Provision SAN storage

ONTAP System Manager

NetApp
November 05, 2020

This PDF was generated from https://docs.netapp.com/us-en/ontap/concept_san_provision_overview.html on November 05, 2020. Always check docs.netapp.com for the latest.

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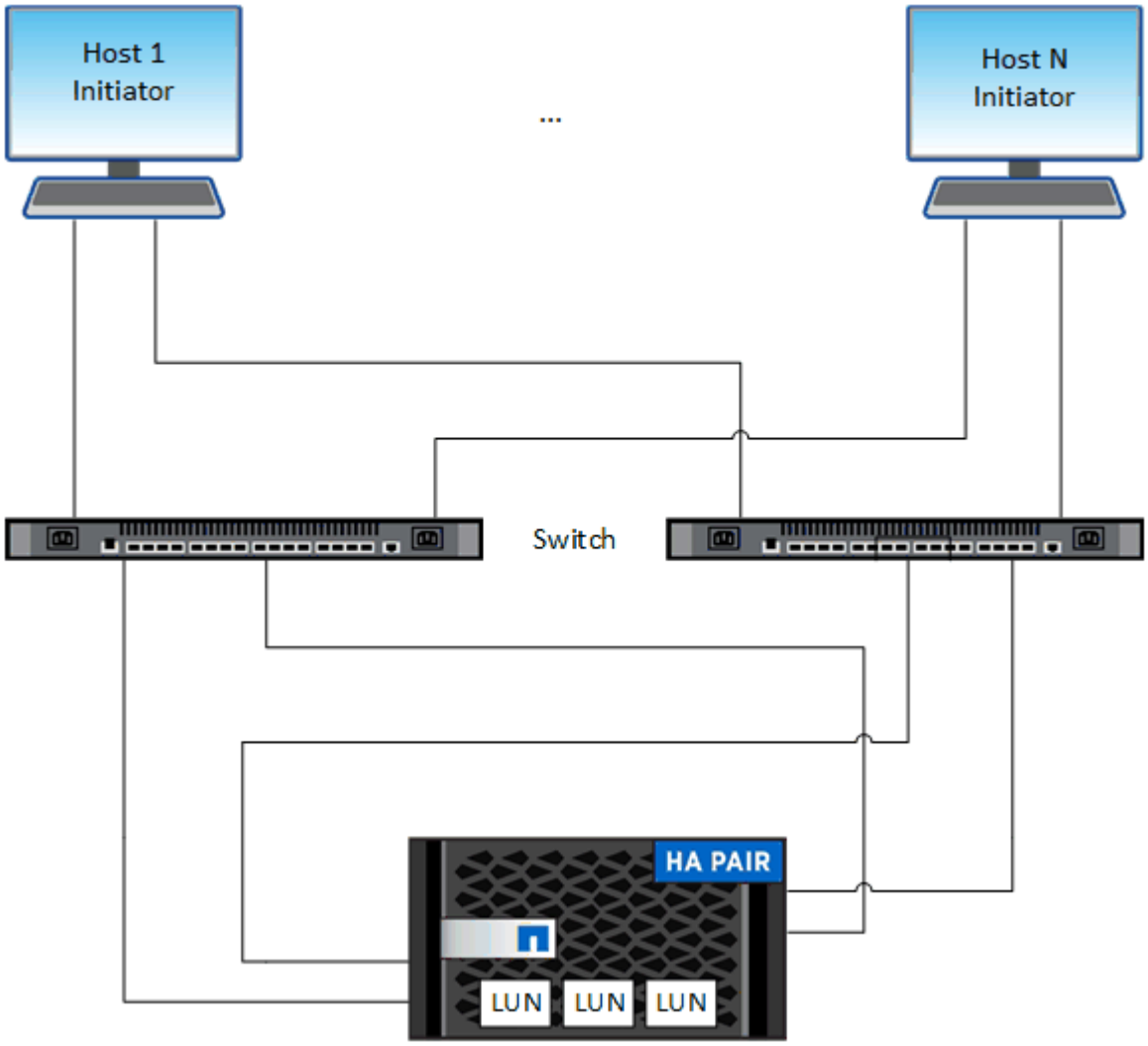
Provision SAN storage

SAN Overview

You can use the iSCSI and FC protocols to provide storage in a SAN environment.



