HP Network Node Manager iSPI Performance for Quality Assurance Software

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

Software Version: 9.21

Reports Online Help

Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Oracle Technology — Notice of Restricted Rights

Programs delivered subject to the DOD FAR Supplement are 'commercial computer software' and use, duplication, and disclosure of the programs, including documentation, shall be subject to the licensing restrictions set forth in the applicable Oracle license agreement. Otherwise, programs delivered subject to the Federal Acquisition Regulations are 'restricted computer software' and use, duplication, and disclosure of the programs, including documentation, shall be subject to the restrictions in FAR 52.227-19, Commercial Computer Software-Restricted Rights (June 1987). Oracle America, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

For the full Oracle license text, see the license-agreements directory on the NNMi product DVD.

Copyright Notice

© Copyright 2011 - 2012 Hewlett-Packard Development Company, L.P.

Trademark Notices

DOM4J® is a registered trademark of MetaStuff, Ltd.

HP-UX Release 10.20 and later and HP-UX Release 11.00 and later (in both 32 and 64-bit configurations) on all HP 9000 computers are Open Group UNIX 95 branded products.

Oracle and Java are registered trademarks of Oracle and/or its affiliates.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

Acknowledgements

This product includes software developed by the Apache Software Foundation (http://www.apache.org/). Portions Copyright © 1999-2003 The Apache Software Foundation. All rights reserved.

This product includes ASM Bytecode Manipulation Framework software developed by Institute National de Recherche en Informatique et Automatique (INRIA). Copyright © 2000-2005 INRIA, France Telecom. All Rights Reserved.

This product includes Commons Discovery software developed by the Apache Software Foundation (http://www.apache.org/). Copyright © 2002-2008 The Apache Software Foundation. All Rights Reserved.

This product includes Netscape JavaScript Browser Detection Library software, Copyright © Netscape Communications 1999-2001

This product includes Xerces-J xml parser software developed by the Apache Software Foundation (http://www.apache.org/). Copyright © 1999-2002 The Apache Software Foundation. All rights reserved.

This product includes software developed by the Indiana University Extreme! Lab (http://www.extreme.indiana.edu/). Xpp-3 Copyright © 2002 Extreme! Lab, Indiana University. All rights reserved.

Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.

- Document Release Date, which changes each time the document is updated.

- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

http://h20230.www2.hp.com/selfsolve/manuals

This site requires that you register for an HP Passport and sign in. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

Or click the **New users - please register** link on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Support

Visit the HP Software Support Online web site at:

http://www.hp.com/go/hpsoftwaresupport

This web site provides contact information and details about the products, services, and support that HP Software offers.

HP Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support web site to:

- Search for knowledge documents of interest

- Submit and track support cases and enhancement requests

- Download software patches

- Manage support contracts

- Look up HP support contacts

- Review information about available services

- Enter into discussions with other software customers

- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To register for an HP Passport ID, go to:

http://h20229.www2.hp.com/passport-registration.html

To find more information about access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

Disclaimer for PDF Version of Online Help

This document is a PDF version of the online help. This PDF file is provided so you can easily print multiple topics from the help information or read the online help in PDF format.

Note: Some topics do not convert properly to PDF, causing format problems. Some elements of online help are completely removed from the PDF version. Those problem topics can be successfully printed from within the online help.

Contents

HP Network Node Manager iSPI Performance for Quality Assurance Software Reports

NNM iSPI Performance for QA Reports enable you to the following:

- Monitor the network performance, and drill-down to the root-cause of the problem
- Analyze the trend of the network performance for a specific time period
- Forecast any problem that may arise over a period of time
- Troubleshoot any problem in the network

NNM iSPI Performance for QAenables you to view the reports for the following policy types:

- A parent policy, that is, a policy that contains references to other policies
- An independent policy. that is, a policy that does not refer to any other policies

Multitenant architecture is also integrated with Network Performance Server and restricts a user to view only selective probes and reports. For example, while generating Top N report, a user can view the report of the nodes that can be accessed by the user.

Related Topic

Launching the QA Reports

Launching the CBQoS Reports

Follow the steps as discussed below to view a CBQoS report:

1. Navigate to the HP Network Node Manager iSPI Performance for Metrics console using any of the following methods:

   - Click **Actions > HP NNM iSPI Performance > Reporting-Report Menu** in the NNMi console

     Alternatively you can right-click a CBQoS element in the Quality Assurance inventory on the NNMi console, select **HP NNM iSPI Performance**, and then select **Reporting - Report Menu**.

   - Log in to NPS using `http://<fully-Qualified-serverName>:9300/p2pd/NPS.html portal`.

2. On the NPS home page, select **Reports** tab in the navigation panel.

3. Click **iSPI Quality Assurance**

4. Click **Class_Based_QoS**.

5. Click **CBQoSMetrics**.

6. Select the report type.

7. To modify the default settings of the report:

   Set the time controls for the report. See the topic Time Controls

   Set the options specific to the report. See the topic Options

For more information see the *HP Network Node Manager iSPI Performance for Metrics Online Help*

Before you start viewing the CBQoS reports, make sure that Network Performance Server (NPS) is up and running.

NNM iSPI Performance for QA CBQoS Baseline Sleeve Report

Baseline sleeve report enables you to analyze or forecast when the selected CBQoS metric is likely to violate the threshold value.

You can set a CBQoS threshold value for a metric using the Configure CBQoS Threshold form in the Quality Assurance Configuration Console. For information on how to create CBQoS threshold, see *NNM iSPI Performance for QA CBQoS Threshold Configuration* section in *HP Network Node Manager iSPI Performance for Quality Assurance Software Help for Administrators*.

This report enables you to do the following:

- Analyze if the performance of the selected CBQoS network element is within the normal range for the selected time range

- Detect if the threshold state of the metric is likely to cross the high or low threshold value

- View the details of the metric as a line chart and tabular format as well. For a specific time grain, you can view the time, baseline metric average, exceptions, lower normal and upper normal standard deviations in percentage

NNM iSPI Performance for QA Baseline Sleeve Report Options

The Baseline Sleeve report displays the following option:

Baseline Metric

Example

If you want to know the trend of the Round Trip Time for the last 31 days, and check if there are any baseline exceptions.

- Expand the **Time Control** in the left navigational panel and select `31 days` in the **Last** drop-down list. By default, the time grain is set to `1 day`.

- Click **Submit**

- Select the following option in the Baseline Sleeve Report:

  Baseline Metric: `Round Trip Time(msecs)`

- Click **Confirm Selection**

You can view the legend to analyze the report. Also, you can view the table for accurate details.

Related Topics

Report Topology Filters

Report Time Controls

Report Options

NNM iSPI Performance for QA CBQoS Calendar Report

The CBQoS Calendar report enables you to monitor the network performance between the selected CBQoS nodes, interfaces, or node groups for a specific time range.

Select a specific time range to display a comparative study of the selected CBQoS metrics.

Using this report you can:

- Monitor the performance of the selected CBQoS network elements.

- Analyze the network performance statistics based on various time ranges.

- Compare network performance of multiple CBQoS interfaces, nodes, and node groups based on historical QA data.

Calendar Report Options

The Calendar report displays the following options:

- Primary Metric[1]

- Secondary Metric[2]

For information on CBQoS metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA CBQoS Metrics.

NNM iSPI Performance for QA CBQoS Chart Detail Report

Use the CBQoS Chart Detail report for a performance trend analysis on the CBQoS interfaces, nodes, and node groups, based on historical QA data.

The Chart Detail report displays a comparative analysis of the selected CBQoS metrics for each time unit in the selected time range.

Using this report you can:

---

[1]Enables you to select the main metric based on which you want to generate the report. The primary metric that you select is displayed on the left Y axis of the report.
[2]Enables you to select the metric that would overlay the primary metric. The secondary metric that you select is displayed on the right Y axis of the report.

- Analyze the trend of network performance for multiple CBQoS interfaces, nodes, or node groups based on one unit of time. Each unit of time is called as a **Display Grain**. Each Display Grain is measured as follows:
  - Five minutes for Hourly report
  - One hour for daily report
  - One day for weekly report
  - One day for monthly report
- Detects any deviation in the performance of the CBQoS network elements.
- Detect any persistent problem in the performance of the CBQoS network element.
- Compare network performance of multiple CBQoS interfaces, nodes, and node groups based on historical QA data.

Chart Detail Report Options

The Chart Detail report displays the following options:

- Metric(s) shown on Y1 axis
- Metric(s) shown on Y2 axis

To add another metric, click Options and then click **Add new metric** against the Metric field.

To remove a metric, click Options and then click **Remove metric** against the required metric

You can select a maximum of six reports on each axis.

Select one of the following options:

- Chart and Table
- Chart
- Table

For information on CBQoS metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA CBQoS Metrics.

NNM iSPI Performance for QA CBQoS Heat Chart Report

CBQoS Heat Chart report enables you to view how the performance of selected CBQoS elements gets affected by a varying metric for the selected time range.

This report compares the performance of one CBQoS metric. The Heat Chart report plots the metric measurement based on how the metric varies for the selected time range.

NNM iSPI Performance for QA CBQoS Heat Chart report uses different colors to display different measures of a metric. The legends display different ranges of metric measurement, making it easier for you to spot the concern area.

Using this report you can detect the time range when performances of the selected CBQoS elements were affected adversely because of the fluctuating metric value.

Heat Chart Report Options

The Heat Chart report displays the following option:

Metric[1]

For information on CBQoS metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA CBQoS Metrics.

NNM iSPI Performance for QA CBQoS Managed Inventory Report

Use the CBQoS Managed Inventory report to view the utilization levels of the CBQoS interfaces, nodes, or node groups used in the selected time range.

Using this report you can:

- View the list of CBQoS elements used in your network. NNM iSPI Performance for QA discovers only Cisco CBQoS elements.

- Identify the over-utilized or underutilized elements for a specific time range.

For information on CBQoS metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA CBQoS Metrics.

NNM iSPI Performance for QA CBQoS Headline Report

CBQoS Headline report enables you to analyze and compare the performances of CBQoS managed policies, classes, and interfaces in a single report, as follows:

- Total bytes dropped
  - Pre policy (Before applying the policy)
  - Post policy (After applying the policy)
- Total bytes dropped for the egress and ingress directions, based on the following:
  - Dropped bytes (total bytes)
  - Dropped bytes (kbps) (avg)
- Queue utilization for all the traffic classes, based on the following directions:
  - Ingress
  - Egress
- Bandwidth utilization for all the traffic classes and configured bandwidth, based on the following directions:
  - Ingress
  - Egress
- Packet drop in a traffic stream (policing) (%)

---

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

NNM iSPI Performance for QA CBQoS Most Changed Reports

Use this report to compare and rank the performances of the selected CBQoS interfaces, nodes, or node groups for two different (consecutive) time periods. The sort order is most-changed to least-changed, by default.

Using this report you can:

- Measure the performance fluctuations for the selected CBQoS interfaces, nodes, or node groups.

- Detect the top N CBQoS interfaces, nodes, and node groups having a common performance problem.

Most Changed Report Options

The Most Changed report displays the following options:

- Top N[1]

- Metric[2]

- Grouping By[3]

For information on CBQoS metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA CBQoS Metrics.

NNM iSPI Performance for QA CBQoS Peak Period Report

Use this report to assess the performance of the selected CBQoS interfaces, nodes, or node groups during the peak or busiest hours. This report enables you to do the following:

- Identify the CBQoS elements that have the highest or lowest performances or utilization levels during the peak period based on the ranking order.

- Compare performances of multiple CBQoS elements during the peak period.

- View this report periodically to see when the performances of the selected CBQoS elements were at the extremes and need attention.

Peak Period Report Options

The Peak Period report displays the following options:

---

[1]Select a rank between top or bottom 5, 10, 25, all descending, and all ascending.
[2]Select the metric based on which you want to generate the report. The metric that you select is used to rank the report.
[3]Select a Grouping By option to group the report data based on a specific parameter. Click to add a sub-group.

- Top / Bottom N

- Metric

- Grouping by Time Period

To add another metric, click Options and then click 🔲 **Add new metric** against the Metric field. This report supports upto six metrics.

To remove a metric, click Options and then click ❌ **Remove metric** against the required metric

You can select multiple grouping attribute.

To add a new grouping attribute, click Options select the required **Grouping By** option, and then click 🔲 **Add new grouping**

To remove a grouping, click Options and then click ❌ **Remove grouping** against the required **Grouping By** option

For information on CBQoS metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA CBQoS Metrics.

