SAP Data Warehousing

Overview & Roadmap

June 2017

Product Management SAP Data Warehousing

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Agenda

Introduction

SAP DW Strategy

Customer Examples

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

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Data

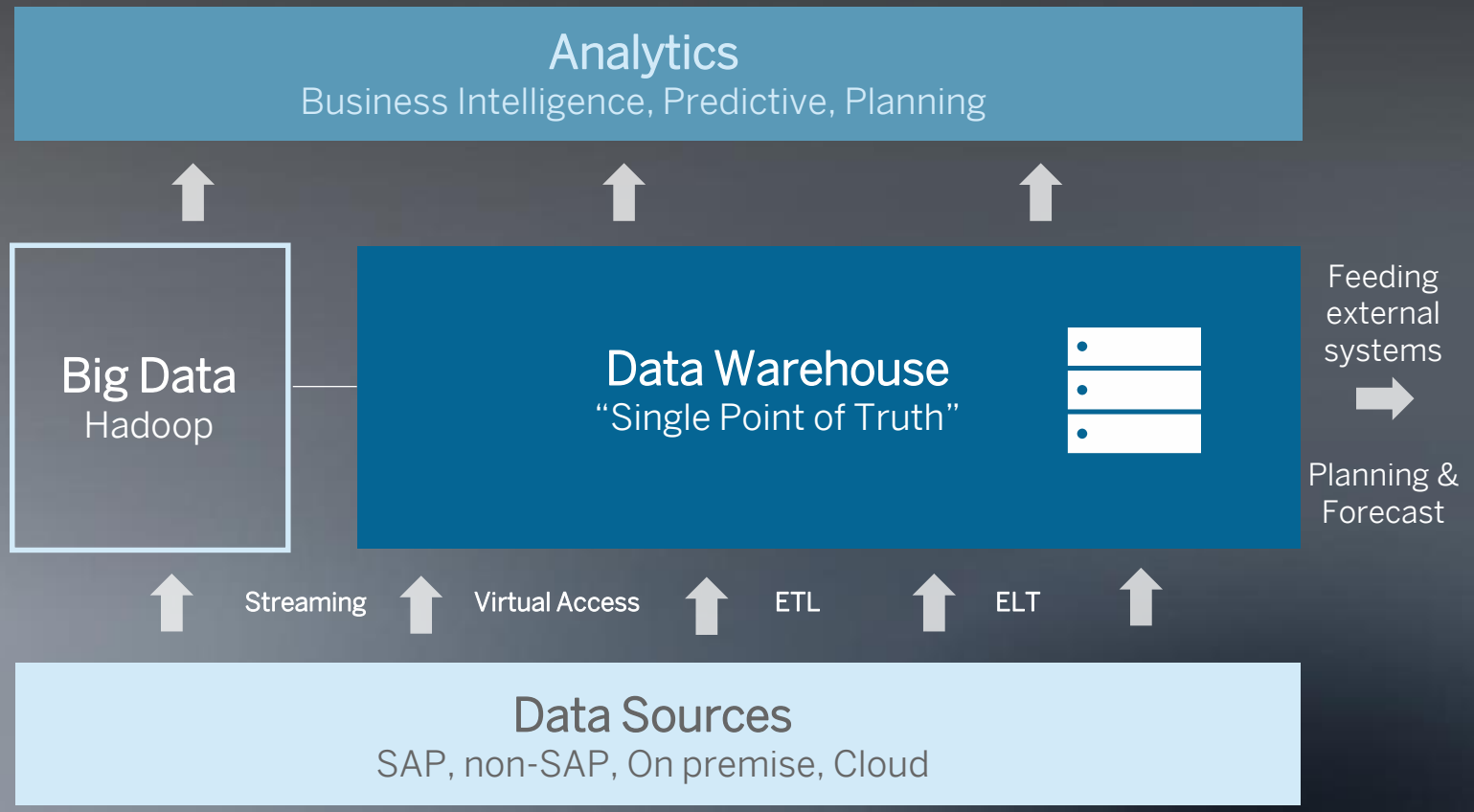
Why is data warehousing still necessary?

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



Market Expectations

Gartner [1] "Emerging data sources, trends and technologies challenge the effectiveness of data warehouses in supporting analysis and decision making."

IDC [2]: " The data warehousing market based on relational databases will continue to be disrupted by several non-relational and/or non-schematic information management software categories. Data warehouses will not disappear as they have a key place in an organization's data architecture."

*[1] "2016 Strategic Roadmap for Modernizing Your Data Warehouse Initiatives" Mark Beyer and Lakshmi Randall, Gartner, October 2016

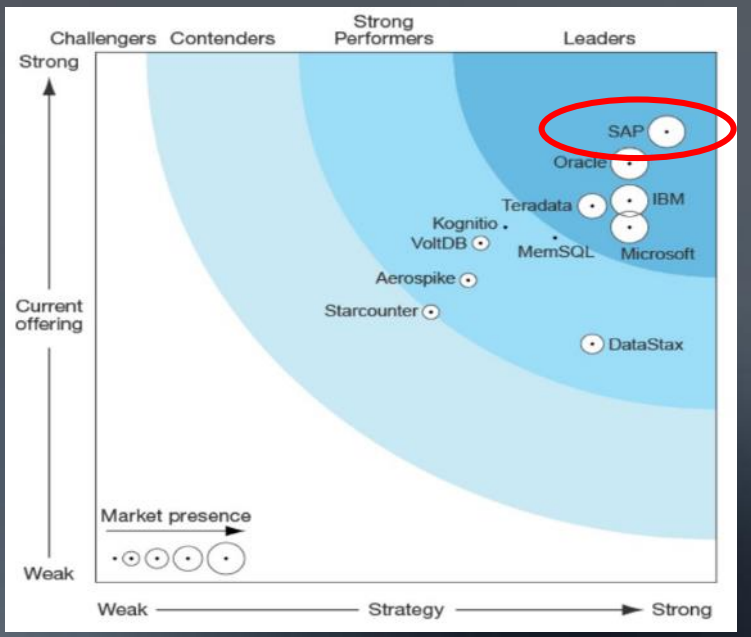
*[2] Worldwide Business Analytics Software Forecast, 2016–2019 by Dan Vesset et al, IDC, July 2016. Doc # 257402

