



## Solution Brief

# Disaster Recovery for SAP HANA

Improve resiliency of your SAP HANA environment

### Key Benefits

- Address any RTO and RPO requirement with a solution supporting any disaster recovery use case. Easily test your failover without influencing your RPO and RTO.
- Move seamlessly to the cloud when you need it.
- Optimize your data protection plan through a unified solution that includes disaster recovery as well as backup and recovery.
- Adapt to changing needs with a flexible solution that supports storage replication and application replication (SAP HANA System Replication).

### The Challenge

Business continuity is essential in IT organizations. They must be able to provide high availability services for the mission-critical applications that their customers require to run their businesses. Otherwise, their customers will face productivity decrease, and eCommerce organizations could face a direct impact on their revenue.

Therefore, every IT organization needs a disaster recovery plan to increase the resiliency of services in order to meet recovery point objective (RPO) and recovery time objective (RTO).

Building disaster recovery plans can be cumbersome. IT organizations face the following problems when defining their disaster recovery plans:

- Lack of a future-proof disaster recovery solution that can respond to the rapidly changing needs of the business
- Inflexible disaster recovery solutions without SAP HANA integration
- Difficulty of testing the disaster recovery plan without affecting the production system
- No seamless integration into the cloud

### The Solution

NetApp has developed a full portfolio of technologies and tools to help IT organizations build or adapt their disaster recovery plans to respond to all business demands.

These NetApp technologies constitute an extraordinarily versatile disaster recovery solution for SAP HANA on the market. The solution includes NetApp SnapMirror® replication, NetApp MetroCluster™ software, and NetApp FlexClone® thin-cloning technology. The solution supports:

- Asynchronous and synchronous storage replication
- Replication of non-database data, such as application server binaries
- Use of disaster recovery resources for development and testing
- Use of replicated data to refresh development and testing systems
- Disaster recovery testing based on cloning
- SAP HANA System Replication

Table 1 compares the disaster recovery use cases and highlights the most important features.

### Storage replication

Storage replication is suitable for low to medium RTO requirements, where it is acceptable for the SAP HANA database to be started and for data to be loaded into memory after a disaster recovery failover. Storage replication is also used to replicate non-database data, such as SAP application server binaries.

NetApp SnapMirror® data replication software provides synchronous and asynchronous replication. The replication is configured on the storage volume level.

	Storage Replication		SAP HANA System Replication	
	NetApp SnapMirror	NetApp MetroCluster	With Data Preload	Without Data Preload
RTO	Low to medium, depending on database startup time	Low to medium, depending on database startup time	Very low	Low to medium, depending on database startup time
RPO	Synchronous or asynchronous replication	Synchronous replication	Synchronous or asynchronous replication	Synchronous or asynchronous replication
Servers at DR site can be used for dev/test	Yes	Yes	No	Yes
Replication of nondatabase data	Yes	Yes	No	No
DR data can be used for refresh of dev/test systems	Yes	No	No	No
DR testing without affecting RTO and RPO	Yes	Yes	No	No
DR configuration effort	For each storage volume used by the databases	All databases on the storage system are automatically replicated	For each database	For each database

**Table 1) Comparison of the disaster recovery (DR) use cases.**

NetApp MetroCluster high-availability and disaster recovery storage software provides synchronous replication that works on the storage system level. All databases that reside on the storage system are automatically replicated without any additional configuration effort.

#### Disaster recovery resources for development and testing

With storage replication, the servers at the disaster recovery site can be used for development and testing during normal operation. When you use a SnapMirror based solution, the disaster recovery site can be either on premises or in the cloud, and the replicated data can be used for performing a development and testing system refresh.

#### Disaster recovery failover testing

Every organization must test its disaster recovery plan. This testing shows whether the system reacts as stipulated in the disaster recovery plan and documentation. With NetApp FlexClone technology, you can execute a disaster recovery failover test without influencing or interrupting the ongoing replication to the disaster recovery site. In this way, FlexClone lets you run a test without influencing the RTO or RPO.

#### SAP HANA System Replication

To achieve very low RTO values with SAP HANA, you must use SAP HANA System Replication with data preloaded into the memory of the dedicated secondary server at the disaster recovery site. Although operating System Replication without preloaded data allows you to use the secondary server at the disaster recovery site for development and testing, this approach increases the RTO in a failover, because the database needs to be started and data needs to be loaded into memory. Also, SAP HANA System Replication does not replicate non-database files.

Therefore, to increase resiliency of the whole system, System Replication is typically combined with storage-based replication such as SnapMirror or MetroCluster for non-database data.

#### Get more technical details

For detailed information about this solution and the underlying architecture, see the following technical reports:

- TR-4646: [SAP HANA Disaster Recovery with Asynchronous Storage Replication](#)
- TR-4719: [SAP HANA System Replication Backup and Recovery with SnapCenter](#)

#### Boosting the Resiliency of Your SAP HANA Environment

NetApp storage technology supports storage and system replication and is deeply integrated into SAP HANA. Thus it gives you the flexibility to adapt your disaster recovery strategy according to your business requirements. NetApp technology supports countless scenarios you might face and helps you make your SAP HANA environment more resilient.

#### About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations. For more information, visit [www.netapp.com](http://www.netapp.com). #DataDriven