

# SAP BW 7.4 SP8-SP9 powered by SAP HANA and Roadmap

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# SAP Business Warehouse Today

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**15000+**

Customers

**200**

New Installations/Month

**4500+**

BW 7.3/7.4 Customers

Vast majority: Central EDW, harmonizing many source systems

Embedded into mission critical business processes

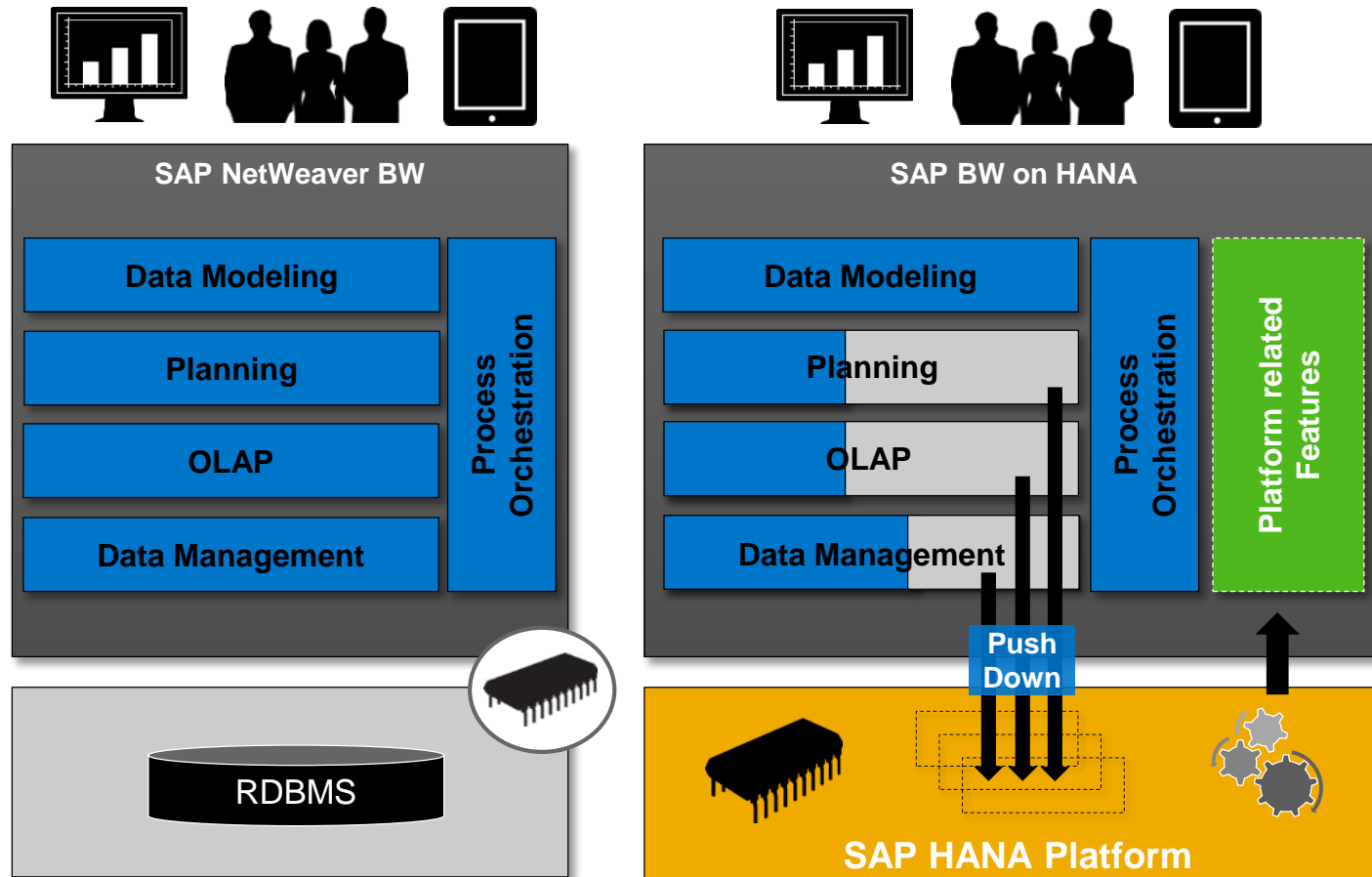
**2000+**

BW on HANA Customers



# Simplification with SAP BW 7.4

What is different with SAP BW powered by SAP HANA?



**Data intensive functions are pushed down from SAP BW to SAP HANA**

- Performance boost for data load, query and planning processes

**Simplified SAP BW**

- Flexibly combine EDW with SAP HANA models
- Data persistency layers reduction
- Simplified data modeling and remodeling

**SAP HANA as platform**

- Offers functionality which can be leveraged in SAP BW
- E. g. predictive libraries integration

# Highlights of SAP BW 7.4 SP8-SP9 powered by SAP HANA

## Virtual Data Warehouse

- Next level Open ODS Views
- Additional CompositeProvider scenarios

## Simplification

- Advanced DataStore Object consolidating DataStore Objects and InfoCubes
- HANA model generation for BW Queries
- Common user experience for data modeling

## Big Data

- SAP HANA dynamic tiering for SAP BW
- Enhanced operations and Query optimization for NLS

## Performance

- Next level of performance in data staging for BW on HANA
- Further push down of OLAP capabilities

## Planning

- Planning application Kit (PAK) feature complete with BW-IP
- Enhanced FOX productivity and usability



# SAP BW 7.4 SP8-SP9 powered by SAP HANA – Key Topics

**VIRTUAL DATA WAREHOUSE**

SIMPLIFICATION

PERFORMANCE

BIG DATA

PLANNING

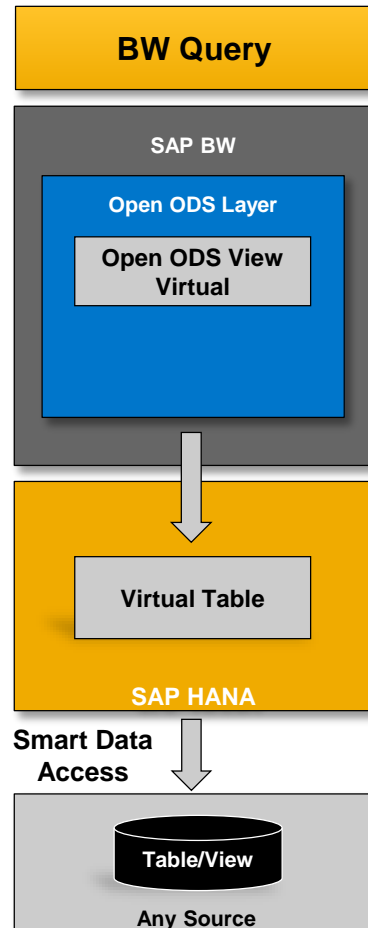
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# The Virtual BW – Open ODS Views

## Recap – Open ODS Views with SAP BW 7.4 SP5

### Virtual Access



### Flexible and easy integration of external data models

- Consume external data of DB tables or views
- Agile modeling combining InfoObject and field based modelling
- Easy assignment of semantics (facts, master data)
- Integrated and modern modeling environment between HANA and BW

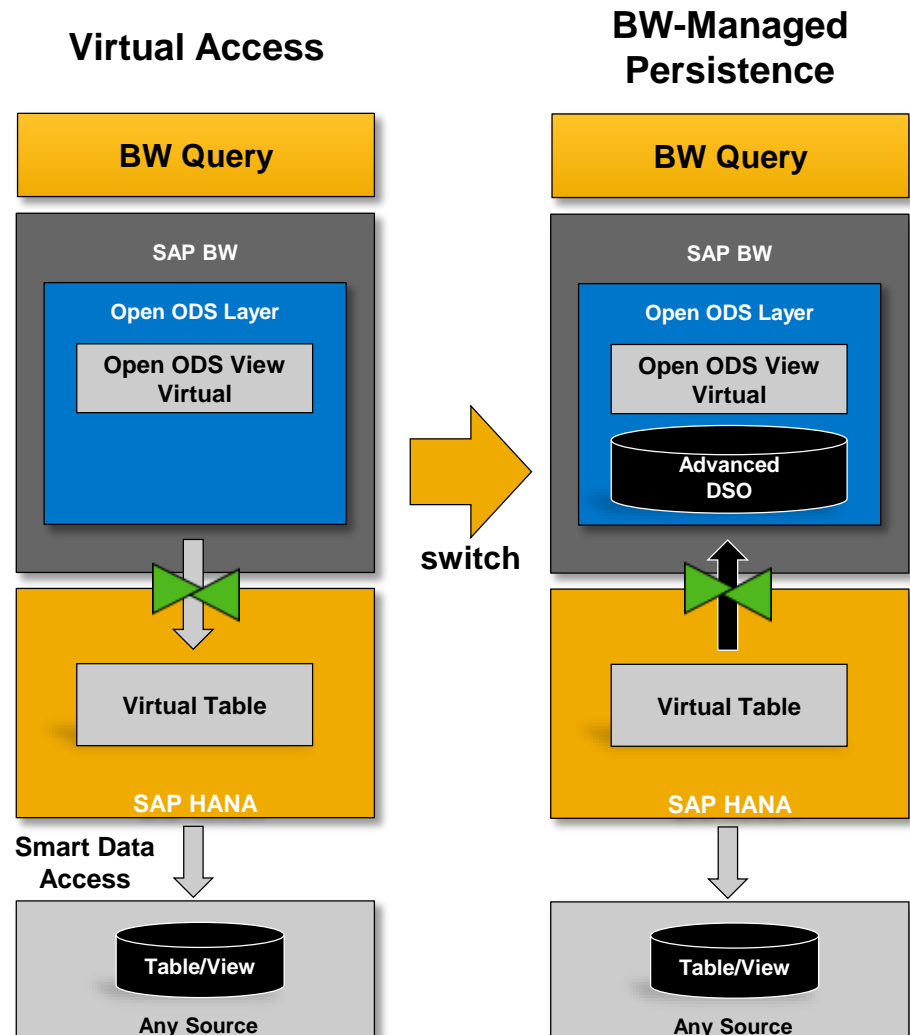
### Enhanced Business Flexibility by supporting “the logical EDW”

- SAP HANA Smart Data Access leveraged by SAP BW
- Supports virtualized query access

### Reduced data modeling efforts

# The Virtual BW – Open ODS Views

New with SAP BW 7.4 SP8



## New source objects for Open ODS Views

- Advanced DataStore Object (details in next chapter)
- BW Transformations (for type conversions, mappings, etc.)

