CHAPTER 10

Using Performance Monitors

Performance Monitors in Cisco netManager gather important information about the devices running on your network, then use that data to create reports trending the utilization and availability of different aspects of those devices.

Through Cisco netManager, you can gather statistics on the following:

- CPU Utilization
- Disk Utilization
- Interface Utilization
- Memory Utilization
- Ping Latency and Availability
- Temperature Statistics
- Cisco Unity Port Utilization

Through Cisco netManager, you can gather status on the following:

- Cisco Unified Communications Manager Logical Connectivity
- Cisco Unified Communications Manager Express Logical Connectivity
- Cisco Unified Communications Manager Express Status
- Cisco Unity Status
- Cisco Unity Express Status
- Device Inventory Entity Status
- Fan Status
- Power Supply Status
- SRST Status
- Voice Services Status
- Wireless LAN Controller

Note These performance monitors in the library cannot be edited or removed.

The system also lets you create custom performance monitors that you can use to monitor any performance counter made available through WMI or SNMP, as well as the use of JScript and VBScript.

Performance monitors are configured in the Performance Monitor Library, and added to individual devices through **Device Properties > Performance Monitors**. You can create global WMI, SNMP, and active script monitors in the library, or create device-specific monitors in Device Properties.

Understanding the Performance Monitor Library

The Performance Monitor Library is a central storehouse of all global Performance Monitors that have been configured for your network. Performance monitors gather information about specific WMI and SNMP values from the network devices.

You can use the Performance Monitor Library to configure and manage performance monitors. When custom Performance Monitors are changed, the changes affect each instance of that particular monitor across your device groups. To access the Performance Monitor Library dialog box, do one of the following:

- From the Cisco netManager console main menu, select **Configure** > **Performance Monitor Library**.
- From the Cisco netManager web interface, select **Go > Configure > Performance Monitor Library**.

To configure Performance Monitors for the devices they are assigned to:

Step 1 Right-click a device you want to configure. The shortcut menu opens.

Step 2 Click **Properties**. The Device Properties dialog box opens.

Step 3 Click **New** to configure a new monitor.

Step 4 Select an existing monitor, then click **Edit** to change the current monitor configuration or double-click an existing monitor to change the configuration.

Step 5 Select a performance monitor type, then click **Delete** to remove it from the list.

Step 6 Click **OK** to save changes.

Enabling SNMP on Windows Devices

Before you can collect performance data on a Windows PC, you must first install and enable the Microsoft SNMP Agent on the device itself.

To install SNMP Monitoring:

Step 1 From the Windows Control Panel, click **Add or Remove Programs**.

Step 2 Click **Add/Remove Windows Components**.

Step 3 From the Components list, select **Management and Monitoring Tools**.

Step 4 Click **Details** to view the list of subcomponents.

Step 5 Make sure Simple Network Management Protocol is selected.

Step 6 Click **OK**.

Step 7 Click **Next** to install the components.

Step 8 After the installation wizard is complete, click **Finish** to close the window.

To enable SNMP monitoring:

Step 1 In the Control Panel, click **Administrative Tools**.

Step 2 Double-click **Services**. The Services console opens.

Step 3 In the Services (Local) list, double-click **SNMP Service** to view the properties.

Step 4 On the **Agent** tab, enter the contact name for the person responsible for the upkeep and administration of the computer, then enter the location of the computer. These items are returned during some SNMP queries.

Step 5 On the **Security** tab, click **Add** to add a community string for the device. Community strings are pass codes that allow applications like Cisco netManager to read information about the computer. This community string will be used later to create credentials for connecting to this device.

Step 6 On the **General** tab, click **Start** to start the service (if necessary).

Step 7 Click **OK** to close the dialog box.

Configuring and Enabling Performance Monitors

Cisco netManager is installed with many performance monitors that monitor specific types of data on your devices. These monitors appear in the Performance Monitor Library.

If you select a specific performance monitor without configuring the monitor manually, the default collection type is automatically selected. The collection type refers to the item on the current device that is being monitored (This does not pertain to the custom WMI and SNMP monitors that may appear). For Cisco devices all performance monitors, except Interface Utilization and Ping Latency and Availability, will be enabled by default.

