Manage a FlexCache relationship

ONTAP 9

NetApp
March 26, 2022

Table of Contents

Manage a FlexCache relationship

View the connection status of a FlexCache relationship

Beginning with ONTAP 9.6, you can view the connection status of a FlexCache relationship and take any corrective action if the connection status between the origin and FlexCache volumes goes to the disconnected mode.

About this task

A FlexCache relationship can have one of the following connection status:

- `connected`
- `disconnected`
- `unknown`

Steps

1. Log in to the advanced privilege mode:

   ```
   set -privilege advanced
   ```

2. Verify the connection status of all the FlexCache relationships in the cluster:

   ```
   volume flexcache connection-status show
   ```

```
cluster::*> volume flexcache connection-status show

Node: cluster-01


                         Remote                              Remote
Connection

+Vserver      Volume     Vserver      Remote Volume       Endpoint
Status

+-------     ----------  --------     --------------      --------
--------------

vs_1          vol_origin     vs_2     fc_11__0001         cache
connected

vs_1          vol_origin     vs_2     fc_11__0002         cache
connected

vs_1          vol_origin     vs_2     fc_11__0003         cache
connected

vs_1          vol_origin     vs_2     fc_11__0004         cache
connected

vs_2          fc_11          vs_1     vol_origin          origin
connected
```

Synchronize properties of a FlexCache volume from an origin volume

Some of the volume properties of the FlexCache volume must always be synchronized with those of the origin volume. If the volume properties of a FlexCache volume fail to synchronize automatically after the properties are modified at the origin volume, you can manually synchronize the properties.

About this task

The following volume properties of a FlexCache volume must always be synchronized with those of the origin volume:

- Security style (`-security-style`)
- Volume name (`-volume-name`)
- Maximum directory size (`-maxdir-size`)

- Minimum read ahead (`-min-readahead`)

Step

1. From the FlexCache volume, synchronize the volume properties:

   ```
   volume flexcache sync-properties -vserver svm_name -volume flexcache_volume
   ```

   ```
   cluster1::> volume flexcache sync-properties -vserver vs1 -volume fc1
   ```

Update the configurations of a FlexCache relationship

After events such as volume move, aggregate relocation, or storage failover, the volume configuration information on the origin volume and FlexCache volume is updated automatically. In case the automatic updates fail, an EMS message is generated and then you must manually update the configuration for the FlexCache relationship.

If the origin volume and the FlexCache volume are in the disconnected mode, you might need to perform some additional operations to update a FlexCache relationship manually.

About this task

If you want to update the configurations of a FlexCache volume, you must run the command from the origin volume. If you want to update the configurations of an origin volume, you must run the command from the FlexCache volume.

Step

1. Update the configuration of the FlexCache relationship:

   ```
   volume flexcache config-refresh -peer-vserver peer_svm -peer-volume
   peer_volume_to_update -peer-endpoint-type [origin | cache]
   ```

Enable global file locking

Beginning with ONTAP 9.10.1, global file locking can be applied to prevent reads across all related cached files.

About this task

By default, FlexCache volumes favor availability over consistency. Without global file locking, any modification to an origin will be distributed to FlexCache volumes, but they might not be updated simultaneously. Global file locking favors consistency across volumes over availability. With global file locking enabled, modifications to the origin will be suspended until all FlexCache volumes are online.

> You should only enable global file locking when you have control over the reliability of the connections between cache and origin due to suspension and possible timeouts of modifications when FlexCache volumes are offline.

Global file locking requires the clusters containing the origin and all associated caches to be running ONTAP 9.9.1 or later. Global file locking can be enabled on new or existing FlexCache volumes. The command can be

run on one volume and will apply to all associated volumes.

You must be in the advanced privilege level to enable global file locking.

The process to enable global file locking depends on whether the origin has existing caches.

- Enable global file locking on new FlexCache volumes
- Enable global file locking on existing FlexCache volumes

Enable global file locking on new FlexCache volumes

Steps

1. Create the FlexCache volume with `-is-global-file-locking` set to true:

   ```
   volume flexcache create volume volume_name -is-global-file-locking-enabled
   true
   ```

   The default value of `-is-global-file-locking` is “false”. When any subsequent `volume flexcache create` commands are run on a volume, they must be passed with `-is-global-file-locking enabled` set to “true”.

