Backup and Recovery for SAP HANA

Backup and recovery operations in minutes instead of hours

Key Benefits

Optimize Backup and Recovery Processes
- Instantaneous backup and recovery
- Application integration
- Management of SAP HANA backup catalog
- Integrated backup retention management for data and log backups

Minimize Performance Impact on Production Systems
- Super-fast storage-based Snapshot backup
- No I/O utilization on production systems

Implement Efficient Replication to an Off-Site Backup Location
- Minimized bandwidth and space requirements
- Full flexibility, either in a secondary data center or in the cloud

Use Backup Data for Fast SAP System Copy Operations
- Mitigation of logical corruption

These days, your company needs continuous, uninterrupted availability of your SAP applications. Backing up your SAP databases is a critical task and can significantly affect the performance of your production SAP system. The time that it takes to restore and recover SAP systems is also a concern.

Another challenge that your company faces is logical corruption, which can be caused by software errors, human errors, or sabotage. The worst case is logical corruption in an SAP landscape, where applications exchange data with each other. If you restore a single SAP system to a point in time before the corruption occurred, the result is data loss, and your SAP landscape is no longer synchronized. Instead of restoring the SAP system, to mitigate the logical corruption, you need a clone of the production system that's based on data that was stored before the logical corruption occurred. This allows to fix the corruption on the application or database layer.

With SAP HANA backup and restore operations, your organization faces the following challenges:

- Long backup operations with performance degradation on production SAP systems
- Unacceptable system downtime due to long restore and recovery operations
- Shrinking backup windows because of the criticality of the applications
- The need for a flexible solution to mitigate logical corruption

The Solution
With NetApp® storage solutions that run NetApp ONTAP® data management software, in combination with NetApp SnapCenter® data protection software, you can meet all those challenges. And with the NetApp Snapshot™ technology that is included in ONTAP software, you can create backups or execute restore operations of any size dataset in a matter of seconds. SAP HANA supports the use of storage-based Snapshot copies as a valid backup operation with documented interfaces.

Backup operations
NetApp SnapCenter and the plug-in for SAP HANA use ONTAP Snapshot technology and the SAP HANA SQL backup interface to give you an SAP-integrated backup solution. SnapCenter gives you automated workflows for backup operations, including retention management for data backups, for log backups, and for the SAP HANA backup catalog.

And for long-term retention, SnapCenter also manages the optional replication of application-consistent backups to an off-site secondary location. Your off-site backup storage can be either a physical storage system on the premises or a NetApp Cloud Volumes ONTAP instance that runs in Amazon Web Services (AWS) or in Microsoft Azure. Figure 1 shows an overview of the solution architecture.
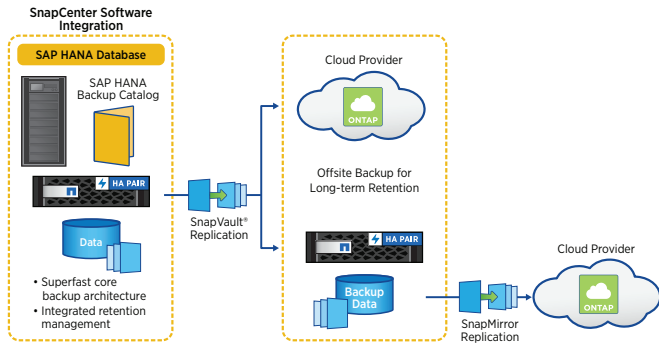
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Figure 1) Application-integrated backup architecture.

Figure 2) Customer example: 2.3TB backed up in 2 min 11 sec.

60 to 100 times faster backup operations

Evaluation of customer data has shown that for SAP HANA, the average backup time with Snapshot copies is in the range of a few minutes. In the customer scenario in Figure 2, a complete backup for a 2.3TB database took 2 minutes and 11 seconds. And our customer All for One Steeb has reported that its Snapshot copy-based backup operations are 60 to 100 times faster than traditional streaming backups.

The largest contributor to the overall backup duration is the time that SAP HANA needs to write the synchronized backup savepoint. The amount of time that is required to write the savepoint is a function of the memory of the SAP HANA system and the activity on the system. The storage Snapshot operation is performed in a matter of seconds, independent of the size of the database.

Reduced system downtime

Because Snapshot copy-based backup operations are super-fast and do not affect system performance, you can schedule multiple Snapshot copy backups daily instead of creating a single daily backup as with traditional streaming backup technology. When a restore and recovery operation is necessary, your system down-time is significantly reduced by two key features. By using NetApp SnapRestore® data recovery technology on the storage layer, the restore operation is executed in mere seconds. And because a higher backup frequency results in fewer database logs that need to be applied, the forward recovery is also accelerated.

Faster mitigation of logical corruption

If logical corruption occurs, flexibility and speed are critical. With NetApp storage-based Snapshot copies, you can use any of the multiple database-consistent images to create a clone of the production system. And NetApp FlexClone® technology makes it easy. You can create FlexClone clones in a matter of seconds
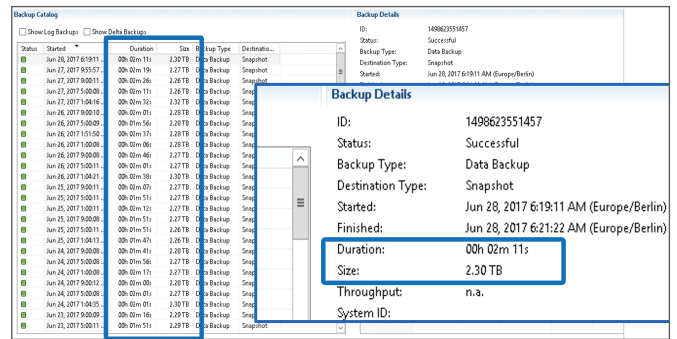
rather than taking several hours with a redirected restore from a file-based backup. To further help mitigate logical corruption, SnapCenter gives you integrated workflows to automate the creation of the production clone.

Get More Technical Details

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

- TR-4614: SAP HANA Backup and Recovery with SnapCenter
- TR-4667: Automating SAP System Copies Using the SnapCenter SAP HANA Plug-In
- TR-4719: SAP HANA System Replication Backup and Recovery with SnapCenter

Think Big: Full Data Protection with One Single Solution

NetApp SnapCenter integration in SAP HANA, combined with Snapshot and FlexClone technologies, offers your IT organization numerous benefits, such as fast backup and recovery and full flexibility to mitigate logical corruption. You can also use the same technologies to build a speedy and effective disaster recovery system, helping to standardize and to simplify your full data protection.

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. #DataDriven