SAP BW/4HANA
The Universal data warehouse

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Why we need to talk about the data warehousing market

Higher Customer Expectations

**Performance**
Valuable real-time results

**Scope**
historical data AND Predictive, agile analytics

**Value**
Improved use of previously unused data

New Types
Behavioral data and the Internet of Things

Larger Volumes
Petabytes with a two digit annual growth rate

New Locations
Cloud and data lakes

Data
Are data warehouses still the appropriate solution?

Higher Customer Expectations

Performance
Valuable real-time results

Scope
historical data AND Predictive, agile analytics

Value
Improved use of previously unused data

Data Warehouse

New Types
Behavioral data and the Internet of Things

Larger Volumes
Petabytes with a two digit annual growth rate

New Locations
Cloud and data lakes

Data
What is an Enterprise Data Warehouse?
Functions of the Enterprise Data Warehouse (EDW)

Characteristics
- Consolidates data across the enterprise
- Standardized data model
- Supports decision making

Main Tasks
- Define common semantics
- Harmonize data values
- Establish a ‘single version of truth’
- Provide a single, comprehensive source of current and historical information
- Keep copy of source data to ensure independency of source and support the unknown
SAP Offering: Next Generation Data Warehousing Landscape
SAP BW/4HANA and Native SQL Scenarios

SAP HANA Data Warehouse

SAP Business Warehouse
SAP BW/4HANA

SAP HANA native SQL Data Warehouse

SAP HANA Application Services
SAP HANA Integration Services
SAP HANA Processing Services
SAP HANA Database Services

SAP HANA Platform
SAP Data Warehousing Approaches

Application driven approach, SAP BW/4HANA as premium DW application with integrated services

- SAP BW/4HANA is an application offering all required data warehousing services via one integrated repository
- No additional tools for modelling, monitoring and managing the data warehouse required, but can be integrated

SQL driven approach, SAP HANA with loosely coupled tools and platform services, logically combined

- Database approaches require several loosely coupled tools to fulfill the necessary tasks with separate repositories
- A combination of tools (such as best of breed) used to build the data warehouse
The Three Approach-Strategy for SAP HANA Data Warehousing

- SAP BW/4 approach
  - SAP Business Warehouse
    - SAP BW/4HANA
  - SAP HANA native SQL Data Warehouse
    - SAP HANA Application Services
    - SAP HANA Integration Services
    - SAP HANA Processing Services
    - SAP HANA Database Services

- SQL approach (extendable by third-party tools)

- Mixed approach
SAP BW/4HANA – The Next Generation Data Warehouse

Introducing SAP BW/4HANA
The Next Generation Data Warehouse
Built for Cloud and on premise
Logical Data Warehousing
Internet of Things
Integrates with Big Data

Performance optimization
Simplification and Virtualization
Simplification, HANA platform integration
Big Data scenarios
For SAP BW/4HANA customers only
Use transfer tools to make system ready for SAP BW/4HANA
Requires SAP BW 7.5 SP 4 or higher

2012  2013  2015  2016

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The Next Generation Data Warehouse
Announcing SAP BW/4HANA

- is a new data warehouse solution
- is highly optimized for SAP HANA
- solves analytics problems in seconds that take other systems days
- accelerates solution development
- means you have one version of the truth
- is ready for the Internet of Things at petabyte scale
SAP BW/4HANA Design Principals

High Performance  
10-100x faster query performance  
Leverage huge amounts of data in real time for competitive advantage

Openness  
Easier access to all information  
Work with HANA in BW mode, or in native SQL mode, or both

Simplicity  
Reduced development efforts  
Get up and running sooner and keep running at lower cost

Modern Interface  
New user interface for all users  
Simplify access for everyone, not just database experts

Conversion  
Powerful transition tools  
Convert models, flows, and data from SAP BW to SAP BW/4HANA
SAP BW/4HANA Values