Performance monitors will be associated with the device based on its capabilities:

Capability	Performance Monitor
Autonomous Access Point	Device Inventory Entity Status
	CPU Utilization
	Memory Utilization
	Temperature Statistics
	Interface Status
	Power Supply Status
	Fan Status

Capability	Performance Monitor
Cisco ASA	Device Inventory Entity Status
	CPU Utilization
	Memory Utilization
	Temperature Statistics
	Interface Status
	Power Supply Status
	Fan Status
Cisco Unified Communications Manager	Communications Manager Status
	Communications Manager Logical Connectivity
	Device Inventory Entity Status
Cisco Unified Communications Manager Express	Communications Manager Express Status
	Communications Manager Express Logical Connectivity
	Device Inventory Entity Status
Cisco Unity	Unity Status
	Unity Port utilization
	Device Inventory Entity Status
Cisco Unity Connection	Unity Status
	Unity Port Utilization
	Device Inventory Entity Status
Cisco Unity Express	Unity Express Status
	Interface Status
	Device Inventory Entity Status
Cisco PIX (Firewall)	Device Inventory Entity Status
	CPU Utilization
	Memory Utilization
	Temperature Statistics
	Interface Status
	Power Supply Status
	Fan Status
Cisco IDS	Device Inventory Entity Status
	CPU Utilization
	Memory Utilization
	Temperature Statistics
	Interface Status
	Power Supply Status
	Fan Status

Capability	Performance Monitor
Cisco IPS	Device Inventory Entity Status
	CPU Utilization
	Memory Utilization
	Temperature Statistics
	Interface Status
	Power Supply Status
	Fan Status
MCS	CPU Utilization
	Memory Utilization
	Disk Utilization
	Temperature Statistics
	Power Supply Status
	Fan Status
	Voice Services Status
	Interface Status
	Device Inventory Entity Status
MPX	Voice Services Status
	Memory Utilization
	Disk Utilization
	CPU Utilization
	Interface Status
	Device Inventory Entity Status
Router	CPU Utilization
	Memory Utilization
	Temperature Statistics
	Interface Status
	Power Supply Status
	Fan Status
	Device Inventory Entity Status
SRST	SRST Status
	Device Inventory Entity Status

Capability	Performance Monitor
Switch	CPU Utilization
	Memory Utilization
	Temperature Statistics
	Interface Status
	Power Supply Status
	Fan Status
	Device Inventory Entity Status
Cisco VPN	CPU Utilization
	Memory Utilization
	Temperature Statistics
	Interface Status
	Power Supply Status
	Fan Status
	Device Inventory Entity Status
Wireless LAN Controller	Device Inventory Entity Status
	Wireless LAN Controller Status
	Interface Status
	CPU Utilization
	Memory Utilization

For all other devices, the following performance monitors will be associated:

- CPU Utilization
- Memory Utilization
- Disk Utilization
- Interface Utilization
- Ping Latency and Availability

To configure monitors for use on specific devices, you must use either the **Device Properties > Performance Monitors** to configure for a single device, or **Bulk Field Change > Performance Monitors** to configure for multiple devices.

To enable a global performance monitor for a single device:

Step 1 On the Device tab, select a device from the device list.

Step 2 Right-click and choose **Properties** from the right-click menu to view the device properties.

Step 3 Click **Performance Monitors** to view the Performance Monitors dialog box.

Step 4 From the top section of the dialog box, select the global performance monitor you would like to enable for the selected device.

Note To enable a CPU, disk, interface, or memory global performance monitor, you must first select and SNMP credential for the device from the SNMP credential page.

Step 5 Click **OK** to save the changes.

To configure a global performance monitor for a single device:

Step 1 On the Device tab, select a device from the device list.

Step 2 Right-click and choose **Properties** from the right-click menu to view the device properties.

Step 3 Click **Performance Monitors** to view the Performance Monitors dialog box.

Step 4 In the top section of the dialog box, select a global performance monitor, then click **Configure**.

Step 5 On the monitor configuration dialog box, select the specific item you want to monitor by making a selection in the **Collect data for** drop-down list. Depending on the monitor, you can select to collect data for **All**, **Active**, **Specific**, or **Default** interfaces, memories, CPUs, or disks.

If you select **Specific**, the list is enabled and you can select or clear the selection for any of the items in the list. This is particularly useful with the Interface Utilization monitor where a device may have many interfaces.

Step 6 Select the **Data collection interval**. This is the amount of time between performance polls.

Step 7 Click **Advanced** to change connection settings on the device.

Step 8 Click **OK** to save the changes.

Note To enable a global performance monitor for multiple devices, use the Bulk Field Change feature for performance monitors.

