Migrate switches

Cluster and storage switches

NetApp
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Migrate switches

Migrate from a switchless cluster environment to a switched NetApp CN1610 cluster environment

If you have an existing two-node switchless cluster environment, you can migrate to a two-node switched cluster environment using CN1610 cluster network switches that enables you to scale beyond two nodes.

Review requirements

What you'll need

For a two-node switchless configuration, ensure that:

- The two-node switchless configuration is properly set up and functioning.
- The nodes are running ONTAP 8.2 or later.
- All cluster ports are in the `up` state.
- All cluster logical interfaces (LIFs) are in the `up` state and on their home ports.

For the CN1610 cluster switch configuration:

- The CN1610 cluster switch infrastructure are fully functional on both switches.
- Both switches have management network connectivity.
- There is console access to the cluster switches.
- CN1610 node-to-node switch and switch-to-switch connections use twinax or fiber cables.

  The Hardware Universe contains more information about cabling.

- Inter-Switch Link (ISL) cables are connected to ports 13 through 16 on both CN1610 switches.
- Initial customization of both the CN1610 switches are completed.

  Any previous site customization, such as SMTP, SNMP, and SSH should be copied to the new switches.

Related information

- Hardware Universe
- NetApp CN1601 and CN1610 description page
- CN1601 and CN1610 Switch Setup and Configuration Guide
- NetApp KB Article 1010449: How to suppress automatic case creation during scheduled maintenance windows

Migrate the switches

About the examples

The examples in this procedure use the following cluster switch and node nomenclature:

- The names of the CN1610 switches are cs1 and cs2.
- The names of the LIFs are clus1 and clus2.
- The names of the nodes are node1 and node2.
- The `cluster::*>` prompt indicates the name of the cluster.
- The cluster ports used in this procedure are e1a and e2a.

  The Hardware Universe contains the latest information about the actual cluster ports for your platforms.

Step 1: Prepare for migration

1. Change the privilege level to advanced, entering `y` when prompted to continue:

   ```
   set -privilege advanced
   ```

   The advanced prompt (*>) appears.

2. If AutoSupport is enabled on this cluster, suppress automatic case creation by invoking an AutoSupport message:

   ```
   system node autosupport invoke -node * -type all -message MAINT=xh
   ```

   x is the duration of the maintenance window in hours.

   > The AutoSupport message notifies technical support of this maintenance task so that automatic case creation is suppressed during the maintenance window.

   Show example

   The following command suppresses automatic case creation for two hours:

   ```
   cluster::*> system node autosupport invoke -node * -type all
   -message MAINT=2h
   ```

Step 2: Configure ports

1. Disable all of the node-facing ports (not ISL ports) on both the new cluster switches cs1 and cs2.

   You must not disable the ISL ports.

Show example

The following example shows that node-facing ports 1 through 12 are disabled on switch cs1:

```
(cs1)> enable
(cs1)# configure
(cs1)(Config)# interface 0/1-0/12
(cs1)(Interface 0/1-0/12)# shutdown
(cs1)(Interface 0/1-0/12)# exit
(cs1)(Config)# exit
```

The following example shows that node-facing ports 1 through 12 are disabled on switch cs2:

```
(c2)> enable
(cs2)# configure
(cs2)(Config)# interface 0/1-0/12
(cs2)(Interface 0/1-0/12)# shutdown
(cs2)(Interface 0/1-0/12)# exit
(cs2)(Config)# exit
```

2. Verify that the ISL and the physical ports on the ISL between the two CN1610 cluster switches cs1 and cs2 are `up`:

   `show port-channel`

Show example

The following example shows that the ISL ports are `up` on switch cs1:

```
(cs1)# show port-channel 3/1
Local Interface................................ 3/1
Channel Name................................... ISL-LAG
Link State..................................... Up
Admin Mode..................................... Enabled
Type........................................... Static
Load Balance Option............................ 7
(Enhanced hashing mode)

Mbr    Device/       Port      Port
Ports  Timeout       Speed     Active
------ ------------- --------- -------
0/13   actor/long    10G Full  True
       partner/long
0/14   actor/long    10G Full  True
       partner/long
0/15   actor/long    10G Full  True
       partner/long
0/16   actor/long    10G Full  True
       partner/long
```

