NetApp

Monitoring your environment

OnCommand Insight

NetApp
March 08, 2024

Table of Contents

Monitoring your environment

Insight helps you to prevent problems in your environment and troubleshoot potential problems quickly.

Asset page data

Asset pages provide performance troubleshooting data and present summary information about a base asset (such as a virtual machine or a volume) and the related assets it uses (such as storage pools, storage nodes, and connected switch ports), with links to additional information.

Beginning with OnCommand Insight 7.3.1, all asset pages have a **Main** page and an **Additional data** page. On the Main page are a summary of the asset and different sections for charts, topology and other information. The **Additional data** page allows you to configure a customizable dashboard page for the current asset type.

A solid red circle next to a line or message on the asset page main tab indicates potential issues with the monitored environment.

Types of asset pages

Asset pages summarize the current status of an asset and contain links to additional information about the asset and its related assets.

OnCommand Insight provides asset pages for the following assets:

- Virtual machine
- Volume
- Internal volume
- Physical host
- Storage pool
- Storage
- Datastore
- Hypervisor
- Application
- Storage node
- Qtree
- Disk
- VMDK
- Port
- Switch
- Fabric
- Object storage (for example, Atmos, Centera, Amazon S3)

- Zone

Mapping and Masking information can be viewed in tables on Zone, Volume, VM, and Host/Hypervisor asset pages.

> ℹ️ Summary information is available for object storage assets; however, you can only access this information from the Data sources detail page.

Searching your environment for specific assets

You can locate information about specific assets by using the search facility. For example, if a system user contacts the storage administrator with a complaint about a particular server, the administrator can search the server name and display an asset page summarizing the status and supplying additional linked information.

Steps

1. Open the OnCommand Insightweb UI.
2. On the toolbar, click 🔍.

   The **Search assets** box is displayed.

3. Enter the name of an asset or a portion of the name.
4. Select the resource you want from the search results.

   The asset page for that resource is displayed.

Advanced search techniques

Multiple search techniques can be used to search for data or objects in your monitored environment.

Wildcard search

You can perform multiple character wildcard search using the * character. For example, *applic*n* would return application.

Phrases used in search

A phrase is a group of words surrounded by double quotation marks; for example, "PAW VNX LUN 5". You can use double quotes to search for documents that contain spaces in their names or attributes.

Boolean Operators

Using Boolean operators, you can combine multiple terms to form a more complex query.

- **OR**
  - The OR operator is the default conjunction operator.

    If there is no Boolean operator between two terms, the OR operator is used.

- The OR operator links two terms and finds a matching document if either of the terms exists in a document.

  For example, "storage OR netapp" searches for documents that contain either "storage" or "netapp".

- High scores are given to documents that match most of the terms.

- **AND**

  You can use the AND operator to find documents in which both the search terms exist in a single document. For example, "aurora AND netapp" searches for documents that contain both "storage" and "netapp".

  You can use the symbol && instead of the word AND.

- **NOT**

  When you use the NOT operator, all the documents that contain the term after NOT are excluded from the search results. For example, "storage NOT netapp" searches for documents that contains only "storage" and not "netapp".

  You can use the symbol ! instead of the word NOT.

Prefix and suffix search

- As soon as you start typing a search string, the search engine does a prefix and suffix search to find the best match.

- Exact matches are given a higher score than a prefix or suffix match. The score is calculated based on the distance of the search term from the actual search result. For example, we have three storages: "aurora", "aurora1", and "aurora11". Searching for "aur" will return all three storages. However, the search result for "aurora" will have the highest score because it has the closest distance to the prefix search string.

- The search engine also searches for terms in reverse order, which allows you to perform a suffix search. For example, when you type "345" in the search box, the search engine searches for "345".

- Search is case-insensitive.

Search using indexed terms

Searches that match more of the indexed terms result in higher scores.

The search string is split into separate search terms by space. For example, the search string "storage aurora netapp" is split into three keywords: "storage", "aurora", and "netapp". The search is performed using all three terms. The documents that match most of these terms will have the highest score. The more information you provide, the better are the search results. For example, you can search for a storage by its name and mode.

The UI displays the search results across categories, with the three top results per category. If you did not find a document that you were expecting, you can include more terms in the search string to improve the search results.

The following table provides a list of indexed terms that can be added to the search string.

Category	Indexed terms

Storage	• "storage" • name • vendor • model
StoragePool	• "storagepool" • name • name of the storage • IP addresses of the storage • serial number of the storage • storage vendor • storage model • names for all associated internal volumes • names for all associated disks
Internal Volume	• "internalvolume" • name • name of the storage • IP addresses of the storage • serial number of the storage • storage vendor • storage model • name of the storage pool • names of all associated shares • names of all associated applications and business entities
Volume	• "volume" • name • label • names of all internal volumes • name of the storage pool • name of the storage • IP addresses of the storage • serial number of the storage • storage vendor • storage model

Storage Node	• "storagenode" • name • name of the storage • IP addresses of the storage • serialnumber of the storage • storage vendor • storage model
Host	• "host" • name • IP addresses • names of all associated applications and business entities
Datastore	• "datastore" • name • virtual center IP • names of all volumes • names of all internal volumes
Virtual Machines	• "virtualmachine" • name • DNS name • IP addresses • name of the host • IP addresses of the host • names of all datastores • names of all associated applications and business entities

Switches (regular and NPV)	• "switch" • IP address • wwn • name • serial number • model • domain ID • name of the fabric • wwn of the fabric
Application	• "application" • name • tenant • line of business • business unit • project
Tape	• "tape" • IP address • name • serial number • vendor
Port	• "port" • wwn • name
Fabric	• "fabric" • wwn • name

Changing the time range of displayed data

By default, an asset page displays the last 24 hours of data; however, you can change the segment of data displayed by selecting another fixed time or a custom range of time to view less or more data.

About this task

You can change the time segment of displayed data by using an option that is located on every asset page, regardless of asset type.

