View cluster performance

ONTAP System Manager

NetApp
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Cluster performance overview

ONTAP System Manager provides an easy interface that lets you create and manage clusters in your environment.

The System Manager Dashboard lets you determine the following information:

- **Health**: You can monitor the health of a cluster. Alerts are shown when problems arise.
- **Capacity**: System Manager shows you the available capacity on the cluster.
- **Performance**: You can monitor how well the cluster is performing, based on latency, IOPS, and throughput. The metrics are graphed every 15 seconds by hour, day, week, month, or year.
- **Network**: You can view how the network is configured with hosts and storage objects. You can view the number of ports that are available and the interfaces and storage VMs that are associated with them.

View performance on cluster dashboard

Use the dashboard to make informed decisions about workloads you might want to add or move. You can also look at peak usage times to plan for potential changes.

The performance values refresh every 3 seconds and the performance graph refreshes every 15 seconds.

Steps

1. Click **Dashboard**.
2. Under **Performance**, select the interval.

Identify hot volumes and other objects

Accelerate your cluster performance by identifying the frequently accessed volumes (hot volumes) and data (hot objects).

Steps

1. Click **Storage** > **Volumes**.
2. Filter the IOPS, latency, and throughput columns to view the frequently accessed volumes and data.

Search, filter, and sort information in System Manager

You can search for various actions and objects in System Manager. You can also search table data for specific entries.

System Manager provides two types of searching:

- Global searching

  When you enter a search argument in the field at the top of each page, System Manager searches throughout the interface to find matches. You can then sort and filter the results.

- Table-grid searching

  Starting with ONTAP 9.8, when you enter a search argument in the field at the top of a table grid, System Manager searches only the columns and rows of that table to find matches.

Global searching

At the top of each page in System Manager, you can use a global search field to search various objects and actions in the interface. For example, you can search for different objects by name, pages available in the navigator column (on the left side), various action items, like "Add Volume" or "Add License", and links to external help topics. You can also filter and sort the results.

For better results, perform searching, filtering, and sorting one minute after logging in and five minutes after creating, modifying, or deleting an object.

- Getting search results
- Filtering search results
- Sorting search results

Getting search results

The search is not case-sensitive. You can enter a variety of text strings to find the page, actions, or topics you need. Up to 20 results are listed. If more results are found, you can click **Show more** to view all results. The following examples describe typical searches:

Type of search	Sample search string	Sample search results
By object name	vol_	vol_lun_dest on storage VM: svm0 (Volume) /vol/vol...est1/lun on storage VM: svm0 (LUN) svm0:vol_lun_dest1 role: Destination (Relationship)

Type of search	Sample search string	Sample search results
By location in interface	volume	Add Volume (Action) Protection – Overview (Page) Recover deleted volume (Help)
By actions	add	Add Volume (Action) Network – Overview (Page) Expand volumes and LUNs (Help)
By help content	san	Storage – Overview (Page) SAN overview (Help) Provision SAN storage for databases (Help)

Filtering search results

You can narrow the results with filters, as shown in the following examples:

Filter	Syntax	Sample search string
By object type	<type>:<objectName>	volume:vol_2
By object size	<type><size-symbol><number><units>	luns<500mb
By broken disks	“broken disk” or “unhealthy disk”	unhealthy disk
By network interface	<IP address>	172.22.108.21

Sorting search results

When you view all the search results, they are sorted alphabetically. You can sort the results by clicking 

and selecting how you want to sort the results.

Table-grid searching

Starting with ONTAP 9.8, whenever System Manager displays information in a table-grid format, a search button appears at the top of the table.

When you click **Search**, a text field appears in which you can enter a search argument. System Manager searches the entire table and displays only the rows that contain text that matches your search argument.

You can use an asterisk (*) as a "wildcard" character as a substitute for characters. For example, searching for `vol*` might provide rows that contain the following:

- vol_122_D9
- vol_lun_dest1
- vol2866
- volspec1
- volum_dest_765
- volume
- volume_new4
- volume9987

Monitor cluster performance using System Manager

You can monitor cluster performance by viewing information about your system on the ONTAP System Manager Dashboard.

The Dashboard displays information about important alerts and notifications, the efficiency and capacity of storage tiers and volumes, the nodes that are available in a cluster, the status of the nodes in an HA pair, the most active applications and objects, and the performance metrics of a cluster or a node.