The following example shows that the ISL ports are `up` on switch cs2:

```
(cs2)# show port-channel 3/1
Local Interface................................ 3/1
Channel Name................................... ISL-LAG
Link State..................................... Up
Admin Mode..................................... Enabled
Type........................................... Static
Load Balance Option............................ 7
(Enhanced hashing mode)

Mbr    Device/       Port      Port
Ports  Timeout       Speed     Active
------ ------------- --------- -------
0/13   actor/long    10G Full  True
       partner/long
0/14   actor/long    10G Full  True
       partner/long
0/15   actor/long    10G Full  True
       partner/long
0/16   actor/long    10G Full  True
       partner/long
```

3. Display the list of neighboring devices:

   `show isdp neighbors`

   This command provides information about the devices that are connected to the system.

Show example

The following example lists the neighboring devices on switch cs1:

```
(cs1)# show isdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route
Bridge,
                  S - Switch, H - Host, I - IGMP, r - Repeater
Device ID              Intf         Holdtime  Capability   Platform
Port ID
---------------------- ------------ --------- ------------ ---------
------------
cs2                    0/13         11        S            CN1610
0/13
cs2                    0/14         11        S            CN1610
0/14
cs2                    0/15         11        S            CN1610
0/15
cs2                    0/16         11        S            CN1610
0/16
```

The following example lists the neighboring devices on switch cs2:

```
(cs2)# show isdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route
Bridge,
                  S - Switch, H - Host, I - IGMP, r - Repeater
Device ID              Intf         Holdtime  Capability   Platform
Port ID
---------------------- ------------ --------- ------------ ---------
------------
cs1                    0/13         11        S            CN1610
0/13
cs1                    0/14         11        S            CN1610
0/14
cs1                    0/15         11        S            CN1610
0/15
cs1                    0/16         11        S            CN1610
0/16
```

4. Display the list of cluster ports:

   `network port show`

Show example

The following example shows the available cluster ports:

```
cluster::*> network port show -ipspace Cluster
Node: node1

Ignore
                                                  Speed(Mbps) Health
Health
Port      IPspace      Broadcast Domain Link MTU  Admin/Oper  Status
Status
--------- ------------ ---------------- ---- ---- -----------
-------- ------
e0a       Cluster      Cluster          up   9000  auto/10000
healthy  false
e0b       Cluster      Cluster          up   9000  auto/10000
healthy  false
e0c       Cluster      Cluster          up   9000  auto/10000
healthy  false
e0d       Cluster      Cluster          up   9000  auto/10000
healthy  false
e4a       Cluster      Cluster          up   9000  auto/10000
healthy  false
e4b       Cluster      Cluster          up   9000  auto/10000
healthy  false

Node: node2

Ignore
                                                  Speed(Mbps) Health
Health
Port      IPspace      Broadcast Domain Link MTU  Admin/Oper  Status
Status
--------- ------------ ---------------- ---- ---- -----------
-------- ------
e0a       Cluster      Cluster          up   9000  auto/10000
healthy  false
e0b       Cluster      Cluster          up   9000  auto/10000
healthy  false
e0c       Cluster      Cluster          up   9000  auto/10000
healthy  false
e0d       Cluster      Cluster          up   9000  auto/10000
healthy  false
e4a       Cluster      Cluster          up   9000  auto/10000
healthy  false
e4b       Cluster      Cluster          up   9000  auto/10000
healthy  false
12 entries were displayed.
```

5. Verify that each cluster port is connected to the corresponding port on its partner cluster node:

   `run * cdpd show-neighbors`

   Show example

   The following example shows that cluster ports e1a and e2a are connected to the same port on their cluster partner node:

```
cluster::*> run * cdpd show-neighbors
2 entries were acted on.

Node: node1
Local  Remote          Remote                 Remote           Hold
Remote
Port   Device          Interface              Platform         Time
Capability
------ --------------- ---------------------- ---------------- -----
----------
e1a    node2           e1a                    FAS3270           137
H
e2a    node2           e2a                    FAS3270           137
H


Node: node2

Local  Remote          Remote                 Remote           Hold
Remote
Port   Device          Interface              Platform         Time
Capability
------ --------------- ---------------------- ---------------- -----
----------
e1a    node1           e1a                    FAS3270           161
H
e2a    node1           e2a                    FAS3270           161
H
```

6. Verify that all of the cluster LIFs are `up` and operational:

   `network interface show -vserver Cluster`

   Each cluster LIF should display `true` in the “Is Home” column.