SAP HANA's Recognized Leadership in Data Warehousing

Gartner Data Warehouse and Data Management Systems, Q1'16

Forrester Data Warehouse, Q4'15

Forrester In-Memory Database Platforms, Q3'15



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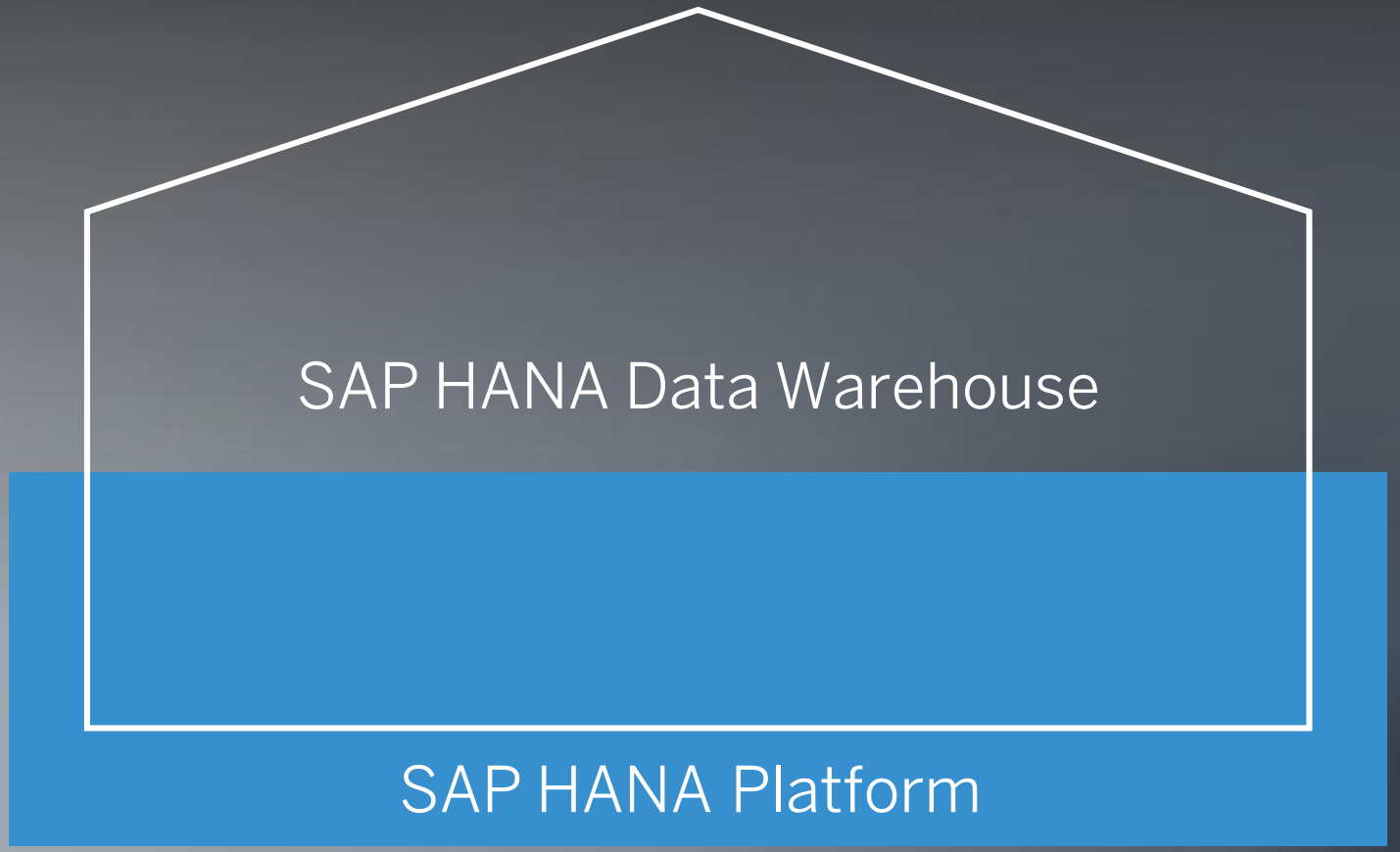
SAP DW Strategy

