

# Data Tiering in BW/4HANA and SAP BW on HANA - Roadmap Update

February 2017

The SAP logo is located in the bottom left corner of the image. It consists of the letters 'SAP' in a bold, white, sans-serif font, set against a blue rectangular background. The background of the entire slide is a photograph of a modern warehouse interior, featuring high ceilings, industrial lighting, and rows of metal shelving units. Some shelves are filled with blue plastic bins, while others hold pallets of goods wrapped in clear plastic. Yellow safety lines are painted on the floor to delineate aisles. The overall atmosphere is clean, organized, and industrial.

# Disclaimer

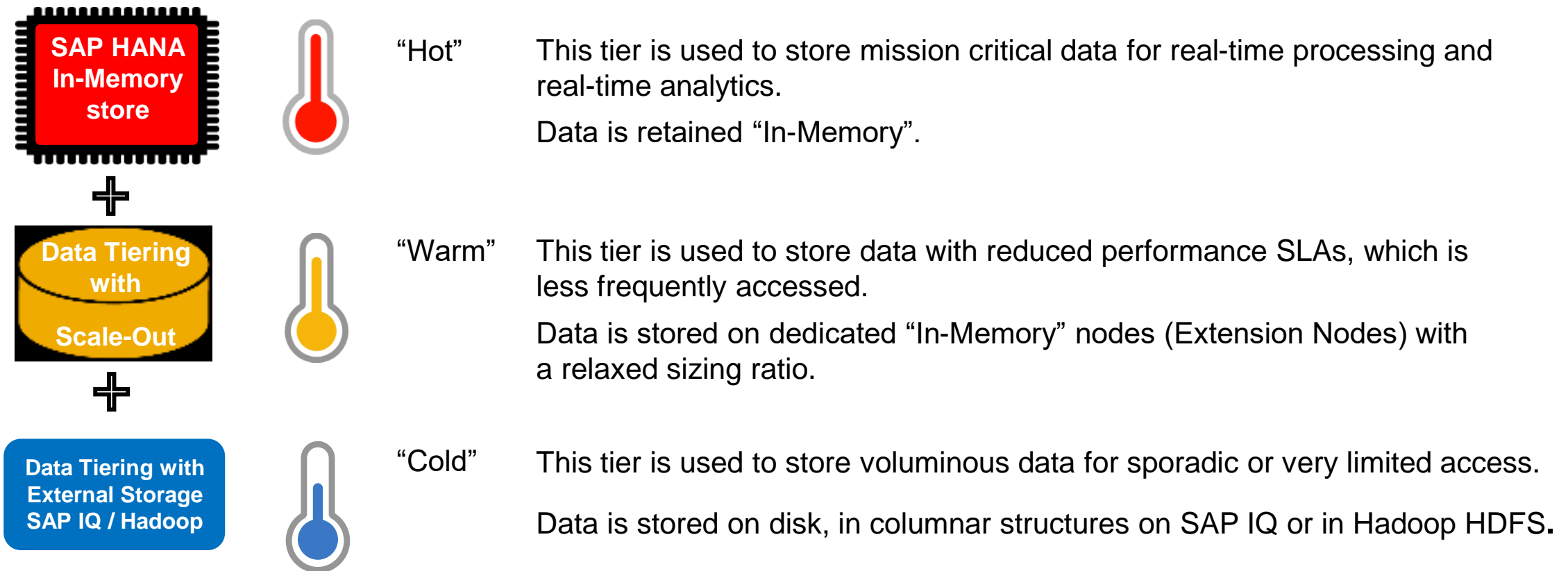
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# SAP HANA Data Tiering Technology