NNM iSPI Performance for QA CBQoS Threshold Sleeve Report

This report analyzes how close the metric performance value is to the threshold levels. In other words, this report enables you to analyze when the metric will reach the threshold.

Using this report, you can:

- Forecast over-utilization or under-utilization of the selected CBQoS element.

- Detect if the metric performance is about to cross the high and low thresholds.

   For example, if you generate the Threshold Sleeve Chart report for Availability (avg), the chart displays the how close the average CBQoS element availability is to the high and low threshold.

- Save multiple Threshold Sleeve Reports for a specific metric for different time ranges, and analyze the metric performance trend.

This report supports one metric.

- To change the Time Controls defaults, see Change Time Controls in the *Using Reports > Change Default Settings* section.

- To change the Topology Filters defaults, see Set Topology Filters in the *Using Reports > Change Default Settings* section.

- To change the Report Options defaults, see Change Report Options in the *Using Reports > Change Default Settings* section.

NNM iSPI Performance for QA CBQoS Top N Report

This report ranks the selected CBQoS network interfaces, nodes, or node groups by the metric you select. Use this report to spot the CBQoS network elements where the selected network path

reveals an extreme metric value.

You can use this report to go back in time and investigate sampled data for process that are exhibiting unusual utilization levels.

Using this report you can:

- Detect the CBQoS network elements having a common network performance problem

- Compare the performance for multiple CBQoS elements.

Top N Report Options

The Top N report displays the following options:

- Top/Bottom N[1]

- Metric[2]

- Display Time Series Chart[3]

- Grouping By [4]

Tip:

- By default the Top N Report does not display the Time Series Chart.

  Click **Display Time Series Chart** to view the chart.

- Check this report at least once in a day to see which CBQoS element may need attention.

- Check this report periodically to see which CBQoS elements are performing at the extremes and may need attention.

For information on CBQoS metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA CBQoS Metrics.

NNM iSPI Performance for QA CBQoS Top N Table Report

This report ranks CBQoS elements by the metrics you select. Unlike the Top N report, this report does not show any bar charts or time series graphs and does not show the others group. In a large environment, NPS can generate the Top N Table report faster than it can generate the Top N report. If you want to view Top N CBQoS elements in theleast possible time, choose the Top N Table report instead of the Top N report.

Use this report to spot the CBQoS element that performed at the extremes and to analyze historical data for elements that are exhibiting unusual utilization levels. You can:

---

[1]Select a rank between top or bottom 5, 10, 25, 50, 100, all descending, and all in ascending for the selected network element.
[2]Select the metric based on which you want to generate the report. The metric that you select is used to rank the report.
[3]Select **Yes** to view the detailed chart with the table. Select **No** to hide the chart and display only the table.
[4]Select a Grouping By option to group the report data based on a specific parameter. Click **Add new grouping** to add another group.

- Detect the CBQoS network elements having a common network performance problem

- Compare the performance for multiple CBQoS elements.

You can use this report to go back in time and investigate sampled data for process that are exhibiting unusual utilization levels.

Using this report you can:

- Detect the CBQoS network elements having a common network performance problem

- Compare the performance for multiple CBQoS elements.

Top N Report Options

The Top N report displays the following options:

- Top/Bottom N[1]

- Metric[2]

- Grouping By [3]

Tip:

- Check this report at least once in a day to see which CBQoS element may need attention.

- Check this report periodically to see which CBQoS elements are performing at the extremes and may need attention.

For information on CBQoS metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA CBQoS Metrics.

CBQoS Top N Frequency Distribution Report

The Top N Frequency Distribution report ranks CBQoS elements by the metrics you select and shows the distribution of metric values for each collected sample during the selected time range.

You can use this report as an alternative to the Top N report. In addition to providing all the details that are available on the Top N report, this report helps you see how much time the metric value has spent in each bucket.

How to Run the Report

Selecting the Top N Frequency Distribution report in the Reports pane automatically runs the report. The values selected the previous time the report was run are used. You can change the values with the Options menu and customize the report. The following report options are available:

---

[1]Select a rank between top or bottom 5, 10, 25, 50, 100, all descending, and all in ascending for the selected network element.
[2]Select the metric based on which you want to generate the report. The metric that you select is used to rank the report.
[3]Select a Grouping By option to group the report data based on a specific parameter. Click **Add new grouping** to add another group.

- Top / Bottom 'N'

- Metric Series 1 and Metric Series 2

- Grouping by

- Buckets

Report Options

Top / Bottom 'N'

You can select from the following:

Ranking Number	Description
Top 5	Ranks top 5 CBQoS elements by values of the selected metrics
Top 10	Ranks top 10 CBQoS elements by values of the selected metrics
Top 25	Ranks top 25 CBQoS elements by values of the selected metrics
Top 50	Ranks top 50 CBQoS elements by values of the selected metrics
Top 100	Ranks top 100 CBQoS elements by values of the selected metrics
Bottom 5	Ranks bottom 5 CBQoS elements by values of the selected metrics
Bottom 10	Ranks bottom 10 CBQoS elements by values of the selected metrics
Bottom 25	Ranks bottom 25 CBQoS elements by values of the selected metrics.
Bottom 100	Ranks bottom 100 CBQoS elements by values of the selected metrics.
Sort All in Descending	Arranges all CBQoS elements by descending order of metric value
Sort All in Ascending	Arranges all CBQoS elements by ascending order of metric value

Metric Series 1 and Metric Series 2

The Top N Frequency Distribution report enables you to view two serieses of metrics. You can select up to six metrics for each series over the selected time period.

To add a metric, click Add New Metric. To remove a metric, click Remove Metric.

To select a range of values for the metric, click and Apply Filter, and select a range of metric values the report should consider. Make sure that the ranges are in one of the following formats:

- Decimal multiplier (for example, 1 to specify 100%, 0.5 to specify 50%, and so on)

- Range with the % (Percentage) symbol (for example, 100%, 50%, and so on)

For example, to see the top five CBQoS elements where the average utilization is between 10% and 90%, type the following ranges:

- 0.1 or 10% as **Lowest Value**

- 0.9 or 90% as the **Highest Value**

If you do not want to use Metric Series 2, clear the Show Metric Series 2 check box.

The selected CBQoS elements are ranked according to the value of the first metric listed in the Metric Series 1field.

Grouping by:

This option enables you to select a Grouping Attribute.

You can add another grouping by clicking ✚**Add New Grouping**.

When your report completes, you can save it as a Report View. To save it, click the **Keep this version** drop-down list and select **Save as Report View**. The Save as report view window opens. You can specify a name and location. When done, click **OK**.

Buckets

The Top N Frequency Distribution report uses **buckets** to indicate different ranges of metric values.

> *About Buckets*
>
> A bucket represents a range of values. The Top N Frequency Distribution report enables you to define 12 different buckets (or ranges of values) for a metric series—from bucket 0 (**Bkt 0**) through bucket 11 (**Bkt 11**). Each bucket is associated with a color code (in-built, not configurable). The generated report represents the distribution of different value ranges with the color codes that are associated with buckets.

Before launching the report, you must define the ranges by typing an upper limit in the text box provided for each bucket. The first bucket (Bkt 1) represents all values below the specified upper limit.

If you want to create evenly distributed buckets, specify the upper limit for Bkt 11 and Bkt 0, and then click **Spread Values**.

> **Tip:** Since you can define buckets (value ranges) only for each metric series and not for individual metrics, you must select only related metrics in a metric series. You can use the same series and bucket ranges for percentage metrics, but do not place counter metrics (such as Volume) and percentage metrics together on the same series.

NNM iSPI Performance for QA CBQoS Top N Chart Report

The CBQoS Top N chart report ranks the network performance based on the selected CBQoS interfaces, nodes, or node groups and the selected CBQoS metrics.

This report enables you to do the following:

- Track the performance of the selected CBQoS elements by comparing which metric is revealing an extreme metric value when compared to the other metrics.

- Identify the CBQoS elements that reveal extreme metric values. This can be analyzed by selecting multiple CBQoS elements for the metrics.

- Monitor the historical data for the CBQoS network path that exhibits unusual utilization levels. To view the historical data, you need to select the time range accordingly.

Top N Chart Report Options

The Top N Chart displays the following options:

- Top / Bottom N

- Grouping By

- Select Metric(s)

To add another metric, click **Options** and then click 🗎 **Add new metric** against the Metric field. You can select a maximum of six metrics on each axis to generate the report.

To remove a metric, click **Options** and then click ❌ **Remove metric** against the required metric

You can select multiple grouping attribute. To add a new grouping attribute:

Click **Options**, select the required **Grouping By** option and then click 🗎 **Add new grouping**

To remove a grouping, click **Options** and then click ❌ **Remove grouping** against the required **Grouping By** option

Tip:

- Check this report at least once in a day to keep track of the performance of the selected CBQoS elements.

- Check this report periodically to identify the CBQoS elements that need attention.

For information on CBQoS metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA CBQoS Metrics.

NNM iSPI Performance for QA Report Time Controls

The following table lists the Time Controls that you can use to change the default time range and create a report based on the modified time range:

Select the **Relative Start** option as **Yes** or **No** and the Time Control view changes dynamically based on the selection.

If you select the **Relative Start** option as **Yes**, the following filters appear:

Time Range Filters

Name	Description
Last	Select the number of days prior to the current date to view the report. For example, if you intend to view the report for the Last 1 week, you must select 7 days from the drop-down list.
Grain	The time grain for which you intend to view the report. When you set a time range for a report, a predefined display grain is applied to the report.
Time Zone	Select the required time zone for which you intend to view the report.

Select the **Auto Refresh** option to refresh the report data based on the time range that you selected. By default, the Auto refresh option is set to **No**.You can use this option only after you have generated the report at least once.

You can select the required options, and click **Submit**.

If you select the **Relative Start** option as **No**, the following filters appear:

Time Range Filters

Name	Description
Start Date	Select the start date from which you intend to view the report.
Time	Select the start time from which you intend to view the report.
End Date	Select the end date until which you intend to view the report.
Time	Select the end time until which you intend to view the report.
Interval	Select the interval at which you intend to view the trend in the report.
Grain	Select the time grain for which you intend to view the report.
Time Zone	Click the drop-down list to select the required time zone for which you intend to view the report.

You can select the required options, and click **Submit**.

For more information on the Report Time Control, see the topic *Change Time Controls* in the *HP Network Node Manager iSPI Performance for Metrics Online Help*

NNM iSPI Performance for QA Report Options

The following table discusses the various report options available for NNM iSPI Performance for QA reports:

Report Options

Option	Description
Primary Metric	Select the main metric based on which you want to generate the report. Each report must be based on at least one metric. If the report is based upon only one metric, this option is displayed as **Metric**

Report Options, continued

Option	Description
Secondary Metric	Some reports enables you to select up to two metrics. The secondary metric is dependent upon the primary metric. **Example** You selected Period Length as the primary metric and Positive Jitter Upstream as secondary metric. The report displays positive upstream jitter for the period length you specify using the Topology Filters
Top / Bottom N	Select number and order of network elements for the report Available only for Top N, Top N Chart, and Most Changed reports
Grouping By	Select the attribute based on which you want to group the report data.
Display Time Series Chart	By default all reports display time series chart. Select No if you want to disable this option.
Chart /Table Report	Select any one of the following option to view the report on a particular format: • Chart • Table • Chart and Table
Metric(s) Shown on Y1 Axis	This report option is applicable for chart detail report.
Metric(s) Shown on Y2 Axis	This report option is applicable for chart detail report.

Launching the Ping Pair Reports

Follow the steps as discussed below to view a Ping Pair report:

1. Navigate to the HP Network Node Manager iSPI Performance for Metrics console using any of the following methods:

   ▪ Click **Actions > HP NNM iSPI Performance > Reporting-Report Menu** in the NNMi console

   Alternatively you can right-click a ping pair in the Quality Assurance inventory on the NNMi console, select **HP NNM iSPI Performance**, and then select **Reporting - Report Menu**.

   ▪ Log in to NPS using `http://<fully-Qualified-serverName>:9300/p2pd/NPS.html` portal.