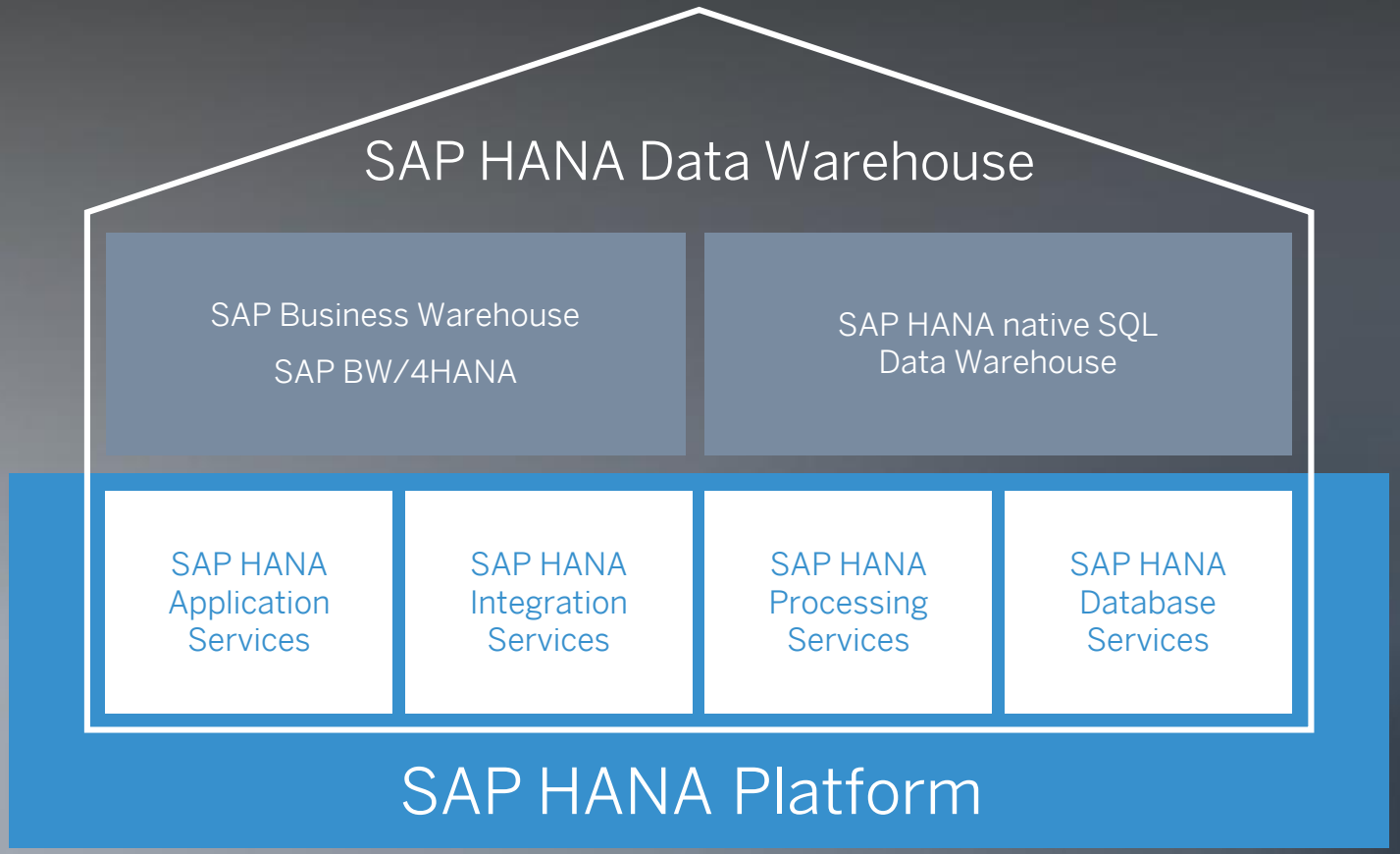
Customer Examples

How does it work in practice?
A closer look on SAP HANA Data Warehousing



SAP Offering: Next Generation Data Warehousing Landscape

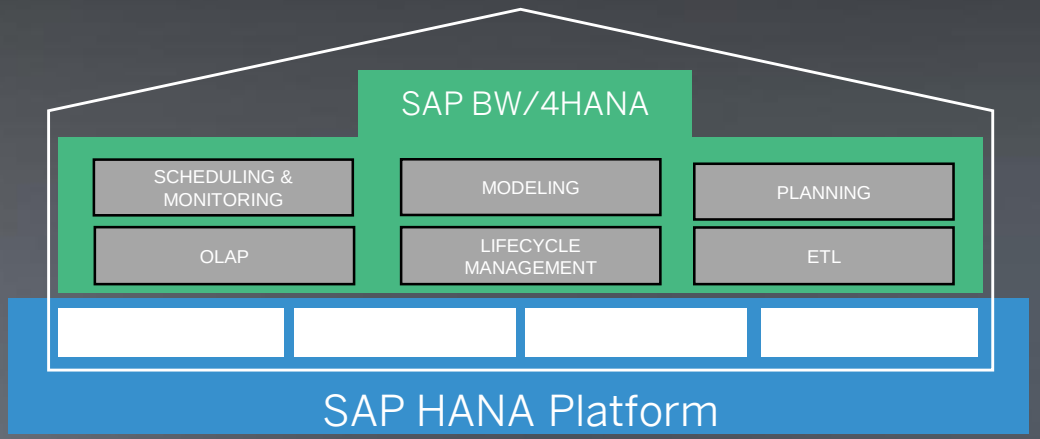
BW/4HANA and Native SQL Scenarios



SAP Data Warehousing approaches

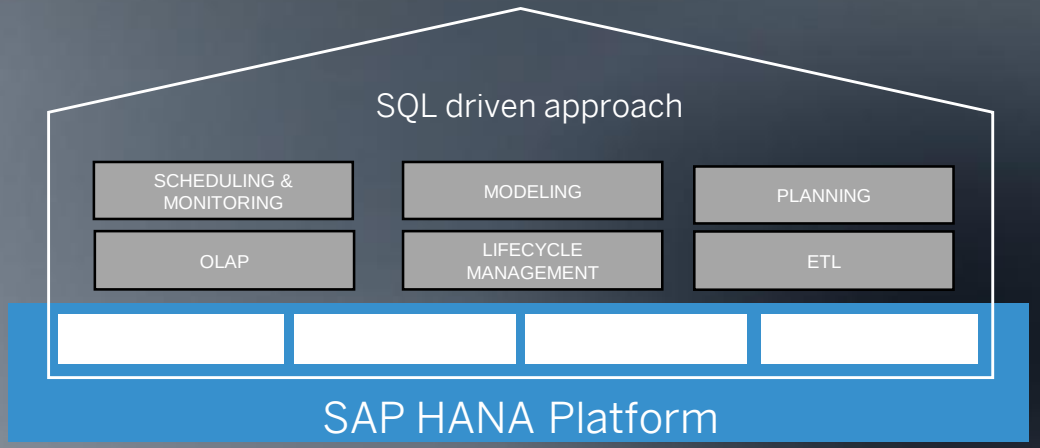
Application driven approach, SAP BW/4HANA as premium DW application with integrated services

- **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

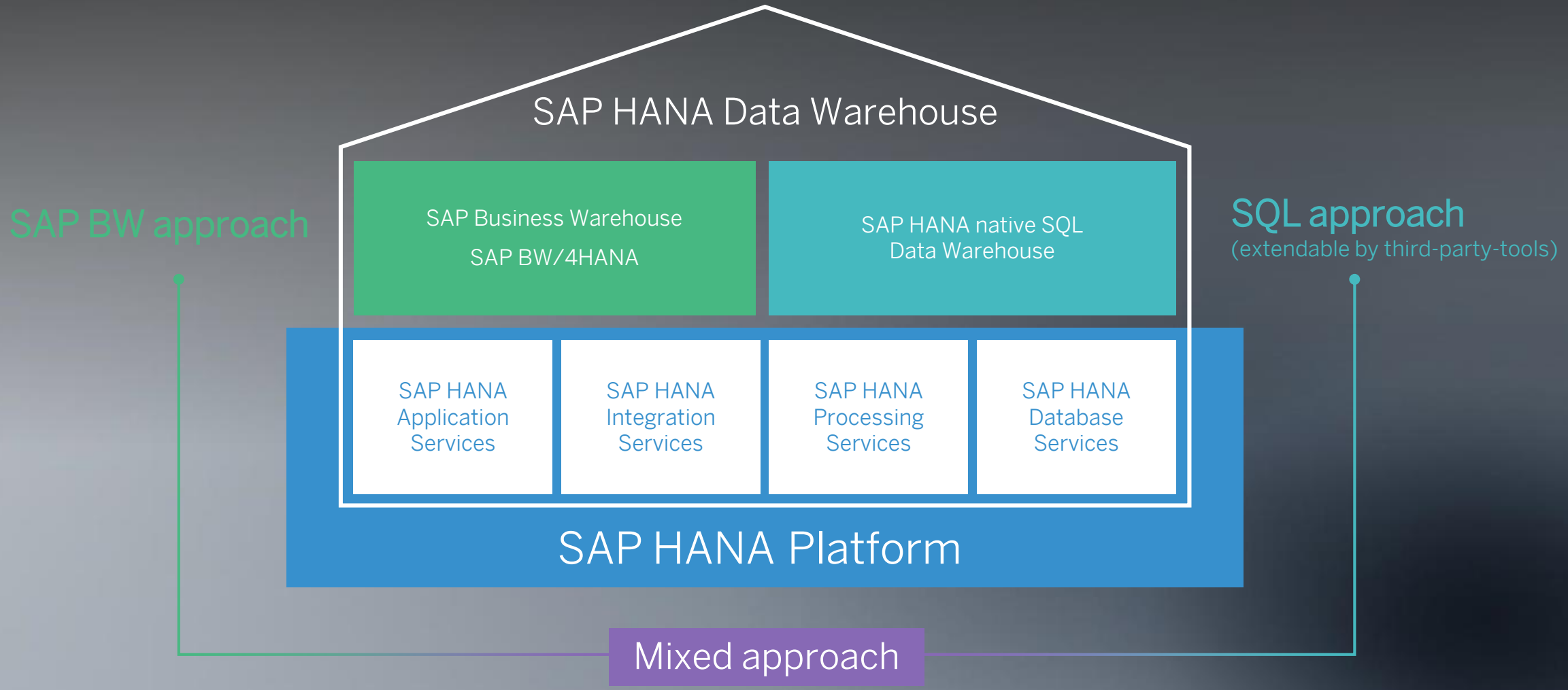


SQL driven approach, SAP HANA with loosely coupled tools and platform services, logically combined

