

# Insight Summary

Minimum release: Cisco vManage Release 20.9.1.

An insight summary provides trace-level insight information for application traffic and flows. This information appears in a slide-in pane.


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# Display Insight Summary Information

The following table describes how to display the various insight summaries that are available.

***Table 1: Display Insight Summary Information***

| Insight Summary Information | Procedure |
|---|---|
| **For Manually Generated Traces** | |
| Insight summary for a single manually generated trace | In the **All Trace** tab, click **Insight Summary** in the **Trace Name** column for the trace that you want. |
| Consolidated insight summary for selected manually generated traces (from Cisco Catalyst SD-WAN Manager Release 20.12.1) | In the **All Trace** tab, check the check box for each trace that you want, and then click **Insight Summary** above the **Trace Name** column. |
| **For Auto-On Task Traces (from Cisco Catalyst SD-WAN Manager Release 20.12.1)** | |
| Insight summary for a single trace generated by an auto-on task | In the **Auto-On Task** tab, expand a task and click **Insight Summary** next to the trace that you want. |
| Consolidated insight summary for all the traces generated by an auto-on task | In the **Auto-On Task** tab, click **Insight Summary** next to the name of the task. |

# Overview Tab

The **Overview** tab displays the following information.

From Cisco Catalyst SD-WAN Manager Release 20.12.1, click **Sampled Flow Insight** to see the **Applications** graph, **Events** graph, and **Hotspot Issues**.

The **Users** field appears if you checked the **ISE User Identity** check box in the **Grouping Fields** area when you started the trace. Information for up to 5,000 users that the trace detects is selected by default. You can remove a user by unchecking it in the drop-down list, and add a user by choosing it in the drop-down list.

In the **VPN** field, information for all the VPNs that the trace detects is selected by default. You can remove a VPN by unchecking it in the drop-down list, and add a VPN by choosing it in the drop-down list.

The information in this **Sampled Flow Insight** area is based on sampled data, which comes from a subset of the total number of flows that were monitored. The number of flows that are sampled is determined by an internal algorithm. For example, if the trace monitors 1,000 flows, this tab might show information for only 10 of those flows.

- **Applications** graph: Displays the number of flows that the trace detects in each application in the monitored traffic. Hover your cursor over the data points in the graph to display the percentage of total flows that the corresponding application flow represents.

  From Cisco Catalyst SD-WAN Manager Release 20.12.1, check the **Application** check box to display information for all flows that include application traffic. Check the **DNS** check box to display information for all the flows with DNS resolution.

- **Events** graph: Displays the events that the trace detects in the monitored traffic and the number of application flows that each event affects. Hover your cursor over the data points in the graph to display the percentage of total application flows that the corresponding event affected.

  From Cisco Catalyst SD-WAN Manager Release 20.12.1, check one or more severity check boxes (**Critical**, **Warning**, and **Informational**) to display information for events that have the corresponding severity level.

- **Hotspot Issues**: For each event, provides information about each application flow that was affected, including the traffic path in which the event occurred and the duration of the event.

  This information is displayed for each event that appears in the **Events** field. By default, all the events that the trace detects appear in this field. You can remove an event by clicking **X** next to its name and add an event by choosing the event from the **Events** drop-down list.

From Cisco Catalyst SD-WAN Manager Release 20.12.1, when viewing the **Overview** tab for a single trace, click **Application Stats** to see the following graphs. These graphs provide information for the top 10 applications with the most flows. Hover your cursor over the data points in a graph to display more detailed information for the corresponding item.

- **Applications (top 10) - Total Flows**: Total number of application flows for the duration of the trace. The selected color is for the egress WAN interface on which flows were initialized.

- **Applications (top 10) - Total Bytes**: Overall application bidirectional bandwidth for the duration of the trace. Upstream and downstream flow bandwidths are counted on the egress WAN on which flows were initialized.

- **Applications (top 10) – Flow Setup Rate**: New incoming flows per second, calculated at 1-minute intervals.

- **Applications (top 10) – Active Flow**: Number of active flows, calculated at 1-minute intervals.
- **Applications (top 10) – Bandwidth**: Number of KB per second, calculated at 1-minute intervals.
- **Applications (top 10) – Flow Live Time**: Overall lifetime of application flows, based on the flows completed within the monitor interval and calculated at 1-minute intervals.

The **Applications (top 10) - Total Flows** and **Applications (top 10) - Total Bytes** graphs provide information for each item that is selected in the **VPN**, **Device**, and **WAN Color** fields. All the items that the trace detects are selected by default.

The other graphs provide information only when one item is selected in the **VPN**, **Device**, and **WAN Color** fields.

You can remove an item from these fields by unchecking it in the corresponding drop-down list, and add an item by choosing the item from the corresponding drop-down list.



