

# Week 2 Unit 1: Data Provisioning Options for SAP BW

# Data Provisioning Options for SAP BW

## Covered in This Unit

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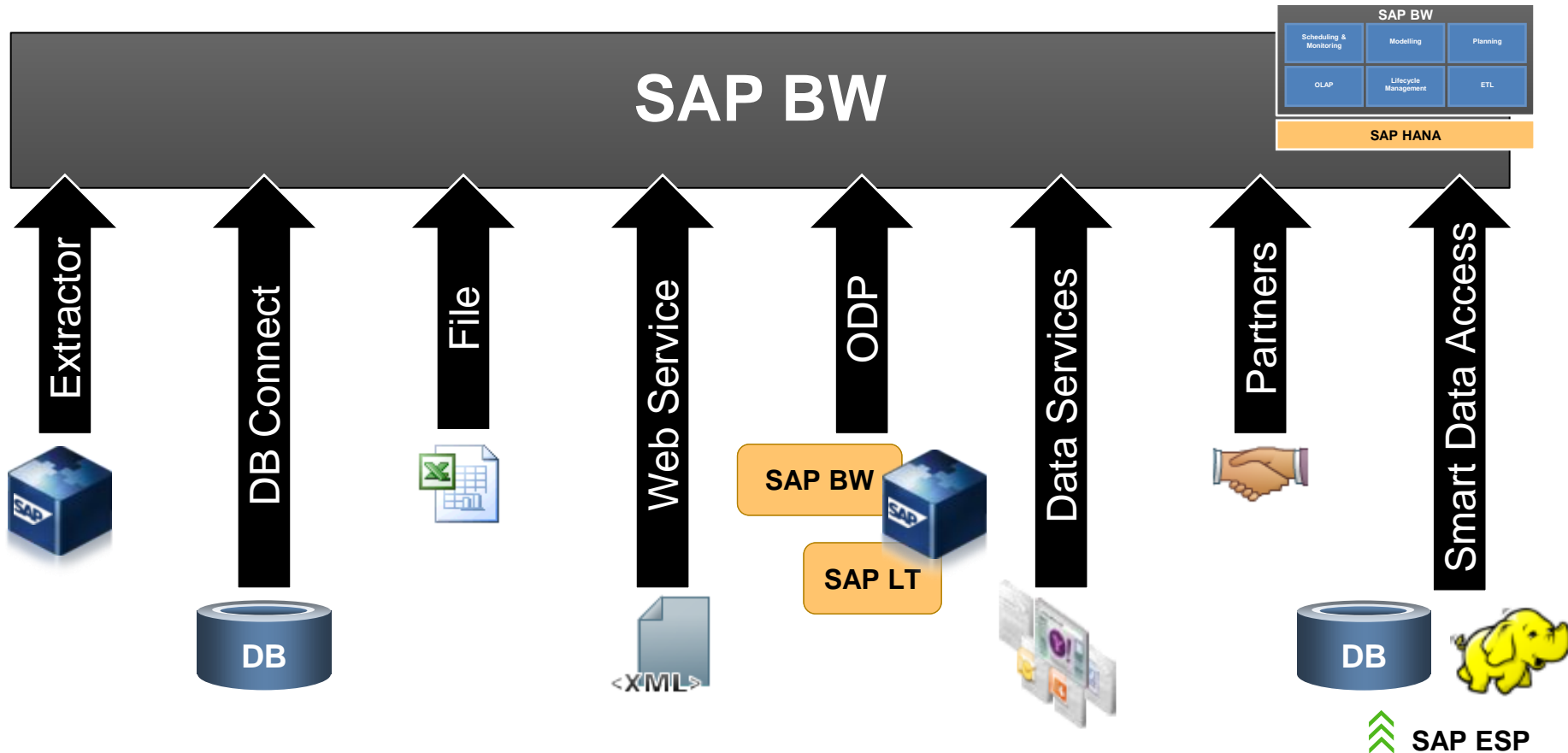
### Content

- Overview of source types
- ODP source systems



# Data Provisioning Options for SAP BW

## SAP BW and Source Systems



# Data Provisioning Options for SAP BW

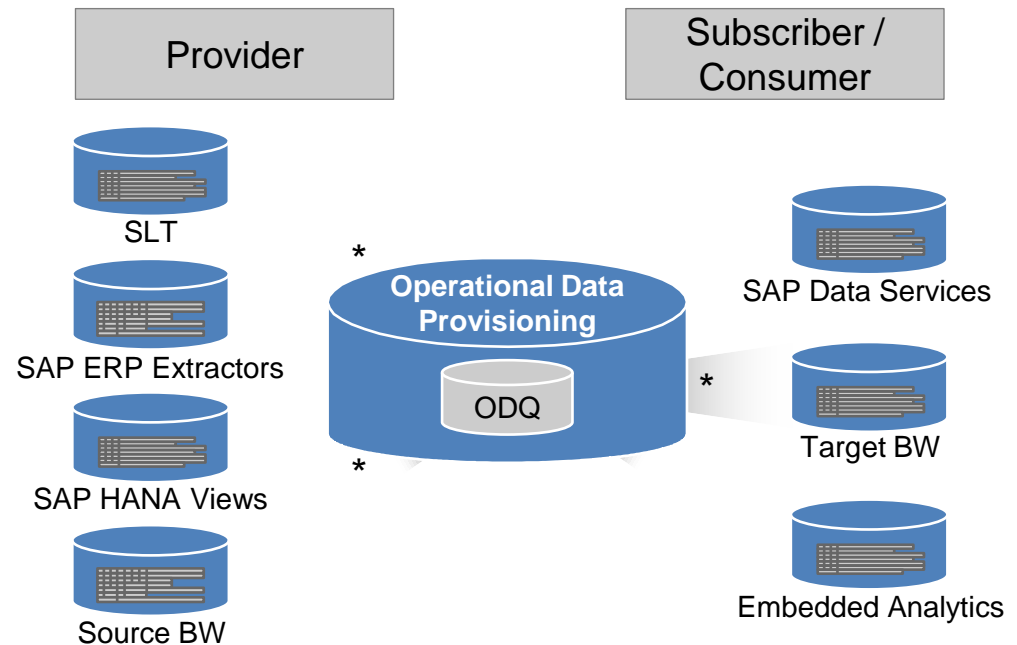
## Operational Data Provisioning (ODP)