## Overview

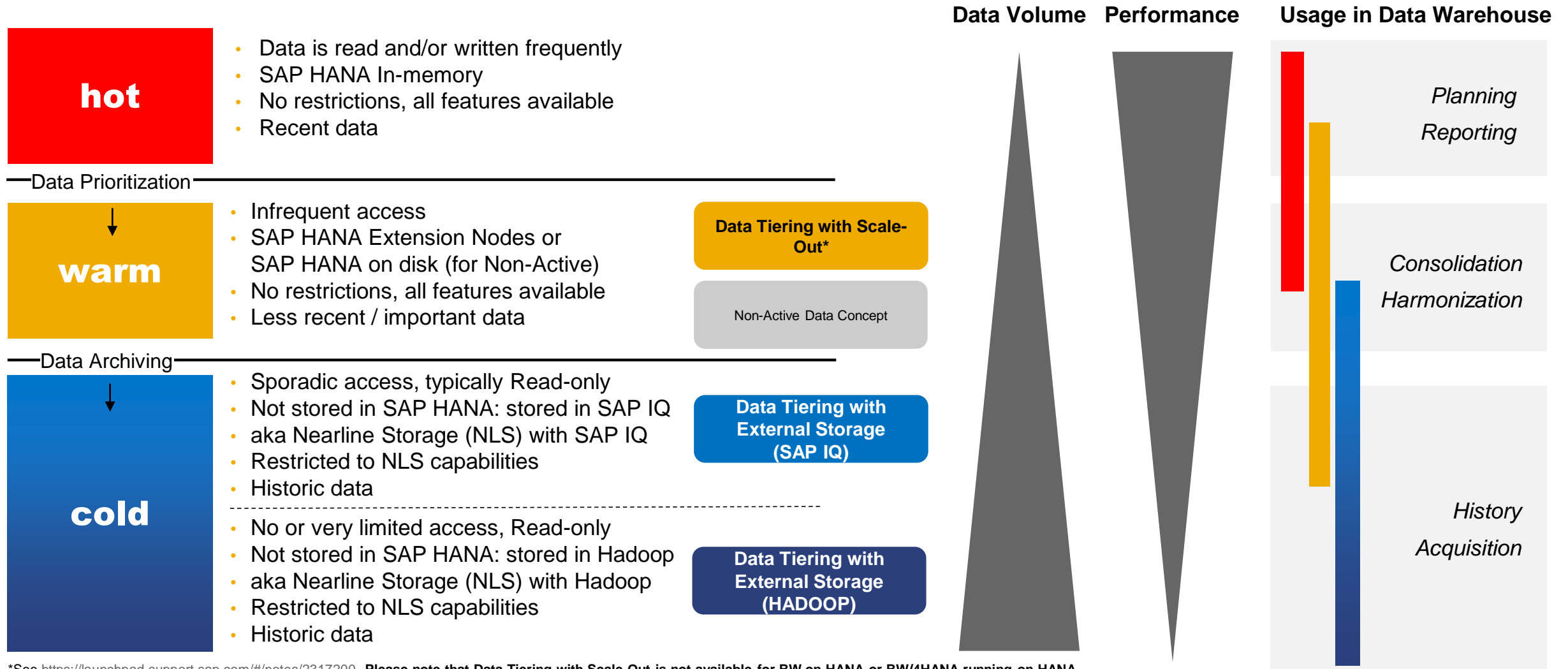
Data Tiering is the assignment of data to various tiers/storage media based upon data type, operational usefulness, performance requirements, frequency of access and security requirements of the data.





