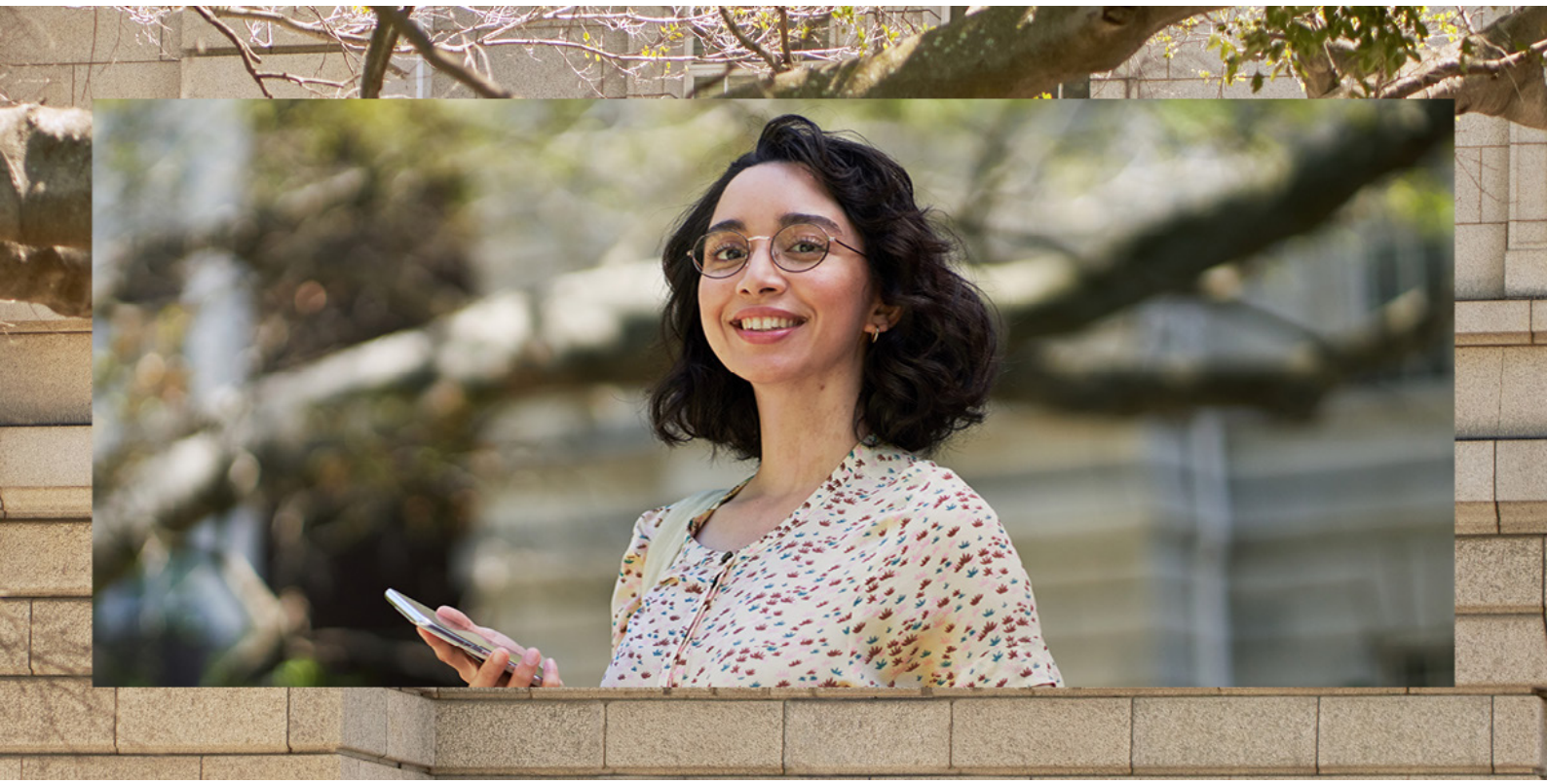
HPE Alletra Storage

Solution brief

HPE Storage solutions for SAP HANA data management

Plan today for success tomorrow



SAP customers have known since 2017 that SAP® would discontinue ongoing support for their software running on any database other than SAP HANA® in 2027. Given this deadline, customers have been working to migrate their SAP applications to SAP HANA-based solutions. Customers who have already moved their core applications to SAP Suite on HANA also must migrate to SAP S/4HANA® by 2027.