Steps

1. Log in to the OnCommand Insightweb UI.

2. Locate an asset page by doing either of the following:

   - On the Insight toolbar, click , type in the name of the asset, and then select the asset from the list.

   - Click **Dashboards**, select **Assets Dashboard**, locate an asset name, and click it. The asset page displays.

3. In the upper left corner of the page, click any of the following time icons to change the segment of data displayed:

   - **3h**

     Displays the last three hours of data.

   - **24h**

     Displays the last 24 hours of data.

   - **3d**

     Displays the last three days of data.

   - **7d**

     Displays the last seven days of data.

   - **30d**

     Displays the last thirty days of data.

   - **Custom**

     Displays a dialog box that enables you to choose a custom range of time. You may display up to 31 days of data at a time.

4. If you chose **Custom**, do the following:

   a. Click the date field, and select a month, day, and year for the begin date.

   b. Click the time list, and select a begin time.

   c. Repeat both steps a and b for the end data and time.

   d. Click .

Determining data source acquisition status

Because data sources are the primary source of information for Insight, it is imperative that you ensure that they remain in a running state.

The ability to see the data source acquisition status is available on every asset page for all assets that are directly acquired. Either of the following acquisition scenarios can occur, in which the status is displayed in the upper right corner of the asset page:

- Acquired successfully from data source

Displays the status "Acquired xxxx", where xxxx indicates the most recent acquisition time of the asset's data sources.

- There is an acquisition error.

  Displays the status "Acquired xxxx", where xxxx indicates the most recent acquisition time of the asset's one or more data sources with ⚠ . When you click ⚠ , a window displays each data source for the asset, the data source's status, and the last time data was acquired. Clicking a data source displays the data source's detail page.

If an asset is not directly acquired, no status is displayed.

Asset page sections

An asset page displays several sections containing information relevant to the asset. The sections that you see depend on the type of asset.

Summary

The Summary section on an asset page displays a summary of information about the particular asset and shows issues related to the asset, indicated by a red circle, with hyperlinks to additional information about related assets and to any performance policies assigned to the asset.

The following example shows some of the types of information available in the Summary section of an asset page for a virtual machine. Any item with a solid red circle next to it indicates potential issues with the monitored environment.

Summary

Power state:	On
Guest state:	Running
Datastore:	DS_SP1_1
CPU:	41.05%
Memory:	🔴 51% (1,047 / 2,048 MB)
Capacity:	10% (19.5 / 195.3 GB)
Latency:	1.93 ms (6.00 ms max)
IOPS:	1,317.33 IO/s (4,964.00 IO/s max)
Throughput:	38.79 MB/s (142.00 MB/s max)
DNS name:	VM_Cs_travBookcomp.com
IP:	10.97.133.23
OS:	Microsoft Windows Server 2008 R2(64-bit)
Processors:	4
FC Fabrics Connected:	1
Performance Policies:	VM Latency-Critical
	VM Latency-Warning
	Comp Corp.Customer Support SLA latency
	🔴 Exchange SL0

Using the Summary section

You can view the Summary section to see general information about an asset. Specifically, it is helpful to see if any metrics (for example, memory, capacity, and latency) or any performance policies are cause for concern, which OnCommand Insight indicates by displaying a red circle next to the metric or performance policy.

Steps

1. Log in to the OnCommand Insight web UI.

2. Locate an asset page by doing either of the following:

   ○ On the Insight toolbar, click 🔍▾, type in the name of the asset, and then select the asset from the list.

   ○ Click **Dashboards**, select **Assets Dashboard**, locate an asset name, and click it. The asset page displays.

   > ⓘ The information that displays in the Summary section depends on the type of asset page you are viewing.

3. You can click any of the asset links to view their asset pages.

   For example, if you are viewing a storage node, you can click a link to view the asset page of the storage it is associated with or click to view the asset page of the HA partner.

4. You can view the metrics associated with the asset.

   A red circle next to a metric indicates that you might need to diagnose and resolve potential problems.

> **(i)** You may notice that volume capacity might show greater than 100% on some storage assets. This is due to metadata related to the capacity of the volume being part of the consumed capacity data reported by the asset.

5. If applicable, you can click a performance policy link to view the performance policy or policies associated with the asset.

   If a red circle appears next to a performance policy, this indicates an asset has crossed the performance policy's defined threshold. You should examine the performance policy to further diagnose the issue.

Topology

The Topology section, if applicable to an asset, enables you to see how a base asset is connected to its related assets.

The following shows an example of what might display in the Topology section of a virtual machine asset page.
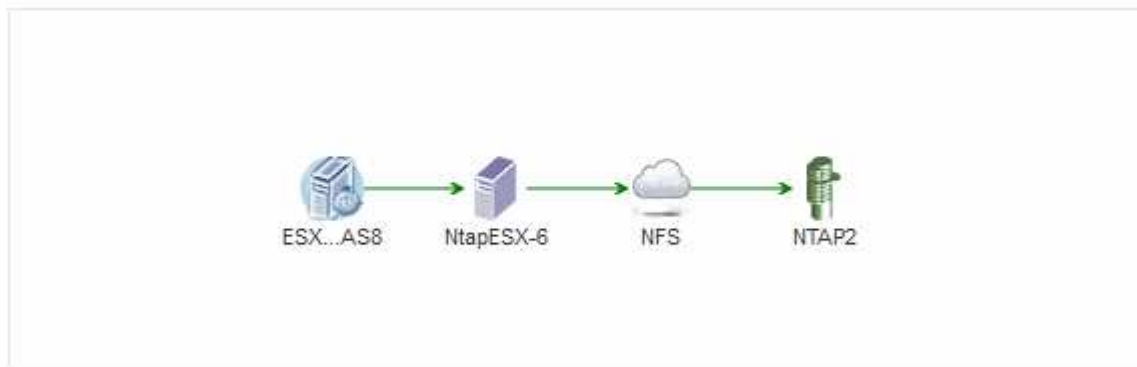
If the topology for the asset is larger than will fit in the section, the **Click link to see the topology** hyperlink is displayed instead.

