HP Network Node Manager iSPI for IP Multicast Software

For the HP-UX, Linux, Solaris, and Windows ® operating systems

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Report Online Help

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Contents

Overview of the NNM iSPI for IP Multicast Reports

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

The iSPI for IP Multicast has the following extension packs:

- IP_Multicast_Interface
- IP_Multicast_Flow

The extension packs provide you user-friendly reports that help you investigate and troubleshoot the performance of the multicast traffic passing through the network. The extension packs use data collected by the NNM iSPI for IP Multicast.

Extension Pack

Type	Purpose
IP Multicast Interface	Shows reports for IP multicast traffic passing through the multicast nodes and Protocol Independent Multicast (PIM) interfaces on the network.
IP Multicast Flow	Shows reports for the IP multicast flows (Source, Group) passing through the selected nodes on the network.

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

- Identify the multicast traffic passing through a multicast-enabled node or PIM interface for a specific time period.
- Investigate and troubleshoot the multicast network congestion. You can use the drill-down reports to help you conclude the issue faster. You can launch the IP Multicast reports from NNMi reports.
- Rank the network element (node, interface, or flow) based on the metric values.
- Identify the nodes and interfaces that have the highest or lowest performances or utilization levels during the peak period.
- Monitor the important and critical multicast flows in the network.
- Find the multicast traffic patterns in the network.
- Measure the IP multicast traffic flow rates throughout the network.
- Plan the capacity for the Multicast-enabled nodes or interfaces for the traffic passing through the network.

Related Topics:

IP Multicast Interface Reports

IP Multicast Flow Reports

Accessing the NNM iSPI for IP Multicast Reports

The iSPI for IP Multicast reports are available from the HP NNMi iSPI Performance for Metrics Software console. You can access and view the IP Multicast reports after you install Network

Performance Server (NPS) from the NPS/iSPI Performance for Metrics DVD.

The Multicast-specific tabs appear on the Report Menu page. You can use the following tabs to access the IP Multicast reports:

iSPI IP Multicast

- IP_Multicast_Interface

- IP_Multicast_Flow

You can select the policies and metric definitions for the IP Multicast reports from the NNM iSPI Performance for Metrics console. Before you view the NNM iSPI for IP Multicast reports, make sure that the NPS software server is up and running.

To launch the NNM iSPI for IP Multicast report by selecting a node, interface, or flow:

1. From the NNM iSPI for IP Multicast inventory, select a node, flow, or an interface. Based on your selection, the NNM iSPI for IP Multicast opens the appropriate extension packs.
2. From the NNM iSPI for IP Multicast console, select **Actions -> HP NNM iSPI Performance -> Reporting - Report Menu.** NPS home page opens.
3. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Interface** or **IP_Multicast_Flow** in the navigation panel.
4. Select a report type (for example, Calendar or Heat Chart).
5. Modify the default Time Control, Topology Filters, and Options if required.

The IP Multicast report appears with the selected filters such as time controls, metrics, and options.

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

Note: You can also access the NNM iSPI for IP Multicast reports without selecting any node, interface, or flow. If you select a node, flow, or an interface, you need not use the Topology Filters to set the filters again to launch reports.

IP Multicast Interface Reports

The NNM iSPI for IP Multicast Interface Reports help you perform in-depth trend analysis for the multicast traffic passing through the selected PIM interface on the network. The reports show the incoming and outgoing traffic passing through a PIM interface.

The iSPI for IP Multicast uses the following reports:

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

Use the IP Multicast Interface reports to perform the following tasks:

- Monitor the interface utilization with the multicast traffic.
- Capacity planning to allocate the bandwidth for multicast traffic. For example, you can find out the interfaces in the network with maximum multicast traffic or more traffic rate.
- Compare the incoming and outgoing multicast traffic for a PIM interface or interfaces over a period of time. Check the Chart Detail report.
- Investigate and troubleshoot the interfaces with the high exception counts (utilization or traffic rate). For example, you can investigate if the volume of the bytes passing through the selected PIM interface is more or irregular.
- Cross launch to NNMi Interface Health report from the IP Multicast Interface report. For example, select the Top N report for the qualified interface, launch the Interface Health.
- Rank the interface or interfaces based on the selected interface utilization metric. Check the Top N report.
- Monitor the qualified interfaces by traffic volume.

