Plan

ONTAP 9

NetApp
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Table of Contents

Plan 1
Prerequisites 1
Supported configurations and features 3
Object limits for SnapMirror Business Continuity 5

Plan

Prerequisites

When planning your SnapMirror Business Continuity deployment, ensure you have met the various hardware, software, and system configuration requirements.

Hardware

- Only two-node HA clusters are supported
- Both clusters must be either AFF (including AFF C-Series) or ASA (no mixing)

Software

- ONTAP 9.8 or later
- ONTAP Mediator 1.2 or later
- A Linux server or virtual machine for the ONTAP Mediator running one of the following:

ONTAP Mediator version	Supported Linux versions
1.6	• Red Hat Enterprise Linux: 8.4, 8.5, 8.6, 8.7, 8.8, 9.0, 9.1, 9.2 • Rocky Linux 8 and 9
1.5	• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3, 8.4, 8.5 • CentOS: 7.6, 7.7, 7.8, 7.9
1.4	• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3, 8.4, 8.5 • CentOS: 7.6, 7.7, 7.8, 7.9
1.3	• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 7.9, 8.1, 8.2, 8.3 • CentOS: 7.6, 7.7, 7.8, 7.9
1.2	• Red Hat Enterprise Linux: 7.6, 7.7, 7.8, 8.1 • CentOS: 7.6, 7.7, 7.8

Licensing

- SnapMirror synchronous (SM-S) license must be applied on both clusters
- SnapMirror license must be applied on both clusters

If your ONTAP storage systems were purchased before June 2019, see NetApp ONTAP Master License Keys to get the required SM-S license.

Networking environment

- Inter-cluster latency round trip time (RTT) must be less than 10 milliseconds.
- SCSI-3 persistent reservations are **not** supported with SM-BC .

Supported protocols

- Only SAN protocols are supported (not NFS/SMB).
- Only Fibre Channel and iSCSI protocols are supported.
- The default IPspace is required by SM-BC for cluster peer relationships. Custom IPspace is not supported.

NTFS Security Style

NTFS security style is **not** supported on SM-BC volumes.

ONTAP Mediator

- The ONTAP Mediator be provisioned externally and attached to ONTAP for transparent application failover.
- To be fully functional and to enable automatic unplanned failover, the external ONTAP mediator should be provisioned and configured with ONTAP clusters.
- The ONTAP Mediator must be installed in a third failure domain, separate from the two ONTAP clusters.
- When installing the ONTAP Mediator, you should replace the self-signed certificate with a valid certificate signed by a mainstream reliable CA.
- For more information about the ONTAP Mediator, see Prepare to install the ONTAP Mediator service.

Read-write destination volumes

- SM-BC relationships are not supported on read-write destination volumes. Before you can use a read-write volume, you must convert it to a DP volume by creating a volume-level SnapMirror relationship and then deleting the relationship. For details, see Converting existing relationships to SM-BC relationships

Large LUNs and large volumes

Support for large LUNs and large volumes (greater than 100 TB) depends on the version of ONTAP you are using and your platform.

ONTAP 9.12.1P2 and later

- For ONTAP 9.12.1 P2 and later, SMBC supports Large LUNs and large volumes greater than 100TB on ASA and AFF (including C-Series).

> For ONTAP Releases 9.12.1P2 and later, You must ensure that both the primary and secondary clusters are either All-Flash SAN Arrays or All Flash Array, and that they both have ONTAP 9.12.1 P2 or later installed. If the secondary cluster is running a version earlier than ONTAP 9.12.1P2 or if the array type is not the same as primary cluster, the synchronous relationship can go out of sync if the primary volume grows larger than 100 TB.

ONTAP 9.8 - 9.12.1P1

- For ONTAP releases between ONTAP 9.8 and 9.12.1 P1 (inclusive), Large LUNs and large volumes greater than 100TB are supported only on All-Flash SAN Arrays.

> For ONTAP releases between ONTAP 9.8 and 9.12.1 P2, You must ensure that both the primary and secondary clusters are All-Flash SAN Arrays, and that they both have ONTAP 9.8 or later installed. If the secondary cluster is running a version earlier than ONTAP 9.8 or if it is not an All-Flash SAN Array, the synchronous relationship can go out of sync if the primary volume grows larger than 100 TB.

Further information

- Hardware Universe
- ONTAP Mediator overview

Supported configurations and features

SnapMirror Business Continuity is compatible with numerous operating systems and other features in ONTAP. Learn about details and recommended configurations.

Supported configurations

SM-BC is supported with numerous operating systems, including:

- AIX (beginning ONTAP 9.11.1)
- HP-UX (beginning ONTAP 9.10.1)
- Solaris 11.4 (beginning ONTAP 9.10.1)

AIX

Beginning with ONTAP 9.11.1, AIX is supported with SM-BC. With an AIX configuration, the primary cluster is the "active" cluster.

In an AIX configuration, failovers are disruptive. With each failover, you will need to perform a re-scan on the host for I/O operations to resume.

To configure for AIX host with SM-BC, refer to the Knowledge Base article How to configure an AIX host for

SnapMirror Business Continuity (SM-BC).

HP-UX

Beginning in ONTAP 9.10.1, SM-BC for HP-UX is supported.