Using the Topology section

The Topology section enables you to view how the assets in your network are connected to each other and display information about related assets.

Steps

1. Log in to the OnCommand Insight web UI.

2. Locate an asset page by doing either of the following:

   ○ On the Insight toolbar, click **Q▾**, type in the name of the asset, and then select the asset from the list.

   ○ Click **Dashboards**, select **Assets Dashboard**, locate an asset name, and click it. The asset page displays. You can find the Topology section in the upper right-hand corner of the asset page.

   If the topology for the asset is larger than will fit in the section, click the **Click link to see the topology** hyperlink.

3. To view more information about the base asset's related assets, position your cursor over a related asset in the topology and click its name, which displays its asset page.

User Data

The User Data section of an asset page displays and enables you to change any user-defined data such as applications, business entities, and annotations.

The following shows an example of what might display in the User Data section of a virtual machine asset page when an application, business entity, and annotation are assigned to the asset:

Using the User Data section to assign or modify applications

You can assign applications running in your environment to certain assets (host, virtual machines, volumes, internal volumes, and hypervisors). The User Data section enables you to change the application assigned to an asset or assign an application or additional applications to an asset.

Steps

1. Log in to the OnCommand Insight web UI.

2. Locate an asset page by doing either of the following:

   ○ On the Insight toolbar, click, type in the name of the asset, and then select the asset from the list.

   ○ Click **Dashboards**, select **Assets Dashboard**, locate an asset name, and click it. The asset page displays.

3. You can do the following:

   ○ To view the asset page for the application, click the application's name.

   ○ To change the application assigned or to assign an application or additional applications, position your cursor over the application name, if an application is assigned, or over **None**, if no application is assigned, click, type to search for an application or select one from the list, and then click.

   If you choose an application that is associated with a business entity, the business entity is automatically assigned to the asset. In this case, when you place your cursor over the business entity name, the word *derived* displays. If you want to maintain the entity for only the asset and not the associated application, you can manually override the assignment of the application.

   ○ To remove an application, click.

Using the User Data section to assign or modify business entities

You can define business entities to track and report on your environment data at a more granular level. The User Data section in an asset page enables you to change the

business entity assigned to an asset or remove a business entity from an asset.

Steps

1. Log in to the OnCommand Insight web UI.

2. Locate an asset page by doing either of the following:

   ◦ On the Insight toolbar, click , type in the name of the asset, and then select the asset from the list.

   ◦ Click **Dashboards**, select **Assets Dashboard**, locate an asset name, and click it. The asset page displays.

3. You can do the following:

   ◦ To change the entity assigned or to assign an entity, click   and select an entity from the list.

   ◦ To remove a business entity, click   .

   > (i) You cannot remove an entity that is derived from an application that is assigned to the asset.

Using the User Data section to assign or modify annotations

When customizing OnCommand Insight to track data for your corporate requirements, you can define specialized notes, called *annotations*, and assign them to your assets. The User Data section of an asset page displays annotations assigned to an asset and also enables you to change the annotations assigned to that asset.

Steps

1. Log in to the OnCommand Insight web UI.

2. Locate an asset page by doing either of the following:

   ◦ On the Insight toolbar, click , type in the name of the asset, and then select the asset from the list.

   ◦ Click **Dashboards**, select **Assets Dashboard**, locate an asset name, and click it. The asset page displays.

3. In the **User Data** section of the asset page, click + Add .

   The Add Annotation dialog box displays.

4. Click **Annotation** and select an annotation from the list.

5. Click **Value** and do either of the following, depending on type of annotation you selected:

   ◦ If the annotation type is list, date, or Boolean, select a value from the list.

   ◦ If the annotation type is text, type a value.

6. Click **Save**.

   The annotation is assigned to the asset. You can later filter assets by annotation using a query.

7. If you want to change the value of the annotation after you assign it, click   and select a different value.

   If the annotation is of list type for which the **Add values dynamically upon annotation assignment** option is selected, you can type to add a new value in addition to selecting an existing value.

Expert view

The Expert View section of an asset page enables you to view a performance sample for the base asset based on any number of applicable metrics in context with a chosen time period (3 hours, 24 hours, 3 days, 7 days, or a custom time period) in the performance chart and any assets related to it.

The following is an example of the Expert View section in a volume asset page:

You can select the metrics you want to view in the performance chart for the time period selected.

The Resources section shows the name of the base asset and the color representing the base asset in the performance chart. If the Top Correlated section does not contain an asset you want to view in the performance chart, you can use the **Search assets** box in the Additional resources section to locate the asset and add it to the performance chart. As you add resources, they appear in the Additional resources section.

Also shown in the Resources section, when applicable, are any assets related to the base asset in the following categories:

- Top correlated

  Shows the assets that have a high correlation (percentage) with one or more performance metrics to the base asset.

- Top contributors

  Shows the assets that contribute (percentage) to the base asset.

- Greedy

  Shows the assets that take away system resources from the asset through sharing the same resources, such as hosts, networks, and storage.

- Degraded

  Shows the assets that are depleted of system resources due to this asset.

Expert View metric definitions

The Expert View section of an asset page displays several metrics based on the time period selected for the asset. Each metric is displayed in its own performance chart. You can add or remove metrics and related assets from the charts depending on what data you want to see.

Metric	Description
BB credit zero Rx, Tx	Number of times the receive/transmit buffer-to-buffer credit count transitioned to zero during the sampling period. This metric represents the number of times the attached port had to stop transmitting because this port was out of credits to provide.
BB credit zero duration Tx	Time in milliseconds during which the transmit BB credit was zero during the sampling interval.
Cache hit ratio (Total, Read, Write) %	Percentage of requests that result in cache hits. The higher the number of hits versus accesses to the volume, the better is the performance. This column is empty for storage arrays that do not collect cache hit information.
Cache utilization (Total) %	Total percentage of cache requests that result in cache hits
Class 3 discards	Count of Fibre Channel Class 3 data transport discards.
CPU utilization (Total) %	Amount of actively used CPU resources, as a percentage of total available (over all virtual CPUs).
CRC error	Number of frames with invalid cyclic redundancy checks (CRCs) detected by the port during the sampling period
Frame rate	Transmit frame rate in frames per second (FPS)
Frame size average (Rx, Tx)	Ratio of traffic to frame size. This metric enables you to identify whether there are any overhead frames in the fabric.
Frame size too long	Count of Fibre Channel data transmission frames that are too long.
Frame size too short	Count of Fibre Channel data transmission frames that are too short.

