



# **DMM200 – SAP Business Warehouse 7.4, SP8 powered by SAP HANA and Roadmap**



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Product Management SAP EDW (BW/HANA)

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# SAP Business Warehouse Today

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14,500+

Customers

200

New Installations/Month

4,000+

BW 7.3/7.4 Customers

**Vast majority: Central EDW, harmonizing many source systems**

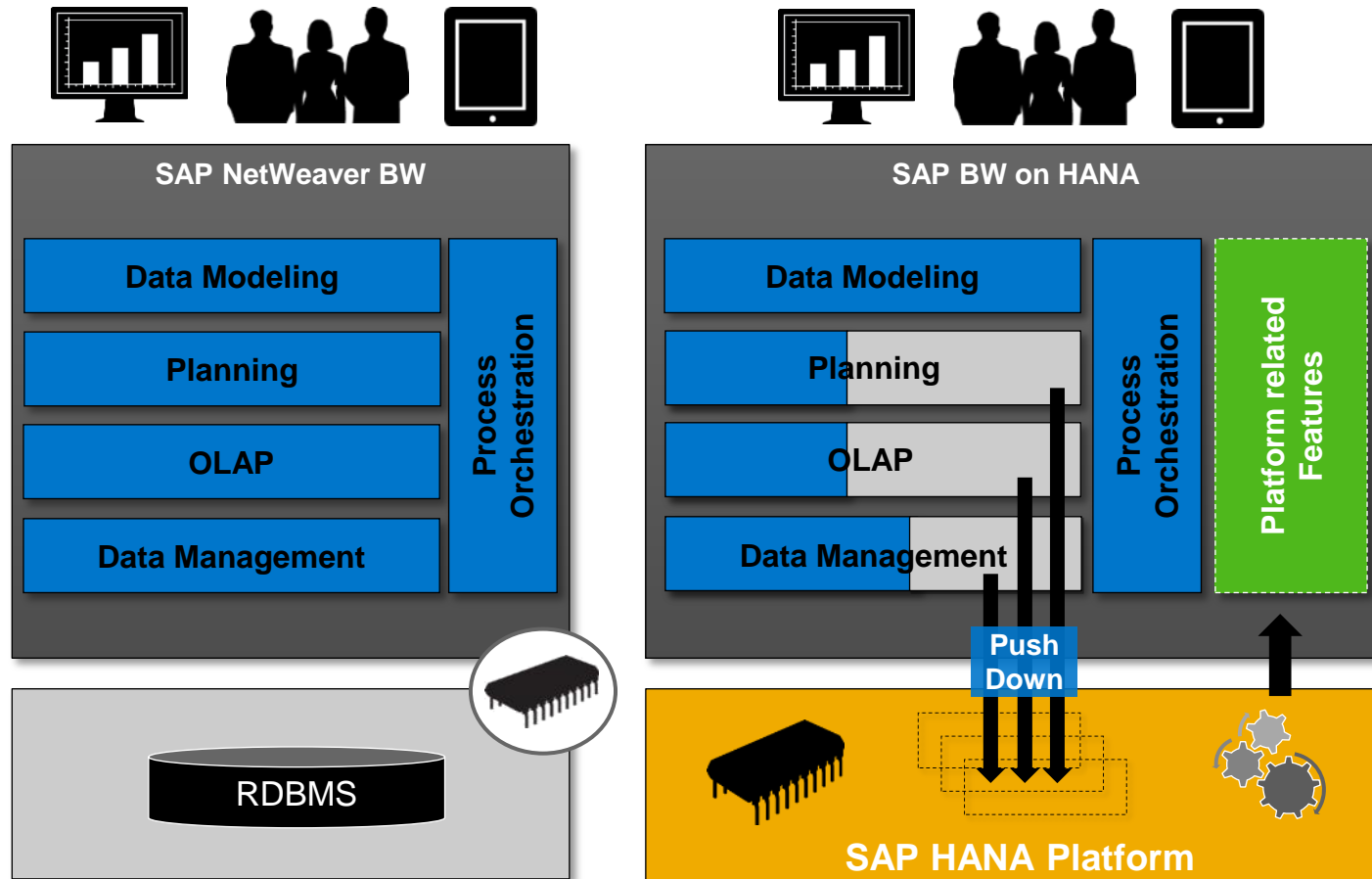
**Embedded into mission critical business processes**

1200+

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 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

## 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 powered by SAP HANA – Key Topics

**VIRTUAL DATA WAREHOUSE**

SIMPLIFICATION

PERFORMANCE

BIG DATA

PLANNING

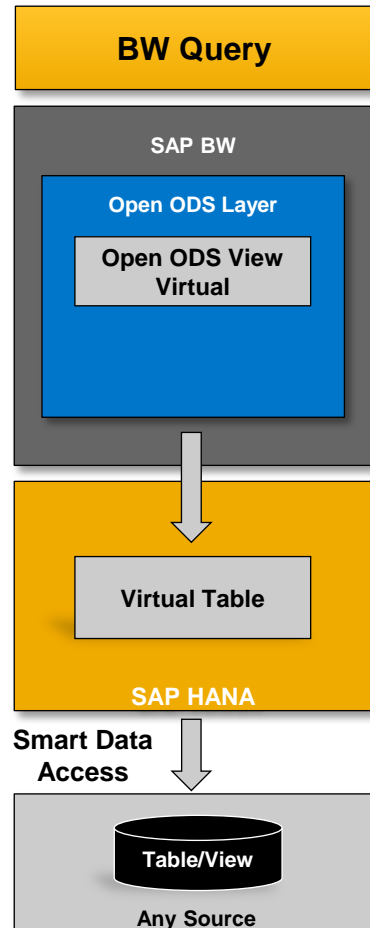
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# The Virtual BW – Open ODS Views

## 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

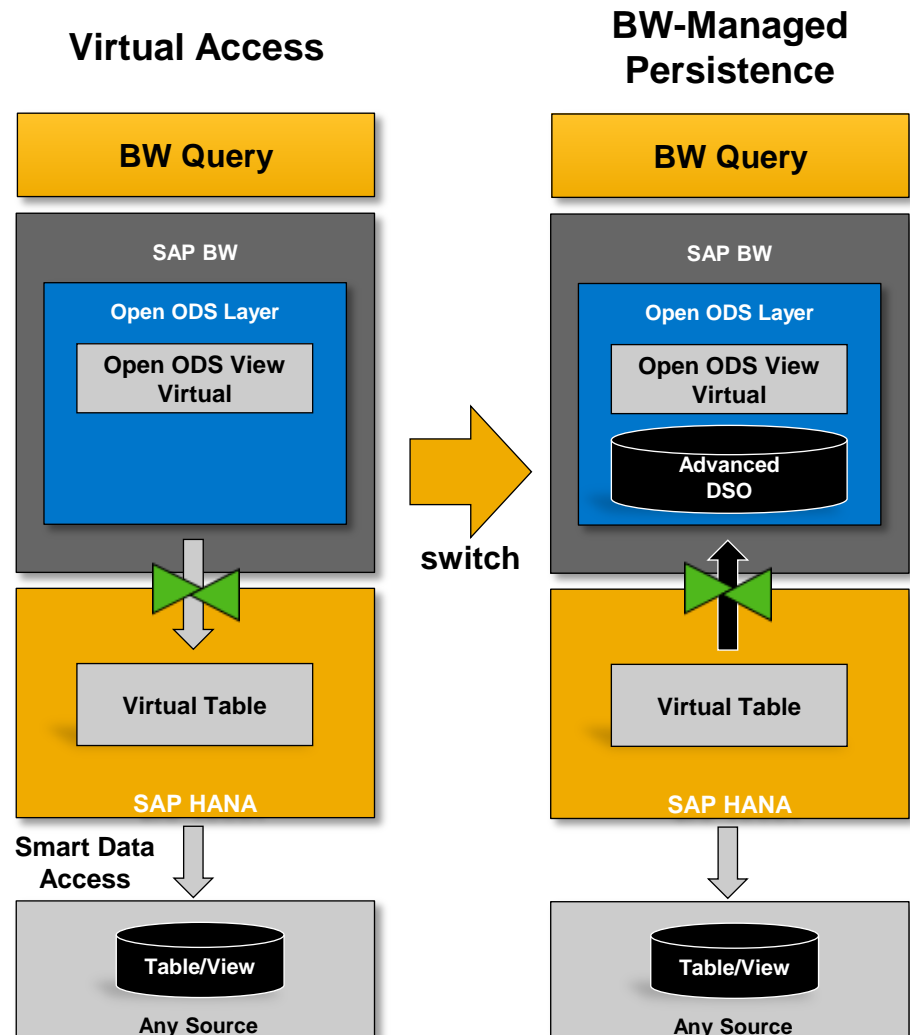
### Enhanced Business Flexibility by supporting “the logical EDW”

- 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.)