For information on the Active Script Performance Monitor, see Chapter 10, “Adding Custom Performance Monitors to the Performance Monitor Library.”

Adding Custom Performance Monitors to the Performance Monitor Library

Performance monitors gather specific types of data on the devices they are assigned to. System-wide monitors are configured using the Performance Monitor Library, but you can also create specific SNMP and WMI monitors to be used on a per-device basis. The default performance monitors cannot be edited or changed from their default settings. By creating custom performance monitors, you can adjust the settings to fit your specific monitoring needs.

To create custom performance monitors (for system-wide use):

Step 1 In the Cisco netManager web interface, select **Go > Configure > Performance Monitor Library**.

Step 2 In the Performance Monitor Library, click **New.**

Step 3 Select the monitor type: SNMP, WMI, or Active Script Performance Monitor.

Step 4 Follow the instructions for the monitor type you have chosen as described in these topics:

- Configuring an SNMP Monitor, page 10-8
- Configuring an SNMP Active Script Performance Monitor, page 10-9

Configuring an SNMP Monitor

Step 1 In the Add SNMP Performance Counter dialog box, enter a name and a description for the monitor as it will appear in the Performance Monitor Library.

Step 2 Either enter the OID and instance or click the **Browse (...)** button next to the Instance box to go to the SNMP MIB Walker dialog box.

Step 3 In the MIB Walker dialog box, enter the share name or IP address of the computer to which you want to connect.

Step 4 Enter the SNMP credential used to connect to the device (or click the **Browse (...)** button to access the Credentials Library to create a new credential.)

Step 5 If needed, adjust the timeout and retry counts for the connection to the device.

Step 6 Click **OK.** The SNMP MIB Walker appears.

Step 7 Use the navigation tree in the left pane to select the specific MIB you want to monitor.

Step 8 In the right pane, select the Property of the MIB you want to monitor. You can view more information about the property/value pair at the bottom of the dialog box.

Step 9 Click **OK** to add the OID to the Performance counter and Instance boxes in the Add SNMP Performance counter dialog box.

Step 10 Verify the configuration and click **OK** to add the monitor to the Performance Monitor Library.

Configuring a WMI Monitor

Step 1 On the Add WMI Performance Counter dialog, enter a **Name** and **Description** for the monitor, as it will appear in the Performance Monitor Library.

Step 2 Click the **Browse (...)** button next to the **Instance** box.

Step 3 In the dialog that appears, enter the share name or IP address of the computer in which you want to connect.

Step 4 Enter the domain and user login for the account on this computer. If a domain account is used, then the expected user name is domain\user. If the device is on a workgroup, there are two possible user names: workgroup name\user or machine name\user.

Step 5 Enter the password for the login used above and click **OK** to connect to the computer.

Step 6 Use the **Performance counter** tree to navigate to the performance counter you want to monitor.

Step 7 Once you select the performance counter, select the specific instance you want to monitor.

Step 8 Click **OK** to add the counter and instance to the Add Performance Counter dialog.

Step 9 Verify the configuration and click **OK** to add the monitor to the Performance Monitor Library.

Note After the monitor has been added to the library, you can enable that monitor through **Device Properties > Performance Monitors** for that device.

Configuring an SNMP Active Script Performance Monitor

Step 1 On the Add Active Script Performance Monitor dialog box, enter a name and a description for the monitor as it will appear in the Performance Monitor Library.

Step 2 Enter a number for the timeout (in seconds.)

Step 3 Choose the type of script (JScript or VBScript) you will be using to write the monitor from the Script type drop-down list.

Step 4 Add a new variable to the Reference Variables list by clicking **Add**.

Note You can add up to 10 reference variables to the monitor.

Step 5 On the Add reference variables dialog box, enter a name and description for the variable.

Step 6 Select the type of object (SNMP or WMI) from the 0bject type drop-down menu.

Step 7 If needed, adjust the timeout and retry counts for connection to the device.

Step 8 Click the **Browse (...)** button next to the Instance box. The SNMP MIB Browser appears.

Step 9 Enter the share name or IP address of the computer in which you are trying to connect.

Step 10 Enter the SNMP credential used to connect to the device (or click the **Browse (...)** button to access the Credentials Library to create a new credential.)

Step 11 If needed, adjust the timeout and retry counts for the computer in which you are trying to connect.

Step 12 Click **OK**. The SNMP MIB Walker appears.

