# HP Network Node Manager iSPI for MPLS Software

For the Windows ® and Linux operating systems

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## Online Help for Reports

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# Contents

# Chapter 1: Overview of the iSPI for MPLS Reports

The iSPI for MPLS uses the basic capabilities of the HP NNMi iSPI Performance for Metrics (iSPI Performance for Metrics) and Network Performance Server (NPS) to present the reports .

The iSPI for MPLS introduces the following extension packs:

- MPLS_LSR_Node
- MPLS_LSR_Interface
- L3_VPN_VRF
- TE_Tunnel
- MPLS_PseudoWire
- MPLS_Lsp
- MPLS_VFI

The extension packs provide user-friendly reports that help you to investigate and troubleshoot the incoming and outgoing traffic through an MPLS core network. The extension pack uses data collected by the iSPI for MPLS.

**Types of Extension Pack**

| Report Type | Purpose |
|---|---|
| LSR Node | Shows reports based on the available metric definitions for an MPLS-enabled node or nodes on the network. |
| LSR Interface | Shows reports based on the available metric definitions for an MPLS-enabled interface or interfaces on the network. |
| L3_VPN_VRF | Shows reports based on the available metric definitions for a VRF or an L3VPN on the network. |
| TE_Tunnel | Shows reports based on the available metric definitions for an TE Tunnel on the network. |
| MPLS_PseudoWire | Shows reports based on the available metric definitions for an L2VPN on the network. |
| MPLS_Lsp | Shows reports based on the available metric definitions for an LSP on the network. |
| MPLS_VFI | Shows reports based on the available metric definitions for an L2VPN on the network. |

The iSPI for MPLS reports help you to perform the following tasks:

- Identify the number of MPLS packets and data bytes passing through an MPLS-enabled node, LSP, L2VPN, Tunnel, interface, VRF, or L3VPN.
- Investigate and troubleshoot the MPLS traffic congestion. You can use the drill-down reports to help you conclude the issue faster. Check the Top N report.
- Rank the network element (LSP, L2VPN, node, interface, VRF, Tunnel, or L3VPN) based on the metric values. Check the Top N report.
- Monitor the important or critical nodes, interfaces, L3VPNs, Tunnels, or VRFs on the network. Check the Most Changed or Top N report.
- Find the traffic patterns on the network. Check the Heat Chart report.
- Capacity planning for the MPLS-enabled nodes or interfaces or VRFs.
- Evaluate the traffic performance based on the MPLS metric values.
- Launch the MPLS reports from NNMi reports.

**Related Topic:**

Accessing the iSPI for MPLS Reports

# Accessing the iSPI for MPLS Reports

The iSPI for MPLS reports are available from the HP NNM iSPI Performance for Metrics Software console. You can access and view the MPLS reports after you install Network Performance Server (NPS) and iSPI Performance for Metrics from the NPS and iSPI Performance for Metrics DVD.

The following MPLS-specific folders appear in Navigation Panel of the Metrics Software console:

- MPLS_LSR_Node
- MPLS_LSR_Interface
- L3_VPN_VRF
- TE_Tunnel
- MPLS_PseudoWire
- MPLS_Lsp
- MPLS_VFI

**To navigate to the iSPI for MPLS reports, follow these steps:**

1. Select a Node from the **LSR Inventory** view or a VRF from the **L3 VPN Inventory** view.
2. Click **Actions -> HP NNM iSPI Performance -> Reporting- Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.
3. From the **Navigation Panel**, click **Reports**.
4. Open the **iSPI MPLS** folder.

You can select the policies and metric definitions for the MPLS reports from the iSPI Performance for Metrics console.

**Note:** Before you view the iSPI for MPLS reports, make sure that the HP NNM iSPI Performance for Metrics software server is up and running.

**View the MPLS report by selecting an LSR node, an MPLS-enabled interface, or a VRF, TE_Tunnel, PseudoWire, Monitored_LSP, VFI**

To view the MPLS report, follow these steps:

1. From the NNMi console, select a node, an interface, or a VRF, TE_Tunnel, PseudoWire, Monitored_LSP, VFI from the iSPI for MPLS inventory to view the context-specific MPLS report. Click **Actions->Reporting-<extension pack name>**. Based on your selection, the report appears with the pre-filtered network element (node, interface, VRF, or L3VPN,TE_ Tunnel, PseudoWire, Monitored_LSP, VFI, or L2VPN).
2. You will be navigated to the iSPI Performance for Metrics Software console.
3. Select the type of the report[1] to view the MPLS reports
4. Select any one of the following time range:
   - **Hourly (H)** for the report showing information for past one hour.
   - **Daily (D)** for the report showing information for past one day.
   - **Weekly (W)** for the report showing information for past seven days.
   - **Monthly (M)** for the report showing information for past 30 days.
5. Select a report control to customize the report. You can customize a report using Time Controls, Hour/Day Filters, and Topology Filters from the Navigation Panel. You can also use the Options link that appears on every report page menu.

For more information, see *iSPI for Metrics help, Report Controls*.

[1]From the **Reports** workspace, open **iSPI MPLS** folder. This folder lists all the reports that are generated for MPLS-enabled nodes or VPNs.

**View the MPLS report**

1. Navigate to the iSPI Performance for Metrics Software console.[1]
2. Select **MPLS_LSR_Node**, **MPLS_LSR_Interface**, **L3_VPN_VRF**, **TE_Tunnel**, **MPLS_PseudoWire**, **MPLS_Lsp** or **MPLS_VFI** from the **Reports** workspace.
3. Select the type of the template report.
4. Set Date and time related requirements from the **Time Control** and **Hour/Day Filters** workspaces.
5. Select a report control to customize the report. Each MPLS report contains the following control link to customize the report:
   - Options
6. You can set Topology Filters from the **Topology Filter** workspace

**Related Topics:**

MPLS_LSR_Node

MPLS_LSR_Interface

L3_VPN_VRF

TE_Tunnel

MPLS_PseudoWire

MPLS_Lsp

MPLS_VFI

# Topology Filters

The topology filter enables you to filter and select a network element from your topology. Select a filter and view the MPLS report according to your interest or requirement. For example, select a node from the Topology Filter. After selecting the metric value and grouping by option, the MPLS report appears for the selected filter. You can set a topology filter by clicking **Launch Topology Selector** from the **Topology Filters** workspace.

For more information about Topology Filters, see *Help for iSPI Performance for Metric*.

**Related Topics**:

MPLS_LSR_Node Report Metrics and Topology Filters

MPLS_LSR_Interface Report Metrics and Topology Filters

L3_VPN_VRF Report Metrics and Topology Filters

[1]From the NNMi console, click **Actions**->**Reporting-Report Menu.**

# Chapter 2: MPLS_LSR_Node Report

The MPLS_LSR_Node report helps you to perform in-depth trend analysis for the traffic passing through the selected LSR on the network. The MPLS LSR node report shows the incoming and outgoing traffic (packets, labels, packet discards, and bytes) passing through a node or nodes.

The iSPI for MPLS uses the template reports to show the MPLS reports. The available template reports are:

- Calendar Report
- Heat Chart Report
- Chart Detail Report
- Most Changed Report
- Top N Report
- Top N Chart
- Managed Inventory
- Peak Period

**Prerequisites for Viewing the NNM iSPI for MPLS reports:**

Make sure that the following prerequisites are satisfied to enable the MPLS LSR_Node reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for MPLS.
- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the NNM iSPI for MPLS LSR_Node extension pack.

**Accessing the MPLS reports:**

To access the NNM iSPI for MPLS LSR_Node reports from the NNMi console, follow these steps:

1. Log on to the NNMi console.
2. Click **Actions > NNM iSPI Performance > Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.
3. Click **iSPI for MPLS** > **MPLS_LSR_Node** to see the list of reports that you can launch using this extension pack.

Use the MPLS LSR Node report to perform the following tasks:

- Monitor an LSR node or nodes for MPLS packets and MPLS data bytes utilization on the network.
- Compare the incoming and outgoing traffic (packets, labels, and packet discards) for a node or nodes over a period of time. Check the Chart Detail report.
- Investigate and troubleshoot the nodes with the high exception counts (packets discarded or excessive utilization or both). For example, you can investigate if the packet discards are more than the expected value or if the volume of the packets passing through the selected node is more or irregular.
- Rank a node based on the selected metric value. Check the Top N report.
- Monitor the nodes by traffic volume.

**Note:** The label space configuration on the LSR node can be at the node level, interface level, or both. Depending upon the configuration, the metric value appears in the corresponding reports. The nodes with the node-level configuration, report the metric data only for the MPLS_LSR_Node report. Similarly, the nodes with the interface-level configuration, report the metric data only for the MPLS_LSR_Interface report. However, the nodes with both the node and the interface configurations, report data in both MPLS_LSR_Node and MPLS_LSR_Interface report.

**Related Topics:**

MPLS LSR Node Report Metrics and Topology Filters

# Calendar Report

The MPLS_LSR_Node Calendar report helps you to monitor the traffic passing through the selected node or node groups for a specific time range. In addition, the report shows a comparative study of the selected metrics for a specific time range.

Use this report for the following:

- Monitor and compare the traffic performance for a node or node groups over a period of time
- Identify a specific time period to find out any unusual behavior in the traffic passing through the LSR node.

**Report Options**

The Calendar report shows the following options:

- Primary Metrics - Select the metric based on which you want to generate the report. The primary metric appears on the left Y-axis of the report
- Secondary Metrics - Select the metric to compare your report. The secondary metric appears on the right Y-axis of the report

For information about metric definitions, see MPLS_LSR_Node Metric Definitions.

The controls that appear on the Calendar report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Heat Chart Report

The MPLS_LSR_Node Heat Chart report helps you to view the traffic performance based on a single metric over a time frame.

The heat chart shows different colors to display the different states of a metric. These states show traffic performance for the selected network element. For example, select a weekly Heat Chart report to view the performance of a metric (**Octets In (avg)** for the selected network element **(Node Name)**.

Use this report to perform the following tasks:

- Track the hourly performance of the traffic passing through an MPLS-enabled node.
- Quickly isolate and resolve problems affecting in the selected time range by the different colors.

**Report Options**

The Heat Chart report shows the following option:

Metric[1]

For information about metric definitions, see MPLS_LSR_Node Metrics.

The controls that appear on the Heat Chart report are as follows:

[1]Select the metric based on which you want to view the report.

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Chart Detail Report

The MPLS_LSR_Node Chart Detail report helps you compare the sampled data for any two metrics. For example, select a weekly Chart Detail report to compare the incoming and outgoing packets from the selected node.