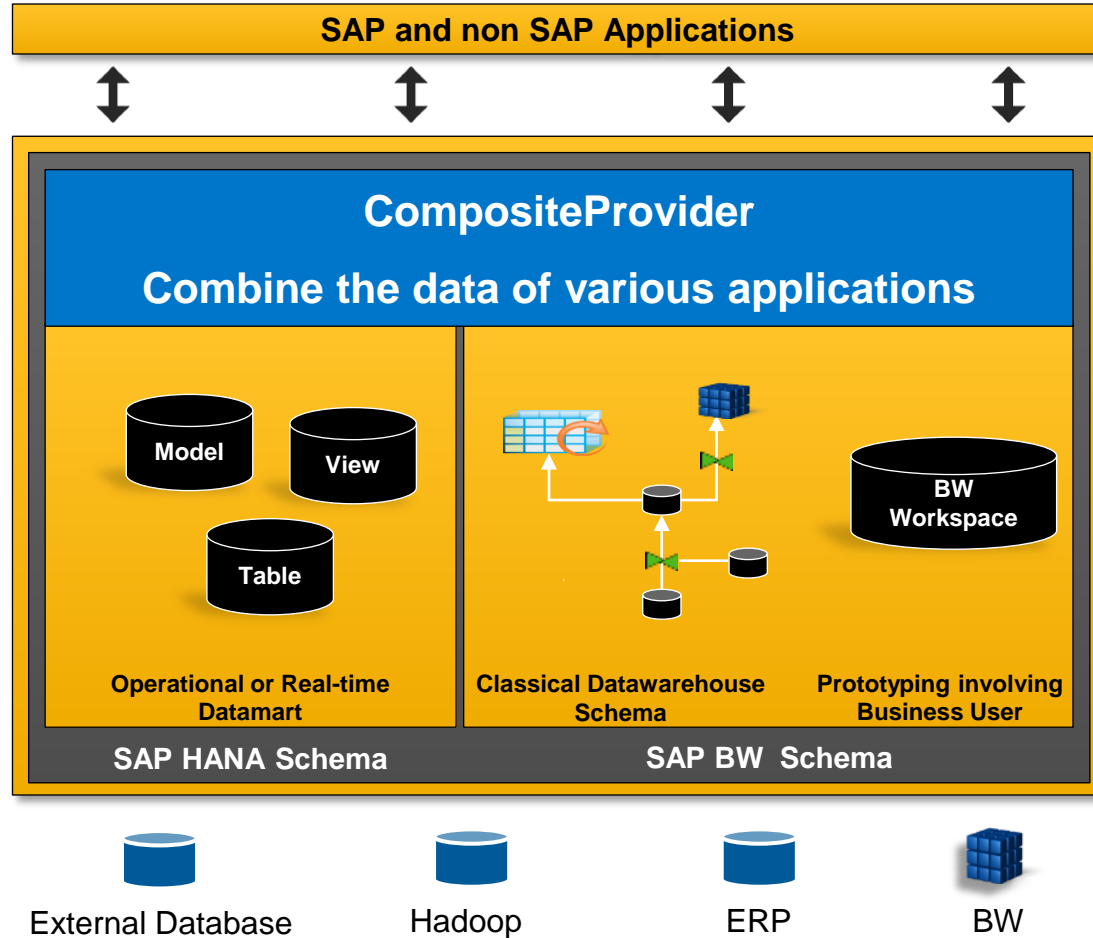
## Automated Data Flow generation to create a persistency in SAP BW

- 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

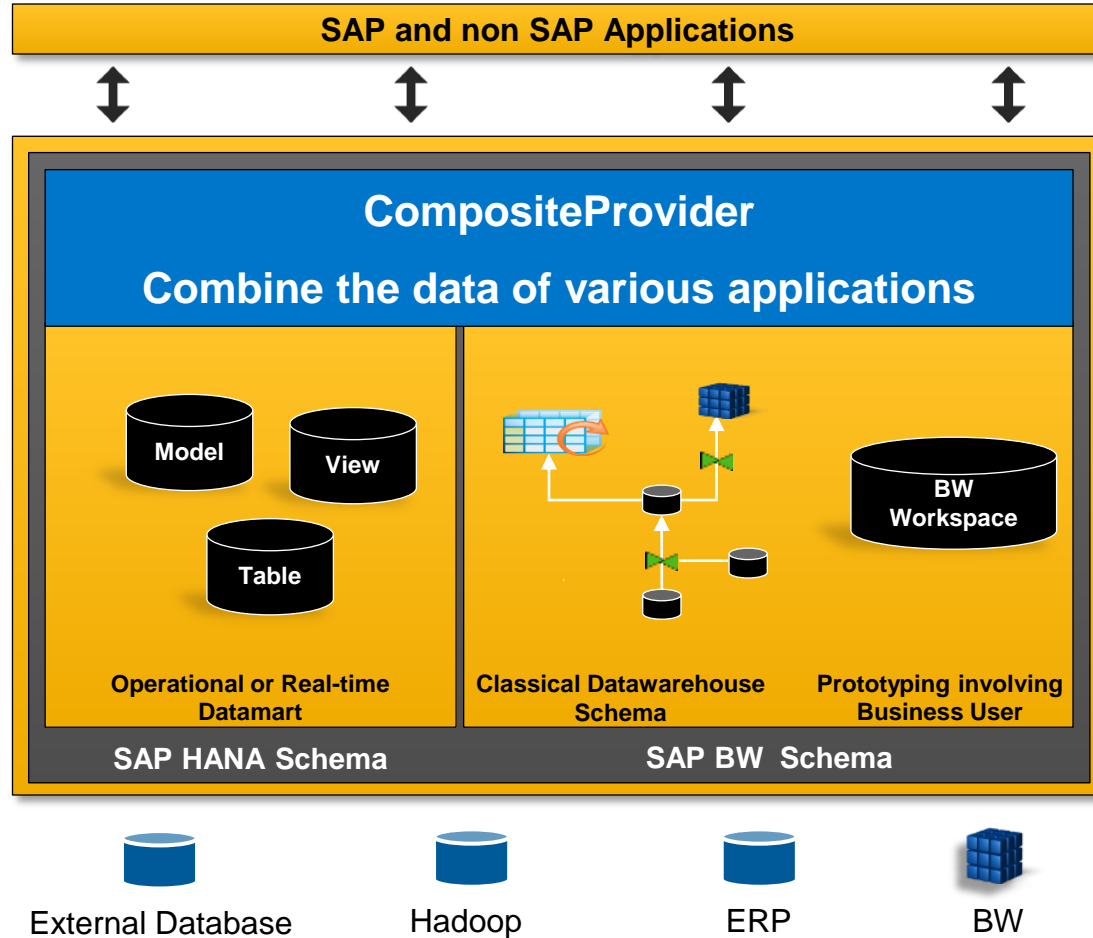
### Faster Implementations of data model

