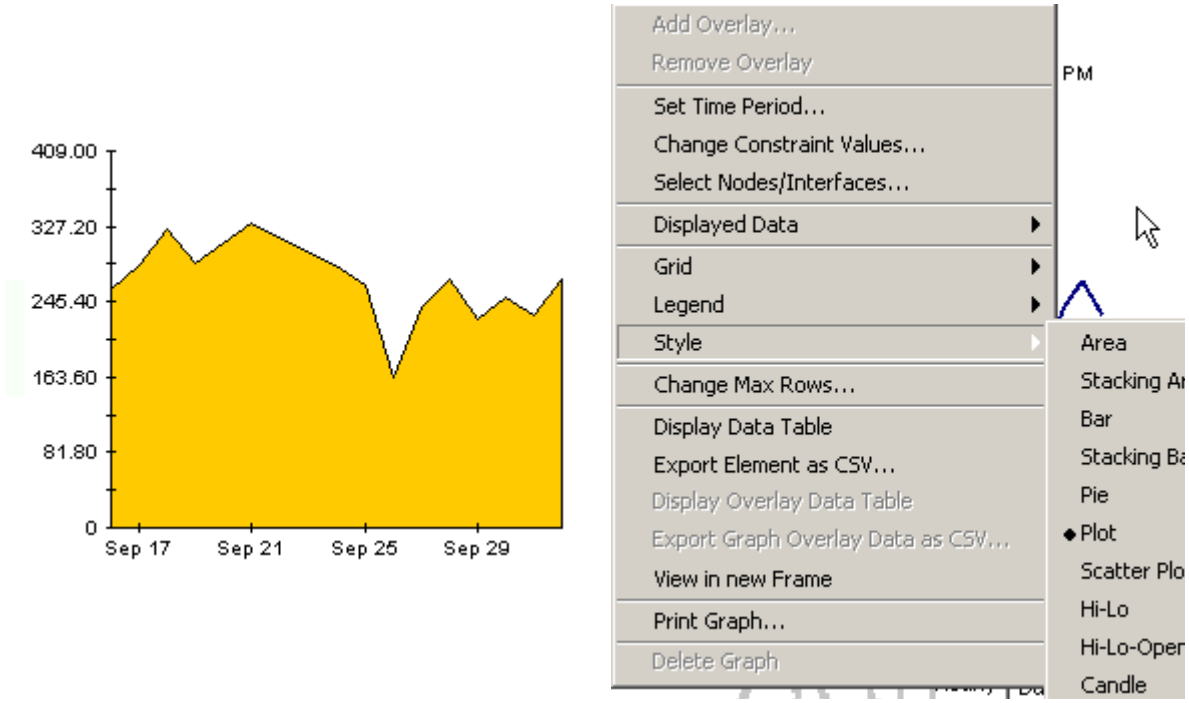
Table Viewer

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

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.



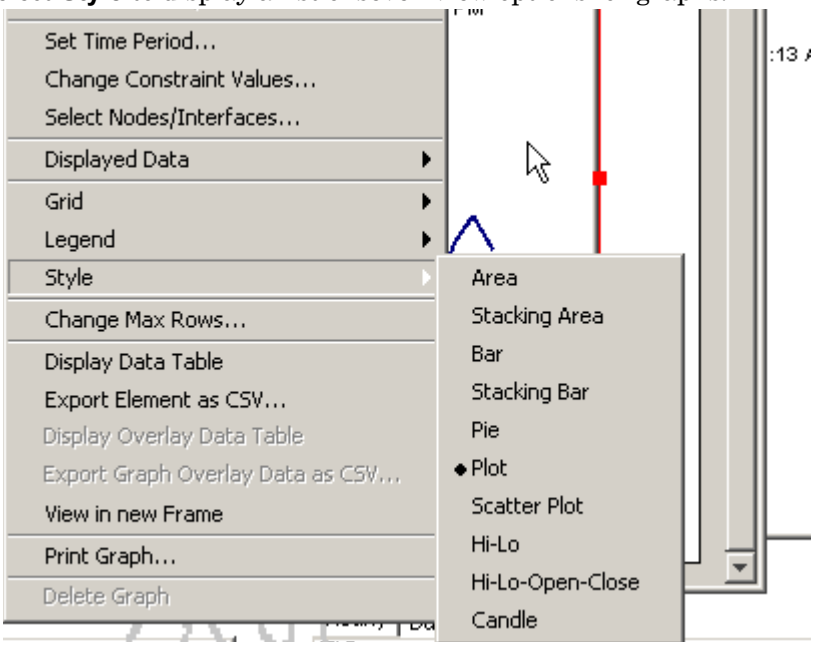
The following table provides details about each option.