Use this report to perform the following tasks:

- Analyze the trend of traffic flow passing through a node or node groups based on one unit of time. Each unit of time is called as a **Display Grain**. Make sure to set the display grain greater than the polling interval to view the correct report. You can measure the **Display Grain** as follows:
  - Five minutes for an hourly report
  - One hour for a daily report
  - One day for a weekly report
  - One week for a monthly report
- Compare the metrics for the selected network element over a period of time.
- Detect any persistent problem on the network.

**Report Options**

The Chart Detail report shows the following options:

- Primary Metrics - Select the main metric based on which you want to view the report. The primary metric appears on the left Y-axis of the report
- Secondary Metrics - Select the metric to compare with the primary metric. The secondary metric appears on the right Y-axis of the report

For information about metric definitions, see MPLS_LSR_Node Metrics.

The controls that appear on the Chart Detail report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Most Changed Report

The MPLS_LSR_Node Most Changed report helps you to compare one metric for two different (consecutive) time frames. In addition, you can find the changes and growth percentage in the metric value for a node or nodes. For example, select a weekly Most Changed report to compare a metric (**Octets In(avg)**) that is grouped by a network element **(Node Name)**.

Use this report to perform the following tasks:

- Monitor the change in the traffic performance for a node or nodes based on a metric value.
- Find out the change and growth rate of the traffic based on a metric value.

**Report Options**

The Most Changed report shows the following option:

- Top N[1]
- Metric[2]
- Grouping By[3]

For information about metric definitions, see MPL_ LSR_Node Metric Definitions.

The controls that appear on the Most Changed report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Managed Inventory Report

The Managed Inventory report enables you to view and count the LSR node attributes.

Use this report to perform the following tasks:

- Find the type of topology items (for example, Node Name).
- Find the count of the topology items.

For information about metric definitions, see MPLS_LSR_Node Metric Definitions.

The controls that appear on the Managed Inventory report are as follows:

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the metric based on which you want to view the report.
[3]Select an option to group the report data. You can select more than one option.

- Time
- Topology
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

# Peak Period

Peak Period Report ranks the utilization and performance of an LSR node or LSR nodes during the busiest time of the selected time range.

Using this report, you can:

- Identify the performance and utilization of the MPLS-enabled nodes during the peak period.
- Identify the nodes that have the highest or lowest performances or utilization levels during the peak period.
- Detect the network path having a common MPLS network performance problem.
- You can compare the performance for multiple nodes during the peak period using this report.

**Report Options**

- Top N[1]
- Metric [2]
- Grouping By[3]

This report tracks up to six metrics over the selected time period.

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
[3]Select one or more network element from the available options.

For information about metric definitions, see MPLS_LSR_Node Metrics.

The controls that appear on the Peak Period report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Report

The MPLS_LSR_Node Top N report ranks the MPLS-enabled nodes by the traffic volume. The report is based on a single metric and grouped by one or more network elements. The Top N report lists the network elements in the descending order—from the highest value of the selected metric to the lowest value of the selected metric. For example, select a daily Top l0 report to view the top 10 MPLS–enabled node with a metric value.

The Top N list includes the following:

- Top / Bottom 5 - Shows the Top / Bottom 5 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 10 - Shows the Top / Bottom 10 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 25 - Shows the Top / Bottom 25 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.
- Top / Bottom 50 - Shows the Top / Bottom 50 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.

- Top / Bottom 100 - Shows the Top / Bottom 100 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.

Use this report to perform the following tasks:

- Analyze the ranks available for the network element based the selected metric values.
- Investigate and troubleshoot the nodes with the high exception counts (packets discarded and excessive utilization).
- Monitor the critical and important LSR node and nodes.
- Compare the network element with the selected metric values for a quick overview of the network. You can find the cause of network performance by using the drill-down reports.

**Report Options**

The Top N report shows the following options:

- Top N[1]
- Metric [2]
- Grouping By[3]

For information about metric definitions, see MPLS_LSR_Node Metrics.

The controls that appear on the Top N report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
[3]Select one or more network element from the available options.

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Chart

Top N Chart ranks nodes based on the metrics selected.

Using this report, you can do the following:

- Analyze nodes that are exhibiting unusual utilization levels.
- Detect health or performance problem.
- Analyze the utilization of the MPLS-enabled nodes for a specific time range.
- Detect the over-utilized and under-utilized nodes on the network.
- Compare the performance for multiple interfaces using this report.

**Report Options**

The Top N Chart displays the following options:

- Top / Bottom N
- Metric
- Grouping By

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS_LSR_Node Metrics.

The controls that appear on the Top N Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Report Metrics and Topology Filters

The following **Metrics** are available with the MPLS_LSR_Node report:

**Metric**

| Name | Description |
|---|---|
| Incoming Labels Used (average) (maximum) (minimum) | The number of labels received by the selected node. |
| Outgoing Labels Used (average) (maximum) (minimum) | The number of the labels sent out from the selected node. |
| Octets In (sum) | Total number of incoming bytes received by the selected node. |
| Octets Out (sum) | Total number of outgoing bytes sent out from the selected node. |
| Volume Octets (sum) | Total number of bytes passing through the selected node. |
| Packets In (sum) | Total number of packets received by the selected node. |
| Packets Out (sum) | Total number of packets sent out from the selected node. |
| Total Packets (sum) | Total number of packets passing through the selected node. |
| Discards Packets In (sum) | The number of packets that are in discarded state ( packets that reach late or not do not reach the destination). |
| Discards Packets Out (sum) | The number of outgoing packets that are in discarded state (packets that reach late or not do not reach the destination). |

**Metric, continued**

| Name | Description |
|---|---|
| Volume - Discards Packets (sum) | Total number of the discarded packets. |
| TE Tunnel Head | The name of the TE Tunnel. |
| L2VPN-PE | The name of the L2VPN. |
| L3VPN-PE | The name of the L3VPN. |
| secGrpUUID | The name of the Security group. |

The following **Grouping By** options are available with the MPLS_LSR_Node report:

**Attributes**

| Name | Description |
|---|---|
| NodeGroup Name | The name of the node group. |
| InterfaceGroup Name | The name of the selected interface group. |
| Interface UUID | The UUID of the selected interface. |
| Interface Name | Name of an interface on the node. |
| Qualified Interface Name | The name of the selected interface on the MPLS-enabled node. |
| Interface Type | The type of an interface. |
| Node Name | The name of the selected node. |
| Node Short Name | Short name of the selected node. |
| Node ID | ID associated with the selected node. |
| Node UUID | The UUID of the selected MPLS-enabled node. |

**Attributes, continued**

| Name | Description |
|---|---|
| Node ODBID[1] | The key value of the selected MPLS-enabled node. |
| Node Location | The place where the node is configured. |
| Node Contact | The node details as per the router configuration. |
| Node Family | The type of family of a node. |
| Node Vendor | The type of a node. Example, Cisco or Juniper node. |
| L2VPN PE | This is the capability. Possible values are true or false. |
| L3VPN PE | This is the capability. Possible values are true or false. |
| TE Tunnel Head | This is the capability. Possible values are true or false. |
| secGrpUUID | Name of the Security group. |

To view some useful reports, compare the following relevant metric:

**Attributes**

| Metric | Comparison Chart |
|---|---|
| Labels Used | Incoming Labels Used and Outgoing Labels Used |
| Packets | Packets In and Packets Out |
| Discards | Discards In and Discards Out |
| Octets | Octets In and Octets Out |
| Volume and Labels | (Volume (sum) and Incoming Labels used) or ( Volume (sum) or Outgoing Labels used) |
| Total Packets and Packets In or Out | (Total Packets and Packets In) or (Total Packets and Packets Out) |
| Volume - Discards and Discards Packets In / Out | (Volume - Discards Packets and Discards Packets In) or (Volume - Discards Packets and Discards Packets Out) |

[1]ODBID is a custom attribute that the HP Network Node Manager i Software uses to integrate the NNMi topology with Business Service Management(BSM) software suite.

# Chapter 3: MPLS_LSR_Interface Report

The MPLS_LSR_Interface report helps you monitor and perform in-depth trend analysis for the traffic passing through the selected LSR interface or a set of interfaces.

The iSPI for MPLS uses the iSPI Performance for Metrics template reports to present the MPLS reports. The available template reports are:

- Calendar Report
- Heat Chart Report
- Chart Detail Report
- Most Changed Report
- Top N Report
- Top N Chart
- Managed Inventory
- Peak Period

**Prerequisites for Viewing the NNM iSPI for MPLS reports:**

Make sure that the following prerequisites are satisfied to enable the MPLS_LSR_Interface reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for MPLS
- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the NNM iSPI for MPLS_LSR_Interface extension pack.

**Accessing the MPLS reports:**

To access the NNM iSPI for MPLS_LSR_Interface reports from the NNMi console, follow these steps:

1. Log on to the NNMi console.
2. Click **Actions > NNM iSPI Performance > Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.
3. Click iSPI for MPLS > MPLS_LSR_Interface to see the list of reports that you can launch using this extension pack.

Use the MPLS_LSR_Interface report for the following:

- Monitor the LSR interface or interfaces for packets and data bytes utilization on the network.
- Compare the incoming and outgoing traffic (packets, labels, and packet discards) for the selected LSR interface over a period of time.
- Investigate and troubleshoot the interfaces with the high exception counts (packets discarded and excessive utilization). For example, you can investigate if the packet discards exceed the threshold value for the selected node or if the volume of the packets passing through the selected node is more than the threshold value.)
- Monitor the interfaces by traffic volume.

**Related Topics:**

MPLS_LSR_Interface Report Metrics and Topology Filters

# Calendar Report

The MPLS_LSR_Interface Calendar report enables to monitor the traffic passing through the selected interfaces for a specific time range.

Use this report to perform the following tasks:

- Monitor and compare the traffic performance for an interface or interfaces over a period of time.
- Identify a specific time period to find out any unusual behavior in the traffic passing through the interface.

**Report Options**

The Calendar report shows the following options:

- Primary Metrics - Select the metric based on which you want to generate the report. The primary metric appears on the left Y-axis of the report
- Secondary Metrics - Select the metric to compare your report. The secondary metric appears on the right Y-axis of the report

For information about metric definitions, see MPLS_LSR_Interface Metrics Definitions.

The controls that appear on the Calendar report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Heat Chart Report

The MPLS_LSR_Interface Heat Chart report helps you to view the traffic performance based on a single metric over a time frame.

The heat chart shows different colors to display the different states of a metric. These states show traffic performance for the selected network element. For example, select a weekly Heat Chart report to find the performance of a metric **(Octets In (sum)** for the selected network element **(Interface Name)**.

