PCCW Global®

MPLS VPN Service Performance Reports (MPLS Reports) User Guide

HKT Here To Serve

a PCCW Group member

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MPLS VPN Service Performance Reports

The MPLS VPN Service Performance Reports (MPLS VPN Reports) are accessible via PCCW Global's Online Service Portal.

They are available to PCCW Global's MPLS VPN customers whom have subscribed to the Managed Router Service, which PCCW Global manages the Customer Edge (CE) routers at customers' premises.

There are four sets of reports available that customers can subscribe to:

- Router and Interface Reports
- QoS Reports
- Site2Site Reports
- Application Reports

Main Page

The MPLS VPN Reports are organized into two distinct reporting areas. They are accessible via the tabs displayed at the top of the main page. The two reporting areas are 'Service Reports' and 'Application Reports'.

The Service Reports area host the following report types:

- Router Reports – Reports CE router's CPU, Memory, and Buffer usage
- Interface Reports – Reports CE routers' LAN and WAN (MPLS VPN circuit) interface utilization
- QoS Reports – Reports CE router's WAN interface (MPLS VPN circuit) Quality of Service (QoS) performance per class of service
- Site2Site Reports – Reports jitter and response time performance per class of service subscribed between selected pairs of CE routers

The Application Reports area provides a breakdown of protocols' and hosts' usage information based on collected Netflow data from CE routers.

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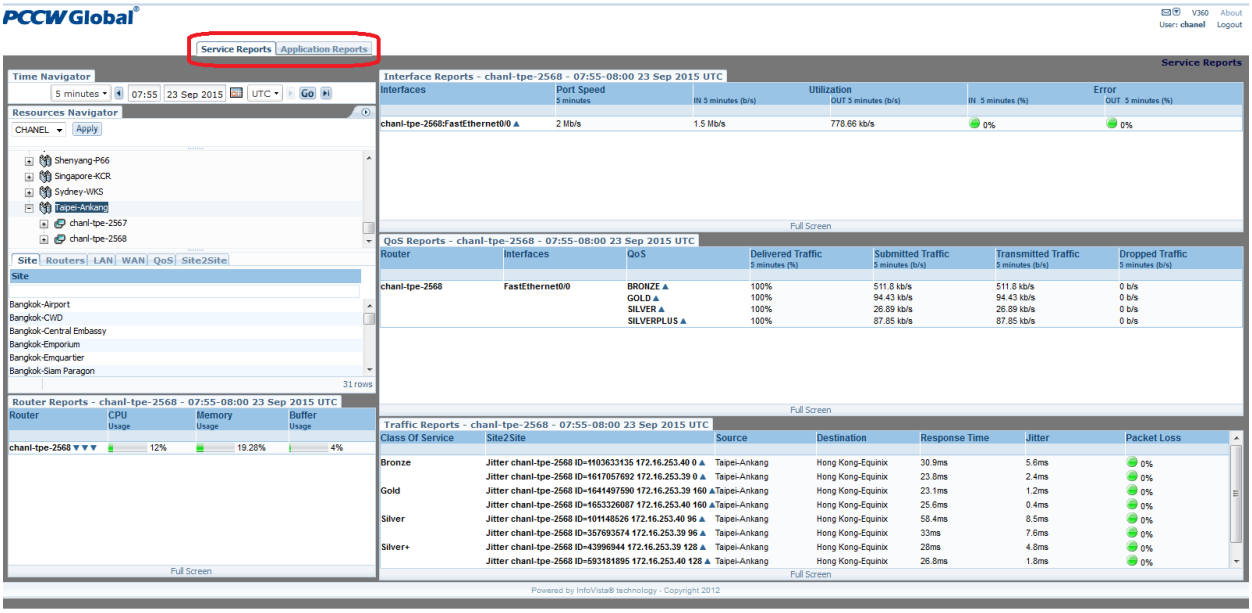


Service Reports

Service Reports provide insight about the MPLS VPN service performance based on information collected from PCCW Global managed CE routers. Through Service Reports, you can learn about the health of the provided MPLS VPN service such as loading and utilization of the managed CE router and the WAN interface (MPLS VPN circuit) etc. Additionally, Service Reports provide information on QoS performance and an End-to-End (E2E) view of jitter and response time performance between selected CE routers using IPSLA.

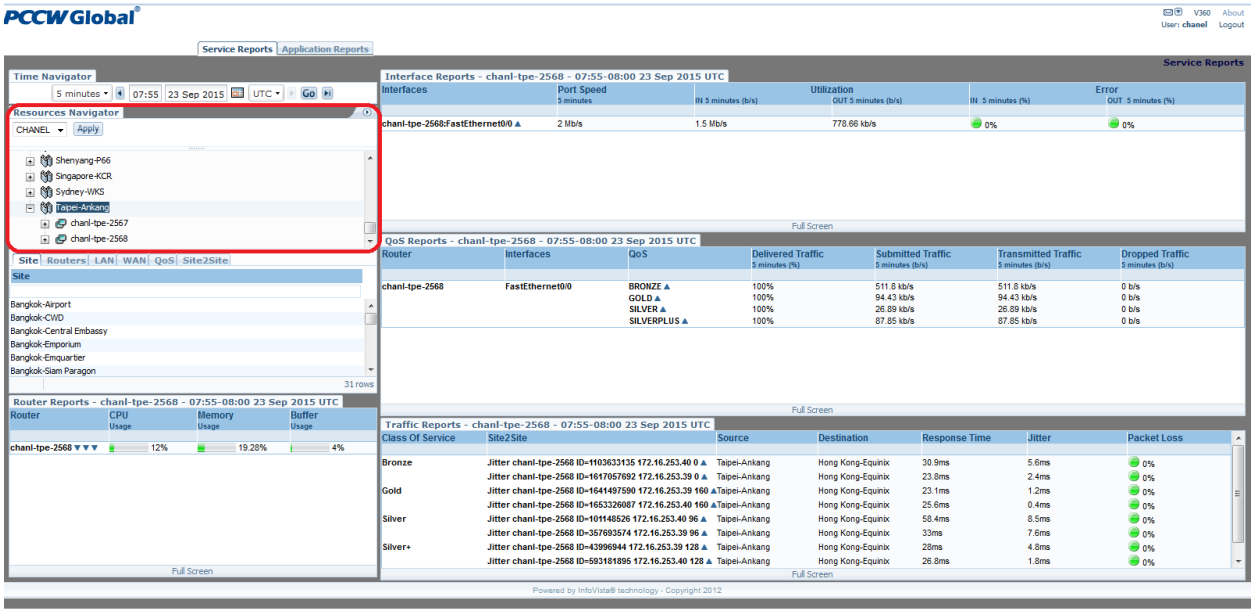
Service Reports Basics

The sections below describe the basic components and functions of Service Reports.

