Empower SAP HANA with ‘Right’ data provisioning tools
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SAP HANA COE

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Learning Points

• What is HANA Database

• Different Data provisioning tools
  • SAP LT Replication Server (SLT)
  • SAP Data Services
  • SAP HANA Direct extract connection (DXC)

• Tool selection matrix

• Configuration Overview/ Demo – Data Services to SAP HANA
Agenda

SAP HANA Data Acquisition

- Short Overview of HANA
- Data Acquisition Methods
  - SLT
  - Data Services
  - DXC
- DEMO
- Other sources for information, Q & A
What is SAP HANA?

Short Overview
What is SAP HANA?

SAP HANA is a modern platform for real-time analytics and applications. It enables organization to analyze business operations based on large volume and variety of detailed data in real-time, as it happens. In addition to real-time analytics, SAP is also delivering new class of real-time applications, powered by SAP HANA platform. SAP in-memory computing is the core technology underlying SAP HANA platform.
Lightening Fast with SAP High-Performance Analytic Appliance (SAP HANA)

Preconfigured Analytical Appliance
- In-Memory software + hardware

In-Memory Computing Engine Software
- Data Modeling and Data Management
- Data Integration for 3rd Party Systems

Capabilities Enabled
- Analyze information in real-time at unprecedented speeds on large volumes of non-aggregated data
- Create flexible analytic models based on real-time and historic business data
- Foundation for new category of applications (e.g., planning, simulation) to significantly outperform current applications in category
- Minimizes data duplication
SAP HANA Data Provisioning

ETL / Replication Services
SAP HANA System Landscape — Side-by-Side Scenario

**Data Sources**
- SAP ERP System
  - SAP ERP
  - Add-on DMIS (for LT Replicator only)
- SAP NetWeaver® BW System
- Non – SAP System

**LT System**
- NW system

**SAP HANA appliance**
- SAP HANA
  - Database
  - Clients
  - Studio

**Admin Workstations**
- SAP HANA studio
- SAP HANA database clients
- Data Services Designer
- Information Designer
- MS Excel 2010
- Web access to BI admin tools

**End Users’ Workstations**
- MS Excel 2010
- SAP HANA database clients 1.0

**BI4.0**
- BI Platform
- Explorer
- WebApp server
- Repository

**Data Services**
- Data Services 4.0
- Data Services Job Server
- Repository (shared with BOE)
SAP HANA Data Provisioning: Use cases

**SAP LT Replication Server**
SAP LT Replication Server (SLT) is positioned for **real-time data replication from SAP and non-SAP sources** (SAP supported data bases only)

> Mainly recommended for real-time data replication business scenarios

**SAP Business Objects Data Services**
SAP Business Objects Data Services (DS) is positioned for **batch load-based data replication from non-SAP sources and SAP sources** (with complex ETL requirements)

> Mainly recommended for batch type data replication business scenarios

**Other Data Provisioning Options:**
- **SAP HANA Direct Extractor Connection (DXC)** is available as a simple option in ETL (batch) scenarios for data replication from existing SAP Data Source extractors into SAP HANA
LT Replication Server Leverages Proven SLO Technologies

- SLO* technologies have been used since more than 10 years in hundreds of projects per year
- Key offerings foster SAP’s Application Lifecycle Management concept
- SAP LT Replication Server leverages several SLO technologies

*) System Landscape Optimization

Application Lifecycle Management

- Near Zero Downtime
- Requirements
- Optimize
- Design
- Operate
- Build and Test
- Deploy
- TDMS

SAP Landscape Transformation
Positioning and Key Benefits of SAP LT Replication Server for SAP HANA

Key Benefits of the Trigger-Based Approach:
• Allows real-time (and scheduled) data replication, replicating only relevant data into HANA
• Ability to migrate data into HANA format while replicating data in real-time
• „Unlimited“ release coverage (from SAP R/3 4.6C onwards) sourcing data from SAP ERP (and other ABAP based SAP applications)
• Leverages proven SLO technology (Near Zero Downtime, TDMS, SAP LT)
• Simple and fast set-up of SAP LT Replication Server (initial installation and configuration in less than 1 day) and fully integrated with HANA Studio