Use this report to perform the following tasks:

- Track the hourly performance of the traffic passing through an interface.
- Quickly isolate and resolve problems affecting the selected time range by the different colors.

**Report Options**

The Heat Chart report shows the following option:

Metric[1]

For information about metric definitions, see MPLS_LSR_Interface Metric.

The controls that appear on the Heat Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

[1]Select the metric based for which you want to open the report.

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Chart Detail Report

The MPLS_LSR_Interface Chart Detail report helps you compare the sampled data for any two metrics. For example, select a weekly Chart Detail report to compare the incoming and outgoing packets from the selected interface.

Use this report to perform the following tasks:

- Analyze the trend of traffic passing though an interface or interfaces based on one unit of time. Each unit of time is known as a **Display Grain**. Make sure to set the display grain greater than the polling interval to view the correct report. You can measure the **Display Grain** as follows:
  - Five minutes for hourly report
  - One hour for daily report
  - One day for weekly report
  - One week for monthly report
- Compare the metrics for the selected network element over a period of time.
- Detect any persistent problem on the network.

**Report Options**

The Chart Detail report shows the following options:

- Primary Metrics- Select the main metric based on which you want to open the report. The primary metric appears on the left Y axis of the report.
- Secondary Metrics- Select the secondary metrics to compare your report. The secondary metrics appears on the right Y axis of the report.

For information about metric definitions, see MPLS_LSR_Interface Metrics.

The controls that appear on the Chart Detail report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Most Changed Report

The MPLS_LSR_Interface Most Changed report helps you to compare one metric for two different (consecutive) time frames. In addition, you can find the changes and growth percentage in the metric value for an interface or interfaces. For example, select a weekly Most Changed report to compare a metric **(Octets In (avg)**) that is grouped by a network element **(Interface Name)**

Use this report to perform the following tasks:

- Monitor the change in the traffic performance for a node or nodes based on a metric value.
- Find out the change and growth rate of the traffic based on a single metric.

**Report Options**

The Most Changed report shows the following option:

- Top N[1]
- Metric[2]
- Grouping By[3]

For information about metric definitions, see MPLS_LSR_Interface Metrics.

The controls that appear on the Most Changed report are as follows:

- Time
- Topology
- Options

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the metric based on which you want to view the report.
[3]Select the option available to group the metric.

- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Managed Inventory Report

The Managed Inventory report enables you to view the LSR interface attributes.

Use this report to perform the following tasks:

- Find the type of topology items (for example, Interface Name, Qualified Interface Name).
- Find the count of the topology items.

For information about metric definitions, see MPLS LSR Interface Metric Definitions.

The controls that appear on the Managed Inventory report are as follows:

- Time
- Topology
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

# Peak Period Report

Peak Period Report ranks the utilization and performance of an LSR interface or LSR interfaces during the busiest time of the selected time range.

Using this report, you can:

- Identify the performance and utilization of the MPLS-enabled interfaces during the peak period.
- Identify the interfaces that have the highest or lowest performances or utilization levels during the peak period.
- Detect the network path having a common MPLS network performance problem.
- You can compare the performance for multiple interfaces during the peak period using this report.

**Report Options**

- Top N[1]
- Metric [2]
- Grouping By[3]

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS_LSR_Interface Metrics.

The controls that appear on the Peak Period report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports* > *Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
[3]Select one or more network element from the available options.

# Top N Report

The MPLS_LSR_Interface Top N report ranks the MPLS-enabled interfaces by the traffic volume. The report is based on a single metric and grouped by one or more network element. The Top N report lists the network elements in the descending order; that is from the highest value of the selected metric to the lowest value of the selected metric. For example, select a daily Top l0 report to view the top 10 MPLS-enabled interfaces with a metric.

The Top N list includes the following:

- Top / Bottom 5 - Shows the Top / Bottom 5 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 10 - Shows the Top / Bottom 10 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 25 - Shows the Top / Bottom 25 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical interfaces.
- Top / Bottom 50 - Shows the Top / Bottom 50 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical interfaces.
- Top / Bottom 100 - Shows the Top / Bottom 100 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical interfaces.

Use this report to perform the following tasks:

- Analyze the ranks available for the network element based on the selected metric values.
- Investigate and troubleshoot the interfaces with the high exception counts (packets discarded and excessive utilization).
- Monitor the critical and important LSR nodes and interfaces.
- Compare the graph with the displayed values for a quick overview of the network.
- Compare the network element with the selected metric values for a quick overview of the network. You can find the cause of network performance by using the drill-down reports.

**Report Options**

The Top N report shows the following options:

- Top N [1]
- Metric [2]
- Display Time Series Chart[3]
- Grouping By[4]

For information about metric definitions, see MPLS_LSR_Interface Metrics.

The controls that appear on the Top N report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Chart Report

Top N Chart ranks interfaces based on the metrics selected.

Using this report, you can:

- Analyze interfaces that are exhibiting unusual utilization levels.
- Detect health or performance problem.

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
[3]Select Yes to view the detail chart with the table. Select No to hide the chart and show only the graph. The Top N report shows the Time Series Chart.
[4]Select one or more network element from the available options.

- Analyze the utilization of the MPLS-enabled interfaces based on a specific time range.
- Detect the over-utilized and under-utilized interfaces in the network.
- Compare the performance for multiple interfaces using this report.

**Report Options**

The Top N Chart displays the following options:

- Top / Bottom N
- Metric
- Grouping By

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS_LSR_interface Metrics.

The controls that appear on the Top N Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Report Metrics and Topology Filter

The following **Metrics** are available with the MPLS_LSR_Interface report:

**Metric**

| Name | Description |
|---|---|
| Incoming Labels Used (average) (maximum) (minimum) | The number of labels received by the selected node. |
| Outgoing Labels Used (average) (maximum) (minimum) | The number of the labels sent out by the selected node. |
| Octets In (sum) | Total number of incoming bytes passing through the selected node. |
| Octets Out (sum) | Total number of outgoing bytes passing through the selected node. |
| Volume Octets (sum) | Total number of bytes passing through the selected node. |
| Packets In (sum) | Total number of packets received by the selected node. |
| Packets Out (sum) | Total number of packets sent out from the selected node. |
| Total Packets (sum) | Total number of packets passing through the selected node. |
| Discards Packets In (sum) | The number of packets reaching late or not reaching the destination. These packets pass through the selected node. |
| Discards Packets Out (sum) | The number of outgoing packets sent out late or not reaching the destination.These packets or bytes pass through the selected node. |
| Volume - Discards Packets (sum) | Total number of packets that are in the discarded state. |
| secGrpUUID | The name of the Security group. |

To view some useful reports, compare the following relevant metric:

**Attributes**

| Metrics | Comparison Chart |
|---|---|
| Labels | Labels In and Labels Out |
| Packets | Packets In and Packets Out |
| Discards | Discards In and Discards Out |
| Volume and Labels | (Volume (sum) and Incoming Labels used) or ( Volume (sum) or Outgoing Labels used) |
| Total Packets and Packets In or Out | (Total Packets and Packets In) or (Total Packets and Packets Out) |
| Volume - Discards and Discards Packets In / Out | (Volume - Discards Packets and Discards Packets In) or (Volume - Discards Packets and Discards Packets Out) |

The following **Grouping By** options are available with the MPLS_LSR_Interface report:

**Attributes**

| Name | Description |
|---|---|
| NodeGroup Name | The name of the node group. To enable the polling for the selected node group, see *Help for NNMi, Node Group Settings (NNM iSPI Performance).* |
| InterfaceGroup Name | The name of the selected interface group. To enable the polling for the selected interface group, see *Help for NNMi, Interface Group Settings (NNM iSPI Performance).* |
| Interface UUID | The Universally Unique Identifier of the selected interface. |
| Interface Name | The name of an interface on the node. |
| Qualified Interface Name | The name of the selected interface on the MPLS-enabled node. |
| Interface Type | The kind of an interface. |
| Node Name | The name of the selected node. |
| Node Short Name | Short name of the selected node. |
| Node ID | ID associated with the selected node. |

**Attributes, continued**

| Name | Description |
|---|---|
| Node UUID | The Universally Unique Identifier of the selected MPLS-enabled node. |
| Node Location | The place where the node is configured. |
| Node Contact | The node details as per the router configuration. |
| Node Family | The type of family of a node. |
| Node Vendor | The type of a node. Example, Cisco or Juniper node. |
| Node ODBID[1] | The key value of the selected node. |
| Interface ODBID | The key value of the selected interface. |
| secGrpUUID | The name of the security group. |

[1]ODBID is a custom attribute that the HP Network Node Manager i Software uses to integrate the NNMi topology with Business Service Management(BSM) software suite.

# Chapter 4: L3_VPN_VRF Reports

The L3_VPN_VRF report provides the statistics based on the metric value for the VRFs and L3 VPNs on the network. Monitor the status of large-scale enterprise L3 VPNs running over MPLS-enabled networks by using MPLS reports.

The iSPI for MPLS uses the template reports to show the MPLS reports. The available template reports are:

- Calendar Report
- Heat Chart Report
- Chart Detail Report
- Most Changed Report
- Top N Report
- Top N Chart
- Managed Inventory
- Peak Period

**Prerequisites for Viewing the NNM iSPI for MPLS reports:**

Make sure that the following prerequisites are satisfied to enable the L3_VPN_VRF reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for MPLS
- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the NNM iSPI for MPLS L3_VPN_VRF extension pack.

**Accessing the MPLS reports:**

To access the NNM iSPI for MPLS L3_VPN_VRF reports from the NNMi console, follow these steps:

1. Log on to the NNMi console.
2. Click **Actions > NNM iSPI Performance > Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.
3. Click iSPI for MPLS > L3_VPN_VRF to see the list of reports that you can launch using this extension pack.

Use the L3_VPN_VRF report to perform the following tasks:

- Monitor the VRFs and L3 VPNs for the available metric values. You can use the drill-down reports to help you conclude the issue faster.
- Rank the VRFs and L3 VPNs based on a metric value.
- Investigate and troubleshoot the VRFs or L3 VPNs with the high exception counts. For example, if you select a VRF that is not available for a long duration, you can find the reason by using L3_ VPN_VRF Top N report.
- Compare the available percentage, down time, and repair time for a VRF or an L3 VPN.
- Navigate from NNMi Interface health report to L3_VPN_VRF report to view the traffic performance. From iSPI Metrics folder,navigate to interface_health. The extension pack appears with the MPLS network elements such as MPLS_L3VPN Name and MPLS_VRF Name. You can navigate to the L3_VPN_VRF report to generate the report with MPLS metric values such as discards- packets (sum).