I/O density (Total, Read, Write)	Number of IOPS divided by used capacity (as acquired from the most recent inventory poll of the data source) for the Volume, Internal Volume or Storage element. Measured in number of I/O operations per second per TB.
IOPS (Total, Read, Write)	Number of read/write I/O service requests passing through the I/O channel or a portion of that channel per unit of time (measured in I/O per sec)
IP throughput (Total, Read, Write)	Total: Aggregated rate at which IP data was transmitted and received in megabytes per second. Read: IP Throughput (Receive): Average rate at which IP data was received in megabytes per second. Write: IP Throughput (Transmit): Average rate at which IP data was transmitted in megabytes per second.
Latency (Total, Read, Write)	Latency (R&W): Rate at which data is read or written to the virtual machines in a fixed amount of time. The value is measured in megabytes per second. Latency: Average response time from the virtual machines in a data store. Top Latency: The highest response time from the virtual machines in a data store.
Link failure	Number of link failures detected by the port during the sampling period.
Link reset Rx, Tx	Number of receive or transmit link resets during the sampling period. This metric represents the number of link resets that were issued by the attached port to this port.
Memory utilization (Total) %	Threshold for the memory used by the host.
Partial R/W (Total) %	Total number of times that a read/write operation crosses a stripe boundary on any disk module in a RAID 5, RAID 1/0, or RAID 0 LUN Generally, stripe crossings are not beneficial, because each one requires an additional I/O. A low percentage indicates an efficient stripe element size and is an indication of improper alignment of a volume (or a NetApp LUN). For CLARiiON, this value is the number of stripe crossings divided by the total number of IOPS.

Port errors	Report of port errors over the sampling period/given time span.
Signal loss count	Number of signal loss errors. If a signal loss error occurs, there is no electrical connection, and a physical problem exists.
Swap rate (Total Rate, In rate, Out rate)	Rate at which memory is swapped in, out, or both from disk to active memory during the sampling period. This counter applies to virtual machines.
Sync loss count	Number of synchronization loss errors. If a synchronization loss error occurs, the hardware cannot make sense of the traffic or lock onto it. All the equipment might not be using the same data rate, or the optics or physical connections might be of poor quality. The port must resynchronize after each such error, which impacts system performance. Measured in KB/sec.
Throughput (Total, Read, Write)	Rate at which data is being transmitted, received, or both in a fixed amount of time in response to I/O service requests (measured in MB per sec).
Timeout discard frames - Tx	Count of discarded transmit frames caused by timeout.
Traffic rate (Total, Read, Write)	Traffic transmitted, received, or both received during the sampling period, in mebibytes per second.
Traffic utilization (Total, Read, Write)	Ratio of traffic received/transmitted/total to receive/transmit/total capacity, during the sampling period.
Utilization (Total, Read, Write) %	Percentage of available bandwidth used for transmission (Tx) and reception (Rx).
Write pending (Total)	Number of write I/O service requests that are pending.

Using the Expert View section

The Expert view section enables you to view performance charts for an asset based on any number of applicable metrics during a chosen time period, and to add related assets to compare and contrast asset and related asset performance over different time periods.

Steps

1. Log in to the OnCommand Insight web UI.

2. Locate an asset page by doing either of the following:

   ◦ On the Insight toolbar, click ⌕▾, type in the name of the asset, and then select the asset from the list.

   ◦ Click **Dashboards**, select **Assets Dashboard**, locate an asset name, and click it. The asset page displays. By default, the performance chart shows two metrics for time period selected for the asset page. For example, for a storage, the performance chart shows latency and total IOPS by default. The Resources section displays the resource name and an Additional resources section, which enables you to search for assets. Depending on the asset, you might also see assets in the Top correlated, Top contributor, Greedy, and Degraded sections.

3. You can click **Select metrics to show**, and select a metric to add a performance chart for a metric.

   A performance chart is added for the selected metric. The chart displays the data for the selected time period. You can change the time period by clicking on another time period in the top left-hand corner of the asset page.

   You can perform the step again, and click to clear a metric. The performance chart for the metric is removed.

4. You can position your cursor over the chart and change the metric data that displays by clicking either of the following, depending on the asset:

   ◦ **Read** or **Write**

   ◦ **Tx**or **Rx Total** is the default.

5. You can drag your cursor over the data points in the chart to see how the value of the metric changes over the time period selected.

6. In the **Resources** section, you can do any of the following, if applicable, to add any related assets to the performance charts:

   ◦ You can select a related asset in the Top correlated, Top contributors, Greedy, or Degraded sections to add data from that asset to the performance chart for each selected metric. Assets must have a minimum 15% correlation or contribution to be shown.

   After you select the asset, a color block appears next to the asset to denote the color of its data points in the chart.

   ◦ For any asset shown, you can click the asset name to display its asset page, or you can click the percentage that the asset correlates or contributes to the base asset to view more information about the assets relation to the base asset.

   For example, clicking the linked percentage next to a top correlated asset displays an informational message comparing the type of correlation that asset has with the base asset.

   ◦ If the Top correlated section does not contain an asset you want to display in a performance chart for comparison purposes, you can use the **Search assets** box in the Additional resources section to locate other assets. After you select an asset, it displays in the Additional resources section. When you no longer want to view information about the asset, click 🗑 .