With iSCSI and FC, storage targets are called LUNs (logical units) and are presented to hosts as standard block devices. You create LUNs and then map them to initiator groups (igroups). Initiator groups are tables of FC host WWPs and iSCSI host node names and control which initiators have access to which LUNs.

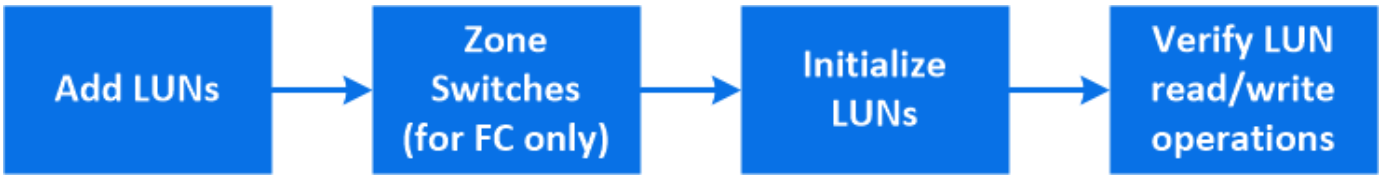
FC targets connect to the network through FC switches and host-side adapters and are identified by world-wide port names (WWPNs). iSCSI targets connect to the network through standard Ethernet network adapters (NICs), TCP offload engine (TOE) cards with software initiators, converged network adapters (CNAs) or dedicated host bust adapters (HBAs) and are identified by iSCSI qualified names (IQNs).

Learn more about SAN.

Provision SAN storage for VMware datastores

Create LUNs to provide storage for an ESXi host using the FC or iSCSI SAN protocol. LUNs appear as disks to the ESXi host.

This procedure creates new LUNs on an existing storage VM. Your FC or iSCSI protocol should already be set up.



Beginning in ONTAP 9.8, when you provision storage, QoS is enabled by default. You can disable QoS or choose a custom QoS policy during the provisioning process or at a later time.

Steps

1. In ONTAP System Manager, click **Storage** > **LUNs** and then click Add.

   If you need to create a new initiator group, click **More Options**.

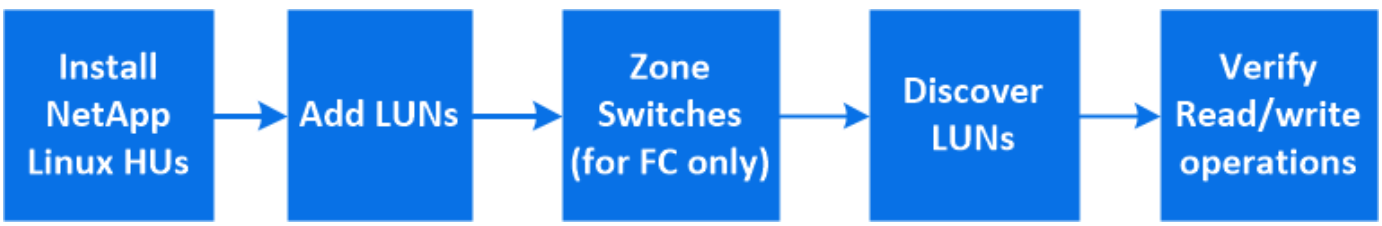
   If you are running ONTAP 9.8 or later and you want to disable QoS or choose a custom QoS policy, click **More Options** and then select **Performance Service Level**.

2. For FC, zone your FC switches by WWPN. Use one zone per initiator and include all target ports in each zone.
3. Use Virtual Storage Console (VSC) for VMware vSphere, to discover and initialize the LUN and to verify that the ESXi hosts can write and read data on the LUN.

Provision SAN storage for Linux servers

Create LUNs to provide storage for a Linux server using the FC or iSCSI SAN protocol. LUNs appear to Linux as SCSI disk devices.