### 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 powered by SAP HANA – Key Topics

VIRTUAL DATA WAREHOUSE

**SIMPLIFICATION**

PERFORMANCE

BIG DATA

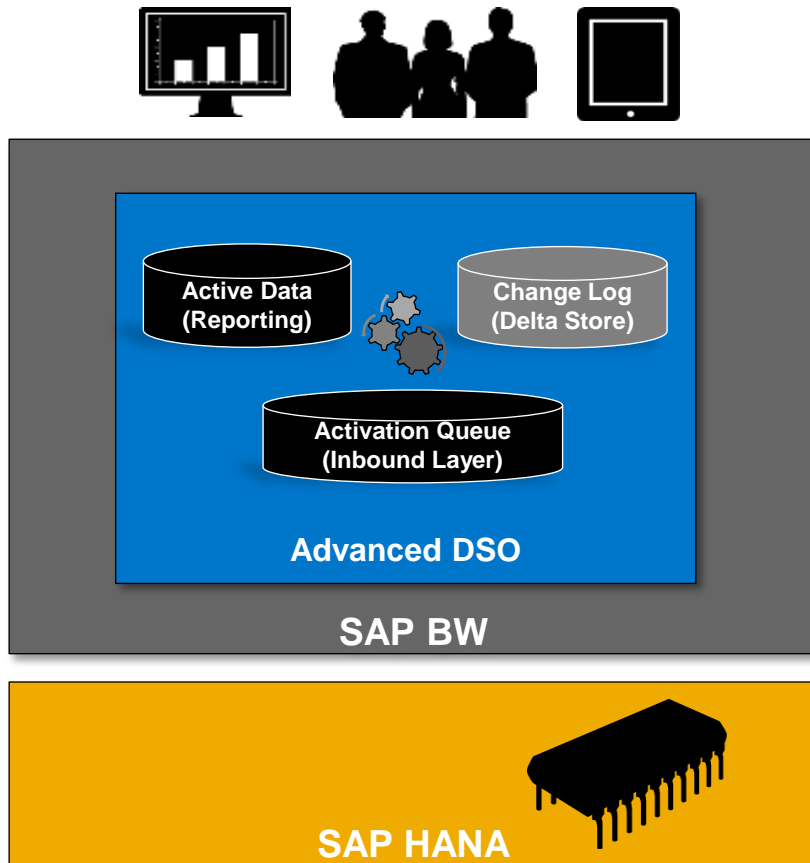
PLANNING

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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



# Simplification – Advanced DataStore Object

New with SAP BW 7.4 SP8 – eclipse based modelling experience

**Details: YUCDEMO**

**Fields**

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	OCO_AREA	CHAR	4
[LSTAR]			CHAR	6
[VTYPE]			NUMC	3

**General**

Name: OCOSTCENTER

Description: Cost Center

**Identify**

With: InfoObject OCOSTCENTER Browse...

**Data Type**

Data Type: CHAR Length: 10

**Properties**

Aggregation: NONE

Conversion exit name:

Unit/Currency field:

Sid Determination Mode: STAGING

☐ Lower Case Letters allowed

## Intuitive User Interface

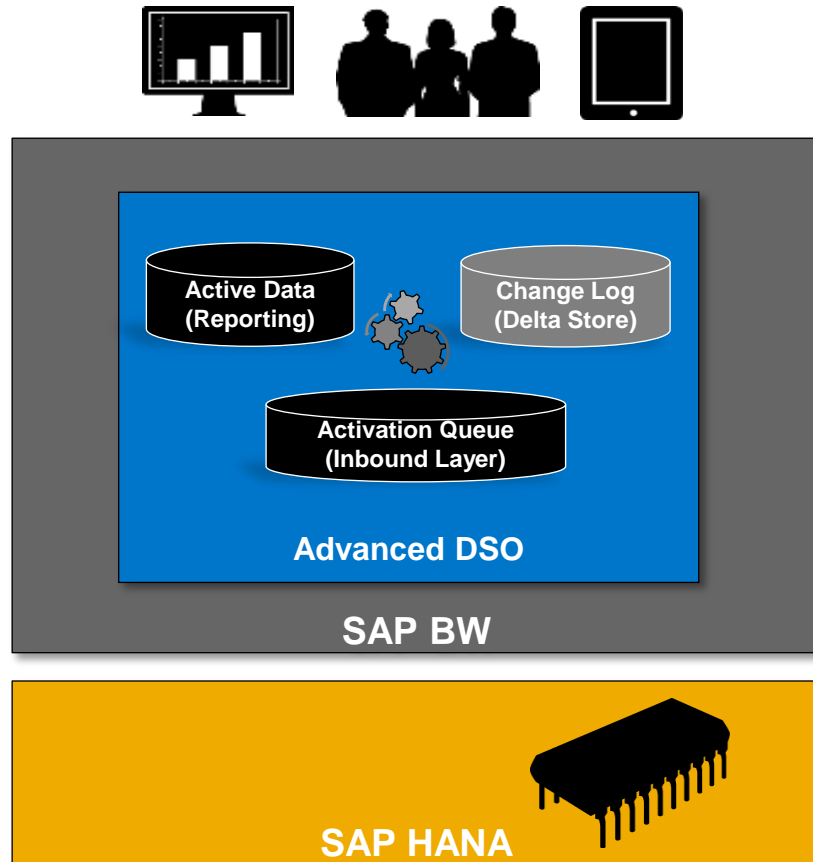
- Aligned with CompositeProvider and Open ODS Views modelling

## Benefits

- Supports agile data modelling
- Reduces implementation times massively

# Simplification – Advanced DataStore Object

Planned future direction



## Future enhancements

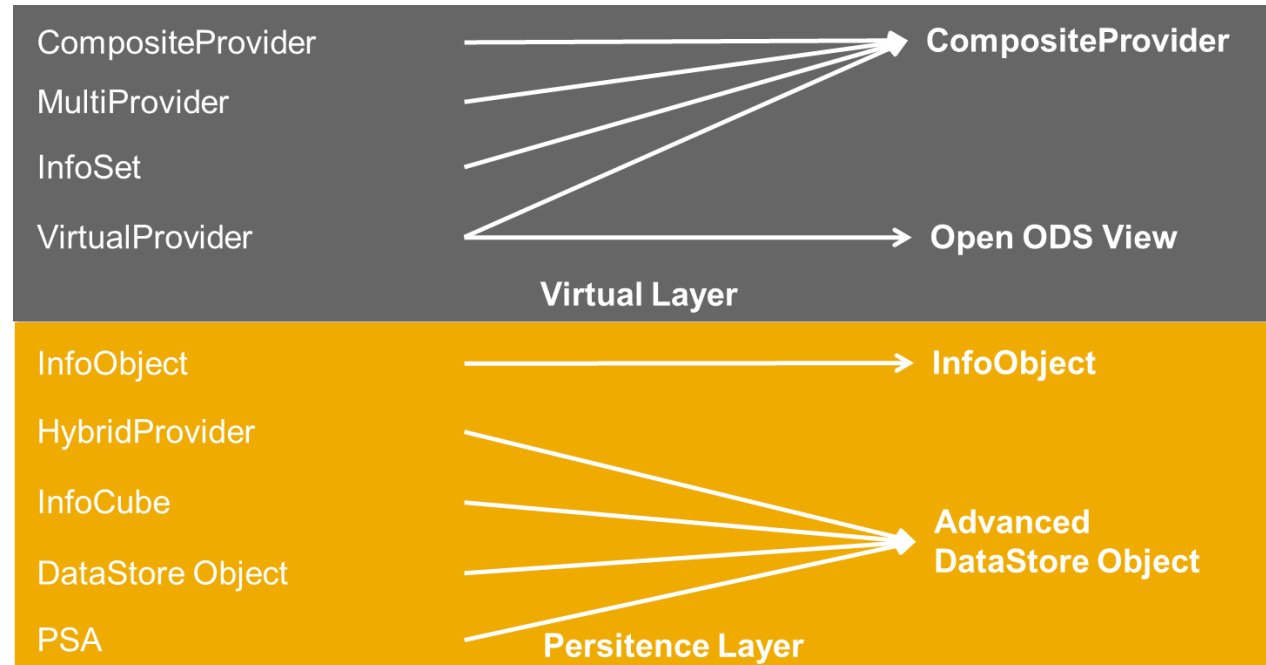
- Non-cumulative key figures
- Template based modelling
- Nearline Storage (NLS)
- Extended Table property for SAP HANA dynamic tiering
- Support of planning scenarios
- Support for direct update scenarios (write-APIs)
- Conversion tool for classic DataStore Objects and InfoCubes
- Real-Time enablement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