Resources Navigator (Tree View)

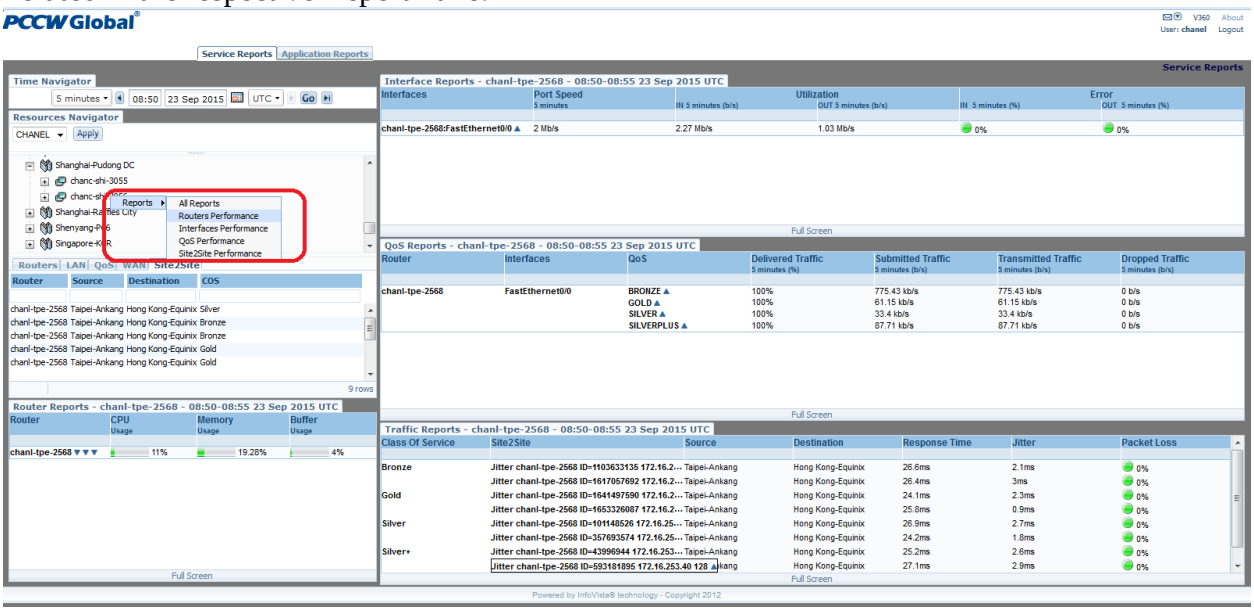
- The Resources Navigator Tree View (highlighted in the diagram below) enables you to view and select CE routers according to various criteria, and triggers the generation of the selected Service Reports in order to understand the service performance of the CE routers and the associated MPLS VPN circuits. The Resources Navigator can display this information in various ways.

- Underneath the root "MPLS VPN", you have a view of sites and routers as a tree view (which you can expand with '+'). The top level of the tree is the site name and the next level is the router(s) associated with that particular site.



Reports can be accessed by right-mouse clicking on a router and then selecting the report (e.g. Router, Interface, QoS, and Site2Site reports) you desire. Selecting the "All Reports" option will display all the reports that are available for that router. Or, you can select the individual reports for that particular router by clicking on the respective report link.

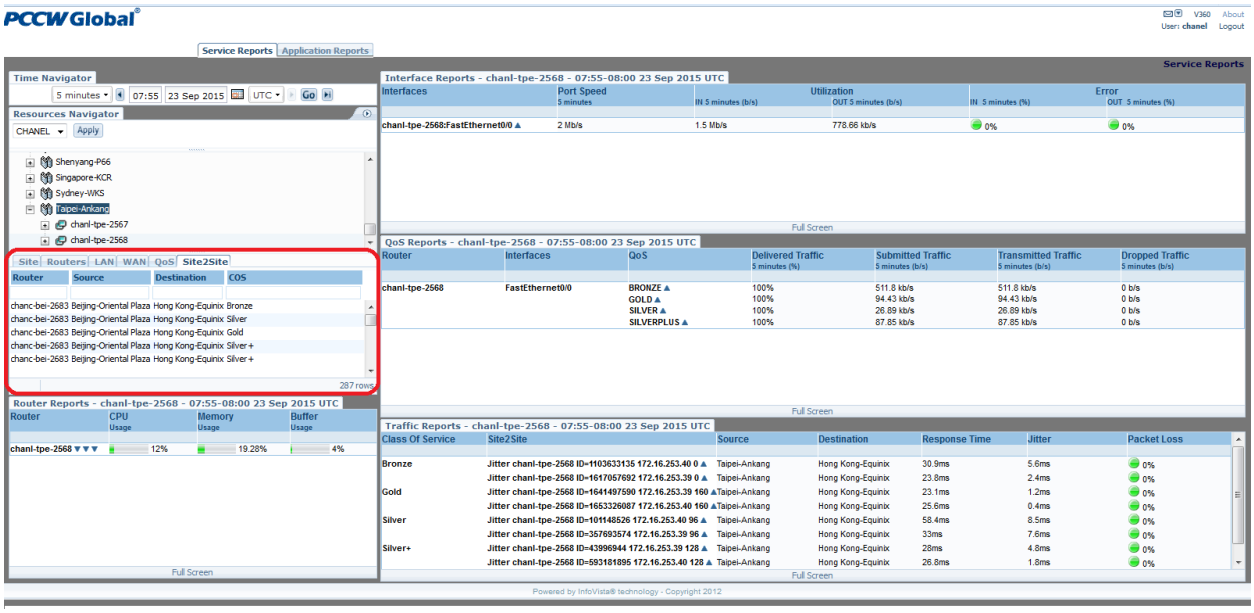
Once the report type is selected, a summary of the reporting elements in concern will be generated in the respective Report Pane.