**Note** You can view detailed information about an event in the **Event Insight** tab.

# App Performance Insight Tab

The **App Performance Insight** tab displays the following performance information for the selected items.



**Note** This tab is not available for consolidated insight summaries.

From Cisco Catalyst SD-WAN Manager Release 20.12.11, the **Score** graph appears when you expand **Hop Metrics**. The other graphs appear when you expand **Detailed Metrics** under the expanded **Hop Metrics**.

- **Score** graph: Provides an evaluation of application performance.
- **Loss** graph: Provides information about packet loss.
- **Delay** graph: Provides information about delays in the traffic flows.
- **Jitter** graph: Provides information about the inconsistencies in latency in traffic flows.
- **CND/SND** graph: Provides information about client network delay (CND) and server network delay (SND).
- **Applications Path & Performance** Sankey chart: Provides a snapshot of bandwidth used and loss information at a particular time. You can choose the time by clicking a dot on a timeline in a metrics graph.

The graphs display information for each application that appears in the **Application** field and the hop that is displayed in the **Hop** field. From Cisco Catalyst SD-WAN Manager Release 20.12.1, the **Application** field appears when you expand **Group Fields**. The Sankey chart displays information for each application that appears in the **Application** field and for all the hops, regardless of the hop that is displayed in the **Application** field.

The five applications with the most hotspot issues appear in the **Application** field by default. You can remove an application by clicking the **X** next to its name, and add an application by choosing the application from the **Application** drop-down list. You can choose a hop from the **Hop** drop-down list.

From Cisco Catalyst SD-WAN Manager Release 20.12.1, information for all the VPNs that the trace detects are selected by default. You can remove a VPN by unchecking it in the corresponding drop-down list, and add a VPN by choosing the item from the corresponding drop-down list.

From Cisco Catalyst SD-WAN Manager Release 20.12.1, you can arrange the information that displays into groups, according to the items that you choose in the **Group Fields** area. The fields that are displayed depend on the **Grouping Fields** options that you chose when you started the trace. You can remove a grouping item by clicking **X** next to its name, and add an item by choosing it from the corresponding drop-down list.

Click **Upstream** to display information for upstream traffic in the graphs and chart. Click **Downstream** to display information for downstream traffic in the graphs and chart.

Hover your cursor over a data point in a graph to display more detailed information. Click a data point in a graph to update the Sankey chart for that data point. Hover your cursor over a data point in the Sankey chart to display more detailed information.

From Cisco Catalyst SD-WAN Manager Release 20.15.1, when WAN packet drops in a flow, the IPsec input failures are captured in the metrics.

### Cisco SD-WAN Hop Metrics

Minimum supported release: Cisco Catalyst SD-WAN Manager Release 20.15.1

If the Enhanced Application Aware Routing feature is enabled on a Cisco SD-WAN Manager instance, you can view the associated metrics for the hop. From the **Queue** drop-down menu, choose from the available queues to view the **Loss** graph and **Jitter/Delay** graph.

From the **Loss** graph you can view:

- **WAN Loss Rate**
- **Local Drop Rate**
- **IPsec Authentication Failures**
- **IPsec Anti Replay Failures**



**Note** From Cisco Catalyst SD-WAN Manager Release 20.18.1, there is a dedicated page for IPsec event history to assist in debugging IPsec anti-replay drops.

- **IPsec Other Input Failures**

# Event Insight Tab

The **Event Insight** tab displays the following information about application flows that were affected during each minute of the duration of an event. You can use this information to assist with a root-cause analysis.

**Note** This tab is not available for consolidated insight summaries.

- **Flows** graph: Provides information about the number of flows at a particular time.
- **Applications Path & Event** Sankey chart: Provides detailed information about the effect of designated events at a particular time. Hover your cursor over a data point to see more information.

The graph displays information for each application that appears in the **Application** field and the hop that is displayed in the **Hop** field. From Cisco Catalyst SD-WAN Manager Release 20.12.1, the **Application** field appears when you expand **Group Fields**. The Sankey chart displays information for each application that appears in the **Application** field, for all the hops regardless of the hop that is displayed in the **Hop** field, and for the events that are displayed in the **Events** field.

The five applications with the most hotspot issues appear in the **Application** field by default. You can remove an application by clicking **X** next to its name, and add an application by choosing the application from the **Application** drop-down list. You can choose a hop from the **Hop** drop-down list.

Hotspot events that the trace detects appear in the **Events** field by default. You can remove an event by clicking **X** next to its name and add an event by choosing the event from the **Application** drop-down list.