This procedure creates new LUNs on an existing storage VM. Your FC or iSCSI protocol should already be set up. You need to know the initiator identifiers (FC WWPN or iSCSI iqn) for your Linux server.



Beginning in ONTAP 9.8, when you provision storage, QoS is enabled by default. You can disable QoS or choose a custom QoS policy during the provisioning process or at a later time.

Steps

1. On your Linux server, install the NetApp Linux Host Utilities package.
2. In ONTAP System Manager, click **Storage** > **LUNs** and then click **Add**.

   If you need to create a new initiator group, click **More Options**.

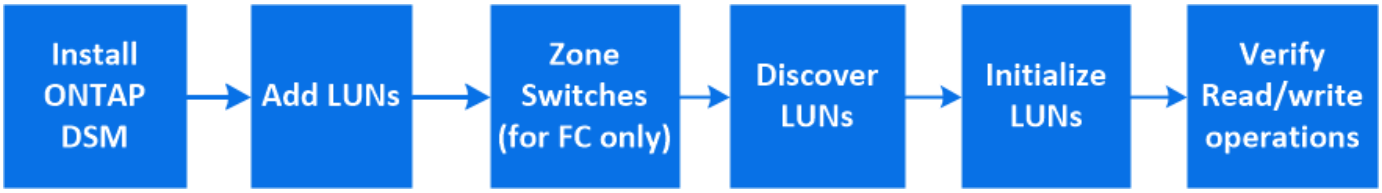
   If you are running ONTAP 9.8 or later and you want to disable QoS or choose a custom QoS policy, click **More Options** and then select **Performance Service Level**.
3. For FC, zone your FC switches by WWPN. Use one zone per initiator and include all target ports in each zone.
4. On your Linux server, discover the new LUNs:

   ```
   /usr/bin/rescan-scsi-bus.sh
   ```
5. Optionally partition the LUNs and create file systems.
6. Verify the Linux server can write and read data on the LUN.

Provision SAN storage for Windows servers

Create LUNs to provide storage for a Windows server using the FC or iSCSI SAN protocol. LUNs appear as disks to the Windows host.

This procedure creates new LUNs on an existing storage VM. Your FC or iSCSI protocol should already be set up.



Beginning in ONTAP 9.8, when you provision storage, QoS is enabled by default. You can disable QoS or choose a custom QoS policy during the provisioning process or at a later time.

Steps

1. On your Windows server, install Data ONTAP DSM for Windows MPIO.
2. In ONTAP System Manager, click **Storage** > **LUNs**, and then click **Add**.

If you need to create a new initiator group, click **More Options**.

If you are running ONTAP 9.8 or later and you want to disable QoS or choose a custom QoS policy, click **More Options** and then select **Performance Service Level**.

3. For FC, zone your FC switches by WWPN. Use one zone per initiator and include all target ports in each zone.
4. On your Windows server, discover the new LUN.
5. Initialize the LUN and optionally format it with a file system.
6. Verify the Windows server can write and read data on the LUN.