2. On the NPS home page, select **Reports** tab in the navigation panel.

3. Click **iSPI Quality Assurance**

4. Click **Ping_Latency**.

5. Click **PingPairMetrics**

6. Select the report type

7. To modify the default settings of the report:

    Set the time controls for the report. See the topic Time Controls

    Set the topology filters for the report. See the topic Topology Filters

    Set the options specific to the report. See the topic Options

For more information see the *HP Network Node Manager iSPI Performance for Metrics Online Help*

Before you start viewing the Ping Pair reports, ensure that Network Performance Server (NPS) is up and running.

Ping Pair Calendar Report

Ping Pair Calendar report enables you to monitor the network performance between the selected ping pair. This report displays a comparative study of the selected metrics for a specific time range.

Using this report you can:

- Monitor the reachability between the ping pair.

- Analyze the interface utilization on source interface based on various time ranges.

- Analyze the packet loss percentage between a selected ping pair based on various time ranges.

- Compare network performance for a ping pair based on historical QA data.

For information on metrics used by NNM iSPI Performance for QAPing Pair reports, see Ping Pair Metrics.

Ping Pair Chart Detail Report

Ping Pair Chart Detail report enables you to perform a trend analysis for the reachability, round trip time, interface utilization, packet loss percentage, and error rate for the selected ping pair.

The Chart Detail report displays a comparative analysis of the selected metrics for each time unit.

For example, if you need to compare how the Packet Loss percentage was affected by variance in the Reachability for each day of the week, you can generate the weekly Chart Detail report for the selected ping pair.

Using this report you can:

- Analyze the trend of network performance between the selected ping pairs based on one unit of time. Each unit of time is called as a **Display Grain**. Each Display Grain is measured as follows:

- Five minutes for Hourly report

- One hour for daily report

- One day for weekly report

- One day for monthly report

- Detect any ups and downs in the network performnace between the selected ping pairs.

- Detect any persistent problem in the network performance .

- Compare network performance for one or more ping pairs.

NNM iSPI Performance for QA Chart Detail Report Options

The Chart Detail report displays the following options:

- Metric(s) shown on Y1 axis

- Metric(s) shown on Y2 axis

You can select a maximum of six reports on each axis.

For information on metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA Metrics.

Ping Pair Heat Chart Report

Ping Pair Heat Chart report enables you to view how the network performance between the selected ping pairs get affected by one varying metric.

A Heat Chart report plots the performance of one metric based on how the metric measurement varies for a selected time range.

Ping Pair Heat Chart report uses different colors to display different measures of the selected metric. The legends display the different ranges of metric measurement, making it easier for you to spot the concern area.

Using this report you can detect the time range when the network performance was affected adversely because of the fluctuating metric value.

Ping Pair Managed Inventory Report

Ping Pair Managed Inventory report enables you to view the ping pairs used in a selected time range.

Using this report you can:

- View the interface utilization for each ping pairs used in your network.

- Analyze if any of the interfaces for the selected ping pairs are over-utilized or underutilized for a specific time range.

- Track the network performances between the selected ping pairs to resolve an existing network problem.

Ping Pair Most Changed Reports

Ping Pair Most Changed report enables you to compare performance for two different (consecutive) time periods and rank the ping pairs by the amount of change. The sort order is most-changed to least-changed, by default.

Using this report you can:

- Measure the performance fluctuations for the selected ping pairs.

- Detect the top N ping pairs having a common network performance problem.

Ping Pair Peak Period Report

Peak Period report allows you to assess the performance of the network during the peak or busiest hours and enables to do the following:

- Identify the ping pairs that have the highest or lowest performances or utilization levels during the peak period based on the ranking order

- Compare the performance of multiple ping pairs during the peak period.

- View this report periodically to see when the network performance is at the extremes and needs attention

You can select multiple grouping attribute for this report.

For information on metrics used by *NNM iSPI Performance for QA.* see *NNM iSPI Performance for QA Metrics*.

Ping Pair Top N Report

This report ranks the selected ping pairs, by the metric you select. Use this report to spot the ping pairs that reveal an extreme metric value. You can use this report to go back in time and investigate sampled data for process that are exhibiting unusual utilization or error levels.

Using this report you can:

- Detect the ping pairs having a common network performance problem.

- Compare the performance for multiple ping pairs.

You can select multiple grouping attributes for this report.

Tip:

- By default, Top N Report is displayed without Time Series Chart.

  Click **Display Time Series Chart** to view the chart with the detail table.

- Check this report once a day to see which process may need special attention.

- Check this report periodically throughout the day to see which process are performing at the extremes and may need special attention.

For information on metrics used by HP Network Node Manager iSPI Performance for Quality Assurance Software, see *NNM iSPI Performance for QA Metrics*.

Ping Pair Top N Table Report

This report ranks ping pairs by the metrics you select. Unlike the Top N report, this report does not show any bar charts or time series graphs and does not show the others group. In a large environment, NPS can generate the Top N Table report faster than it can generate the Top N report. If you want to view Top N ping pairs in theleast possible time, choose the Top N Table report instead of the Top N report.

Use this report to spot the ping pair that performed at the extremes and to analyze historical data for elements that are exhibiting unusual utilization levels. You can:

- Detect the ping pairs having a common network performance problem.
- Compare the performance for multiple ping pairs.

You can select multiple grouping attributes for this report.

Tip:

- Check this report once a day to see which process may need special attention.
- Check this report periodically throughout the day to see which process are performing at the extremes and may need special attention.

For information on metrics used by HP Network Node Manager iSPI Performance for Quality Assurance Software, see *NNM iSPI Performance for QA Metrics*.

Ping Pair Top N Frequency Distribution Report

The Top N Frequency Distribution report ranks ping pairs by the metrics you select and shows the distribution of metric values for each collected sample during the selected time range.

You can use this report as an alternative to the Top N report. In addition to providing all the details that are available on the Top N report, this report helps you see how much time the metric value has spent in each bucket.

How to Run the Report

Selecting the Top N Frequency Distribution report in the Reports pane automatically runs the report. The values selected the previous time the report was run are used. You can change the values with the Options menu and customize the report. The following report options are available:

- Top / Bottom 'N'
- Metric Series 1 and Metric Series 2
- Grouping by
- Buckets

Report Options

Top / Bottom 'N'

You can select from the following:

Ranking Number	Description
Top 5	Ranks top 5 ping pairs by values of the selected metrics
Top 10	Ranks top 10 ping pairs by values of the selected metrics
Top 25	Ranks top 25 ping pairs by values of the selected metrics
Top 50	Ranks top 50 ping pairs by values of the selected metrics
Top 100	Ranks top 100 ping pairs by values of the selected metrics
Bottom 5	Ranks bottom 5 ping pairs by values of the selected metrics
Bottom 10	Ranks bottom 10 ping pairs by values of the selected metrics
Bottom 25	Ranks bottom 25 ping pairs by values of the selected metrics.
Bottom 100	Ranks bottom 100 ping pairs by values of the selected metrics.
Sort All in Descending	Arranges all ping pairs by descending order of metric value
Sort All in Ascending	Arranges all ping pairs by ascending order of metric value

Metric Series 1 and Metric Series 2

The Top N Frequency Distribution report enables you to view two serieses of metrics. You can select up to six metrics for each series over the selected time period.

To add a metric, click **Add New Metric**. To remove a metric, click **Remove Metric**.

To select a range of values for the metric, click and Apply Filter, and select a range of metric values the report should consider. Make sure that the ranges are in one of the following formats:

- Decimal multiplier (for example, 1 to specify 100%, 0.5 to specify 50%, and so on)

- Range with the % (Percentage) symbol (for example, 100%, 50%, and so on)

For example, to see the top five ping pairs where the average utilization is between 10% and 90%, type the following ranges:

- 0.1 or 10% as **Lowest Value**

- 0.9 or 90% as the **Highest Value**

If you do not want to use Metric Series 2, clear the Show Metric Series 2 check box.

The selected ping pairs are ranked according to the value of the first metric listed in the Metric Series 1field.

Grouping by:

This option enables you to select a Grouping Attribute.

You can add another grouping by clicking **Add New Grouping**.

When your report completes, you can save it as a Report View. To save it, click the **Keep this version** drop-down list and select **Save as Report View**. The Save as report view window opens. You can specify a name and location. When done, click **OK**.

Buckets

The Top N Frequency Distribution report uses **buckets** to indicate different ranges of metric values.

About Buckets

A bucket represents a range of values. The Top N Frequency Distribution report enables you to define 12 different buckets (or ranges of values) for a metric series—from bucket 0 (**Bkt 0**) through bucket 11 (**Bkt 11**). Each bucket is associated with a color code (in-built, not configurable). The generated report represents the distribution of different value ranges with the color codes that are associated with buckets.

Before launching the report, you must define the ranges by typing an upper limit in the text box provided for each bucket. The first bucket (Bkt 1) represents all values below the specified upper limit.

If you want to create evenly distributed buckets, specify the upper limit for Bkt 11 and Bkt 0, and then click **Spread Values**.

Tip: Since you can define buckets (value ranges) only for each metric series and not for individual metrics, you must select only related metrics in a metric series. You can use the same series and bucket ranges for percentage metrics, but do not place counter metrics (such as Volume) and percentage metrics together on the same series.

Ping Pair Top N Chart Report

Top N chart report ranks the network performance based on the selected ping pairs and the metrics.

This report enables you to do the following:

- Track the network performance by comparing which metric is revealing an extreme metric value when compared to the other metrics.

- Identify the ping pairs that reveal an extreme metric value. This can be analyzed by selecting multiple ping pairs for the metrics.

- Analyze the historical data for the ping pairs that exhibits unusual utilization levels. To view the historical data, you need to select the time period accordingly

You can select multiple grouping attributes for this report.

Tip:

- Check this report once a day to keep track of the network performance

- Check this report periodically throughout the day to identify the network path that needs special attention.

For information on metrics used by HP Network Node Manager iSPI Performance for Quality Assurance Software. see NNM iSPI Performance for QA Metrics.

HP Network Node Manager iSPI Performance for Quality Assurance Software Report Time Controls

The following table lists the Time Controls that you can use to change the default time range and create a report based on the modified time range:

Select the **Relative Start** option as **Yes** or **No** and the Time Control view changes dynamically based on the selection.

If you select the **Relative Start** option as **Yes**, the following filters appear:

Time Range Filters

Name	Description
Last	Select the number of days prior to the current date to view the report. For example, if you intend to view the report for the Last 1 week, you must select 7 days from the drop-down list.
Grain	The time grain for which you intend to view the report. When you set a time range for a report, a predefined display grain is applied to the report.
Time Zone	Select the required time zone for which you intend to view the report.

Select the **Auto Refresh** option to refresh the report data based on the time range that you selected. By default, the Auto refresh option is set to **No**. You can use this option only after you have generated the report at least once.

You can select the required options, and click **Submit**.

If you select the **Relative Start** option as **No**, the following filters appear:

Time Range Filters

Name	Description
Start Date	Select the start date from which you intend to view the report.
Time	Select the start time from which you intend to view the report.
End Date	Select the end date until which you intend to view the report.
Time	Select the end time until which you intend to view the report.
Interval	Select the interval at which you intend to view the trend in the report.
Grain	Select the time grain for which you intend to view the report.
Time Zone	Click the drop-down list to select the required time zone for which you intend to view the report.

You can select the required options, and click **Submit**.

For more information on the Report Time Control, see the topic *Change Time Controls* in the *HP Network Node Manager iSPI Performance for Metrics Online Help*

HP Network Node Manager iSPI Performance for Quality Assurance Software   Report Topology Filters

The following table lists the Topology Filters that you can use to search information from the topology table and generate customized reports:

Topology Filters for NNM iSPI Performance for QA

Topology Filter Name	Description
QA Probe Name	QA probe names that the HP Network Node Manager iSPI Performance for Quality Assurance Software discovered in the network.
QA Probe Type	Type of the discovered QA probe. The NNM iSPI Performance for QA discovers the following types of QA probes can be of the following types: • UDP • UDP Echo • TCP Connect • ICMP Echo • VoIP
Node Name	Node from which at least one QA probe was initiated
Destination Node	Node on which at least one QA probe was run
Source Site	Site from which at least one QA probe was initiated
Destination Site	Site on which at least one QA probe was run
Site Name	Source or destination site for the QA probes. Displays QA Probes where either the source or the destination site matches the site name(s) selected.
Class of Service	Pre-assigned class of service values for the discovered QA probes
QA Probe UUID	Universally Unique Identifier for the discovered QA probes
Node UUID	Universally Unique Identifier for a source node available in the network.