Resources Navigator (List View)

The List View provides another mean to display the CE routers' related parameters (e.g. Router, LAN interface, WAN interface, QoS and Site2Site etc.) for report generation. It displays information according to the selection in the Resources Navigator (Tree View) above. For example:

- If "MPLS VPN" is being selected, then all the CE routers that belong to customer's MPLS VPN network will be loaded in the List View;
- If a particular site is being selected, all the CE routers in that particular site will be loaded in the List View;
- If a particular CE router is being selected, only parameters related to that CE router will be loaded in the List View



- If the total number of rows in a list exceeds the number of visible rows, a filter panel appears between the data row and the header row, enabling you to perform dynamic searches. The value for the total number of rows is displayed in the lower right hand corner of the List View window.
- To use the dynamic search feature, you enter the value you would like to filter on in the text box below the column heading. For example, in the graphic below, you can see that there are 25 rows available. If you want to see just the LAN interfaces that are GigabitEthernet, you can type the word GigabitEthernet in the text box below the LAN Interface column and the list would be filtered by and only display GigabitEthernet interfaces.

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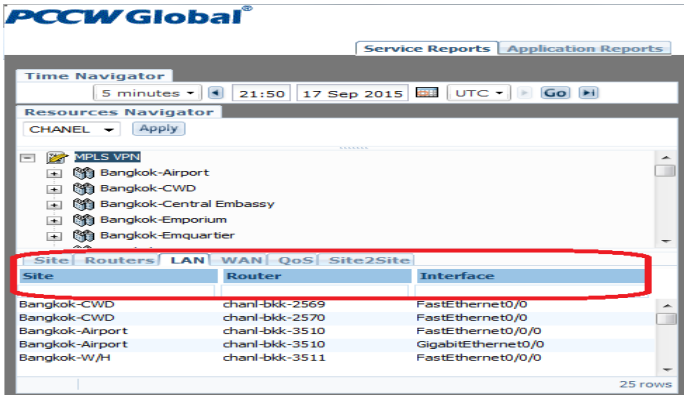
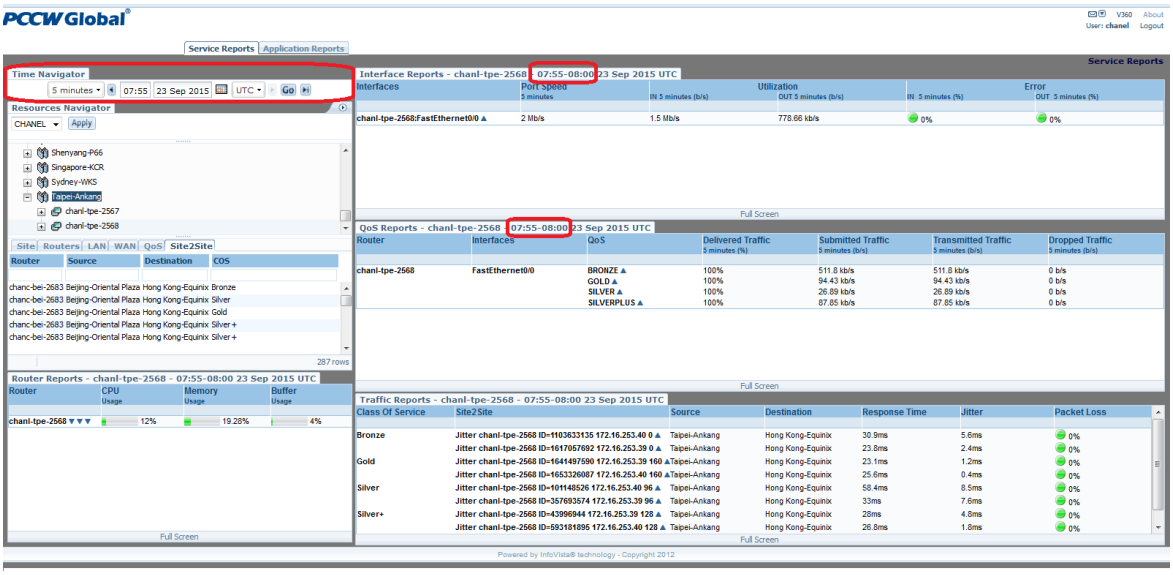


Time Navigator

The Time Navigator menu interacts with the Report Panes present on the same page that contains it. You use the Time Navigator to synchronize the reporting period of all Report Panes in one action, and to navigate all compatible Report Panes forward and backwards in time.

For reporting periods other than 5 minute, the latest available reporting period displayed on a particular report is one time period behind the current time. For example, if the time is 13:23 UTC and you are looking at an hourly report (meaning that one time period is 1 hour and the current time period is between 13:00 UTC and 14:00 UTC), the Report Panes will show data from 12:00 UTC to 13:00 UTC. This logic is true for all reporting time periods except 5 minute.

For reporting period equals to 5 min, the latest available reporting period displayed on a particular report is four time periods behind the current time. For example, if the time is 13:23 UTC and you are looking at a 5 minute report (meaning the one time period is 5 min and the current time period is between 13:20 UTC and 13:25 UTC), the Report Panes will show data from 13:00 UTC to 13:05 UTC