# Data Tiering in BW/4HANA and SAP BW on HANA

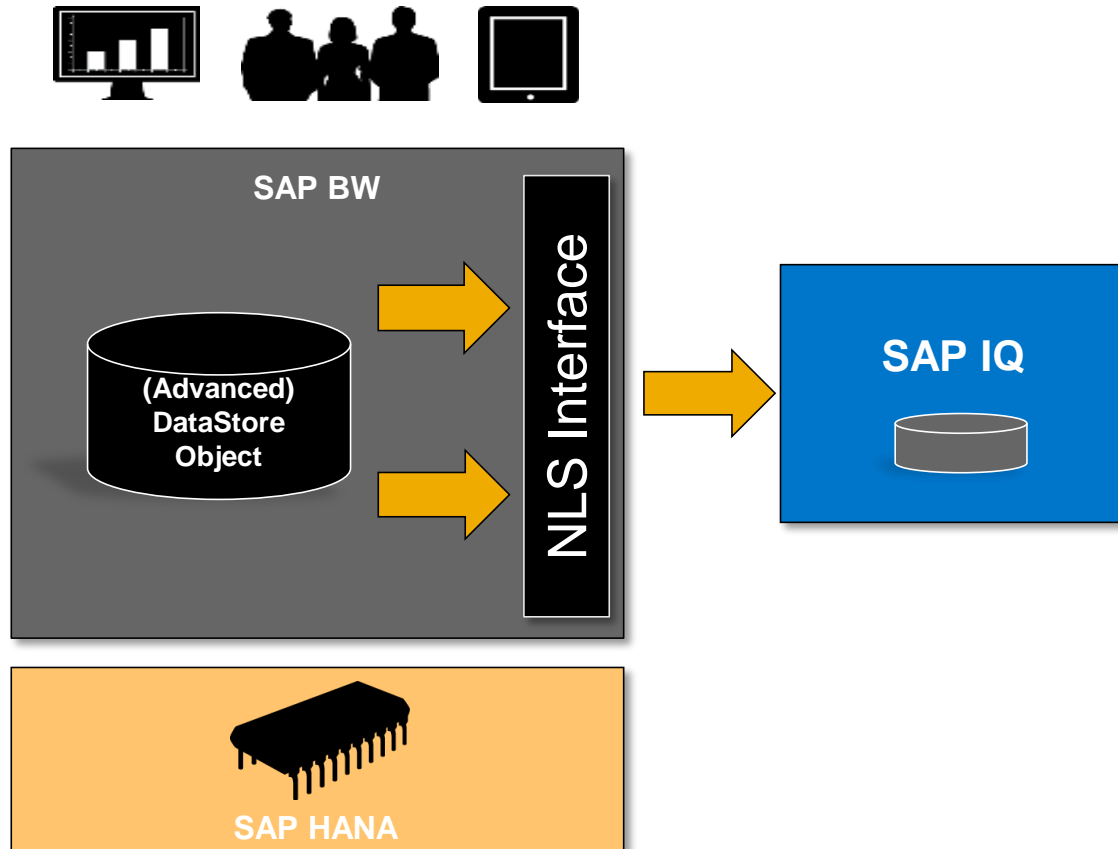
## Overview



\*See <https://launchpad.support.sap.com/#/notes/2317200>. Please note that Data Tiering with Scale-Out is not available for BW on HANA or BW/4HANA running on HANA single host systems (Minimum system requirement: 1 master node (hot) and 1 extension node).