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.

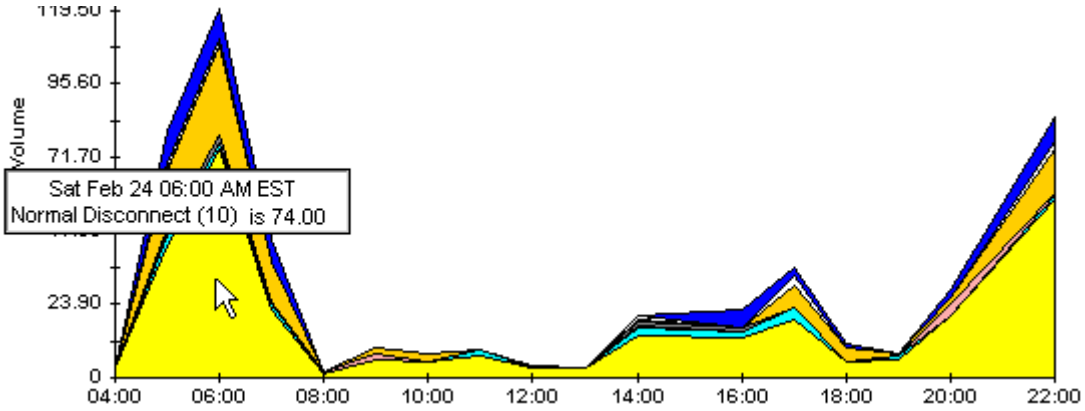
Style Options

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



Style > Area

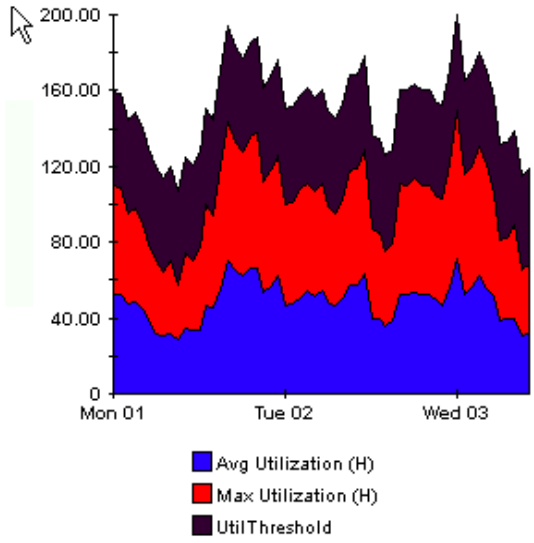
The plot or bar chart changes to an area graph. While relative values and total values are easy to view in this format, absolute values for smaller data types may be hard to see. Click anywhere within a band of color to display the exact value for that location



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.