Step 13 Use the navigation tree in the left panel to select the specific MIB you want to monitor. You can view more information about the property/value at the bottom of the dialog box.

Step 14 Click **OK** to add the OID to the Performance counter and Instance boxes in the Add new reference variable dialog box.

Step 15 Verify the configuration and click **OK** to add the variable to the Reference variable list on the Add Active Script Performance Monitor dialog box.

Step 16 Type or paste your monitor code in the Script text box.

Step 17 Click **OK** to save changes and add the monitor to the Performance Monitor Library.

Configuring a WMI Active Script Performance Monitor

Step 1 On the Add Active Script Performance Monitor dialog, enter a **Name** and **Description** for the monitor as it will appear in the Performance Monitor Library.

Step 2 Enter a number for the timeout (in seconds.)

Step 3 Choose the type of script (JScript or VBScript) you will be using to write the monitor from the **Script type** drop down menu.

Step 4 Add a new variable to the Reference Variables list by clicking **Add**.

Note You can add up to 10 reference variables to the monitor.

Step 5 On the Add reference variables dialog, enter a name and description for the variable.

Step 6 Select the type of object (SNMP or WMI) from the **Object type** drop-down menu.

Step 7 Click the **Browse (...)** button next to the Instance box.

Step 8 In the dialog that appears, enter the share name or IP address of the computer in which you want to connect.

Step 9 Enter the domain and user login for the account on this computer. If a domain account is used, then the expected user name is domain\user. If the device is on a workgroup, there are two possible user names: workgroup name\user or machine name\user.

Step 10 Enter a password for the login used above and click **OK** to connect to the computer.

Step 11 Use the Performance counter tree to navigate to the performance counter you want to monitor.

Step 12 Once you select the performance counter, select the specific instance you want to monitor.

Step 13 Click **OK** to add the variable to the **Reference variable** list on the Add active script performance monitor dialog.

Step 14 Write or paste your monitor code in the **Script text** box.

Step 15 Click **OK** to save changes and to add the monitor to the Performance Monitor Library.

Performance Reporting

After you have configured a performance monitor, you can generate a performance report to see the results of the performance polling attempts. A report can be used to troubleshoot your network problems.

The Reports tab contains all of the Cisco netManager full reports. You can use the Reports Overview page and the Reports Category drop-down list to navigate to reports according to their type and category.

All reports can be printed and many can also be exported into Microsoft Excel. A report can also be saved as an .html file for later review.

For more information on the Cisco netManager reports, see Chapter 14, “Using Full Reports.”

Performance monitors gather specific types of data on the devices they are assigned to. System-wide monitors are configured using the Performance Monitor Library, but you can also create specific SNMP and WMI monitors to be used on a per-device basis.

To configure an SNMP monitor:

Step 1 In the web interface, go to **Go > Configure > Performance > Monitor Library**.

Step 2 In the Performance Monitor Library, click **New**.

Step 3 Select **SNMP** as the monitor type.

Step 4 In the Add SNMP Performance Counter dialog box, enter a name and a description for the monitor as it will appear in the Performance Monitor Library.

Step 5 Either enter the OID and instance or click the **Browse (...)** button next to the Instance box to go to the SNMP MIB Walker dialog box.

Step 6 In the MIB Walker dialog, enter the share name or IP address of the computer to which you want to connect.

Step 7 Enter the SNMP credential used to connect to the device (or click the **Browse (...)** button to access the Credentials Library to create a new credential.)

Step 8 If needed, adjust the timeout and retry counts for the connection to the device.

Step 9 Click OK. The SNMP MIB Walker appears.

Step 10 Use the navigation tree in the left pane to select the specific MIB you want to monitor.

Step 11 In the right pane, select the property of that MIB you want to monitor. You can view more information about the property/value pair at the bottom of the dialog box.

Step 12 Click **OK** to add the OID to the Performance counter and Instance boxes in the Add SNMP Performance counter dialog box.

Step 13 Verify the configuration and click **OK** to add the monitor to the Performance Monitor Library.

To configure a WMI monitor:

Step 1 In the web interface, go to **Go > Configure > Performance > Monitor Library**.

Step 2 In the Performance Monitor Library, click **New**.

Step 3 Select **WMI** as the monitor type.

Step 4 In the Add WMI Performance Counter dialog box, enter a name and a description for the monitor, as it will appear in the Performance Monitor Library.