Related Assets

If applicable, an asset page displays a Related Assets section. For example, a volume

asset page might show information about assets like Storage Pools, Connected switch ports, and Compute Resources. Each section comprises a table that lists any of the related assets in that category, with links to their respective asset pages, and several performance statistics related to the asset.

Using the Related Assets section

The Related Assets section enables you to view any of the assets that are related to the base asset. Each related asset is displayed in a table along with pertinent statistics for the asset. You can export the asset information, view the asset statistics in the Expert View performance charts, or show a chart that displays statistics for only related assets.

Steps

1. Log in to the OnCommand Insight web UI.

2. Locate an asset page by doing either of the following:

   - On the Insight toolbar, click Q▾, type in the name of the asset, and then select the asset from the list.

   - Click **Dashboards**, select **Assets Dashboard**, locate an asset name, and click it. The asset page displays.

3. To control how assets display in the table:

   - Click the name of any asset to display its asset page.

   - Use the **filter** box to show only specific assets.

   - Click a page number to browse through the assets by page if there are more than five assets in the table.

   - Change the sort order of the columns in a table to either ascending (up arrow) or descending (down arrow) by clicking the arrow in the column header.

   - Add a related asset to any performance chart in the Expert View section by placing your cursor over the related asset and clicking ⅈⅈⅈ.

4. To export the information displayed in the table to a `.csv` file:

   a. Click ⬆ .

   b. Click **Open with** and then **OK** to open the file with Microsoft Excel and save the file to a specific location, or click **Save file** and then **OK** to save the file to your Downloads folder.

   All of the object attributes for the columns currently selected for display are exported to the file. Only the attributes for the displayed columns will be exported. Note that only the first 10,000 rows of the table are exported.

5. To display the related asset information in a chart below the table, click ⅈⅈⅈ and do any of the following:

   - Click **Read**,**Write**, or **Total** to change the metric data that displays. **Total** is the default.

   - Click ✏ to select a different metric.

   - Click ≡ to change the chart type. **Line chart** is the default.

   - Move your cursor over the data points in the chart to see how the value of the metric changes over the time period selected for each related asset.

   - Click a related asset in the chart legend to add it to or remove it from the chart.

- Click a page number in the related asset table to view other related assets in the chart.
- Click ✖ to close the chart.

Violations

You can use the Violations section of an asset page to see the violations, if any, that occur in your environment as a result of a performance policy assigned to an asset. Performance policies monitor your network thresholds and enable you to detect a violation of a threshold immediately, identify the implication, and analyze the impact and root cause of the problem in a manner that enables rapid and effective correction.

The following example shows aViolations section that displays on an asset page for a hypervisor:

Violations		filter...
Time ▲	**Description**	
06/05/2015 5:00:00 pm	Port balance index of 74 on esx1 exceeds the threshold of 50	
06/12/2015 8:59:54 am	2 violations for 🖥 esx2 with 'Swap out rate' > 3	
06/12/2015 12:04:54 pm	esx1 violation with 'Swap out rate' > 3.00 KB/s (value of 86.85 KB/s)	
06/12/2015 12:29:54 pm	esx1 violation with 'Swap in rate' > 3.00 KB/s (value of 59.90 KB/s)	
06/12/2015 1:04:54 pm	7 violations for 🖥 ds-30 with 'Latency - Total' > 50	
Showing 1 to 5 of 32 entries		< 1 2 3 4 5 >

Using the Violations section

The Violations section enables you to view and manage any of the violations that occur in your network as the result of a performance policy assigned to an asset.

Steps

1. Log in to the OnCommand Insight web UI.
2. Locate an asset page by doing either of the following:
   - On the Insight toolbar, click 🔍▾, type in the name of the asset, and then select the asset from the list.
   - Click **Dashboards**, select **Assets Dashboard**, locate an asset name, and click it. The asset page displays. The Violations section displays the time the violation occurred and a description of the threshold that was crossed, along with a hyperlink to the asset on which the violation occurred (for example "2 violations fir ds-30 with Latency - Total > 50").
3. You can perform any of the following optional tasks:
   - Use the **filter** box to show only specific violations.
   - Click a page number to browse through the violations by page if there are more than five violations in the table.
   - Change the sort order of the columns in a table to either ascending (up arrow) or descending (down arrow) by clicking the arrow in the column header.
   - Click the asset name in any description to display its asset page; a red circle indicates issues that need further investigation.

     You can click the performance policy, which displays the Edit Policy dialog box, to review the performance policy and make changes to the policy if necessary.

◦ Click ✖ to remove a violation from the list if you determine the issue is no longer a cause for concern.

Customizable asset page

Additional data can be displayed in customizable widgets on each asset page. Customizing the page for an asset applies the customization to the pages for all assets of that type.

You customize asset page widgets by performing the following actions:

1. Add a widget to the page
2. Create a query or expression for the widget to showcase desired data
3. Choose a filter if desired
4. Choose a rollup or grouping method
5. Save the widget
6. Repeat for all desired widgets
7. Save the asset page

You can also add variables to the custom asset page that can be used to further refine your showcased data in widgets. In addition to regular variables, each asset type can use a set of "$this" variables to quickly identify resources directly related to the current asset, for example, all virtual machines hosted by the same hypervisor that hosts the current virtual machine.

This custom asset page is unique for each user as well as for each asset type. For example, if User A creates a custom asset page for a virtual machine, that custom page will display for any virtual machine asset page, for that user.

Users can only view, edit, or delete custom asset pages that they create.

Custom asset pages are not included in Insight's export/import functionality.

Understanding "$this" variables

Special variables on an asset's "Additional data" customizable page allow you to easily showcase additional information that is directly related to the current asset.

About this task

To use the "$this" variables in widgets on your asset's customizable landing page, follow the steps below. For this example, we will add a table widget.

> ⓘ "$this" variables are only valid for an asset's customizable landing page. They are not available for other Insight dashboards. The available "$this" variables varies according to asset type.

Steps

1. Navigate to an asset page for an asset of your choosing. For this example, let's choose a Virtual Machine (VM) asset page. Query or search for a VM and click on the link to go to that VM's asset page.