Topology Filter Name	Description
Period Length	Fixed time range for the type of the report selected. For example, if you selected Weekly report, the period length displays data for past seven days. The period length is calculated as the sum of seconds in the time range. For more information on this attribute, see *HP Network Node Manager iSPI Performance for Metrics Online Help*
Management Server	The name of the NNMi management server for which you want to view the report.
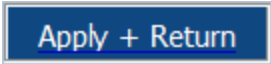
Each topology filter shows the following customization icons:

Customization Icons

Icon	Description
▭	Click this icon to hide the topology filter
🔍	Click this icon to display the Search and Select box.
▦	Click to display the Single Value Select box Allows you to select a single topology filter
▦	Click to display the Multiple Value Select box Allows you to select more than one topology filters. Use CTRL+Click or SHIFT+Click to select multiple topology filters

You can refine the search by selecting a particular option in the topology filter.

Click any of the following after you select the topology filters for your report:

- Apply **Apply**

- Reset **Reset**

- Apply + Return **Apply + Return**

For more information on customizing topology filters, see the topic *Set Topology Filters* in the *HP Network Node Manager iSPI Performance for Metrics Software Online Help*

HP Network Node Manager iSPI Performance for Quality Assurance Software Report Options

The following table discusses the various report options available for NNM iSPI Performance for QA reports:

Report Options

Option	Description
Primary Metric	Select the main metric based on which you want to generate the report. Each report must be based on at least one metric. If the report is based upon only one metric, this option is displayed as **Metric**
Secondary Metric	Some reports enables you to select up to two metrics. The secondary metric is dependent upon the primary metric. **Example** You selected Period Length as the primary metric and Positive Jitter Upstream as secondary metric. The report displays positive upstream jitter for the period length you specify using the Topology Filters
Top / Bottom N	Select number and order of network elements for the report Available only for Top N, Top N Chart, and Most Changed reports
Grouping By	Select the attribute based on which you want to group the report data. NNM iSPI Performance for QA reports display the following grouping attribute: ● QA Probe Name ● QA Probe Type ● Node Name ● Destination Node ● Source Site ● Destination Site ● Class of Service ● QA Probe UUID ● Node Name ● Node UUID

Report Options, continued

Option	Description
Display Time Series Chart	By default all reports display time series chart. Select No if you want to disable this option.
Chart /Table Report	Select any one of the following option to view the report on a particular format: • Chart • Table • Chart and Table
Metric(s) Shown on Y1 Axis	This report option is applicable for chart detail report.
Metric(s) Shown on Y2 Axis	This report option is applicable for chart detail report.

For more information on the available metrics, see NNM iSPI Performance for QA Metrics.

Launching the NNM iSPI Performance for QA Reports

Follow the steps as discussed below to view a QA report:

1. Navigate to the HP Network Node Manager iSPI Performance for Metrics console using any of the following methods:

   ■ Click **Actions > HP NNM iSPI Performance > Reporting-Report Menu** in the NNMi console

   Alternatively you can right-click a QA probe or QA group in the Quality Assurance inventory on the NNMi console, select **HP NNM iSPI Performance**, and then select **Reporting - Report Menu**.

   ■ Log in to NPS using `http://<fully-Qualified-serverName>:9300/p2pd/NPS.html` portal.

2. On the NPS home page, select **Reports** tab in the navigation panel.

3. Click **iSPI Quality Assurance**

4. Click **Quality_Assurance**

5. Click **QAMetrics**

6. Select the report type

7. To modify the default settings of the report:

   Set the time controls for the report. See the topic Time Controls

   Set the topology filters for the report. See the topic Topology Filters

   Set the options specific to the report. See the topic Options

For more information see the *HP Network Node Manager iSPI Performance for Metrics Online Help*

Before you start viewing the QA reports, ensure that Network Performance Server (NPS) is up and running.

HP Network Node Manager iSPI Performance for Quality Assurance Software Baseline Sleeve Report

Baseline sleeve report enables you to analyze or forecast when the metric is likely to violate the threshold value.

This report enables you to do the following:

- Analyze if the network performance is within the normal range for the selected time range

- Detect if the threshold state of the metric is likely to cross the high or low threshold value

- View the details of the metric as a line chart and tabular format as well. For a specific time grain, you can view the time, baseline metric average, exceptions, lower normal and upper normal standard deviations in percentage

NNM iSPI Performance for QA Baseline Sleeve Report Options

The Baseline Sleeve report displays the following option:

Baseline Metric

Example

If you want to know the trend of the Round Trip Time for the last 31 days, and check if there are any baseline exceptions.

- Expand the **Time Control** in the left navigational panel and select `31 days` in the **Last** drop-down list. By default, the time grain is set to `1 day`.

- Click **Submit**

- Select the following option in the Baseline Sleeve Report:

  Baseline Metric: `Round Trip Time(msecs)`

- Click **Confirm Selection**

You can view the legend to analyze the report. Also, you can view the table for accurate details.

  Related Topics

Report Topology Filters

Report Time Controls

Report Options

HP Network Node Manager iSPI Performance for Quality Assurance Software Calendar Report

Quality Assurance (QA) Calendar report enables you to monitor the network performance between the selected nodes, or the set of nodes defined either as node groups, or as sites for a specific time range.

It displays a comparative study of the selected metrics for a specific time range.

Using this report you can:

- Monitor the network performance between multiple sets of nodes, node groups, or sites.

- Analyze the network performance statistics based on various time ranges.

- Compare network performance of two nodes, node groups, or sites based on historical QA data.

NNM iSPI Performance for QA Calendar Report Options

The Calendar report displays the following options:

- Primary Metric[1]

- Secondary Metric[2]

For information on metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA Metrics.

For information on user scenarios on QA Calendar report, see User Scenarios for NNM iSPI Performance for QA Calendar Report.

Related Topics

Report Topology Filters

Report Time Controls

Report Options

HP Network Node Manager iSPI Performance for Quality Assurance Software Chart Detail Report

Quality Assurance (QA) Chart Detail report enables you to perform a trend analysis for the network performance based on historical QA probe data.

The Chart Detail report displays a comparative analysis of the selected metrics for each time unit.

---

[1]Enables you to select the main metric based on which you want to generate the report. The primary metric that you select is displayed on the left Y axis of the report.
[2]Enables you to select the metric that would overlay the primary metric. The secondary metric that you select is displayed on the right Y axis of the report.

For example, if you need to compare how the Round Trip Time was affected by variance in the Two Way Packet Loss for each day of the week, you can generate the weekly Chart Detail report for the selected sites.

You can also select two or more QA nodes, or the set of nodes defined either as node groups, or as sites to generate Chart Detail report.

Using this report you can:

- Analyze the trend of network performance for multiple nodes, node groups, or sites based on one unit of time. Each unit of time is called as a **Display Grain**. Each Display Grain is measured as follows:
  - Five minutes for Hourly report
  - One hour for daily report
  - One day for weekly report
  - One day for monthly report
- Detects any ups and downs in the network performance.
- Detect any persistent problem in the network performance .
- Compare network performance of more than two nodes, node groups, or sites based on historical QA data.

NNM iSPI Performance for QA Chart Detail Report Options

The Chart Detail report displays the following options:

- Metric(s) shown on Y1 axis
- Metric(s) shown on Y2 axis

To add another metric, click Options and then click **Add new metric** against the Metric field.

To remove a metric, click Options and then click **Remove metric** against the required metric

You can select a maximum of six reports on each axis.

Select one of the following options:

- Chart and Table
- Chart
- Table

For information on metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA Metrics.

For information on user scenarios on QA Chart Detail report, see User Scenarios for NNM iSPI Performance for QA Chart Detail Report.

Related Topics

Report Topology Filters

Report Time Controls

Report Options

HP Network Node Manager iSPI Performance for Quality Assurance Software Headline Report

Quality Assurance (QA) Headline report enables you to analyze and compare the different metrics in a single report, as follows:

- Response time (RTT) between the selected source node and destination node, based on the following:
  - Average response (msec)
  - Minimum response and Maximum response (msec)

- Ping latency between the selected source node and destination node, based on the following:
  - Reachability (avg)
  - Target error (avg)
  - Unresponsive target (avg)

- Jitter between the selected source node and destination node, based on the following:
  - Positive jitter (μsecs) (avg)
  - Negative jitter (μsecs) (avg)

- Packet loss between the selected source node and destination node, based on the following:
  - Two way packet loss (%) (avg)

- Mean Opinion Score between the selected source node and destination node.

HP Network Node Manager iSPI Performance for Quality Assurance Software Heat Chart Report

Quality Assurance (QA) Heat Chart report enables you to view how the network performance gets affected by a varying metric for a selected time range.

This report compares the performance of one metric. A Heat Chart report plots the metric measurement based on how the metric varies for a time range.

QA Heat Chart report uses different colors to display different measures of a metric. The legends display the different ranges of metric measurement, making it easier for you to spot the concern area.

Using this report you can detect the time range when the network performance was affected adversely because of the fluctuating metric value.

NNM iSPI Performance for QA Heat Chart Report Options

The Heat Chart report displays the following option:

Metric[1]

---

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

For information on metrics used by NNM iSPI Performance for QA. see NNM iSPI Performance for QA Metrics.

For information on user scenarios on QA Heat Chart report, see User Scenarios for NNM iSPI Performance for QA Heat Chart Report.

Related Topics

Report Topology Filters

Report Time Controls

Report Options

HP Network Node Manager iSPI Performance for Quality Assurance Software Managed Inventory Report

Quality Assurance Managed Inventory report enables you to view the topology elements used in a selected time range.

Using this report you can:

- View the utilization for each topology element used in your network.

- Analyze if any of the elements are over-utilized or underutilized for a specific time range.

- Track the utilization of topology elements to resolve an existing network problem.

- Track the number of QA probes and QA probe types run in your network.

For more information on topology elements, see NNM iSPI Performance for QA Topology Filters.

Related Topics

Report Topology Filters

Report Time Controls

HP Network Node Manager iSPI Performance for Quality Assurance Software Most Changed Reports

Quality Assurance (QA) Most Changed report enables you to compare performance for two different (consecutive) time periods and rank the nodes, node groups, or sites by the amount of change. The sort order is most-changed to least-changed, by default.

Using this report you can:

- Measure the performance fluctuations for the selected nodes, node groups, or sites.

- Detect the top N nodes, node groups, or sites having a common network performance problem.

NNM iSPI Performance for QA Most Changed Report Options

The Most Changed report displays the following options:

- Top N[1]

- Metric[2]

- Grouping By[3]

For information on metrics used by NNM iSPI Performance for QA, see NNM iSPI Performance for QA Metrics.

Related Topics

Report Topology Filters

Report Time Controls

Report Options

HP Network Node Manager iSPI Performance for Quality Assurance Software Peak Period Report

Peak Period report allows you to assess the performance of the network during the peak or busiest hours and enables to do the following:

- Identify the nodes that have the highest or lowest performances or utilization levels during the peak period based on the ranking order

- Compare the performance of multiple nodes during the peak period.

- View this report periodically to see when the network performance is at the extremes and needs attention

- View the metric value in the report

NNM iSPI Performance for QA Peak Period Report Options

The Peak Period report displays the following options:

- Top / Bottom N

- Metric

- Grouping by Time Period

To add another metric, click Options and then click **Add new metric** against the Metric field. This report supports upto six metrics.

To remove a metric, click Options and then click **Remove metric** against the required metric

You can select multiple grouping attribute.

---

[1]Select a rank between top or bottom 5, 10, and 25 all descending, and all in ascending for the selected network element
[2]Enables you to select the metric based on which you want to generate the report. The metric that you select is used to rank the of the report.
[3]Enables you to group the report data based on a specific parameter. Click to add a sub-group.

To add a new grouping attribute, click Options select the required **Grouping By** option, and then click **Add new grouping**

To remove a grouping, click Options and then click **Remove grouping** against the required **Grouping By** option

For information on metrics used by *NNM iSPI Performance for QA.* see *NNM iSPI Performance for QA Metrics.*

Example

If you want to know the time period when the RTT is high for the last one day.

In the Time Control workspace, select the Start Date and the End Date for which you need to view the Peak Period Report.

