Manage export policy caches

ONTAP 9

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Manage export policy caches

Flush export policy caches

ONTAP uses several export policy caches to store information related to export policies for faster access. Flushing export policy caches manually (`vserver export-policy cache flush`) removes potentially outdated information and forces ONTAP to retrieve current information from the appropriate external resources. This can help resolve a variety of issues related to client access to NFS exports.

About this task

Export policy cache information might be outdated due to the following reasons:

- A recent change to export policy rules
- A recent change to host name records in name servers
- A recent change to netgroup entries in name servers
- Recovering from a network outage that prevented netgroups from being fully loaded

Steps

1. If you do not have name service cache enabled, perform one of the following actions in advance privilege mode:

If you want to flush…	Enter the command…
All export policy caches (except for showmount)	`vserver export-policy cache flush -vserver vserver_name`
The export policy rules access cache	`vserver export-policy cache flush -vserver vserver_name -cache access` You can include the optional `-node` parameter to specify the node on which you want to flush the access cache.
The host name cache	`vserver export-policy cache flush -vserver vserver_name -cache host`
The netgroup cache	`vserver export-policy cache flush -vserver vserver_name -cache netgroup` Processing of netgroups is resource intensive. You should only flush the netgroup cache if you are trying to resolve a client access issue that is caused by a stale netgroup.
The showmount cache	`vserver export-policy cache flush -vserver vserver_name -cache showmount`

2. If name service cache is enabled, perform one of the following actions:

If you want to flush…	Enter the command…
The export policy rules access cache	`vserver export-policy cache flush -vserver vserver_name -cache access` You can include the optional `-node` parameter to specify the node on which you want to flush the access cache.
The host name cache	`vserver services name-service cache hosts forward-lookup delete-all`
The netgroup cache	`vserver services name-service cache netgroups ip-to-netgroup delete-all` `vserver services name-service cache netgroups members delete-all` Processing of netgroups is resource intensive. You should only flush the netgroup cache if you are trying to resolve a client access issue that is caused by a stale netgroup.
The showmount cache	`vserver export-policy cache flush -vserver vserver_name -cache showmount`

Display the export policy netgroup queue and cache

ONTAP uses the netgroup queue when importing and resolving netgroups and it uses the netgroup cache to store the resulting information. When troubleshooting export policy netgroup related issues, you can use the `vserver export-policy netgroup queue show` and `vserver export-policy netgroup cache show` commands to display the status of the netgroup queue and the contents of the netgroup cache.

Step

1. Perform one of the following actions:

To display the export policy netgroup…	Enter the command…
Queue	`vserver export-policy netgroup queue show`
Cache	`vserver export-policy netgroup cache show -vserver vserver_name`

See the man page for each command for more information.

Check whether a client IP address is a member of a netgroup

When troubleshooting NFS client access issues related to netgroups, you can use the `vserver export-policy netgroup check-membership` command to help determine whether a client IP is a member of a certain netgroup.

About this task

Checking netgroup membership enables you to determine whether ONTAP is aware that a client is or is not member of a netgroup. It also lets you know whether the ONTAP netgroup cache is in a transient state while refreshing netgroup information. This information can help you understand why a client might be unexpectedly granted or denied access.

Step

1. Check the netgroup membership of a client IP address: `vserver export-policy netgroup check-membership -vserver vserver_name -netgroup netgroup_name -client-ip client_ip`

   The command can return the following results:

   - The client is a member of the netgroup.

     This was confirmed through a reverse lookup scan or a netgroup-by-host search.

   - The client is a member of the netgroup.

     It was found in the ONTAP netgroup cache.

   - The client is not a member of the netgroup.
   - The membership of the client cannot yet be determined because ONTAP is currently refreshing the netgroup cache.

     Until this is done, membership cannot be explicitly ruled in or out. Use the `vserver export-policy netgroup queue show` command to monitor the loading of the netgroup and retry the check after it is finished.

Example

The following example checks whether a client with the IP address 172.17.16.72 is a member of the netgroup mercury on the SVM vs1:

```
 cluster1::> vserver export-policy netgroup check-membership -vserver vs1
-netgroup  mercury -client-ip 172.17.16.72
```

Optimize access cache performance

You can configure several parameters to optimize the access cache and find the right balance between performance and how current the information stored in the access cache is.

About this task

When you configure the access cache refresh periods, keep the following in mind:

- Higher values mean entries stay longer in the access cache.

  The advantage is better performance because ONTAP spends less resources on refreshing access cache entries. The disadvantage is that if export policy rules change and access cache entries become stale as a result, it takes longer to update them. As a result, clients that should get access might get denied, and clients that should get denied might get access.

- Lower values mean ONTAP refreshes access cache entries more often.

  The advantage is that entries are more current and clients are more likely to be correctly granted or denied access. The disadvantage is a decrease in performance because ONTAP spends more resources refreshing access cache entries.

Steps

1. Set the privilege level to advanced:

   ```
   set -privilege advanced
   ```

2. Perform the desired action:

To modify the…	Enter…
Refresh period for positive entries	`vserver export-policy access-cache config modify-all-vservers -refresh -period-positive timeout_value`
Refresh period for negative entries	`vserver export-policy access-cache config modify-all-vservers -refresh -period-negative timeout_value`
Timeout period for old entries	`vserver export-policy access-cache config modify-all-vservers -harvest -timeout timeout_value`

3. Verify the new parameter settings:

   ```
   vserver export-policy access-cache config show-all-vservers
   ```

4. Return to the admin privilege level:

   ```
   set -privilege admin
   ```

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