   The asset page for the VM opens.

2. Click on the **Change view: > Additional Virtual Machine data** drop-down to go to that asset's customizable landing page.

3. Click on the **Widget** button and choose **Table widget**.

   The Table widget opens for editing. By default, all storages are shown in the table.

4. We want to show all virtual machines. Click on the asset selector and change **Storage** to **Virtual Machine**.

   All virtual machines are now shown in the table.

5.
   Click on the **Column selector** button ⊞▾ and add the **hypervisor name** field to the table.

   The hypervisor name is shown for each VM in the table.

6. We only care about the hypervisor that hosts the current VM. Click on the **Filter by** field's **+** button and select **hypervisor name**.

7. Click on **Any** and select the **$this.host.name** variable. Click the check button to save the filter.
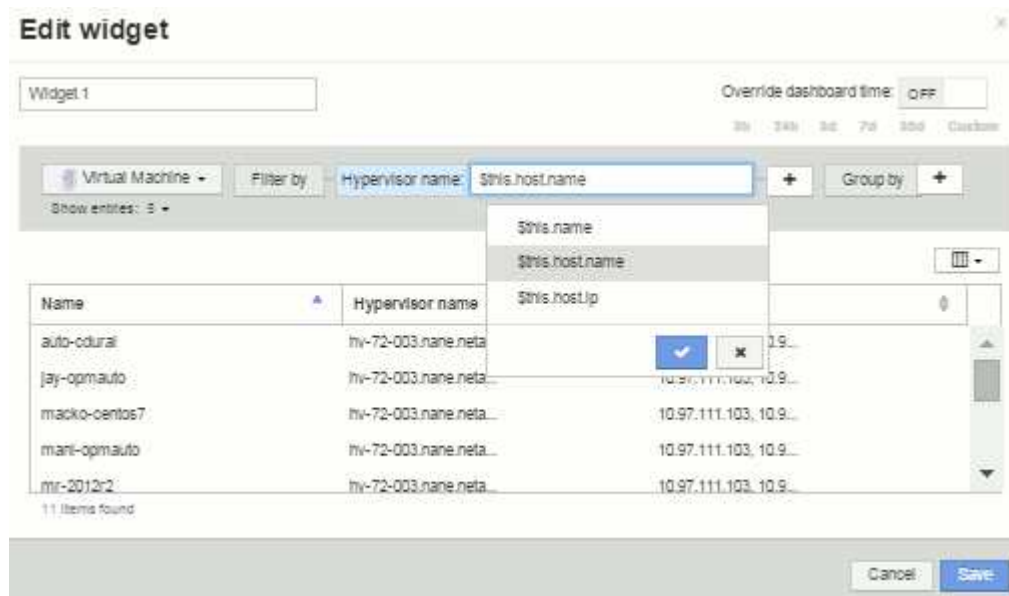
8. The table now shows all the VM's hosted by the current VM's hypervisor. Click **Save**.

Results

The table that you created for this virtual machine asset page will be displayed for any VM asset page you display. The use of the **$this.host.name** variable in the widget means that only the VM's owned by the current assets's hypervisor will be displayed in the table.

Balancing network resources

To resolve balancing issues, use the asset pages to find the problems and identify high capacity volumes that are underused.

Steps

1. Open the Assets Dashboard in your browser.

2. In the Virtual Machines IOPS heat map, you notice the name of a VM in very large print that often reports problems.

3. Click the VM name to display the asset page.

4. Check for error messages in the summary.

5. Check the performance charts and particularly the top correlated resources to locate any volumes that might be in contention.

6. Add volumes to the performance chart to compare the patterns of activity and display more asset pages for other resources involved in the problem.

7. Scroll to the bottom of the asset page to see lists of all of the resources associated with the VM. Note any VMDKs running at high capacity. This is likely causing the contention.

8. To resolve the balancing problem, identify a resource that is under-utilized to receive the load from an over-utilized resource or remove a less demanding application from the heavily used resource.

Examining network performance

You can examine your storage environment performance and identify under-utilized and over-utilized resources and identify risks before they turn into problems.

Insight helps you to resolve or prevent performance and availability problems that are revealed through the collected storage data.

You can use Insight to perform these performance management tasks:

- Monitor performance across your environment

- Identify resources influencing the performance of other devices

The Importance of Ports

The Insight Server and Data Warehouse (DWH) server may require a number of TCP ports to be free in order to operate reliably. Some of these ports are only utilized for processes bound to the localhost adapter (127.0.0.1), but are still required for core services to operate reliably. The number of ports required is a superset of what ports are used across the network.

Insight Server Ports

Insight Servers can have software firewalls installed. The "holes" that would need to be opened would be as described below.

Inbound HTTPS 443 - assuming you have the Insight WebUI running on TCP 443, you must expose that as to allow any and all of the following consumers:

- Insight users of the WebUI

- Remote Acquisition Units seeking to connect to the Insight server

- OCI DWH servers with connectors to this Insight server.

- Any programmatic interactions with the Insight REST API

Our general recommendation for anyone looking to implement Insight server host-level firewalling is to allow HTTPS access to all corporate network IP blocks.

Inbound MySQL (TCP 3306). This port only needs to be exposed to any Insight DWH server with a connector

While Insight has dozens of data collectors, they are all poll-based - Insight will cause its Acquisition Units (AUs) to initiate outbound communication to various devices. As long as your host based firewall is "stateful" such that it allows return traffic to be allowed through the firewall, host based firewalls on the Insight Server should not impact data acquisition.

Data Warehouse Ports

For Insight DWH servers:

Inbound HTTPS 443 - assuming you have the Insight WebUI running on TCP 443, you must expose that as to allow the following consumers:

  • Insight administrative users of the DWH admin portal

Inbound HTTPS (TCP 9300) - this is the Cognos reporting interface. If you will have users interacting with the Cognos reporting interface, this must be exposed remotely.