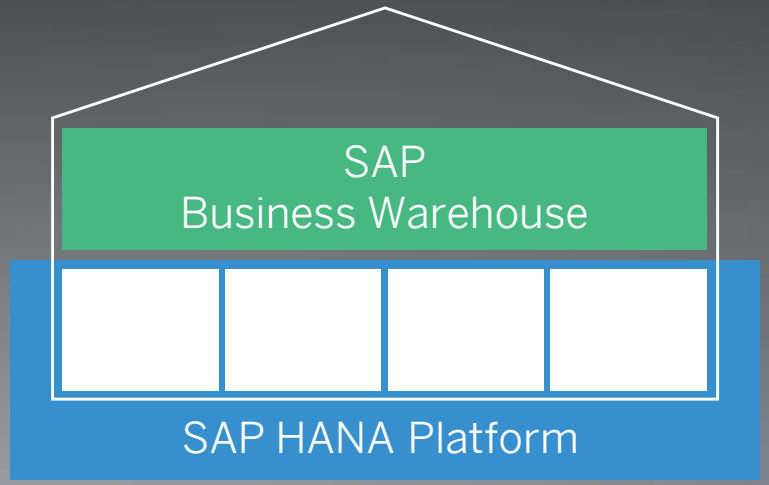
- **Database** approaches require several loosely coupled tools to fulfill the necessary tasks with separate repositories
- A combination of tools (such as best of breed) used to build the data warehouse



The three approach-strategy for SAP HANA Data Warehousing



The SAP BW/4HANA approach



Customer needs and descriptions

- Preference for a packaged and guided approach
- History of operating SAP BW (ABAP)
- Existing BW customer with option to grow into HANA DW
- Mostly DW requirements concerned with SAP software systems

Tools & Functions

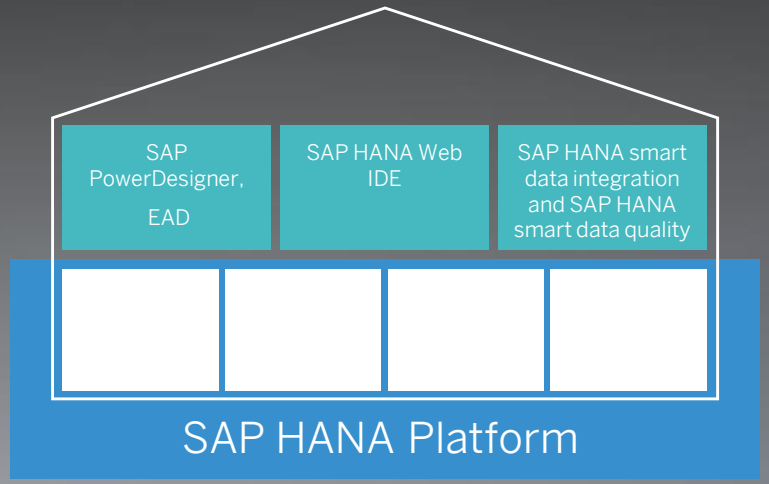
Packaged data warehousing application with built-in best practice:

- Query designer
- Modeling tools
- Transformations/HAP
- ODP (Operational data provisioning)
- Transport management
- Analysis authorizations
- Data Tiering Optimization

Characteristics

- Architected end-to-end approach with central meta data repository
- Openness: Interoperability with SQL based DW approach and easy integration of non-SAP data
- Modern UI for data modeling, administration/monitoring and business users
- Simplified data structures and flexible deployment options
- High Performance - SAP HANA In Memory Database and Advanced Analytics
- Continuous innovations based on SAP BW/4HANA Roadmap
- To consider: less freedom and flexibility in comparison to SQL based approach

The SQL approach



Customer needs and descriptions

- Customers looking for SQL based DW
- Technical DW approach preferred
- 3rd party DW replacement
- Mainly non-SAP source system landscape
- SQL / SQL-Tool trained workforce

Tools & Functions

Coverage of a full data warehousing cycle

SAP PowerDesigner, EAD

SAP HANA Web IDE

SAP HANA EIM Services

SAP HANA application lifecycle management

SAP Agile data preparation

Supportive Elements

SAP HANA extended application services

SAP HANA data warehousing foundation

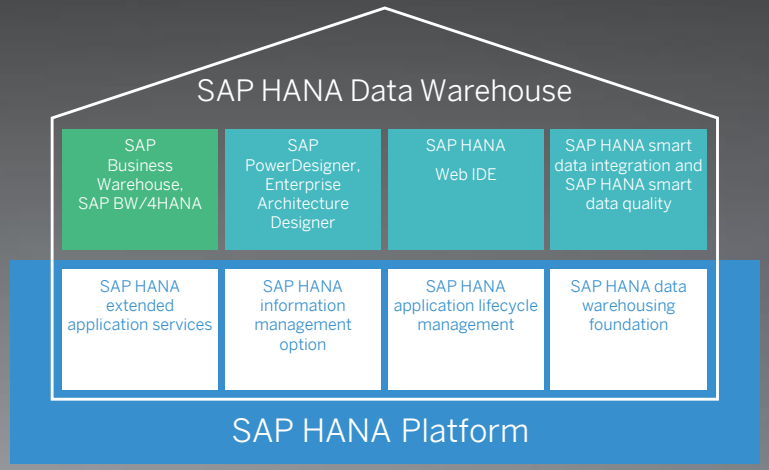
SAP HANA VORA (Hadoop integration)

Characteristics

- Degree of Freedom: custom data models, data management processes and transformations with SQL
- Flexibility: Exchange and Integration of best of breed tools (SAP or third-party)
- Customizable level of simplicity, complexity and scale

- To consider: Integration between different tools , Governance and Development efforts

The Mixed approach

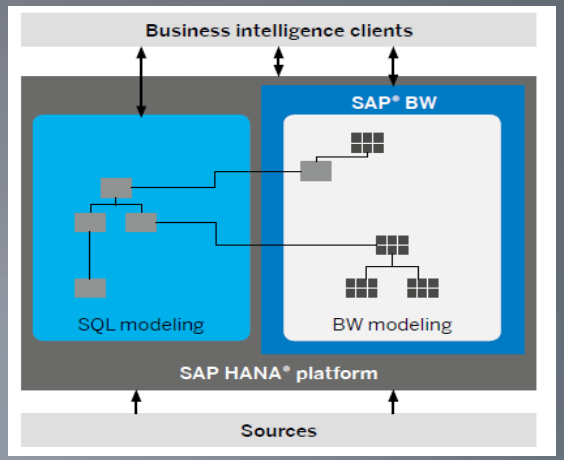


Customer needs and descriptions

- Customers having BW and/or non SAP DWs in place already
- Existing SAP customers looking for a new DW implementation based on SAP HANA
- SQL and guided approach required to fulfill requirements

Tools & Functions

Integrated tools for managing mixed scenarios end-to-end: modeling, transport mechanisms, consumption interfaces



SQL	SAP BW/4HANA
Flexible Modelling Options	Data models, metadata
Open for any SQL Tool	Data Tiering Optimization
…	Operations