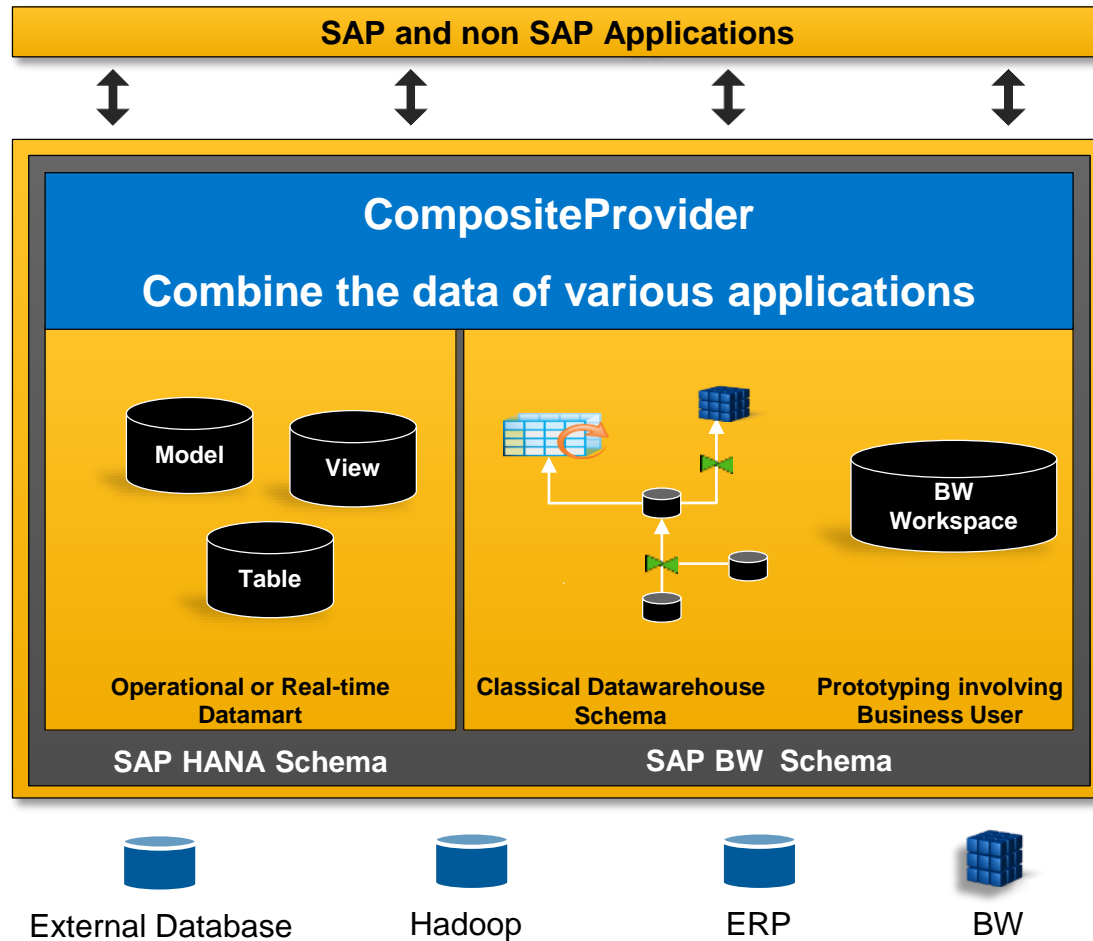
## Automated Data Flow generation to create a persistency in SAP BW

- Built-in support to switch from virtual access to managed persistence by single click for:
  - higher service level, delta enablement, . . .
- Automated creation of an Advanced Data Store Object corresponding to the view definition including data flow



# The Virtual BW – CompositeProvider

## Recap – CompositeProvider with SAP BW 7.4 SP5



### The new CompositeProvider with SAP BW 7.4 SP5 – virtualization and consolidation

- Combine BW InfoProviders and HANA tables/views via UNION or JOIN
- Consolidation of existing InfoProvider types by new CompositeProvider
  - Successor to BW MultiProvider, BW InfoSet, existing CompositeProvider, TransientProvider on HANA Models, VirtualProvider on HANA Models

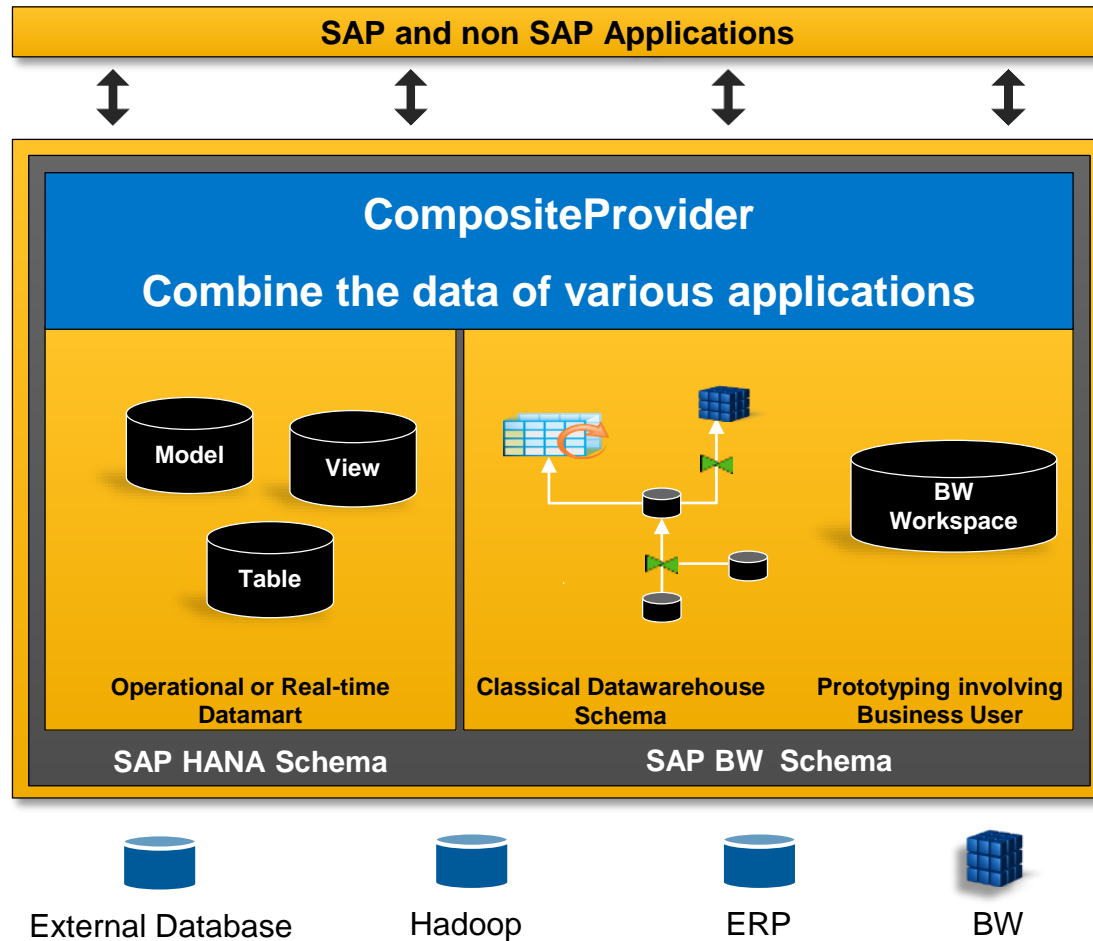
### Faster Implementations of data model

### More flexibility – additional business insights

### Completely processed on SAP HANA

# The Virtual BW – CompositeProvider

New with SAP BW 7.4 SP8



## New use cases

- Supports planning functionalities for UNION Cases
- UNION between CompositeProviders