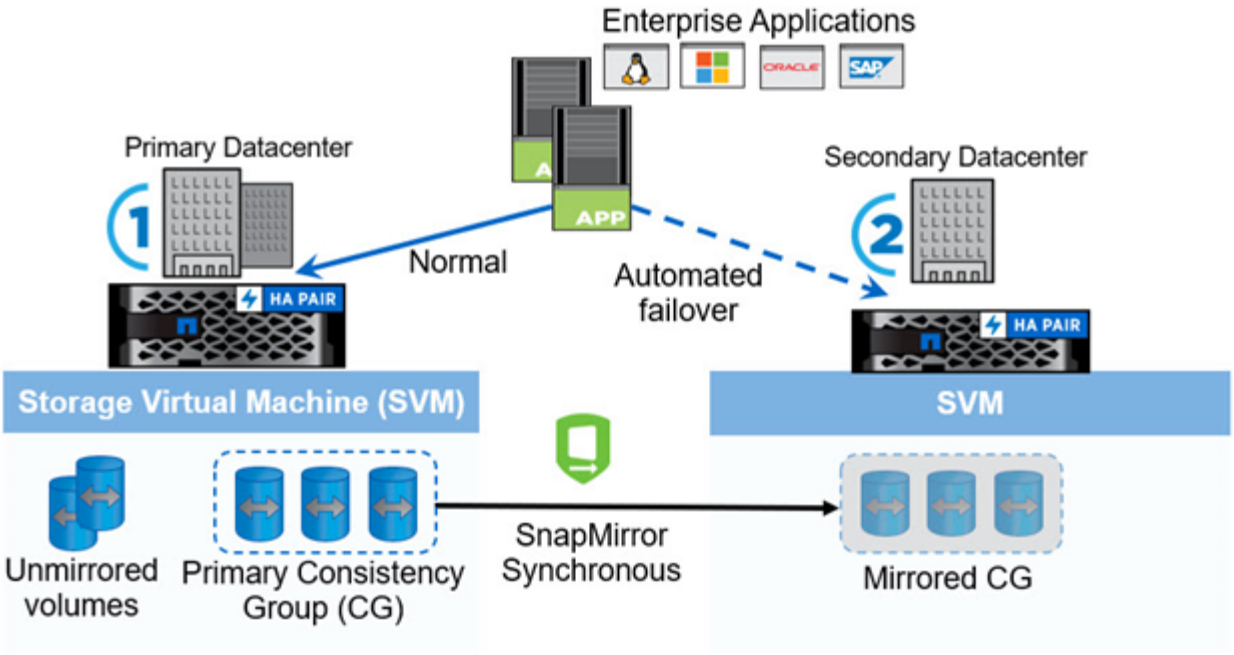
SnapMirror Business Continuity

SnapMirror Business Continuity overview

Starting in ONTAP 9.8, you can use System Manager to protect LUNs for transparent application failover, enabling applications to fail over automatically for business continuity when using two AFF clusters or two All SAN Array (ASA) clusters. Your clusters cannot be mixed; they must consist of two AFF clusters or two ASA clusters. Protection for business continuity supports iSCSI and FCP protocols.

The SnapMirror Business Continuity provides the following benefits:

- Automated failover of business-critical applications
- Simplified application management, using consistency groups for dependent write-order consistency
- The ability to test failover for each application
- Instantaneous creation of mirror clones without impacting application availability