# Simplification – Consolidation of BW Modeling Objects

New with SAP BW 7.4 SP8

## SAP BW on RDBMS

## SAP BW 7.40 on HANA



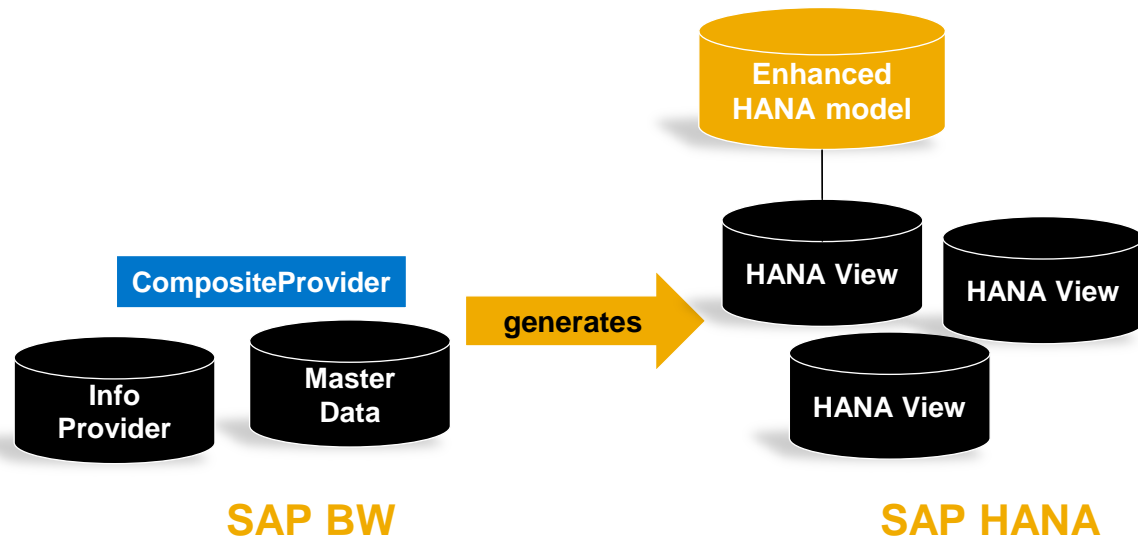
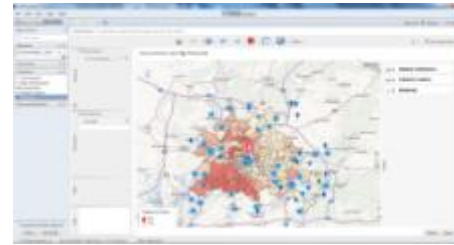
## SAP BW 7.4 on HANA consolidates existing InfoProvider

- CompositeProvider as new object to define joins between InfoProvider
- 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 InfoProvider still exist but future innovations are focusing on the consolidated objects on SAP HANA**

# Simplification – Automated generation of HANA Models

New with SAP BW 7.4 SP8



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

- Lifecycle: when the infoprovider changes the HANA model is automatically re-generated

## HANA model generation for BW Queries

- 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
  - Supports InfoCubes and DSO (with SID generation)
  - SAP HANA Smart Data Access with SAP IQ only



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

VIRTUAL DATA WAREHOUSE

SIMPLIFICATION

**PERFORMANCE**

BIG DATA

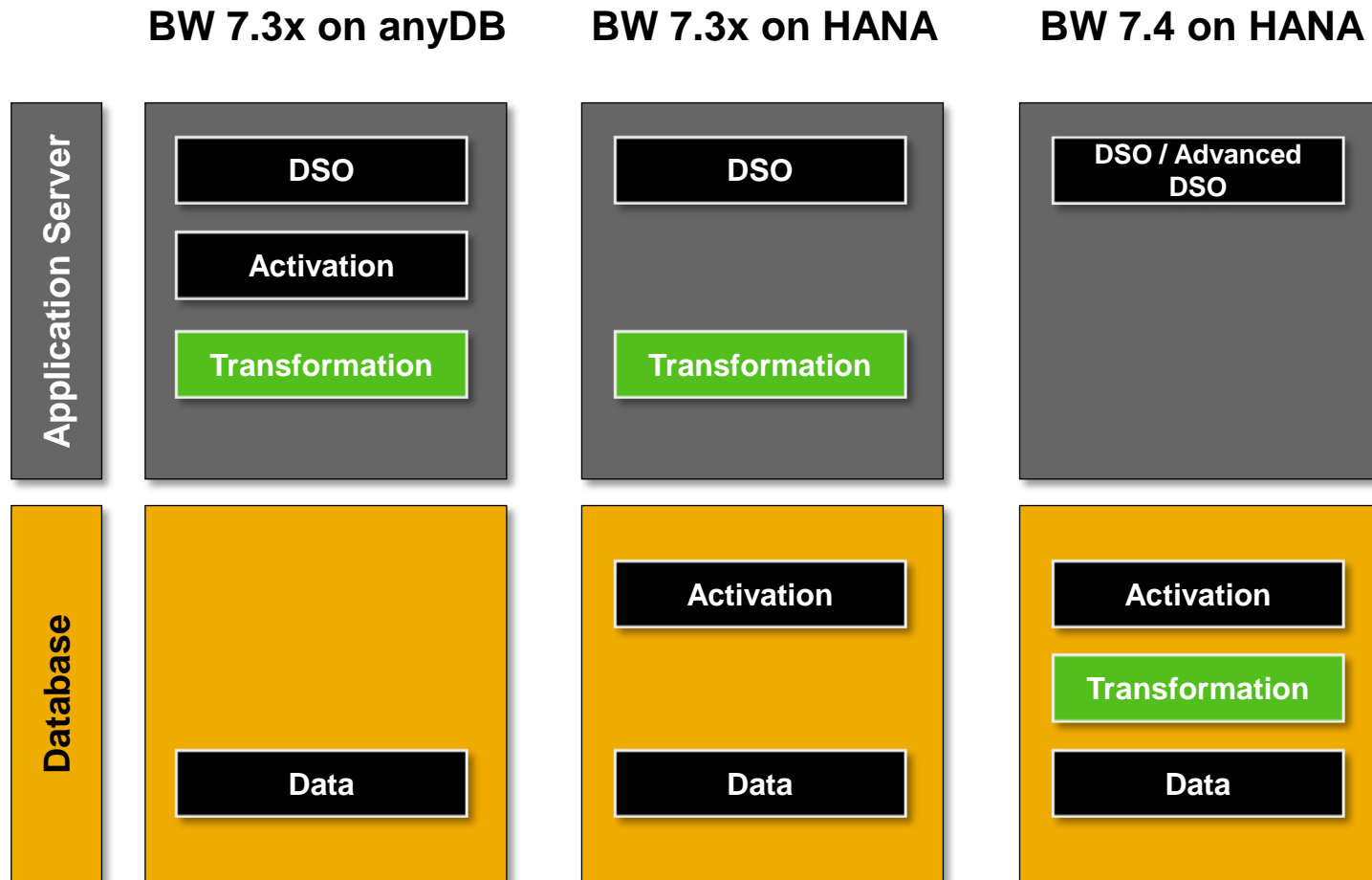
PLANNING

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# Performance – SAP HANA Optimized Transformations

