DMM268 – Streamline the Transfer of Data into SAP BW

SAP TECHED

Speakers

Las Vegas, Oct 19 - 23

- Roland Hamm
- Marc Hartz

Barcelona, Nov 10 - 12

- Astrid Tschense
- Roland Hamm

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Agenda

Realtime data transfer with SAP LT Replication Server

- Overview / Scenarios
- KPIs

Operational Data Provisioning with SAP LT Replication Server

- Overview
- Architecture

Extractor Replacement

- Extractor Classification
- Views
- Engineering Service

Scenario for the Exercises

- Details

Big Data provisioning with SAP LT Replication Server

Sources

Support of LAN, WAN and cloud deployments

SAP Business Suite
- Pool, Cluster, INDX, HR tables
- Unicode & non-Unicode
- Replication of Views
- Support of NW 4.6c and higher

SAP HANA
with optimized capturing

Native DB
- SAP ASE, Oracle
- MS SQL, Max DB
- IBM DB2, DB4, AS/400, Informix

Real-Time

Batch

SAP LT Replication Server
- Transformation and filter capabilities
- Integrated data type mapping
- Scalable NetWeaver instance
- Replication staging for HA / DR
- Option to load out of archives

New application-based replication

Standard table-based replication

Targets

SAP Business Warehouse

SAP Simple Finance
powered by SAP HANA

SAP Data Services

Native DB

SAP Business Suite

SAP HANA applications*

SAP HANA

*SAP Customer Activity Repository
*SAP HANA Live
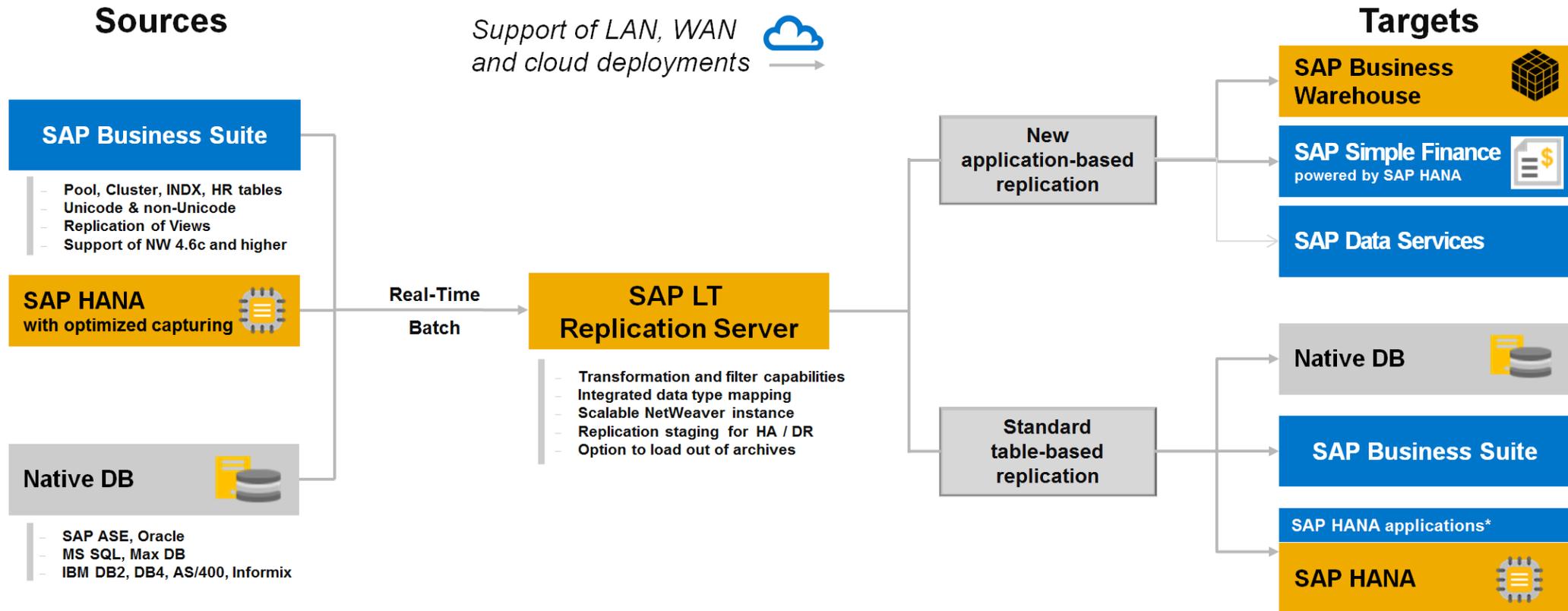*SAP High Performance Applications
*Suite Accelerator and more apps