We can imagine environments where the DWH may not need to be exposed - perhaps the report authors just make RDP connections to the DWH server, and craft and schedule reports there, while having all reports scheduled to be delivered via SMTP, or written to a remote file system.

Inbound MySQL (TCP 3306). This port only needs to be exposed if your organization has any MySQL-based integrations with DWH data - are you extracting data out of the various DWH data marts for ingestion into other applications like CMDBs, chargeback systems, etc.

Analyzing slow PC performance

If you receive calls from network users complaining that their computers are running slowly, you need to analyze host performance and identify the affected resources.

Before you begin

In this example, the caller gave the host name.

Steps

1. Open Insight in your browser.

2. Enter the host name in the **Search assets** box and click the host name in the search results.

    The *asset page* for the resource opens.

3. On the asset page for the host, examine the performance charts in the center of the page. You might want to show different types of data in addition to the Latency and IOPS that are usually pre-selected. Click the check boxes for other types of data, such as Throughput, Memory, CPU, or IP Throughput depending on the device type.

4. To display a description of a point on a chart, position the mouse pointer over the point.

5. You might also want to change the time range with the selection at the top of the page to be 3 hours up to 7 days or All of the available data.

6. Examine the list of **Top correlated resources** to see if there are other resources with the same pattern of activity as the base resource.

   The first resource in the list is always the base resource.

   a. Click a linked percentage beside a correlated resource to see if the correlated activity pattern is for IOPS or CPU for the base resource and another resource.

   b. Click the check box for a correlated resource to add its data to the performance charts.

   c. Click the linked name of the correlated resource to display its asset page.

7. For a VM, as in this example, locate the storage pool in the **Top correlated resources** and click the storage pool name.

Analyzing correlated resources

When you are researching performance problems and you open the *asset page* for a device, you should use the Top correlated resources list to refine data displayed in the performance charts. A resource with a high percentage indicates that resource has similar activity to the base resource.

About this task

You are investigating a performance problem and opened the asset page for a device.

Steps

1. In the **Top correlated resources** list, the first resource is the base resource. The correlated resources in the list are ranked by percentage of correlated activity to the first device. Click the linked percentage of correlation to see the details. In this example, the 70% correlation is in Utilization, so both the base resource and this correlated resource have equally high utilization.

2. To add a correlated resource to the performance charts, select the check box in the **Top correlated**

resources list for the resource you want to add. By default each resource provides the Total data available, but you can select only Read or only Write data from the menu on the check box.

Each resource in the charts has a different color so that you can compare the performance measurements for each resource. Only the appropriate type of data is plotted for the selected measurement metrics. For example, CPU data does not include Read or Write metrics, so only Total data is available.

3. Click the linked name of the correlated resource to display its asset page.

4. If you do not see a resource listed in the Top correlated resources that you believe should be considered in the analysis, you can use the **Search assets** box to find that resource.

Fibre Channel environment monitoring

Using OnCommand Insight's Fibre Channel asset pages, you can monitor the performance and inventory of the fabrics in your environment and be aware of any changes that might cause issues.

Fibre Channel asset pages

Insight's asset pages present summary information about the resource, its topology (the device and its connections), performance charts, and tables of associated resources. You can use the fabric, switch, and port asset pages to monitor your Fibre Channel environment. Particularly helpful when troubleshooting a Fibre Channel issue is the performance chart for each port asset, which shows the traffic for the selected top contributor port. Additionally, you can also show buffer-to-buffer credit metrics and port errors in this chart, with Insight displaying a separate performance chart for each metric.

Performance policies for port metrics

Insight enables you to create performance policies to monitor your network for various thresholds and to raise alerts when those thresholds are crossed. You can create performance polices for ports based on available port metrics. When a violation of a threshold occurs, Insight detects and reports it in the associated asset page by displaying a red solid circle; by email alert, if configured; and in the Violations Dashboard or any custom dashboard that reports violations.

Time-to-live (TTL) and downsampled data

Starting withOnCommand Insight 7.3, data retention or time-to-live (TTL) has been increased to from 7 to 90 days. Because that means much more data is processed for charts and tables and the potential for tens of thousands of datapoints, data is downsampled before being displayed.

Downsampling provides a statistical approximation of your data in charts, giving you an efficient overview of data without having to display every data point, while maintaining an accurate view of your collected data.

Why is downsampling needed?

Insight 7.3 increases the time-to-live (TTL) for data to 90 days. This means an increase in the amount of processing needed to prepare data for display in charts and graphs. In order to allow charts to display quickly and efficiently, data is downsampled in a manner that keeps the overall shape of a chart without needing to process every single data point for that chart.

> ⓘ No actual data is lost during downsampling. You can choose to view actual data for your chart instead of downsampled data by following the steps illustrated below.

How downsampling works

Data is downsampled under the following conditions:

- When your selected time range includes 7 days of data or less, no downsampling occurs. Charts display actual data.
- When your selected time range includes more than 7 days of data but less than 1,000 data points, no downsampling occurs. Charts display actual data.
- When your selected time range includes more than 7 days of data and more than 1,000 data points, data is downsampled. Charts display approximated data.

The following examples show downsampling in action. The first illustration shows latency and IOPS charts on a Datastore asset page for a 24-hour period, as shown by selecting **24h** on the asset page's time selector. You can also see the same data by selecting **Custom** and setting the time range to the same 24-hour period.

