Enterprise Data Warehouse Service for POS

Enterprise Data Warehouse (EDW) Service for POS

Introduction:

How can EDW Service for POS eliminate the challenges of analyzing point of sales data in the Retail industry?

Business users face crucial challenges which inhibit their daily operational business when analyzing mass POS data. Unacceptable query runtimes are the most problematic issues business analysts have to deal with. Functional dashboards and fast Ad Hoc reporting tools are missing and reporting on real time data is out of the question.

SAP Retail created a service package primarily tailored for SAP's installed base of Point of Sales Data Management (POS DM) customers to provide a complete POS Data Enterprise Data Warehouse (POS EDW). This service delivers pre-configured data models and integration architecture to implement and operate a high volume POS data warehouse based on in-memory technology.

Benefits and Value Proposition of this Service:

- **Flexible Business Strategies**: The data model provided covers the most common areas of POS reporting and the Layered Scalable Architecture can serve as a model for other customer specific areas, this enabling a full EDW
- **Improved Business Performance**: POS based analytics is one of the most important sources for the Retailer to gain business insight
- **Unmatched User Experience**: The reference architecture allows for an efficient integration of the SAP Business Objects Portfolio of BI front-end tools, paired with unmatched analytical performance using latest in-memory technology
- **Interoperability**: This solution is a logical choice for anyone running on SAP suite for Retail already. It is organically grown and therefore presents a truly pervasive end to end platform that is internally consistent and interoperable with other SAP offerings to boot.
- **TCO**: Minimal costs for implementation and administration of SAP NetWeaver BI 7.0 and latest SBOP, offering large data warehousing for retail at low TCO
- **Quick ROI through Business Orientation**: Fast implementation and efficient operations model, expandable data model

This wiki on the SAP Community Network serves to give you an overview of EDW Service for POS DM capabilities for SAP for Retail.

Note: For brevity, the SAP Service Marketplace will be referred to SMP. Special login details are required to access documents on SMP.

Getting Started with Enterprise Data Warehouse Service for POS

Function and Features

The Business Needs:

Why do we need to analyze large sets of POS Data?
Only near real time customer POS transactions provide transparent insight into the true shopper behavior.

- To understand customer behavior in order to execute the right marketing strategy and build loyalty.
- To improve promotion and seasonal effectiveness
- To increase profitability by obtaining efficient stock management and avoid supply chain shocks like "out of stocks"

Tracking sales information is essential to plan product assortments and to maximize the value of inventory investments.

- To evaluate category/assortment performance
- To understand cross selling behavior and product affinities across assortments
- To analyze and therefore manage customer -profitability and -segmentation
- To reduce loss prevention at POS

The Business Challenges:

- Unacceptable query runtimes when analyzing mass data!
- Data not available in real time and ad-hoc interactive analysis is costly
- Providing relevant information to the casual user - not only to a small set of business analysts. - the need for easy to consume dashboards and fast Ad Hoc reporting tools

But Why?

The above challenges are the result of fundamental technical limitations

- POS Data is typically stored in large and highly specialized data warehouses that are costly to maintain and expand
- Modern Enterprise Data Warehouse technology is missing or it takes too long to implement while working with the current system in parallel
• Very costly to manage POS data, on receipt level, for a time horizon of 2 years+

So it makes perfect sense that in order to **archive the Business Needs**, which are hard or sometimes even impossible to obtain, the **Business Challenges have to be eliminated**. The Business Challenges can only be eliminated by providing a future proven technical foundation which can process large amounts of data:

**The Solution!**

**EDW Service for POS**

This brings us to the point to explain why EDW Service for POS can eliminate the challenges mentioned above. Therefore we will explain the two major components of this Service:

- Enterprise Data Warehouse (EDW) - the architectural foundation
- Business Warehouse Accelerator (BWA) - the motor to provide near real time requests:

**Enterprise Data Warehouse (EDW) - or: SAP’s Business Warehouse Layered, Scalable Architecture (BW LSA):**

The architecture used within this service is an enhanced version of the common know EDW architecture know as Layered, Scalable Architecture. Now you would ask - Why is it not called LSA Service for POS? Well, sometimes...: Let's say that's Life!