As the deadline approaches, customers have decisions to make about the migration. The first and foremost consideration must be to keep the business running smoothly. Customers will therefore need to make compromises regarding which projects and difficulties to address first. It might seem odd to consider data management and all the available options so early, but some planning now could make a significant difference in the future.

HPE GreenLake

Data growth and the in-memory database

There is no doubt that the data explosion has had an impact on SAP applications. As SAP databases grow from gigabytes to many terabytes, customers need to address performance problems, increased infrastructure cost and complexity, and even downtime during hardware and software upgrades. All aspects of the business are affected by this growth. Reports take longer, overnight batch processes do not complete in time, and backups and system refreshes consume increasingly more resources.

SAP HANA has helped to alleviate performance issues. An in-memory database can process billions of records in seconds. However, what happens when data grows beyond the capacity of memory in the server? What happens when restarting an SAP HANA system takes hours while data is loaded from persistent storage into memory? What happens to backups that require multiple terabytes every day?

The growth of data and the management it requires has an impact throughout the organization. With more than 30 years of partnership with SAP and data management, Hewlett Packard Enterprise has the products, solutions, and expertise to help.

HPE has broken the process of implementing a long-term data management strategy into a few basic steps to help you move towards a more sustainable and manageable environment. First, HPE needs to understand your data to choose the solution that meets your needs and then select the infrastructure to support that solution. Lastly, HPE can implement the solution.

Step 1: Understand your data

SAP has done a good job of giving their customers the tools they need to understand their data. There are programs included in their software that analyze data in the system. These programs can determine the number of processors and memory required to run with SAP HANA.

SAP also offers suggestions for reducing the size of the database by cleaning up application tables. This action can significantly reduce the storage capacity required for the application and, more importantly, the amount of memory required in the server. These calculations and analyses assume that all the data in the system being analyzed is required to be in the new system.

One of the most challenging aspects for businesses is deciding what actually needs to be migrated to the new SAP HANA platform. Some systems might have been running for decades and contain data just as old. In a database that is multiple terabytes in size, obsolete data could be hundreds of gigabytes or more. Is it necessary to have this old data in memory after the migration?

To help you get started, HPE has professional services teams that provide an analysis and explanation of the data migration process and the options to make the transition to SAP HANA. HPE can help you establish the processes for data lifecycle maintenance that keeps the SAP HANA database at an optimal size for many years.

Step 2: Choose a solution

SAP offers several solutions for data tiering: Native Storage Extensions (NSE), dynamic tiering, and extension nodes. These solutions allow customers to place their data where it makes the most sense for their business. Customers may choose to use some or none of these solutions based on their needs. HPE has worked with SAP to understand and support these solutions.

The best place to start when considering a long-term data management plan is to understand what SAP offers. SAP has several solution components based on data temperature. These components can be used together or independently if required. The choice of warm or cold is based on how often the data is accessed and what kind of performance is required.

As illustrated in Figure 1, SAP divides data into three tiers: hot, warm, and cold. The hot tier is kept in memory for real-time processing and analysis. The warm tier is data that is not frequently accessed and does not need to be kept in memory all the time. This can be stored on the primary storage system, but only loaded into memory as needed. Hot and warm data are managed as part of the SAP HANA database. The cold tier contains large volumes of data that are rarely accessed and does not need to be part of the SAP HANA database but remains accessible at any time.

There are options to use a secondary database such as SAP IQ for some data, Hadoop data lakes, or even cloud-based data sources using HPE Ezmeral Data Fabric, which can act as a cold tier using SAP HANA Smart Data Access.