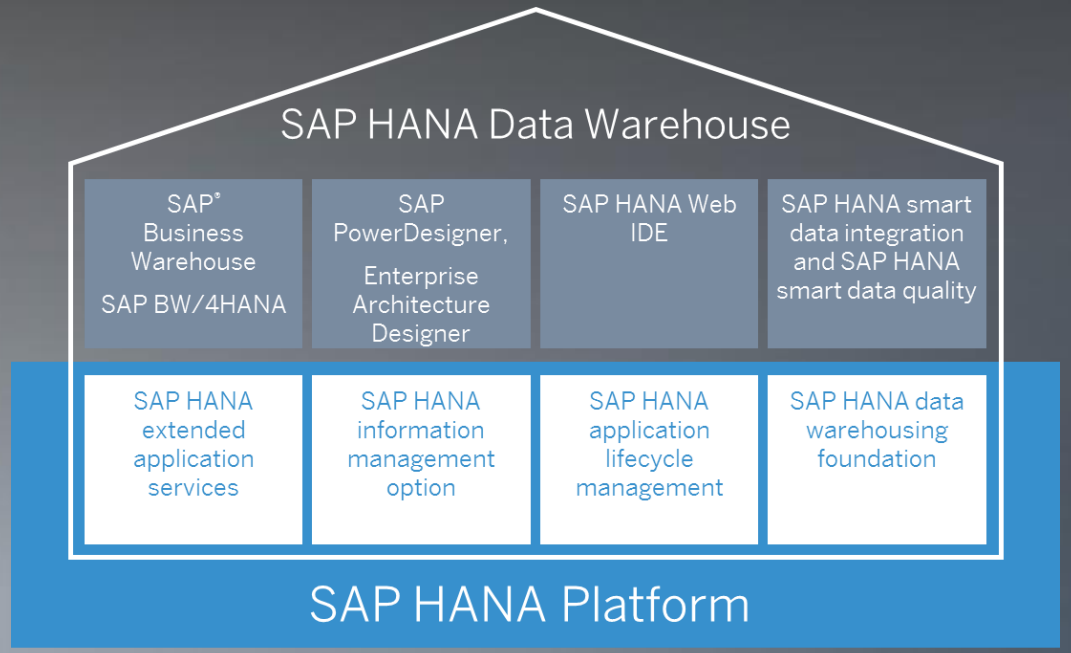
Characteristics

- Profit from the benefits of both approaches
- Highly flexible implementation approach
- Tight integration between both approaches

- To Consider: Integration between different tools (e.g. multiple repositories, authorizations)

Current Portfolio – Assessment

- All tools of **portfolio are available** and **used** today, further components will be developed.
- Custom Data Warehouses / Data Marts with these tools exists - Tool usage depending on customer scenario.



- Tools are **independent** from each other with a **lack of integration** for end-to-end DW deployment and operation but **share common interface** for meta-data exchange.
- SAP BW/4HANA as the premium DW offering (fully integrated toolset).

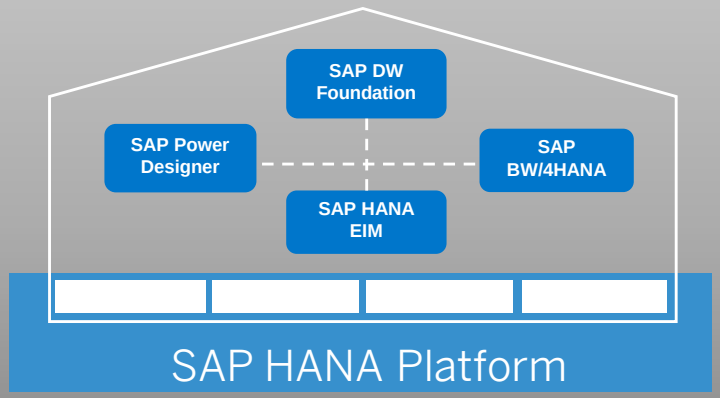
SAP HANA Data Warehouse – Strategy & Vision

Planning and definition
2016

Execution and delivery
2016 - 2018

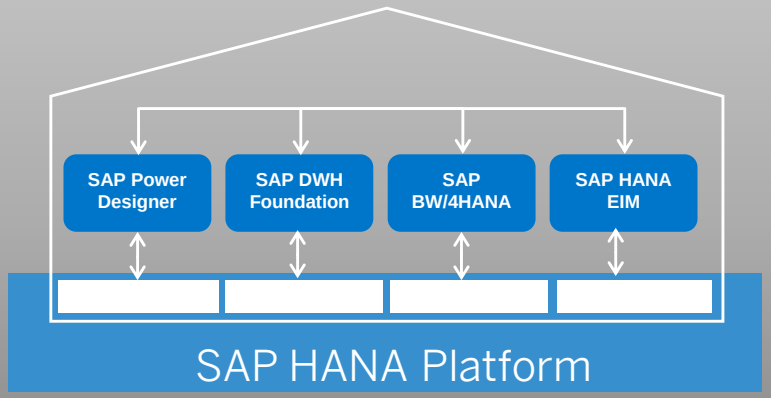
Vision

Analytics
(Business Intelligence, Predictive, Planning)



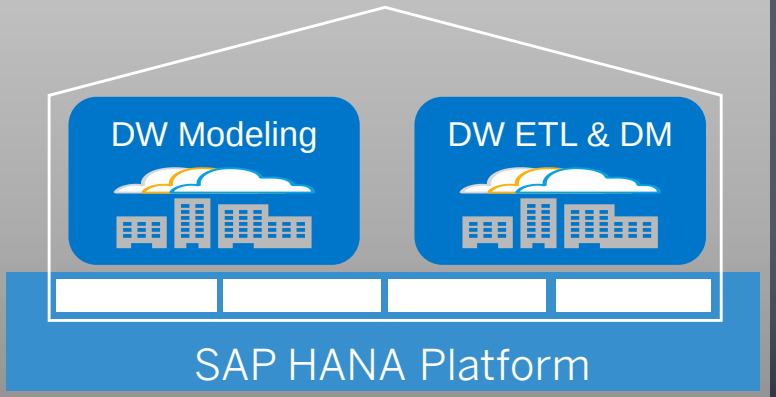
Market presence in data warehousing with a clear roadmap

Analytics
(Business Intelligence, Predictive, Planning)



Strong and simplified offering with tight integration

Analytics
(Business Intelligence, Predictive, Planning)



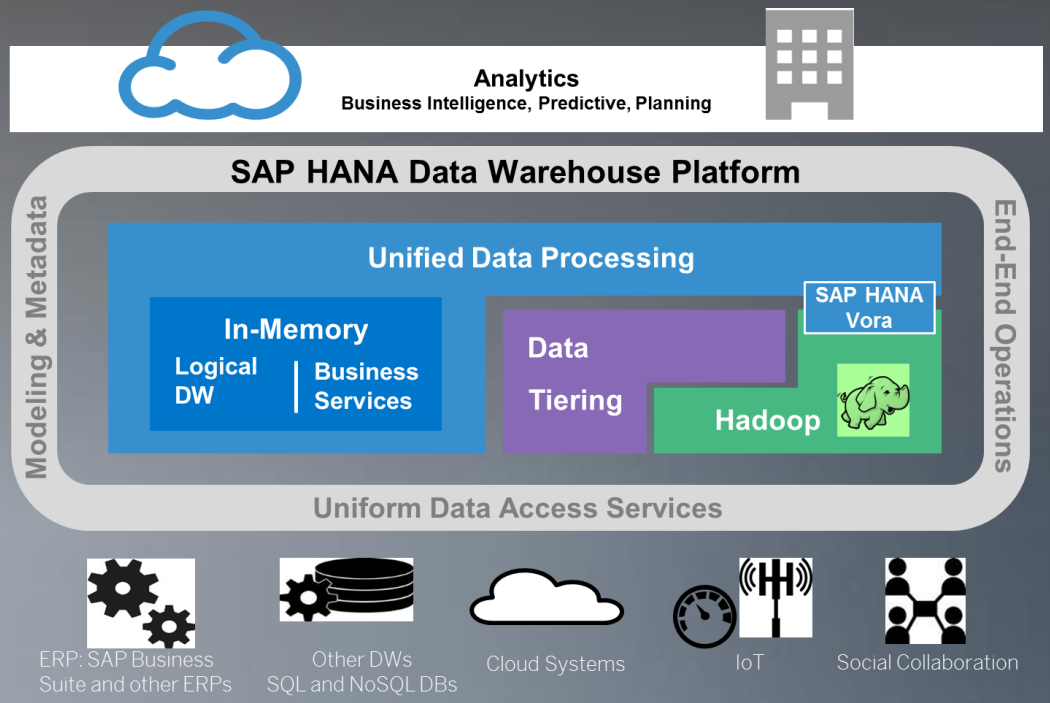
Convergence into one technology stack addressing BW and SQL-based DW needs

