CHAPTER 5

Monitoring Your Network Using Traffic Monitor and Protocol Monitor

Introduction

In this chapter you'll learn to use the general network monitoring tools. These tools provide an overview of network activity. You may want to set alarms on one or more of these general parameters, or use the network activity you observe as a basis for more detailed monitoring or troubleshooting, using other TrafficDirector tools.

The tools discussed in this chapter are:

- **Traffic Monitor**. Lets you graphically monitor Enterprise-level statistics for different network segments.
- **Protocol Monitor.** Lets you view protocol information for multiple domains in a group of agents simultaneously. The Protocol Monitor is useful for "at a glance" assessment of network traffic characterized by protocol as a function of agent and domain.

Viewing Enterprise-Level Statistics Using Traffic Monitor

The Traffic Monitor is the most general TrafficDirector monitoring tool. It simultaneously monitors a group of Enterprise-level statistics for a number of agents. You can select the kind of traffic statistics you want to display for the agents, such as utilization, byte rate, broadcast rate. You can also select the type of data to be monitored, such as current, average, minimum, or maximum, to provide an "at-a-glance" overview of your network's functioning.

Traffic Monitor gives you a top-level view of your enterprise network. You can use Traffic Monitor to get several different graphical views of network traffic parameters, so you can see the flow of data through the network as it's happening. You can monitor traffic patterns and see where bottlenecks are occurring. This can help you isolate and eliminate the cause of problems.

In addition to monitoring network-level activity as it is happening, you may want to set alarms that will notify you when data thresholds you select are exceeded. In this way, you can track network parameters without having to continuously monitor those parameters. You can use Watchdog to set alarms on any Traffic Monitor data thresholds. Watchdog is described in Chapter 12, "Setting Alarms Using Watchdog."

You can use Traffic Monitor as a starting point to monitor and diagnose your network, then zoom in on a selected segment, domain, or host using other TrafficDirector application tools.

Using Traffic Monitor

In this section you'll learn how to start and use Traffic Monitor. The discussion starts with a general procedure, then gives detailed explanations of each feature.

To use Traffic Monitor:

Step 1 From the TrafficDirector window, select the agent or agent group for which you want to monitor enterprise-level traffic. You'll see one graph cluster or pie chart for each agent in an agent group.

Step 2 Click on **Traffic Monitor** from the TrafficDirector window. The Traffic Monitor window appears.

Step 3 Select the **Properties** menu, then select the type of graph you want to view. You have a choice of a 2-D bar graph or a pie chart. The default is a 2-D bar graph.

Step 4 Select the **View** menu, then select the data type you want to monitor. Traffic Monitor lets you monitor several different types of data. You can only monitor one type of data at a time. The data types you can monitor are:

- **Vital signs**. A summation of the general health of the network. Includes utilization, broadcasts, multicasts, errors, etc.
- **Packet size**. The percent of packets that are a given size (18, 64, 128, etc.).
- **Packet destination**. The percent of packets going to each destination.
- **Ethernet WAN errors**, **Token Ring errors**, or **FDDI errors**, depending on the type of network.

The default is Vital Signs.

Step 5 Select the **View** menu, then select the data value you want to view. The data value types you can view are:

- **Current values**. The actual value of the data at the time the sample was taken.
- **Average values**. The average value of the data taken during the sample period.
- **Minimum values**. The minimum value of the data taken during the sample period.
- **Maximum values**. The maximum value of the data taken during the sample period.

The default is Current Values.

Step 6 Select the **Sample** menu, then select a sample interval. This is the time that passes between data samples. The range is from 30 seconds to 5 minutes. The default is 1 minute.

Now you can visually monitor enterprise-level data on your network.

You can change parameters at any time. You can also:

- Zoom in on specific data by launching other tools such as Segment Zoom (see Chapter 8, "Monitoring and Troubleshooting Single Domains").
- Set alarms as needed using Watchdog (see Chapter 12, "Setting Alarms Using Watchdog").

Inverting the Axes of a Bar Graph Display

You may want to view Traffic Monitor data in inverted form. You can invert the axes of the bar graph display..

To invert the axes of a Traffic Monitor display:

Step 1 Select the **Properties** menu on the Traffic Monitor window.

Step 2 Click on Invert. TrafficDirector inverts the display.

Changing the Sample Rate

The sample rate is the interval between samples requested from the agent. The range is from 15 seconds to 5 minutes. The default is 1 minute.

To change the sample rate:

Step 1 Select the **Sample** menu on the Traffic Monitor window.

Step 2 Click on the desired sample rate.

Launching Other Tools from Traffic Monitor

When you view enterprise-level network data using Traffic Monitor, you'll probably want to take a closer look at certain network statistics. You can zoom in on domain or host information, set alarms, and view statistics and history graphs directly from the Traffic Monitor window. The tools you can launch are:

- S**egment Zoom**. Launches the Segment Zoom tool that lets you "zoom in" for a close-up view of what's happening in a domain. See Chapter 8, "Monitoring and Troubleshooting Single Domains" for more information.
- **Host List.** Launches the Host List tool, which displays the list of hosts for the selected agent and domain. See Chapter 8 for more information.
- **Watchdog.** Launches the Watchdog tool, a proactive monitoring tool that lets you set alarms and sends traps to the Manager when an event occurs. See Chapter 12, "Setting Alarms Using Watchdog" for more information.
- **Segment Statistics Graph.** Provides four data views for the selected segment:
  - Vital Signs
  - Size Distribution
  - Destination Breakdown
  - Error Breakdown

  See Chapter 8 for more information.
- **Short-Term History Graph.** Provides short-term data (residing in the selected agent**)** for a brief time period you select. See Chapter 8 for more information.
- **Long-Term History Graph.** Provides long-term data (residing in the selected agent**)** for a longer time period you select. See Chapter 8 for more information.