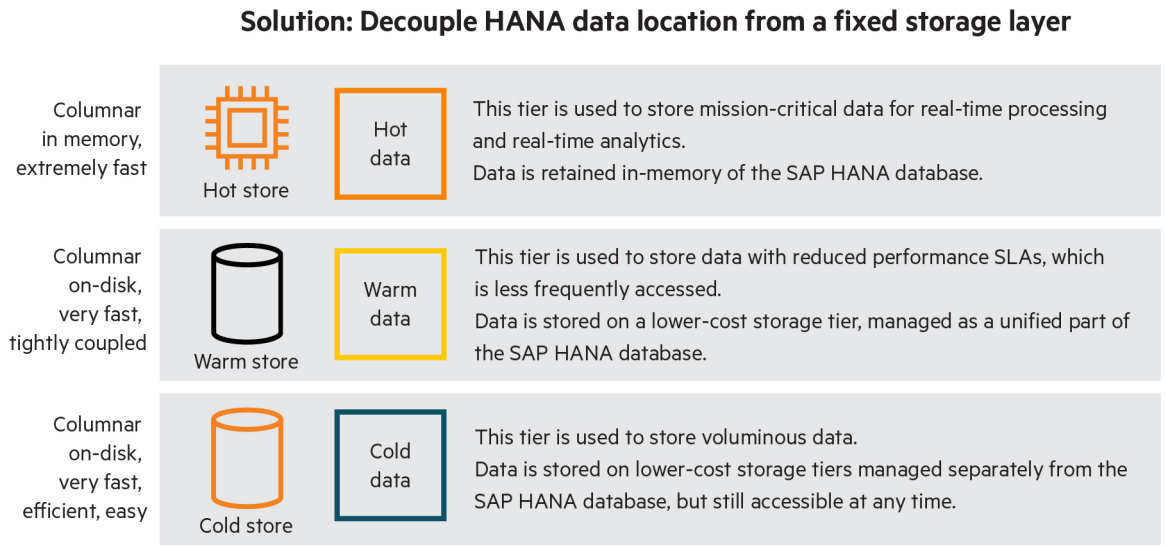


Figure 1. Solution designed to decouple an SAP HANA data location from a fixed storage layer

As you are choosing a solution, this is the best time to think about other data lifecycle challenges and how each solution acts during backup and recovery. For many customers, considerations include how to copy warm and cold data stores for system copies, testing, and business continuity.

Step 3: Choose your infrastructure

Now that you understand your data and have chosen a solution for long-term data management needs, it is time to consider your storage options.

HPE offers a wide assortment of storage solutions for SAP HANA including HPE Alletra Storage MP B10000, HPE Alletra Storage 9000, HPE Alletra Storage 6000, and HPE Alletra Storage 5000, all of which are certified for SAP HANA workloads. These solutions are typically used as a persistence layer for the SAP HANA database, but customers also like to use them for archiving and secondary storage. HPE Alletra Storage 5000 can provide high-density storage for cold data.

All HPE Alletra Storage systems can be managed from a cloud-based console. This allows you to implement an archiving and data tiering strategy without needing to acquire or learn how to manage another storage environment.

Step 4: Deploy and manage

After you have made your choices, it is time to deploy and manage the data tiering solution. After the hardware is installed, start with SAP Data Lifecycle Manager (DLM).

DLM is a tool that enables you to configure and manage the data tiering solution. DLM allows you to schedule and run operations so data is tiered automatically based on your requirements. This allows you to keep your server memory footprint optimized for hot data.

SAP also offers the NSE Advisor, which provides suggestions for modifying how tables are loaded based on how often they are used. This enables you to identify hot and warm data to help manage your memory use.

Meeting your SAP HANA long-term management challenges

From start to finish, HPE has the solutions for your long-term data management needs. HPE has the expertise and experience to help you understand your data, choose a solution and infrastructure, and deploy and manage the solution. HPE Alletra Storage solutions meet the performance, capacity, and availability needs of most management challenges. You can be confident that your SAP HANA environments will stay manageable and fast for years to come, even as your data and business continue to grow.

Resources

Options for SAP HANA data tiering

HPE Storage solutions for SAP HANA Native Storage Extension

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HPE Storage solutions benefits

- **Optimized SAP HANA database**—Manage data growth to keep your SAP HANA database performing at its best.
- **Reliability and predictability**—Achieve extreme performance with up to 100% availability and QoS policies for predictability on a no single-point-of-failure platform.[1]
- **Simplified management**—Accelerate operations from rapid deployment to automated provisioning to invisible upgrades with an intuitive cloud experience on-prem.
- **Disaggregated, scale-out storage**—Achieve better performance and economics, and scale capacity and performance independently without disruption.

[1] Uptime guarantees that deliver

Learn more at

HPE.com/us/en/storage/sap

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