## Optimized integration with Open ODS View

- allow JOINS of Open ODS Views
- Support of navigational attributes

## Enhanced HANA View integration

- Support of input parameters

# SAP BW 7.4 SP8-SP9 powered by SAP HANA – Key Topics

VIRTUAL DATA WAREHOUSE

**SIMPLIFICATION**

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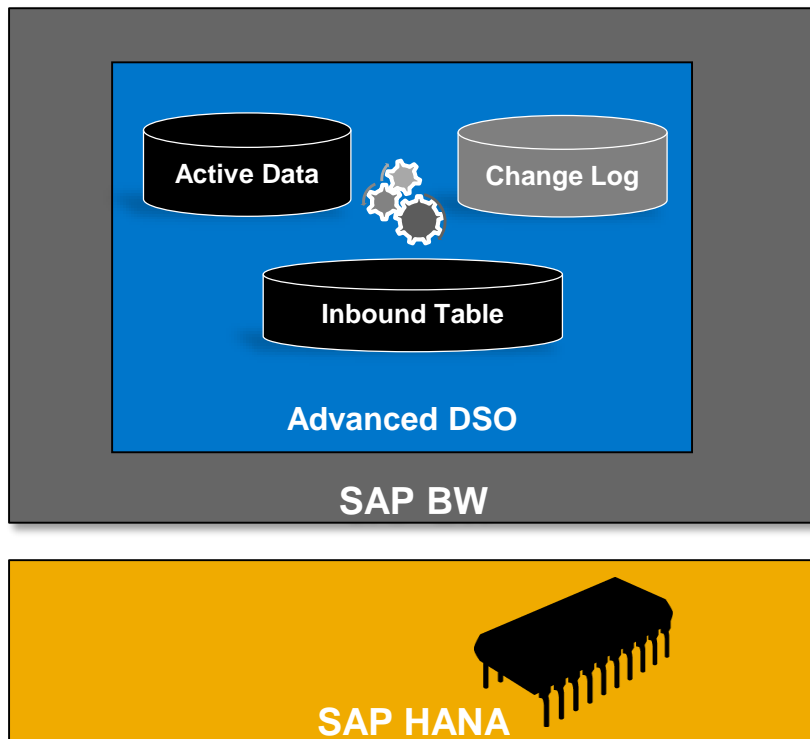
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# Simplification – Advanced DataStore Object

New with SAP BW 7.4 SP8 – Overview



## Next generation of Data Store Object simplifies data modeling in SAP BW

- Consolidate DataStore Objects and InfoCubes
  - Single type of BW object
  - Settings to manage properties .e.g. DSO like, InfoCube like
- Combine InfoObject and field based modelling
- New intuitive & modern modelling UI

## Optimized DataStore services

- High frequent data loads - based on optimized request management
- Change of usage scenario without deletion of data
- Up to 120 key fields
- Optional SID entries for query performance optimization

SAP Note 2070577

# Simplification – Advanced DataStore Object

New with SAP BW 7.4 SP8 – eclipse based modelling experience

Name	InfoObject	Key	Type	Length
[GROUP1]				
[OCOSTCENTER] Cost Cer	OCOSTCENTER		CHAR	10
[OFISCPER] Fiscal year / p	OFISCPER		NUMC	7
[OCOSTELMNT] Cost Elerr	OCOSTELMNT		CHAR	10
[OFISCVARNT] Fiscal year	OFISCVARNT		CHAR	2
[OCO_AREA] Controlling z	OCO_AREA		CHAR	4
[LSTAR]			CHAR	6
[VTYPE]			NUMC	3

## Intuitive User Interface

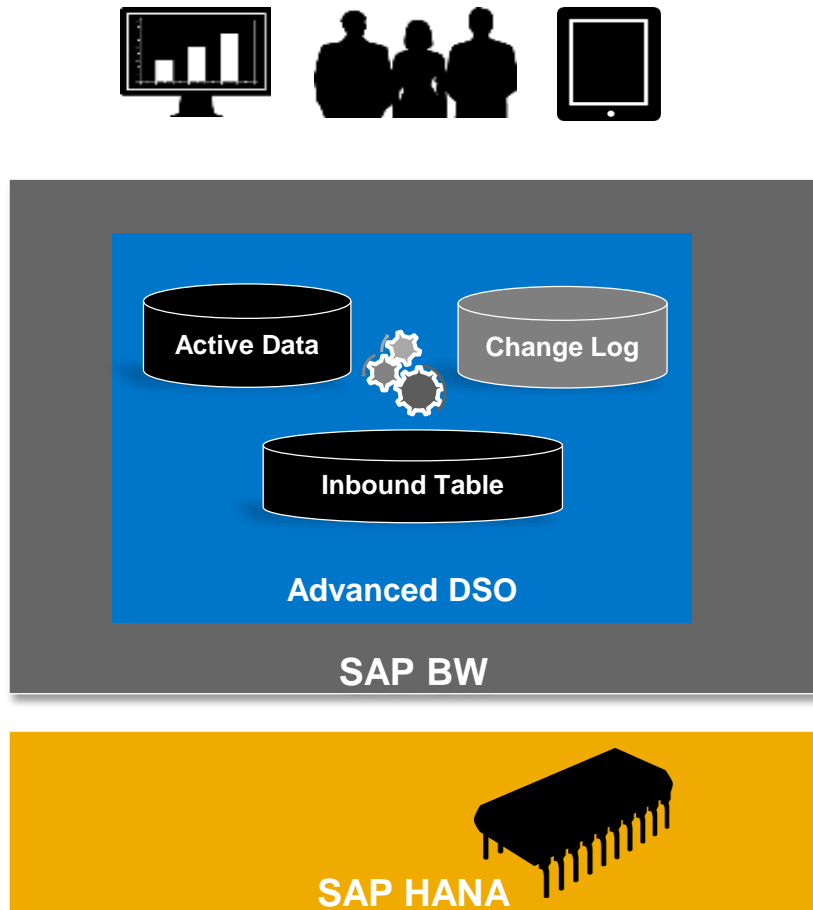
- Aligned with CompositeProvider and Open ODS Views modelling

## Benefits

- Supports agile data modelling
- Reduces implementation times massively

# Simplification – Advanced DataStore Object

Planned future direction



## Future enhancements

- Non-cumulative key figures
- Template based modelling
- Nearline Storage (NLS)
- Extended Table property for SAP HANA dynamic tiering
- Support of planning scenarios
- Support for direct update scenarios (write-APIs)
- Conversion tool for classic DataStore Objects and InfoCubes
- Real-Time enablement
- Additional Partitioning options

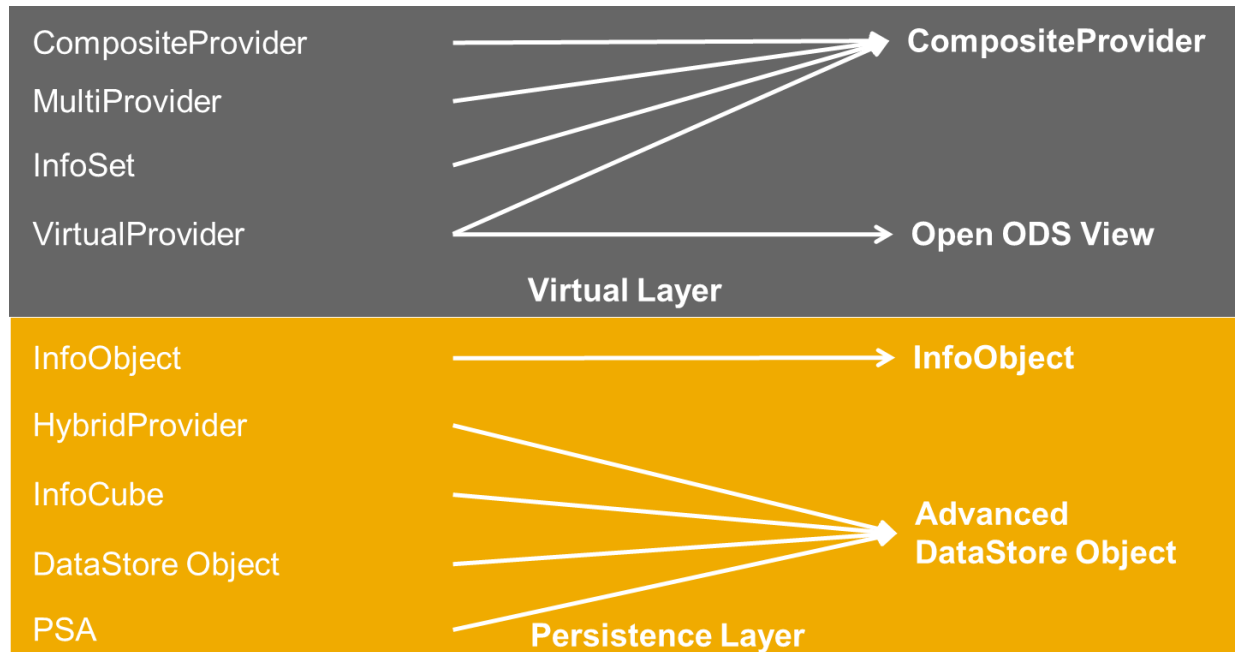


# Simplification – Consolidation of BW Modeling Objects

New with SAP BW 7.4 SP8

## SAP BW on RDBMS

## SAP BW 7.4 on HANA



## SAP BW 7.4 on HANA consolidates existing InfoProviders

- CompositeProvider as new object to define joins between InfoProviders
- Open ODS View for virtual access to external sources
- InfoObject to model semantically rich master data
- Advanced DataStore Object as the new object for persistence management