Let's explain the philosophy around it (EDW/LSA Background):

If you are going to build a house it goes without saying that in advance there is a process of making basic decisions about the look and feel, size and other important fundamentals of the new house before starting constructing the house. You decide on the architecture. You are pretty aware that if you start constructing a house and the architecture blueprint does not provide a basement - it will be impossible to add on a basement afterwards. And now imagine building a house without any architecture blueprint.... probably your house will end up in chaos and you will be forced to tear it down at the end.

Building a large, wide-spanning BW-managed Data Warehouse (DWH) - often addressed as Enterprise Data Warehouse (EDW) - is very similar. But it is unfortunately not so common to think about a stable, future-proof BW architecture before starting the implementation.

BW has no knowledge about your concrete conditions and preferences. Will it be a mid-range size BW DWH or a large one on global scale? Will it be a BW DWH for a business unit or a country or a wide-spanning, corporate one? If these and other questions are not answered and fixed in a architecture blueprint (construction plan) before starting the implementation your DWH will most likely look like a nice house - but most likely with too much individualism to meet your preferences and requirements with challenging conditions!

The challenging conditions of BI and Data Warehousing are well known: it is a highly dynamic, volatile and incremental world. From Data Warehousing perspective that means a steady growth of data and Meta data caused by new BI applications and/or newly incorporated organizational units. Steady pressure to adapt and expand existing BI applications. Sooner or later it will become obvious for everyone that without standardization of data warehouse management described by an architecture blueprint the entire system will become more and more difficult and costly to administrate and operate. The same applies to development and maintainability of BI applications. In short keeping our service level agreements with respect to reporting availability, on time delivery (time to market), overall stability and performance will become extremely difficult.

This brings us back to house building best practices:

Large scale BW architectures should follow today's design & construction principles for large houses: standardized, scalable architecture, no squiggles, efficient usage of materials, earth quake save and a lot more.

The most popular conceptual standardization of data warehousing is known under the term Enterprise Data Warehouse (EDW) introduced by Bill Inmon. The most famous EDW demand is the propagation of a 'single version of truth'.

Designing a BW DWH based on EDW principles today nearly is a standard requirement for large BW implementations - corporate/enterprise view on information as answer to globalization.

But as there is no copyright on the term EDW it showed that it was very difficult to streamline the way of introducing an EDW and to communicate on this topic. Furthermore customers focus with wide-spanning especially global BWs in addition on 24x7 operations, robustness, template development, corporate roll-out and of course overall scalability. These Topics relate very close to the BW functional offering thus they cannot be covered by the general EDW concept.

These circumstances drove the introduction of a standard for large and/or global-scale BW-managed Data Warehouses - the BW Layered Scalable Architecture (LSA). The LSA offers design and implementation standards, collects years of SAP- and market-experiences (best practice), is built on EDW principles and provides a common terminology.

**LSA definition:**

The BW Layered, Scalable Architecture (BW LSA) describes the design-principles of service-level oriented, scalable, best practice BW architectures founded on accepted EDW principles.

You can have a closer look at LSA principles at SDN Blog page of Juergen Haupt where the above text originated from.

**Business Warehouse Accelerator (BWA):**

The SAP NetWeaver BW Accelerator is a new approach for boosting SAP NetWeaver BW performance based on SAP’s search and classification engine, and on specially configured hardware. SAP NetWeaver BW customers adopting the SAP NetWeaver BW Accelerator can expect radical improvements in query performance through sophisticated in-memory data compression and horizontal and vertical data partitioning, with near zero administrative overhead.

BWA presents itself like an appliance because it combines in one package software and hardware. It's important to note that organizations looking to deploy the BWA will still need to deploy an instance of the SAP NetWeaver with its own associated software and hardware. To create the BWA appliance, SAP has partnered with Intel, which provides the processors, and HP and IBM, which provide their respective server and storage technologies. In essence, the BWA is a highly scalable analytic server that processes queries initiated by users of SAP NetWeaver BI. Its uniqueness and the features that make BWA highly scalable is the use of SAP’s TRED search technology in conjunction with blade server architecture provided by its hardware partners.

Business Warehouse Accelerator exists out of two primary components:

1. BWA includes indexes that are vertically inverted reproductions of all the data included in InfoCubes (i.e., fact and dimension tables as
well as master data). Note that there is no relational or other database management systems in BWA. There is only a file system, and indexes are essentially held as flat files.

2. The second primary component of SAP BI accelerator is the engine that processes the queries in memory. The software is running on an expandable rack of blade servers. The operating system used for BI Accelerator is 64-bit Linux, so in addition to having no database license cost, there is also no OS license cost.