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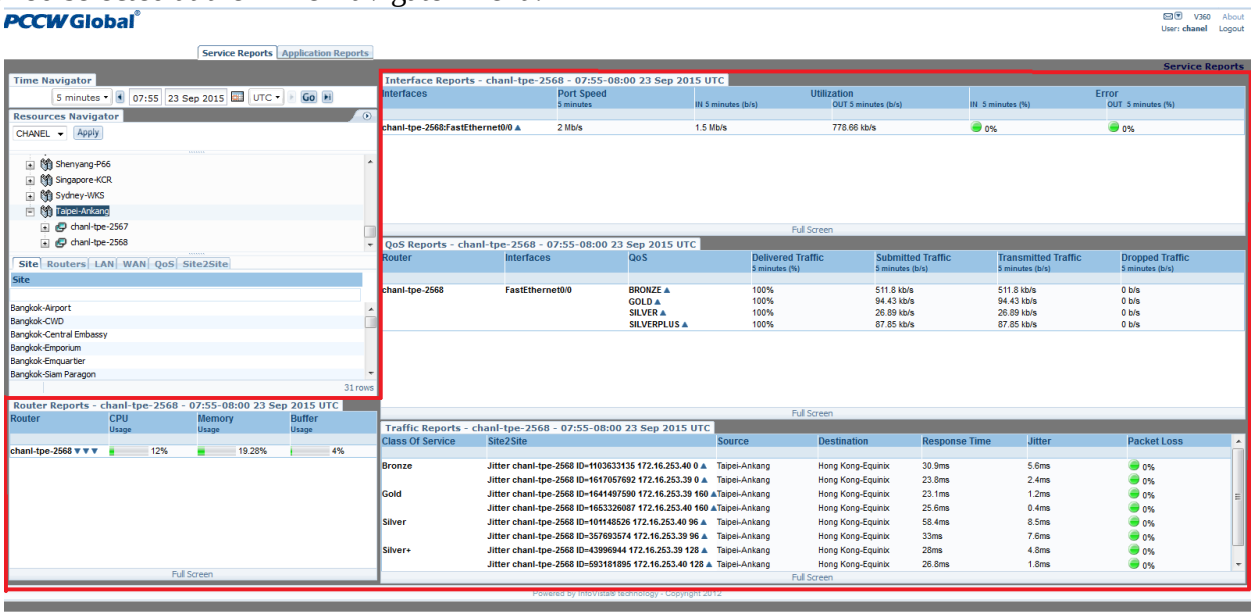
Service Report Panes

There are four Report Panes within Service Reports: Router, Interface, QoS, and Site2Site Reports. The Router Report Pane is on the bottom left hand pane while the Interface, QoS, and Traffic Report Panes are on the right hand pane.

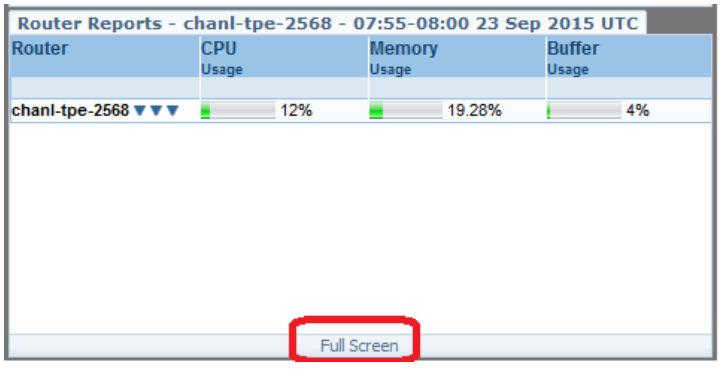
Each Report Pane provides a summary of the reporting elements in concern over the reporting period selected at the Time Navigator menu.



Full Screen Mode

Due to the default size of the Report Panes, not all the summary of the reporting elements can be shown if multiple CE routers have been selected to generate reports.

To display the summary of all the reporting elements, at the bottom of each Report Pane you will see the words 'Full Screen'. Clicking on 'Full Screen' will open a new window with just the report you are viewing. You can use Full Screen mode to see all of the information contained in a report in a window all by itself.



In Full Screen mode, you also have the ability to export the report to a text file, excel file, PDF file, or XML file by selecting either of those options in the upper left-hand corner of the window. Additionally, you can send the report as an email.

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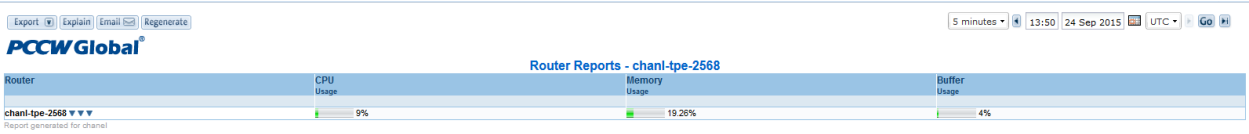
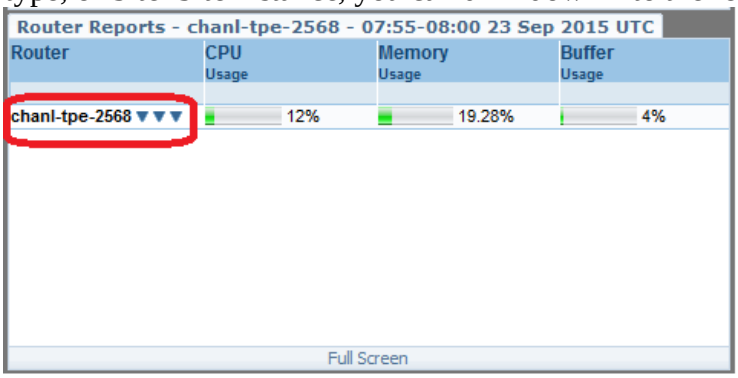
Moreover, at the upper right-hand corner of the window, there is a Time Navigator menu, which you can change the reporting period as well.

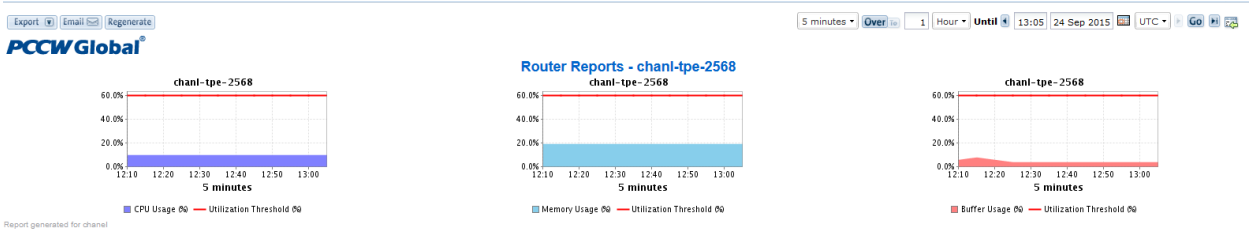


Real-time Reports Drill Down

Within Service Report Pane, or its corresponding Full Screen mode, by selecting the name of the router, interface, QoS type, or Site2Site instance, you can drill-down into the real-time reports.



In the real-time reports, you will see a graphical view of the reporting element over a specified time. Additionally, you can modify the time span that a report is displayed through the Time Navigator menu in the upper right-hand corner of the window. For example, you can request to see 5-minutes samples of data over a 1-hour period. Or, you can select 1-hour samples over a 1-day period. The example below is from a router real-time report drill-down.