Select the following options in the Peak Period Report:

- Top /Bottom N - Select `Top 10` from the drop-down list

- Grouping By Time Period - `Hour`

- Select Metric(s) - `Round Trip Time(msecs) (max)`

Click **Confirm Selection**

Related Topics

Report Topology Filters

Report Time Controls

Report Options

NNM iSPI Performance for QA Top N Frequency Distribution Report

The Top N Frequency Distribution report ranks network elements by the metrics you select and shows the distribution of metric values for each collected sample during the selected time range.

You can use this report as an alternative to the Top N report. In addition to providing all the details that are available on the Top N report, this report helps you see how much time the metric value has spent in each bucket.

How to Run the Report

Selecting the Top N Frequency Distribution report in the Reports pane automatically runs the report. The values selected the previous time the report was run are used. You can change the values with the Options menu and customize the report. The following report options are available:

- Top / Bottom 'N'

- Metric Series 1 and Metric Series 2

- Grouping by

- Buckets

Report Options

Top / Bottom 'N'

You can select from the following:

Ranking Number	Description
Top 5	Ranks top 5 elements by values of the selected metrics
Top 10	Ranks top 10 elements by values of the selected metrics
Top 25	Ranks top 25 elements by values of the selected metrics
Top 50	Ranks top 50 elements by values of the selected metrics
Top 100	Ranks top 100 elements by values of the selected metrics
Bottom 5	Ranks bottom 5 elements by values of the selected metrics
Bottom 10	Ranks bottom 10 elements by values of the selected metrics
Bottom 25	Ranks bottom 25 elements by values of the selected metrics.
Bottom 100	Ranks bottom 100 elements by values of the selected metrics.
Sort All in Descending	Arranges all elements by descending order of metric value
Sort All in Ascending	Arranges all elements by ascending order of metric value

Metric Series 1 and Metric Series 2

The Top N Frequency Distribution report enables you to view two serieses of metrics. You can select up to six metrics for each series over the selected time period.

To add a metric, click **Add New Metric**. To remove a metric, click **Remove Metric**.

To select a range of values for the metric, click and Apply Filter, and select a range of metric values the report should consider. Make sure that the ranges are in one of the following formats:

- Decimal multiplier (for example, 1 to specify 100%, 0.5 to specify 50%, and so on)

- Range with the % (Percentage) symbol (for example, 100%, 50%, and so on)

For example, to see the top five elements where the average utilization is between 10% and 90%, type the following ranges:

- 0.1 or 10% as **Lowest Value**

- 0.9 or 90% as the **Highest Value**

If you do not want to use Metric Series 2, clear the Show Metric Series 2 check box.

The selected elements are ranked according to the value of the first metric listed in the Metric Series 1field.

Grouping by:

This option enables you to select a Grouping Attribute.

You can add another grouping by clicking ⊞**Add New Grouping**.

When your report completes, you can save it as a Report View. To save it, click the **Keep this version** drop-down list and select **Save as Report View**. The Save as report view window opens. You can specify a name and location. When done, click **OK**.

Buckets

The Top N Frequency Distribution report uses **buckets** to indicate different ranges of metric values.

About Buckets

A bucket represents a range of values. The Top N Frequency Distribution report enables you to define 12 different buckets (or ranges of values) for a metric series—from bucket 0 (**Bkt 0**) through bucket 11 (**Bkt 11**). Each bucket is associated with a color code (in-built, not configurable). The generated report represents the distribution of different value ranges with the color codes that are associated with buckets.

Before launching the report, you must define the ranges by typing an upper limit in the text box provided for each bucket. The first bucket (Bkt 1) represents all values below the specified upper limit.

If you want to create evenly distributed buckets, specify the upper limit for Bkt 11 and Bkt 0, and then click **Spread Values**.

Tip: Since you can define buckets (value ranges) only for each metric series and not for individual metrics, you must select only related metrics in a metric series. You can use the same series and bucket ranges for percentage metrics, but do not place counter metrics (such as Volume) and percentage metrics together on the same series.

HP Network Node Manager iSPI Performance for Quality Assurance Software Top N Report

This report ranks the selected network path, by the metric you select. Use this report to spot the network path where the QA probes reveal an extreme metric value. You can use this report to go back in time and investigate sampled data for process that are exhibiting unusual utilization levels.

Some of the network elements that you can use to generate this report are as follows:

- Destination Node
- QA Probe Name
- QA Probe Type
- Source Site
- Destination Site
- Class of Service
- QA Probe UUID
- Node UUID

Using this report you can:

- Detect the network path having a common network performance problem

- Detect the underlying reason of a persistent problem with a network path. You can compare the performance for multiple network elements using this report.

    Example

    Some of the destination sites in your network are performing poorly. Using this report, you can group the QA probes reporting highest Round Trip Time (RTT) for each of the destination sites. The QA probe reporting the highest RTT is ranked first.

HP Network Node Manager iSPI Performance for Quality Assurance Software Top N Report Options

The Top N report displays the following options:

- Top/Bottom N[1]

- Metric[2]

- Display Time Series Chart[3]

- Grouping By [4]

Tip:

- By default, Top N Report is displayed without Time Series Chart.

    Click **Display Time Series Chart** to view the chart with the detail table.

- Check this report once a day to see which process may need special attention.

- Check this report periodically throughout the day to see which process are performing at the extremes and may need special attention.

For information on metrics used by HP Network Node Manager iSPI Performance for Quality Assurance Software, see *NNM iSPI Performance for QA Metrics*

Related Topics

Report Topology Filters

Report Time Controls

---

[1]Select a rank between top or bottom 5, 10, 25, 50, 100, all descending, and all in ascending for the selected network element.
[2]Select the metric based on which you want to generate the report. The metric that you select is used to rank the report.
[3]Select **Yes** to view the detail chart with the table. Select **No** to hide the chart and display only the table. The created Top N Report displays with the Time Series Chart.
[4]Enables you to group the report data based on a specific parameter. Click **Add new grouping** to add another group.

HP Network Node Manager iSPI Performance for Quality Assurance Software Top N Table Report

This report ranks network elements by the metrics you select. Use this report to spot the network path where the QA probes reveal an extreme metric value. Unlike the Top N report, this report does not show any bar charts or time series graphs and does not show the others group. In a large environment, NPS can generate the Top N Table report faster than it can generate the Top N report. If you want to view Top N elements in theleast possible time, choose the Top N Table report instead of the Top N report.

Some of the network elements that you can use to generate this report are as follows:

- Destination Node
- QA Probe Name
- QA Probe Type
- Source Site
- Destination Site
- Class of Service
- QA Probe UUID
- Node UUID

Using this report you can:

- Detect the network path having a common network performance problem
- Detect the underlying reason of a persistent problem with a network path. You can compare the performance for multiple network elements using this report.

Example

Some of the destination sites in your network are performing poorly. Using this report, you can group the QA probes reporting highest Round Trip Time (RTT) for each of the destination sites. The QA probe reporting the highest RTT is ranked first.

HP Network Node Manager iSPI Performance for Quality Assurance Software Top N Report Options

The Top N report displays the following options:

- Top/Bottom N[1]
- Metric[2]

---

[1]Select a rank between top or bottom 5, 10, 25, 50, 100, all descending, and all in ascending for the selected network element.
[2]Select the metric based on which you want to generate the report. The metric that you select is used to rank the report.

- Grouping By [1]

Tip:

- Check this report once a day to see which process may need special attention.

- Check this report periodically throughout the day to see which process are performing at the extremes and may need special attention.

For information on metrics used by HP Network Node Manager iSPI Performance for Quality Assurance Software, see *NNM iSPI Performance for QA Metrics*

Related Topics

Report Topology Filters

Report Time Controls

HP Network Node Manager iSPI Performance for Quality Assurance Software Top N Chart Report

Top N chart report ranks the network performance based on the topology elements and the metrics you select.

This report enables you to do the following:

- Track the network performance by comparing which metric is revealing an extreme metric value when compared to the other metrics.

- Identify the network path that reveals an extreme metric value. This can be analyzed by selecting multiple topology elements for the metrics.

- Analyze the historical data for the network path that exhibits unusual utilization levels. To view the historical data, you need to select the time period accordingly

NNM iSPI Performance for QA Top N Chart Report Options

The Top N Chart displays the following options:

- Top / Bottom N

- Grouping By

- Select Metric(s)

To add another metric, click **Options** and then click **Add new metric** against the Metric field. You can select a maximum of six metrics on each axis to generate the report.

To remove a metric, click **Options** and then click **Remove metric** against the required metric

You can select multiple grouping attribute. To add a new grouping attribute:

---

[1]Enables you to group the report data based on a specific parameter. Click **Add new grouping** to add another group.

Click **Options**, select the required **Grouping By** option and then click **Add new grouping**

To remove a grouping, click **Options** and then click **Remove grouping** against the required **Grouping By** option

Tip:

Check this report once a day to keep track of the network performance

Check this report periodically throughout the day to identify the network path that needs special attention.

To change the Time Controls defaults, see Change Time Controls.

To change the Topology Filters defaults, see Set Topology Filters.

To change the Report Options defaults, see Change Report Options.

For information on metrics used by HP Network Node Manager iSPI Performance for Quality Assurance Software. see NNM iSPI Performance for QA Metrics.

Example:

You intend to view a report to compare and find out the average round trip time taken, and the average two way packet loss of the Top 10 ranking QA probes for the past 1 hour.

- Expand the **Time Control** in the left navigational panel and select 1 hour in the **Last** drop-down list. Click **Submit**

Select the following options in the Top N Chart Report:

- Top /Bottom N - `Top 10`

- Grouping By - `QA Probe Name`

- Select Metric(s) - `Round Trip Time(msecs) (avg), and Two Way Packet Loss (%) (avg)`

Click **Confirm Selection**

You can compare the performance of the two selected metrics for the Top 10 ranking QA probes.

Related Topics
Report Topology Filters

Report Time Controls

Report Options

HP Network Node Manager iSPI Performance for Quality Assurance Software Topology Filters

The following table discusses the topology filters that the NNM iSPI Performance for QA uses:

NNM iSPI Performance for QA Topology Elements

Topology Filter Name	Description
QA Probe Name	QA probe names that the HP Network Node Manager iSPI Performance for Quality Assurance Software discovered in the network.
QA Probe Type	Type of the discovered QA probe. The NNM iSPI Performance for QA discovers the following types of QA probes can be of the following types: • UDP • UDP Echo • TCP Connect • ICMP Echo • VoIP
Node Name	Node from which at least one QA probe was initiated
Destination Node	Node on which at least one QA probe was run
Source Site	Site from which at least one QA probe was initiated
Destination Site	Site on which at least one QA probe was run
Site Name	Source or destination site for the QA probes. Displays QA Probes where either the source or the destination site matches the site name(s) selected.
Class of Service	Pre-assigned class of service values for the discovered QA probes
QA Probe UUID	Universally Unique Identifier for the discovered QA probes
Node UUID	Universally Unique Identifier for a source node available in the network.
Period Length	Fixed time range for the type of the report selected. For example, if you selected Weekly report, the period length displays data for past seven days. The period length is calculated as the sum of seconds in the time range. For more information on this attribute, see *HP Network Node Manager iSPI Performance for Metrics Online Help*

Topology Filter Name	Description
Management Server	The name of the NNMi management server for which you want to view the report.

CBQoS Topology Elements

Topology Filter Name	Description
NodeGroup Name	Node group name for the CBQoS element
InterfaceGroup Name	Interface group name for the CBQoS element
Full Qualified Name	Fully Qualified Name (FQDN) for the node where the CBQoS element resides
Traffic Class Name	Class name associated to the CBQoS element
Policy Name	Policy name applied to the CBQoS element
Qualified Policy Name	Qualified policy name applied to the CBQoS element
Direction	The policy applied on the incoming or outgoing traffic for a particular interface.
Traffic Class UUID	Universally Unique Identifier for the traffic class
Policy UUID	Universally Unique Identifier for the policy
Configured Bandwidth	Configured bandwidtyh for the CBQoS element
Source Tenent	Tenant name for the CBQoS element

Ping Pair Topology Elements

Topology Filter Name	Description
NodeGroup Name	Node group name for the source and destination endpoints for the ping pair
InterfaceGroup Name	Interface group name for the source and destination endpoints for the ping pair
Pair Name	Latency pair name with associated source and destination endpoints

Node Name	Name of the source node of the ping pair
Source IP Address	IP address of the source node
Destination IP Address	IP address of the destination node
Destination Node Name	Name of the destination node of the ping pair
Destination Interface Name	Interface name on which the destination node resides
Destination Interface Type	Physical link protocol type of the destination interface
Proxy Node Name	Proxy node name for the ping pair source node
Proxy IP Address	Proxy IP address for the ping pair source node
Proxy Interface Name	Proxy interface name for the ping pair source node
Pair UUID	Universally Unique Identifier for the ping pair

NNMi Topology Elements

Topology Element Name	Description
Qualified Interface Name	
Interface Name	Name of the interface
Interface UUID	Universally Unique Identifier for a interface
Interface Alias	The Alias value assigned to the interface by the device administrator
Interface Type	The physical link protocol type of the interface Possible values used by HP Network Node Manager i Software include Ethernet and frameRelay. **Note:** Interfaces on non-SNMP nodes have an interface type of **other**.
Interface Speed	The interface's bandwidth in bits per second Depending on the device vendor, this value may indicate current speed or potential speed.
SecGroup UUID	Universally Unique Identifier for the security group

For more information on the common metrics used by HP Network Node Manager iSPI Performance for Metrics and NNM iSPI Performance for QA, see HP Network Node Manager iSPI Performance for Metrics *Online Help*.