**Traditional InfoProviders still exist but future innovations are focusing on the consolidated objects of SAP BW 7.4 on HANA**

# Simplification – simple Query in BW-Modeling Tools in Eclipse

## New with SAP BW 7.4 SP9 – eclipse based modelling for BW Queries

The screenshot shows the Eclipse BW Modeling Tools interface for creating a simple query. The main window is titled "General: YEPMQRY01 - EPM Sales Order Reporting". It contains several tabs: General, Value Output Format, Result Location, Zero Suppression, Universal Display Hierarchy, Variables Order, Filter, Sheet Definition, Conditions, and Exceptions. The General tab is active, showing fields for Technical Name (YEPMQRY01), Description (EPM Sales Order Reporting), InfoProvider (YEPM\_CP\_01), and Key Date (<default>). The Value Output Format tab shows Sign Format (Before, for example -1) and Zero Format (With Currency/Unit). The Result Location tab shows Rows (Above, Below) and Columns (Left, Right). The Zero Suppression tab shows Applies to (Rows, Columns) and Condition (Only result value must be zero). The Universal Display Hierarchy tab shows Active on rows and Active on columns. The Variables Order tab shows a list of variables: [0D\_NW\_GAMT] Gross Order Amount (EPM Demo), [0D\_NW\_NAMT] Net Order Amount (EPM Demo), [0D\_NW\_PQTY] Order Quantity (EPM Demo), and [0D\_NW\_TAMT] Taxes (Order Amount) (EPM Demo). The Filter tab shows a list of characteristics: [0EPM\_C04T] Time, [0EPM\_C04U] Unit, [0EPM\_C041] Sales Order, [0EPM\_C042] Sales Order Item, [0EPM\_C043] Business Partner, [0EPM\_C044] Business Partner Role, [0EPM\_C045] Product, [0EPM\_C046] Status, [0EPM\_C047] Planned Delivery Date, [0EPM\_C048] Created By, and [0EPM\_C049] Changed by.

## Create simple Queries in Eclipse

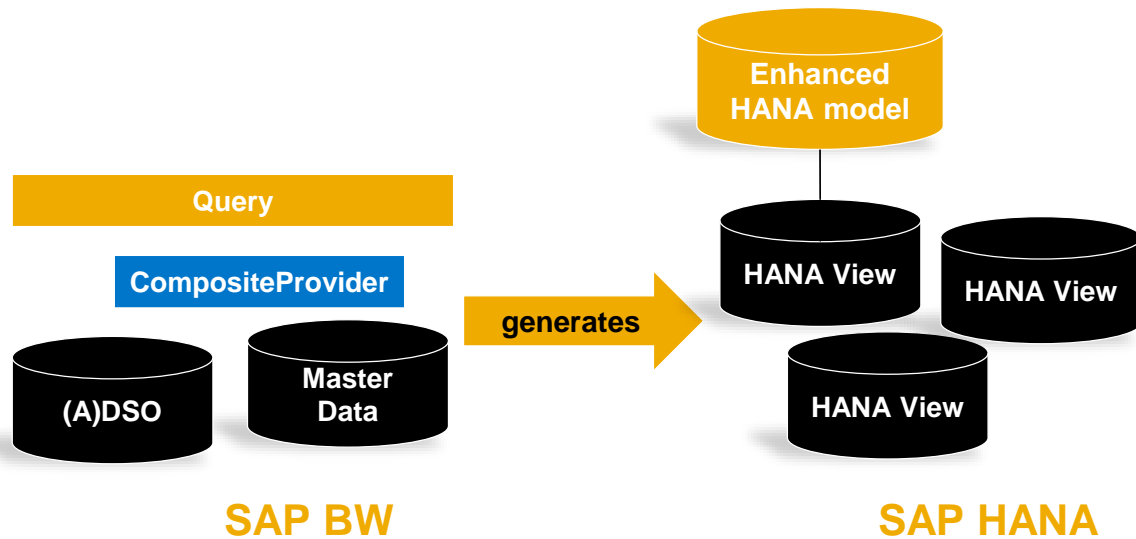
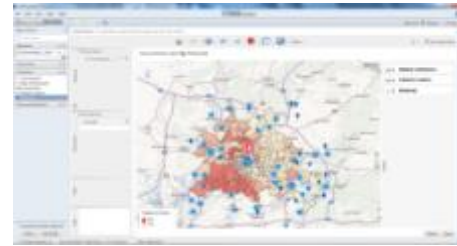
- BWMT 1.6 required
- A subset of query functionality can be created directly in eclipse

## Choose between various functions

- Create structures in the row and column axes of the query
- Use reusable restricted and calculated key figures
- Conditions & Exceptions
- Currency and unit conversion

# Simplification – Automated generation of HANA Models

Recap – HANA view generation with SAP BW 7.4 SP5



## Automated HANA model generation for direct SQL consumption of BW Data

- Enhanced Metadata interoperability between BW and HANA
- Triggered automatically during BW InfoProvider activation

## HANA model generation for BW InfoProvider

- Direct consumption of BW data via generated HANA views for BI Tools or SQL
- Usage of generated view in HANA Studio to build own data models using BW data and HANA native algorithms
- Analysis Authorization: Automatic sync between HANA and BW



# Simplification – Automated generation of HANA Models

New with SAP BW 7.4 SP8-SP9

## Generate SAP HANA views based on BW queries (SP8)

- If a query definition can be expressed as a flat view the calculation can fully take place in SAP HANA and a corresponding HANA view can be generated
- More information about prerequisites: [here](#)
- Integration in Query Designer in Eclipse (SP9)

## Supported functionalities

- Generate a SAP HANA model for a simple BW Query including security
- Supported features: currency/unit conversion, variables, restricted key figures, global restrictions, inventory key figure (closing balance)
- Generated SAP HANA model able to read the data from the Nearline Storage

# SAP BW 7.4 SP8-SP9 powered by SAP HANA – Key Topics

VIRTUAL DATA WAREHOUSE

SIMPLIFICATION

**PERFORMANCE**

BIG DATA

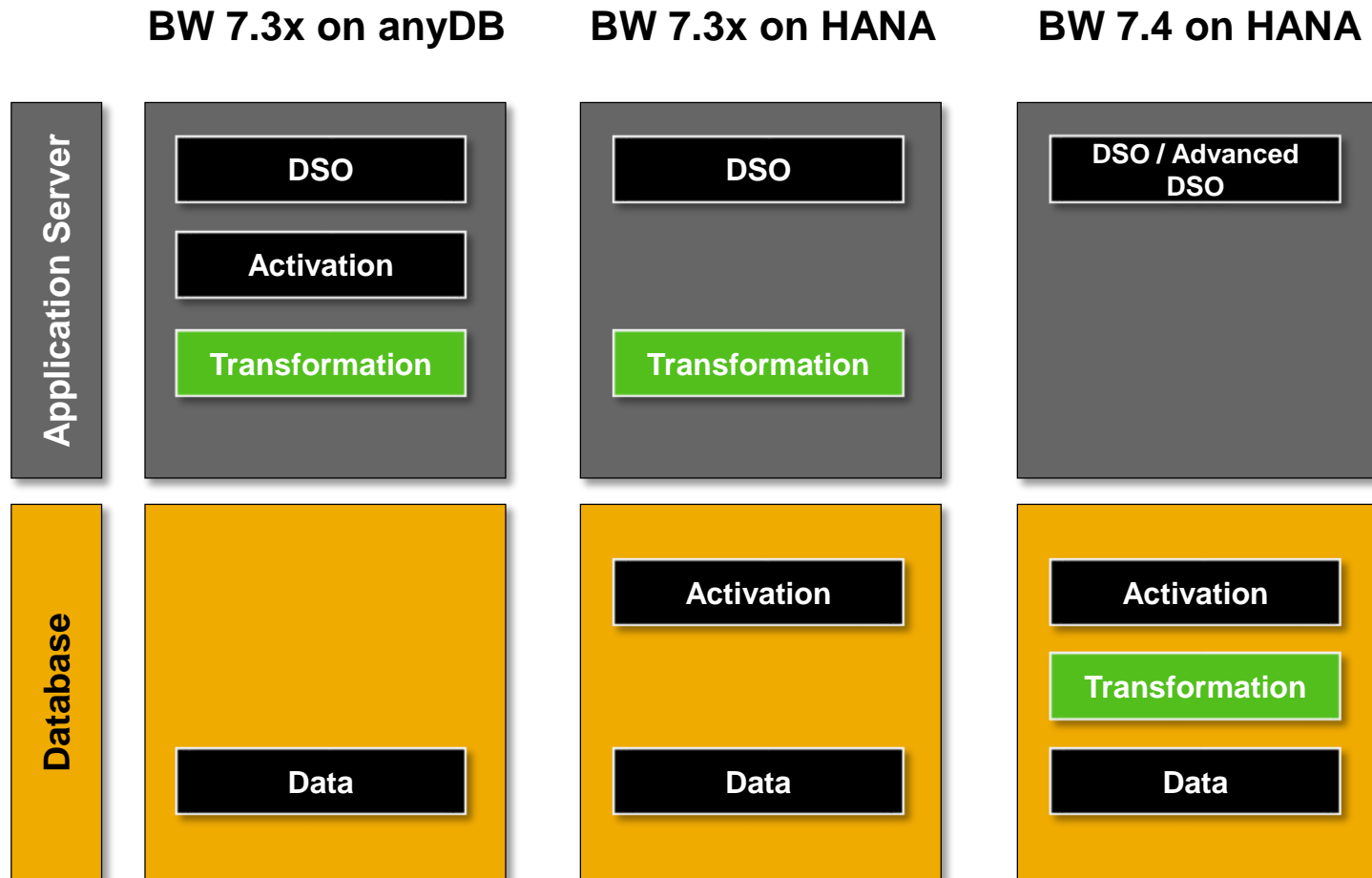
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# Performance – SAP HANA Optimized Transformations