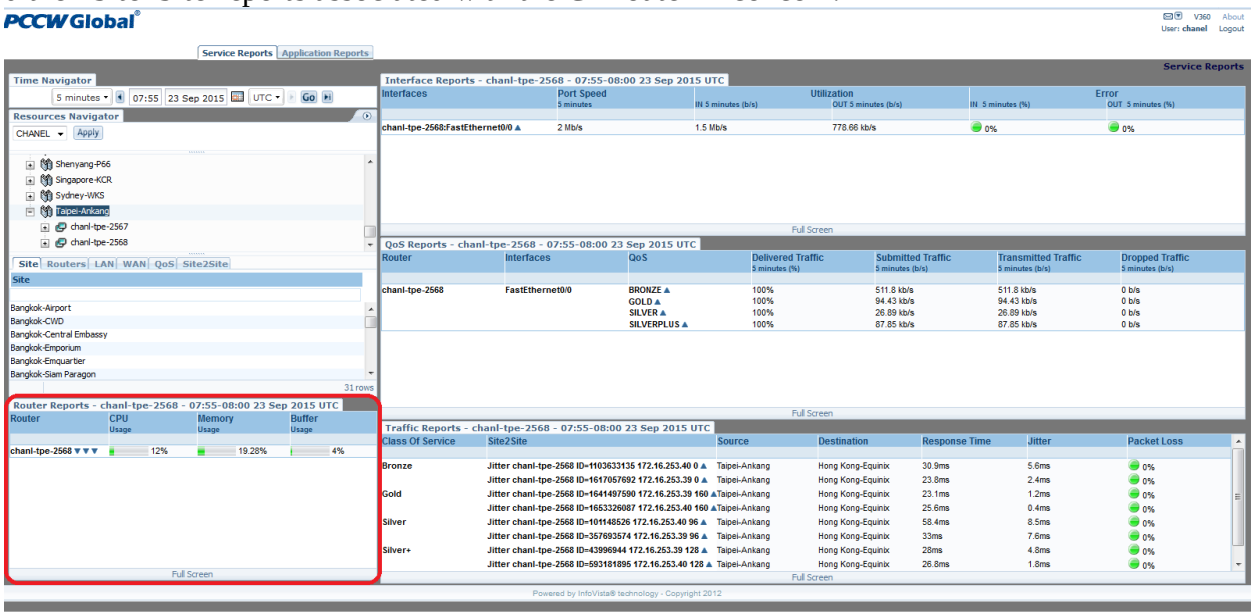
Below are the available reporting sample time and period combinations for Real-Time Reports (PCCW Global reserves the rights to amend the combinations depending on the size of the resulting data storage)

Reporting Sample Time	**Reporting Period**
5min	Up to 90 days
Hourly	Up to 3 months
Daily	Up to 6 months
Weekly	Up to 12 months
Monthly	Up to 24 months

You can also export the report to a text file, excel file, PDF file, or XML file. Additionally, you can send the report as an email.

Router Reports

Router reports show the CE router name, CPU, Memory, and Buffer usage of the CE router. There are three small icons next to the CE router name (they are blue triangles pointing down). Hovering the mouse over each of the icons shows what their function is. Respectively, from left to right, clicking on each one will open a new window and take you to Interface Reports, QoS Reports, and then Site2SiteReports associated with the CE router in concern.



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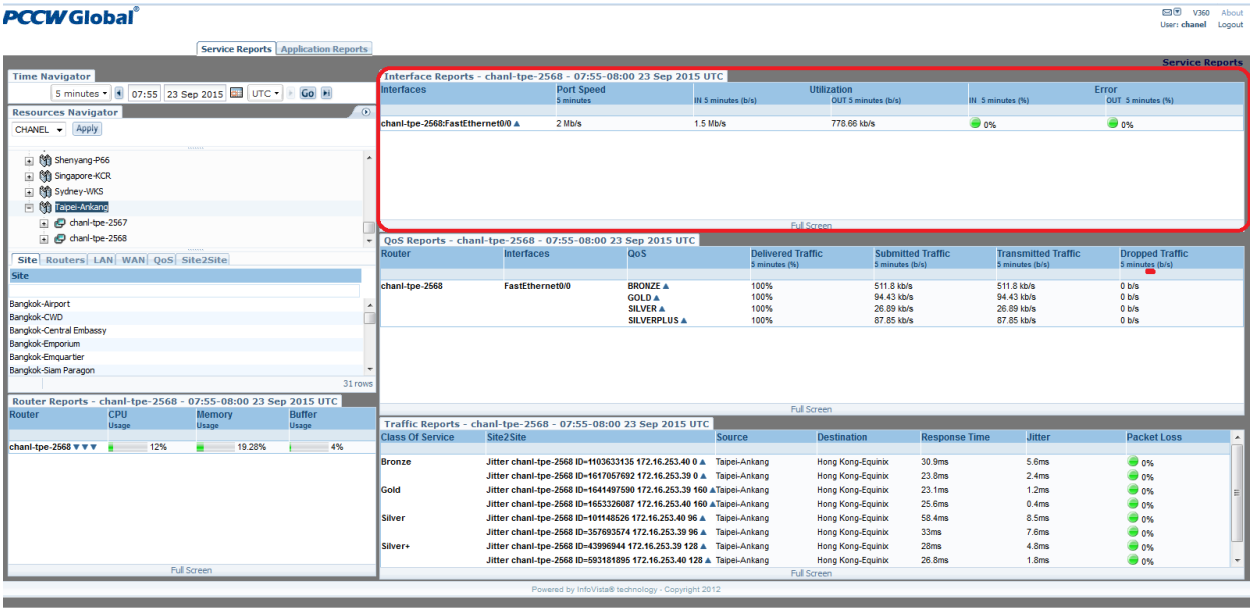
Interface Reports

The Interface Reports show the name of the CE router's interface(s), the Port Speed, the IN/OUT Utilization and the IN/OUT Error percentage of the interface(s).

The LAN interface shows the statistics of the CE router connecting to customer's LAN, while the WAN interface shows the statistics of the CE router connecting to the MPLS VPN circuit.