### ODP source systems provide a unified concept

- Renovating and unifying existing connectivity
- Extending the range of source types for SAP BW

### Main Benefits

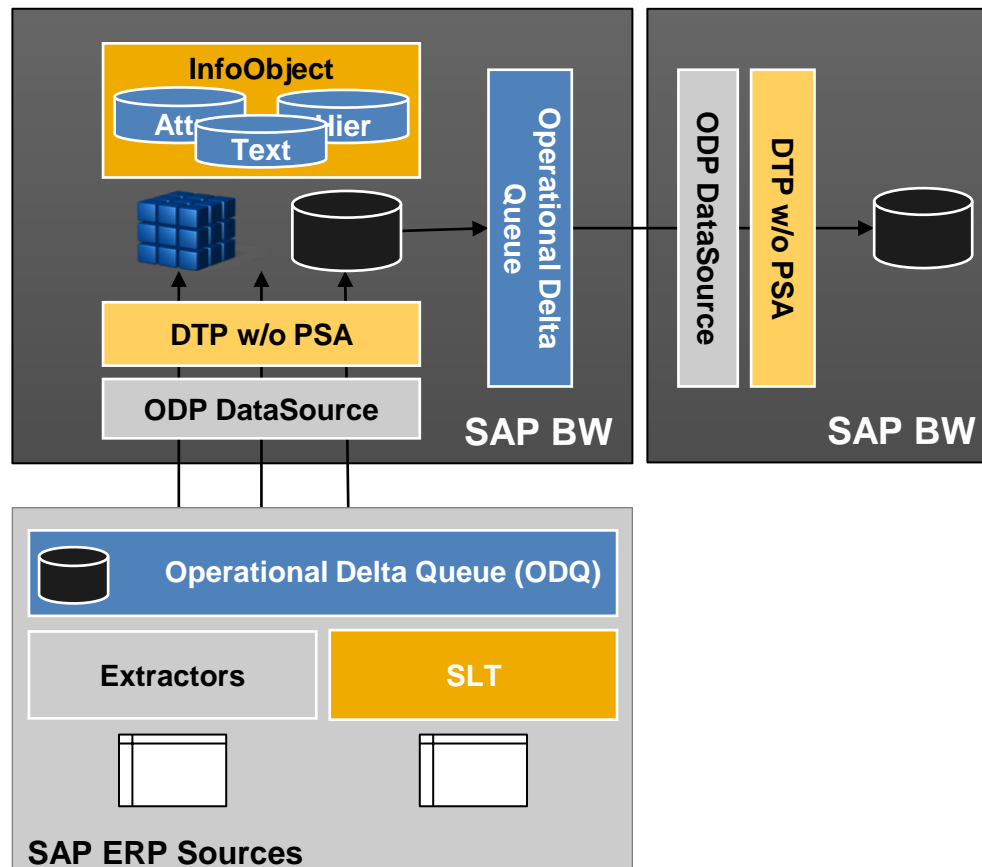
- Improved monitoring capabilities
- Flexible recovery and retention periods
- Support for multiple subscribers
- PSA becomes optional



\* New use cases with SAP BW 7.4

# Data Provisioning Options for SAP BW

## Operational Data Provisioning (ODP) – Primary Use Cases



# Data Provisioning Options for SAP BW

## System Demo

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### ODP Source Systems

- Create ODP DataSource based on ERP extractor
- Create a “lean” data flow bypassing PSA
- Monitoring of the operational delta queue





# Data Provisioning Options for SAP BW

## What You've Learned in This Unit

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### Key takeaways

- Source system types of SAP BW
- New possibilities with ODP source systems
- Optimized connectivity to SAP ERP and SAP BW
- New source types like SAP LT, or SAP HANA models





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# Week 2 Unit 2: Integration of External Data Structures with Open ODS Views

# Integration of External Data Structures with Open ODS Views

## Covered in This Unit

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### Content

- Modeling options with Open ODS Views
- Consuming external data in SAP BW
- Combining external data with data in SAP BW



# Integration of External Data Structures with Open ODS Views

## Overview

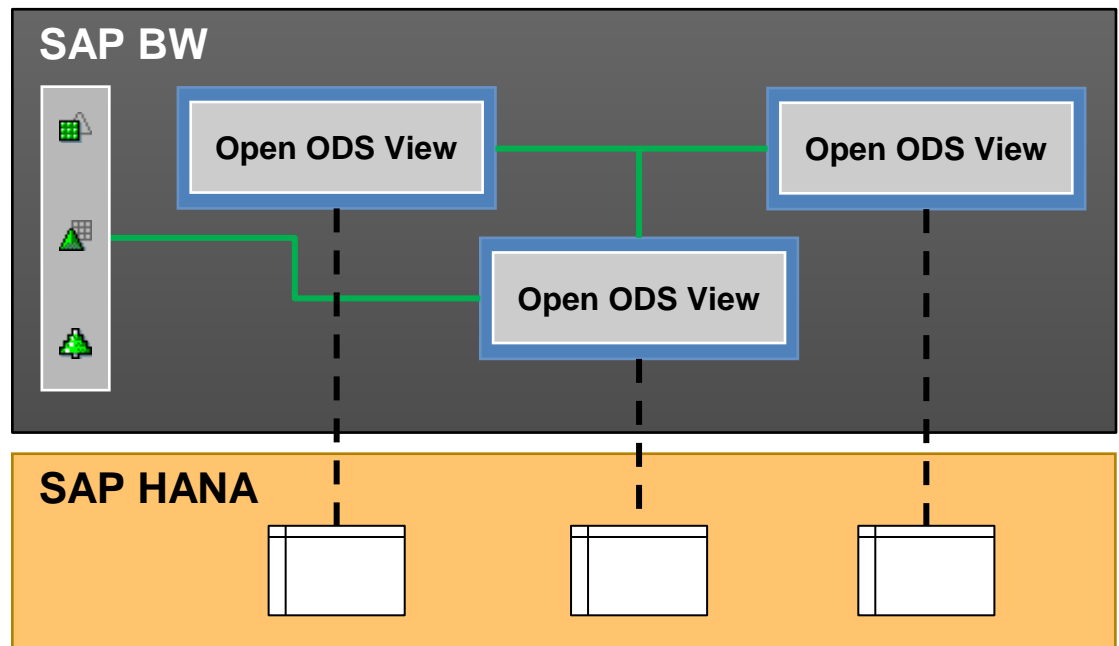
### Open ODS Views are virtual objects that allow you to

