Improve the efficiency and performance of your storage system

Active IQ Digital Advisor

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Table of Contents

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Analyze capacity and storage efficiency savings

You can view the capacity details and the storage efficiency savings of your system and take appropriate actions. The capacity and storage efficiency information can be viewed either at a cluster level or a node level.

This feature is not supported on E-Series systems.

The capacity dashboard displays the capacity details and the capacity forecast of your system. Capacity forecast uses historical capacity information to identify the utilization of each system. Based on the historical data (a year's data, if available) of utilized and allocated capacity, the algorithm considers the current utilization of each system and generates a forecast for the system's utilization over the next 1 through 6 months.

The storage efficiency dashboard displays the storage efficiency ratio, the logical space used, the physical space used, and the total data saved for storage systems running ONTAP 9.1 and later. The efficiency ratio and savings can be seen with and without Snapshot backups for AFF systems, non-AFF systems, or both. The total savings across customer storage can be seen per efficiency feature such as volume deduplication, volume compression, compaction, FlexClone volumes, and Snapshot backups. You can also view the top 5 storage systems with the best efficiency ratio.

Steps

1. From the left pane, click **Capacity and Efficiency**.

   By default, the **Capacity** tab is selected.

2. View the capacity details at the cluster and node level.
    a. View the capacity forecast at the node level.

        For ONTAP systems, information about RAW capacity is available in ClusterViewer.

    b. Click **Add Capacity** to send a notification to NetApp or your partner to add capacity.
3. View the storage efficiency and the data savings of your storage system.
    a. If the storage efficiency ratio of your storage system is higher than the average storage efficiency ratio, click **Share Your Success Story** to let us know the best practices followed.
    b. If the storage efficiency ratio of your storage system is less than the average storage efficiency ratio, click **Contact Us** to let us know the configurations of your storage system.

For more information about capacity and storage efficiency, see Frequently asked questions about Active IQ.

Analyze performance graphs

Performance graphs enable you to analyze the performance of your storage devices. You can view detailed performance graphs for an ONTAP cluster or multiple nodes of an ONTAP cluster and E-Series controllers. These graphs provide historical performance data, which can be used for understanding performance trend and pattern analysis. You can select a date from the calendar to view performance graphs for a day, week, month, two months, and twelve months. You can select multiple nodes to view a particular graph at the same time.

You have an option to set preferences, for example, you can view either one graph for three nodes or two graphs for three nodes.

When the graph is first displayed, a 1-week tab is preselected and it presents data for a 1 week in a graphical format to make it easier to understand large quantities of data and its relationship between different series of data. If you want to reset the date range, for example, you can click 1-month tab and select dates in the calendar.

You also have an option to zoom in performance graph; the individual data points are displayed.

Steps

1. On the Dashboard, click **Performance**.

   For ONTAP systems, you can click the **Node** tab to view the performance of a single node of an ONTAP cluster, click the **Local Tier** tab to view the performance of the local tier, or click the **Volume** tab to view the performance of the volume. By default, the cluster performance is displayed.

   For E-Series systems, you can view the graphs only at a controller level.

2. Select either 1 day, 1 week, 1 month, 2 months, or 12 months, in the calendar, for viewing performance data in a graphical format.

   For example, select 2-months tab to view data for 2 months. This enables you to view specific data for a duration based on your performance requirements.

3. The following performance graphs with required metrics are available for ONTAP clusters and nodes:

For Cluster	For Node	For Local Tier	For Volume
IOPS	CPU Utilization - Peak Performance (Headroom)	Average Throughput	IOPS
Network Throughput	Latency	Average Utilization	Latency
	IOPS		
	Protocol IOPS		
	Network Throughput		

Node latency performance graphs and volume performance graphs are supported only on systems that are running ONTAP 9.2 and later.

4. The following performance graphs with required metrics are available for E-Series controllers:
    - CPU Utilization
    - Latency
    - IOPS
    - Throughput