- **business agility**
  - Flexibility to compete in real time and adjust to changing requirements

- **cloud ready**
  - Deploy or prototype on a cloud that grows with your business

- **modern data warehousing**
  - High performance, future-proof platform for all new challenges
SAP BW/4HANA: The Solution for Universal Data Warehousing
A simpler, faster, and more agile data warehouse
SAP BW/4HANA: The Solution for Universal Data Warehousing
A simpler, faster, and more agile data warehouse
High Performance

In-Memory Data Warehousing
Algorithm Pushdown
Advanced Analytics
SAP BW/4HANA – In-memory Data Warehousing

Query all data at the speed of SAP HANA

- No Aggregates or Roll-up Processes
- No Performance Specific Modeling Objects
- Fewer Database Indexes
- Faster Loading and Processing
Significant performance gain through push-down of operations/calculations to SAP HANA

- OLAP Engine, complex query calculations (e.g. exception aggregation)
- Planning functions (e.g. disaggregation)
- Data management (e.g. transformation logic)
Enhance data with Advanced Analytics* using HANA specific libraries (AFL), R-Script or a custom HANA procedure

- Predictive
- Text Analysis
- Data Mining
- Machine Learning

* Additional license might be required
Openness

Native SQL Access
Simplified Data Integration
Simplified Source Systems
SAP BW/4HANA – Native SQL Access

SAP BW/4HANA logic and data can be exposed to SAP HANA

Automatic generation of SAP HANA views allows:

- SQL logic on top of generated views
- Combined data from native SAP HANA
- SQL access for front-end tools

Generated SAP HANA views are part of SAP BW/4HANA lifecycle management and SAP BW/4HANA security

* SAP BW/4HANA generated HANA view
Leverages SAP HANA EIM to provide new data provisioning opportunities

- Replicate data in real-time (HANA SDI based replication or via ODP - especially with ODP-SLT)
- Access data virtually
- Load data using optimized processing

Or automatically switch between the different methods

Check full list of supported SDI sources [here](#)
Number of Source System types reduced from 10 to 4 (60% less)

- HANA Source System for all database connectivity (non-SAP data)
- ODP Source System for SAP backend systems and SLT
- Big Data Source System
- File Source System (for compatibility with SAP BW)

* Planned
** Connectivity to Spark (SQL) destination already possible with the HANA Source System in BW 7.50 on HANA
Simplicity

Simplified Data Structures
Simplified Data Flows
Simplified Data Aging Process
SAP BW/4HANA – Simplified Data Structures

- Number of Modelling object types reduced from 10 to 4 (60% less)
- No complex data structures (extended star schema)
- Field or InfoObject based modelling
- Greater control of data persistency and virtualization
- Support for external, structured and unstructured data
SAP BW/4HANA – Simplified Data Flows
From Layered Scalable Architecture (LSA) to LSA++

Classic SAP BW (LSA)
- Virtualization
- Architected Data Marts
- Propagation Layer
- Staging Layer/Corporate Memory
- Source

SAP BW/4HANA (LSA++)
- Virtualization/ Virtual Data Marts
- Architected Data Mart
- Propagation Layer/Integrated DWH
- Open ODS Layer/Raw DWH
- Staging Layer/Corporate Memory
- Source

Optional layers depending on business needs and required service level

Mandatory layers

Service Level
Scale SAP BW/4HANA using Data Tiering Optimization (DTO)

- Consistent approach for hot, warm and cold data
- Allocate temperature by partition
- Displace data automatically between hot, warm and cold storage

**SAP HANA**

- **Hot Data**: Allocate by aDSO or aDSO partition

**Extension Nodes**

- **Warm Data**: Allocate by aDSO or aDSO partition

**SAP IQ**

- **Cold Data**: SAP IQ / Hadoop storage / SAP Vora
  - Allocate by aDSO partition

**Automatic Displacement of Data**
Thank You.

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