- define analytic semantics without using InfoObjects
- use analytic functionality on top of (external) data structures
- combine external data with SAP BW master data and transaction data

### Leverage a variety of BW services

- authorizations
- data flows and transformations
- persistencies
- BEx Query functionality

### Open ODS Views are virtual views with no persistency



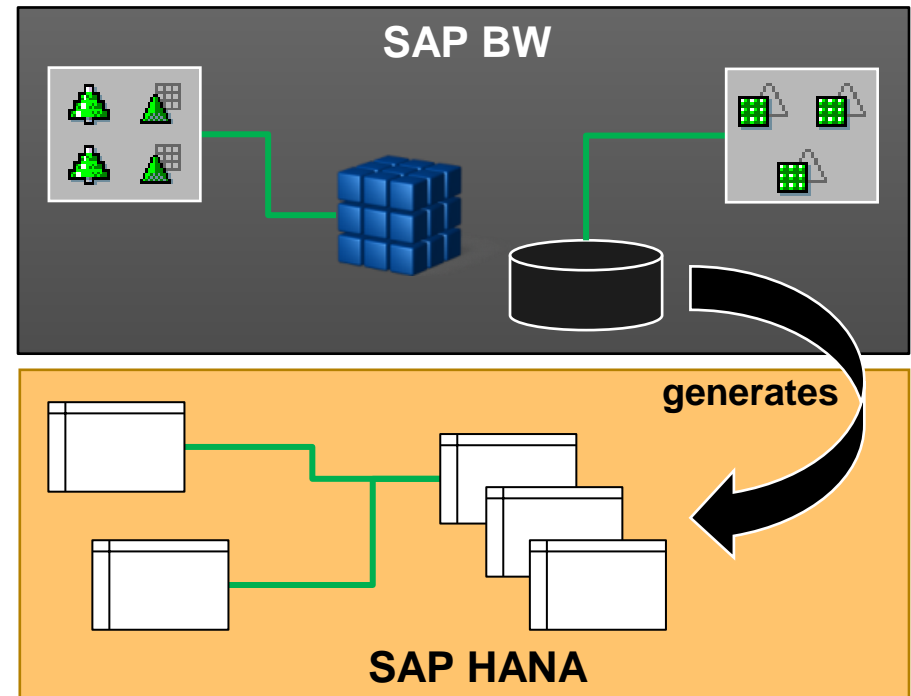
# Integration of External Data Structures with Open ODS Views

## Semantics

**SAP BW modeling traditionally starts with defining semantics in terms of InfoObjects**

- Data type
- InfoObject type (characteristic, key figure)
- Other properties (text, hierarchies, aggregation type, and so on)

**Database layout and query access logic are derived from this semantic model**





# Integration of External Data Structures with Open ODS Views

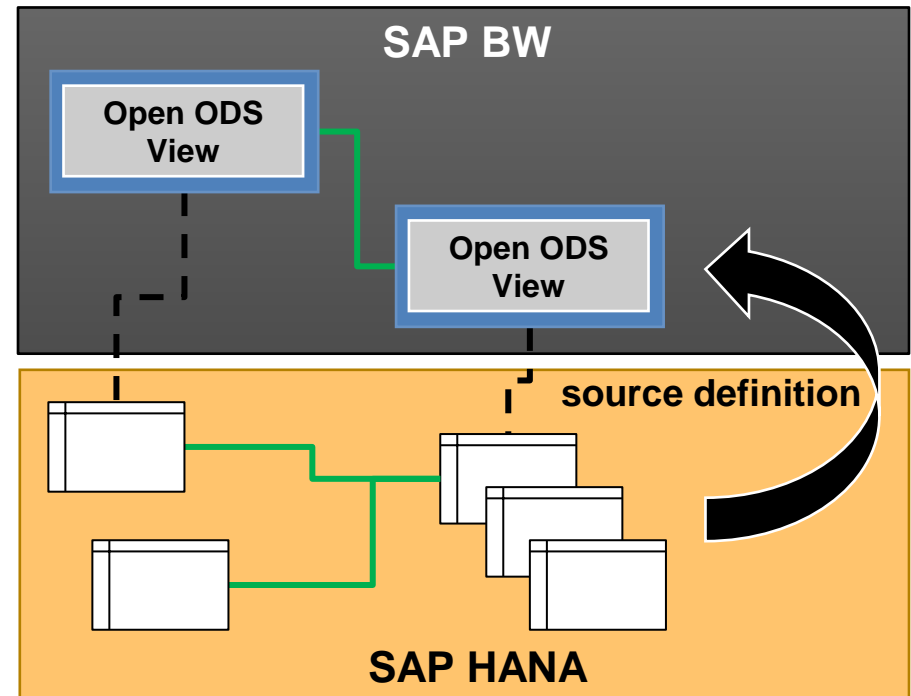
## Semantics

**External data structures often only provide partial analytic semantics**

**Open ODS Views enrich the given semantics with, for example**

- Multidimensional semantics (transaction, master data, texts)
- Field level semantics (characteristic, key figure, and so on)
- Associations

**Build lightweight models without the need to create InfoObjects**  
→ agile data modeling



# Integration of External Data Structures with Open ODS Views

## System Demo

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### Open ODS Views

- Creating Open ODS Views
- Associating BW InfoObjects
- Creating associations between Open ODS Views
- Authorizations





# Integration of External Data Structures with Open ODS Views

## What You've Learned in This Unit

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### Key takeaways

- Open ODS Views allow easy consumption of external data
- Can be modelled with fields and InfoObjects
- Can represent the source data model via associations in SAP BW
- Provide an entry point to a variety of SAP BW services for external data
- Allow rapid prototyping or agile model creation





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# Week 2 Unit 3: **SAP HANA Smart Data Access for SAP BW – Logical Data Warehousing**