## Overview & Update with SP8



### Next level of performance in data staging for BW on HANA

- Standard Transformations are optimized to be processed directly in SAP HANA where possible

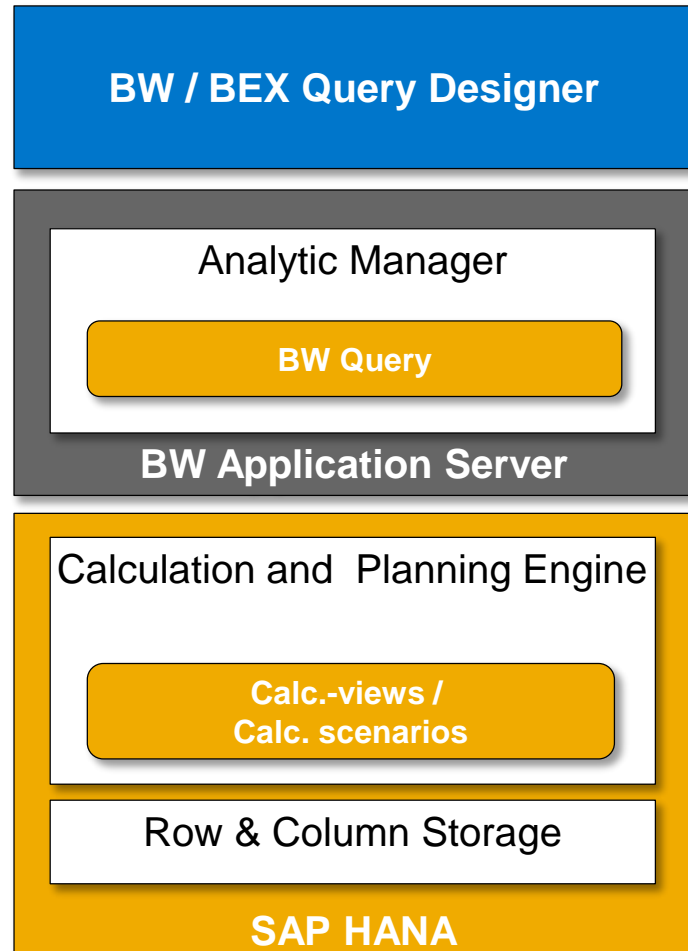
### New with SAP BW 7.4 SP8

- Additional formulas pushed down to HANA
- ABAP managed database procedure (AMDP) integration for easy editing of HANA procedures
- Additional performance optimizations



# Performance – Push-down of OLAP functionality

## Overview & Update with SP8



### OLAP Features pushed down to HANA since BW 7.4 SP5

- Processing of Unions and Joins in CompositeProvider
- Avoid intermediate result set materialization (e.g. Exception Aggregation)

### New push down with SAP BW 7.4 SP8

- Handling of inventory key figures
- Unit conversion with Reference InfoObjects

### Details about availability of pushed down OLAP functionality

- SAP Note 2063449 - Push down of BW OLAP functionalities to SAP HANA

# SAP BW 7.4 SP8-SP9 powered by SAP HANA – Key Topics

VIRTUAL DATA WAREHOUSE

SIMPLIFICATION

PERFORMANCE

**BIG DATA**

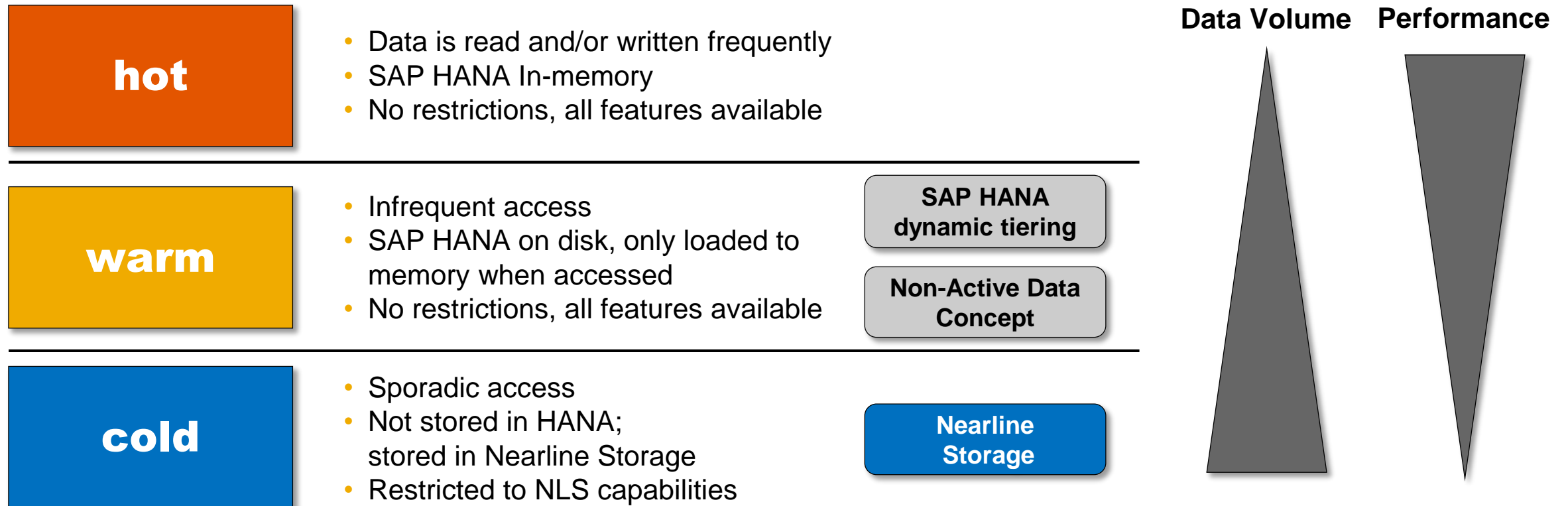
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# Big Data – Multi Temperature Data Management in SAP BW

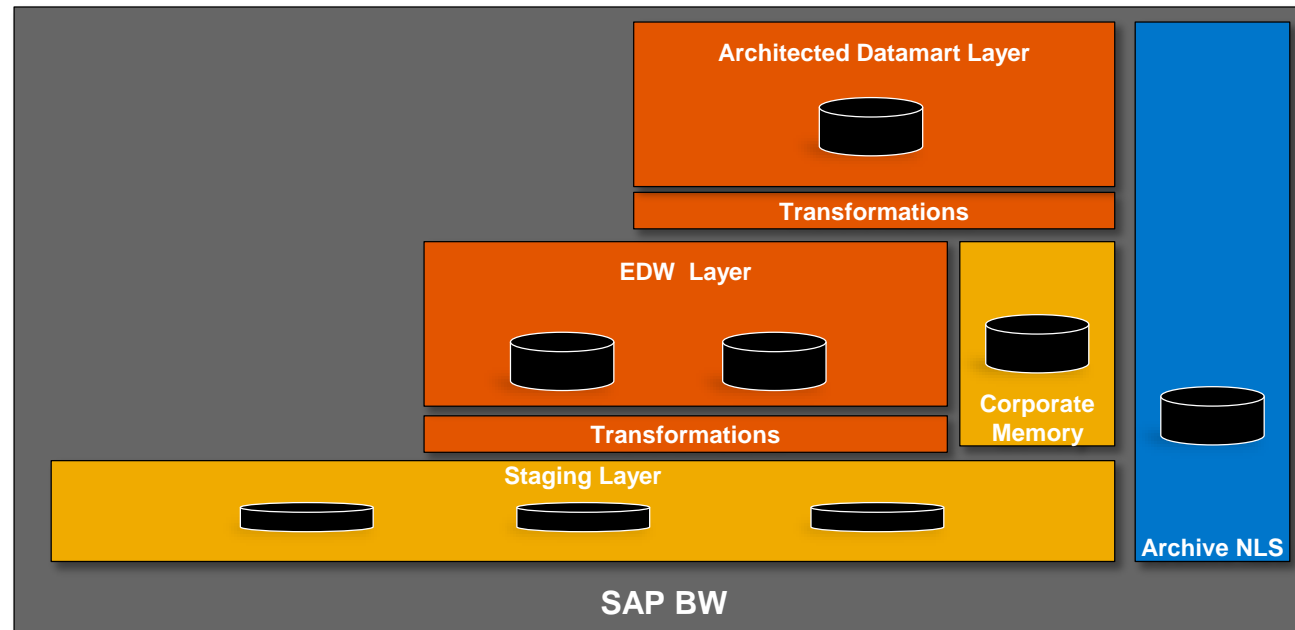
## Overview



Providing lower TCO by optimized SAP HANA RAM management

# Big Data – Multi Temperature Data Management in SAP BW

## Architectural Heat Map – temperature data distribution



### Hot Areas

- heavy reporting and/or HANA-native operations (Delta, Transf.,...)