QoS Reports

The QoS Reports show the CE router name, the Interface(s), the QoS classes of service assigned to that interface and the associated Delivered Traffic, Submitted Traffic, Transmitted Traffic, and Dropped Traffic per class of service. The four classes of service designations are BRONZE, SILVER, SILVER PLUS, and GOLD. On a per class of service view:

- Submitted Traffic – The total amount of traffic (in b/s) send from customer's LAN towards the MPLS VPN circuit.

- Transmitted Traffic – The amount of traffic (in b/s) actually sent to the MPLS VPN circuit by the CE router.

- Dropped Traffic – The amount of traffic (in b/s) being dropped by the CE router that exceed the subscribed class of service bandwidth profile while there is no spare headroom within the MPLS VPN circuit to transmit those excess traffic

- Delivered Traffic – The percentage of Submitted Traffic that is successfully transmitted to the MPLS VPN circuit (Transmitted Traffic / Submitted Traffic x 100%)

Please note that, according to PCCW Global MPLS VPN Class of Services policy, at the CE router:

- Excess GOLD class of service traffic will be dropped

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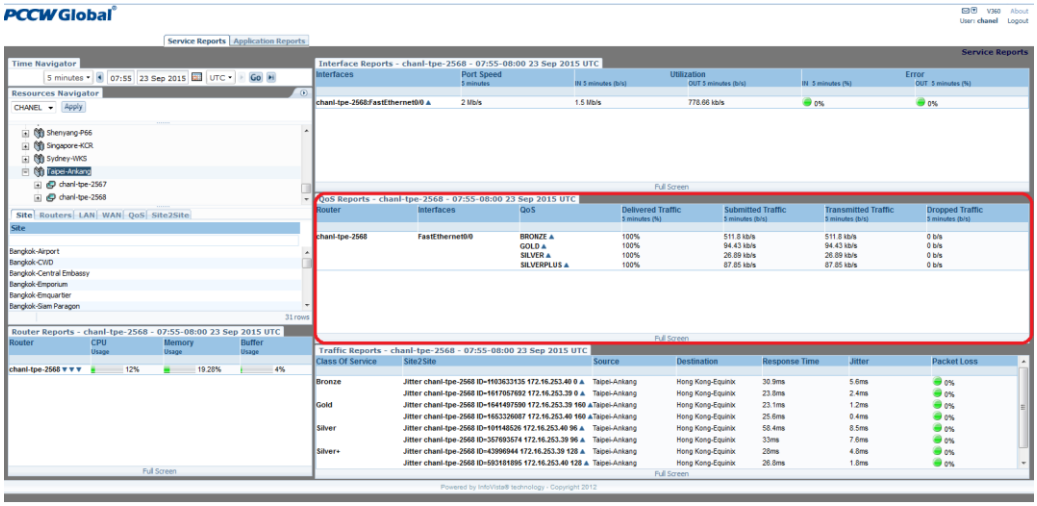
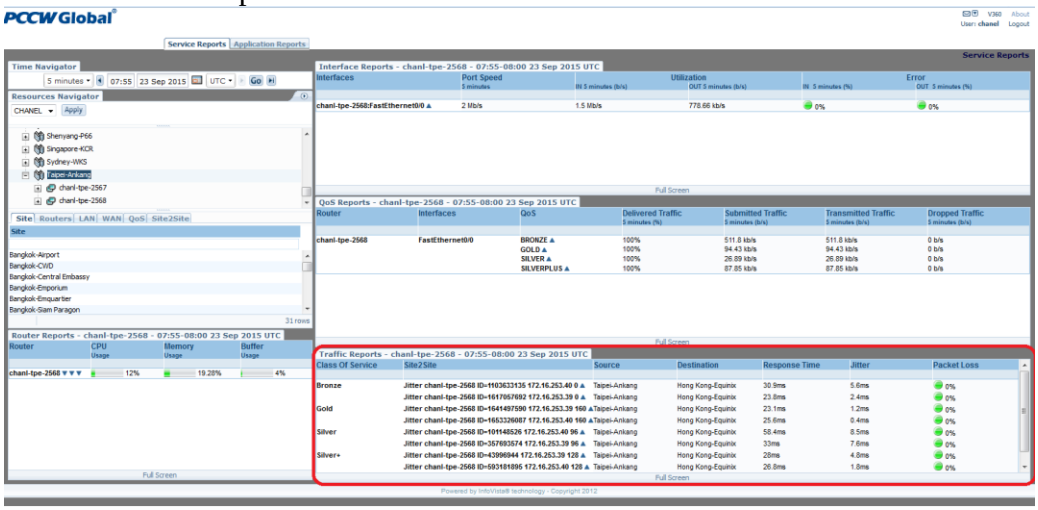
- For SILVER PLUS, SILVER and Bronze classes of service, excess traffic will take up the vacant bandwidth left over from other classes of service



Site2Site Reports

The Site2Site Reports show the Response Time, Jitter, and Packet Loss, per class of service subscribed between selected pairs of CE routers.



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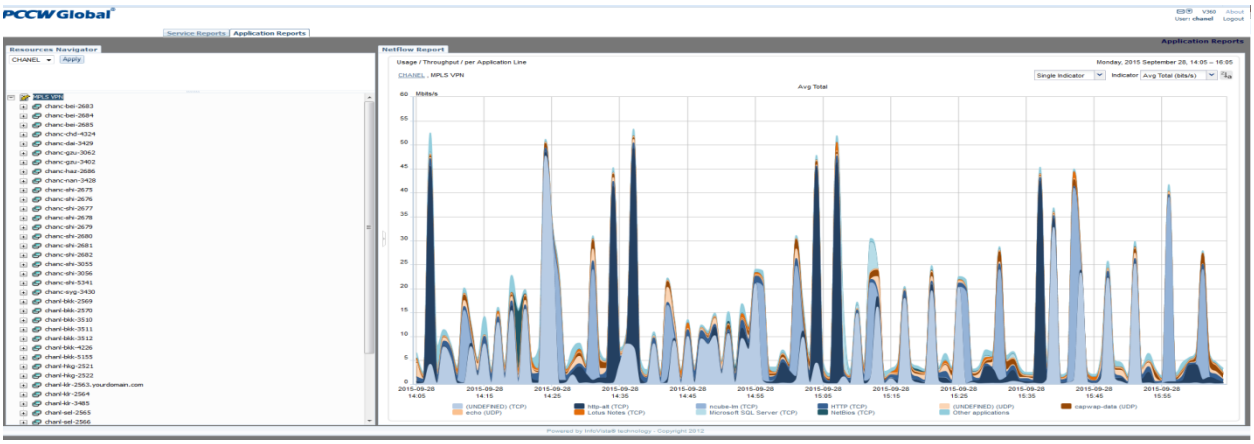
Application Reports

Application Reports provide details about traffic flow on the network.