# SAP HANA Smart Data Access for SAP BW – Logical Data Warehousing

Covered in This Unit

## Content

- Key aspects of logical data warehousing
- SAP HANA smart data access



# SAP HANA Smart Data Access for SAP BW – Logical Data Warehousing

## Overview

### Frequent complaints about data warehouses include lack of agility

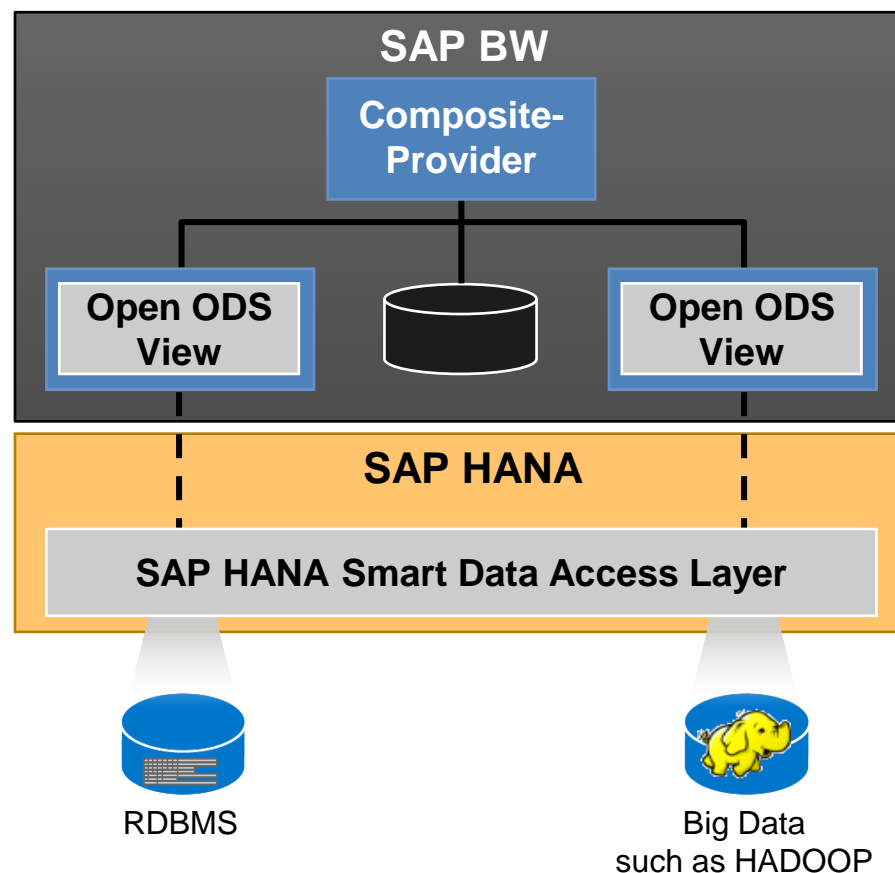
- for integration of new data
- for model changes

### Logical data warehousing tries to add flexibility by leveraging

- data “in place” (via federation)
- Big Data sources

### Localization of data

- should be determined by service level requirements
- needs to be adapted according to changes in these requirements





# SAP HANA Smart Data Access for SAP BW – Logical Data Warehousing

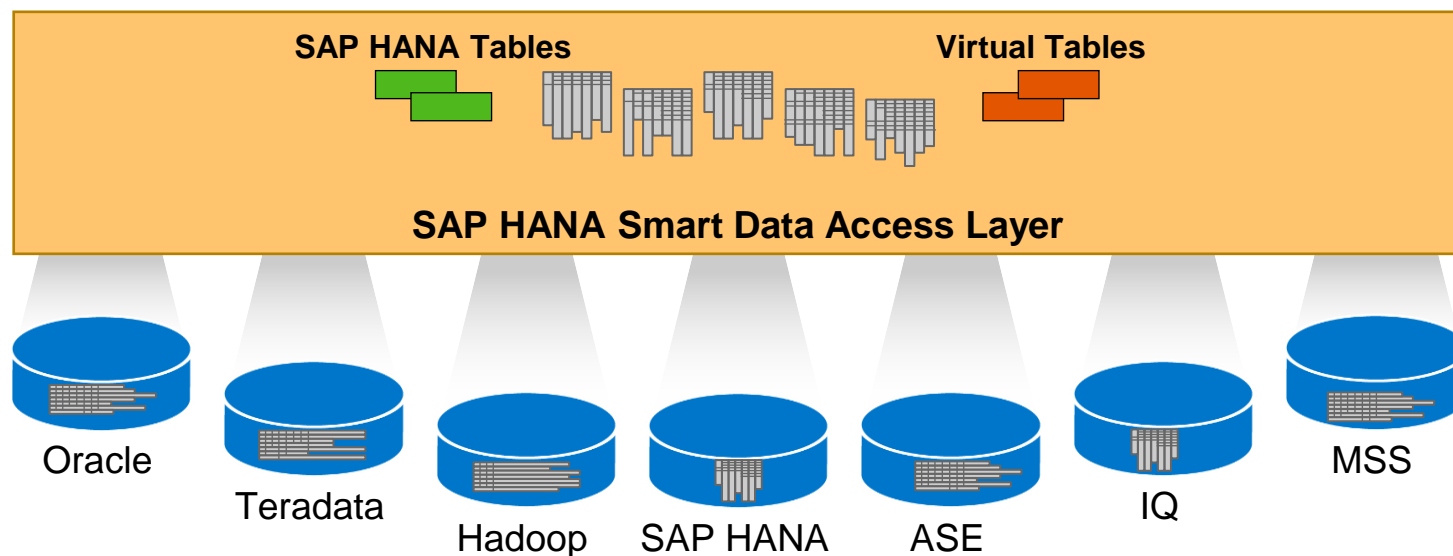
## SAP HANA Smart Data Access for SAP BW

### SAP HANA smart data access

- SAP HANA's federation capability across various sources
- provides transparent SQL access to, and across a variety of database systems

### SAP BW can leverage this for

- direct access query scenarios (see Unit 3)
- data provisioning for new source types (such as Teradata or Hadoop)





# SAP HANA Smart Data Access for SAP BW – Logical Data Warehousing

## System Demo

### SAP HANA smart data access

- Configuration
- Source systems for smart data access
- Accessing federated data
- Combining federated and local data
- Switching data access  
(federation  $\leftrightarrow$  persistence)



# SAP HANA Smart Data Access for SAP BW – Logical Data Warehousing

## What You've Learned in This Unit

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### Key takeaways

- SAP BW supports logical data warehousing by leveraging SAP HANA smart data access to include federated sources in data modeling
- Federated data models can be combined with SAP BW data
- Capabilities to change the localization of data
- Big Data scenarios such as integration of HADOOP can be created with smart data access and SAP BW