## Overview & Update with SP8



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

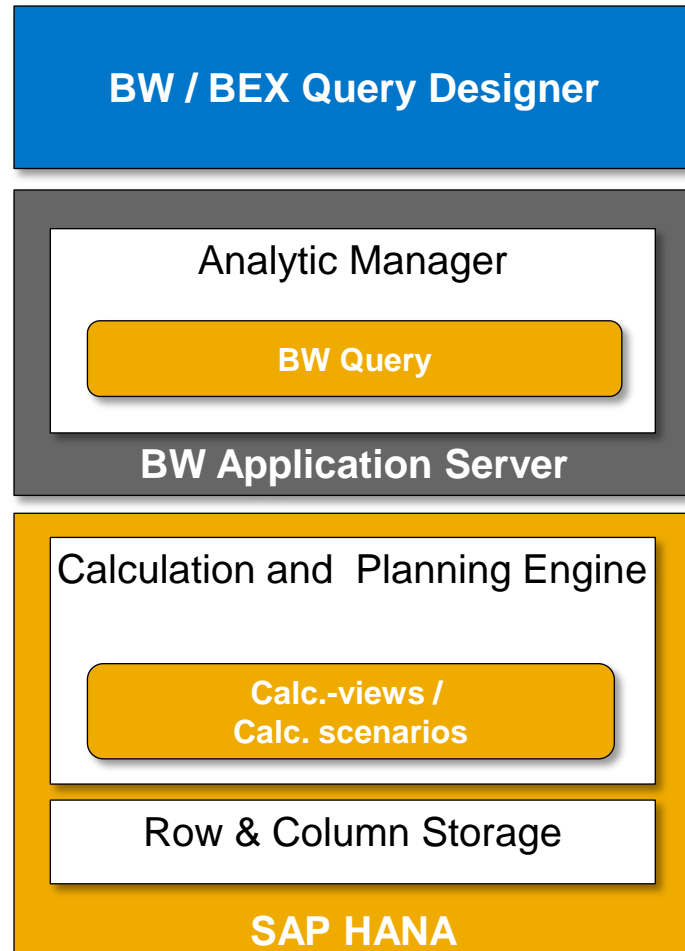
- Standard Transformations are optimized to be processed directly in SAP HANA where possible

### 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 powered by SAP HANA – Key Topics

VIRTUAL DATA WAREHOUSE

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**BIG DATA**

PLANNING

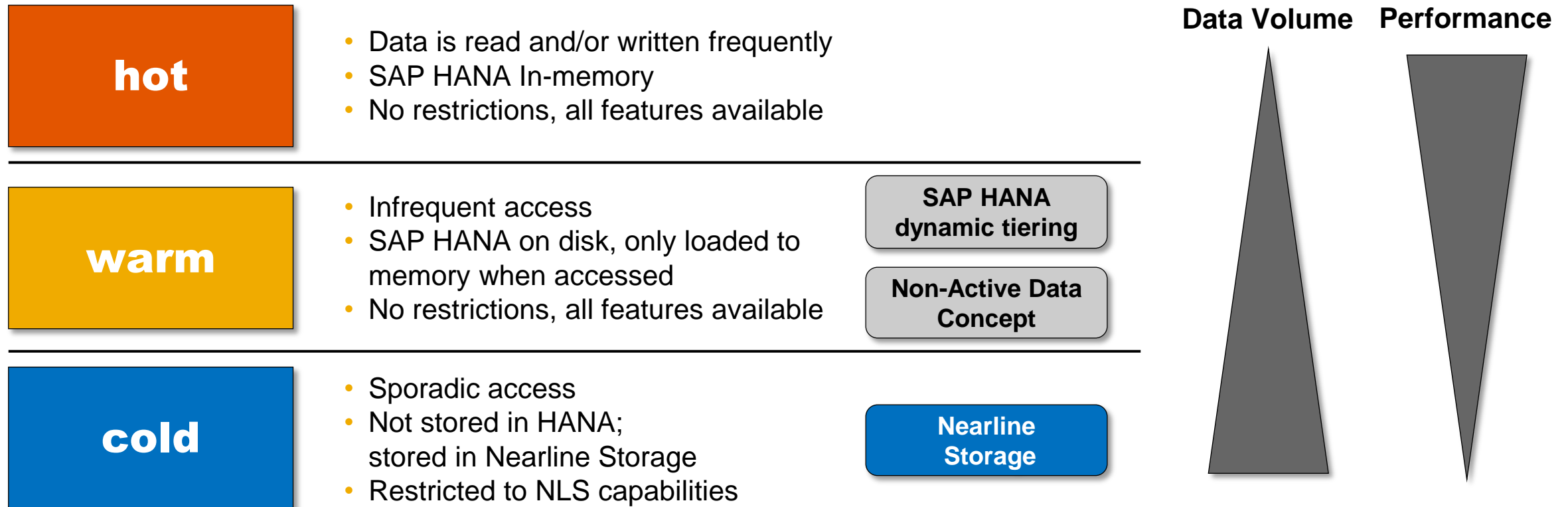
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# Big Data – Multi Temperature Data Management in SAP BW