From Cisco Catalyst SD-WAN Manager Release 20.12.1, information for all the VPNs that the trace detects is selected by default. You can remove a VPN by unchecking it in the corresponding drop-down list, and add a VPN by choosing the item from the corresponding drop-down list.

From Cisco Catalyst SD-WAN Manager Release 20.12.1, you can use the fields in the **Group Fields** area to group the information that displays by the selected items. The fields that are displayed depend on the **Grouping Fields** options that you chose when you started the trace. You can remove a grouping item by clicking **X** next to its name, and add an item by choosing it from a drop-down list.

Click **Upstream** to display information for upstream traffic in the graph and chart. Click **Downstream** to display information for downstream traffic in the graph and chart.

Hover your cursor over a data point to display detailed information about the events that affect the flow at that point. Click a data point to update the Sankey chart for that data point. Hover your cursor over a data point in the Sankey chart to display more detailed information.

# QoS Insight Tab

The **QoS Insight** tab displays network-wide information about which application traffic entered which QoS queues on the devices that the trace detects. This information includes all the hops for the traffic.

**Note** This tab is not available for consolidated insight summaries.

To display information on this tab, enable the **QoS Insight** option when you start the trace.

- **QoS Drop Rate** graph: Provides information about the packet or byte drop rates for the selected devices over the period of the trace.

- **QoS - Applications Distribution** Sankey chart: Provides detailed information about the traffic spectrum and QoS processing at a particular time. The chart illustrates forwarded or dropped traffic that occurs in a flow that goes from an application to a VPN to a physical interface to a queue.

To provide complete information about bandwidth consumers that cause dropped packets, this tab displays information for all the applications on a device, regardless of the applications that you choose by using the **Application** filter when you start a trace. It also displays information for **VPN0** and all the service VPNs, regardless of the service VPNs that you choose by using the **VPN** filter when you start the trace.

The graph and chart display information for each device that appears in the **Devices** field.

The chart displays information for each item that appears in the **Applications**, **VPNs**, **Interfaces**, **Queues**, and **Forward/Drop** fields. All the items that the trace detects are displayed in these fields by default, except items with a packet per second (PPS) rate of less than 0.05. You can remove an item by clicking the **X** next to its name, and add an item by choosing the item from a corresponding drop-down list.

Click **Packet** to display packet drop rate information in the graph and packets per second (PPS) information in the Sankey chart. Click **Byte** to display byte drop rate information in the graph and kilobits per second (Kbps) information in the Sankey chart.

Hover your cursor over a data point in the graph to display more detailed information. Click a data point in the graph to update the Sankey chart for that data point. Hover your cursor over a data point in the Sankey chart to display more detailed information.

# Policy Insight Tab

From Cisco Catalyst SD-WAN Manager Release 20.18.1, you can gather insights into how app route policies and data policies are applied to applications. SLA Not Met and multiple underlay DSCPs on same queue stats are highlighted.

# ThousandEyes Insight Tab

From Cisco Catalyst SD-WAN Manager Release 20.14.1, the **ThousandEyes Insight** tab displays the following information that the trace collects from tests that Cisco ThousandEyes Enterprise Agents performed. The information in this tab supplements Cisco ThousandEyes overlay path and metrics information with underlay path and metrics information.



**Note** This tab is not available for consolidated insight summaries.

Cisco ThousandEyes tests discover network paths, and measure end-to-end loss, jitter, and latency from Enterprise Agents to application servers. This data does not include Cisco Catalyst SD-WAN insight information. This information can help you isolate issues with the network.

To display the following information on this tab, enable the **ThousandEyes Insight** option when you start the trace. The graphs and path visualization display information for the test and agent that you choose.

- **ThousandEyes Tests** table: Provides information for the Cisco ThousandEyes tests that the trace monitored.

- **Loss** graph: Provides information for the end-to-end loss that Cisco ThousandEyes tests captured, and information about Cisco Catalyst SD-WAN network loss.
- **Jitter/Latency** graph: Provides information for the end-to-end jitter and latency that Cisco ThousandEyes tests captured, and information about Cisco Catalyst SD-WAN network jitter and latency.
- **Path Visualization**: Provides information for the end-to-end network paths that Cisco ThousandEyes tests discovered, supplemented with Cisco Catalyst SD-WAN network segment overlay and underlay paths and metrics that the trace captured.

Hover your cursor over a data point in a graph or the path visualization to display more detailed information.

Click the name of a test in a graph or the path visualization to display detailed information for the test.

Click a data point on a graph and then click **Go to ThousandEyes** to display the **Cisco ThousandEyes Application** page, which provides detailed information for the selected test and agent.

Click a data point on a graph and then click **Go to SD-WAN Insight** to display the **Completed Flows** tab under **NWPI Insight** with detailed flow information for the selected test and agent.