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# Week 2 Unit 4: Real-Time Replication with SAP LT Replication Server

# Real-Time Replication with SAP LT Replication Server

## Covered in This Unit

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### Content

- SAP LT Replication Server
- Architectural overview
- System demo

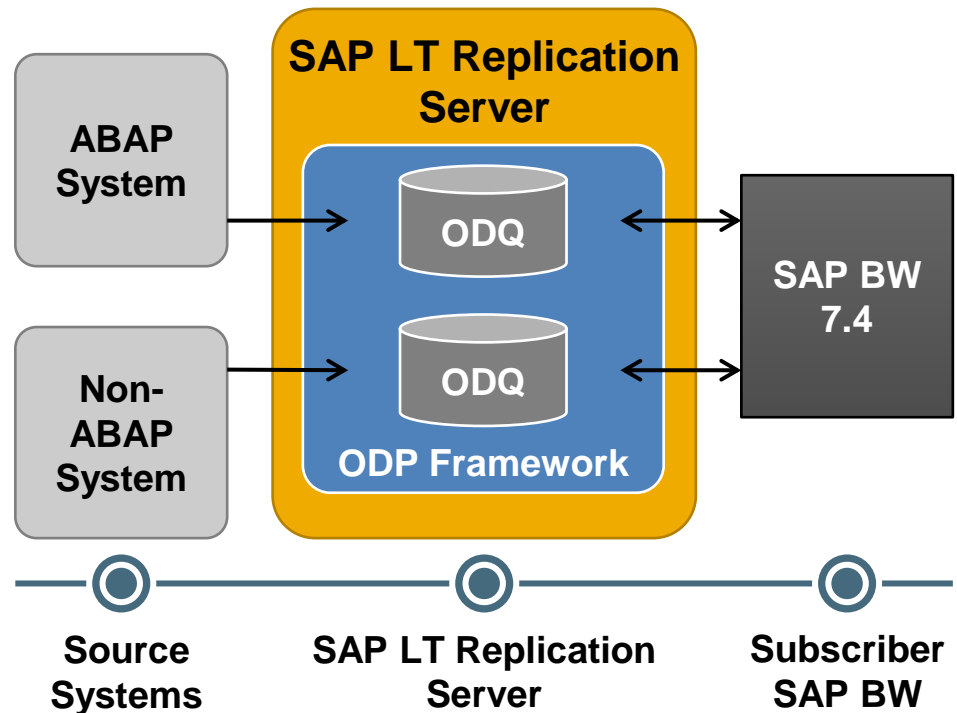


# Real-Time Replication with SAP LT Replication Server

## Overview and Use Case

### Use Case for SLT with SAP BW

- SAP LT Replication Server is a database trigger-based replication technology
- SLT enables real-time data replication into SAP BW via ODP framework
- Adds delta capabilities where no standard extractor or delta uploads are offered
- Reduces admin effort for frequent master data updates
- No “easy” replacement of complex standard extractors





# Real-Time Replication with SAP LT Replication Server

## Architectural Details

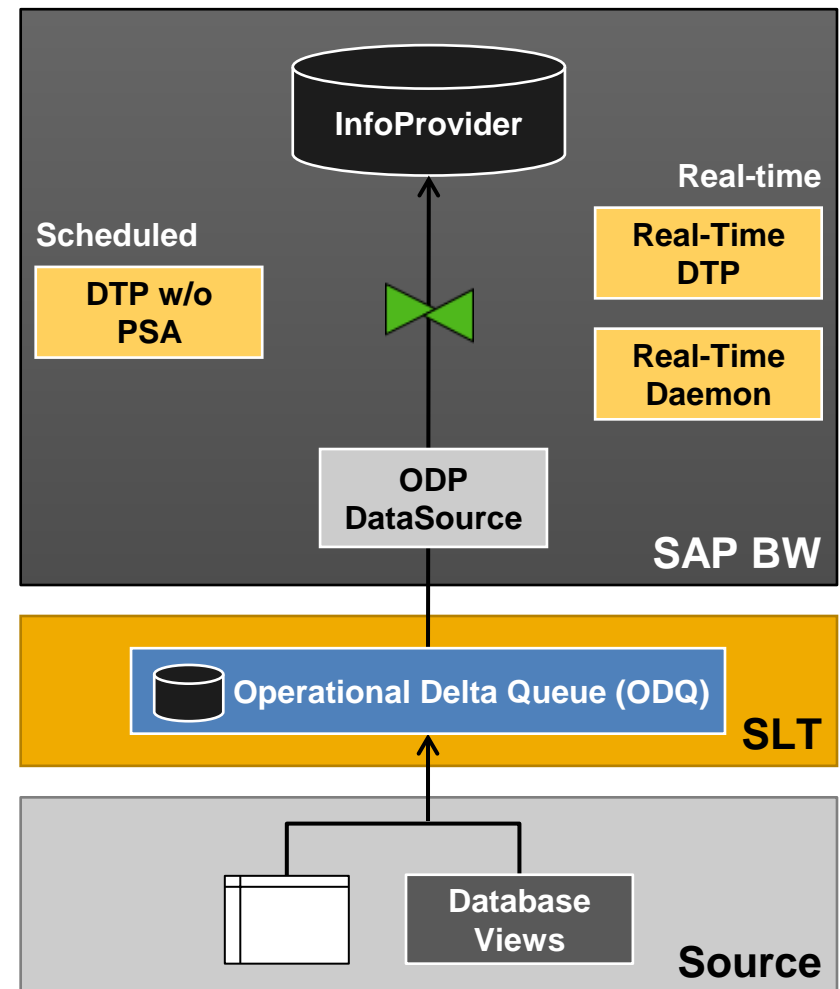
### New source system type ODP-SLT

- SLT real-time push in operational delta queue (ODQ)
- Replication of tables or views
- Direct update to BW InfoProviders (scheduled or real-time daemon)
- Setup of SLT replication from SAP BW

### Benefits

- Simplified data flow → PSA no longer required
- Consumption by multiple subscribers
- Delta handling by SLT

**Real-time data available < 1 min in SAP BW**





# Real-Time Replication with SAP LT Replication Server

## System Demo

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### Real-time data provisioning into SAP BW

- Create an SLT configuration for data replication
- Replicate data in real time into SAP BW via the ODQ framework