The data for Application Reports comes from the Netflow packets captured from the selected CE router's WAN interface (which is connected to the MPLS VPN circuit). That data is then organized into various types of reports that show the applications and hosts that are transmitting traffic through the MPLS VPN circuit in concern.



Application Reports Basics

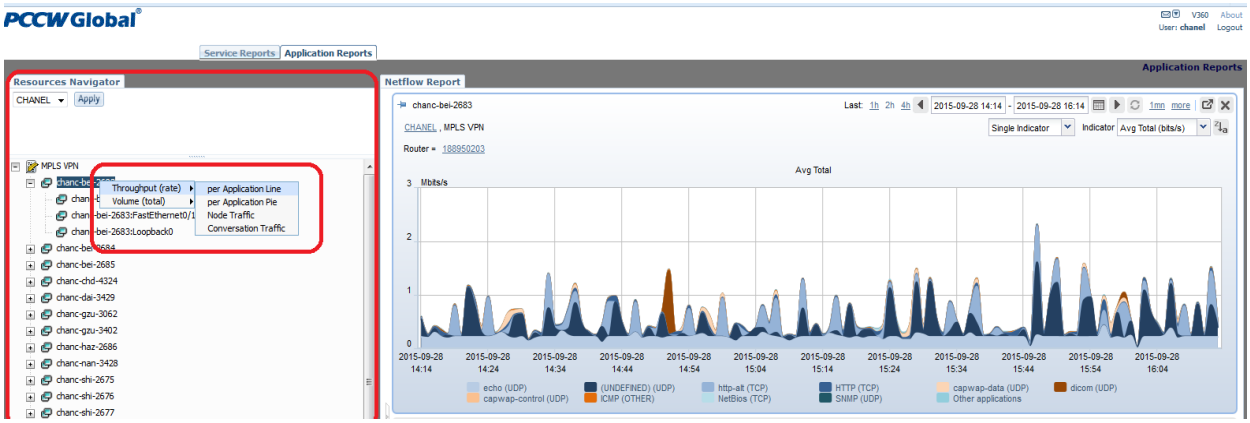
The sub-sections below describe the basic components and functions of Application Reports.

Resources Navigator (Tree View)

The Resources Navigator (Tree View)(highlighted in the diagram below) enables you to view and select CE routers according to various criteria, and triggers the generation of the selected Application Reports in order to understand what applications and hosts are consuming the bandwidth of the associated MPLS VPN circuits. The Resources Navigator can display this information in various ways.

Underneath the root "MPLS VPN", you have a view of CE routers as a tree view (which you can expand with '+'). The top level of the tree is the CE router name and the next levels contain the interfaces associated with each CE router.

Reports can be accessed by right-mouse clicking on a router or interface, which will open up a selection window that will allow you to choose between Throughput (rate) and Volume (total) application reports. Each of those two sub-reports have the same options; per Application Line, per Application Pie; Node Traffic, or Conversation Traffic.



Netflow Report Pane

Once you have selected the type of report you want to examine, that report will appear in the Netflow Report Pane. The upper right hand corner of each of these reports has an area where you can modify the time span of the report and change the indicators that are being displayed.

Below is the default maximum lifetime of data in the database table. When the lifetime is reached, older data is purged. (PCCW Global reserves the rights to amend the database lifetime maximum value depending on the size of the resulting data storage)

Maximum lifetime of data in a table	**365 days**

In the reports there are two types of indicators, which identify the nature of the traffic:

- Client – Refers to the host that initiates the communication. In the reports, it represents monitored traffic associating to hosts that initiate the communications

- Server – Refers to the host that replies the communication. In the reports, it represents monitored traffic associating to hosts that reply the communications.

On the per Application Line and per Application Pie reports, you will see a color-based legend that shows the type of traffic that was captured on that CE router/interface combination being selected. Hovering the mouse over, or clicking on, any of the traffic types will change the color of that particular traffic type in the legend. This is done so that you will know exactly what traffic type you have selected.

In the screenshot below, the reporting system knows about the traffic that goes over well-knows ports, it will name and classify that traffic accordingly. Consequentially, UNDEFINED application refers to Netflow traffic with a TCP or UDP port that has not been registered in IANA.

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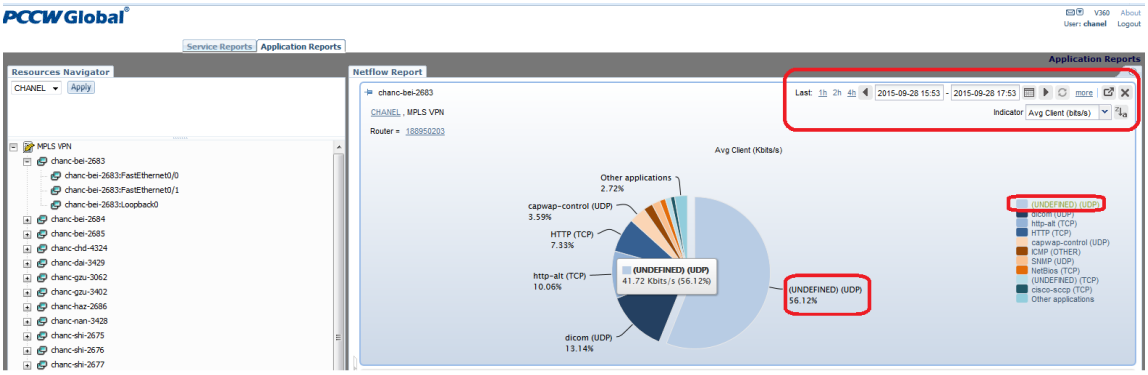
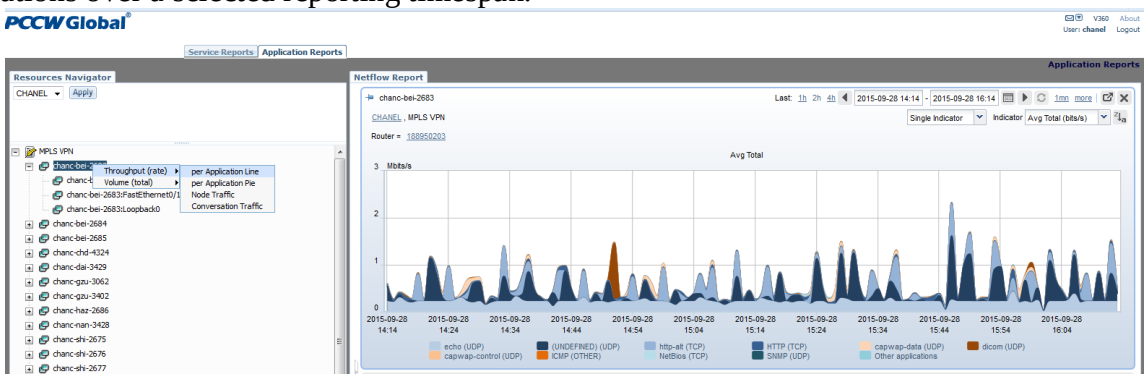