**Related Topics:**

MPLS L3_VPN_VRF Report Metrics and Topology Filters

# Calendar Report

The iSPI for MPLS L3_VPN_VRF Calendar report enables you to monitor the selected VRFs for a specific time range. In addition, the report shows a comparative study of the selected metrics for a specific time range.

Use this report for the following:

- Monitor and compare the performance of the metric value for a VRF or VRFs.
- Identify a specific time period when the selected metric value exceeds the threshold value for a VRF or L3VPN.

**Report Options**

The Calendar report shows the following options:

- Primary Metrics - Select the metric based on which you want to generate the report. The primary metric appears on the left Y-axis of the report
- Secondary Metrics - Select the metric to compare your report. The secondary metric appears on the right Y-axis of the report

For information about metric definitions, see L3_VPN_VRF Metric Definitions.

The controls that appear on the Calendar report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Heat Chart Report

The L3_VPN_VRF Heat Chart report helps you to view the traffic performance based on a single metric over a period of time range. The heat chart shows different colors to display the different states of a metric. These states show traffic performance for the selected network element. For example, select a weekly Heat Chart report to find the performance of a metric **(availabilitypct (avg)** for the selected network element **(VRF Name)**.

Use this report to perform the following tasks:

- Track the hourly performance of the traffic passing through a VRF or an L3VPN.
- Quickly isolate and resolve problems affecting in the selected time range by the different colors.

**Report Options**

The Heat Chart report shows the following option:

Metric[1]

For information about metric definition, see L3_VPN_VRF Metric Definitions.

The controls that appear on the Heat Chart report are as follows:

- Time
- Topology
- Options

[1]Select the metric based on which you want to view the report.

- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Chart Detail Report

The L3_VPN_VRF Chart Detail report helps you compare the sampled data for any two metrics. For example, select a weekly Chart Detail report to compare the mean time to recovery and mean time between failures for the selected VRF.

Use this report to perform the following tasks:

- Analyze the availability of the VRFs or L3VPNs based on one unit of time. Each unit of time is called as a **Display Grain**. Make sure to set the display grain greater than the polling interval to view the correct report. You can measure the **Display Grain** as follows:
  - Five minutes for hourly report
  - One hour for daily report
  - One day for weekly report
  - One day for monthly report
- Compare the metrics for the selected network element over a period of time.
- Detect any persistent problem on the network.

**Report Options**

The Chart Detail report shows the following options:

- Primary Metrics- Select the main metric based on which you want to generate the report. The primary metric appears on the left Y axis of the report.
- Secondary Metrics- Select the metric to compare with the primary metric. The secondary metric appears on the right Y axis of the report.

For information about L3_VPN_VRF metric definitions, see L3_VPN_VRF Metric Definitions.

The controls that appear on the Chart Detail report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Most Changed Report

The L3_VPN_VRF Most Changed report helps you to compare one metric over a time frame. In addition, you can find out the growth percentage of the network element based on the selected metric.

Use this report to perform the following tasks:

- Monitor the change in the available time, repair or down time of the selected VRF or L3VPNs.
- Find out the change and growth percentage of the selected VRF or L3VPN based on a single metric.

**Report Options**

The Most Changed report shows the following option:

- Top N[1]
- Metric[2]
- Grouping By[3]

For information about metric definitions, see L3_VPN_VRF Metric Definitions.

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the metric based on which you want to view the report.
[3]Select an option to group the report data. You can select more than one option.

The controls that appear on the Most Changed report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

MPLS VRF report provides the near real-time reports for the VRF availability on the MPLS - enabled node that help you to monitor and perform trend analysis for the traffic passing through the selected LSR node.

The iSPI for MPLS uses the Performance SPI console and MPLS metrics to generate the MPLS L3_VPN_VRF report.

Use the MPLS L3_VPN_VRF report for the following:

- Monitor the VRF available time on the network.
- Monitor the L3 VPN available time on the network.
- Compare the VRF and L3 VPN available percentage, down time, and repair time.

**Launching the MPLS L3_VPN_VRF Report**

After you install the iSPI for MPLS extension-pack, you can view the MPLS reports from the Perf SPI console. To view the MPLS report, select the attributes from Topology Filter, Report Options, and Time Controls. Make sure that NPS and Perf SPI metrics is running when you start the iSPI for IP MPLS reports.

**To launch the MPLS L3_VPN_VRF report, follow the steps:**

1. Navigate to the Perf SPI console.
2. From the **Perf SPI console**, click the **L3_VPN_VRF** tab.

3. Select the type of Perf SPI metrics report such as Top N, Most Changed and so on. If you select Top N report, then select any one type of Top N report such as Hourly, Daily, Weekly, or Monthly.

4. From the **Report Options**, select any one **Metric** and **Grouping by** attribute and click **Confirm** Selection. The MPLS_L3VPN_VRF report appears. For Metrics and Grouping by attributes, see Report Options available for the MPLS report.

**MPLS L3_VPN_VRF Report Options**

The following **Metrics** are available with the MPLS L3_VPN_VRF report:

**Metric**

| Name | Description |
|---|---|
| AvailabilityPct (avg, max, min) | Total duration for which the status of the selected VRF participating in the L3 VPN is up and active.. |
| Time Between Failures( avg, max, min) | Average time for the selected VRF to change the state from Up to Down. Units is seconds.<br>For example, if the status of the selected VRF at 10:00 AM is Up and the status changes to Down at 10:20 AM. Again, the status of the VRF changes from Down to Up at 10:30 AM till 10:40 AM. Therefore, the Time Between Failures is the total time when the selected VRF changes the state from Up to Down by the total number of occurrences of the status change. |
| Time To Repair ( avg, max, min) | Average time taken to repair or restore the status of the selected VRF from Down to Up. Units is seconds. |

To perform the trend analysis and to generate some useful reports, compare the following relevant metrics for the following template reports:

**Attributes**

| Primary | Secondary |
|---|---|
| AvailabilityPct (avg, max, min) | Time Between Failures( avg, max, min) |
| AvailabilityPct (avg, max, min) | Time To Repair (avg, max, min) |
| Ttime Between Failures( avg, max, min) | Time To Repair (avg, max, min) |

The following **Grouping By** options are available with the MPLS reports.

**Attributes**

| Name | Description |
|---|---|
| VRF Name | The name of the VRF. |
| L3 VPN Name | The system - assigned or user - given name of the L3 VPN. |

# Managed Inventory Report

The Managed Inventory report enables you to view and count the L3 VPN and VRF attributes.

Use this report to perform the following tasks:

- Find the type of topology items (for example, L3VPN Name, VRF Name).
- Find the count of the topology items.

For more information about metric definitions, see L3_VPN_VRF Metric Definitions.

The controls that appear on the Managed Inventory report are as follows:

- Time
- Topology
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

# Peak Period Report

Peak Period Report ranks the utilization and performance of an L3_VPN_VRFs during the busiest time of the selected time range.

Using this report, you can:

- Identify the performance and utilization of the L3_VPN_VRFs during the peak period.
- Identify the nodes that have the highest or lowest performances or utilization levels during the peak period.

- Detect the network path having a common MPLS network performance problem.
- You can compare the performance for multiple VRFs during the peak period using this report.

**Report Options**

- Top N[1]
- Metric [2]
- Grouping By[3]

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS L3 VPN VRF Metrics.

The controls that appear on the Peak Period report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Report

The L3_VPN_VRF Top N report ranks the VRF or L3VPN for the available time[4] . The report is based on a single metric and grouped by one or more network element. The Top N report lists the

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
[3]Select one or more network element from the available options.
[4]The time when the traffic is passing through a VRF or an L3VPN.

network elements in the descending order—from the highest value of the selected metric to the lowest value of the selected metric. For example, if you select a daily Top l0 report, you can see statistics of the VRFs based on the metric value.

The Top N list includes the following:

- Top / Bottom 5 - Shows the Top / Bottom 5 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 10 - Shows the Top / Bottom 10 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 25 - Shows the Top / Bottom 25 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.
- Top / Bottom 50 - Shows the Top / Bottom 50 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.
- Top / Bottom 100 - Shows the Top / Bottom 100 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.

Use this report to perform the following tasks:

- Analyze the available ranks of the network elements based on a metric.
- Monitor the critical and important L3VPNs and VRFs.
- Compare the network element with the selected metric values for a quick overview of the network. You can find the cause of network performance by using the drill-down reports.

**Report Options**

The Top N report shows the following options:

- Top N[1]
- Metric [2]
- Grouping By[3]

For information about metrics, see L3_VPN_VRF Metric Definitions.

The controls that appear on the Top N report are as follows:

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
[3]Select one or more network element from the available options.

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Chart Report

Top N Chart ranks nodes based on the metrics selected.

Using this report, you can:

- Analyze VRFs that are exhibiting unusual utilization levels.
- Detect health or performance problem.
- Analyze the utilization of the VRFs based on a specific time range.
- Compare the performance for multiple interfaces using this report.

**Report Options**

The Top N Chart displays the following options:

- Top N[1]
- Metric [2]
- Grouping By[3]

[1]Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
[2]Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
[3]Select one or more network element from the available options.

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS L3_VPN_VRF Metrics.

The controls that appear on the Top N Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Report Metrics and Topology Filters

The following **Metrics** are available with the L3_VPN_VRF report:

**Metric**

| Name | Description |
|---|---|
| AvailabilityPct<br><br>(average, maximum, minimum) | Total duration for which the status of the selected VRF participating in the L3VPN is up and active. |
| Mean Time Between Failures (MTBF) (average, max, min) | Total time for which the selected VRF was last available by the total number of occurrences when the status of the VRF was down. |
| Mean Time To Recovery (MTTR) (average, max, min) | Total time taken to restore the status of the selected VRF from Down to Up by the total number of occurrences when the status was Down to Up. Unit is seconds. |
| VRF UUID (countdistinct) | The Universally Unique Identifier of the VRF. |
| MPLS VRF Name | The name of the VRF. |

**Metric, continued**

| Name | Description |
|---|---|
| MPLS L3VPN Name | The name of the L3VPN. |
| Node Name | The name of the node. |
| secGrpUUID | The name of the Security Group. |

To perform the trend analysis and to generate some useful reports, compare the following relevant metrics for the following reports:

**Attributes**

| Primary | Secondary |
|---|---|
| AvailabilityPct (avg, max, min) | Time Between Failures (avg, max, min) |
| AvailabilityPct (avg, max, min) | Time To Recovery (avg, max, min) |
| Mean Time Between Failures (avg, max, min) | Mean Time To Recovery (avg, max, min) |

The following Topology Filters are available to generate customized reports:

**Topology Filters**

| Filters | Description |
|---|---|
| VRF UUID (countdistinct) | The Universally Unique Identifier of the VRF. |
| VRF Name | The name of the VRF. |
| L3VPN Name | The name of the L3VPN. |
| Node Name | The name of the node. |
| isMcastEnabled | Specifies whether the node is multicast enabled. |
| isIPv6Enabled | Specifies whether the node is IPv6 enabled. |
| secGrpUUID | The name of the Security Group. |
| isVRFLite (countdistinct) | Specifies whether the VRF is VRF Lite. |

The following **Grouping By** options are available in the L3_VPN_VRF reports.