# Real-Time Replication with SAP LT Replication Server

## What You've Learned in This Unit

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### Key takeaways

- SAP LT Replication Server can write via the ODP framework directly in SAP BW
- Source can be tables or views (not standard extractors directly)
- SLT can be used in two modes: scheduled or real-time
- Multiple subscribers can easily share the same delta information
- ODPQ allows data transfer into InfoProvider directly; PSA can be skipped





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# Week 2 Unit 5: **SAP HANA Optimized ETL Processes**

# SAP HANA Optimized ETL Processes

Covered in This Unit

## Content

- SAP HANA optimized DSO activation
- SAP HANA optimized transformation
- System demonstration





# SAP HANA Optimized ETL Processes

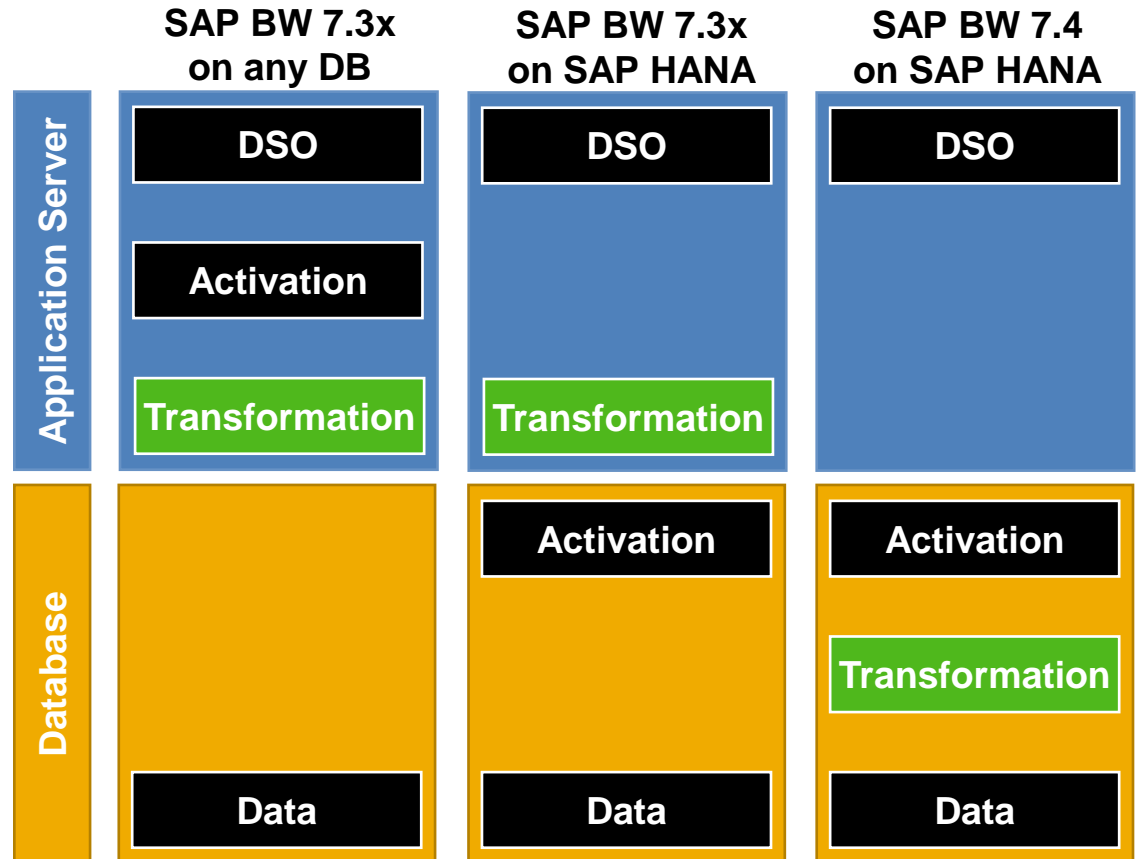
## Overview

**With SAP HANA, the DataStore object activation is pushed down**

- increasing performance by a factor of ~10

**Next level of performance in data staging for SAP BW powered by SAP HANA**

- Standard transformations are optimized for direct processing in SAP HANA





# SAP HANA Optimized ETL Processes

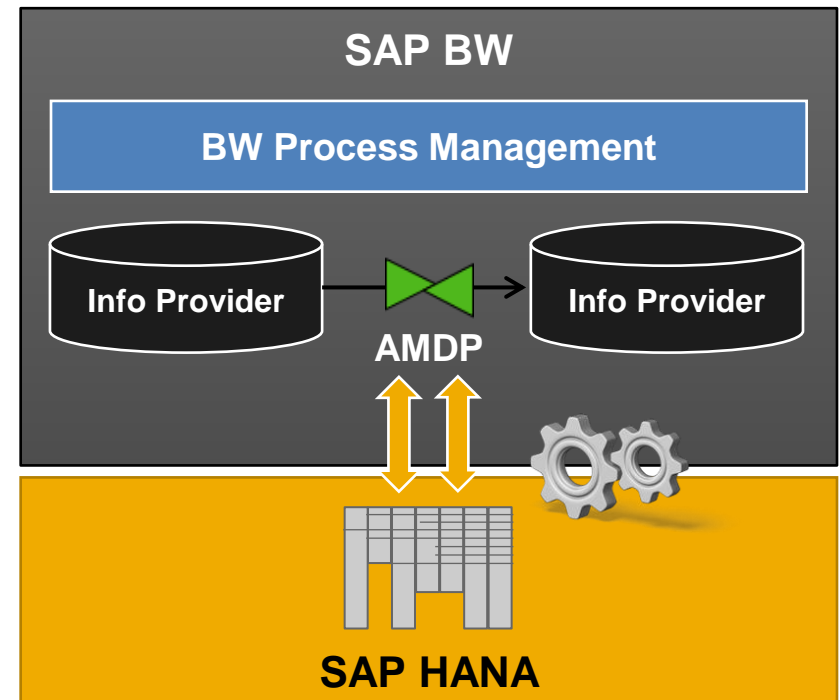
## ABAP Managed Database Procedures – Usage Within SAP BW

### AMDP within SAP BW data flows

- Write native SAP HANA code for data loading processes
- Integrated within the SAP BW ETL processes (routine type “procedure”, SAP HANA analysis process)
- Planned with SAP BW 7.4 SP8 on SAP HANA