The Dashboard lets you determine the following information:

- **Health**: How healthy is the cluster?
- **Capacity**: What capacity is available on the cluster?
- **Performance**: How well is the cluster performing, based on latency, IOPS, and throughput?
- **Network**: How is the network configured with hosts and storage objects, such as ports, interfaces, and storage VMs?

In the Health and Capacity overviews, you can click → to view additional information and perform tasks.

In the Performance overview, you can view metrics based on the hour, the day, the week, the month, or the year.

In the Network overview, the number of each object in the network is displayed (for example, "8 NVMe/FC ports"). You can click on the numbers to view details about each network object.

Monitor cluster performance with Unified Manager

With Active IQ Unified Manager, you can maximize availability and maintain control of your NetApp AFF and FAS storage infrastructure for improved

scalability, supportability, performance, and security.

Active IQ Unified Manager continuously monitors system health and send alerts, so your organization can free up IT staff resources. You can instantly view storage status from a single dashboard and quickly address issues through recommended actions.

Data management is simplified because you can discover, monitor, and receive notifications to proactively manage storage and quickly resolve issues. Admin efficiency is improved because you can monitor petabytes of data from a single dashboard and manage your data at scale.

With Active IQ Unified Manager, you can keep pace with fluctuating business demands, optimizing performance using performance data and advanced analytics. The reporting capabilities allow you to access standard reports or create custom operational reports to meet the specific needs of your business.

Monitor cluster performance with Cloud Insights

NetApp Cloud Insights is a monitoring tool that gives you visibility into your complete infrastructure. With Cloud Insights, you can monitor, troubleshoot, and optimize all your resources including your public clouds and your private data centers.

Cloud Insights comes in two editions

Cloud Insights Basic Edition is designed specifically to monitor and optimize your NetApp Data Fabric assets. It provides advanced analytics for the connections between all NetApp resources including HCI and All Flash FAS (AFF) within the environment free of charge.

Cloud Insights Standard Edition focuses not only on NetApp Data Fabric-enabled infrastructure components, but also on multi-vendor and multi-cloud environments. With its enriched capabilities, you can access support for over 100 services and resources.

In today's world, with resources in play from your on-premises data centers to multiple public clouds, it's crucial to have the complete picture from the application itself to the backend disk of the storage array. The additional support for application monitoring (like Kafka, MongoDB, and Nginx) gives you the information and knowledge you need to operate at the optimal level of utilization as well as with the perfect risk buffer.

Both editions (Basic and Standard) can integrate with NetApp Active IQ Unified Manager. Customers who use Active IQ Unified Manager will be able to see join information inside the Cloud Insights user interface. Notifications posted on Active IQ Unified Manager will not be overlooked and can now be correlated to events in Cloud Insights. In other words, you get the best of both worlds.

Monitor, troubleshoot, and optimize all your resources

Cloud Insights helps you significantly reduce the time to resolve issues and prevent them from impacting end users. It also helps you reduce cloud infrastructure costs. Your exposure to insider threats is reduced by protecting your data with actionable intelligence.

Cloud Insights gives you visibility to your entire hybrid infrastructure in one place—from the public cloud to your data center. You can instantly create relevant dashboards that can be customized to your specific needs. You can also create targeted and conditional alerts that are specific and relevant to your organization's needs.

Advanced anomaly detection helps you proactively fix issues before they arise. You can view resource contention and degradation automatically to quickly restore impacted workloads. Troubleshooting goes more quickly with the automatically built hierarchy of relationships between the different components in your stack.

You can identify unused or abandoned resources across your environment, which helps you discover opportunities to right-size the infrastructure and optimize your entire spend.

Cloud Insights visualizes your system topology to gain an understanding of your Kubernetes architecture. You can monitor the health of your Kubernetes clusters, including which nodes are in trouble, and zoom in when you see a problem.

Cloud Insights helps you protect organizational data from being misused by malicious or compromised users through advanced machine learning and anomaly detection that gives you actionable intelligence on insider threats.

Cloud Insights helps you to visualize Kubernetes metrics so you can fully understand the relations between your pods, nodes, and clusters. You're able to assess the health of a cluster or a working pod, as well as the load it is currently processing—enabling you to take command of your K8S cluster and to control both the health and the cost of your deployment.