### Warm Areas

- limited reporting, limited HANA-native functions

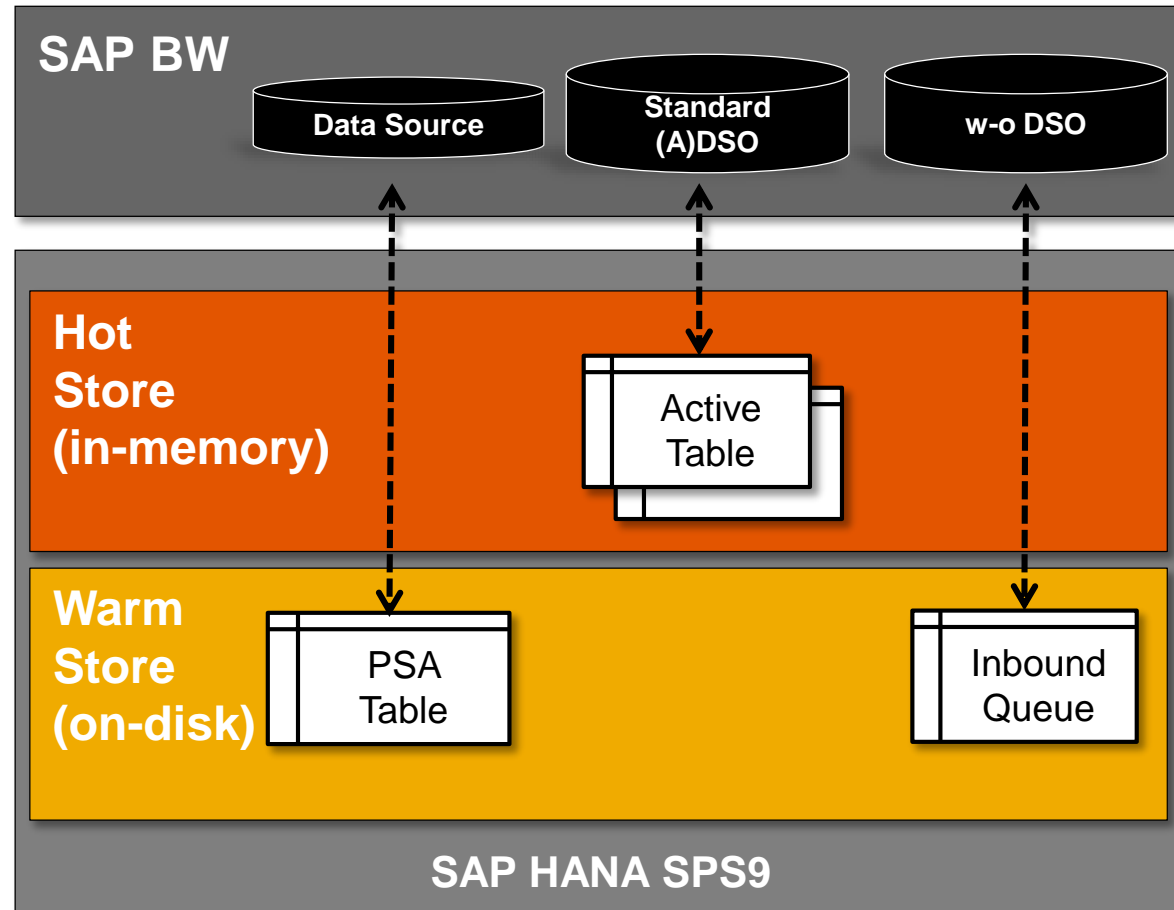
### Cold Areas

- Archive, read-only data, different SLAs



# Big Data – SAP HANA dynamic tiering for SAP BW

New with SAP BW 7.4 SP8 and SAP HANA SPS9



**Warm store as dynamic extension to hot store and integral part of the HANA platform**

- Reduced in-memory footprint
- Highly efficient compression and performance
- Unified Installation & Update Management
- One Backup & Recovery process

**Can be set for Write Optimized DSOs and DataSources as extended table property**

- Data load processes and queries are processed within the warm store
- Transparent for all operations, no change for BW processes required
- Conversion to move existing data to warm store

# Big Data – Multi Temperature Data Management in SAP BW

## SAP HANA dynamic tiering and Nearline Storage for SAP BW

### SAP HANA dynamic tiering

- Optimize RAM utilization within HANA
- Integral part of the platform
- Complete data manipulation cap. (Create, Read, Update, Delete)
- Meets mission critical system SLAs
- Complete tables (and partitions)

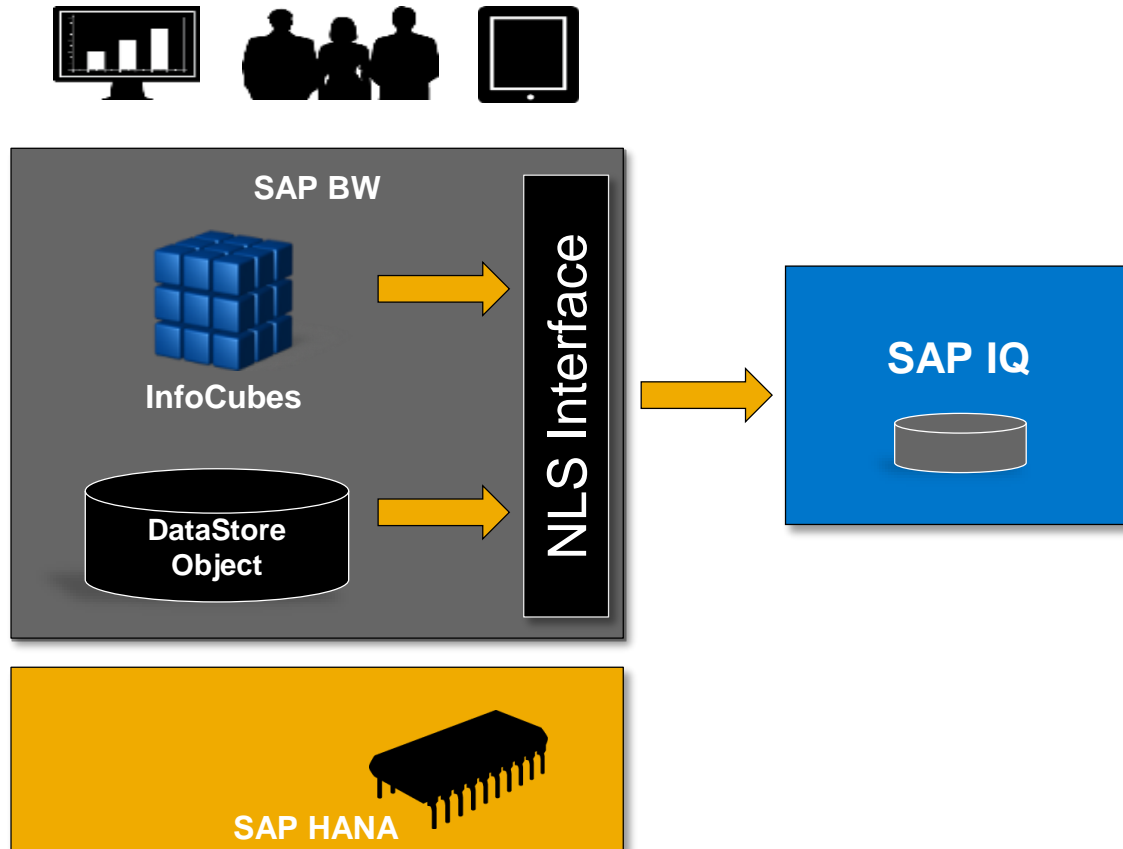
### SAP BW Nearline Storage with SAP IQ

- Optimize data persistence in system landscape
- Independent server
- Write once, read many
- Usually lower SLAs
- Arbitrary (semantic) data slices

**Different types of data with different types of storage**

# Big Data – Nearline Storage (NLS) with SAP IQ

New with SAP BW 7.4 SP8



## Enhanced NLS operations

- Data Archiving proposals
- Automated data archiving process generation
- NLS integration in DBA cockpit

## InfoCubes with non cumulative key figures

## Query optimizations for NLS

- Query pruning based on time dimensions and archived time slices
- Push down of OLAP functions(Restricted Key Figures, Hierarchies,...) to HANA