# Nearline Storage (NLS) with SAP IQ

Current status with SAP BW >= 7.50 SP4 on HANA and BW/4HANA >= SP00



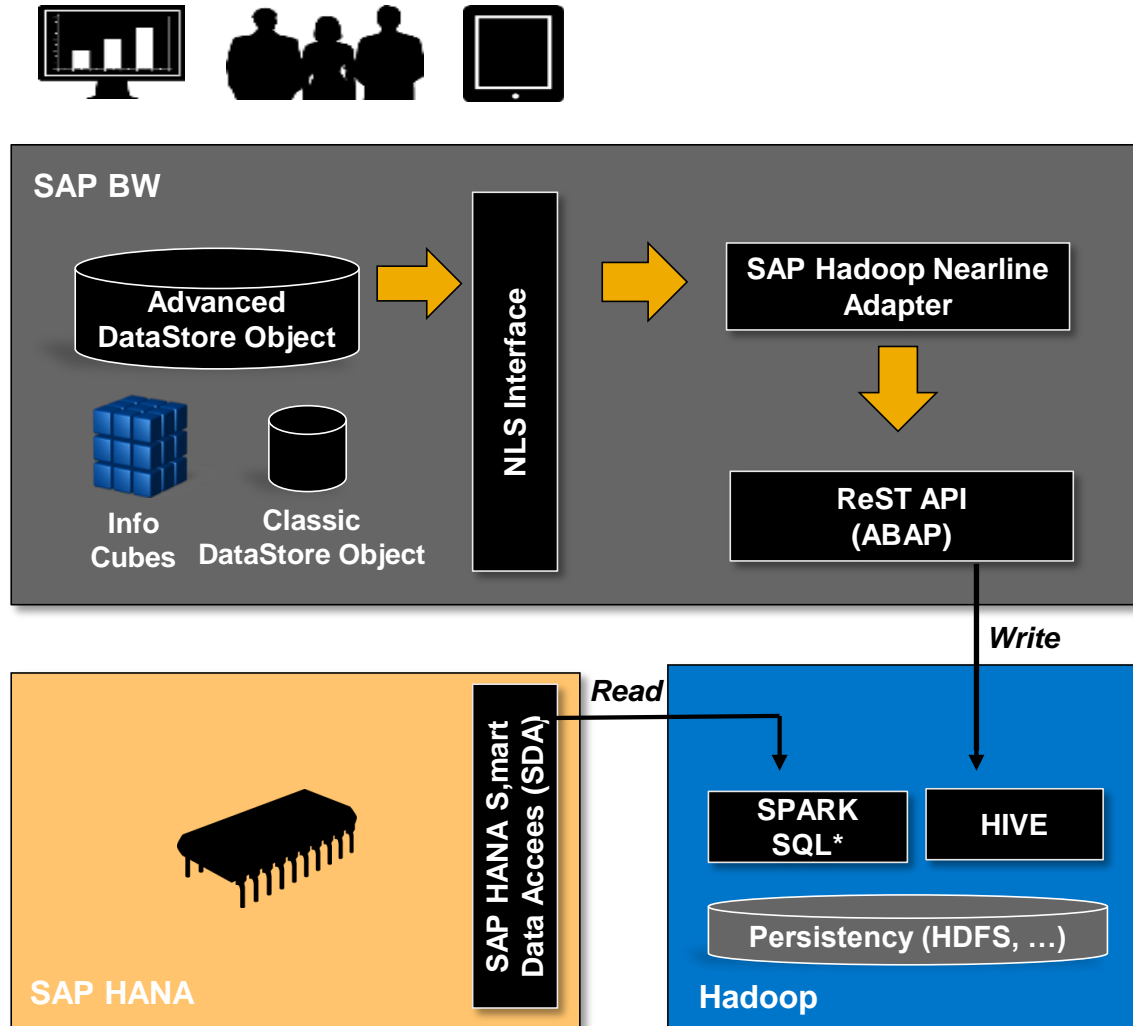
## Nearline Storage with SAP IQ

- NLS support for most Advanced DataStore Object types (see above next slide)\*
- Reporting value help (F4) can display posted values from near-line storage for Advanced DataStore Objects
- CompositeProvider can use Advanced DataStore Objects with NLS in specific join scenarios
- BW process type to create database statistics for NLS accesses (via Virtual Tables)
- Partner Interface for Nearline Storage on Advanced DataStore Object
- Mass Maintenance Support including Data Archiving Processes of Advanced DataStore Objects

\* < SAP BW 7.50 SP4: See [SAP Note 2215265](#)

# Nearline Storage (NLS) with Hadoop

Available since SAP BW 7.50 SP4 on HANA and BW/4HANA SP00



## Nearline Storage on Hadoop

- Available for all NLS supported BW Objects / Object Types (see next slide)
- Available for BW on HANA (query access via HANA SDA) and BW on RDBMS (no query access)
- BW only solution at this time
- **Creation** of Nearline Storage Table Definitions via HIVE
- **Archiving** of Data (file based, default format: ORC) directly to HDFS
- **Restoring** of Data via ReST API or HANA Smart Data Access (SDA)
- **Querying** via HANA Smart Data Access only

For more information see [SAP Note 2363218 - Hadoop NLS: Information, Recommendations and Limitations](#)

# Nearline Storage for Advanced DataStore Objects

Availability Overview for Specific Object Properties

<b>Activate Data</b>	<b>Setting</b>	<b>BW 7.50 SP1</b>	<b>BW 7.50 SP4 BW/4HANA SP1</b>	<b>Future Direction</b>
Yes	Write Change Log	Available	Available	-
Yes	All Characteristics are Key	Available	Available	-
Yes	All Characteristics are Key, Planning Mode	In Staging Mode	In Staging Mode	-
Yes	Keep Inbound Data	N/A	N/A	Not planned
Yes	Inventory	N/A	N/A	Planned
No	None	N/A	Available	-
No	Direct Update	Available	Available	-

# Data Tiering in SAP BW/4HANA and SAP BW

## Roadmap for Nearline Storage and SAP BW/4HANA Data Tiering Optimization (DTO)

### Today 7.50 SP04 / BW/4HANA SP01

#### Nearline Storage

- Supporting most Advanced DataStore Object types
- Mass Maintenance Support to include Data Archiving Processes on Advanced DataStore Objects
- Data Transfer Processes loading from Nearline Stores of “Advanced DataStore Objects without activation” (BW 750 SP5 / BW/4 SP1)
- Nearline Storage on Hadoop
- Partner Interface for Nearline Storage on Advanced DataStore Object (only BW 7.50 SP4 – no NLS partner support in BW/4HANA)
- DB Space oriented partitioning mode for SAP NLS IQ
- Nearline Storage Data Volume Statistics (incl. ABAP CDS View based reporting)