SAP LT Replication Server is the ideal solution for all HANA customers who need real-time or scheduled data replication sourcing from SAP and non-SAP sources
SAP BusinessObjects Data Services 4.0 and SAP HANA

SAP ERP

Any Source

Open Hub

Tables
Extractors

BWB

SAP BusinessObjects
Data Services

Repository

Server

Designer and Management Console

Metadata

Data Load

HANA Studio

NewDB
(in-memory)

SAP HANA
Data Integrator for HANA

Leading data integration solution for high-performance batch loading of data

Incredible Performance, Wide Source Connectivity
- Highly-scalable engine for extremely fast loads of large data volumes into HANA (initial and incremental)
- Native data, metadata connectivity to all major enterprise data sources, databases, files, text
- Changed Data Capture for SAP Applications (Business Content Extractors for delta queues) and non-SAP apps (via RDBMS with CDC)

Enable Trust and Confidence
- Rich transformations for data manipulations and data quality\(^1\), in process, enable trust and confidence
- Unstructured text data processing to extract and understand previously buried information
- Solution Manager integration for monitoring, admin

Market/Industry Validated
- Market Leader as recognized by Gartner Magic Quadrant (4 Years in DI Leaders Quadrant)
- Over 5000 customers use Data Integrator for bulk/batch and incremental data movement
- Ranked #1 – Ease of Use in Passionned Group’s ETL Survey

\(^1\) Data quality features available with full Data Services license
SAP BusinessObjects Data Services to HANA Process flow

1. Create a connection to a SAP target system
2. Import the metadata back into Data Services
3. Execute a Data Services job to populate HANA
4. Import the metadata via ICE studio into HANA
5. Create a Data Services job to populate HANA
6. Preview uploaded data
HANA Configuration

Create a new DataStore of type “SAP Applications” with specific connection details

Create a connection to a SAP target system

Import the metadata via ICE studio into HANA

Click “Import” to import meta data via Data Services or use the menu
Refresh the Tables section in the “RKT” catalog and double click the table to see the structure.

Table creation status in the deployment log.
SAP Business Objects Data Services Configuration
SAP Business Objects Data Services
Preview loaded data
Overview: SAP HANA Direct Extractor Connection

An additional data acquisition technique for working with data from SAP Business Suite systems has been added to the existing techniques for HANA data acquisition:

- SLT Replication
- Data Services
  …and now
- SAP HANA Direct Extractor Connection (DXC)
Rationale: Simple, low TCO data acquisition for SAP HANA leveraging existing delivered data models

- Customer projects may face significant complexity in modeling entities in SAP Business Suite systems
- Data from some areas in SAP Business Suite systems needs application logic to appropriately represent business documents
- SAP Business Content DataSource Extractors have been available for many years as a basis for data modeling and data acquisition for SAP BW; customers want a simple, low-TCO data acquisition mechanism to use SAP Business Content DataSource Extractors in SAP HANA data mart scenarios
- In many use cases, batch-driven data acquisition is sufficient (e.g. every 10 min)
# SAP HANA Direct Extractor Connection: Contrast with DS

## Direct Extractor Connection

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ETL type:</strong></td>
<td>Simple and straightforward ETL approach; no “premium” features</td>
</tr>
<tr>
<td><strong>SAP DataSources:</strong></td>
<td>Available for nearly all SAP Business Content DataSources (Extractors) and Generic DataSources with a defined key; key can be defined if missing</td>
</tr>
<tr>
<td><strong>Delta handling (change data capture):</strong></td>
<td>Yes, for all SAP Business Content DataSources and all delta processing types; uses an In-Memory DSO with activation processing</td>
</tr>
<tr>
<td><strong>Software:</strong></td>
<td>Uses existing components in SAP HANA (XS Engine, ICM); configuration file imported into SAP HANA</td>
</tr>
<tr>
<td><strong>Transformations:</strong></td>
<td>Very limited - BADI (ABAP) in extraction exit available. When extensive transformations are required, it’s recommended to use DataServices</td>
</tr>
</tbody>
</table>