Related Topics:

Accessing the NNM iSPI for IP Multicast Reports

Calendar Report

The iSPI for IP Multicast Interface Calendar report helps you to monitor the multicast traffic passing through the selected PIM interface for a specific time range.

Use this report to perform the following tasks:

- 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 multicast traffic passing through the PIM interface.

Report Options

The Calendar report shows the following options:

- Primary Metrics[1]
- Secondary metrics[2]

For information about metric definitions, see IP Multicast Interface Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Calendar Report.

Using the NNM iSPI for IP Multicast Calendar Report

You can use the calendar report:

[1]Select the metric based on which you want to generate the report. The primary metric appears on the left Y axis of the report.
[2]Select the metric to compare with the primary metric. The secondary metric appears on the right Y axis of the report.

- To observe gradual trends over time
- To verify that an abnormal condition has returned to normal
- To make comparisons

For example, you can use this report to compare the multicast data of the last 31 days, or to compare data for last month to data for the preceding month.

This report also reveals:

- Day of week patterns
- Hour of day patterns

For example, if utilization is spiking on Tuesdays, or if response time issues are occurring daily at 11:00 am, the report will highlight these events. To view the IP Multicast Calendar report, follow these steps:

To view the IP Multicast Calendar report:

1. Navigate to the HP NNMi iSPI Performance for Metrics Software console.[1]
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Interface -> McastInterfaceMetrics**.
3. Select **Calendar** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select the following metrics:
   - **Flow Rate (bps) (avg)** as the primary metric.
   - **Discard Rate (avg)** as the secondary metric.
6. Select **Confirm Selection**.

The IP Multicast Calendar report opens.

Chart Detail Report

The IP Multicast 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 number of octets received and sent out from the selected qualified interface.

Use this report to perform the following tasks:

- Analyze the trend of traffic passing through an interface 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 an hourly report
  - One hour for a daily report

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

  - One day for a weekly report
  - One day for a monthly report
- Compare the incoming and outgoing multicast traffic for a set of interfaces or qualified interfaces over a period of time.
- Detect any persistent problem in the traffic performance.

Report Options

The Chart Detail report shows the following options:

- Primary Metrics [1]
- Secondary Metrics [2]
- Chart or Table[3]

For information about metric definitions, see IP Multicast Interface Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Chart Detail Report.

Using the NNM iSPI for IP Multicast Interface Chart Detail Report

The following example demonstrates the use of the NNM iSPI for IP Multicast Interface Chart Detail report:

Multicast traffic passing through the selected qualified PIM interface is slow or the number of octets outgoing from a qualified PIM interface is less than the octets received by the qualified interface.

Check the IP Multicast Interface report to find the actual bandwidth utilization for multicast traffic. Compare the number of bytes received and sent out from the selected PIM interface.

To view the report:

1. Navigate to the HP NNMi iSPI Performance for Metrics Software console.[4]
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Interface -> McastInterfaceMetrics**
3. Select **Chart Detail** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select the following metrics:

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[1]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.
[2]Select the metric to compare with the primary metric. The secondary metric appears on the right Y axis of the report.
[3]To view the table, click Options and select Table. To view both the chart and the table, click Options and select Chart and Table.
[4]From the NNMi console, click **Actions** -> **HP NNM iSPI Performance** -->**Reporting - Report Menu**

- **Throughput In (Mbps) (max)** as the primary metric.
- **Throughput Out (Mbps) (max)** as the secondary metric.

6. Select **Confirm Selection**.

The IP Multicast Interface Chart Detail report appears.

The IP Multicast Interface report shows the following:

- X axis: Time Interval
- Y axis: Throughput In (Mbps) (max) and Throughput Out (Mbps) (max)

View the significant drop or rise in the number of octets received by the interface for a specific time interval. In addition, compare the incoming and outgoing traffic for the selected PIM interface. Check the NNM iSPI for IP Multicast Inventory views for the incidents and status of the interface.