## HANA model generation includes NLS data

# SAP BW 7.4 SP8-SP9 powered by SAP HANA – Key Topics

VIRTUAL DATA WAREHOUSE

SIMPLIFICATION

PERFORMANCE

BIG DATA

**PLANNING**

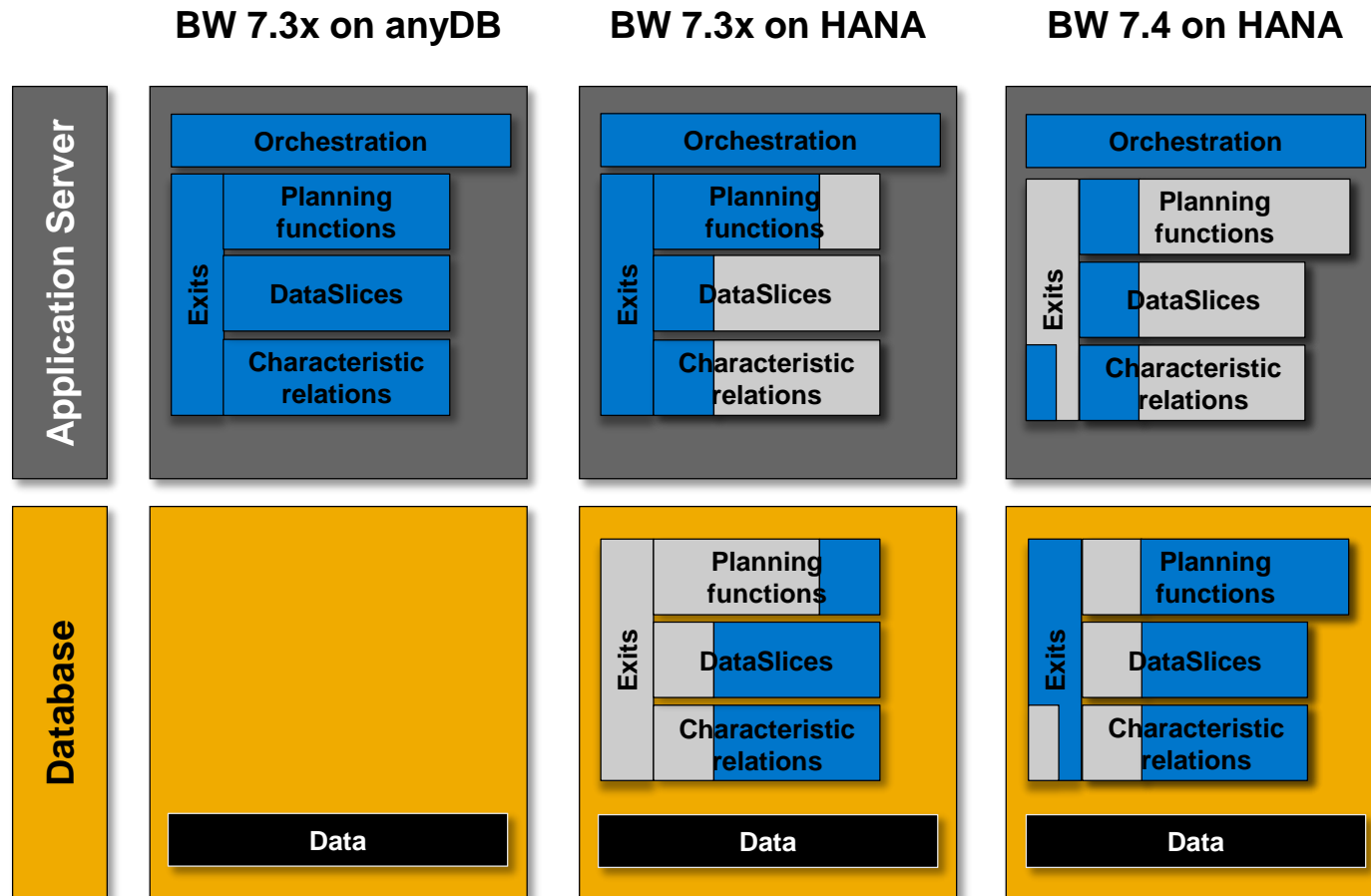
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# Planning – Push-down of planning semantics

## Overview & Update with SP8



**Next level of performance by pushing down further planning capabilities to HANA**

### **New with SAP BW 7.4 SP8**

- Planning application kit (PAK) feature completeness with BW-IP
- Enhanced FOX productivity and usability

**Details about availability of pushed down Planning functionality see SAP Note 1637199**

# Planning – BW-IP/PAK Enhancements

New with SAP BW 7.4 SP8



## Improved FOX Formula handling

- FOX able to replace custom developed ABAP planning functions
- Internal Table: Define a table via FOX coding, supports all table operations (e.g. read, insert, update . . .)
- Access to 'external' data: Read data of any aggregation level out of the planning buffer
- New Syntax Highlighting in FOX editor
- FOX debugging via debugging script

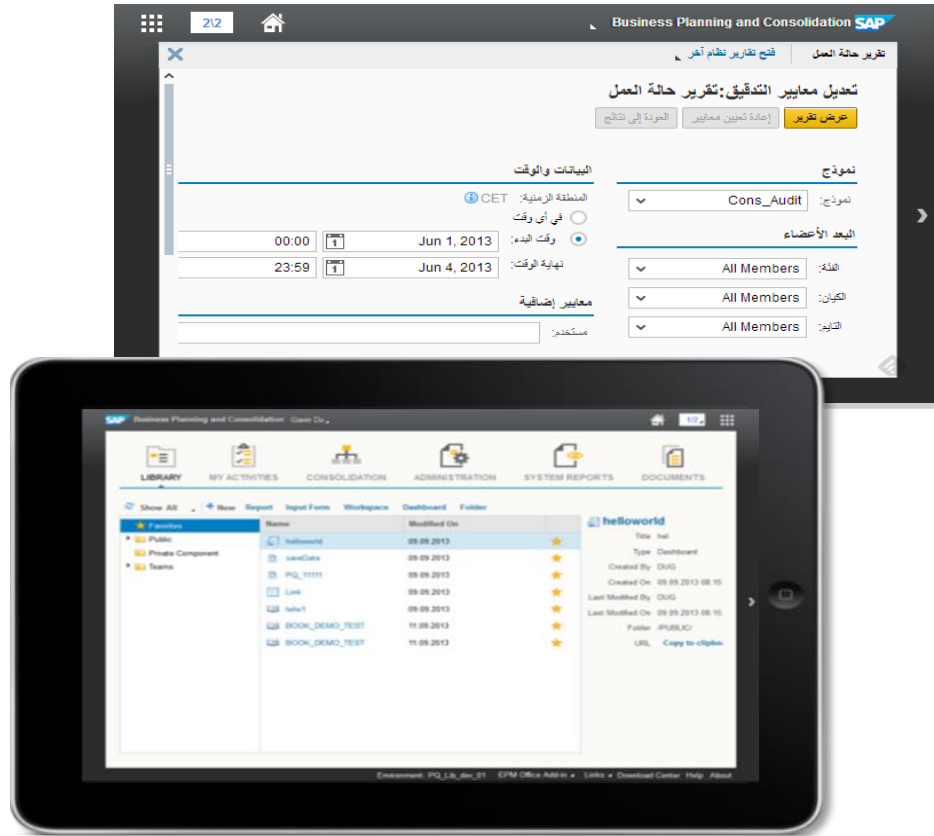
## Use CompositeProvider for planning scenarios

- Support of planning scenarios based on Unions

## Entering comments

- Available for SAP Analysis for Office, SAP Design Studio, BEx Analyzer, BEx Web

# Planning - SAP Business Planning and Consolidation 10.1, version for SAP NetWeaver powered by SAP HANA



## Enhanced analysis and planning capabilities

- Leverages BW Integrated Planning models and benefits from SAP HANA acceleration
- Adds new capabilities to existing BW-IP features e. g. business process flows, work status . . .
- Optimized planning functions leveraging SAP HANA for better, more timely decisions

## Increased usability

- New HTML5 UI for easier navigation and cross-platform readiness

## Selected features available with SAP BW 7.40 SP8

- Master data planning, e.g. entering new values

# SAP BW 7.4 SP8 powered by SAP HANA – Key Topics

VIRTUAL DATA WAREHOUSE

SIMPLIFICATION

PERFORMANCE

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PLANNING

**MISCELLANEOUS**





# Miscellaneous – XXL Attribute

## Overview & Update with SP8



### **Overcome the 60 characters limitation for additional flexibility**

- Extend length for Characteristics values (Attribute length  $\leq 250$ )
- Extra long texts for Characteristics (Long text type 'Char 1333')

### **New with SAP BW 7.4 SP8: XXL - Attributes**

#### **Possibility to load and store different Files types (MIME Types) as XXL-attribute into BW**

- E.g. PDF's, XML, Office Files, Images, Video-Files, Audio-Files

#### **Store very long strings as attribute in SAP BW**

- E.g. Twitter information (Tweets), File-paths, URL

# Miscellaneous – BW Search, Remodelling Tool Box

Update with SP8



## **BW Search**

- New Eclipse based UI
- Search based on object level
- No replication or copy of data
- Using SAP HANA search capabilities (or rather Attribute Views)

