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Lean and Dynamic Modeling with
SAP BW on HANA //

Mathias Klare

Introduction

The introduction of SAP BW on HANA makes a new kind of modeling possible in an SAP BW system. In the past, to cope with the growing demands of increasing data volumes, many objects were required for an ETL run. But, thanks to SAP HANA's in-memory technology, there's new potential for leaner and more dynamic development with SAP BW on HANA.

SAP BW

In a classic SAP BW system, several objects are needed for an ETL run, and these are often defined through different aggregation levels. If a report is changed (for example, by the addition of a new field or the extension of an analysis model), several objects must be changed and transported. Consequently, performing ETL runs fast in more complex systems is practically impossible.

Another aspect is the range of InfoObjects. In classic systems, central InfoObjects such as "material" or "customer" have numerous other InfoObjects as display or navigation attributes. Often, there's a multilayered system of correlations and dependencies. This makes the underlying DataSources, InfoProviders, and Transformations highly complex. Companies would therefore like to adopt a modular approach to modeling, to achieve a more flexible and clear-cut system.

SAP BW on HANA

When modeling an ETL run in SAP BW on HANA, there are fewer objects than with the classic system, enabling faster development and improved system maintainability. Apart from the fewer objects, a new way of modeling has been created with the introduction of open ODS views and CompositeProviders.

In the following three sections, the use of transitive attributes, satellites, and joins with CompositeProviders will be examined.

Transitive attributes

In a classic SAP BW system, InfoProviders can have navigation attributes that are directly available in reporting. With SAP BW on HANA, it's possible to access navigation attributes directly from navigation attributes – known as transitive attributes – something that was only possible using additional ETL runs in the classic system. This approach makes modeling possible with a snowflake schema, where the granularity is determined through the transformation tables.
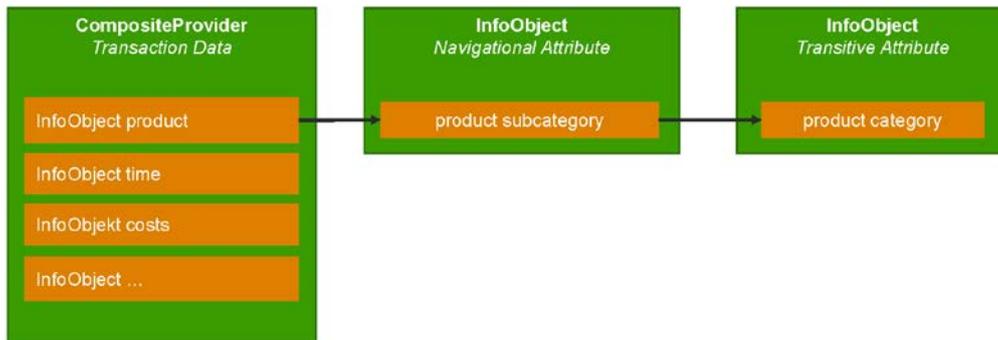
Figure 1 – Transitive attributes

InfoProviders can be streamlined by distributing navigation attributes across several levels. In addition, information redundancies are reduced in the system.

Satellites

Within the context of SAP BW on HANA, satellites represent the splitting of InfoObjects. By using CompositeProviders, a source field of an advanced DSO can be assigned to several InfoObjects. In this way, an InfoObject's attributes can be assigned to various business areas and modeled (for example, a machine's attributes can be grouped into functional and technical attributes).
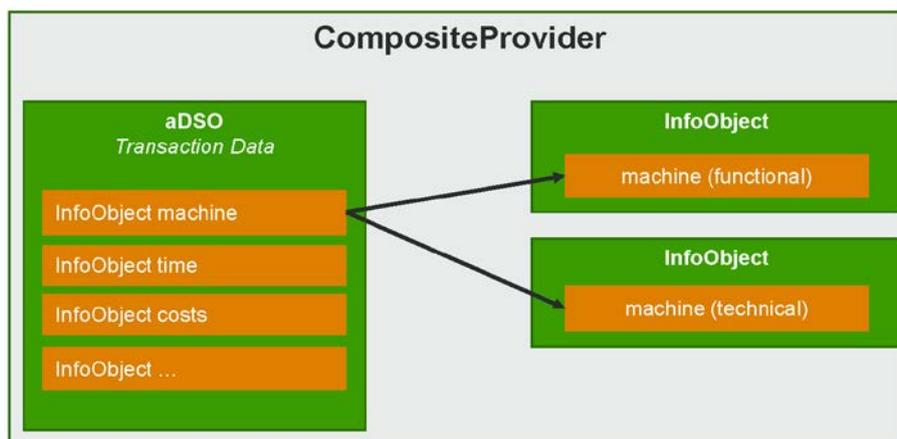

Figure 2 - Satellites

This approach makes InfoObjects less complex and makes it easier to add entire company fields. Furthermore, the authorization concept becomes much simpler, because business departments can only access the object information that is relevant to them.

Join with CompositeProviders

The classic MultiProvider in an SAP BW system unites the data from InfoProviders via a union operator. With the introduction of the CompositeProvider, SAP BW on HANA enables a more complex connection between the individual InfoProviders via a join operator, with the choice between an inner join and a left outer join. InfoObjects are given as the condition for the join here. In turn, the attributes of a joined object can serve as the basis for another join.
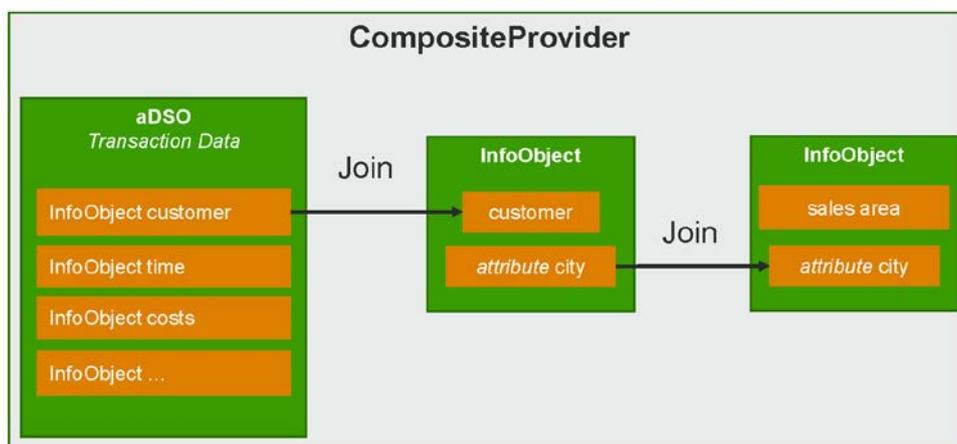

Figure 3 - Join with CompositeProviders

Thanks to this extended logic, complex company-specific requirements can be implemented more agilely and easily, because additional information and objects can be read when reports are run.

Conclusion

With the introduction of new objects and the removal of old objects, SAP BW on HANA presents new opportunities for modeling data. The complexity of existing ETL runs can be split using satellites and joins with CompositeProviders, reducing redundancies in the system and facilitating modularization in general. As a result, new requirements and models are implemented faster and the system becomes clearer. These modeling tools demonstrate the whole power of SAP BW on HANA – which isn't just characterized by a faster database.

Bibliography

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Contact us //

mayato GmbH
Am Borsigturm 9
13507 Berlin

info@mayato.com

+49 30 4174 4270 10