This report helps you in capacity management. In addition, helps you to find if the interface utilization is more than the expected traffic, you can route the multicast traffic from a different node and PIM interface.

Heat Chart Report

The IP Multicast 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 (avg)** for the selected network element **(Interface Name)**

Use this report to perform the following tasks:

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

Report Options

The Heat Chart report shows the following option:

Metric[1]

For information about metric definitions, see IP Multicast Interface Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Interface Heat Chart Report.

Using the NNM iSPI for IP Multicast Interface Heat Chart Report

The following example demonstrates the use of the NNM iSPI for IP Multicast Heat Chart Report:

Monitor the critical multicast traffic passing through the PIM interface.

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

Check the IP Multicast Interface Heat Chart report to analyze the traffic passing through the selected qualified interface for one day.

To view the IP Multicast Heat Chart report:

1. Navigate to the HP NNM iSPI Performance for Metrics Software console.[1]
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Interface -> McastInterfaceMetrics**.
3. Select **Heat Chart** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select **Utilization In** as a metric.
6. Select **Confirm Selection.**

The IP Multicast Heat Chart report opens.

The sample report shows the different states of the metric (Utilization In (average)) for the selected qualified interface.

Managed Inventory Report

The IP Multicast Interface Managed Inventory report enables you to view the node and interface attributes in the multicast flows.

Use this report to perform the following tasks:

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

For information about metric definitions, see IP Multicast Interface Metric Definitions.

Most Changed Report

The NNM iSPI for IP Multicast 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 example, select a weekly 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:

- Compare the multicast traffic performance based on a metric value.
- Find the growth rate of the traffic flow passing through an interface based on a single metric.

Report Options

The Most Changed report shows the following option:

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[1]From the NNMi console, click **Actions -> HP NNM iSPI Performance --> Reporting - Report Menu**

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

For information about metric definitions, see IP Multicast Interface Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Most Changed Report.

Using the NNM iSPI for IP Multicast Most Changed Report

The following example demonstrates the use of a Most Changed Report:

Compare the changes in the discard rate for the current and previous time period.

Check the IP Multicast Most Changed report to analyze the discard rate.

To view the IP Multicast Most Changed report:

1. Navigate to the HP NNMi iSPI Performance for Metrics Software console.[4].
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Interface -> McastInterfaceMetrics**.
3. Select **Most Changed** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select the following metrics:
   - **Discard Rate** as the primary metric.
   - **Node Name** as the Grouping by metric.
6. Select **Confirm Selection**.

The IP Multicast Most Changed report opens.

Top N Report

The NNM iSPI for IP Multicast Interface Top N report ranks the selected network element based on a single metric. 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 interfaces with the metric value. The report is grouped by the selected interface name and the metric value (**Volume-Flow Bytes (sum)**) in the network.

The Top N list includes the following:

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[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 network element to group the metric. You can select more than one value to group the metric.
[4]From the NNMi console, click **Actions -> HP NNM iSPI Performance --> Reporting - Report Menu**

- 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:

- Detect the reason to find out the network performance for the network element.
- Monitor the critical and important multicast interfaces.
- 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.
- Analyze the historical data to monitor and find the trend in network performance.

Report Options

The report shows the following options:

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

For information about metric definitions, see IP Multicast Interface Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Interface Top N Report.

Using the NNM iSPI for IP Multicast Interface Top N Report

Use the IP Multicast Top N report by following the sample report:

Find the Top 25 Multicast traffic passing through the qualified interfaces.

Check the IP Multicast Interface report to find the Top 25 qualified interfaces in the network.

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[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 an option to group the report data. You can select more than one option.

To view the Top 25 multicast traffic passing through the network:

1. Navigate to the HP NNM iSPI Performance for Metrics Software console.[1]
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Interface -> McastInterfaceMetrics**.
3. Select **Top N** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select the following metrics:
   - **Throughput In (Kbps) (avg)** as the primary metric.
   - **Qualified Interface Name** as Grouping by metric.
6. Select **Confirm Selection**.