Show example

```
cluster::*> network interface show -vserver Cluster
            Logical    Status     Network       Current
Current Is
Vserver     Interface  Admin/Oper Address/Mask  Node          Port
Home
----------- ---------- ---------- ------------- -------------
------- ----
node1
            clus1      up/up      10.10.10.1/16 node1         e1a
true
            clus2      up/up      10.10.10.2/16 node1         e2a
true
node2
            clus1      up/up      10.10.11.1/16 node2         e1a
true
            clus2      up/up      10.10.11.2/16 node2         e2a
true

4 entries were displayed.
```

The following modification and migration commands in steps 10 through 13 must be done from the local node.

7. Verify that all cluster ports are `up`:

   `network port show -ipspace Cluster`

Show example

```
cluster::*> network port show -ipspace Cluster

                                          Auto-Negot  Duplex     Speed
(Mbps)
Node   Port   Role         Link  MTU   Admin/Oper  Admin/Oper
Admin/Oper
------ ------ ------------ ----- ----- ----------- ----------
------------
node1
       e1a    clus1        up    9000  true/true  full/full
auto/10000
       e2a    clus2        up    9000  true/true  full/full
auto/10000
node2
       e1a    clus1        up    9000  true/true  full/full
auto/10000
       e2a    clus2        up    9000  true/true  full/full
auto/10000

4 entries were displayed.
```

8. Set the `-auto-revert` parameter to `false` on cluster LIFs clus1 and clus2 on both nodes:

   `network interface modify`

   Show example

```
cluster::*> network interface modify -vserver node1 -lif clus1 -auto
-revert false
cluster::*> network interface modify -vserver node1 -lif clus2 -auto
-revert false
cluster::*> network interface modify -vserver node2 -lif clus1 -auto
-revert false
cluster::*> network interface modify -vserver node2 -lif clus2 -auto
-revert false
```

   For release 8.3 and later, use the following command: `network interface modify -vserver Cluster -lif * -auto-revert false`

9. Ping the cluster ports to verify the cluster connectivity:

```
cluster ping-cluster local
```

The command output shows connectivity between all of the cluster ports.

10. Migrate clus1 to port e2a on the console of each node:

```
network interface migrate
```

Show example

The following example shows the process for migrating clus1 to port e2a on node1 and node2:

```
cluster::*> network interface migrate -vserver node1 -lif clus1
-source-node node1 -dest-node node1 -dest-port e2a
cluster::*> network interface migrate -vserver node2 -lif clus1
-source-node node2 -dest-node node2 -dest-port e2a
```

For release 8.3 and later, use the following command: `network interface migrate -vserver Cluster -lif clus1 -destination-node node1 -destination -port e2a`

11. Verify that the migration took place:

```
network interface show -vserver Cluster
```

Show example

The following example verifies that clus1 is migrated to port e2a on node1 and node2:

```
cluster::*> network interface show -vserver Cluster
            Logical    Status     Network       Current
Current Is
Vserver     Interface  Admin/Oper Address/Mask  Node          Port
Home
----------- ---------- ---------- ------------- -------------
------- ----
node1
            clus1      up/up    10.10.10.1/16   node1         e2a
false
            clus2      up/up    10.10.10.2/16   node1         e2a
true
node2
            clus1      up/up    10.10.11.1/16   node2         e2a
false
            clus2      up/up    10.10.11.2/16   node2         e2a
true

4 entries were displayed.
```

12. Shut down cluster port e1a on both nodes:

    `network port modify`

    Show example

    The following example shows how to shut down the port e1a on node1 and node2:

    ```
    cluster::*> network port modify -node node1 -port e1a -up-admin
    false
    cluster::*> network port modify -node node2 -port e1a -up-admin
    false
    ```

13. Verify the port status:

    `network port show`

Show example

The following example shows that port e1a is `down` on node1 and node2:

```
cluster::*> network port show -role cluster
                                        Auto-Negot  Duplex     Speed
(Mbps)
Node   Port   Role         Link   MTU Admin/Oper  Admin/Oper
Admin/Oper
------ ------ ------------ ---- ----- ----------- ----------
------------
node1
       e1a    clus1        down  9000  true/true  full/full
auto/10000
       e2a    clus2        up    9000  true/true  full/full
auto/10000
node2
       e1a    clus1        down  9000  true/true  full/full
auto/10000
       e2a    clus2        up    9000  true/true  full/full
auto/10000

4 entries were displayed.
```

14. Disconnect the cable from cluster port e1a on node1, and then connect e1a to port 1 on cluster switch cs1, using the appropriate cabling supported by the CN1610 switches.