### Advantages:

- Leverage full flexibility of SQL procedures for SAP HANA optimized data loads
- Full integration in SAP BW Lifecycle and Process Management



Use case was shown in openSAP  
ABAP on SAP HANA course

# SAP HANA Optimized ETL Processes

## System Demo

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### Optimized ETL Processes

- SAP HANA optimized transformation in SAP BW
- Understand and see how the push-down works



# SAP HANA Optimized ETL Processes

## What You've Learned in This Unit

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### Key takeaways

- SAP BW on SAP HANA significantly speeds up ETL processes
- In addition to DataStore Object activation, SAP BW 7.4 also pushes down transformations to SAP HANA
- AMDP offer the possibility to write procedures as close as possible to SAP HANA, and can be leveraged in SAP BW





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# Week 2 Unit 6: **Managing Complex Data Warehouse Processes**



# Managing Complex Data Warehouse Processes

## Covered in This Unit

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### Content

- Data warehouse architecture
- Smart data warehouse objects
- Common scheduling & monitoring environment



# Managing Complex Data Warehouse Processes

## Data Warehouse Architecture

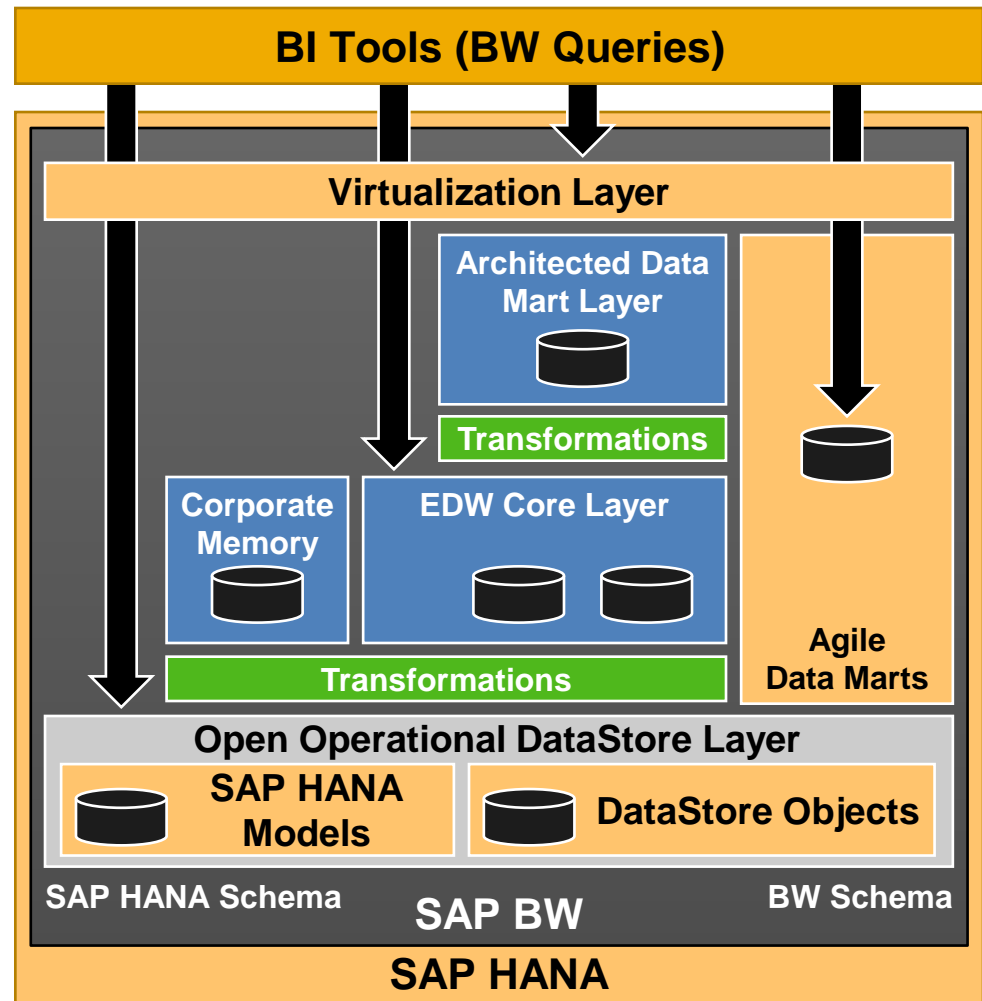
### Architecture helps to organize data and services in the DWH

- Original data from source systems
- Data history
- Corporate data model
- (Virtual) data marts

### The key is to implement efficiently

- Providing guidelines
- Helping to keep an overview

**SAP has developed layered scalable architecture that includes all relevant aspects for large scale data warehousing**



# Managing Complex Data Warehouse Processes

## Data Flows

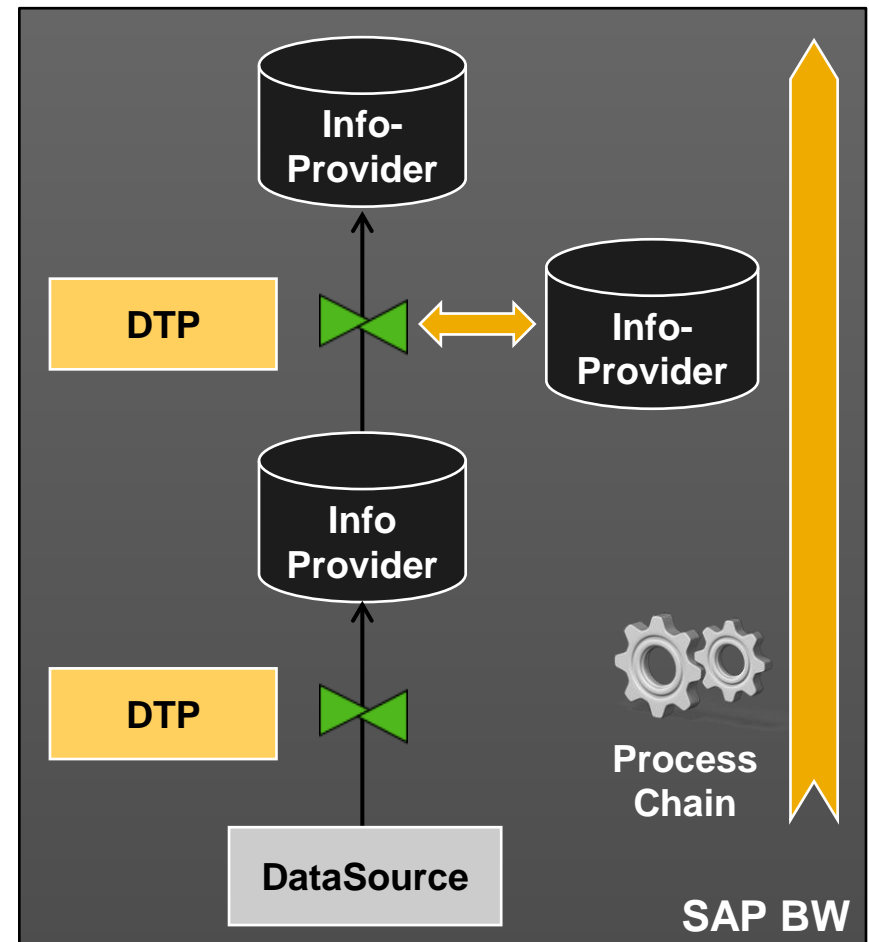
### Data processing as an important task