NNM iSPI Performance for QA Metrics

The following table discusses the metrics used by NNM iSPI Performance for QA:

Metric Name	Description
Reachability • Average • Maximum • Minimum	Total percentage of time the destination network element was reachable from the source network element Measures the physical connectivity between two network elements
Round Trip Time (msecs) • Average • Maximum • Minimum Round Trip Time (µsecs) • Average • Maximum • Minimum	Round Trip Time required for the data packet to travel between the selected source and destination network element Displayed if you configure the QA probe precision to milliseconds or microseconds Round Trip Time (msecs) is displayed in milliseconds Round Trip Time (µsecs) is displayed in microseconds
Round Trip Time - Exception (Sum)	Number of round trip time exceptions for the selected network element. Displays the number of times the round trip time for the selected network element crossed the threshold value
Round Trip Time - Exception Rate • Average • Maximum • Minimum	Rate of round trip time exceptions for the selected network element. Displays the following value: Sum of Round Trip Time - Exception/Sum of Sample Counts
Positive Jitter Source to Destination • Average • Maximum • Minimum	Positive jitter for the data packet to be delivered from the source network element to the destination network element

Metric Name	Description
Positive Jitter Destination to Source ● Average ● Maximum ● Minimum	Positive jitter for the data packet to be delivered from the destination network element to the source network element
Negative Jitter Source to Destination ● Average ● Maximum ● Minimum	Negative jitter for the data packet to be delivered from the source network element to the destination network element
Negative Jitter Destination to Source (Average, Maximum, and Minimum)	Negative jitter for the data packet to be delivered from the destination network element to the source network element
Two Way Jitter ● Average ● Maximum ● Minimum	Jitter for the data packet to travel from the source network element , destination network element and back again
Two Way Jitter- Exception (Sum)	Number of two way jitter exceptions for the selected network element. Displays the number of times the two way jitter amount for the selected network element crossed the threshold value.
Two Way Jitter- Exception Rate ● Average ● Maximum ● Minimum	Rate of two way jitter exceptions for the selected network element. Displays the following value: Sum of Two Way Jitter - Exception/Sum of Sample Counts
Positive Jitter from Source to Destination - Exception (Sum)	Number of positive jitter from source to destination exceptions for the selected network element. Displays the number of times the amount of positive jitter from source to destination for the selected network element crossed the threshold value.

Metric Name	Description
Positive Jitter from Source to Destination - Exception Rate • Average • Maximum • Minimum	Rate of positive jitter from source to destination exceptions for the selected network element. Displays the following value: Sum of Positive Jitter from Source to Destination - Exception/Sum of Sample Counts
Positive Jitter from Destination to Source - Exception (Sum)	Number of positive jitter from destination to source exceptions for the selected network element. Displays the number of times the amount of positive jitter from destination to source for the selected network element crossed the threshold value.
Positive Jitter from Destination to Source - Exception Rate • Average • Maximum • Minimum	Number of positive jitter from destination to source exceptions for the selected network element. Displays the following value: Sum of Positive Jitter from Destination to Source - Exception/Sum of Sample Counts
Negative Jitter from Source to Destination - Exception (Sum)	Number of negative jitter from source to destination exceptions for the selected network element. Displays the number of times the amount of positive jitter from destination to source for the selected network element crossed the threshold value.
Negative Jitter from Source to Destination - Exception Rate • Average • Maximum • Minimum	Rate of negative jitter from source to destination exceptions for the selected network element. Displays the following value: Sum of Negative Jitter from Source to Destination - Exception/Sum of Sample Counts
Negative Jitter from Destination to Source - Exception (Sum)	Number of negative jitter from destination to source exceptions for the selected network element. Displays the number of times the amount of negative jitter from destination to source for the selected network element crossed the threshold value.

Metric Name	Description
Negative Jitter from Destination to Source - Exception Rate • Average • Maximum • Minimum	Number of negative jitter from destination to source exceptions for the selected network element. Displays the following value: Sum of Negative Jitter from Destination to Source - Exception/Sum of Sample Counts
Packet Loss Source to Destination Percentage (Average, Maximum, and Minimum)	Percentage of data loss while the data packet was traveling from the source network element to the destination network element
Packet Loss Destination to Source Percentage (Average, Maximum, and Minimum)	Percentage of data loss while the data packet was traveling from the destination network element to the source network element
Two Way Packet Loss • Average • Maximum • Minimum	Average of the following: • Percentage of data loss while the data packet was traveling from the source network element to the destination network element. • Percentage of data loss while the data packet was traveling from the destination network element to the source network element
Two Way Packet Loss - Exception (Sum)	Total number of two way packet loss exceptions for the selected network element. Displays the number of times the two way packet loss percentage for the selected network element crossed the threshold value.
Two Way Packet Loss- Exception Rate • Average • Maximum • Minimum	Rate of two way packet loss exceptions for the selected network element. Displays the following value: Sum of Two Way Packet Loss - Exception/Sum of Sample Counts
Packet Loss from Source to Destination - Exception (Sum)	Total number of source to destination packet loss exceptions for the selected network element. Displays the number of times the source to destination packet loss percentage for the selected network element crossed the threshold value.

Metric Name	Description
Packet Loss from Source to Destination - Exception Rate • Average • Maximum • Minimum	Rate of source to destination packet loss exceptions for the selected network element. Displays the following value: Sum of Packet Loss from Source to Destination - Exception/Sum of Sample Counts
Packet Loss from Destination to Source - Exception (Sum)	Total number of destination to source packet loss exceptions for the selected network element. Displays the number of times the destination to source packet loss percentage for the selected network element crossed the threshold value.
Packet Loss from Destination to Source - Exception Rate • Average • Maximum • Minimum	Rate of destination to source packet loss exceptions for the selected network element. Displays the following value: Sum of Packet Loss from Destination to Source - Exception/Sum of Sample Counts
Mean Opinion Scores(MOS) • Average • Maximum • Minimum	Grade of quality of the media received after being transmitted and eventually compressed using codecs. Expressed in one number, from 1 to 5, 1 being the worst and 5 the best.
Mean Opinion Scores - Exception (Sum)	Total number of destination to source packet loss exceptions for the selected network element. Displays the number of times the destination to source packet loss percentage for the selected network element crossed the threshold value.
Mean Opinion Scores - Exception Rate • Average • Maximum • Minimum	Rate of destination to source packet loss exceptions for the selected network element. Displays the following value: Sum of Mean Opinion Scores - Exception/Sum of Sample Counts
Sample Count	Total number of polled samples
Unresponsive Target (Sum)	This error occurs when the node does not respond to the SNMP request, which results in SNMP time out.
Target Error (Sum)	This error occurs when one of the target QA probes of a node is not found.

Metric Name	Description
Reboot (Sum)	This error occurs when the node restarts in between the polling cycle or the system uptime is reset.
Invalid Data (Sum)	This error occurs due to failure of authentication or returns invalid values while polling for data.

For more information on the common metrics used by HP Network Node Manager iSPI Performance for Metrics and NNM iSPI Performance for QA, see *HP Network Node Manager iSPI Performance for Metrics Online Help*.

NNM iSPI Performance for QA CBQoS Metrics

The following table discusses the CBQoS metrics used by NNM iSPI Performance for QA:

Metric Name	Description
Pre Policy Bytes ● Sum	Total number of inbound bytes per CBQoS class before the CBQoS policy is applied
Pre Policy Packets ● Sum	Total number of inbound bytes per CBQoS class before the CBQoS policy is applied
Pre Policy Rate (kbps) ● Average ● Minimum ● Maximum	The bit rate of the traffic for each CBQoS class before the CBQoS policy is applied
Post Policy Bytes ● Sum	Total number of inbound bytes per CBQoS class after the CBQoS policy is applied
Post Policy Rate (kbps) ● Average ● Minimum ● Maximum	The bit rate of the traffic for each CBQoS class after the CBQoS policy is applied
Dropped Packets ● Sum	Total number of packets dropped for each CBQoS class after the CBQoS policy is applied This includes packets dropped for all CBQoS actions
Dropped Bytes ● Sum	Total number of bytes dropped for each CBQoS class after the CBQoS policy is applied This includes bytes dropped for all CBQoS actions

Metric Name	Description
Drop Rate (kbps) • Average • Minimum • Maximum	The bit rate of dropped bytes for each CBQoS class after the CBQoS policy is applied This includes drop rate for all CBQoS actions
Police Conform Packets • Sum	Total number of packets that conform to the configurations defined in the action applied on the traffic class
Police Conform Bytes • Sum	Total number of bytes that conform to the configurations defined in the action applied on the traffic class
Police Conform Rate (kbps) • Average • Minimum • Maximum	The bit rate of conforming traffic
Police Exceed Packets • Sum	Total number of packets that exceed the configurations defined in the action applied on the traffic class
Police Exceed Bytes • Sum	Total number of bytes that exceed the configurations defined in the action applied on the traffic class
Police Exceed Rate (kbps) • Average • Minimum • Maximum	The bit rate of traffic exceeding the configurations defined in the action applied on the traffic class
Police Violate Packets • Sum	Total number of packets that violate the configurations defined in the action applied on the traffic class
Police Violate Bytes • Sum	Total number of bytes that violate the configurations defined in the action applied on the traffic class
Police Violate Rate (kbps) • Average • Minimum • Maximum	The bit rate of violating traffic
Shaped Delay Packets • Sum	Total number of packets that have been delayed due to shaping action

Metric Name	Description
Shaped Delay Bytes ● Sum	Total number of bytes that have been delayed due to shaping action
Shaped Drop Packets ● Sum	Total number of packets that have been dropped due to shaping action
Shaped Drop Bytes ● Sum	Total number of bytes that have been dropped due to shaping action
Shape Queue Depth ● Average ● Maximum ● Minimum	The current traffic-shaping queue depth in packets
Queue Discard Bytes ● Sum	Total number of bytes, associated with the selected class, that were dropped due to queuing action
Queue Discard Packets ● Sum	Total number of packets, associated with the selected class, that were dropped due to queuing action
Current Queue Depth ● Average ● Maximum ● Minimum	The current depth of the queue for the selected class
Max Queue Depth ● Average ● Maximum ● Minimum	The maximum depth of the queue for the selected class
RED Drop Bytes ● Sum	Total number of bytes dropped when the following condition was true for the queues associated to all classes: ● Number of packets in the queues is greater than the minimum threshold and less than the maximum threshold
RED Drop Packets ● Sum	Total number of packets dropped when the following condition was true for the queues associated to all classes: ● Number of packets in the queues is greater than the minimum threshold and less than the maximum threshold

Metric Name	Description
RED Tail Drop Bytes • Sum	Total number of bytes dropped when the following condition was true for the queues associated to all classes: • Number of packets in the queues is greater than the maximum threshold value
RED Tail Drop Packets • Sum	Total number of packets dropped when the following condition was true for the queues associated to all classes: • Number of packets in the queues is greater than the maximum threshold value
RED Tail Drop Bytes • Sum	Total number of bytes dropped when the following condition was true for the queues associated to all classes: • Number of packets in the queues is greater than the maximum threshold value
RED Transmit Bytes • Sum	Total number of bytes trasmitted
RED Transmit Packets • Sum	Total number of packets trasmitted
RED Congestion Marked Bytes • Sum	Total number of congestion marked bytes when the following condition was true for the queues associated to all classes: • Number of packets in the queues was greater than the minimum threshold and less than the maximum threshold
RED Congestion Marked Packets • Sum	Total number of congestion marked packets when the following condition was true for the queues associated to all classes: • Number of packets in the queues is greater than the minimum threshold and less than the maximum threshold
RED Average Queue Size (Bytes) • Average • Maximum • Minimum	Average queue size in bytes; computed and used by the WRED algorithm
RED Average Queue Size (Packets) • Average • Maximum • Minimum	Average queue size in packets; computed and used by the WRED algorithm