Limitations with HP-UX

An automatic unplanned failover (AUFO) event on the isolated master cluster may be caused by dual event failure when the connection between the primary and the secondary cluster is lost and the connection between the primary cluster and the mediator is also lost. This is considered a rare event, unlike other AUFO events.

- In this scenario, it might take more than 120 seconds for I/O to resume on the HP-UX host. Depending on the applications that are running, this might not lead to any I/O disruption or error messages.
- To remediate, you must restart applications on the HP-UX host that have a disruption tolerance of less than 120 seconds.

Solaris Host setting recommendation

Beginning with ONTAP 9.10.1, SM-BC supports Solaris 11.4.

To ensure the Solaris client applications are non-disruptive when an unplanned site failover switchover occurs in an SM-BC environment, modify the default Solaris OS settings. To configure Solaris with the recommended settings, see the Knowledge Base article Solaris Host support recommended settings in SnapMirror Business Continuity (SM-BC) configuration.

ONTAP integrations

SM-BC offers support for other features in ONTAP, including:

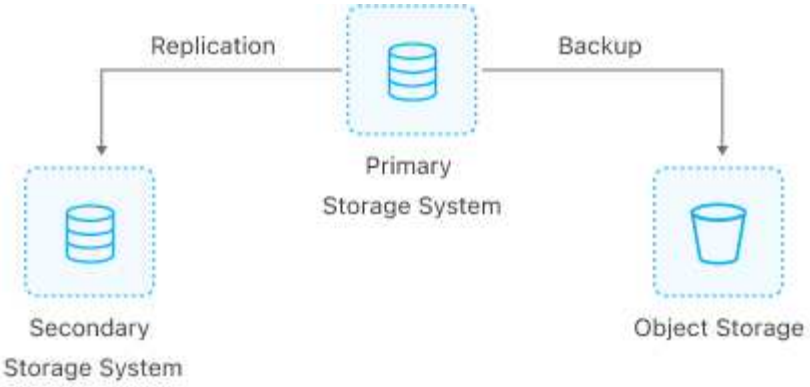
- Fan-out configurations
- NDMP copy (beginning ONTAP 9.13.1)
- Partial file restore (beginning ONTAP 9.12.1)

FabricPool

SM-BC supports source and destination volumes on FabricPool aggregates with the tiering policy of None, Snapshot or Auto. SM-S SM-BC does not support FabricPool aggregates using a tiering policy of All.

Fan-out configurations

In a fan-out configurations, your source volume can be mirrored to an SM-BC destination endpoint and to one or more asynchronous SnapMirror relationships.



SM-BC supports fan-out configurations with the `MirrorAllSnapshots` policy and, beginning in ONTAP 9.11.1, the `MirrorAndVault` policy. Fan-out configurations are not supported in SM-BC with the `XDPDefault` policy.

If you experience a failover on the SM-BC destination in a fan-out configuration, you will have to manually resume protection in the fan-out configuration.

NDMP restore

Beginning in ONTAP 9.13.1, you can use NDMP to copy and restore data with SM-BC. Using NDMP allows you to move data onto the SM-BC source to complete a restore without pausing protection. This is particularly useful in fan-out configurations.

To learn more about this process, see Transfer data using ndmp copy.

Partial file restore

Beginning in ONTAP 9.12.1, partial LUN restore is supported for SM-BC volumes. For information on this process, refer to Restore part of a file from a Snapshot copy.

Object limits for SnapMirror Business Continuity

When preparing to use and managing SnapMirror Business Continuity, be aware of the following limitations.

Consistency groups in a cluster

Consistency group limits for a cluster with SM-BC are calculated based on relationships and depend on the version of ONTAP used. Limits are platform-independent.

ONTAP version	Maximum number of relationships
ONTAP 9.8-9.9.1	5
ONTAP 9.10.1	20
ONTAP 9.11.1 and later	50

Volumes per consistency group

The maximum number of volumes per consistency group with SM-BC is platform independent.

ONTAP version	Maximum number of volumes supported in a consistency group relationship
ONTAP 9.8-9.9.1	12
ONTAP 9.10.1 and later	16

Volumes

Volume limits in SM-BC are calculated based on the number of endpoints, not the number of relationships. A consistency group with 12 volumes contributes 12 endpoints on both the primary and secondary cluster. Both SM-BC and SnapMirror Synchronous relationships contribute to the total number of endpoints.

The maximum endpoints per platform are included in the following table.

S. No	Platform	Endpoints per HA for SM-BC			Overall sync and SM-BC endpoints per HA		
		ONTAP 9.8-9.9.1	ONTAP 9.10.1	ONTAP 9.11.1 and later	ONTAP 9.8-9.9.1	ONTAP 9.10.1	ONTAP 9.11.1 and later
1	AFF	60	200	400	80	200	400
2	ASA	60	200	400	80	200	400

SAN object limits

SAN object limits are included in the following table. The limits apply regardless of the platform.

Object in an SM-BC relationship	Count
LUNs per volume	256
LUN maps per node	2048
LUN maps per cluster	4096
LIFs per SVM (with at least one volume in an SM-BC relationship)	256
Inter-cluster LIFs per node	4
Inter-cluster LIFs per cluster	8

Related information

- Hardware Universe
- Consistency group limits

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