Step 5 Click the **Browse (...)** button next to the Instance box.

Step 6 In the dialog box that appears, enter the share name or IP address of the computer to which you want to connect.

Step 7 Enter the domain and user login for the account on this computer. If a domain account is used, then the expected username is domain\user. If the device is on a workgroup, there are two possible user names: workgroup name\user or machine name\user.

Step 8 Enter the password for the login used above and click **OK** to connect to the computer.

Step 9 Use the performance counter tree to navigate to the performance counter you want to monitor.

Step 10 Once you select the performance counter, select the specific instance you want to monitor.

Step 11 Click **OK** to add the counter and instance to the Add Performance Counter dialog box.

Step 12 Verify the configuration and click **OK** to add the monitor to the Performance Monitor Library.

Note After the monitor has been added to the library, you can enable that monitor through **Device Properties > Performance Monitors** for that device.

To configure an SNMP active script performance monitor:

Step 1 In the web interface, go to **Go > Configure > Performance > Monitor Library**.

Step 2 In the Performance Monitor Library, click **New**.

Step 3 Select **Active Script** as the monitor type.

Step 4 In the Add Active Script Performance Monitor dialog, enter a name and a description for the monitor as it will appear in the Performance Monitor Library.

Step 5 Enter a number for the timeout (in seconds.)

Step 6 Choose the type of script (JScript or VBScript) you will be using to write the monitor from the Script type drown-down list.

Step 7 Add a new variable to the Reference Variables list by clicking **Add**.

Note You can add up to 10 reference variables to the monitor.

Step 8 On the Add reference variables dialog box, enter a name and a description for the variable.

Step 9 Select SNMP from the object type drop-down list.

Step 10 If needed, adjust the timeout and retry counts for connection to the device.

Step 11 Click the **Browse (...)** button next to the Instance box. The SNMP MIB Browser appears.

Step 12 Enter the share name or IP address of the computer to which you are trying to connect.

Step 13 Enter the SNMP credential used to connect to the device (or click the **Browse (...)** button to access the Credentials Library to create a new credential.)

Step 14 If needed, adjust the timeout and retry counts for the computer to which you are trying to connect.

Step 15 Click **OK**. The SNMP MIB Walker appears.

Step 16 Use the navigation tree in the left pane to select the specific MIB you want to monitor. You can view more information about the property/value at the bottom of the dialog.

Step 17 Click **OK** to add the OID to the Performance counter and Instance boxes in the Add new reference variable dialog.

Step 18 Verify the configuration and click **OK** to add the variable to the Reference variable list on the Add active script performance monitor dialog.

Step 19 Type or paste your monitor code in the Script text box.

Step 20 Click **OK** to save changes and add the monitor to the Performance Monitor Library.

To configure a WMI active script performance monitor:

Step 1 In the web interface, go to **Go > Configure > Performance > Monitor Library**.

Step 2 In the Performance Monitor Library, click **New**.

Step 3 Select **Active Script** as the monitor type.

Step 4 In the Add Active Script Performance Monitor dialog, enter a name and a description for the monitor as it will appear in the Performance Monitor Library.

Step 5 Enter a number for the timeout (in seconds.)

Step 6 Choose the type of script (JScript or VBScript) you will be using to write the monitor from the Script type drown-down list.

Step 7 Add a new variable to the Reference Variables list by clicking **Add**.

Note You can add up to 10 reference variables to the monitor.

Step 8 On the Add reference variables dialog box, enter a name and a description for the variable.

Step 9 Select SNMP from the object type drop-down list.

Step 10 If needed, adjust the timeout and retry counts for connection to the device.

Step 11 Click the **Browse (...)** button next to the Instance box. The SNMP MIB Browser appears.

Step 12 Enter the share name or IP address of the computer to which you are trying to connect.

Step 13 Enter the SNMP credential used to connect to the device (or click the **Browse (...)** button to access the Credentials Library to create a new credential.)

Step 14 If needed, adjust the timeout and retry counts for the computer to which you are trying to connect.

Step 15 Click **OK**. The SNMP MIB Walker appears.

Step 16 Use the navigation tree in the left pane to select the specific MIB you want to monitor. You can view more information about the property/value at the bottom of the dialog.

Step 17 Click **OK** to add the OID to the Performance counter and Instance boxes in the Add new reference variable dialog.

Step 18 Verify the configuration and click **OK** to add the variable to the Reference variable list on the Add active script performance monitor dialog.