### BW

### Mid Term Planned for H1 2017

#### Nearline Storage

- Deletion of Nearline Storage Requests for Advanced DataStore Objects (750 SP7 / BW/4 SP4)
- Transfer of Classic DataStore Objects / InfoCubes to Advanced DataStore Object incl. Nearline Store

#### BW/4HANA Data Tiering Optimization

- New data tiering solution in BW based on data temperature and partitioning definition in Advanced Data Store Objects

### Future Direction\*

#### BW/4HANA Data Tiering Optimization

- Archiving of Inventory ADSOs with BW/4 DTO or Nearline Storage
- SAP HANA Vora integration for external storage in Hadoop
- Automation and User Interface Improvements
- Supporting data movement scenarios for cold data (updates to cold data)
- Support for conversion of Data Archiving Processes (NLS) to BW/4HANA Data Tiering Optimization

\*This is the current state of planning and may be changed by SAP at any time



# Data Tiering Optimization in BW/4HANA

## Positioning

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### **The new, strategic BW/4HANA Data Tiering Optimization (DTO) approach will offer**

- One data tiering approach for hot data (HANA), warm data (Data Tiering with Extension Nodes) and cold data (External Storage in SAP IQ or Hadoop)
- Central definition of data temperature based on Advanced DataStore Object Partitions
- Displacement of data to defined storage as simple and periodic housekeeping activity (TCO reduction)
- Seamless conversion or co-existence with existing BW NLS IQ / Hadoop approach (because of sharing technical concepts for cold data storage such as locking of archived data ranges)
- **Publication of further technical details with the availability of BW/4HANA SP04 in Q2 2017**

### **Nearline Storage to SAP IQ and Hadoop are still supported in BW/4HANA and will offer**

- Continuity for data archiving scenarios already implemented with BW NLS IQ / Hadoop (protection of past investments) before adopting the new BW/4HANA Data Tiering Optimization
- Support for advanced data archiving scenarios not in scope of BW/4HANA Data Tiering Optimization

# APPENDIX

# SAP-NLS Community

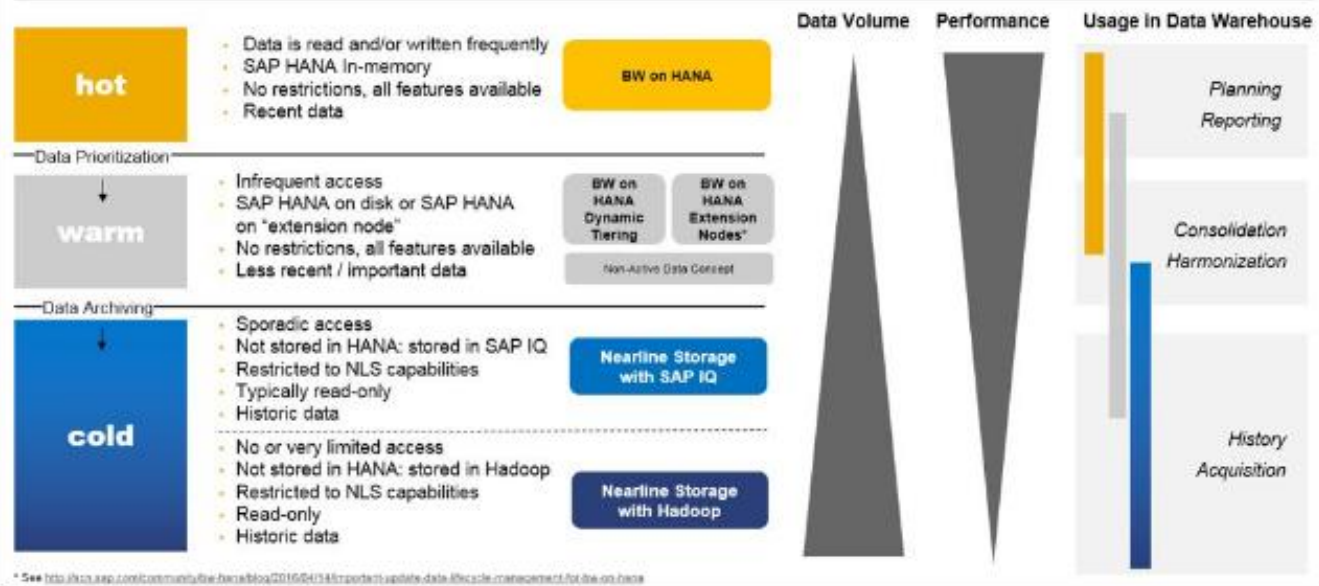
<https://blogs.sap.com/2016/10/12/sap-nls-solution-sap-bw/>