SAP HANA DW – Future-Proof Data Management Platform

Serve standard SQL-based and BW-style data warehousing in order to ...

meet future demands

- **LDW** for dynamically changing system landscapes
- **Cloud and hybrid deployment**
- Integration of **any data types** and **Big Data technologies**
- Scale out to **high volumes** and **data lakes**



go beyond other DW offerings

- Top **out-of-the-box integration** to SAP solutions - on-premise and in cloud environments
- **Real-time processing power** of HANA
- Hadoop integration with **SAP HANA Vora**
- HANA-optimized re-usable **business content**

SAP BW/4HANA Roadmap [1] – planned for 2017 and beyond

Simplicity

- Multi temperature data management
- Cloud deployment options
- SAP BW/4HANA optimized Business Content
- Automated Data Tiering Optimization
- SAP BPC support (Standard and/or Embedded)

Future innovations:

- Integration with SAP's cloud offering

Openness

- Big Data / Data Lake integration
- Interoperability with native DW approach
- Enhanced HANA EIM integration

Future innovations:

- Power Designer integration

Modern Interface

- DataFlow Modeler shipped Q3/2016
- SAP BW/4HANA transformation modeling
- Web based monitoring and administration

Future innovations:

- System health monitoring and prediction
- ML based DW administration

High Performance

- Unified data load management
- Parallel loads for master data
- Further push down of OLAP capabilities

*[1] For detailed information check the current **Roadmap**

SAP HANA and Native SQL Development Focus 2017

Modeling & Metadata

- Integrated top-down modelling with SAP Enterprise Architectural Designer
- Version management of DW models via external version management systems (e.g. GitHub)
- Interoperability with SAP BW/4HANA via native DataStore Object

Data Management & Processing

- Unified data processing across data tiers and sources
  - Multi tiering between HANA, SAP data tiers and Hadoop
  - Integration with SAP Vora to enable advanced analyses for Hadoop data

Data Access Services

- SAP HANA EIM becomes the central data integration component

End-to-End Operations

- Data distribution optimization and monitoring
- Data Warehouse Scheduler
  - Common orchestration and monitoring tool
- Data Lifecycle management and administration

Agenda

Introduction

SAP DW Strategy

Customer Examples

Fairfax Media: Providing an Agile Information Platform with SAP BW/4HANA

Business challenges

- Access accurate information in a timely manner
- Large amount of time spent downloading and manipulating spreadsheets
- Multiple ERP Systems with different chart

Technical implementation

- Implemented SAP BW edition for SAP HANA
- Infrastructure provided by AWS
- Development and prototyping with live data
- 4 layers landscape (Sandbox, Development, Test & Production)

Key benefits

- Enablement of Financial Operational self service analysis and reporting
- Business stakeholder and key users embedded in report development process
- Enablement of cost savings initiatives by analyzing detailed expenditure information

Future plans

- Integration of Budgeting and Forecasting
- Hot – Warm – Cold data tiering optimization

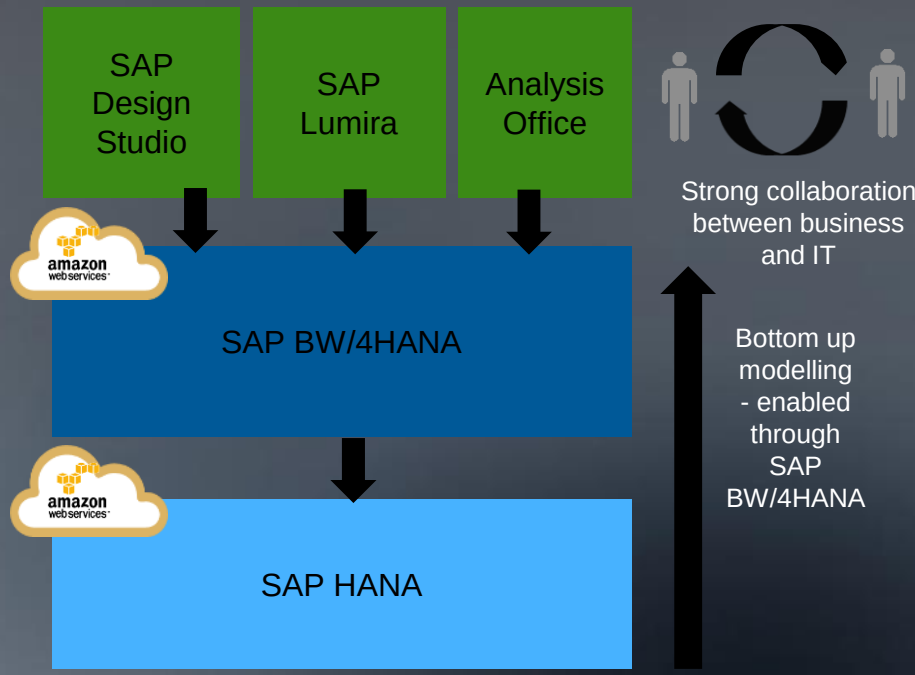
3 months
From nothing to productive system