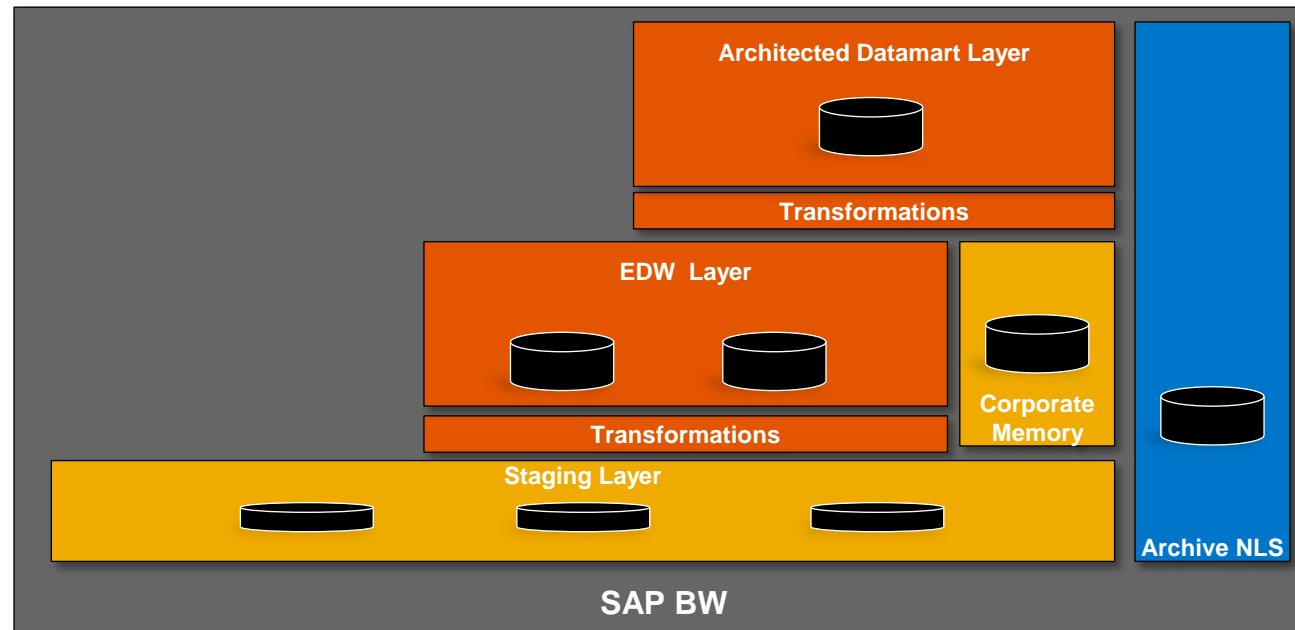
## Overview



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

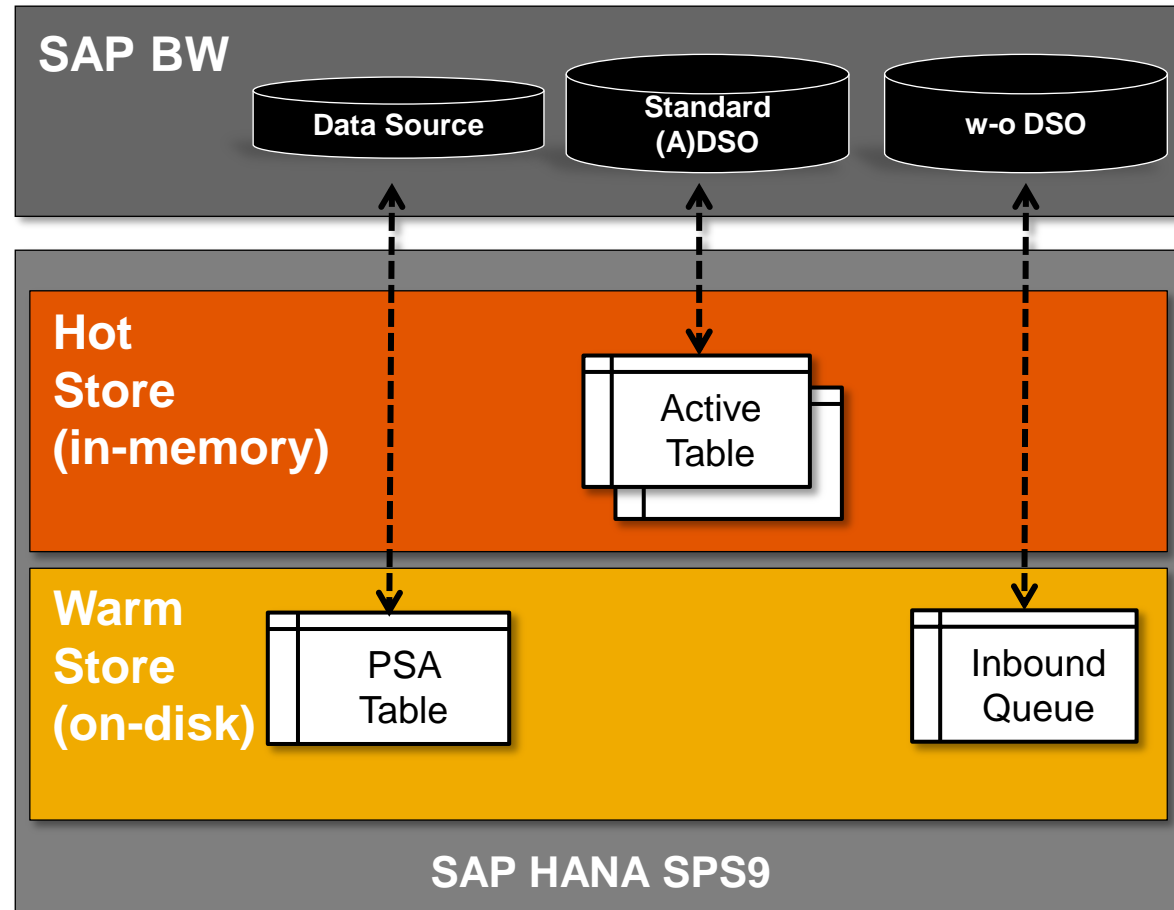
- limited reporting, limited HANA-native functions

### 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

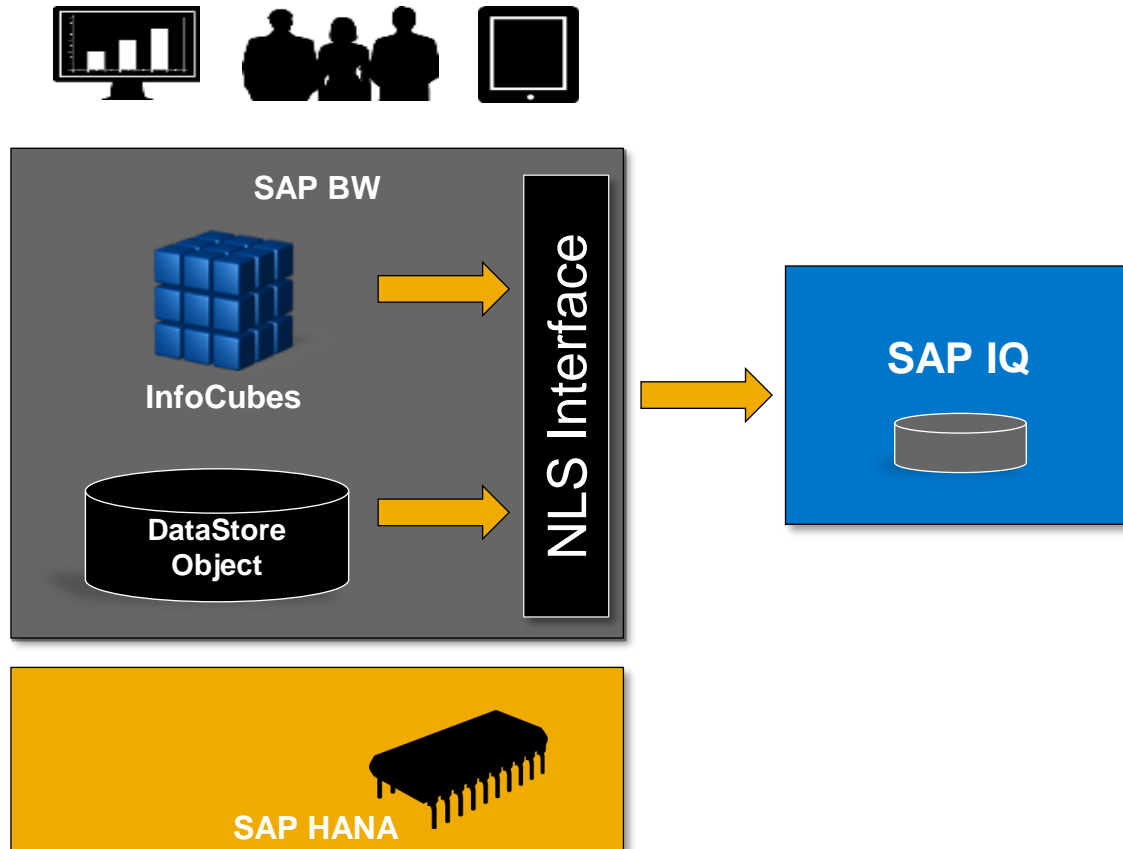
- Optimize data persistence in system landscape
- Independent server
- Write once, read many
- Usually lower SLAs
- Arbitrary (semantic) data slices