## Table of Content

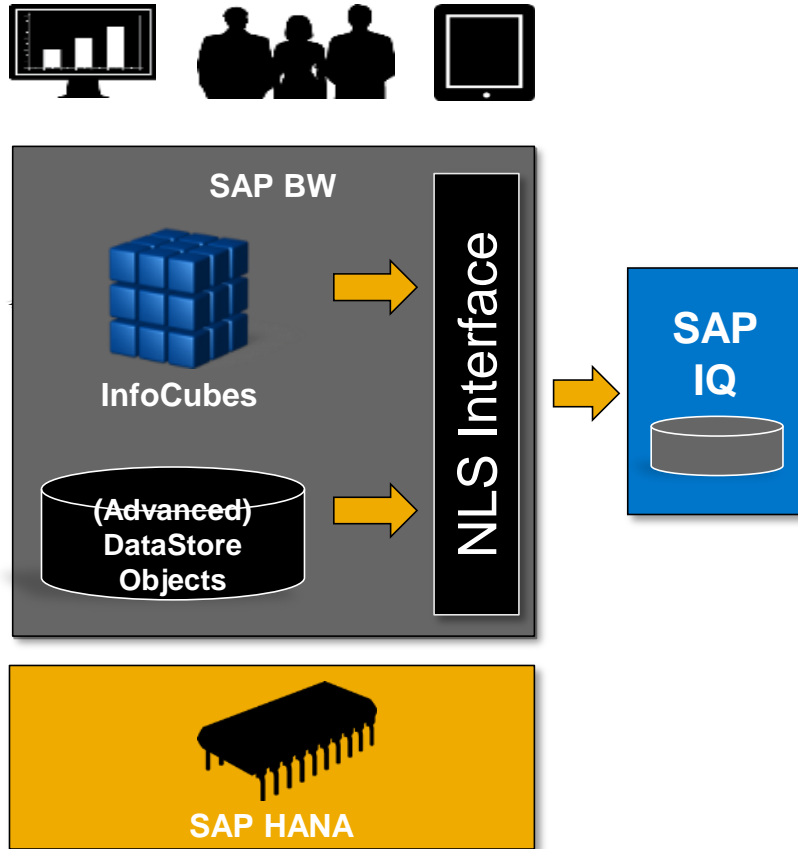
<a href="#">Introduction</a>	<a href="#">Overview/Roadmap</a>	<a href="#">SAP Notes</a>	<a href="#">Implementation</a>
<a href="#">NLS Performance</a>	<a href="#">NLS Partnersolutions</a>	<a href="#">Additional Blogs</a>	

## Data Lifecycle Management in SAP BW 7.50 Overview



# Nearline Storage (NLS) with SAP IQ

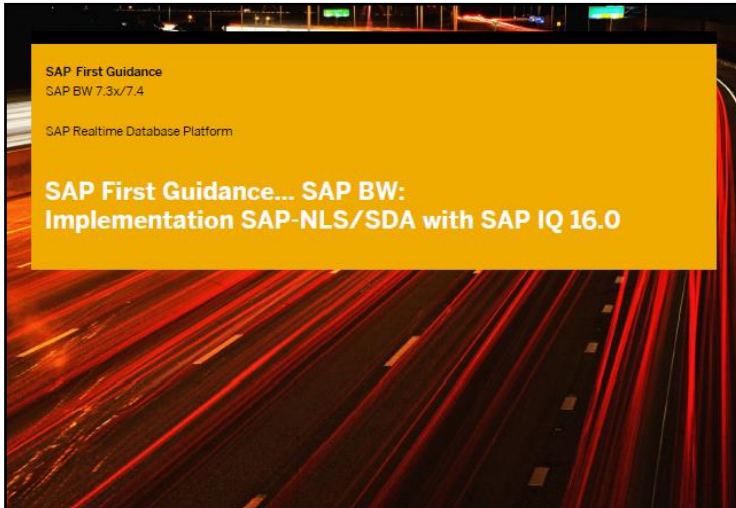
## Specific features of SAP's Nearline Solution for BW based on SAP IQ