**Attributes**

| Name | Description |
|---|---|
| VRF Name | The name of the VRF. |
| L3 VPN Name | The system-generated name of the L3 VPN. |

**Note:** It is recommended that while generating comparative analysis for any L3_VPN_VRF report, do not select a performance metric with a topology filter for the same report.

# Quick Launch Reports

You can create shortcuts to commonly used reports and quickly launch them from the navigation panel using **Quicklaunch MPLS Report Views**.

The NNM iSPI for MPLS provides 6 pre-defined quick launch reports, they are:

- Chart comparison of Availability, MTBF and MTTR - Last Day
- Top 10 VRF interface utilization by VPN - Last Day
- Top 10 VPN, MTBF, MTTR and Availability - Last Day
- Top 10 VRF Availability, MTBF and MTBF by VPN
- Top 10 VRF Interface throughput by VPN - Last Day
- VRF Count and Availability by Hour- Last Day

To create a custom QuickLaunch ReportView, see *NNM iSPI Performance for Metrics Online Help*.

# Chapter 5: TE_Tunnel Reports

The TE_Tunnel report provides the statistics based on the metric value for the TETunnels and L3 VPNs on the network. Monitor the status of large-scale enterprise L3 VPNs running over MPLS-enabled networks by using MPLS reports.

The iSPI for MPLS uses the template reports to show the MPLS reports. The available template reports are:

- Calendar Report
- Heat Chart Report
- Chart Detail Report
- Most Changed Report
- Top N Report
- Top N Chart
- Managed Inventory
- Peak Period

**Prerequisites for Viewing the NNM iSPI for MPLS reports:**

Make sure that the following prerequisites are satisfied to enable the TE_Tunnel reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for MPLS
- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the NNM iSPI for MPLS TE Tunnel extension pack.

**Accessing the MPLS reports:**

To access the NNM iSPI for MPLS TE_Tunnel reports from the NNMi console, follow these steps:

1. Log on to the NNMi console.
2. Click **Actions > NNM iSPI Performance > Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.
3. Click iSPI MPLS > TE_Tunnel to see the list of reports that you can launch using this extension pack.

Use the TE_Tunnel report to perform the following tasks:

- Monitor the TETunnels for the available metric values. You can use the drill-down reports to help you conclude the issue faster.
- Rank the TETunnels based on a metric value.
- Investigate and troubleshoot the TETunnels with the high exception counts. For example, if you select a TETunnel that is not available for a long duration, you can find the reason by using TE_ Tunnel Top N report.
- Compare the available percentage, down time, and repair time for a TETunnel.

**Related Topics:**

TE_Tunnel Report Metrics and Topology Filters.

# Calendar Report

The iSPI for MPLS TE_Tunnel Calendar report enables you to monitor the selected TETunnels for a specific time range. In addition, the report shows a comparative study of the selected metrics for a specific time range.

Use this report to:

- Monitor and compare the performance of the metric value for a TETunnel or TETunnels.
- Identify a specific time period when the selected metric value exceeds the threshold value for a TETunnel or L3VPN.

**Report Options**

The Calendar report shows the following options:

- Primary Metrics - Select the metric based on which you want to generate the report. The primary metric appears on the left Y-axis of the report.
- Secondary Metrics - Select the metric to compare your report. The secondary metric appears on the right Y-axis of the report.

For information about metric definitions, see TE_Tunnel Metric Definitions.

The controls that appear on the Calendar report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Heat Chart Report

The TE_Tunnel Heat Chart report helps you to view the traffic performance based on a single metric over a period of time range. The heat chart shows different colors to display the different states of a metric. These states show traffic performance for the selected network element. For example, select a weekly Heat Chart report to find the performance of a metric (availabilitypct(avg) for the selected network element (TETunnel Name).

Use this report to perform the following tasks:

- Track the hourly performance of the traffic passing through a TETunnel.
- Quickly isolate and resolve problems affecting in the selected time range by the different colors.

**Report Options**

The Heat Chart report shows the following option:

- MetricSelect the metric based on which you want to view the report.

For information about metric definition, see TE_Tunnel Metric Definitions.

The controls that appear on the Heat Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Chart Detail Report

The TETunnel Chart Detail report helps you compare the sampled data for any two metrics. For example, select a weekly Chart Detail report to compare the mean time to recovery and mean time between failures for the selected TETunnel.

Use this report to perform the following tasks:

- Analyze the availability of the TETunnels based on one unit of time. Each unit of time is called as a **Display Grain**. Make sure to set the display grain greater than the polling interval to view the correct report. You can measure the Display Grain as follows:
  - Five minutes for hourly report
  - One hour for a daily report
  - One day for a weekly report
  - One week for a monthly report
- Compare the metrics for the selected network element over a period of time.
- Detect any persistent problem on the network.

**Report Options**

The Chart Detail report shows the following options:

- Primary Metrics- Select the main metric based on which you want to generate the report. The primary metric appears on the left Y axis of the report.
- Secondary Metrics- Select the metric to compare with the primary metric. The secondary metric appears on the right Y axis of the report.

For information about TE_Tunnel metric definitions, see TE_Tunnel Metric Definitions.

The controls that appear on the Chart Detail report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Most Changed Report

The TE_Tunnel Most Changed report helps you to compare one metric over a time frame. In addition, you can find out the growth percentage of the network element based on the selected metric.

MPLS TETunnel report provides the near real-time reports for the TETunnel availability on the MPLS - enabled node that help you to monitor and perform trend analysis for the traffic passing through the selected LSR node.

The iSPI for MPLS uses the Performance SPI console and MPLS metrics to generate the MPLS_ TETunnel report.

Use this report to perform the following tasks:

- Monitor the change in the available time, repair or down time of the selected TETunnel.
- Find out the change and growth percentage of the selected TETunnel based on a single metric.

**Report Options**

The Most Changed report shows the following option:

- Top N - Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric - Select the metric based on which you want to view the report.
- Grouping By - Select an option to group the report data. You can select more than one option.

For information about TE_Tunnel metric definitions, see TE_Tunnel Metric Definitions.

The controls that appear on the Most Changed report are as follows:

- Time
- Topology
- Options

- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Managed Inventory Report

The Managed Inventory report enables you to view and count the TETunnel attributes.

Use this report to perform the following tasks:

- Find the type of topology items (for example, TETunnel Name).
- Find the count of the topology items.

For information about metric definitions, see TE_Tunnel Metric Definitions.

The controls that appear on the Managed Inventory report are as follows:

- Time
- Topology
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

# Peak Period Report

Peak Period Report ranks the utilization and performance of an TE_Tunnels during the busiest time of the selected time range.

Using this report, you can:

- Identify the performance and utilization of the TE_Tunnels during the peak period.
- Identify the nodes that have the highest or lowest performances or utilization levels during the peak period.
- Detect the network path having a common MPLS network performance problem.
- You can compare the performance for multiple Tunnels during the peak period using this report.

**Report Options:**

- Top N Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By Select one or more network element from the available options.

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS TE Tunnel TE Tunnel Metrics.

The controls that appear on the Peak Period report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Report

The TE_Tunnel Top N report ranks the TETunnel for the available time when the traffic is passing through a TETunnel. The report is based on a single metric and grouped by one or more network element. The Top N report lists the network elements in the descending order—from the highest

value of the selected metric to the lowest value of the selected metric. For example, if you select a daily Top l0 report, you can see statistics of the TETunnels based on the metric value.

The Top N list includes the following:

- Top / Bottom 5 - Shows the Top / Bottom 5 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 10 - Shows the Top / Bottom 10 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 25 - Shows the Top / Bottom 25 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 50 - Shows the Top / Bottom 50 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 100 - Shows the Top / Bottom 100 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.

Use this report to perform the following tasks:

- Analyze the available ranks of the network elements based on a metric.
- Monitor the critical and important TETunnels.
- Compare the network element with the selected metric values for a quick overview of the network. You can find the cause of network performance by using the drill-down reports.

**Report Options**

The Top N report shows the following options:

- Top N Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By Select one or more network element from the available options.

For information about metrics, see TE_Tunnel Metric Definitions.

The controls that appear on the Top N report are as follows:

- Time
- Topology
- Options

- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Chart Report

Top N Chart ranks nodes based on the metrics selected.

Using this report, you can:

- Analyze TETunnels that are exhibiting unusual utilization levels.
- Detect health or performance problem.
- Analyze the utilization of the TETunnels based on a specific time range.
- Compare the performance for multiple interfaces using this report.

**Report Options**

The Top N Chart displays the following options:

- Top N Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By Select one or more network element from the available options.

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS TE_Tunnel Metrics.

The controls that appear on the Top N Chart report are as follows:

- Time
- Topology

- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Report Metrics and Topology Filters

The following **Metrics** are available with the TE_Tunnel reports:

**Metric**

| Name | Description |
|---|---|
| AvailabilityPct<br><br>(average, maximum, minimum) | Total duration for which the status of the selected TETunnel is up and active. |
| Mean Time Between Failures (MTBF) (average, max, min) | Total time for which the selected TETunnel was last available by the total number of occurrences when the status of the TETunnel was down. |
| Mean Time To Recovery (MTTR) (average, max, min) | Total time taken to restore the status of the selected TETunnel from Down to Up by the total number of occurrences when the status was Down to Up. Unit is seconds. |
| TETunnel UUID (countdistinct) | The Universally Unique Identifier of the TETunnel. |
| MPLS TETunnel Name | The name of the TETunnel. |

**Metric, continued**

| Name | Description |
|---|---|
| Tunnel Source Node Name | The name of the tunnel's source node. |
| sgUuid | The name of the Security Group. |

To perform the trend analysis and to generate some useful reports, compare the following relevant metrics for the following reports:

**Attributes**

| Primary | Secondary |
|---|---|
| AvailabilityPct (avg, max, min) | Time Between Failures (avg, max, min) |
| AvailabilityPct (avg, max, min) | Time To Recovery (avg, max, min) |
| Mean Time Between Failures (avg, max, min) | Mean Time To Recovery (avg, max, min) |

The following Topology Filters are available to generate customized reports:

**Topology Filters**

| Filters | Description |
|---|---|
| TETunnel UUID (countdistinct) | The Universally Unique Identifier of the TETunnel. |
| TETunnel Name | Name of the TETunnel. |
| Mean Time Between Failures (avg, max, min) | Mean Time To Recovery (avg, max, min) |
| Tunnel Source Node Name | Name of the tunnel's source node. |

The following **Grouping By** options are available with the TE_Tunnel reports:

**Attributes**

| Name | Description |
|---|---|
| TETunnel Name | The name of the TETunnel. |
| Tunnel Source Node Name | The name of the tunnel's source node. |

# Chapter 6: MPLS_PseudoWire Report

The MPLS_PseudoWire report provides the statistics based on the metric value for the PseudoWires and L2 VPNs on the network. Monitor the status of large-scale enterprise L2 VPNs running over MPLS-enabled networks by using MPLS reports.