The IP Multicast Interface Top N report appears.

Top N Chart Report

Like the Top N report, this report also ranks the multicast nodes and PIM interfaces by the metric you select.

You can use this report to:

- Spot the multicast node or PIM interface that performed at the extremes.
- Analyze the historical data for nodes and interfaces that are exhibiting unusual utilization levels.
- Analyze the utilization of the nodes and interfaces based on a specific time range.
- Detect the over-utilized and under-utilized nodes and interfaces in the network.
- Detect the underlying reason of a persistent problem with a node or interface. You can compare the performance for multiple nodes and interfaces using this report.

Example

Some of the multicast routers in your network are performing poorly. Using this report, you can group the routers reporting highest average SNMP response time. The router reporting the highest response time is ranked first.

Top N Chart Options

The Top N Chart displays the following options:

Top / Bottom N: Select a rank between top or bottom five, ten, 25, 50, 100, all descending, and all ascending for the selected component.

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

Grouping By Organize the report data based on a specific parameter.

To add another metric, click Options and then click 

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

To remove a metric that you have already added, click **Options** and then click 

To select a range of value for the metric, click  and select a range of metric value that the report should consider.

To change the Time Controls defaults, see Time Controls.

To change the Topology Filters defaults, see Topology Filters.

To change the Report Options defaults, see Report Options.

IP Multicast Interface Report Metrics and Topology Filters

The following Metrics and Topology Filters are available in the IP Multicast Interface report.

Metrics

Name	Description
Volume Bytes In (sum)	Total number of bytes received by the selected PIM interface.
Volume Bytes Out (sum)	Total number of bytes sent out from the selected PIM interface.
Volume KB In (sum)	Total number of kilobytes received by the selected PIM interface.
Volume KB Out (sum)	Total number of kilobytes sent out from the selected PIM interface.
Volume MB In (sum)	Total number of megabytes received by the selected PIM interface.
Volume MB Out (sum)	Total number of megabytes sent out from the selected PIM interface.
Throughput In (maximum) (minimum) (average)	The number of octets received by the selected PIM interface. Possible units are bps, Kbps, and Mbps.
Throughput Out (maximum) (minimum) (average)	The number of octets sent out from the selected PIM interface. Possible units are bps, Kbps, and Mbps.
Utilization In (maximum) (minimum) (average)	The bandwidth used by the incoming multicast traffic. This metric helps to evaluate whether an interface in the network is overloaded.
Utilization Out (maximum) (minimum) (average)	The bandwidth used by the outgoing multicast traffic. This metric helps to evaluate whether an interface in the network is overloaded by the multicast traffic.

Topology Filters

Name	Description
Interface Name	The name of the selected multicast PIM interface.
Qualified Interface Name	The name of the selected multicast interface on the multicast-enabled nodes.
Node Name	The name of the multicast-enabled node.
Interface Index	Interface MIB variable for the row number in the interface table (ifTable) for the selected interface. The row number can change with each reboot.
Interface Speed	Interface MIB variable for the interface's bandwidth in bits per second. Depending on the device vendor, this value may indicate current speed or potential speed.
Interface Alias	Optional Interface MIB variable for ifAlias assigned to the interface. This value is set by the device administrator. An ifAlias could be useful if the interface vendor did not provide an ifName value.
McastInterface UUID	The Universally Unique Identifier of the selected multicast interface.
Interface UUID	The Universally Unique Identifier of the selected interface.
Node UUID	The Universally Unique Identifier of the selected node.
Tenant Name	The name of the tenant to which the selected node belongs.
SecurityGroup UUID	The Universally Unique Identifier of the security group associated with the selected node. **Note:** Do not use this attribute to filter or group your reports. This is an internal attribute used for row-level security of user roles.

IP Multicast Flow Reports

The NNM iSPI for IP Multicast Flow Reports help you to monitor the active IP multicast flows (Source, Group) passing through the selected nodes in the network. The reports show the multicast traffic flow (flow packets, packet discards, and flow bytes) passing through a node or nodes.