    The Hardware Universe contains more information about cabling.

15. Disconnect the cable from cluster port e1a on node2, and then connect e1a to port 2 on cluster switch cs1, using the appropriate cabling supported by the CN1610 switches.
16. Enable all of the node-facing ports on cluster switch cs1.

    Show example

    The following example shows that ports 1 through 12 are enabled on switch cs1:

    ```
    (cs1)# configure
    (cs1)(Config)# interface 0/1-0/12
    (cs1)(Interface 0/1-0/12)# no shutdown
    (cs1)(Interface 0/1-0/12)# exit
    (cs1)(Config)# exit
    ```

17. Enable the first cluster port e1a on each node:

`network port modify`

Show example

The following example shows how to enable the port e1a on node1 and node2:

```
cluster::*> network port modify -node node1 -port e1a -up-admin true
cluster::*> network port modify -node node2 -port e1a -up-admin true
```

18. Verify that all of the cluster ports are `up`:

`network port show -ipspace Cluster`

Show example

The following example shows that all of the cluster ports are `up` on node1 and node2:

```
cluster::*> network port show -ipspace Cluster
                                     Auto-Negot  Duplex     Speed
(Mbps)
Node   Port   Role         Link   MTU Admin/Oper  Admin/Oper
Admin/Oper
------ ------ ------------ ---- ----- ----------- ----------
------------
node1
       e1a    clus1        up    9000  true/true  full/full
auto/10000
       e2a    clus2        up    9000  true/true  full/full
auto/10000
node2
       e1a    clus1        up    9000  true/true  full/full
auto/10000
       e2a    clus2        up    9000  true/true  full/full
auto/10000

4 entries were displayed.
```

19. Revert clus1 (which was previously migrated) to e1a on both nodes:

`network interface revert`

Show example

The following example shows how to revert clus1 to the port e1a on node1 and node2:

```
cluster::*> network interface revert -vserver node1 -lif clus1
cluster::*> network interface revert -vserver node2 -lif clus1
```

For release 8.3 and later, use the following command: `network interface revert -vserver Cluster -lif <nodename_clus<N>>`

20. Verify that all of the cluster LIFs are `up`, operational, and display as `true` in the "Is Home" column:

`network interface show -vserver Cluster`

Show example

The following example shows that all of the LIFs are `up` on node1 and node2 and that the "Is Home" column results are `true`:

```
cluster::*> network interface show -vserver Cluster
            Logical    Status     Network       Current
Current Is
Vserver     Interface  Admin/Oper Address/Mask  Node          Port
Home
----------- ---------- ---------- ------------- -------------
------- ----
node1
            clus1      up/up    10.10.10.1/16   node1         e1a
true
            clus2      up/up    10.10.10.2/16   node1         e2a
true
node2
            clus1      up/up    10.10.11.1/16   node2         e1a
true
            clus2      up/up    10.10.11.2/16   node2         e2a
true

4 entries were displayed.
```

21. Display information about the status of the nodes in the cluster:

`cluster show`

Show example

The following example displays information about the health and eligibility of the nodes in the cluster:

```
cluster::*> cluster show
Node                  Health  Eligibility   Epsilon
--------------------- ------- ------------  ------------
node1                 true    true          false
node2                 true    true          false
```

22. Migrate clus2 to port e1a on the console of each node:

    `network interface migrate`

Show example

The following example shows the process for migrating clus2 to port e1a on node1 and node2:

```
cluster::*> network interface migrate -vserver node1 -lif clus2
-source-node node1 -dest-node node1 -dest-port e1a
cluster::*> network interface migrate -vserver node2 -lif clus2
-source-node node2 -dest-node node2 -dest-port e1a
```