The Service

- **What is included in the Service:**
  Enterprise Data Warehouse (EDW) Service for Point of Sale (POS) is a complete productized service (SAP SIL Service) to jump start a Retailer’s POS Data Warehouse (DWH) using the latest SAP BI & EIM architecture. The Service delivers pre-configured data-models and integration architecture to implement and operate a high volume POS DWH. The pre-configured data-models serves as reference architecture for SAP BI & EIM (classic SAP customer) and provides a best-practice POS data-model that covers the most common Retail use cases for POS Analytics as well as lean integration with SAP Business Objects Front end tools. The high performance Analytics set-up is established by using SAP Business Warehouse Accelerator and SAP Explorer Accelerated.

In addition to the system/data model set up, this service delivers comprehensive documentation material as well as a project proposal and includes an initial customer workshop.

Further Details on the above:

- **Service Innovation Lifecycle (SIL):**
  SIL is a guiding framework of activities, tools and reference materials for deliverables. Its purpose is to help develop ideas into strong, successful service offerings aligned with the Global Service Portfolio Program (SPM). Further information about SIL can be found here (SMP credentials required). SIL 3.0 has three primary objectives:
  - Introduce our new Service Portfolio Management (SPM) framework, our new SAP Product Definition Idea & Service development tool ("PD"), and further integrate IP Management to support our evolving business model;
  - Provide a consistent and flexible approach for developing high-quality, in-demand services in line with FS strategies and key programs; and
  - Utilize a convenient, concise, quick-view roadmap of service innovation activities, tools, and reference materials to enhance the efficiency and effectiveness of our research and development efforts.

Architecture for Trade and Scope of the Service:

EDW Service for POS - Features, Capabilities and Best Practices

- **EDW Service for POS PDF Document** for Non-SAP Employees.
  This document is a PDF conversion of a Power Point Presentation about this topic. Because of the conversion the note pages are not visible. (SMP credentials required).

- **EDW Service for POS PPT Document** for SAP Employees.
  This document is the original PPT version with Appendix and Notes (SMP credentials required).

Selected Articles & Links

- **Retail:** BW Retail Content - General Introduction slide deck (SMP credentials required) points out the business environment and key issues retail BI has to deal with and shows in general the content structure.
- **Performance:** Business Intelligence Performance Tuning on SDN - Offers a collection of information, including links to get an overview of SAP Business Intelligence features and settings that impact performance, and of the tools that help identify and address performance problems.
- **Analytics for SAP for Retail Wiki page:** Find more information about Analytics for SAP for Retail at the main BPX page for Analytics at SAP for Retail.

Run SAP for Retail - Best Practices for Solution Operations

For retailer’s global end-to-end solutions with typically high data volumes, an optimized operational concept is key for lowering operating costs,
proactively avoiding incidents, ensuring a stable system performance and enabling growth and innovation. "Run SAP for Retail" provides Best Practices for Solution Operations helping you to set up an operational concept for Retail Analytics. Find more information on "Run SAP for Retail" on our "Run SAP for Retail" Wiki page.

- **Manage Operations for SAP POS Data Management - POS Analytics Content** (SMP credentials required) - This Best Practice helps you set up a Business Process Monitoring and error handling concept for your SAP for Retail POS Data Management Solution and POS Analytics Content.
- **Data Volume Management for SAP Retail** (SMP credentials required) - This document describes main Retail business processes and their contribution to data growth in a Retail environment. As Data Volume Management strategies, it contains specific possibilities of data avoidance, summarization, deletion and archiving.

## Release-Specific Information - EDW Service for Retail

### Release Information

- SAP BW Release 7.00 EHP 1 SP 5 or higher
- SAP BI Content Package BI_CONT 704 SP5 or higher
- Optional Business Warehouse Accelerator (BWA) in place. BWA is strongly recommended from a performance point of view, as performance optimizations (without BWA) are not part of the consulting package.

### Maintenance and Availability

- **Product Availability Matrix** (SMP credentials required) - The Product Availability Matrix bundles technical and release planning information on SAP components for quick reference. You will find information on the availability of SAP component releases (product versions), maintenance end dates and upgrade paths, as well as technical release information (DB-platforms, JSE-platforms, operating systems).

### FAQ - Frequently Ask Questions and Consulting Notes

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