The iSPI for MPLS uses the template reports to show the MPLS reports. The available template reports are:

- Calendar Report
- Heat Chart Report
- Chart Detail Report
- Most Changed Report
- Top N Report
- Top N Chart
- Managed Inventory
- Peak Period

**Prerequisites for Viewing the NNM iSPI for MPLS reports:**

Make sure that the following prerequisites are satisfied to enable the MPLS_PseudoWire reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for MPLS
- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the NNM iSPI for MPLS PseudoWire extension pack.

**Accessing the MPLS reports:**

To access the NNM iSPI for MPLS PseudoWire reports from the NNMi console, follow these steps:

1. Log on to the NNMi console.
2. Click **Actions > NNM iSPI Performance > Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.
3. Click iSPI for MPLS >MPLS_PseudoWire to see the list of reports that you can launch using this extension pack.

Use the PseudoWire report to perform the following tasks:

- Monitor the PseudoWires for the available metric values. You can use the drill-down reports to help you conclude the issue faster.
- Rank the PseudoWires based on a metric value.
- Investigate and troubleshoot the PseudoWires with the high exception counts. For example, if you select a PseudoWire that is not available for a long duration, you can find the reason by using PseudoWire Top N report.
- Compare the available percentage, down time, and repair time for a PseudoWire.

**Related Topics:**

MPLS_PseudoWire Report Metrics and Topology Filters

# Calendar Report

The iSPI for MPLS PseudoWire Calendar report enables you to monitor the selected PseudoWires for a specific time range. In addition, the report shows a comparative study of the selected metrics for a specific time range.

Use this report to:

- Monitor and compare the performance of the metric value for a PseudoWire or PseudoWires.
- Identify a specific time period when the selected metric value exceeds the threshold value for a PseudoWire or L2VPN.

**Report Options**

The Calendar report shows the following options:

- Primary Metrics - Select the metric based on which you want to generate the report. The primary metric appears on the left Y-axis of the report.
- Secondary Metrics - Select the metric to compare your report. The secondary metric appears on the right Y-axis of the report.

For information about metric definitions, see MPLS_PseudoWire Metric Definitions.

The controls that appear on the Calendar report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Heat Chart Report

The PseudoWire Heat Chart report helps you to view the traffic performance based on a single metric over a period of time range. The heat chart shows different colors to display the different states of a metric. These states show traffic performance for the selected network element. For example, select a weekly Heat Chart report to find the performance of a metric (availabilitypct(avg) for the selected network element (PseudoWire Name).

Use this report to perform the following tasks:

- Track the hourly performance of the traffic passing through a PseudoWire.
- Quickly isolate and resolve problems affecting in the selected time range by the different colors.

**Report Options**

The Heat Chart report shows the following option:

- MetricSelect the metric based on which you want to view the report.

For information about metric definition, see MPLS_PseudoWire Metric Definitions.

The controls that appear on the Heat Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Chart Detail Report

The PseudoWire Chart Detail report helps you compare the sampled data for any two metrics. For example, select a weekly Chart Detail report to compare the mean time to recovery and mean time between failures for the selected PseudoWire.

Use this report to perform the following tasks:

- Analyze the availability of the PseudoWires based on one unit of time. Each unit of time is called as a **Display Grain**. Make sure to set the display grain greater than the polling interval to view the correct report. You can measure the Display Grain as follows:
  - Five minutes for hourly report
  - One hour for daily report
  - One day for weekly report
  - One week for monthly report
- Compare the metrics for the selected network element over a period of time.
- Detect any persistent problem on the network.

**Report Options**

The Chart Detail report shows the following options:

- Primary Metrics- Select the main metric based on which you want to generate the report. The primary metric appears on the left Y axis of the report.
- Secondary Metrics- Select the metric to compare with the primary metric. The secondary metric appears on the right Y axis of the report.

For information about PseudoWire metric definitions, see MPLS_PseudoWire Metric Definitions.

The controls that appear on the Chart Detail report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Most Changed Report

The PseudoWire Most Changed report helps you to compare one metric over a time frame. In addition, you can find out the growth percentage of the network element based on the selected metric.

MPLS PseudoWire report provides the near real-time reports for the PseudoWire availability on the MPLS - enabled node that help you to monitor and perform trend analysis for the traffic passing through the selected LSR node.

The iSPI for MPLS uses the Performance SPI console and MPLS metrics to generate the MPLS_ PseudoWire report.

Use this report to perform the following tasks:

- Monitor the change in the available time, repair or down time of the selected PseudoWire.
- Find out the change and growth percentage of the selected PseudoWire based on a single metric.

**Report Options**

The Most Changed report shows the following option:

- Top NSelect the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- MetricSelect the metric based on which you want to view the report.
- Grouping BySelect an option to group the report data. You can select more than one option.

For information about PseudoWire metric definitions, see MPLS_PseudoWire Metric Definitions.

The controls that appear on the Most Changed report are as follows:

- Time
- Topology
- Options

- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Managed Inventory Report

The Managed Inventory report enables you to view and count the PseudoWire attributes.

Use this report to perform the following tasks:

- Find the type of topology items (for example, PseudoWire Name).
- Find the count of the topology items.

For information about metric definitions, see MPLS_PseudoWire Metric Definitions.

The controls that appear on the Managed Inventory report are as follows:

- Time
- Topology
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

# Peak Period Report

Peak Period Report ranks the utilization and performance of an PseudoWires during the busiest time of the selected time range.

Using this report, you can:

- Identify the performance and utilization of the PseudoWires during the peak period.
- Identify the nodes that have the highest or lowest performances or utilization levels during the peak period.
- Detect the network path having a common MPLS network performance problem.
- You can compare the performance for multiple Pseudowires during the peak period using this report.

**Report Options:**

- Top N - Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric - Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By - Select one or more network element from the available options.

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS_PseudoWire Metric Definitions.

The controls that appear on the Peak Period report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Report

The PseudoWire Top N report ranks the PseudoWire for the available time. The time when the traffic is passing through a PseudoWire. The report is based on a single metric and grouped by one

or more network element. The Top N report lists the network elements in the descending order; that is from the highest value of the selected metric to the lowest value of the selected metric. For example, if you select a daily Top N report, you can see statistics of the PseudoWires based on the metric value.

The Top N list includes the following:

- Top / Bottom 5 - Shows the Top / Bottom 5 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 10 - Shows the Top / Bottom 10 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 25 - Shows the Top / Bottom 25 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical pseudowires.
- Top / Bottom 50 - Shows the Top / Bottom 50 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical pseudowires.
- Top / Bottom 100 - Shows the Top / Bottom 100 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical pseudowires.

Use this report to perform the following tasks:

- Analyze the available ranks of the network elements based on a metric.
- Monitor the critical and important PseudoWires.
- Compare the network element with the selected metric values for a quick overview of the network. You can find the cause of network performance by using the drill-down reports.

**Report Options**

The Top N report shows the following options:

- Top N - Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric - Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By -Select one or more network element from the available options.

For information about metrics, see MPLS_PseudoWire Metric Definitions.

The controls that appear on the Top N report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Chart Report

Top N Chart ranks nodes based on the metrics selected.

Using this report, you can:

- Analyze PseudoWires that are exhibiting unusual utilization levels.
- Detect health or performance problem.
- Analyze the utilization of the PseudoWires based on a specific time range.
- Compare the performance for multiple interfaces using this report.

**Report Options**

The Top N Chart displays the following options:

- Top N Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By Select one or more network element from the available options.

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS_PseudoWire Metric Definitions.

The controls that appear on the Top N Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Report Metrics and Topology Filters

The following **Metrics** are available with the PseudoWire reports:

**Metric**

| Name | Description |
|---|---|
| AvailabilityPct<br>(average, maximum, minimum) | Total duration for which the status of the selected PseudoWire is up and active. |
| Mean Time Between Failures (MTBF) (average, max, min) | Total time for which the selected PseudoWire was last available by the total number of occurrences when the status of the PseudoWire was down. |
| Mean Time To Recovery (MTTR) (average, max, min) | Total time taken to restore the status of the selected PseudoWire from Down to Up by the total number of occurrences when the status was Down to Up. Unit is seconds. |
| PseudoWire UUID (countdistinct) | The Universally Unique Identifier of the PseudoWire. |

**Metric, continued**

| Name | Description |
|---|---|
| MPLS PseudoWire Name | The name of the PseudoWire. |
| sgUuid | The name of the Security Group. |

To perform the trend analysis and to generate some useful reports, compare the following relevant metrics for the following reports:

**Attributes**

| Primary | Secondary |
|---|---|
| AvailabilityPct (avg, max, min) | Time Between Failures (avg, max, min) |
| AvailabilityPct (avg, max, min) | Time To Recovery (avg, max, min) |
| Mean Time Between Failures (avg, max, min) | Mean Time To Recovery (avg, max, min) |

The following Topology Filters are available to generate customized reports:

**Topology Filters**

| Filters | Description |
|---|---|
| PseudoWire UUID (countdistinct) | The Universally Unique Identifier of the PseudoWire. |
| PseudoWire Name | Name of the PseudoWire. |
| Mean Time Between Failures (avg, max, min) | Mean Time To Recovery (avg, max, min) |

The following **Grouping By** options are available with the PseudoWire reports:

**Attributes**

| Name | Description |
|---|---|
| PseudoWire Name | The name of the PseudoWire. |

# Chapter 7: MPLS_Lsp Report

The MPLS_Lsp report provides the statistics based on the metric value for the Monitored LSPs and LSPs on the network. Monitor the status of large-scale enterprise LSPs running over MPLS-enabled networks by using MPLS reports.

