SnapScale RAINcloudOS 4.0
Split-Bond Configuration for VMware

May 2014

Overview

This Technical Information Bulletin describes how to configure a SnapScale cluster running RAINcloudOS (ROS) 4.0 for use in a VMware environment to support the two IP addresses required for a multipath failover configuration.

The interfaces to the split-bond are called bond1 and bond2 at the Ethernet level, and called Eth 1 and Eth 2 at the GUI level. Each bond receives a static IP address that is configured via a command line program executed on each node. The resulting public IP address configuration has two IP addresses on Eth 1 (one static and one from CTDB) and one IP address on Eth 2.

Some items of note:

- Some hand configuration in the shell on the cluster is needed to put the cluster nodes into a split-bond mode (reboot required).
- You may need to issue some iSCSI configuration commands from the shell as well.
- Automatic failover of multipath iSCSI targets between nodes will not be supported (though a manual method may be available).
- iSNS is automatically disabled in split-bond mode.
- Functionality of VSS/VDS is limited in split bond mode.

Start Split-Bond Mode

While in split-bond (multipath) mode the user will experience the following limitations:

- iSCSI targets will not fail over to another node if the host node fails. Targets can be launched on a different node but it will require manual editing of some configuration files. Please contact technical support to relaunch iSCSI targets on a different node.
- Changing IP addresses on the cluster (or moving to a new subnet) will require the user to hand edit the **/etc/sysconfig/network-scripts/ifcfg-bond1** and **/etc/sysconfig/network-scripts/ifcfg-bond2** files to change the IP address and subnet.

Split-bond mode instructions:

1. Log in to **each node**:

   a. Login normally via **SSH**.

   b. Run **osshell** to get to the Linux prompt.

   c. Run **su** to root the user.

2. Contact your IT department to acquire more **valid IP addresses** (2 per node) to be used on your cluster.

   These must be unique IP addresses on your network. It is OK to divide the addresses between two subnets. Please make sure multi-subnet configurations are wired consistently for all nodes. For example, all IP addresses for subnet 1 would be on Eth 1 and all IP addresses for subnet 2 would be on Eth 2.

3. Run this **program** on each node:

   `/usr/mfs/bin/static_ip_multipath.sh setup <IP1> <IP2> <NETMASK>`

4. Reboot the **cluster** using the Web Management Interface.

5. Verify that the **IP addresses** are correct (**Network > Information**).

   NOTE: Use iSCSI static IP addresses for accessing iSCSI only. Do not add iSCSI static IP addresses to the round-robin DNS.

Adding New Nodes

Adding new nodes to a SnapScale cluster can cause a re-shuffling of the IP addresses assigned to the nodes. When the cluster is in split-bond mode this can cause the static IP addresses configured on a node to be associated with a different assigned IP address. In addition, the newly added nodes are by default in the bonded mode and need to have the bonded interface reconfigured as two separate interfaces. Use these steps to complete the add-nodes operation:

1. Disconnect any **ESXi hosts** from their existing targets before performing the add-nodes operation.

2. At the **Storage > Nodes** page, click **Add Node** and follow the wizard.

   Refer to your *SnapScale Administrator's Guide* for complete details.

3. On each **newly added node**, run:

   `/usr/mfs/bin/static_ip_multipath.sh setup <Eth_1> <Eth_2> 255.255.0.0`

   where <Eth_1> and <Eth_2> are the static IP addresses assigned to the new node.

   Note that this step is identical to the one used to perform split-bond operations on the other nodes. Also, the **Storage > iSCSI** page does not show any iSCSI disks.

4. Reboot the **cluster** using the Web Management Interface.

   The restart of cluster is necessary to allow the network configuration changes to take effect. After this step is done, the assigned IP address for each node (which may not be the same as before the add-node operation) does not change.

5. Verify the **target IP addresses** by using **Network > Information** (or do a rescan on the ESXi host using the node's assigned IP address to obtain its new target-portals).

6. Reconnect the **targets**.

   The target-portals will have the static IP addresses for that node as portals.

New Web Management Interface Screens

Once split-bond mode is started, the IP Address columns in some Web Management Interface screens change to support it.

- Wherever IP addresses are displayed (except the iSCSI pages which display only iSCSI addresses), the Web Management Interface pages now show both CTDB and iSCSI static IP addresses.

- When creating an iSCSI disk (**Storage > iSCSI > Create iSCSI Disk button**), you can either choose a specific iSCSI IP address pair from a list or to let ROS decide using round robin.
- iSCSI IP address changes to the cluster are a manual process for the static IP addresses.

Changes to iSCSI Pages

The most obvious changes are to the iSCSI pages because they now display both IP addresses.

Default iSCSI Page (Storage > iSCSI)

Create iSCSI Page (Storage > iSCSI > Create iSCSI Disk button)

iSCSI Disk Properties (Storage > iSCSI > iSCSI Disk name)

Changes to Node Pages

Besides the **iSCSI** pages, three **Node** pages also reflect the dual IP addresses.

Nodes (Storage > Nodes)

Node Identification (Storage > Nodes > Node Identification button)

Node Properties (Storage > Nodes > Node Properties)

Changes to Network Pages

The **Network Information** page also shows the dual IP addresses.

Network Information Page (Network > Information)

Changes to Monitor Pages

Some **Monitor** pages also show IP addresses.

Network Monitor (Monitor > Activity > Network Monitor)

NOTE: Only **Eth 1** is shown for the **Client Network Usage.**

Network Protocol Manager (Monitor > Protocol Manager)

Removing Split-Bond Mode

To disable the Split-Bond (Multipath) Mode:

1. Log in to **each node**:
    a. Login normally via **SSH**.
    b. Run `osshell` to get to the Linux prompt.
    c. Run `su` to root the user.

2. Run the following **command** on each node:

    `/usr/mfs/bin/static_ip_multipath.sh teardown`

3. After the command is run on all the nodes, reboot the **cluster** using the Web Management Interface.

Important Notes

Considerations while the cluster is in split-bond mode:

- Each new target will be hosted on a single node but will be accessible via either of the two new static IP addresses.
- If you configure multipath using two different subnets, the RAINcloudOS Web Management Interface will not be accessible from the Eth 2 subnet. Normally the user could use the IP address from any node and access would be rerouted to the root IP, however, this functionality is not available from the second subnet.