2 hours
Upgrade from 244tb to 2tb system using AWS

50%
Reduction in end to end development time

10x
Average report execution time improvement

Fairfax Media SAP HANA platform architecture



SQL centric customer example – oil and gas industry

Requirements

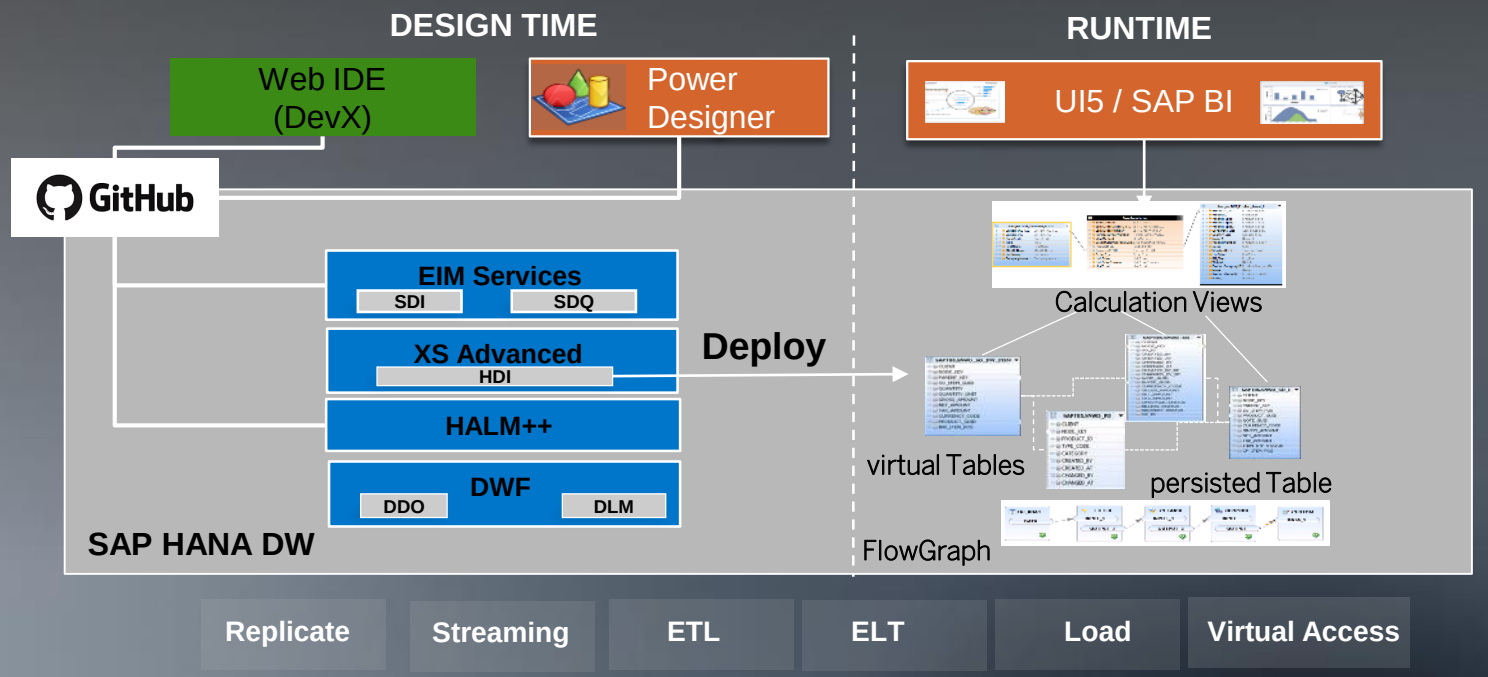
- Modernize data warehouse landscape based on SQL approach
- Single source of truth to support organization-wide analytics throughout various countries and business units
- Scenario: large volume, huge complexity

Solution Overview

- Native SQL Implementation on SAP HANA
  - One main native based data warehouse
  - Several architected data marts
- Modelled End-2-End Process based on SAP components for SQL HANA DW (XSA)

Key Success

- Reduction of interfaces with source systems, fewer processing steps
- Traceability of all data and processing
- Free choice of tools and data schema



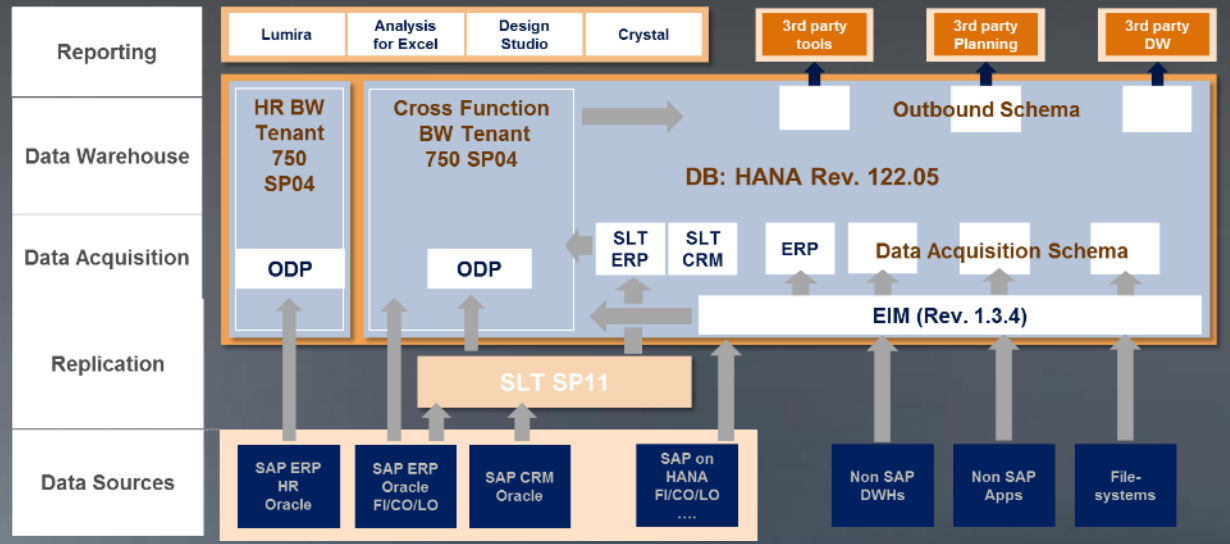
Customer example mixed approach – Swisscom

Requirements

- Modernize data warehouse landscape
- Run SAP BW on SAP HANA
- One highly performant, centralized reporting solution
- Scenario: huge volume, huge complexity

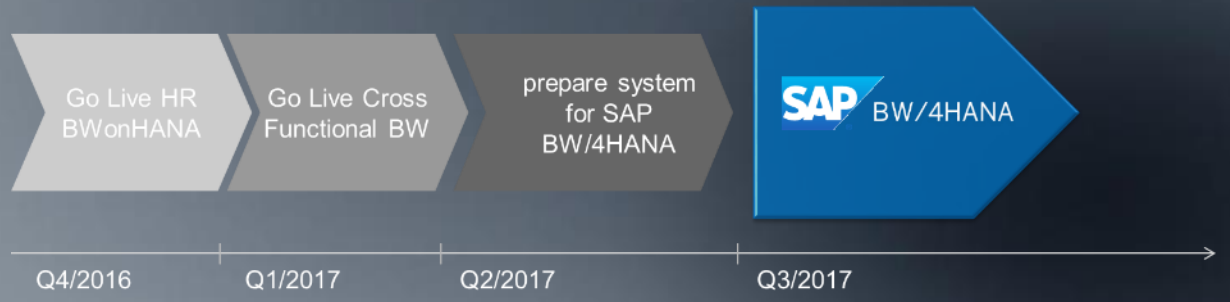
Solution Overview

- SAP BW 7.5 powered by SAP HANA based on Hana optimized modeling objects only
- Consolidation of heterogeneous landscape into one SAP BW on HANA
- Path to SAP BW/4HANA planned for Q2/2017



Key Success

- Reduction of modelling objects and data layers leads to faster implementation cycles
- Improved Performance: Promotion of virtualization, Query and data load, persistence of frequently used data sets
- Data Streaming with SAP BW on Hana 7.5 offers new use cases and higher flexibility and agility