The NNM iSPI for IP Multicast uses the NNM iSPI Performance for Metrics and NPS report templates to show the reports. The available reports are:

- Calendar Report
- Heat Chart Report
- Chart Detail Report
- Most Changed Report
- Top N Report

- Top N Chart
- Managed Inventory

Use the IP Multicast Flow reports for the following:

- Monitor the multicast flows (S, G) by traffic volume.
- Monitor the most changed or critical flows. Check the Most Changed or Heat Chart report.
- Capacity planning for the multicast flows passing through the multicast-enabled nodes.
- Rank the multicast flows (S, G) based on the selected metrics. Check the Top N report.
- Troubleshoot and investigate the reason for the multicast flow to receive the degraded signal. Check the Top N report and Chart Detail report.

Related Topics:

Accessing the NNM iSPI for IP Multicast Reports

Calendar Report

The IP Multicast Flow Calendar report helps you to monitor the multicast (S, G) passing through the selected node or nodes 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 perform the following tasks:

- Monitor and compare the multicast traffic flow performance over a period of time.
- Identify a specific time period to find out any unusual behavior such as degraded flow signal in the multicast traffic flow.

Report Options

The Calendar report shows the following options:

- Primary Metrics[1]
- Secondary metrics[2]

For information about metric definitions, see IP Multicast Flow Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Calendar Report.

Using the NNM iSPI for IP Multicast Calendar Report

The following example demonstrates the use of the NNM iSPI for IP Multicast Calendar report:

Multicast traffic flow is slow.

[1]Select the metric based on which you want to view the report. The primary metric appears on the left Y axis of the report.
[2]Select the metric to compare with the primary metric. The secondary metric appears on the right Y axis of the report.

Check the IP Multicast Flow Calendar report to analyze the multicast flow (S, G) for a specified period of time passing through a node. If the Discard Rate (avg) is more than the Flow Rate (avg), the multicast traffic is slow.

To view the IP Multicast Calendar report:

1. Navigate to the HP NNMi iSPI Performance for Metrics Software console.[1]
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Flow -> Group Metrics.**
3. Select **Calendar** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select the following metrics:
   - **Flow Rate (bps) (avg)** as the primary metric.
   - **Discard Rate (avg)** as the secondary metric.
6. Select **Confirm Selection**.

The IP Multicast Calendar report opens.

Chart Detail Report

The IP Multicast Flow Chart Detail report helps you to compare the sampled data for any two metrics. For example, select a weekly Chart Detail report to compare the flow rate and discard rate for the selected flow passing through a source node.

Use this report to perform the following tasks:

- Analyze the trend of traffic flow for multiple 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 an hourly report
  - One hour for a daily report
  - One day for a weekly report
  - One day for a monthly report
- Compare the incoming and outgoing multicast traffic flow over a period of time.
- Detect any persistent problem in the multicast traffic.

Report Options

The Chart Detail report shows the following options:

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

- Primary Metrics [1]
- Secondary Metrics [2]

For information about metric definitions, see IP Multicast Flow Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Chart Detail Report .

Using the NNM iSPI for IP Multicast Flow Chart Detail Report

The following example demonstrates the use of the NNM iSPI for IP Multicast Flow Chart Detail report:

Multicast flow rate on the selected node is not accurate. Compare the incoming flow rate and flow volume bytes for the selected node.

Check the IP Multicast Flow report to find the Top 10 nodes with multicast flows in the network. After finding the node with the lowest flow rate, compare the flow rate and total number of bytes passing through a node. This is an example of the drill-down report.

To view the IP Multicast Chart Detail report:

1. Navigate to the HP NNMi iSPI Performance for Metrics Software console.[3]
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Flow -> Group Metrics.**
3. Select **Chart Detail** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select the following metrics:
   - **Throughput In (Mbps) (max)** as the primary metric.
   - **Throughput Out (Mbps) (max)** as the secondary metric.
5. From **Grouping by** option, select **Qualified Interface Name**. You can select more than one metric to group.
6. Select **Confirm Selection**.

