Verify the cluster is ready for expansion

System Manager Classic

NetApp
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Verify the cluster is ready for expansion

Before you start expanding a cluster, you must verify the planned configuration, gather the required network information, and add or replace switches, if necessary.

Verify the planned configuration

Before you expand a cluster, you must ensure the following: the planned configuration is supported, the required licenses exist, the site is ready, the cluster switches support the expansion, and the existing nodes are using the same version of ONTAP 9.

Before you begin

You must have two sets of credentials—the user name and password required to log in to the cluster as an administrator, and the user name and password required to log in to the NetApp Support Site.

Steps

1. Verify the planned configuration:

   a. Verify that the platform of the new controllers can be mixed with the cluster's existing controllers.

   b. Verify that the expanded cluster does not exceed the system limits for the platforms.

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   c. If your cluster is configured for SAN, verify that the expanded cluster does not exceed the configuration limits for FC, FCoE, and iSCSI.

      SAN configuration

   If these requirements are not met, you cannot proceed with the expansion.

2. Ensure that licenses cover the new nodes:

   a. On the existing cluster, view the licenses by using the `system license show` command.

```
cluster1::> system license show

Serial Number: 9-99-999999
Owner: cluster1
Package           Type    Description           Expiration
----------------- ------- --------------------- --------------------
Base              site    Cluster Base License  -
NFS               license NFS License           -
CIFS              license CIFS License          -
...
```

   b. Review the output to identify the node-locked licenses (identified by the type `license`) that will be required for the additional nodes.

c. Ensure that the licenses that are included with the additional nodes are consistent with the cluster's existing node-locked licenses.

   NetApp Software License Search

If you do not have the required licenses for the additional nodes, you must purchase additional licenses before you proceed.

3. Verify that the site is ready for all the new equipment.

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   If the site is not ready, you must prepare the site before continuing with the expansion.

4. Verify that the existing switches support the additional controllers.

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   If the cluster is switchless or if the existing switches do not support the additional nodes, you must obtain cluster switches, which you can install later in the expansion process.

5. Verify that all nodes in the existing cluster are running the same version of ONTAP 9—including the same minor release and patch, if applicable—by using the `cluster image show` command.

```
cluster1::> cluster image show
                 Current                 Installation
Node             Version                 Date
---------------- ----------------------- ------------
cluster1-1       8.3RC1                  12/15/2014 17:37:26
cluster1-2       8.3RC1                  12/15/2014 17:37:42
2 entries were displayed.
```

   You should make note of the version of ONTAP software for reference later in this workflow.

Gather the required network information

Before you expand a cluster, you must obtain networking information required to later configure the node-management LIFs and the Service Processor IP addresses for both of the nodes.

Steps

1. Obtain the following details to configure two node-management LIFs—one for each of the nodes that you plan to add to the cluster:
   - IP address
   - Network mask
   - Gateway
   - Port

2. If your site typically has DNS entries for node-management LIFs, ensure that DNS entries are created for the new nodes.
3. Determine whether the cluster uses automatic or manual network configuration for the SP by using the `system service-processor network auto-configuration show` command.

   If a subnet name is displayed in either the `SP IPv4 Subnet Name` or `SP IPv6 Subnet Name` column, the cluster is using automatic SP networking. If both columns are blank, the cluster is using manual SP networking.

   In the following output, the sub1 subnet indicates that cluster1 SP uses automatic network configuration:

```
cluster1::> system service-processor network auto-configuration show
Cluster Name         SP IPv4 Subnet Name          SP IPv6 Subnet Name
-------------------- ---------------------------- -------------------
cluster1             sub1                            -
```

   In the following output, the blank subnet fields indicate that cluster1 SP uses manual network configuration:

```
cluster1::> system service-processor network auto-configuration show
Cluster Name         SP IPv4 Subnet Name          SP IPv6 Subnet Name
-------------------- ---------------------------- -------------------
cluster1             -                            -
```

4. Depending on the SP network configuration, perform one of the following actions:
   - If the SP uses manual network configuration, obtain two IP addresses that you will use later when configuring SP on the new nodes.
   - If the SP uses automatic network configuration, verify that the subnet used by the SP has available IP addresses for the two new nodes by using the `network subnet show` command. In the following output, the sub1 subnet has 2 addresses available:

```
cluster1::>  network subnet show
IPspace: Default
Subnet                     Broadcast                    Avail/
Name      Subnet           Domain    Gateway            Total   Ranges
--------- ---------------- --------- ---------------- ---------
---------------
sub1      10.53.33.1/18    Default   10.53.0.1           2/4
10.53.33.3-10.53.33.6
...
```

Add or replace switches

Before you expand the cluster, you must ensure that the cluster switches support the

expanded configuration. If the cluster is switchless, you must add switches. If the existing switches do not have enough ports available to support the new configuration, you must replace the switches.

Procedure

- If the cluster is currently a two-node switchless cluster, migrate the cluster to a two-node switched cluster using the type of switch you prefer.

  Migrating to a two-node switched cluster with Cisco cluster switches

  Migrating to a two-node switched cluster with NetApp CN1610 cluster switches

- If the existing switches do not have enough ports available to support the future configuration, replace the switches by using the appropriate replacement procedure.

  NetApp Documentation: Cluster, Management and Storage Switches

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