Requirements

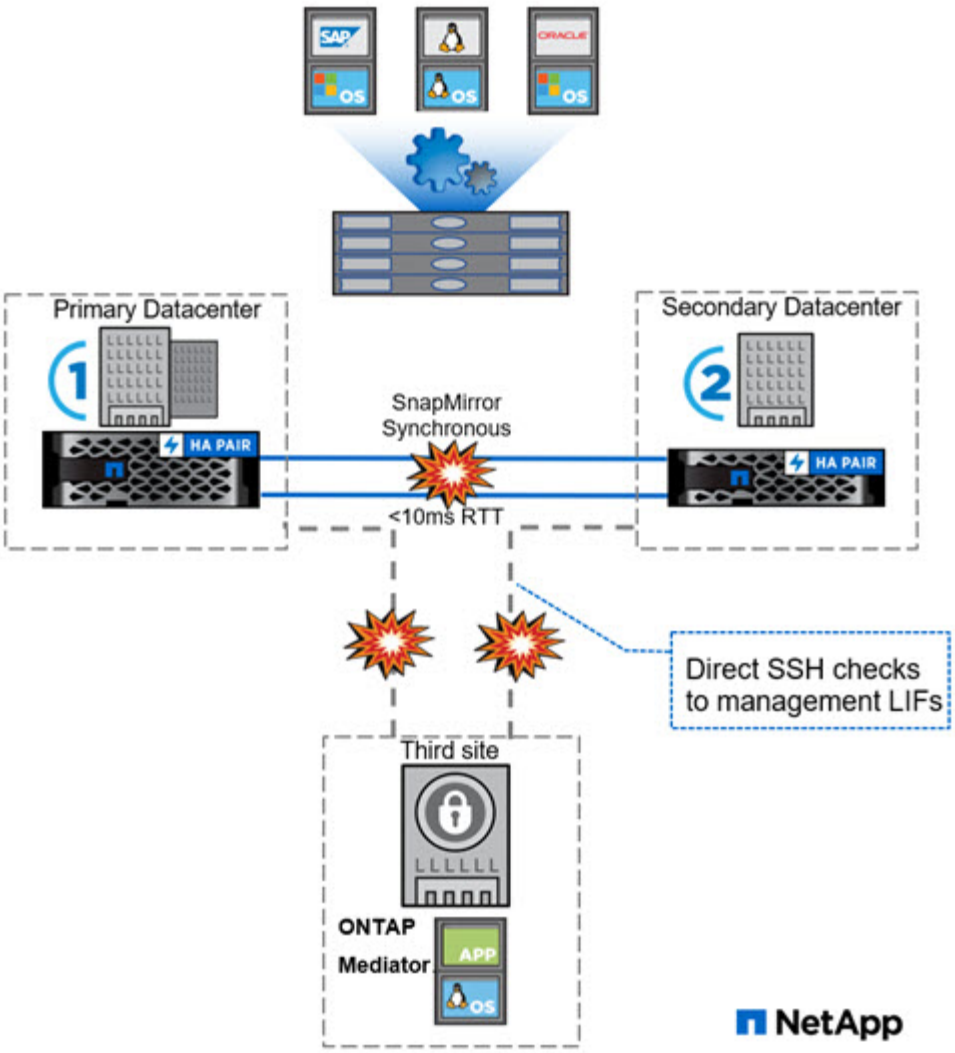
SnapMirror Business Continuity has the following requirements:

- 2-node HA cluster, only – both either AFF or ASA. No intermixing.
- A server or VM running RHEL 7.6 or 7.8 or CentOS 8.0 or 8.1 for installing ONTAP Mediator
- Data Protection or Premium bundle license

Support

SnapMirror Business Continuity provides support for the following:

- Synchronous replication
- SAN protocol – FCP or iSCSI
- Up to 5 consistency groups, each with up to 12 volumes
- A total of 80 concurrent synchronous relationships per HA pair, including consistency groups



Configure Mediator

Use System Manager to configure the Mediator server to be used for automated failover. You can also replace the self-signed SSL and CA with the third party validated SSL Certificate and CA if you have not already done so.

Steps

1. Navigate to **Protection** > **Overview** > **Mediator** > **Configure**.
2. Click **Add**, and enter the following Mediator server information:
    - IPv4 address
    - Username
    - Password
    - Certificate

Configure protection for business continuity

Configuring protection for business continuity involves selecting LUNs on the ONTAP source cluster and adding them to a consistency group. Open System Manager from a browser on the source cluster to begin configuring protection for business continuity.

About this task

- LUNs must reside on the same storage VM.
- LUNs can reside on different volumes.
- The source and destination cluster cannot be the same.

Steps

1. Choose the LUNs you want to protect and add them to a protection group: **Protection** > **Overview** > **Protect for Business Continuity** > **Protect LUNs**.
2. Select one or more LUNs to protect on the source cluster.
3. Select the destination cluster and SVM.
4. **Initialize relationship** is selected by default. Click **Save** to begin protection.
5. Go to **Dashboard** > **Performance** to verify IOPS activity for the LUNs.
6. On the destination cluster, use System Manager to verify that the protection for business continuity relationship is in sync: **Protection** > **Relationships**.

Reestablish the original protection relationship after an unplanned failover

ONTAP uses the ONTAP Mediator to detect when a failure occurs on the primary storage system and executes automatic unplanned failover to the secondary storage system. You can use ONTAP System Manager to reverse the relationship and reestablish the original protection relationship when original source cluster is back online.

Steps

1. Navigate to **Protection** > **Relationships** and wait for the relationship state to show “InSync.”
2. To resume operations on the original source cluster, click ⋮ and select **Failover**.

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