espresso tutorials

Rob Frye, Joe Darlak, Dr. Bjarne Berg

The SAP® BW to HANA Migration Handbook

- Proven Techniques for Planning and Executing a Successful Migration
- SAP BW on SAP HANA Sizing and Optimization
- Building a Solid Migration Business Case
- Step-by-Step Runbook for the Migration Process

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2 Planning the migration

In the introduction, we discussed the benefits of the DMO process over other options for migrating to SAP HANA. In this chapter, you will learn more about the business case for migrating to SAP HANA, as well as the items that you must consider when planning for the DMO approach.

In Chapter 1, we examined the history of data migrations and began to build the case for choosing the DMO option for your company's migration from BW to HANA. In this chapter, we will look at several benefits you can use in building your business case for SAP HANA. We will also look at some sample staffing plans, hardware sizing and planning examples, budgeting, and milestones. This information is provided as a baseline to assist you in planning for your company's DMO process.

2.1 Business case

There are several reasons for migrating your SAP BW system to SAP HANA. The most important reasons are those that provide the greatest advantage to your business. The reasons that provide the most impact include:

- Superior performance with a smaller database footprint
- More agile development and simpler maintenance
- Landscape simplification and real-time reporting

These benefits drive a lower total cost of ownership (TCO), and they can be achieved by migrating without reimplementation or disruption to your existing landscape or reporting scenarios. Keep reading to take a closer look at the reasons for choosing SAP HANA.

2.1.1 Superior performance with a smaller database footprint

Just by migrating your existing system to SAP HANA you will achieve superior data loading and query performance. On average, BW queries are at least nine times faster compared to the same queries in an SAP BW system not running on HANA.

SAP HANA is fast

Based on data gathered from our projects to date, SAP HANA executes queries 9-23 times faster (16 times on average) than other databases. So the minimum expected performance improvement is around nine times faster for queries in HANA.

The increased speed of data access from external tools is also improved. For example, a database with 1.2 billion rows of data returned aggregated results in BO Explorer in around 4.5 seconds. One study published by SAP found that Web Intelligence reports loaded approximately 12 times faster.

It can be difficult to quantify this speed improvement in terms of financial savings. Let's look at a simple example.

SAP product availability matrix

For a complete list of version requirements for SAP BW on HANA, check the SAP product availability matrix (PAM) for each tool to ensure connectivity for existing data sources. *http://scn.sap.com/DOC-8693*

Let's assume that there are 2,000 query executions per day and the average time is 20 seconds in the legacy database. The total time spent waiting for query results is over 11.1 hours per day. With SAP HANA, the wait time is 1.2 hours per day, which is a saving of 9.9 hours per day, or 2,376 hours per year!

Even data loads into traditional InfoCubes and DSOs are around twice as fast (at least) as loading data into a traditional BW system. This means you can load data twice as many times per day as you did before migrating to SAP HANA and still have more spare time in your load window!

The database size for BW on HANA is significantly smaller than the size required in traditional BW and BWA systems. The speed of the in-memory SAP HANA calculation engine allows super-fast aggregation of data and faster access to raw data, so there is no need to pre-calculate aggregates or invest in obsolete hardware for the BW Accelerator (BWA). SAP HANA is also a columnar database which allows for significant compression compared to relational databases. Generally, a compression factor of 3-5 times is expected for most tables compared to Oracle, for example. The speed of the SAP HANA database also eliminates the need to build InfoCubes in SAP BW and hence, eliminates additional data. This allows your company to spend less on licens-

ing and lowers the total cost of owning an SAP BW on HANA system.

SAP HANA licensing

SAP HANA licensing is paid only on the production database, which saves costs if you have many non-production systems in your landscape.

2.1.2 More agile development and simpler maintenance

Before SAP HANA, SAP BW systems relied on the Layered Scalable Architecture (LSA) to provide acceptable performance for data loading and query executions. LSA defined best practices for moving data through several staging or persisted data warehouse layers before making the data available for reporting in the enterprise data warehouse (EDW). See Figure 2.1 for an example of LSA in a traditional BW system.

LSA is a robust and valuable design, but it can be expensive to design, implement, and maintain, both from a development perspective and from a database volume perspective. In addition, the fact that there are multiple data staging layers introduces latency in moving data from the acquisition layer to the report and visualization layers, thus delaying consumption of data by end users.

With SAP BW 7.4 on HANA, the LSA architecture is replaced with LSA++. Recommended for SAP HANA only, LSA++ is an updated design and architecture standard which can be used to simplify your EDW architecture. See Figure 2.2 for an example of the LSA++ architecture.

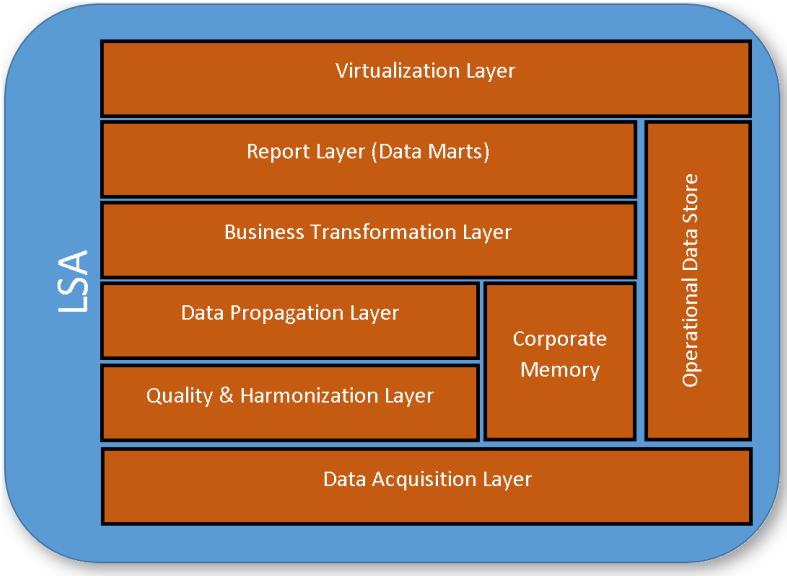

Figure 2.1: LSA example

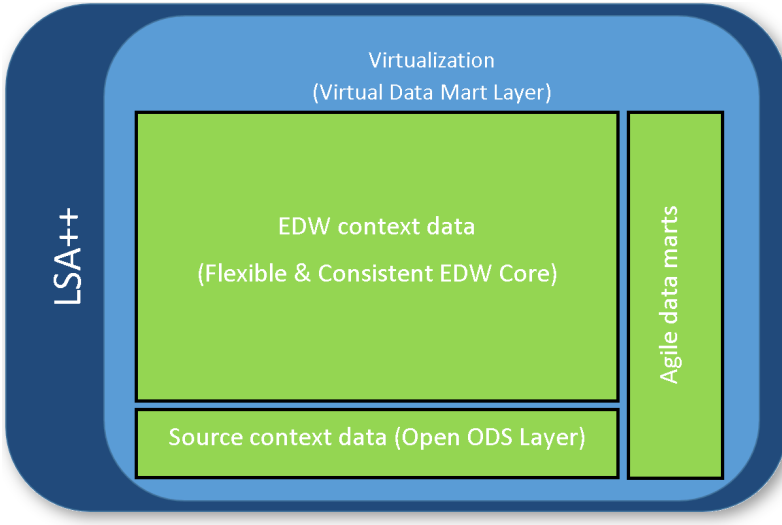

Figure 2.2: LSA++ example

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