- Optimized query performance when accessing NLS IQ data through HANA Smart Data Access (SDA)
- NLS support for BW Inventory Cubes
- Automated mass generation of Data Archiving Processes based on query selection statistics
- Generated HANA Models of an InfoProvider can access data in NLS
- Optimized lookup to archived data in NLS IQ using the Nearline Interface API
- DBA Cockpit for integrated Sybase IQ Monitoring
- Backup Automation: Event trigger for incremental backup in IQ after data relocation to NLS
- Full SSL encryption of SAP IQ including SDA to SAP HANA
- Massive Performance Improvement through load striping (0.7 - 1TB/h with over 90% compression)

# Nearline Storage (NLS) with SAP IQ

## Everything you need to know about SAP IQ - SAP First Guidance



SAP First Guidance  
SAP BW 7.3x/7.4  
SAP Realtime Database Platform

**SAP First Guidance... SAP BW:  
Implementation SAP-NLS/SDA with SAP IQ 16.0**

**Applicable Releases:**  
SAP BW 7.0x  
SAP BW 7.3x/7.40  
SAP IQ Version 15.4/16.0  
and higher

**External Use**  
With this solution, the data volume of the frequently accessed online database can be kept relatively low. Less frequently accessed data is archived in time partitions on the SAP near-line storage solution. Data in near-line storage resides in a highly compressed state in cost-efficient storage with fewer backups to reduce operational costs.  
As the technical installation steps are the same this "SAP First Guidance" document should make an own created customer specific documentation obsolete. It is the complementary documentation to the existing Notes and Installation Guides.  
Please Note that the SAP-NLS Solution can be used with all supported Database Versions supported by SAP NetWeaver BW 7.3x and onwards. The Existence of SAP HANA is not necessary.  
The document is "work in progress" and not intended to be exhaustive, but it contains everything to successfully implement the SAP-NLS Solution and more with SAP IQ.  
For more Information please contact [roland.kramer@sap.com](mailto:roland.kramer@sap.com)

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1.85	Corrections/additions after SAP-NLS Workshop 09/2014
1.86	Corrections 01/2015, DBACOCKPIT corrections, DT section removed
1.87	Corrections 03/2015, adding load stripping, latest SP08.xx updates
1.88	SAP IQ SSL support, Example SAP IQ DB copy
1.90	IQ 16.0 SP10 updates, Corrections 07/2015
1.91	IQ 16.0 SP08, SP10 updates, Corrections 09/2015
1.92	Update SDA location for IQ, SP08/SP10 updates
1.93	Updates/Corrections 12/2015
1.94	Updates/Corrections 04/2016
1.95	Updates/Corrections 06/2016
1.96	Updates/Corrections 09/2016, Installation Section 15.4 removed
1.97	Updates/Corrections 12/2016
1.98	IQ 16.0 SP11 Updates, 02/2017



# SAP IQ DB Installation using the SAP Host Agent

Complete automatic SAP IQ Database Installation - available on Request \*

← → ↻ 🏠 http://myhost:1128/NLSSetup/prepare

**SAP** The Best-Run Businesses Run SAP®

**PREPARE** STATUS ABOUT

**System ID:**

**Instance Number:**

**IQ Database Size in GByte:**

**DBA Password (min 8 char) :**

**Database user:**



**User Password:**

**SAR Package:**  
 No file chosen

**IQ Installation Package:**  
 No file chosen

## Pre Requisites:

- Available on SUSE Linux X86 only (so far)
- Using the SAP Instance Builder for the IQ Database Layout
- Modified Version of SAPHostAgent 7.21
- All Versions of SAP IQ SP10/11 possible

 IQSERV160011P\_4-20011180.TGZ  
 NLSSETUP.SAR

\* For more Information please contact [roland.kramer@sap.com](mailto:roland.kramer@sap.com)