The IP Multicast Flow Chart Detail report appears as follows:

- X axis: Time Interval
- Y axis: Flow Rate (bps) (avg) and Volume-Flow Bytes (sum)

Heat Chart Report

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

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[1]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.
[2]Select the metric to compare with the primary metric. The secondary metric appears on the right Y axis of the report.
[3]From the NNMi console, click **Actions -> HP NNM iSPI Performance --> Reporting - Report Menu**

The heat chart shows different colors to show 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 **(Discard Rate (avg))** for the selected flow.

Using this report you can:

- Track the hourly performance of the multicast traffic flow.
- Quickly isolate and resolve problems affecting in the selected time range by different colors.

Report Options

The Heat Chart report shows the following option:

Metric[1]

For information about metric definitions, see IP Multicast Flow Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Heat Chart Report.

Using the NNM iSPI for IP Multicast Flow Heat Chart Report

The following example demonstrates the use of the NNM iSPI for IP Multicast Flow Heat Chart report:

The transmission of the BBC channel (a multicast flow) is disrupted for a week from 1400 Hrs to 1800 Hrs.

Find the nodes participating in the multicast flow. Check the IP Multicast Flow Heat Chart report to analyze the traffic pattern for a week. Check the Flow Rate to find out the reason of the traffic performance.

To view the IP Multicast Heat Chart report:

1. Navigate to the HP NNM iSPI Performance for Metrics Software console.[2]
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Flow -> Group Metrics**.
3. Select **Heat Chart** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select **Utilization In** as a metric.
6. Select **Confirm Selection.**

The IP Multicast Heat Chart report opens.

Managed Inventory

The IP Multicast Flow Managed Inventory report enables you to view the topology flow objects participating in the multicast flows.

Use this report to perform the following tasks:

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[1] Select the metric based on which you want to view the report.
[2] From the NNMi console, click **Actions -> HP NNM iSPI Performance --> Reporting - Report Menu**

- Find the type of topology objects (for example, Group Address, Node Name) in the multicast flow.
- Find the count of the topology objects.

For information about metric definitions, see IP Multicast Flow Metric Definitions.

Most Changed Report

The NNM iSPI for IP Multicast Flow Most Changed report helps you to compare one metric over a time frame to find the changes in the multicast traffic performance. For example, you can find the change in the graph for the metric value (flow rate) for two consecutive days. You can evaluate and conclude the performance of the multicast flows.

Use this report to perform the following tasks:

- Compare the multicast traffic performance based on a metric value.
- Find out the trend of the multicast flow.
- Find the growth rate of the traffic flow passing through an interface 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 IP Multicast Flow Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Most Changed Report.

Using the NNM iSPI for IP Multicast Most Changed Report

The following example demonstrates the use of a Most Changed Report:

Compare the changes in the discard rate for the current and previous time period.

Check the IP Multicast Most Changed report to analyze the multicast flow on the metric value (Discard Rate) over a specified period of time. The higher discard rate results in slower traffic.

To view the IP Multicast Most Changed report:

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[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 network element to group the metric. You can select more than one value to group the metric.

1. Navigate to the HP NNMi iSPI Performance for Metrics Software console.[1].
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Flow -> Group Metrics**.
3. Select **Most Changed** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select the following metrics:
   - **Discard Rate** as the primary metric.
   - **Node Name** as the Grouping by metric.
6. Select **Confirm Selection**.

The IP Multicast Most Changed report opens.

Top N Report

The NNM iSPI for IP Multicast Flow Top N report ranks the selected multicast flow (S, G) based on a single metric. 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 multicast flows. The report is grouped by the selected flow and the metric value (**Volume-Flow Bytes (sum**) in the network.

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:

- 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.
- Monitor the critical and important multicast flows and interfaces.
- Investigate and troubleshoot the flows with the high exception counts (packets discarded and flow rate).
- Analyze the historical data to monitor and find the trend in network performance.

