Analyzing the performance improvements achieved from moving a volume

OnCommand Unified Manager 9.5

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You can use Unified Manager to investigate the impact of a volume move operation on the latency (response time) of other volumes on the cluster. Moving a high performing volume to a less busy aggregate or an aggregate with flash storage enabled allows the volume to perform more efficiently.

Before you begin

- You must have the Operator, OnCommand Administrator, or Storage Administrator role.
- You must have identified the name of the volume, or associated LUN, you want to analyze.
- Unified Manager must have collected and analyzed seven days of data.

About this task

Unified Manager identifies when a volume moves between aggregates. It can detect when the volume move is occurring, completed, or failed. The Performance/Volume Details page displays a change event icon for each state of the volume move, which helps you track when a move operation occurred and helps you determine whether it might have contributed to a performance event.

If you are viewing the Event details page, you can click the name of a volume to go directly to the Performance/Volume Details page.

Steps

1. In the **Search** bar, type the name of the volume.
2. Click the name of the volume.

   The volume is displayed on the Performance/Volume Details page.

3. In the **Historic data** chart, adjust the sliders to show activity from the previous work week.
4. Analyze the **Latency** chart and the **IOPS** chart to see how the volume performed over the last few days.

   Assume that you notice a consistent pattern of very high average response times of over 42 milliseconds per operation (ms/op), with performance events, each day of the week and decide to move the volume to a less busy aggregate to improve performance. Using OnCommand System Manager, you can move the volume to an aggregate with Flash Pool enabled for an increased performance boost. Approximately an hour after the volume move has been completed, you can return to Unified Manager to confirm that the move operation was completed successfully and that the latency has improved.

5. If the **Performance/Volume Details** page is not displayed, search for the volume you want to view.
6. On the **Historic data** chart, click **1d** to view the activity from the last one day, a few hours since the volume move was completed.

   At the bottom of the page, in the Events time line, a change event icon ( ) is displayed to indicate the time that the volume move operation was completed. A black, vertical line is also displayed from the change event icon to the Latency chart.

7. Point your cursor to the change event icon to view details about the event in the **Events List**.

   Because the volume moved to an aggregate with Flash Pool enabled, you can see the change in read and write I/O to cache.

8. On the **Break down data by** menu, under **MBps**, select **Cache hit ratio**.

   The Cache hit ratio chart displays statistics about the reads and writes to cache.

   The volume successfully moved to a less busy aggregate and the change event is highlighted in the Events List on the right. The average latency decreased significantly from over 42 ms/op to around 24 ms/op. The current latency is around 1.5 ms/op. In the Cache hit ratio chart, the amount of successful read and write hits to cache is now at 100% because the volume is now on an aggregate with Flash Pool enabled.

How moving a FlexVol volume works

Knowing how moving a FlexVol volume works helps you to determine whether the volume move satisfies service-level agreements and to understand where a volume move is in the volume move process.

FlexVol volumes are moved from one aggregate or node to another within the same storage virtual machine (SVM). A volume move does not disrupt client access during the move.

Moving a volume occurs in multiple phases:

- A new volume is made on the destination aggregate.
- The data from the original volume is copied to the new volume.

  During this time, the original volume is intact and available for clients to access.

- At the end of the move process, client access is temporarily blocked.

  During this time the system performs a final replication from the source volume to the destination volume, swaps the identities of the source and destination volumes, and changes the destination volume to the source volume.

- After completing the move, the system routes client traffic to the new source volume and resumes client access.

The move is not disruptive to client access because the time in which client access is blocked ends before clients notice a disruption and time out. Client access is blocked for 35 seconds by default. If the volume move operation cannot finish in the time that access is denied, the system aborts this final phase of the volume move operation and allows client access. The system attempts the final phase three times by default. After the third attempt, the system waits an hour before attempting the final phase sequence again. The system runs the final phase of the volume move operation until the volume move is complete.

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