**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 powered by SAP HANA – Key Topics

VIRTUAL DATA WAREHOUSE

SIMPLIFICATION

PERFORMANCE

BIG DATA

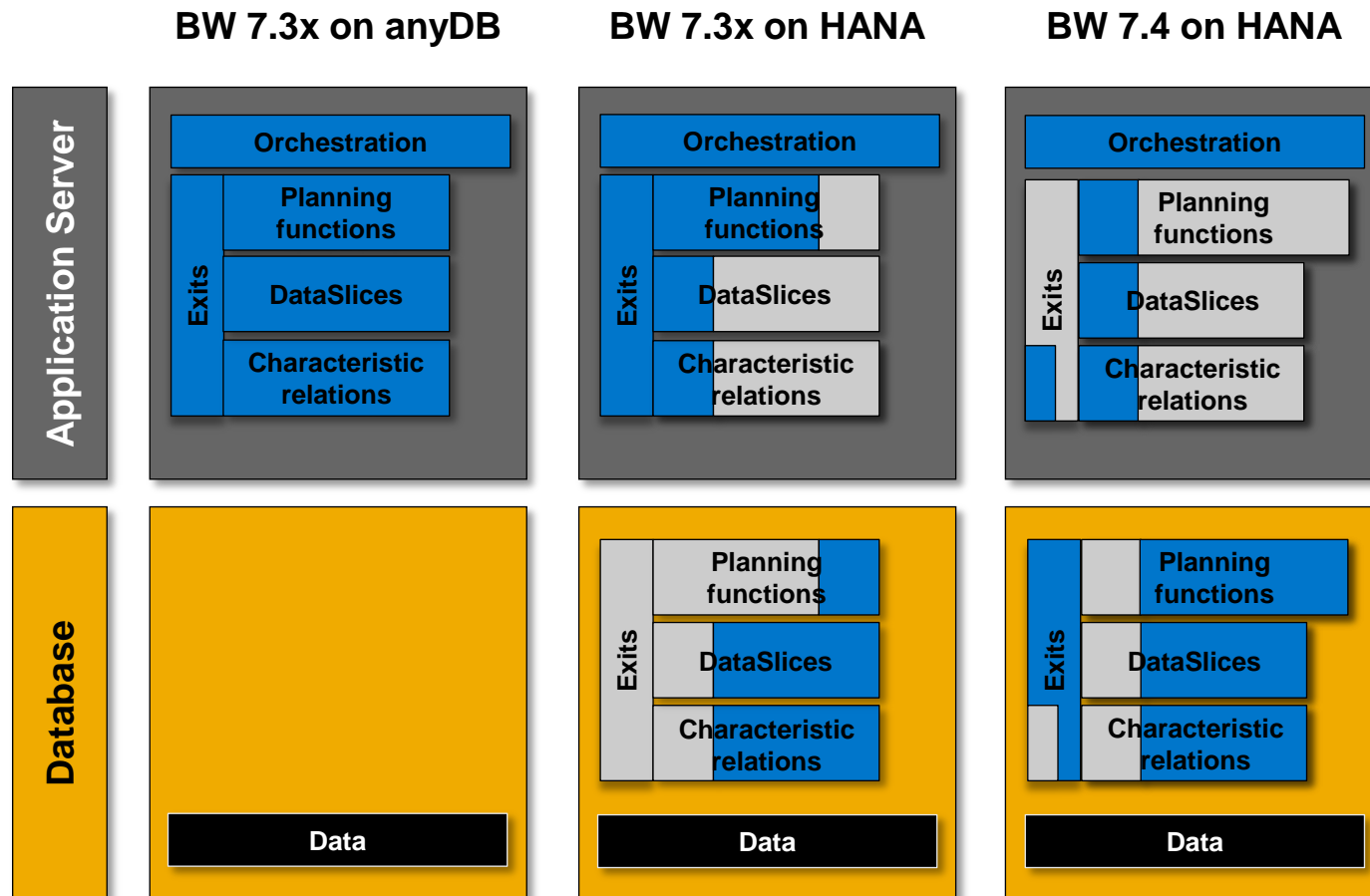
**PLANNING**

MISCELLANEOUS



# 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

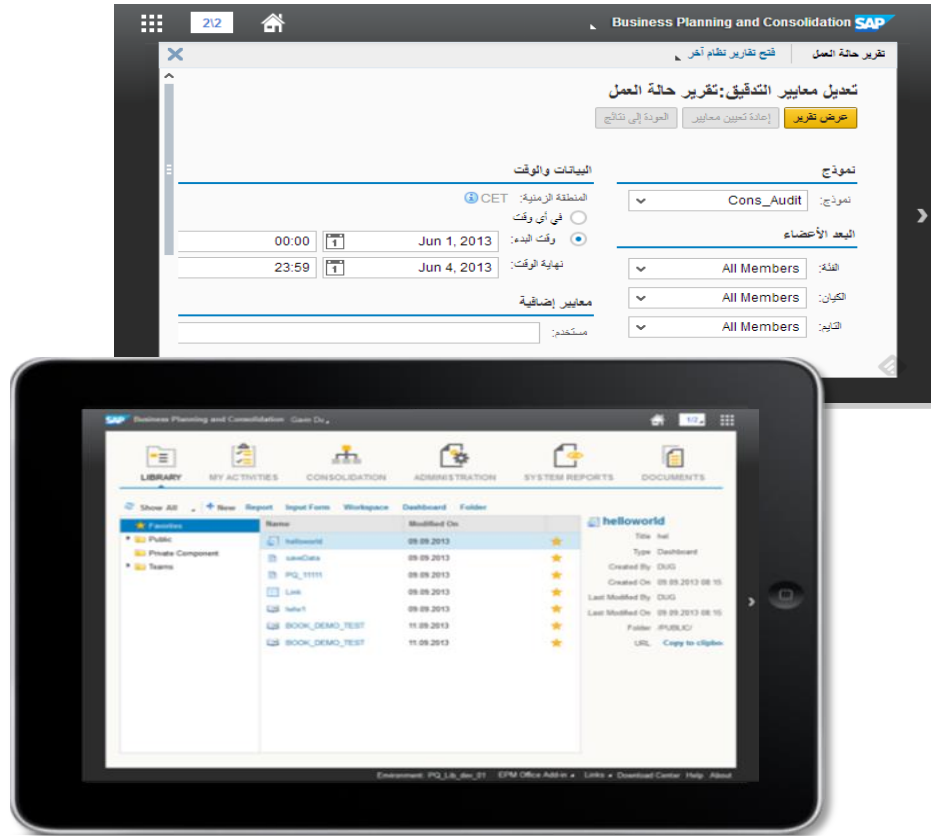
- Support of planning scenarios based on Unions