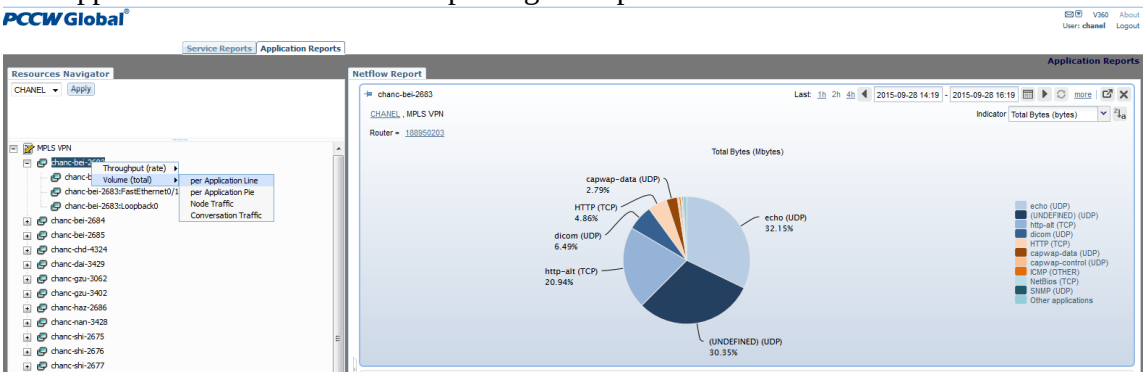
Throughput/Volume – per Application Line Report

The reports show the traffic throughput (in b/s) or traffic volume (in bytes) of the monitored applications over a selected reporting timespan.



Throughput/Volume – per Application Pie Report

The reports show the traffic throughput (in b/s) or traffic volume (in bytes) distribution of the monitored applications over a selected reporting timespan.



Throughput /Volume– Node Traffic

The reports show the traffic throughput (in b/s) or traffic volume (in bytes) of the monitored hosts over a selected reporting timespan.

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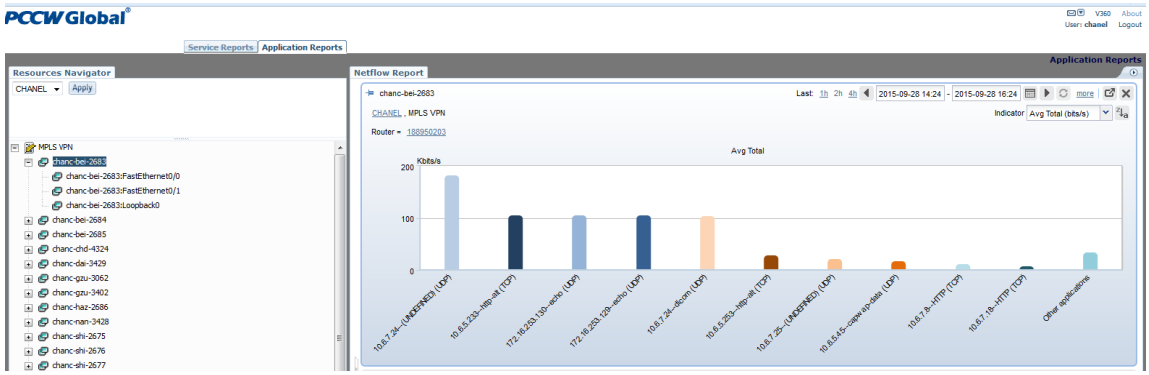
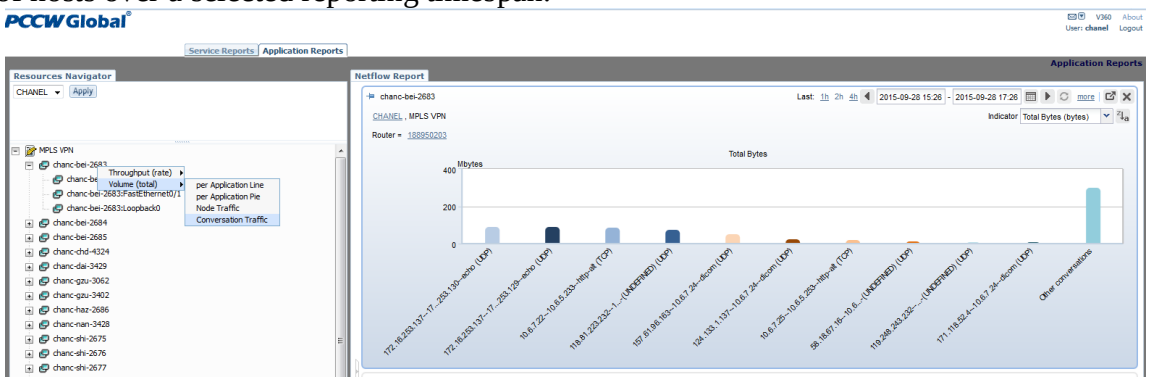


Throughput/Volume – Conversation Traffic

The reports show the traffic throughput (in b/s) or traffic volume (in bytes) of the monitored pairs of hosts over a selected reporting timespan.



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