For release 8.3 and later, use the following command: `network interface migrate -vserver Cluster -lif node1_clus2 -dest-node node1 -dest-port e1a`

23. Verify that the migration took place:

    `network interface show -vserver Cluster`

Show example

The following example verifies that clus2 is migrated to port e1a on node1 and node2:

```
cluster::*> network interface show -vserver Cluster
            Logical    Status     Network       Current
Current Is
Vserver     Interface  Admin/Oper Address/Mask  Node          Port
Home
----------- ---------- ---------- ------------- -------------
------- ----
node1
            clus1      up/up    10.10.10.1/16   node1         e1a
true
            clus2      up/up    10.10.10.2/16   node1         e1a
false
node2
            clus1      up/up    10.10.11.1/16   node2         e1a
true
            clus2      up/up    10.10.11.2/16   node2         e1a
false

4 entries were displayed.
```

24. Shut down cluster port e2a on both nodes:

    `network port modify`

    Show example

    The following example shows how to shut down the port e2a on node1 and node2:

    ```
    cluster::*> network port modify -node node1 -port e2a -up-admin
    false
    cluster::*> network port modify -node node2 -port e2a -up-admin
    false
    ```

25. Verify the port status:

    `network port show`

Show example

The following example shows that port e2a is `down` on node1 and node2:

```
cluster::*> network port show -role cluster
                                       Auto-Negot  Duplex     Speed
(Mbps)
Node   Port   Role         Link   MTU Admin/Oper  Admin/Oper
Admin/Oper
------ ------ ------------ ---- ----- ----------- ----------
------------
node1
       e1a    clus1        up    9000  true/true  full/full
auto/10000
       e2a    clus2        down  9000  true/true  full/full
auto/10000
node2
       e1a    clus1        up    9000  true/true  full/full
auto/10000
       e2a    clus2        down  9000  true/true  full/full
auto/10000

4 entries were displayed.
```

26. Disconnect the cable from cluster port e2a on node1, and then connect e2a to port 1 on cluster switch cs2, using the appropriate cabling supported by the CN1610 switches.
27. Disconnect the cable from cluster port e2a on node2, and then connect e2a to port 2 on cluster switch cs2, using the appropriate cabling supported by the CN1610 switches.
28. Enable all of the node-facing ports on cluster switch cs2.

Show example

The following example shows that ports 1 through 12 are enabled on switch cs2:

```
(cs2)# configure
(cs2)(Config)# interface 0/1-0/12
(cs2)(Interface 0/1-0/12)# no shutdown
(cs2)(Interface 0/1-0/12)# exit
(cs2)(Config)# exit
```

29. Enable the second cluster port e2a on each node.

Show example

The following example shows how to enable the port e2a on node1 and node2:

```
cluster::*> network port modify -node node1 -port e2a -up-admin true
cluster::*> network port modify -node node2 -port e2a -up-admin true
```

30. Verify that all of the cluster ports are `up`:

`network port show -ipspace Cluster`

Show example

The following example shows that all of the cluster ports are `up` on node1 and node2:

```
cluster::*> network port show -ipspace Cluster
                                     Auto-Negot  Duplex     Speed
(Mbps)
Node   Port   Role         Link   MTU Admin/Oper  Admin/Oper
Admin/Oper
------ ------ ------------ ---- ----- ----------- ----------
------------
node1
       e1a    clus1        up    9000  true/true  full/full
auto/10000
       e2a    clus2        up    9000  true/true  full/full
auto/10000
node2
       e1a    clus1        up    9000  true/true  full/full
auto/10000
       e2a    clus2        up    9000  true/true  full/full
auto/10000

4 entries were displayed.
```

31. Revert clus2 (which was previously migrated) to e2a on both nodes:

`network interface revert`

Show example

The following example shows how to revert clus2 to the port e2a on node1 and node2:

```
cluster::*> network interface revert -vserver node1 -lif clus2
cluster::*> network interface revert -vserver node2 -lif clus2
```

For release 8.3 and later, the commands are: `cluster::*> network interface revert -vserver Cluster -lif node1_clus2` and `cluster::*> network interface revert -vserver Cluster -lif node2_clus2`