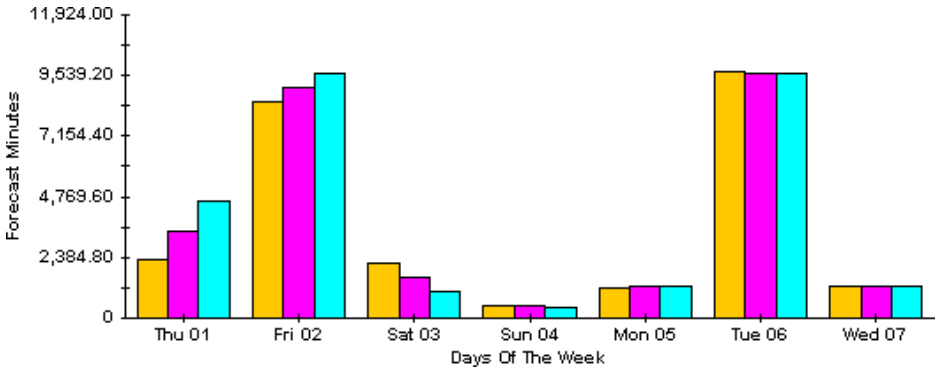
Style > Stacking Area

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



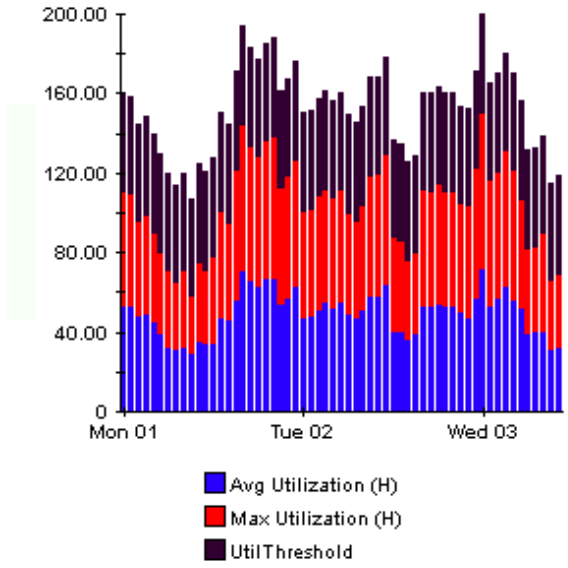
Style > Bar

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.



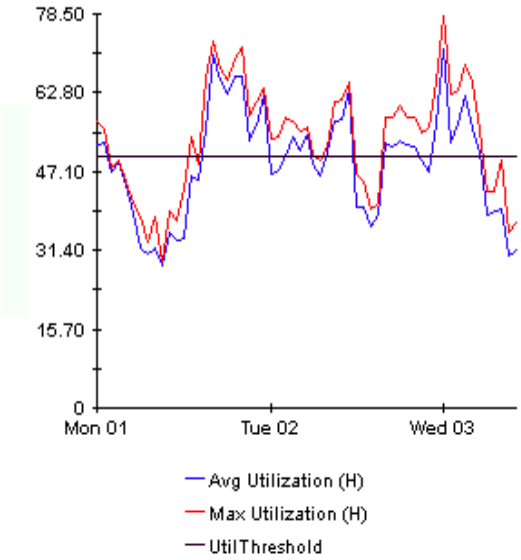
Style > Stacking Bar

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.