Printing the Traffic Monitor Window

You may want to print a copy of the Traffic Monitor window for future reference. To print the Traffic Monitor window:

Step 1 Select the **File** menu on the Traffic Monitor window.

Step 2 Click on Print.

Exiting Traffic Monitor

To exit Traffic Monitor:

Step 1 Select the **File** menu on the Traffic Monitor window.

Step 2 Click on Exit.

Monitoring Remote Sites by Domain, Protocol, or Application Using Protocol Monitor

Protocol Monitor is very similar to Traffic Monitor. It lets you monitor multiple remote sites by domain, protocol, or application. You use Protocol Monitor to get a graphic, real-time picture of the network operation at multiple remote sites in terms of domain, protocol, or application behavior. Protocol Monitor lets you select the data you want to display, the sampling interval, and the form and format in which you want to view the data.

You can customize Protocol Monitor to present the graphical display of your choice. See Appendix A, “Customizing Protocol Monitor” for detailed information. Don’t try to customize Protocol Monitor unless you are thoroughly familiar with the concepts involved.

Note The domain designated “Other” refers to the segment traffic that remains when all other listed domains are subtracted from the total segment traffic.

The legend at the bottom of the window relates the graphic representation to the type of variable being measured. You can view the data as either a bar or pie chart.

Using Protocol Monitor

This section provides a general procedure for using Protocol Monitor, followed by explanations of each feature.

To use Protocol Monitor:

Step 1 From the TrafficDirector window, select the agent or agent group for which you want to monitor traffic.

Step 2 Select the Protocol Monitor icon from the TrafficDirector window. The Protocol Monitor window appears.

Step 3 Using the information in the following sections, select the type of graph you want to view. The default is a 2-D bar graph.

Step 4 Select the type of data you want to monitor. The default is Utilization %.

Step 5 Select a sample interval. The default is 1 minute.

Step 6 Zoom in on specific data by launching other tools such as Segment Zoom.

Step 7 Set alarms as needed using Watchdog.

The sections that follow describe these Protocol Monitor selections.

Selecting the Data You Want to Display

Protocol Monitor lets you monitor several different types of data. You can only monitor one type of data at a time. You can, however, bring up several different Protocol Monitor windows and select different data types to monitor for each of them. The disadvantage to this is that TrafficDirector must use additional system resources for each window you open.

The data types you can monitor are:

- **Utilization**. The percent of bandwidth (10 Mbits/sec) used by the protocol (domain) in the selected interval.
- **Byte Rate**. The number of bytes/second in the selected interval.
- **Packet Rate**. The number of packets/second in the selected interval.
- **Broadcast Rate**. The number of broadcasts/second in the selected interval.
- **Small [<128] Packet Rate**. The number of packets/second smaller than 128 bytes in the selected interval.
- **Large [>1024] Packet Rate**. The number of packets/second larger than 1024 bytes in the selected interval.
- **Average Packet Rate**. The average number of packets/second in the selected interval.
- **Number of Hosts**. The number of hosts in the segment.

The default is Utilization.

You can select the type of data displayed. Your choices are:

- **Current values**. The actual value of the data at the time the sample was taken.
- **Average values**. The average value of the data taken during the sample period.
- **Minimum values**. The minimum value of the data taken during the sample period.
- **Maximum values**. The maximum value of the data taken during the sample period.

The default is Current Values.

To select the type of data displayed:

Step 1 Select the **View** menu from the Protocol Monitor window.

Step 2 Select both the type of data to be displayed and the value of the data displayed from the selections as described above.

The display immediately reflects your choices.

Selecting the Format of Displayed Data

You can select the type of graph Protocol Monitor uses to display data. The choices are:

- **2-D**. A two-dimensional bar graph.
- **Pie Chart**. A pie chart graph.

The default is a 2-D bar graph.

To select the type of graph you want:

Step 1 Select the **Properties** menu on the Protocol Monitor window.

Step 2 Click on the type of graph you want to see.

Inverting the Axes of Bar Graph Displays

You can invert the axes of the 2D bar graph display.

To invert the axes of a Protocol Monitor display:

Step 1 Select the **Properties** menu on the Protocol Monitor window.

Step 2 Click on Invert. TrafficDirector inverts the display.

Changing the Protocol Monitor Sample Rate

The sample rate is the interval between samples sent from the agent. The range is from 15 seconds to 5 minutes. The default is 1 minute. To change the sample rate:

Step 1 Select the **Sample** menu on the Protocol Monitor window.

Step 2 Click on the desired sample rate.

Launching Other Tools from Protocol Monitor

- S**egment Zoom**. Launches the Segment Zoom tool that lets you "zoom in" for a close-up view of what's happening in a domain. See Chapter 8, "Monitoring and Troubleshooting Single Domains" for more information.
- **Host List.** Launches the Host List tool, which displays the list of hosts for the selected agent and domain. See Chapter 8 for more information.
- **Watchdog.** Launches the Watchdog tool, a proactive monitoring tool that lets you set alarms and sends traps to the Manager when an event occurs. See Chapter 12, "Setting Alarms Using Watchdog" for more information.
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Printing the Protocol Monitor Window

You can print the Protocol Monitor window for your records. To print the Protocol Monitor window:

Step 1 Select the **File** menu on the Protocol Monitor window.

Step 2 Select Print.

Exiting Protocol Monitor

To exit Protocol Monitor:

Step 1 Select the **File** menu on the Protocol Monitor window.

Step 2 Select Exit.