Step 3: Complete the configuration

1. Verify that all of the interfaces display `true` in the "Is Home" column:

   `network interface show -vserver Cluster`

   Show example

   The following example shows that all of the LIFs are `up` on node1 and node2 and that the "Is Home" column results are `true`:

```
cluster::*> network interface show -vserver Cluster

             Logical    Status     Network            Current
Current Is
Vserver      Interface  Admin/Oper Address/Mask       Node
Port    Home
-----------  ---------- ---------- ------------------ -----------
------- ----
node1
             clus1      up/up      10.10.10.1/16      node1
e1a     true
             clus2      up/up      10.10.10.2/16      node1
e2a     true
node2
             clus1      up/up      10.10.11.1/16      node2
e1a     true
             clus2      up/up      10.10.11.2/16      node2
e2a     true
```

2. Ping the cluster ports to verify the cluster connectivity:

   `cluster ping-cluster local`

The command output shows connectivity between all of the cluster ports.

3. Verify that both nodes have two connections to each switch:

```
show isdp neighbors
```

Show example

The following example shows the appropriate results for both switches:

```
(cs1)# show isdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route
Bridge,
                  S - Switch, H - Host, I - IGMP, r - Repeater
Device ID              Intf         Holdtime  Capability   Platform
Port ID
---------------------- ------------ --------- ------------ ---------
------------
node1                  0/1          132       H            FAS3270
e1a
node2                  0/2          163       H            FAS3270
e1a
cs2                    0/13         11        S            CN1610
0/13
cs2                    0/14         11        S            CN1610
0/14
cs2                    0/15         11        S            CN1610
0/15
cs2                    0/16         11        S            CN1610
0/16

(cs2)# show isdp neighbors
Capability Codes: R - Router, T - Trans Bridge, B - Source Route
Bridge,
                  S - Switch, H - Host, I - IGMP, r - Repeater
Device ID              Intf         Holdtime  Capability   Platform
Port ID
---------------------- ------------ --------- ------------ ---------
------------
node1                  0/1          132       H            FAS3270
e2a
node2                  0/2          163       H            FAS3270
e2a
cs1                    0/13         11        S            CN1610
0/13
cs1                    0/14         11        S            CN1610
0/14
cs1                    0/15         11        S            CN1610
0/15
cs1                    0/16         11        S            CN1610
0/16
```

4. Display information about the devices in your configuration:

   `network device discovery show`

5. Disable the two-node switchless configuration settings on both nodes using the advanced privilege command:

   `network options detect-switchless modify`

   Show example

   The following example shows how to disable the switchless configuration settings:

   ```
   cluster::*> network options detect-switchless modify -enabled false
   ```

   For release 9.2 and later, skip this step since the configuration is automatically converted.

6. Verify that the settings are disabled:

   `network options detect-switchless-cluster show`

   Show example

   The `false` output in the following example shows that the configuration settings are disabled:

   ```
   cluster::*> network options detect-switchless-cluster show
   Enable Switchless Cluster Detection: false
   ```

   For release 9.2 and later, wait until `Enable Switchless Cluster` is set to false. This can take up to three minutes.

7. Configure clusters clus1 and clus2 to auto revert on each node and confirm.

   Show example

   ```
   cluster::*> network interface modify -vserver node1 -lif clus1 -auto
   -revert true
   cluster::*> network interface modify -vserver node1 -lif clus2 -auto
   -revert true
   cluster::*> network interface modify -vserver node2 -lif clus1 -auto
   -revert true
   cluster::*> network interface modify -vserver node2 -lif clus2 -auto
   -revert true
   ```

For release 8.3 and later, use the following command: `network interface modify -vserver Cluster -lif * -auto-revert true` to enable auto-revert on all nodes in the cluster.

8. Verify the status of the node members in the cluster:

   `cluster show`

   Show example

   The following example shows information about the health and eligibility of the nodes in the cluster:

   ```
   cluster::*> cluster show
   Node                 Health  Eligibility   Epsilon
   -------------------- ------- ------------  ------------
   node1                true    true          false
   node2                true    true          false
   ```

9. If you suppressed automatic case creation, reenable it by invoking an AutoSupport message:

   `system node autosupport invoke -node * -type all -message MAINT=END`

   Show example

   ```
   cluster::*> system node autosupport invoke -node * -type all
   -message MAINT=END
   ```

10. Change the privilege level back to admin:

    `set -privilege admin`

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