## 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

BIG DATA

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

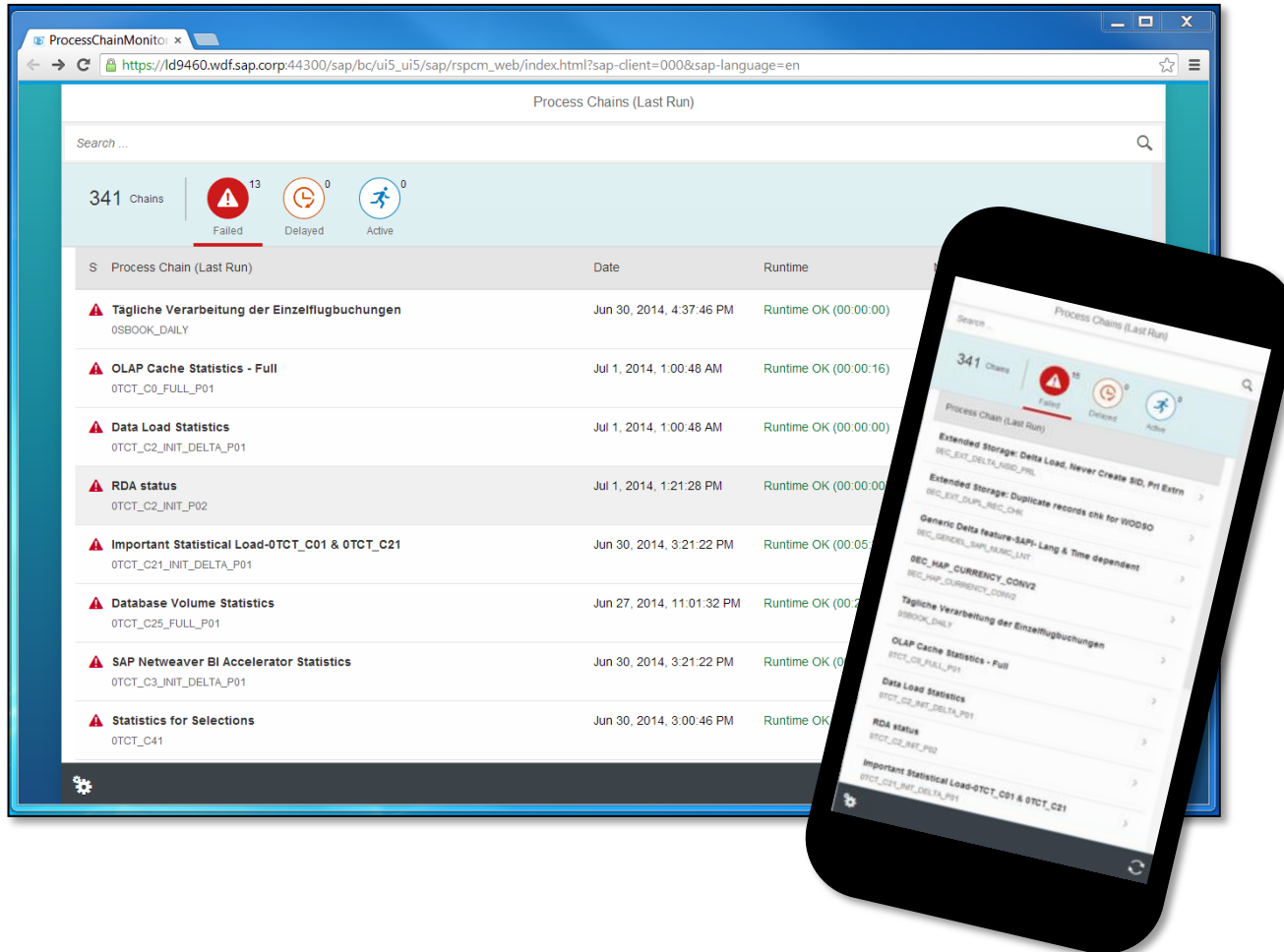
## **Operational Data Provisioning (ODP)**

- 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

## Product Roadmap Overview – Key Themes and Capabilities

### SAP BW 7.4 SP8 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 SP8)

### Upcoming planned release

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

- Hierarchy processing pushed down leveraging HANA technology

#### Simplified data modeling

- Additional CompositeProvider capabilities
- Eclipse based query designer
- Advanced DSO e.g. inventory key figures

#### BIG Data scenarios

- HANA dynamic tiering for Advanced DSO.
- NLS: Exceptional inserts, updates and deletes

#### SAP HANA Enterprise Cloud

- Enable fast and easy cloud deployment

#### Exposing BW data models for SQL consumption

- Support additional BEx query features for generation of HANA models

#### “BPC Embedded Model”

- Combining flexible planning functionality for Line of Business with governance of central IT

### Planned Innovations

(Release SAP BW 7.4 SP9/SP10)

### Future innovations

#### 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

- Further evolve data lifecycle management with SAP IQ
- HANA dynamic tiering enhancements
- Further HADOOP/BIG Data integration

#### SAP HANA Data Warehousing Services

- 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

### 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**

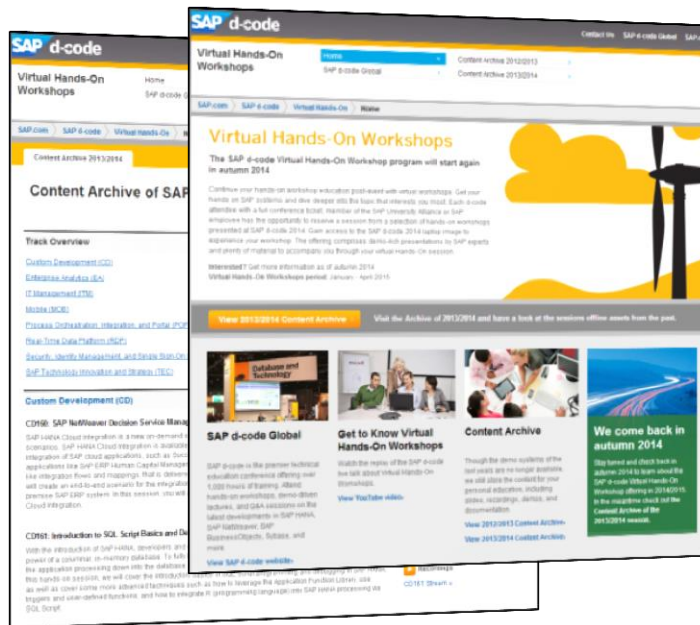
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## Continue your SAP d-code education after the event!

### SAP d-code Virtual Hands-on Workshops

- Access hands-on workshops post-event
- Starting January 2015
- Complementary with your SAP d-code registration

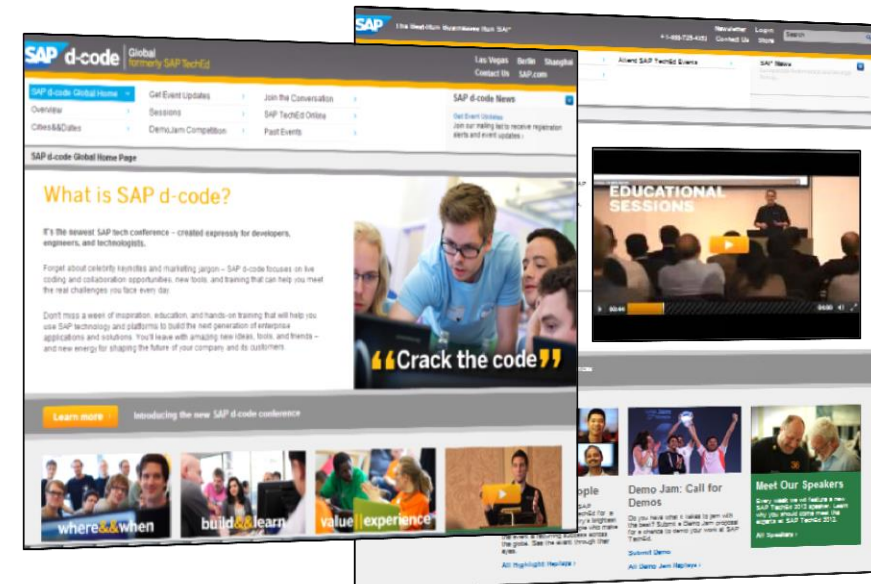
<http://sapdcodehandson.sap.com>



### SAP d-code Online

- Access replays of keynotes, Demo Jam, SAP d-code live interviews, select lecture sessions, and more!
- Hands-on replays

<http://sapdcode.com/online>



# Further Information

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## SAP Public Web

<http://scn.sap.com/community/bw-hana>

<http://www.saphana.com/community/learn/solutions/net-weaver-bw>

## SAP Education and Certification Opportunities

[SAP Education Training BW362 - SAP BW on SAP HANA](#)

[SAP Certified Application Specialist \(Edition 2014\) - SAP BW powered by SAP HANA](#)

## Watch SAP d-code Online

[www.sapcode.com/online](http://www.sapcode.com/online)

## TechEd & d-code

DMM204 SAP HANA Live and SAP BW – a perfect match

# Feedback

Please complete your session evaluation for  
**DMM200.**

Thanks for attending this d-code session.





# Thank you

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# Information

## **UPCOMING:**

### **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 & Certification

<https://open.sap.com/>



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