## SAP BusinessObjects Data Services

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ETL type:</strong></td>
<td>Sophisticated ETL tool with extensive valuable features (data quality, metadata mgmt, transformations, etc.)</td>
</tr>
<tr>
<td><strong>SAP DataSources:</strong></td>
<td>Available for SAP Business Content DataSources (Extractors), limited to DataSources released to Operational Data Provider – see SAP note 1558737</td>
</tr>
<tr>
<td><strong>Delta handling (change data capture):</strong></td>
<td>Yes, except for SAP Business Content DataSources with delta processing types AIM, AIE, AIED, AIMD, ADD, ADDD, CUBE</td>
</tr>
<tr>
<td><strong>Software Requirement:</strong></td>
<td>BusinessObjects Enterprise and DataServices required</td>
</tr>
<tr>
<td><strong>Transformations:</strong></td>
<td>Extensive transformation capabilities available in the DataServices ETL tool</td>
</tr>
</tbody>
</table>
DEMO
Key Learnings

- HANA Database
- Different Data provisioning tools
  - SAP LT Replication Server (SLT)
  - SAP Data Services
  - SAP HANA Direct extract connection (DXC)
- Tool selection matrix
- Configuration Overview/ Demo – Data Services to SAP HANA
## Supported Capability Matrix – part 1 – Data from Tables

<table>
<thead>
<tr>
<th>Capability</th>
<th>SLT Replication Documentation</th>
<th>Data Services 4.0 Documentation</th>
<th>Direct Extractor Connection*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum ERP Version</td>
<td>ERP 4.6c</td>
<td>ERP 4.6c</td>
<td>ECC 6.0</td>
</tr>
<tr>
<td>Unicode/Non-Unicode</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>MDMP</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes – via how-to guide</td>
</tr>
<tr>
<td>Transparent Tables</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes – via generic DataSource</td>
</tr>
<tr>
<td>Cluster &amp; Pool Tables</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes – via generic DataSource</td>
</tr>
<tr>
<td>Non-SAP ERP Sources</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Compressed Values DB Table</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes – via generic DataSource</td>
</tr>
<tr>
<td>Row Compression DB Table</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes – via generic DataSource</td>
</tr>
<tr>
<td>SAP ERP DB Support</td>
<td>All DBs supported under ERP</td>
<td>All DBs supported under ERP</td>
<td>All DBs supported under ERP</td>
</tr>
<tr>
<td>SAP ERP OS Support</td>
<td>All OS supported under ERP</td>
<td>All OS supported under ERP</td>
<td>All OS supported under ERP</td>
</tr>
<tr>
<td>Transactional Integrity</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Multi-Source Support</td>
<td>Multiple Source Systems</td>
<td>Multiple Source Systems</td>
<td>Multiple Source Systems</td>
</tr>
</tbody>
</table>
### Supported Capability Matrix – part 2 - Extractors

<table>
<thead>
<tr>
<th>Extractors</th>
<th>Capability</th>
<th>SLT Replication Documentation</th>
<th>Data Services 4.0 Documentation</th>
<th>Direct Extractor Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum ERP Version</td>
<td>N/A</td>
<td>See SAP Note:1558737</td>
<td>ECC 6.0 or higher</td>
</tr>
<tr>
<td></td>
<td>Unicode/Non-Unicode</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>MDMP</td>
<td></td>
<td>Partial (Not recommended)</td>
<td>Project solution with how-to-guide</td>
</tr>
<tr>
<td></td>
<td>Transparent Tables</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Cluster &amp; Pool Tables</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Non-SAP ERP Sources</td>
<td>Available</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>SAP ERP DB Support</td>
<td>All DBs supported under ERP</td>
<td>All DBs supported under ERP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SAP ERP OS Support</td>
<td>All OS supported under ERP</td>
<td>All OS supported under ERP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multi-Source Support</td>
<td>Multiple Source Systems</td>
<td>Multiple Source Systems – clients must have unique logical system names</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Semantically Rich Data Definitions</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
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