## **Re-modelling Tool Box**

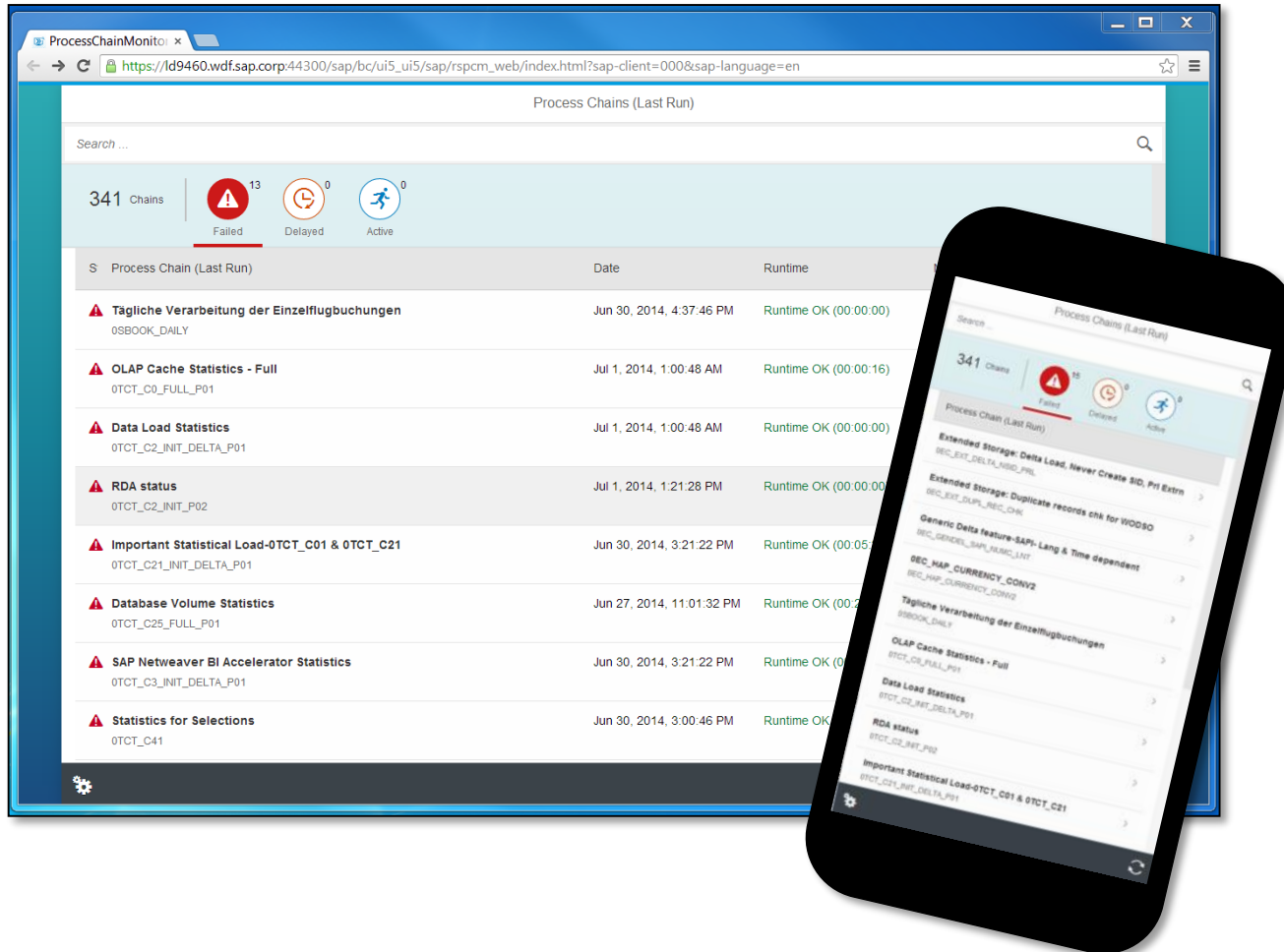
- Supports semantically partitioned objects

## **Operational Data Provisioning (ODP)**

- Supports hierarchy loads

# Miscellaneous – New Process Chain Monitor

## New with SAP BW 7.4 SP8



### Easy monitoring – anytime anywhere

- Detect errors
- Analyze process and job logs
- Repair failed steps

### Attractive, intuitive design based on SAP UI5 technology optimized for device screen size

### Simple configuration

- Reuses settings of backend Process Chain Monitor
- Works directly on Process Chain logs – no data replication

# SAP BW powered by SAP HANA

## Planned Product Roadmap Overview – Key Themes and Capabilities

### SAP BW 7.4 SP9/SP10 on SAP HANA

#### Push down of data intensive functions to HANA

- Analytic Manager, Warehouse management processes and Planning Semantics

#### Simplified data modeling

- Open ODS View flexible integrating external data
- CompositeProvider consolidating existing InfoProviders
- Common Eclipse based modeling tools
- Advanced DSO to consolidate DSOs and InfoCube

#### BIG Data scenarios

- HANA dynamic tiering for Petabyte-scale storage
- NLS Storage enhancements

#### SAP HANA Enterprise Cloud

- Best practice for large scale BW migrations into the cloud

#### Exposing BW data models for SQL consumption

- Generation of HANA models from BW InfoProviders and simple BEx queries

#### “BPC Embedded Model”

- Integrating capabilities of BW IP, BPC and HANA

#### Mobile devices

- Easy mobile consumption using ODATA standard
- SAPUI5 based Process Chain Monitor

### Today

(Release SAP BW 7.4 SP9/SP10)

### Upcoming planned release

#### Integration with the HANA Platform

- Leverage HANA Information Management capabilities for BW
- Further pushdown of data intensive functions to HANA

#### Simplified and Streamlined User Experience

- Eclipse based Modeling for Data Flows
- SAPUI5 based Monitoring and Administration Tools

#### BIG Data scenarios

- NLS: Exceptional inserts, updates and deletes
- HANA dynamic tiering for Advanced DSO.
- Further HADOOP/BIG Data integration

#### SAP HANA Data Warehousing Foundation

- Data distribution optimizer
- Data lifecycle management

#### SAP HANA Enterprise Cloud

- NLS as a Service in the HEC

#### BPC Embedded Model

- Local planning scenarios with BW Workspaces and BPC Embedded Model

### Planned Innovations

(Release SAP BW 7.5)

### Future innovations

#### BW run simple mode

- Advanced DSO and New CompositeProvider as central modeling objects
- No 3.x dataflows, no InfoCubes, no DSOs
- Simplified governance
- All data loads based on optimized Request handling
- All modeling tools based on Eclipse
- All administration tools based on SAPUI5
- BW on HANA-optimized Business Content

#### Enhanced tool support to enable the pass to the HANA optimized BW objects

### Future Direction

(SAP will continue to support RDBMS platforms)



# Summary



- **SAP BW 7.4 is THE go-to-release for running BW on HANA**
- **The SAP EDW platform evolves from SAP BW on HANA - the natural entry point to SAP'S EDW strategy**
- **Every new BW release will incorporate newest HANA features**

# SAP BW 7.4 SP8-SP9 Feature Overview

Feature	Type	HANA only	Available since
New source object types for OpenODS Views (Transformations, ADSO)	Enhancement	Yes	BW 7.4 SP8
Automated Data Flow generation for OpenODS Views	Enhancement	Yes	BW 7.4 SP8
Support for UNION CompositeProviders in BW-IP scenarios	Enhancement	Yes	BW 7.4 SP8
Stacked UNION CompositeProvider	Enhancement	Yes	BW 7.4 SP8
CompositeProvider Joins with OpenODS Views	Enhancement	Yes	BW 7.4 SP8
Availibility of Advanced DataStore Objects	New Feature	Yes	BW 7.4 SP8
HANA model generation for BW Queries	Enhancement	Yes	BW 7.4 SP8
Generated SAP HANA model able to read the data from the Nearline Storage	Enhancement	Yes	BW 7.4 SP8
ABAP managed database procedure (AMDP) in Transformations	New Feature	Yes	BW 7.4 SP8
Availibility of SAP HANA dynamic tiering for SAP BW	New Feature	Yes	BW 7.4 SP8
Enhanced NLS operations (Archiving Proposals, Automated DAP generation, NLS DBA Cockpit integration)	Enhancement	No	BW 7.4 SP8
Query pruning for NLS InfoProvider	Enhancement	No	BW 7.4 SP8
NLS support for non cumulative Key Figures	Enhancement	No	BW 7.4 SP8
XXL – Attributes (Mime Types, long strings)	Enhancement	No	BW 7.4 SP8
BW Search (new eclipse UI, optimized for HANA)	Enhancement	Yes	BW 7.4 SP8
ODP Support of hierachy loads	Enhancement	No	BW 7.4 SP8
Re-modelling Tool Box support of SPOs	Enhancement	No	BW 7.4 SP8
Process Chain Monitor (mobile app)	New Feature	No	BW 7.4 SP8
Query in BWMT in eclipse	New Feature	Yes	BW 7.4 SP9

Please consider the blog: [SAP BW 7.4 feature overview and platform availibilty](#) to get an overview of all features delivered since BW 7.4 SP5



# THANK YOU

## Questions?

[SAPBWProductManagement@sap.com](mailto:SAPBWProductManagement@sap.com)

# Information

## openSAP SAP Business Warehouse powered by SAP HANA course

- 4 Weeks with videos, demonstrations and explanation focused on SAP BW 7.4 powered by SAP HANA
- Free Participation & Recordings

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