Metric Name	Description
Packets Precedence Set • Sum	Total number of packets whose Precedence field is marked by Set feature
Packets DSCP Value Set • Sum	Total number of packets whose DSCP field is marked by Set feature
Packets DE Bit Set • Sum	Total number of packets whose Frame Relay DE Bit is marked by Set feature
Per Class Packet Drop (%) • Average • Maximum • Minimum	Percentage of packets dropped for the selected class Calculated using the following formula: `(Total number of dropped packets/ Total number of packets transmitted for the selected class) * 100`
Police Packet Drop (%) • Average • Maximum • Minimum	Percentage of packets dropped for the selected class due to violated or exceeded policies Calculated using the following formula: `(Total number of dropped packets / Number of packets transmitted for the selected class) * 100`
Shape Packet Drop (%) • Average • Maximum • Minimum	Percentage of packets dropped for the selected class due to buffer overflow Calculated using the following formula: `(Total number of dropped packets / Number of packets transmitted for the selected class) * 100`
RED Packet Drop (%) • Average • Maximum • Minimum	Percentage of packets dropped for the selected class by Random Early Detection (RED) algorithm Calculated using the following formula: `(Total number of dropped packets / Number of packets transmitted for the selected class) * 100`
RED Packet Tail Drop (%) • Average • Maximum • Minimum	Percentage of packets dropped due to greater number of packets in the queue than the maximum threshold

Metric Name	Description
Police_Excd_Pct_Pkt_Drop	Percentage of pre-policy packets dropped due to exceeding traffic
	Calculated using the following formula:
	`(Exceeded packets/Pre-policy packets) * 100`
Police_Violate_Pct_Pkt_Drop	Percentage of pre-policy packets dropped due to violating traffic
	Calculated using the following formula:
	`(Violated packets/Pre-policy packets) * 100`
Shape_Pkt_Delay_Pct	Percentage of pre-policy packets delayed due to shaping action
	Calculated using the following formula:
	`(Shape Delay packets/Pre-policy packets) * 100`
Queue_Per_Class_Util	Queue utilization for each class
	Calculated using the following formula:
	`(Post policy bytes rate / Queue configured in kbps)`
	The post policy bytes rate for each class is computed using the following formula:
	`(Post-policy bytes per class / Polling interval in seconds)`
Queue Utilization • Average • Minimum • Maximum	Utilization rate for the queue
	Calculated using the following formula:
	`Queue depth/Maximum queue depth`
Marked IP Precedence Packets (%) • Average • Minimum • Maximum	Percentage of packets marked with IP Precedence for the CBQoS class
	The class sets a configured Precedence value for the incoming IP packets
	Calculated using the following formula:
	`(Packets with the IP precedence bit set / Prepolicy Packets) * 100`

Metric Name	Description
Marked IP DSCP Packets (%) • Average • Minimum • Maximum	Percentage of packets marked with IP DSCP bits for the CBQoS class The class sets a configured DSCP value for the incoming IP packets Calculated using the following formula: `(Packets with the IP DSCP bit set / Prepolicy Packets) * 100`
Marked IP FRDE Packets (%) • Average • Minimum • Maximum	Percentage of packets marked with IP FRDE bits for the CBQoS class The class sets a configured FRDE value for the incoming IP packets Calculated using the following formula: `(Packets with the IP FRDE bit set / Prepolicy Packets) * 100`
Bandwidth Utilization (%) • Average • Minimum • Maximum	Percentage of the bandwidth utilized by the CBQoS class Available only when the bandwidth reservation per class is measured as one of the following values: • As absolute value • As a percentage of the total bandwidth Calculated using the following formula: `(PostPolicyBytes in kbps / Bandwidth configured in kbps) * 100`

All counters used in the above list of metrics are 64 bits counters.

NNM iSPI Performance for QA Ping Pair Metrics

The following table discusses the ping pair metrics used by NNM iSPI Performance for QA:

Metric Name	Description
Reachability • Average • Maximum • Minimum	Specifies whether the destination network element was reachable from the source network element Measures the physical connectivity between a ping pair made of two network elements

Metric Name	Description
Round Trip Time (msecs) • Average • Maximum • Minimum	Specifies the Round Trip Time required for the ICMP control packet to travel between the selected source and destination network element
Packet Loss (%)	Specifies the percentage of data loss while the ICMP control packet was traveling from the source network element to the destination network element Calculated using the following formula: (ciscoPingSentPackets[1] - ciscoPingReceivedPackets[1])
IfInBoundUtil (%)	Percentage of interface utilization for incoming ICMP control packets. Calculated using the following formula: `(ΔifInOctects x 8 x 100) / (Numbers of seconds in Δ x ifSpeed)`
IfOutBoundUtil (%)	Percentage of interface utilization for outgoing ICMP control packets. Calculated using the following formula: `(ΔifOutOctects x 8 x 100) / (Numbers of seconds in Δ x ifSpeed)`
BandwitdhUtil (%)	Percentage of interface utilization for incoming and outgoing ICMP control packets. Calculated using the following formula: • For half duplex media: `(ΔifInOctects + ΔifOutOctects x 8 x 100) / (Numbers of seconds in Δ x ifSpeed)` • For full-duplex media: `(Max (ΔifInOctects, ΔifOutOctects) x 8 x 100) / (Numbers of seconds in Δ x ifSpeed)` To generate meaningful reports based on this metric, group the reports based on Interface, Policy, Direction, and Traffic class topology filters.

[1]The number of ping packets sent to the target network element
[1]The number of ping packets that have been received from the target network element

Metric Name	Description
Errors - Packets In (Sum)	Total number of inbound ICMP control packets that contained errors and failed to be delivered at the destination element of the ping pair.
Errors - Packets Out (Sum)	Total number of outbound ICMP control packets that contained errors and failed to be delivered at the destination element of the ping pair.
Errors - Packets (Sum)	Total number of inbound and outbound ICMP control packets that contained errors and failed to be delivered at the destination element of the ping pair. Calculated using the following formula: (ifInErrors[1] + IfOutErrors[1])

By default NNM iSPI Performance for QA collects the ping metrics at an interval of five minutes.

For Gigabit interfaces, NNM iSPI Performance for QA uses 64 bit counters.

For more information on the common metrics used by HP Network Node Manager iSPI Performance for Metrics and NNM iSPI Performance for QA, see *HP Network Node Manager iSPI Performance for Metrics Online Help*.

HP Network Node Manager iSPI Performance for Quality Assurance Software Metrics: MPLS Specific

The following table discusses the metrics that the NNM iSPI Performance for QA uses, while it is integrated with NNMi Smart Plug-in for MPLS(MPLS iSPI).

Note: These are the additional metrics that QA SPI uses, while integrated with MPLS iSPI. See, NNM iSPI Performance for QA Metrics for the list of metrics used by QA SPI.

Metric Name	Description
QA MPLS UUID	Universally Unique Identifier for the discovered QA extension pack integrated to MPLS.
VRF Name	Name of the Virtual Routing and Forwarding (VRFs) table that belong to one of the Virtual Private Networks (VPN) that the MPLS manages
VRF UUID	Universally Unique Identifier for a VRF
VPN Name	Name of the VPN

---

[1]Total number of inbound errors
[1]Total number of outbound errors

For more information on the metrics used by NNMi Smart Plug-in for MPLS , see NNMi Smart Plug-in for MPLS *Online Help*.

Use Case for HP Network Node Manager iSPI Performance for Quality Assurance Software Calendar Report

Module	QA Calendar Report
Use Case Name	Using QA Calendar Report
Use Case Author	HP Software

Summary

This use case gives you an overview of how you can use the Quality Assurance (QA) Calendar report to measure your network performances.

Application

NNM iSPI Performance for QA Reports using NNM iSPI Performance for Metrics Software console

Overview

Traffic was slow between two Sites for past one week

QA Calendar Report enables you to detect any persistent problem in the network.

Actor

- Network Administrator
- Capacity Planner
- Business Manager

Pre Condition

At least two sites should exist for this use case. We select SiteA and SiteB for this use case.

We need to check the QA Calendar report to analyze how the round trip time got affected by the variance in the two way packet loss over a specified period of time. The round trip time may increase due to high rate of packet loss, causing slow traffic.

Viewing QA Calendar Report

- Process Initialization

- Process

- Report Analysis

- GUIs Referenced

Assumptions

- User has administrative privileges to NNMi.

- User is analyzing the variations in the Round Trip Time (RTT) as a result of packet loss for SiteA and SiteB.

- Both SiteA and SiteB are created in the NNM iSPI Performance for QASite Configuration form.

Initialization

1. Log on to HP Network Node Manager iSPI Performance for Metrics console using your username and password.

2. On the NPS home page, select **Reports**tab in the navigation panel. Alternatively, click **Actions > HP NNM iSPI Performance > Reporting-Report Menu**,in the NNMi console.

3. Click **iSPI Quality Assurance**

4. Click **Quality Assurance**

5. Click **QAMetrics**

6. Select a report type.

7. Modify the default report settings, if required

View QA Calendar Report

This section describes all the typical interactions that take place between the actor and this use case.

Format: If the actor selects `<selection>`, the system will request the actor to enter information.

To view the QA Calendar report, follow the steps as discussed below:

1. Expand the iSPI Quality Assurance tab.

2. Expand **Time Control**.

   a. Select the **Relative Start** option as **Yes** to select a time range that is relative to the most recent data, or select **No** option to select a fixed time range.

   b. If you set **Relative Start** option as **Yes**, you an select one of the following time ranges for the Calendar Report:

      ○ **Last 24 hours** for the report showing information for last 24 hours

      ○ **Last 7 Days**for the report showing information for past seven days

      ○ **Last 30 days** for the report showing information for past 30 days

      In this case, you can select **7 days**

   c. Alternatively, if you set **Relative Start** option as **No**, you an select the **Start Date and Time**, and **End Date and Time** as well.

   d. Select the **Time Zone**, and click **Submit**.

3. Expand **Topology Filters**, and click **Launch Topology Selector**.

4. Select the source and destination sites, and click **Apply**.

5. In the Calendar Report, click **Options** and select the following metrics:

   ▪ **Two Way Packet Loss (%) (avg)** as the primary metric.

   ▪ **Round Trip Time (msec) (avg)** as the secondary metric.

6. Click **Confirm Selection**.

The QA Calendar report opens displaying the weekly comparative study between Average Percentage of Two Way Packet Loss and Average Round Trip Time.

Analyzing the QA Calendar Report

The QA Calendar Report displays the following information:

- X axis: Time interval

- Left Y axis: Average percentage of two way packet loss

- Right Y axis: Average round trip time in milliseconds

We can derive the following points by analyzing the report information:

- Within a specific range of time, if the average two way packet loss increases beyond a valid range, the round trip time is also affected adversely.

- When the two way packet loss increases to the highest level, the round trip time also increases to its highest level.

   Some of the reasons that may cause high two way packet loss can be signal degradation over the network medium or over-saturated network links.

You can perform the following tasks to find out more about how the high two way packet loss affects the network:

- Compare the Calendar Report information with the Chart Detail report on round trip time for data packets, which is directly affected by two way packet loss.

  The Chart Detail report displays the measure of the selected metric for each time unit (in this case one day) as a grain, making it easier for you to understand the ups and downs in the metric performance.

  Select **Two Way Packet Loss (%) (avg)** as the primary metric, and **Round trip Time (msec) (avg)** as the secondary metric.

- Analyze the Chart Detail Report information and find out the day on which the two way packet loss was the highest.

- View the Top N report for that day to find the root cause of the problem.