Since we are choosing a time range of less than 7 days and we have less than 1,000 data points to chart, the data displayed is actual data. No downsampling occurs.
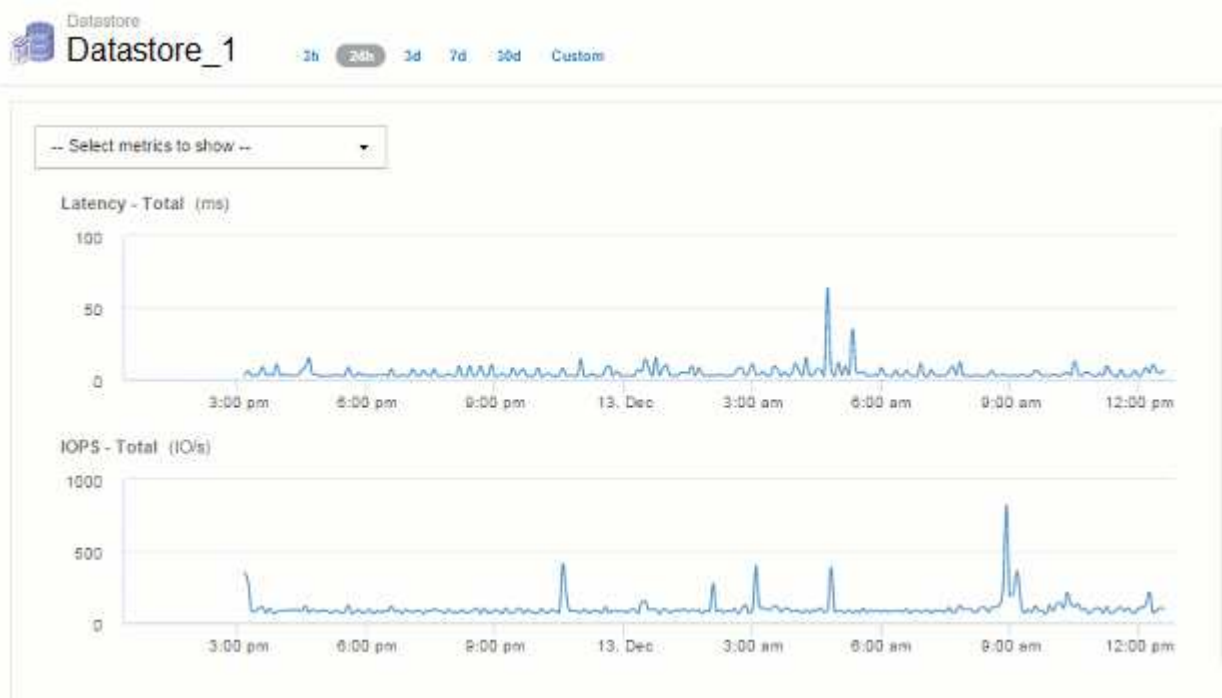
However, if you are viewing data by choosing either **30d** on the asset page time selector, or by setting a custom time range of more than 7 days (or in the event that Insight has collected more than 1,000 data samples for the time period chosen), the data is downsampled before being displayed. When you zoom in on a downsampled chart, the display continues to show the approximated data.

> ⓘ When you zoom in on a downsampled chart, the zoom is a digital zoom. The display continues to show the approximated data.

You can see this in the following illustration, where the time range is first set to 30d, and the chart is then zoomed in to show the same 24-hour period as above.

The downsampled charts are showing the same 24-hour period as the "actual" charts above, so the lines follow the same general shape, allowing you to quickly spot interesting peaks or valleys in your performance data.

> (i) Due to the way data is approximated for downsampling, chart lines may be off slightly when comparing downsampled vs. actual data, to allow for better alignment in the graphs. However, the difference is minimal and does not affect the overall accuracy of the data displayed.

Violations on downsampled charts

When viewing downsampled charts, be aware that violations are not shown. To see violations, you can do one of two things:

- View the actual data for that time range by selecting Custom in the asset page time selector, and entering a range of time less than 7 days. Hover over each red dot. The tooltip will show the violation that occurred.
- Note the time range and find the violation(s) in the Violation Dashboard.

Pruning of inventory history

Starting with version 7.3.2, Insight keeps inventory (foundation) change history for 90 days. Previous versions of Insight kept all inventory change history from the time of installation. Following an upgrade from an older version of Insight, older inventory history is pruned down to and then kept at 90 days.

After upgrading to the current version of OnCommand Insight, history is pruned to the most recent 90 days. Insight prunes the history in 30-day chunks occurring once a day, starting with the oldest, until 90 days' worth of history remains. Then, history is pruned daily, to keep only 90 days' worth of inventory change history.

NAS path for VMs

OnCommand Insight 7.3 supports NAS paths for Virtual Machines to storage shares. These paths are similar to NAS paths for hosts to storage shares. When a VM's IP address is allowed to access a share, a NAS path is created.

NAS paths for virtual machines are displayed on the Internal Volumes landing page. This page contains a Guest Mounted Storage Resources widget which identifies the Internal Volumes that VMs have access to.

- NAS paths are created when virtual machines have access to the backend shares. There is no acknowledgment of whether the virtual machines access the shares or not.
- Correlation calculation is based on latencies and IOPs, and do not include cases where VMs have NAS paths to the backend storage.
- User can query the share by initiator IP address, but querying by path is not supported.

The Compute Resources table of the Internal Volume now also displays VM's with NAS paths. For each VM, CPU and memory, utilization and performance data is provided.

Data warehouse impact

Changes to the Data Warehouse that are present after upgrading to OnCommand Insight 7.3 include the following:

- The dwh_inventory.nas_logical table is removed from the Inventory data mart and replaced with a view.

  Any Insight 7.2.x reports containing the NFS path table are preserved.

- The dwh_inventory.nas_cr_logical table is added to the Inventory data mart and includes the following:
  - Compute resource
  - Internal volume
  - Storage
  - NAS share

Capacity as Time Series

With OnCommand Insight 7.3.1, capacity information is reported and charted as time series data.

Previously, capacity information acquired from data sources has been exclusively "point-in-time" (PIT) data, meaning it could not be used in charts as time series data. Now, capacity values for assets can be used as time series data in the following ways:

- Graphed in tables, widgets, expert views, and any place where time series data is displayed
- Applied to performance thresholds with violations using existing semantics
- Used in expressions with other performance counters where appropriate

Note that if you upgrade from a previous version of Insight, previous PIT capacity values used in queries or in filters for custom dashboards will be replaced with time series capacity data. This may result in small changes in the way that capacity data is reported or filtered when compared to the equivalent data in previous Insight

versions.