The iSPI for MPLS uses the template reports to show the MPLS reports. The available template reports are:

- Calendar Report
- Heat Chart Report
- Chart Detail Report
- Most Changed Report
- Top N Report
- Top N Chart
- Managed Inventory
- Peak Period

**Prerequisites for Viewing the NNM iSPI for MPLS reports:**

Make sure that the following prerequisites are satisfied to enable the MPLS_Lsp reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for MPLS
- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the NNM iSPI for MPLS_Lsp extension pack.

**Accessing the MPLS reports:**

To access the NNM iSPI for MPLS Lsp reports from the NNMi console, follow these steps:

1. Log on to the NNMi console.
2. Click **Actions > NNM iSPI Performance > Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.
3. Click iSPI for MPLS > MPLS_Lsp to see the list of reports that you can launch using this extension pack.

Use the Monitored LSP report to perform the following tasks:

- Monitor the Monitored LSPs for the available metric values. You can use the drill-down reports to help you conclude the issue faster.
- Rank the Monitored LSPs based on a metric value.
- Investigate and troubleshoot the Monitored LSPs with the high exception counts. For example, if you select a Monitored LSP that is not available for a long duration, you can find the reason by using Monitored LSP Top N report.
- Compare the available percentage, down time, and repair time for a Monitored LSP.

**Related Topics:**

MPLS_Lsp Report Metrics and Topology Filters

# Calendar Report

The iSPI for MPLS Monitored LSP Calendar report enables you to monitor the selected Monitored LSPs for a specific time range. In addition, the report shows a comparative study of the selected metrics for a specific time range.

Use this report to:

- Monitor and compare the performance of the metric value for a Monitored LSP or Monitored LSPs.
- Identify a specific time period when the selected metric value exceeds the threshold value for a Monitored LSP or LSP.

**Report Options**

The Calendar report shows the following options:

- Primary Metrics - Select the metric based on which you want to generate the report. The primary metric appears on the left Y-axis of the report.
- Secondary Metrics - Select the metric to compare your report. The secondary metric appears on the right Y-axis of the report.

For information about metric definitions, see MPLS_Lsp Metric Definitions.

The controls that appear on the Calendar report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Heat Chart Report

The Monitored LSP Heat Chart report helps you to view the traffic performance based on a single metric over a period of time range. The heat chart shows different colors to display the different states of a metric. These states show traffic performance for the selected network element. For example, select a weekly Heat Chart report to find the performance of a metric (availabilitypct(avg) for the selected network element (Monitored LSP Name).

Use this report to perform the following tasks:

- Track the hourly performance of the traffic passing through a Monitored LSP.
- Quickly isolate and resolve problems affecting in the selected time range by the different colors.

**Report Options**

The Heat Chart report shows the following option:

- MetricSelect the metric based on which you want to view the report.

For information about metric definition, see MPLS_Lsp Metric Definitions.

The controls that appear on the Heat Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Chart Detail Report

The Monitored LSP Chart Detail report helps you compare the sampled data for any two metrics. For example, select a weekly Chart Detail report to compare the mean time to recovery and mean time between failures for the selected Monitored LSP.

Use this report to perform the following tasks:

- Analyze the availability of the Monitored LSPs based on one unit of time. Each unit of time is called as a **Display Grain**. Make sure to set the display grain greater than the polling interval to view the correct report. You can measure the Display Grain as follows:
  - Five minutes for hourly report
  - One hour for daily report
  - One day for weekly report
  - One day for monthly report
- Compare the metrics for the selected network element over a period of time.
- Detect any persistent problem on the network.

**Report Options**

The Chart Detail report shows the following options:

- Primary Metrics- Select the main metric based on which you want to generate the report. The primary metric appears on the left Y axis of the report.
- Secondary Metrics- Select the metric to compare with the primary metric. The secondary metric appears on the right Y axis of the report.

For information about Monitored LSP metric definitions, see MPLS_Lsp Metric Definitions.

The controls that appear on the Chart Detail report are as follows:

- Time
- Topology
- Options

- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Most Changed Report

The Monitored LSP Most Changed report helps you to compare one metric over a time frame. In addition, you can find out the growth percentage of the network element based on the selected metric.

MPLS Monitored LSP report provides the near real-time reports for the Monitored LSP availability on the MPLS - enabled node that help you to monitor and perform trend analysis for the traffic passing through the selected LSR node.

The iSPI for MPLS uses the Performance SPI console and MPLS metrics to generate the MPLS_ Monitored LSP report.

Use this report to perform the following tasks:

- Monitor the change in the available time, repair or down time of the selected Monitored LSP.
- Find out the change and growth percentage of the selected Monitored LSP based on a single metric.

**Report Options**

The Most Changed report shows the following option:

- Top N - Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric - Select the metric based on which you want to view the report.
- Grouping By - Select an option to group the report data. You can select more than one option.

For information about Monitored LSP metric definitions, see MPLS_Lsp Metric Definitions.

The controls that appear on the Most Changed report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Managed Inventory Report

The Managed Inventory report enables you to view and count the Monitored LSP attributes.

Use this report to perform the following tasks:

- Find the type of topology items (for example, Monitored LSP Name).
- Find the count of the topology items.

For information about metric definitions, see MPLS_Lsp Metric Definitions.

The controls that appear on the Managed Inventory report are as follows:

- Time
- Topology
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

# Peak Period Report

Peak Period Report ranks the utilization and performance of an Monitored LSPs during the busiest time of the selected time range.

Using this report, you can:

- Identify the performance and utilization of the Monitored LSPs during the peak period.
- Identify the nodes that have the highest or lowest performances or utilization levels during the peak period.
- Detect the network path having a common MPLS network performance problem.
- You can compare the performance for multiple Lsps during the peak period using this report.

**Report Options:**

- Top N Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By Select one or more network element from the available options.

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS_Lsp Metric Definitions.

The controls that appear on the Peak Period report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Report

The Monitored LSP Top N report ranks the Monitored LSP for the available time. The time when the traffic is passing through a Monitored LSP. The report is based on a single metric and grouped by one or more network element. The Top N report lists the network elements in the descending order; that is from the highest value of the selected metric to the lowest value of the selected metric. For example, if you select a daily Top l0 report, you can see statistics of the Monitored LSPs based on the metric value.

The Top N list includes the following:

- Top / Bottom 5 - Shows the Top / Bottom 5 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 10 - Shows the Top / Bottom 10 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 25 - Shows the Top / Bottom 25 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.
- Top / Bottom 50 - Shows the Top / Bottom 50 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.
- Top / Bottom 100 - Shows the Top / Bottom 100 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical Lsps.

Use this report to perform the following tasks:

- Analyze the available ranks of the network elements based on a metric.
- Monitor the critical and important Monitored LSPs.
- Compare the network element with the selected metric values for a quick overview of the network. You can find the cause of network performance by using the drill-down reports.

**Report Options**

The Top N report shows the following options:

- Top N Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric Select the main metric based on which you want to view the report. The primary metric

appears on the left Y axis of the report.

- Grouping By Select one or more network element from the available options.

For information about metrics, see MPLS_Lsp Metric Definitions.

The controls that appear on the Top N report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Chart Report

Top N Chart ranks nodes based on the metrics selected.

Using this report, you can:

- Analyze Monitored LSPs that are exhibiting unusual utilization levels.
- Detect health or performance problem.
- Analyze the utilization of the Monitored LSPs based on a specific time range.
- Compare the performance for multiple Lsps using this report.

**Report Options**

The Top N Chart displays the following options:

- Top N - Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.

- Metric - Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By - Select one or more network element from the available options.

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS_Lsp Metric Definitions.

The controls that appear on the Top N Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Report Metrics and Topology Filters

The following **Metrics** are available with the Monitored LSP reports:

**Metric**

| Name | Description |
|---|---|
| AvailabilityPct<br><br>(average, maximum, minimum) | Total duration for which the status of the selected Monitored LSP is up and active. |
| Mean Time Between Failures (MTBF) (average, max, min) | Total time for which the selected Monitored LSP was last available by the total number of occurrences when the status of the Monitored LSP was down. |
| Mean Time To Recovery (MTTR) (average, max, min) | Total time taken to restore the status of the selected Monitored LSP from Down to Up by the total number of occurrences when the status was Down to Up. Unit is seconds. |

**Metric, continued**

| Name | Description |
|---|---|
| Monitored LSP UUID (countdistinct) | The Universally Unique Identifier of the Monitored LSP. |
| MPLS Monitored LSP Name | The name of the Monitored LSP. |
| sgUuid | The name of the Security Group. |

To perform the trend analysis and to generate some useful reports, compare the following relevant metrics for the following reports:

**Attributes**

| Primary | Secondary |
|---|---|
| AvailabilityPct (avg, max, min) | Time Between Failures (avg, max, min) |
| AvailabilityPct (avg, max, min) | Time To Recovery (avg, max, min) |
| Mean Time Between Failures (avg, max, min) | Mean Time To Recovery (avg, max, min) |

The following Topology Filters are available to generate customized reports:

**Topology Filters**

| Filters | Description |
|---|---|
| Monitored LSP UUID (countdistinct) | The Universally Unique Identifier of the Monitored LSP. |
| Monitored LSP Name | Name of the Monitored LSP. |
| Mean Time Between Failures (avg, max, min) | Mean Time To Recovery (avg, max, min) |

The following **Grouping By** options are available with the Monitored LSP reports:

**Attributes**

| Name | Description |
|---|---|
| Monitored LSP Name | The name of the Monitored LSP. |

# Chapter 8: MPLS_VFI Report

The Network Node Manager iSPI for MPLS Software provides you the VFI extension pack to view and analyze the performance data of the MPLS environment.

The MPLS_VFI report provides the statistics based on the metric value for the VFIs and L2 VPNs on the network. Monitor the status of large-scale enterprise L2 VPNs running over MPLS-enabled networks by using MPLS reports.

The iSPI for MPLS uses the template reports to show the MPLS reports. The available template reports are:

- Calendar Report
- Heat Chart Report
- Chart Detail Report
- Most Changed Report
- Top N Report
- Top N Chart
- Managed Inventory
- Peak Period

**Prerequisites for Viewing the NNM iSPI for MPLS reports:**

Make sure that the following prerequisites are satisfied to enable the MPLS_VFI reporting:

- Install the NNM iSPI Performance for Metrics (iSPI Performance for Metrics) in your deployment environment before installing the iSPI for MPLS
- Verify that the iSPI Performance for Metrics is running before opening the reports provided by the NNM iSPI for MPLS VFI extension pack.