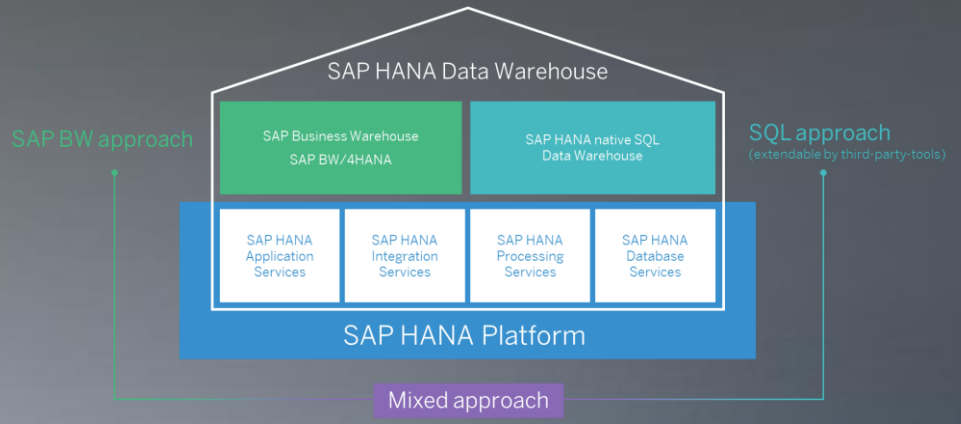


At the end: a few things to remember…

Continuous increase in data volume and complexity is leading to new and more diverse data warehousing scenarios

Due to innovative technologies, next generation data warehouses are able to master these challenges

SAP HANA data warehousing offers three approaches….



On **one Instance** allowing…

Bottom-up-changes: Integration of SAP BW/4HANA

Top-down integrations: Best-of-breed tools (SAP or third-party) in one instance

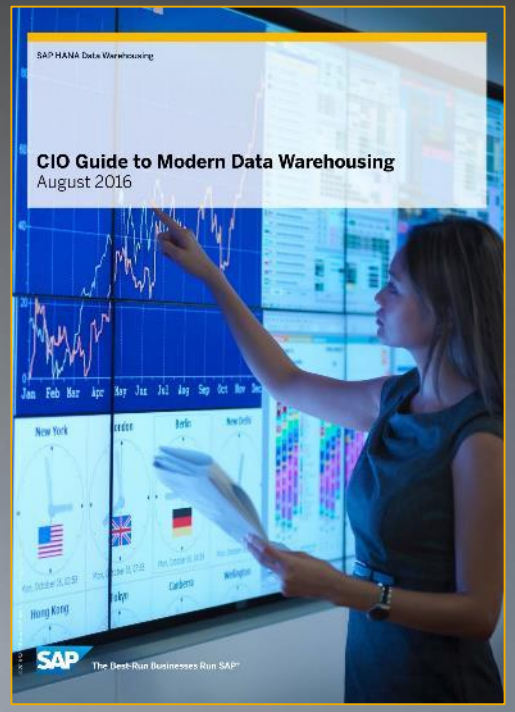
+ Extended management capabilities to data lakes for smooth data aging processes

So, let‘s talk about the right approach for you…

Public Assets

https://www.youtube.com/watch?v=RtFBikAIEtw

https://www.youtube.com/watch?v=hopkHZLcF-g



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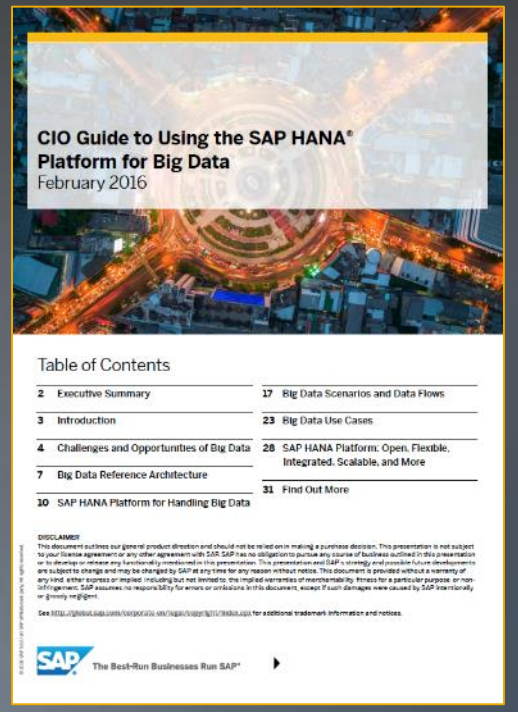


http://go.sap.com/documents/2016/03/24d5e503-647c-0010-82c7-eda71af511fa.html

https://aws.amazon.com/sap/solutions/saphana/

https://azure.microsoft.com/en-gb/services/virtual-machines/sap-hana/

Information on the Web

http://hana.sap.com/dw

More Information about SAP BW4/HANA

SAP BW4/HANA Landing Page
http://www.sap.com/bw4hana

Replay of the BW4/HANA Launch Event
http://events.sap.com/sap-amazon-web-services/en/home

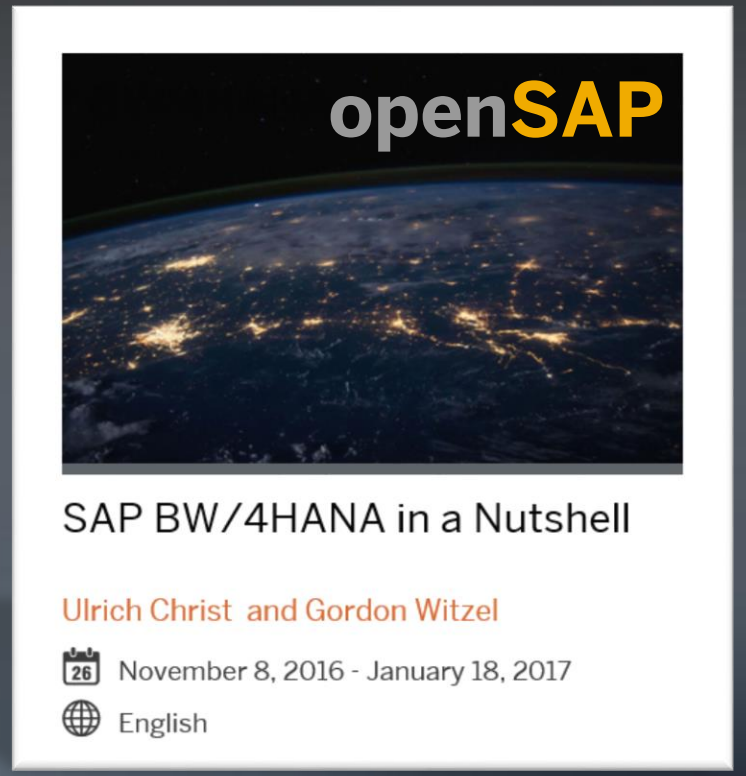
SAP BW4/HANA on Community Topic Page
http://www.sap.com/community/topic/bw4hana.html

SAP BW/4HANA 1.0 in the Help Portal
http://help.sap.com/bw4hana10

Why #BW4HANA?
https://blogs.sap.com/2016/09/05/why-bw4hana/

The Road to SAP BW/4HANA – Part 1
https://blogs.saphana.com/2016/09/07/the-road-to-sap-bw4hana-part-1/

SAP BW4/HANA FAQ
http://go.sap.com/documents/2016/08/c4458a08-877c-0010-82c7-eda71af511fa.html



SAP BW/4HANA in a Nutshell

- Starting November 8, 2016
- 4 Units – 2-3 hours in total
- Free Participation & Certification

https://open.sap.com/courses/bw4h1

Thank you

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