Step 19 Type or paste your monitor code in the Script text box.

Step 20 Click **OK** to save changes and add the monitor to the Performance Monitor Library.

You can suspend or enable data collection on that monitor by selecting or clearing the checkbox next to the monitor name.

Example: Monitoring Router Bandwidth

Through the Performance Monitoring system, you can configure the application to gather bandwidth usage on your SNMP enabled devices (routers, switches, etc.) and then track that usage through performance reports. Several performance monitors are installed with the application, but for bandwidth monitoring, the Interface Utilization monitor is the most useful because it shows percent utilization and throughput.

The Interface Utilization monitor gathers statistics on the volume of bytes going through the active interfaces on the device. You can collect data on all interfaces, active interfaces, or just specific interfaces. This monitor is configured and enabled through **Device Properties > Performance Monitors**.

Note Before you can configure the monitor, you must have SNMP enabled on the device, and the proper credentials configured in the Credentials Library for the device. The Performance Monitoring system uses these credentials to connect to the device during the configuration process and during normal performance gathering. For more information on enabling SNMP, see Enabling SNMP on Windows Devices, page 10-2.

Configuring the Monitor

Because the Interface Utilization performance monitor is one of the default performance monitors installed with Cisco netManager, there is no global configuration required before setting up the monitor for the device itself. Once your SNMP credentials have been established for the device, you are ready to configure and enable the monitor to start gathering data.

Step 1 On the Cisco netManager web interface, select the device you want to gather performance data for and then right-click.

Step 2 Select **Properties** from the right-menu.

Step 3 Select **Performance Monitors** on the Device Properties dialog box.

Step 4 Select the Interface Utilization monitor from the list.

Step 5 Click **Configure** to set up the monitor for the device. Cisco netManager scans the device and discovers the interfaces on the device.

Once the scan is complete, the Configure Interface Data Collection dialog box appears. If the credentials for the device are not configured properly, the scan will fail (you can return to the Credentials Library to fix it.) If the device is not SNMP-enabled, the scan will fail (see Enabling SNMP on Windows Devices, page 10-2).

Step 6 Select the interfaces you want to collect data for. From the **Collect data for** drop-down list, select All, Active, or Specific. If you select Specific, select just the interfaces you want to monitor in the list. By default, active interfaces will be measured.

Step 7 (Optional) Click **Advanced** to change the retry and timeout settings for the SNMP connection to the device. Click **OK** to save the changes to the Advanced Settings.

Step 8 On the Configure Interface Data Collection dialog box, enter a time interval (in minutes) you want the application to wait between polls. The default is 10 minutes.

Step 9 Click **OK** to save the Interface Utilization configuration.

Viewing the Data

Cisco netManager takes several polling cycles before it has enough data to produce meaningful graphs (with a 10-minute poll interval, this may mean a few hours.) Once enough data has been gathered, there are several reports you can use to view this data:

- **By Device**—For device-specific data, view the Interface Utilization report (shown below); or the Device Status report, which shows graphical statistics of all monitors configured on a device.
- **By Group**—Access the Group Interface Statistics report to view summarized statistics for all devices in the selected group that have interface statistics enabled.
- **System Wide**—Use the Top 10 report to view the top performers in terms of bandwidth utilization across your network. You can also view system-wide data by running the Group Interface Utilization report against the All Devices dynamic group.

Example: Troubleshooting a Slow Network Connection

The real-time reporting provided by performance monitors can provide both the raw data and the data trend analysis that can help you isolate network problems. For example, you might experience a problem with a network connection between two of your office sites. This example shows how you can use performance monitors to troubleshoot the slow network connection.

Scenario:

A developer working in Augusta, Georgia, on an Atlanta-based project complains of a slow network connection between the Augusta and Atlanta offices. He states that it takes 40 minutes to check in files to the source library over the T1 connection.

The Atlanta office network administrator reacts by completing the following steps:

Step 1 On the Cisco netManager web interface, he goes to the Reports tab to select the Ping Response Time report.

Step 2 From here, he checks the connection from the Atlanta Cisco netManager application to the Augusta primary server. The report shows an increased response time beginning at 11:45 a.m.

Note The connection in this scenario has been configured with the appropriate performance monitors and has been gathering data for weeks. To set up this type of monitor for a connection, configure the Ping Latency and Availability monitor on a device located on the other end of the connection. For more information, see Configuring and Enabling Performance Monitors, page 10-3.