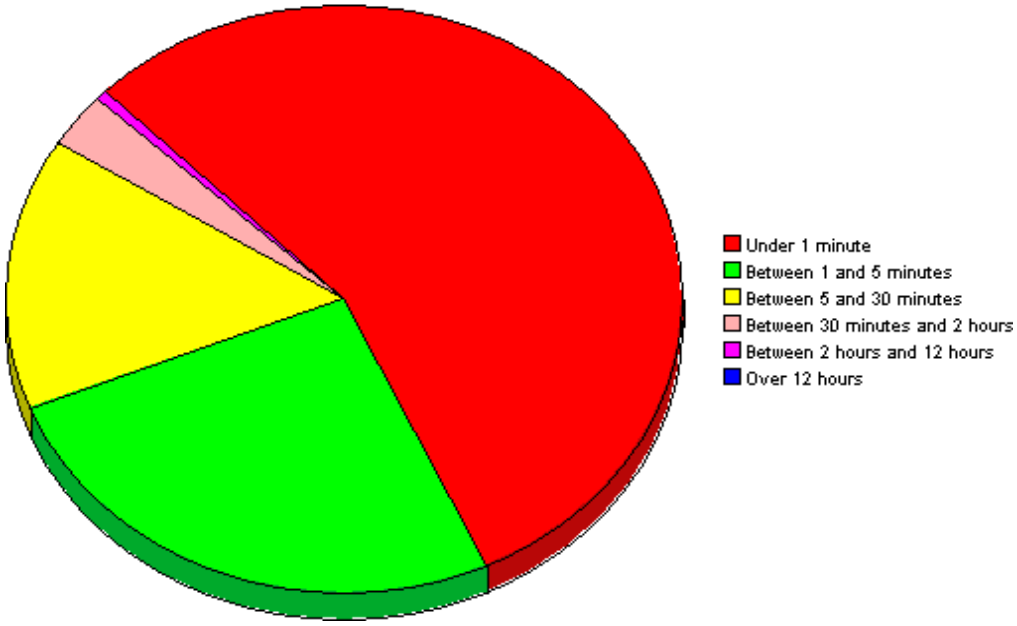
Style > Plot

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

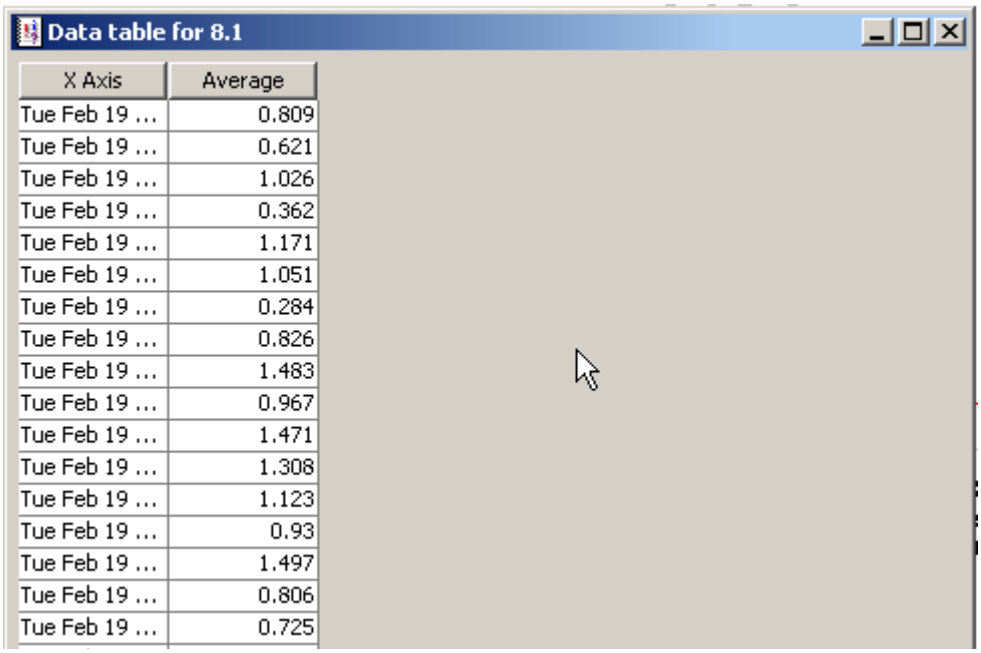
An area graph becomes a pie chart. Bands in an area graph convert to slices of a pie and the pie constitutes a 24-hour period. This view is helpful when a small number of data values are represented and you are looking at data for one day.



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

Display Data Table

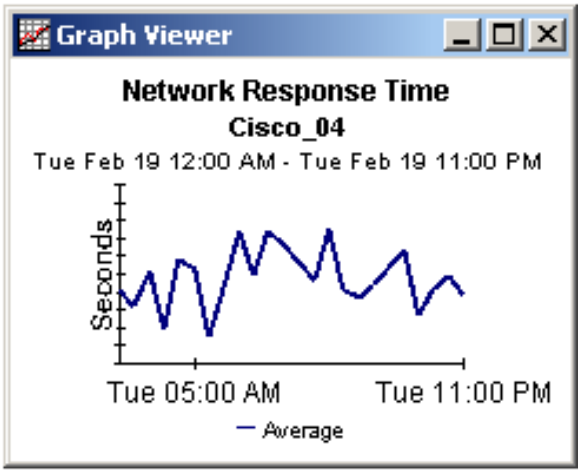
This option changes a graph into a spreadsheet.



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

View in New Frame

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



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