- Data flows consist of multiple loading steps and transformations
- Able to work “incrementally”; only the data changes

**Process chains are used to model, schedule, and monitor such process flows**

### New smart InfoProvider optimized for SAP HANA

- The advanced DataStore object (ADSO) will be the “standard” persistent InfoProvider

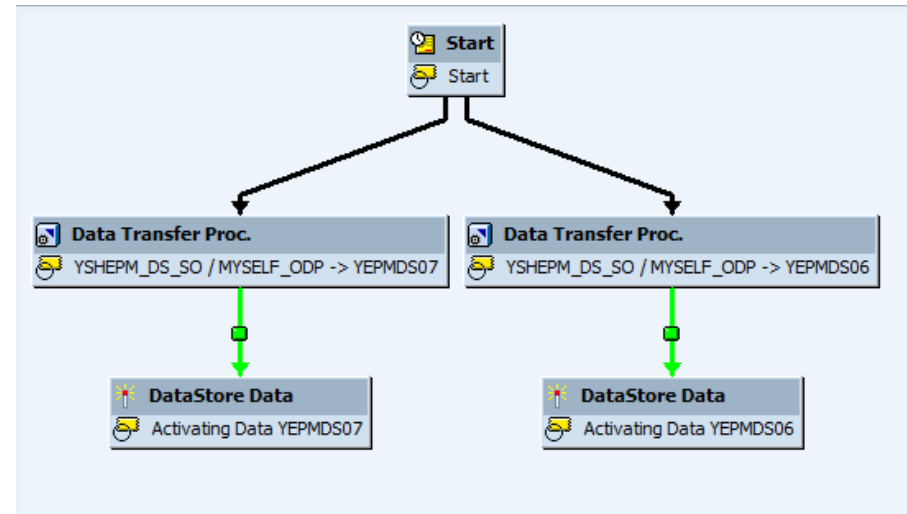


# Managing Complex Data Warehouse Processes

## Common Scheduling & Monitoring Environment

### Process Chains

- Allow you to combine individual processes (DTPs, DataStore activation,...) into complex process flows
- Come with built-in scheduling functionality as well as interfaces to external scheduling tools
- Provide detailed monitoring that includes individual processes and the corresponding job logs



# Managing Complex Data Warehouse Processes

## Smart Data Warehouse Objects – The New ADSO

### Advanced DataStore Object (ADSO)

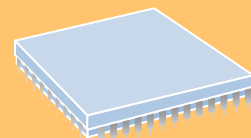
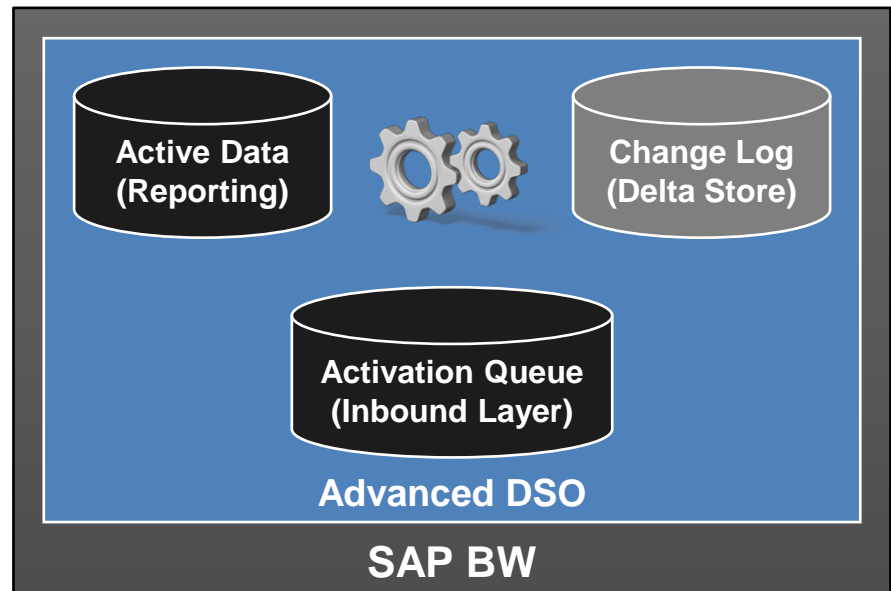
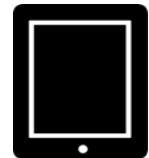
- supports analytic queries and – in future – planning applications
- provides capabilities to calculate data changes within data flows

### Consolidates InfoProviders

- classic DSOs
- write-optimized DSOs
- InfoCubes

**resolving many limitations of the past**

**Possible to switch between scenarios without deleting data**



**SAP HANA**

# Managing Complex Data Warehouse Processes

## System Demo

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### Advanced DataStore Object

- Look and feel of Eclipse-based modeling for advanced DataStore objects
- Different use case settings





# Managing Complex Data Warehouse Processes

## What You've Learned in This Unit

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### Key takeaways

- A reference architecture is the key to success in data warehouse implementations
- SAP promotes the LSA++ approach as a reference for SAP BW powered by SAP HANA
- SAP BW provides standardized objects and processes for common data warehouse problems
- Handling of data changes, designing processes, scheduling and monitoring are made transparent through different objects





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