**Accessing the MPLS reports:**

To access the NNM iSPI for MPLS_VFI reports from the NNMi console, follow these steps:

1. Log on to the NNMi console.
2. Click **Actions > NNM iSPI Performance > Reporting-Report Menu** from the menu bar. This launches the NNM iSPI Performance Report Menu page.
3. Click iSPI for MPLS > MPLS_VFI to see the list of reports that you can launch using this extension pack.

Use the VFI report to perform the following tasks:

- Monitor the VFIs for the available metric values. You can use the drill-down reports to help you conclude the issue faster.
- Rank the VFIs based on a metric value.
- Investigate and troubleshoot the VFIs with the high exception counts. For example, if you select a VFI that is not available for a long duration, you can find the reason by using VFI Top N report.
- Compare the available percentage, down time, and repair time for a VFI.

**Related Topics:**

MPLS_VFI Report Metrics and Topology Filters.

# Calendar Report

The iSPI for MPLS_VFI Calendar report enables you to monitor the selected VFIs for a specific time range. In addition, the report shows a comparative study of the selected metrics for a specific time range.

Use this report to:

- Monitor and compare the performance of the metric value for a VFI or VFIs.
- Identify a specific time period when the selected metric value exceeds the threshold value for a VFI or L2VPN.

**Report Options**

The Calendar report shows the following options:

- Primary Metrics - Select the metric based on which you want to generate the report. The primary metric appears on the left Y-axis of the report.
- Secondary Metrics - Select the metric to compare your report. The secondary metric appears on the right Y-axis of the report.

For information about metric definitions, see MPLS_VFI Metric Definitions.

The controls that appear on the Calendar report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Heat Chart Report

The VFI Heat Chart report helps you to view the traffic performance based on a single metric over a period of time range. The heat chart shows different colors to display the different states of a metric. These states show traffic performance for the selected network element. For example, select a weekly Heat Chart report to find the performance of a metric (availabilitypct(avg) for the selected network element (VFI Name).

Use this report to perform the following tasks:

- Track the hourly performance of the traffic passing through a VFI.
- Quickly isolate and resolve problems affecting in the selected time range by the different colors.

**Report Options**

The Heat Chart report shows the following option:

- MetricSelect the metric based on which you want to view the report.

For information about metric definition, see MPLS_VFI Metric Definitions.

The controls that appear on the Heat Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Chart Detail Report

The VFI Chart Detail report helps you compare the sampled data for any two metrics. For example, select a weekly Chart Detail report to compare the mean time to recovery and mean time between failures for the selected VFI.

Use this report to perform the following tasks:

- Analyze the availability of the VFIs based on one unit of time. Each unit of time is called as a Display Grain. Make sure to set the display grain greater than the polling interval to view the correct report. You can measure the Display Grain as follows:
  - Five minutes for hourly report
  - One hour for daily report
  - One day for weekly report
  - One day for monthly report
- Compare the metrics for the selected network element over a period of time.
- Detect any persistent problem in the network.

**Report Options**

The Chart Detail report shows the following options:

- Primary Metrics- Select the main metric based on which you want to generate the report. The primary metric appears on the left Y axis of the report.
- Secondary Metrics- Select the metric to compare with the primary metric. The secondary metric appears on the right Y axis of the report.

For information about VFI metric definitions, see MPLS_VFI Metric Definitions.

The controls that appear on the Chart Detail report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Most Changed Report

The VFI Most Changed report helps you to compare one metric over a time frame. In addition, you can find out the growth percentage of the network element based on the selected metric.

Use this report to perform the following tasks:

- Monitor the change in the available time, repair or down time of the selected VFI.
- Find out the change and growth percentage of the selected VFI based on a single metric.

**Report Options**

The Most Changed report shows the following option:

- Top NSelect the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- MetricSelect the metric based on which you want to view the report.
- Grouping BySelect an option to group the report data. You can select more than one option.

For information about metric definitions, see VFI Metric Definitions.

For more information about the report, see Using the MPLS VFI Most Changed Report

MPLS_Vfi report provides the near real-time reports for the VFI availability on the MPLS - enabled node that help you to monitor and perform trend analysis for the traffic passing through the selected LSR node.

The iSPI for MPLS uses the Performance SPI console and MPLS metrics to generate the MPLS_ Vfi report.

Use the MPLS_Vfi report for the following:

- Monitor the Vfi available time on the network.
- Compare the Vfi available percentage, down time, and repair time.

For information about Vfi metric definitions, see MPLS_Vfi Metric Definitions.

The controls that appear on the Most Changed report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Managed Inventory Report

The Managed Inventory report enables you to view and count the VFI attributes.

Use this report to perform the following tasks:

- Find the type of topology items (for example, VFI Name).
- Find the count of the topology items.

For information about metric definitions, see MPLS_VFI Metric Definitions.

The controls that appear on the Managed Inventory report are as follows:

- Time
- Topology
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

# Peak Period Report

Peak Period Report ranks the utilization and performance of an VFIs during the busiest time of the selected time range.

Using this report, you can:

- Identify the performance and utilization of the VFIs during the peak period.
- Identify the nodes that have the highest or lowest performances or utilization levels during the peak period.
- Detect the network path having a common MPLS network performance problem.
- You can compare the performance for multiple Tunnels during the peak period using this report.

**Report Options:**

- Top N Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By Select one or more network element from the available options.

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS_VFI Metric Definitions.

The controls that appear on the Peak Period report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.

- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Report

The VFI Top N report ranks the VFI for the available time. The time when the traffic is passing through a VFI. The report is based on a single metric and grouped by one or more network element. The Top N report lists the network elements in the descending order; that is from the highest value of the selected metric to the lowest value of the selected metric. For example, if you select a daily Top l0 report, you can see statistics of the VFIs based on the metric value.

The Top N list includes the following:

- Top / Bottom 5 - Shows the Top / Bottom 5 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 10 - Shows the Top / Bottom 10 horizontal bar graphs that provide values in descending or ascending order based on the selected metric.
- Top / Bottom 25 - Shows the Top / Bottom 25 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.
- Top / Bottom 50 - Shows the Top / Bottom 50 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical nodes.
- Top / Bottom 100 - Shows the Top / Bottom 100 horizontal bar graphs that provide values in descending or ascending order based on the selected metric. This helps to monitor traffic passing through the critical Vfis.

Use this report to perform the following tasks:

- Analyze the available ranks of the network elements based on a metric.
- Monitor the critical and important VFIs.
- Compare the network element with the selected metric values for a quick overview of the network. You can find the cause of network performance by using the drill-down reports.

**Report Options**

The Top N report shows the following options:

- Top N Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By Select one or more network element from the available options.

For information about metrics, see MPLS_VFI Metric Definitions.

The controls that appear on the Top N report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Top N Chart Report

Top N Chart ranks nodes based on the metrics selected.

Using this report, you can:

- Analyze VFIs that are exhibiting unusual utilization levels.
- Detect health or performance problem.
- Analyze the utilization of the VFIs based on a specific time range.
- Compare the performance for multiple interfaces using this report.

**Report Options**

The Top N Chart displays the following options:

- Top N Select the type of report from the available rank-list. The rank-list includes top or bottom 5,10, 25, 50, 100 ranks for the selected network element. The ranks are available either in ascending order or descending order.
- Metric Select the main metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
- Grouping By Select one or more network element from the available options.

This report tracks up to six metrics over the selected time period.

For information about metric definitions, see MPLS_VFI Metric Definitions.

The controls that appear on the Top N Chart report are as follows:

- Time
- Topology
- Options
- Show Bookmark
- Help

You can use these controls to view and modify the report details.

See the following topics in the *Using Reports > Change Default Settings* section in the *Network Performance Server/NNM iSPI Performance for Metrics Online Help*:

- To change the Time Controls defaults, see the *Change Time Controls* topic.
- To change the Topology Filters defaults, see the *Set Topology Filters* topic.
- To change the Report Options defaults, see the *Change Report Options* topic.

# Report Metrics and Topology Filters

The following **Metrics** are available with the VFI reports:

**Metric**

| Name | Description |
|---|---|
| AvailabilityPct<br><br>(average, maximum, minimum) | The availability for which the status of the selected VFI is up and active, represented in percentage. |
| Mean Time Between Failures (MTBF) (average, max, min) | Total time for which the selected VFI was last available by the total number of occurrences when the status of the VFI was down. |
| Mean Time To Recovery (MTTR) (average, max, min) | Total time taken to restore the status of the selected VFI from Down to Up by the total number of occurrences when the status was Down to Up. Unit is seconds. |

**Metric, continued**

| Name | Description |
|---|---|
| VFI UUID (countdistinct) | The Universally Unique Identifier of the VFI. |
| MPLS VFI Name | The name of the VFI. |
| sgUuid | The name of the Security Group. |

To perform the trend analysis and to generate some useful reports, compare the following relevant metrics for the following reports:

**Attributes**

| Primary | Secondary |
|---|---|
| AvailabilityPct (avg, max, min) | Time Between Failures (avg, max, min) |
| AvailabilityPct (avg, max, min) | Time To Recovery (avg, max, min) |
| Mean Time Between Failures (avg, max, min) | Mean Time To Recovery (avg, max, min) |

The following Topology Filters are available to generate customized reports:

**Topology Filters**

| Filters | Description |
|---|---|
| VFI UUID (countdistinct) | The Universally Unique Identifier of the VFI. |
| VFI Name | Name of the VFI. |
| Mean Time Between Failures (avg, max, min) | Mean Time To Recovery (avg, max, min) |

The following **Grouping By** options are available with the VFI reports:

**Attributes**

| Name | Description |
|---|---|
| VFI Name | The name of the VFI. |

# Quick View Reports

You can create shortcuts to commonly used reports and quickly view them from the navigation panel using **Mpls ReportViews**.

The NNM iSPI for MPLS provides 9 pre-defined quick view reports, they are:

- Top 10 Chart View for Lsp
- Top 10 Report View for Lsp
- Top 10 Report View for PseudoWire
- Top 10 Report View for TE Tunnel
- Top 10 Report View for VFI
- Top N Report View for VFI Grouped by VPLS
- Top N Reports for PseudoWire Grouped by L2VPN
- Top N Reports for PseudoWire Grouped by VPLS
- Top N Reports for PseudoWire Grouped by VPWS

To create a custom **Mpls ReportViews**, see *NNM iSPI Performance for Metrics Online Help*.

# We appreciate your feedback!

If you have comments about this document, you can contact the documentation team by email. If an email client is configured on this system, click the link above and an email window opens with the following information in the subject line:

**Feedback on Online Help for Reports (Network Node Manager iSPI for MPLS Software 10.00)**

Just add your feedback to the email and click send.

If no email client is available, copy the information above to a new message in a web mail client, and send your feedback to docfeedback@hp.com.