Migrate data into StorageGRID

StorageGRID

NetApp
April 10, 2024

This PDF was generated from https://docs.netapp.com/us-en/storagegrid-116/admin/confirming-capacity-of-storagegrid-system.html on April 10, 2024. Always check docs.netapp.com for the latest.

Table of Contents

Migrate data into StorageGRID 1
Confirm capacity of the StorageGRID system 1
Determine the ILM policy for migrated data 1
Impact of migration on operations 2
Schedule and monitor data migration 2

Migrate data into StorageGRID

You can migrate large amounts of data to the StorageGRID system while simultaneously using the StorageGRID system for day-to-day operations.

The following section is a guide to understanding and planning a migration of large amounts of data into the StorageGRID system. It is not a general guide to data migration, and it does not include detailed steps for performing a migration. Follow the guidelines and instructions in this section to ensure that data is migrated efficiently into the StorageGRID system without interfering with day-to-day operations, and that the migrated data is handled appropriately by the StorageGRID system.

Confirm capacity of the StorageGRID system

Before migrating large amounts of data into the StorageGRID system, confirm that the StorageGRID system has the disk capacity to handle the anticipated volume.

If the StorageGRID system includes an Archive Node and a copy of migrated objects has been saved to nearline storage (such as tape), ensure that the Archive Node's storage has sufficient capacity for the anticipated volume of migrated data.

As part of the capacity assessment, look at the data profile of the objects you plan to migrate and calculate the amount of disk capacity required. For details about monitoring the disk capacity of your StorageGRID system, see Manage Storage Nodes and Monitor and troubleshoot.

Determine the ILM policy for migrated data

The StorageGRID system's ILM policy determines how many copies are made, the locations to which copies are stored, and for how long these copies are retained. An ILM policy consists of a set of ILM rules that describe how to filter objects and manage object data over time.

Depending on how migrated data is used and your requirements for migrated data, you might want to define unique ILM rules for migrated data that are different from the ILM rules used for day-to-day operations. For example, if there are different regulatory requirements for day-to-day data management than there are for the data that is included in the migration, you might want a different number of copies of the migrated data on a different grade of storage.

You can configure rules that apply exclusively to migrated data if it is possible to uniquely distinguish between migrated data and object data saved from day-to-day operations.

If you can reliably distinguish between the types of data using one of the metadata criteria, you can use this criteria to define an ILM rule that applies only to migrated data.

Before beginning data migration, ensure that you understand the StorageGRID system's ILM policy and how it will apply to migrated data, and that you have made and tested any changes to the ILM policy. See Manage objects with ILM.

An ILM policy that has been incorrectly specified can cause unrecoverable data loss. Carefully review all changes you make to an ILM policy before activating it to make sure the policy will work as intended.

Impact of migration on operations

A StorageGRID system is designed to provide efficient operation for object storage and retrieval, and to provide excellent protection against data loss through the seamless creation of redundant copies of object data and metadata.

However, data migration must be carefully managed according to the instructions in this chapter to avoid having an impact on day-to-day system operations, or, in extreme cases, placing data at risk of loss in case of a failure in the StorageGRID system.

Migration of large quantities of data places additional load on the system. When the StorageGRID system is heavily loaded, it responds more slowly to requests to store and retrieve objects. This can interfere with store and retrieve requests which are integral to day-to-day operations. Migration can also cause other operational issues. For example, when a Storage Node is nearing capacity, the heavy intermittent load due to batch ingest can cause the Storage Node to cycle between read-only and read-write, generating notifications.

If the heavy loading persists, queues can develop for various operations that the StorageGRID system must perform to ensure full redundancy of object data and metadata.

Data migration must be carefully managed according to the guidelines in this document to ensure safe and efficient operation of the StorageGRID system during migration. When migrating data, ingest objects in batches or continuously throttle ingest. Then, continuously monitor the StorageGRID system to ensure that various attribute values are not exceeded.

Schedule and monitor data migration

Data migration must be scheduled and monitored as necessary to ensure data is placed according to the ILM policy within the required timeframe.

Schedule data migration

Avoid migrating data during core operational hours. Limit data migration to evenings, weekends, and other times when system usage is low.

If possible, do not schedule data migration during periods of high activity. However, if it is not practical to completely avoid the high activity period, it is safe to proceed as long as you closely monitor the relevant attributes and take action if they exceed acceptable values.

Monitor data migration

This table lists the attributes you must monitor during data migration, and the issues that they represent.

If you use traffic classification policies with rate limits to throttle ingest, you can monitor the observed rate in conjunction with the statistics described in the following table and reduce the limits if necessary.

Monitor	Description
Number of objects waiting for ILM evaluation	1. Select **SUPPORT** > **Tools** > **Grid topology**. 2. Select ***deployment*** > **Overview** > **Main**. 3. In the ILM Activity section, monitor the number of objects shown for the following attributes: ◦ **Awaiting - All (XQUZ)**: The total number of objects awaiting ILM evaluation. ◦ **Awaiting - Client (XCQZ)**: The total number of objects awaiting ILM evaluation from client operations (for example, ingest). 4. If the number of objects shown for either of these attributes exceeds 100,000, throttle the ingest rate of objects to reduce the load on the StorageGRID system.
Targeted archival system's storage capacity	If the ILM policy saves a copy of the migrated data to a targeted archival storage system (tape or the cloud), monitor the capacity of the targeted archival storage system to ensure that there is sufficient capacity for the migrated data.
Archive Node > **ARC** > **Store**	If an alarm for the **Store Failures (ARVF)** attribute is triggered, the targeted archival storage system might have reached capacity. Check the targeted archival storage system and resolve any issues that triggered an alarm.

Copyright information

Copyright © 2024 NetApp, Inc. All Rights Reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means—graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system—without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

LIMITED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (b)(3) of the Rights in Technical Data -Noncommercial Items at DFARS 252.227-7013 (FEB 2014) and FAR 52.227-19 (DEC 2007).

Data contained herein pertains to a commercial product and/or commercial service (as defined in FAR 2.101) and is proprietary to NetApp, Inc. All NetApp technical data and computer software provided under this Agreement is commercial in nature and developed solely at private expense. The U.S. Government has a non-exclusive, non-transferrable, nonsublicensable, worldwide, limited irrevocable license to use the Data only in connection with and in support of the U.S. Government contract under which the Data was delivered. Except as provided herein, the Data may not be used, disclosed, reproduced, modified, performed, or displayed without the prior written approval of NetApp, Inc. United States Government license rights for the Department of Defense are limited to those rights identified in DFARS clause 252.227-7015(b) (FEB 2014).

Trademark information

NETAPP, the NETAPP logo, and the marks listed at http://www.netapp.com/TM are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.