Enable global file locking on existing FlexCache volumes

Steps

1. Global file locking must be set from the origin volume.
2. The origin cannot have any other existing relationships (for example, SnapMirror). Any existing relationships must be dissociated. All caches and volumes must be connected at the time of running the command. To check the connection status, run:

   ```
   volume flexcache connection-status show
   ```

   The status for all the listed volumes should display as “`connected.`” For more information, see Viewing the status of a FlexCache relationship or Synchronizing properties of a FlexCache volume from an origin.

3. Enable global file locking on the caches:

   ```
   volume flexcache origin config show/modify -volume volume_name -is-global-file
   -locking-enabled true
   ```

If reverting to a version of ONTAP earlier than 9.9.1, global file lock must first be disabled on the origin and associated caches. This can be managed by running:

```
volume flexcache prepare-to-downgrade -disable-feature-set 9.10.0
```

Prepopulate a FlexCache volume

You can prepopulate a FlexCache volume to reduce the time it takes to access cached data.

What you’ll need

- You must be a cluster administrator at the advanced privilege level
- The paths you pass for prepopulation must be valid or the prepopulate operation fails.

About this task

- Prepopulate reads files only and crawls through directories
- The is-recursion flag applies to the entire list of directories passed to prepopulate

Steps

1. Prepopulate a FlexCache volume:

   ```
   volume flexcache prepopulate -cache-vserver vserver_name -cache-volume -path
   -list path_list -is-recursion true|false
   ```

   This example includes a single directory path for prepopulation:

   ```
   cluster1::*> flexcache prepopulate start -cache-vserver vs2 -cache
   -volume fg_cachevol_1 -path-list /dir1
     (volume flexcache prepopulate start)
   [JobId 207]: FlexCache prepopulate job queued.
   ```

   This example includes a list of several paths for prepopulation:

   ```
   cluster1::*> flexcache prepopulate start -cache-vserver vs2 -cache
   -volume fg_cachevol_1 -path-list /dir1,/dir2,/dir3,/dir4
     (volume flexcache prepopulate start)
   [JobId 208]: FlexCache prepopulate job queued.
   ```

2. Display the number of files read:

   ```
   job show -id job_ID -ins
   ```

Delete a FlexCache relationship

You can delete a FlexCache relationship and the FlexCache volume if you no longer require the FlexCache volume.

Steps

1. From the cluster that has the FlexCache volume, take the FlexCache volume offline:

   ```
   volume offline -vserver svm_name -volume volume_name
   ```

2. Delete the FlexCache volume:

   ```
   volume flexcache delete -vserver svm_name -volume volume_name
   ```

   The FlexCache relationship details are removed from the origin volume and the FlexCache volume.

If the `volume flexcache delete` command fails to clean up the origin side configuration, you are prompted to run the `volume flexcache origin cleanup-cache-relationship` command. In this scenario, go to Step 3.

3. From the origin cluster, clean up the FlexCache relationship details from the origin volume:

```
volume flexcache origin cleanup-cache-relationship -origin-volume
origin_volume -origin-vserver origin_svm -cache-vserver flexcache_svm -cache
-volume flexcache_vol
```

If you run the `volume flexcache origin cleanup-cache-relationship` command, the FlexCache relationship is deleted and cannot be reestablished.

```
cluster1::> volume flexcache origin cleanup-cache-relationship -origin
-volume origin1 -origin-vserver vs34 -cache-vserver vs56 -cache-volume
fc1

Warning: This command only needs to be run if "volume flexcache delete"
fails on
         the FlexCache cluster and prompts you to run this command. The
cache
         configuration will be deleted and cannot be reestablished for
the
         cache relationship between origin of a FlexCache volume
         "origin1" in Vserver "vs34" and FlexCache volume
         "fc1" in Vserver "vs56".
Do you want to continue? {y|n}: y
```