Failover groups and policies

ONTAP 9

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Failover groups and policies

Learn about LIF failover on ONTAP networks

LIF failover refers to the automatic migration of a LIF to a different network port in response to a link failure on the LIF's current port. This is a key component to providing high availability for the connections to SVMs. Configuring LIF failover involves creating a failover group, modifying the LIF to use the failover group, and specifying a failover policy.

A failover group contains a set of network ports (physical ports, VLANs, and interface groups) from one or more nodes in a cluster. The network ports that are present in the failover group define the failover targets available for the LIF. A failover group can have cluster management, node management, intercluster, and NAS data LIFs assigned to it.

When a LIF is configured without a valid failover target, an outage occurs when the LIF attempts to fail over. You can use the `network interface show -failover` command to verify the failover configuration. Learn more about `network interface show` in the ONTAP command reference.

When you create a broadcast domain, a failover group of the same name is created automatically that contains the same network ports. This failover group is automatically managed by the system, meaning that as ports are added or removed from the broadcast domain, they are automatically added or removed from this failover group. This is provided as an efficiency for administrators who do not want to manage their own failover groups.

Create ONTAP failover groups

You create a failover group of network ports so that a LIF can automatically migrate to a different port if a link failure occurs on the LIF's current port. This enables the system to reroute network traffic to other available ports in the cluster.

About this task

You use the `network interface failover-groups create` command to create the group and to add ports to the group.

- The ports added to a failover group can be network ports, VLANs, or interface groups (ifgrps).
- All the ports added to the failover group must belong to the same broadcast domain.
- A single port can reside in multiple failover groups.
- If you have LIFs in different VLANs or broadcast domains, you must configure failover groups for each VLAN or broadcast domain.
- Failover groups do not apply in SAN iSCSI or FC environments.

Step

Create a failover group:

```
network interface failover-groups create -vserver vserver_name -failover-group
failover_group_name -targets ports_list
```

- *vserver_name* is the name of the SVM that can use the failover group.
- *failover_group_name* is the name of the failover group you want to create.
- *ports_list* is the list of ports that will be added to the failover group.
  Ports are added in the format *node_name>:<port_number>*, for example, node1:e0c.

The following command creates failover group fg3 for SVM vs3 and adds two ports:

```
network interface failover-groups create -vserver vs3 -failover-group fg3
-targets cluster1-01:e0e,cluster1-02:e0e
```

After you finish

- You should apply the failover group to a LIF now that the failover group has been created.
- Applying a failover group that does not provide a valid failover target for a LIF results in a warning message.

  If a LIF that does not have a valid failover target attempts to fail over, an outage might occur.

- Learn more about `network interface failover-groups create` in the ONTAP command reference.

Configure ONTAP failover settings on a LIF

You can configure a LIF to fail over to a specific group of network ports by applying a failover policy and a failover group to the LIF. You can also disable a LIF from failing over to another port.

About this task

- When a LIF is created, LIF failover is enabled by default, and the list of available target ports is determined by the default failover group and failover policy based on the LIF type and service policy.

  Beginning with 9.5, you can specify a service policy for the LIF that defines which network services can use the LIF. Some network services impose failover restrictions on a LIF.

  If a LIF's service policy is changed in a way that further restricts failover, the LIF's failover policy is automatically updated by the system.

- You can modify the failover behavior of LIFs by specifying values for the -failover-group and -failover-policy parameters in the network interface modify command.
- Modification of a LIF that results in the LIF having no valid failover target results in a warning message.

  If a LIF that does not have a valid failover target attempts to fail over, an outage might occur.

- Beginning with ONTAP 9.11.1, on All-Flash SAN Array (ASA) platforms, iSCSI LIF failover is automatically enabled on newly created iSCSI LIFs on newly created storage VMs.

  Additionally, you can manually enable iSCSI LIF failover on pre-existing iSCSI LIFs, meaning LIFs that were created prior to upgrading to ONTAP 9.11.1 or later.

- The following list describes how the -failover-policy setting affects the target ports that are selected from the failover group:

> For iSCSI LIF failover, only the failover policies `local-only`, `sfo-partner-only` and `disabled` are supported.

- `broadcast-domain-wide` applies to all ports on all nodes in the failover group.
- `system-defined` applies to only those ports on the LIF's home node and one other node in the cluster, typically a non- SFO partner, if it exists.
- `local-only` applies to only those ports on the LIF's home node.
- `sfo-partner-only` applies to only those ports on the LIF's home node and its SFO partner.
- `disabled` indicates the LIF is not configured for failover.

Steps

Configure failover settings for an existing interface:

```
network interface modify -vserver <vserver_name> -lif <lif_name> -failover
-policy <failover_policy> -failover-group <failover_group>
```

Examples of configuring failover settings and disabling failover

The following command sets the failover policy to broadcast-domain-wide and uses the ports in failover group fg3 as failover targets for LIF data1 on SVM vs3:

```
network interface modify -vserver vs3 -lif data1 -failover-policy
broadcast-domain-wide -failover-group fg3

network interface show -vserver vs3 -lif * -fields failover-
group,failover-policy

vserver lif              failover-policy       failover-group
------- -------------- ---------------        --------------
vs3     data1          broadcast-domain-wide  fg3
```

The following command disables failover for LIF data1 on SVM vs3:

```
network interface modify -vserver vs3 -lif data1 -failover-policy disabled
```

Related information

- network interface

ONTAP commands for managing failover groups and policies

You can use the `network interface failover-groups` commands to manage failover groups. You use the `network interface modify` command to manage the failover groups and failover policies that are applied to a LIF.

If you want to…	Use this command…
Add network ports to a failover group	`network interface failover-groups add-targets`
Remove network ports from a failover group	`network interface failover-groups remove-targets`
Modify network ports in a failover group	`network interface failover-groups modify`
Display the current failover groups	`network interface failover-groups show`
Configure failover on a LIF	`network interface modify -failover -group -failover-policy`
Display the failover group and failover policy that is being used by each LIF	`network interface show -fields failover-group, failover-policy`
Rename a failover group	`network interface failover-groups rename`
Delete a failover group	`network interface failover-groups delete`

Modifying a failover group such that it does not provide a valid failover target for any LIF in the cluster can result in an outage when a LIF attempts to fail over.

Related information

- network interface

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