[1]From the NNMi console, click **Actions -> HP NNM iSPI Performance --> Reporting - Report Menu**

Report Options

The report shows the following options:

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

For information about metric definitions, see IP Multicast Flow Metric Definitions.

For more information about how to use the report, see Using the IP Multicast Flow Top N Report.

Using the NNM iSPI for IP Multicast Flow Top N Report

The following example demonstrates the use of a Flow Top N Report:

The picture quality is not good for one of the IP TV channel. How do I troubleshoot this?

Compare the Top 10 IP TV channels (multicast flows) based on the flow rate. Each channel appears as a multicast flow (S, G) in the IP Multicast inventory.

To view the Top 10 multicast flows in the network:

1. Navigate to the HP NNM iSPI Performance for Metrics Software console.[5]
2. On the NPS home page, select **Reports -> iSPI IP Multicast -> IP_Multicast_Flow -> Group Metrics**.
3. Select **Top N** report.
4. Modify the default Time Control and Topology Filters if required.
5. Click **Options** and select the following metrics:
   - **Throughput In (Kbps) (avg)** as the primary metric.
   - **Qualified Interface Name** as Grouping by metric.
6. Select **Confirm Selection**.

The IP Multicast Top N report opens with ten multicast flows with the rank and flow rate.

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[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 an option to group the report data. You can select more than one option.
[5] From the NNMi console, click **Actions -> HP NNM iSPI Performance --> Reporting - Report Menu.**

Top N Chart Report

Like the Top N report, this report also ranks the multicast flows by the metric you select.

You can use this report to:

- Spot the multicast flows that performed at the extremes.
- Investigate and troubleshoot the flows with the high exception counts (packets discarded and flow rate).
- Analyze the historical data for multicast flows that are exhibiting unusual utilization levels.
- Analyze the utilization of the multicast flows based on a specific time range.
- Detect the underlying reason of a persistent problem with a multicast flow. You can compare the performance for multiple multicast flows using this report.

Top N Chart Options

The Top N Chart displays the following options:

Top / Bottom N: Select a rank between top or bottom five, ten, 25, 50, 100, all descending, and all ascending for the selected component.

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

Grouping By Organize the report data based on a specific parameter.

To add another metric, click Options and then click 

To remove a metric that you have already added, click **Options** and then click 

To select a range of value for the metric, click  and select a range of metric value that the report should consider.

To change the Time Controls defaults, see Time Controls.

To change the Topology Filters defaults, see Topology Filters.

To change the Report Options defaults, see Report Options.

IP Multicast Flow Report Metrics and Topology Filters

The following Metrics and Topology Filters are available in the NNM iSPI for IP Multicast Flow report.

Metrics

Name	Description
Volume - Flow Bytes (sum)	Total number of bytes in a selected multicast flow (S, G) in the network. The available units are Bytes, KBytes, and MBytes.
Volume - Flow Packets (sum)	Total number of packets in a selected multicast flow (S, G) in the network.
Discards - Packets (sum)	Total number of packets that reach late to the destination or get dropped for the selected flow (S, G) in the network.

Name	Description
Flow Rate (maximum)(minimum)(average)	Total number of bytes per second for the selected flow (S, G) passing through the nodes in the network. The available units are bps, Kbps, and Mbps.
Flow Packets Rate (maximum)(minimum)(average)	Total number of packets per second for the selected flow (S, G) passing through the nodes in the network.
Discard Rate (maximum)(minimum)(average)	Total number of packets per second that reach late to the destination or get dropped for the selected flow (S, G) in the network.
Receiver Count (maximum)(minimum)(average)	The number of receivers for the selected flow (S,G) in the network. You can generate reports based on this metric only for the time duration for which the flow was monitored.

Topology Filters

Filters	Description
Source Address	An IP Address of the source node.
Flow (S on G)	The multicast flow passing through the selected flow group (source and group) in the network.
Node Name	The name of the multicast-enabled node.
Group Address	A multicast group address is an Internet Protocol (IP) address in the range 224.0.0.0 to 239.255.255.255 that identifies the members of an IP multicast group.