GUIs Referenced

- HP Network Node Manager iSPI Performance for Metrics console
- NNM iSPI Performance for QA Calendar Report
- NNM iSPI Performance for QA Chart Detail Report
- NNM iSPI Performance for QA Top N Report

System Interface

HP Network Node Manager iSPI Performance for Metrics console

Use Case for HP Network Node Manager iSPI Performance for Quality Assurance Software Chart Detail Report

Module	QA Chart Detail Report
Use Case Name	Using QA Chart Detail Report
Use Case Author	HP Software

Summary

This use case gives you an overview of how you can use the Quality Assurance (QA) Chart Detail report to measure your network performances.

Application

 NNM iSPI Performance for QA Reports using NNM iSPI Performance for Metrics Software console

Overview

Traffic was slow between two Sites for past one week

QA Chart Detail Report enables you to perform the following:

- Analyze the fluctuations in the network performance over a specific period of time.

- Compare the measures of two metrics and analyze how one metric was affected by the performance of the other metric.

Actor

- Network Administrator

- Capacity Planner

- Business Manager

Pre Condition

At least two sites should exist for this use case. We select `SiteA` and `SiteB` for this use case.

We need to check the QA Chart Detail report to analyze the average two way packet loss and it's effect on the average round trip time for each day of the week.

This report displays each day of the week as a **Display Grain** and measures the performance of the selected metrics for that display grain.

Viewing QA Chart Detail Report

- Process Initialization
- Process
- Report Analysis
- GUIs Referenced

Assumptions

- User has administrative privileges to NNMi.
- User is analyzing the variations in the Round Trip Time (RTT) as a result of packet loss for SiteA and SiteB.
- Both SiteA and SiteB are created in the NNMi Performance SPI for Quality Assurance Site Configuration form.

Initialization

1. Log on to HP Network Node Manager iSPI Performance for Metrics console using your username and password.

2. On the NPS home page, select **Reports** tab in the navigation panel. Alternatively, click **Actions > HP NNM iSPI Performance > Reporting-Report Menu**, in the NNMi console.

3. Click **iSPI Quality Assurance**

4. Click **Quality Assurance**

5. Click **QAMetrics**

6. Select a report type.

7. Modify the default report settings, if required

View Chart Detail Report

To view the QA Chart Detail report, follow the steps as discussed below:

This section describes all the typical interactions that take place between the actor and this use case.

Format: If the actor selects `<selection>`, the system will request the actor to enter information.

To view the QA Chart Detail report, follow the steps as discussed below:

1. Expand the Quality Assurance tab.

2. Expand **Time Control**.

   a. Select the **Relative Start** option as **Yes** to select a time range that is relative to the most recent data, or select **No** option to select a fixed time range.

   b. If you set **Relative Start** option as **Yes**, you an select one of the following time ranges for the Chart Detail Report:

      ○ **Last 1 hour** for the report showing information for past one hour

      ○ **Last 24 hours** for the report showing information for past one day

      ○ **Last 7 Days** for the report showing information for past seven days

      ○ **Last 30 days** for the report showing information for past 30 days

      In this case, you can select **7 days**.

   c. Alternatively, if you set **Relative Start** option as **No**, you an select the **Start Date and Time**, and **End Date and Time** as well.

   d. Select the **Time Zone**, and click **Submit**.

3. Expand **Topology Filters**, and click **Launch Topology Selector**. Select `Site A` and `Site B` as the source and destination sites, and click **Apply**.

4. In the Chart Detail report, click **Options** and select the following metrics:

   ▪ **Two Way Packet Loss (%) (avg)** as the primary metric.

   ▪ **Round Trip Time (msec) (avg)** as the secondary metric.

5. Click **Confirm Selection**.

   The QA Chart Detail report opens displaying the weekly comparative study between maximum Percentage of Two Way Packet Loss and maximum Round Trip Time.

Analyzing the QA Chart Detail Report

The QA Chart Detail Report displays the following information:

- X axis: Time interval

- Left Y axis: Average percentage of packet loss from source to destination and destination to source site

- Right Y axis: Average round trip time in milliseconds

You can derive the following points by analyzing the report information:

- Within a specific range of time, when the average two way packet loss was the highest, the round trip time between two sites also was the highest. That is, the connectivity between these two sites at this point of time was very bad.

- Within a specific time range, whenever the packet loss decreased, it caused a decrease in the round trip time.

- However, if the two way packet loss increased slightly, it had no effect on the round trip time. During these periods, the round trip time remained steady, though the two way percentage of packet loss varied slightly.

You can perform the following tasks to find out more about how the high packet loss affects the network:

- View the Normalized Heat Chart for Two Way Packet :Loss (%) (avg) to analyze when the packet loss increased beyond the threshold limits, signifying a possible increase in the round trip time for data packets.

- View the Quality Assurance (QA) Top N report for round trip time. You can group the report based on the source and destination sites to find out the route on which the round trip time is high.

GUIs Referenced

- HP Network Node Manager iSPI Performance for Metrics console

- NNM iSPI Performance for QA Chart Detail Report

- NNM iSPI Performance for QA Top N Report

System Interface

HP Network Node Manager iSPI Performance for Metrics console

Use Case for HP Network Node Manager iSPI Performance for Quality Assurance Software Heat Chart Report

Module	QA Heat Chart Report
Use Case Name	Using QA Heat Chart Report
Use Case Author	HP Software

Summary

This use case gives you an overview of how you can use the Quality Assurance (QA) Heat Chart report to measure your network performances.

Application

 NNM iSPI Performance for QA Reports using NNM iSPI Performance for Metrics Software console

Overview

VoIP connection is disrupted by high level of noise

VoIP is very sensitive to the latency and jitter properties of the network. The level of noise may increase because of high level of jitter or latency in a VoIP connection.

QA Heat Chart report enables you to analyze when the following metrics were beyond the threshold level:

- Average Two Way Jitter
- Average Round Trip Time (RTT)

This report enables you to perform the following:

- Pinpoint the time period when the metric performance crossed the threshold limit.
- Compare the measures of a metric for various date and time ranges and analyze how the high or low measures affected the whole performance of the metric

Actor

- Network Administrator
- Capacity Planner
- Business Manager

Pre Condition

None.

Viewing QA Chart Detail Report

- Process Initialization

- Process

- Report Analysis

- GUIs Referenced

Assumptions

- User has administrative privileges to NNMi.

- User is analyzing the variations in the Jitter and Round Trip Time (RTT) for the disruptions in the VoIP network.

Initialization

1. Log on to HP Network Node Manager iSPI Performance for Metrics console using your username and password.

2. On the NPS home page, select **Reports**tab in the navigation panel. Alternatively, click **Actions > HP NNM iSPI Performance > Reporting-Report Menu**,in the NNMi console.

3. Click **iSPI Quality Assurance**

4. Click **Quality Assurance**

5. Click **QAMetrics**

6. Select a report type.

7. Modify the default report settings, if required

View QA Heat Chart Report

This section describes all the typical interactions that take place between the actor and this use case.

Format: If the actor selects `<selection>`, the system will request the actor to enter information.

To view the QA Heat Chart report, follow the steps as discussed below:

1. Expand the Quality Assurance tab.

2. Expand **Time Control**.

a. Select the **Relative Start** option as **Yes** to select a time range that is relative to the most recent data, or select **No** option to select a fixed time range.

b. If you set **Relative Start** option as **Yes**, you can select one of the following time ranges for the Heat Chart Report

- **Last 24 hours** for the report showing information for past one day

- **Last 7 Days** for the report showing information for past seven days

- **Last 30 days** for the report showing information for past 30 days

In this case, you select **7 days**

c. Alternatively, if you set **Relative Start** option as **No**, you an select the **Start Date and Time**, and **End Date and Time** as well.

d. Select the **Time Zone**, and click **Submit**.

3. Expand **Topology Filters**, and click **Launch Topology Selector**. Select the source site and destination site. Click **Apply**.

4. In the Heat Chart Report, click **Options** and select the **Two Way Jitter (μsecs) (avg)** as the report metric.

5. Click **Confirm Selection**.

The QA Heat Chart report opens displaying the average two way jitter for past one week.

Each column in the report displays the hours of a day Each cell represents the average two way jitter for that hour

Analyzing the QA Heat Chart Report

By analyzing the heat chart report you can analyze at which point of time the jitter was high during the past one week. A high level of jitter may cause disruption over a VoIP network.

You can perform the following tasks to view the cause of high jitter:

- View the Quality Assurance (QA) Top N report for jitter. You can group the report based on one or more metrics to find out the network route having the highest jitter. Examples of such Top N report groups are:
  - The top N (top five, ten, 15, 25, 50, or 100) source and destination sites to find out the route on which the jitter is highest
  - The top N (top five, ten, 15, 25, 50, or 100) source sites, destination sites, and QA probes to view the QA probes that reported the highest jitter within a specific route.

After analyzing the jitter, you can also analyze the average round trip time for the network for the past one week.

An increase in the round trip time may cause the voice quality to be sound broken or choppy over a VoIP network.

1. Click **Options** and select the **Round Trip Time (msec) (avg)** as the report metric.

2. Click **Confirm Selection**.

The QA Heat Chart report opens displaying the average round trip time for each hour of the day for past one week.

- Each column displays the hours of a day

- Each cell represents the average round trip time for that hour

You can perform the following tasks to view the cause of increasing round trip time:

- Generate Top N reports for the time range when the round trip time was the highest based on the following metrics to reveal the cause of the round trip time:
  - The top N (you may select top five, top ten or top 15) nodes to view the level of latency (round trip time) for each node group.

  - The top N (you may select top five, top ten or top 15) QA probes to view the QA probes that reported the highest latency.

- Generate the QA Chart Detail Report based on the following metrics to check whether the high round trip time was caused by high percentage of packet loss:
  - Two Way Packet Loss (%) (avg) as the primary metric

  - Round Trip Time (msec) (avg) as the secondary metric

GUIs Referenced

- HP Network Node Manager iSPI Performance for Metrics console

- NNM iSPI Performance for QA Heat Chart Report

- NNM iSPI Performance for QA Chart Detail Report

- NNM iSPI Performance for QA Top N Report

System Interface

HP Network Node Manager iSPI Performance for Metrics console

Glossary

B

buckets

A bucket represents a range of values. The Top N Frequency Distribution report enables you to define 12 different buckets (or ranges of values) for a metric series—from bucket 0 (Bkt 0) through bucket 11 (Bkt 11). Each bucket is associated with a color code (in-built, not configurable). The generated report represents the distribution of different value ranges with the color codes that are associated with buckets.

D

delay

The time taken for a packet to travel from the sender network element to the receiver network element.

H

High

The QA probe measure for the network element performance crossed the High threshold value.

L

Low

The QA probe measure for the network element performance crossed the Low threshold value.

N

network element

Examples of network elements are routers, switches, and phone connections, etc.

Nominal

The QA probes measure for the network element performance was within healthy range, or no thresholds are being monitored.

Not Polled

Indicates that this network element is not polled intentionally.

O

ODBID

ODBID is a custom attribute that the HP Network Node Manager i-Series Software(NNMi) topology uses to integrate the NNMi topology with Business Service Management(BSM) software suite. The Smart Plug-Ins (SPIs) get this attribute from NNMi during the discovery and keep a reference. You can use ODBID as a report topology filter.

others

On a Top N report, elements that are not ranked by the report are grouped together and represented by the "others" row.

S

Site

A logical organization of networking devices. In the scope of enterprise networks, a site can be a logical grouping of networking devices generally situated in similar geographic location. The location can include a floor, building or an entire branch office or several branch offices which connect to head quarters or another branch office via WAN/MAN. Each site is uniquely identified by its name. In case of the service provider networks the Virtual Routing and Forwarding (VRF) on a Provider Edge (PE) router or a Customer Edge (CE) routers can be defined as a site.

site rules

Configuration associated to a site are called site rules. For example Node Group, Ordering, Test Name Pattern, etc are the site rules that are used to configure a site. The rules are prioritized inherently. The Node Group rule has the highest priority, the IP Address rule the second highest priority. Test Name Pattern rule has the third highest priority while the VRF Name rule has the the lowest priority among these foure rules. Note that none of these rules have any dependency to each other. In other words, while creating a site, you can specify all or any of the the rules.

sites

A logical organization of networking devices. In the scope of enterprise networks, a site can be a logical grouping of networking devices generally situated in similar geographic location. The location can include a floor, building or an entire branch office or several branch offices which connect to head quarters or another branch office via WAN/MAN. Each site is uniquely identified by its name.

U

Unavailable

Unable to compute the performance state of the network element, or the computed value is outside the valid range.