Unrestricted change data capturing with almost zero impact

Robust and proven architecture with more than 5400 customers

SAP LT Replication Server
Overview

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Customer figures 2015/7

5,416
customer landscapes

30k tables
with one SLT

700 tables
with one configuration

>95% data transfer reduction
IS-U /CRM to SAP BW via SLT

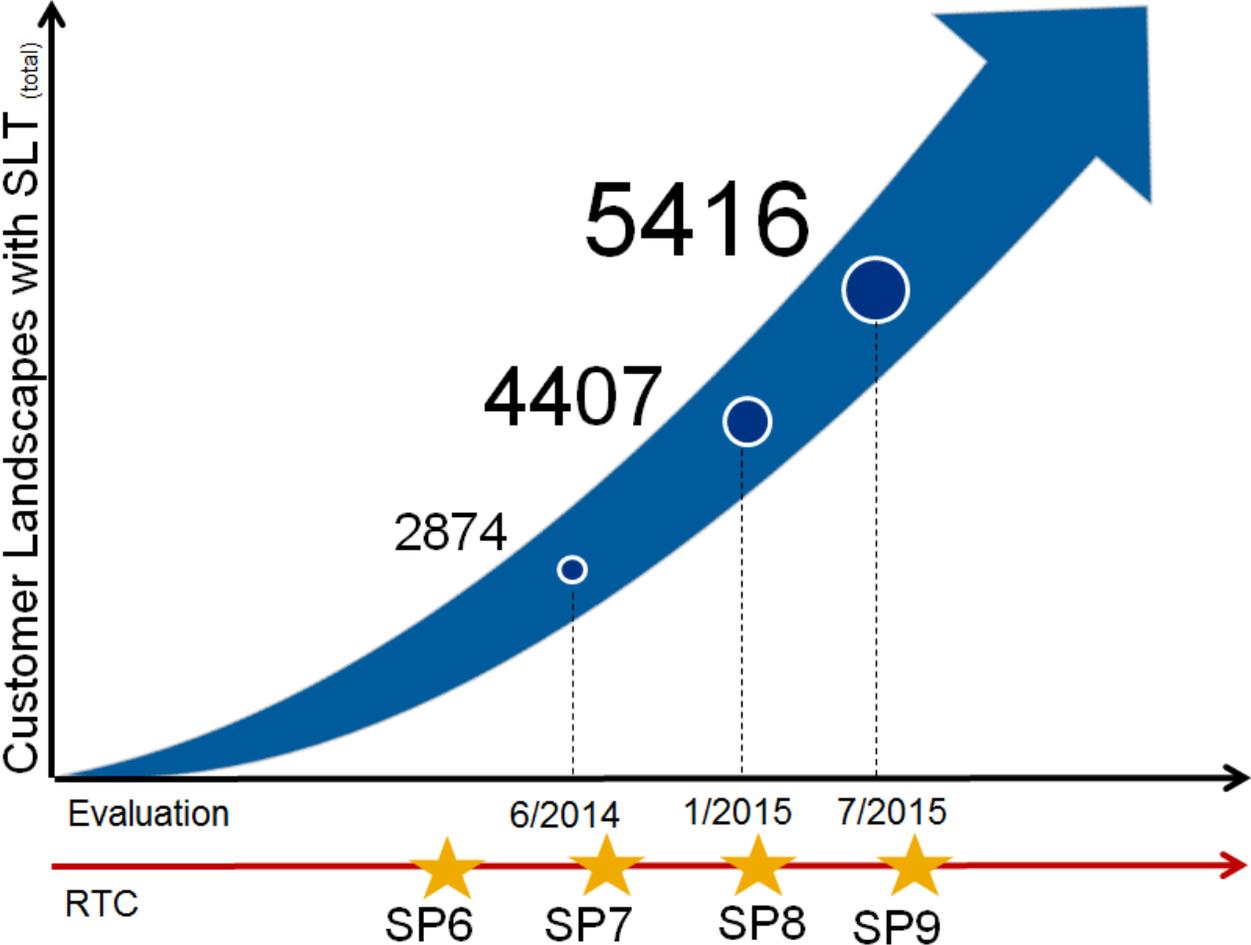**70+** ABAP systems
connected with one SLT

26bn records
highest load (89h)

45 non-ABAP systems
connected with one SLT

>20mio records
highest change rate / h / table

SLT Customer Adoption

Growth from 6/2014 to 7/2015

Customer Landscapes with SLT (total)

5416

4407

2874

Evaluation   6/2014   1/2015   7/2015

RTC

SP6   SP7   SP8   SP9

SAP Customers using „New" SLT Scenarios

SLT/ODP –> Data Services (POC)

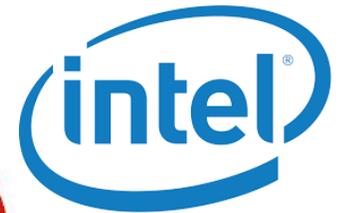SLT/ODP –> Data Services (POC)

SLT/ODP –> Data Services (POC)

SLT -> cFIN

SLT/ODP –> BW

SLT Customer - EnBW

- using ODP scenario, managed with minimum effort (0.1 FTE)

- Data transfer over SAProuter from SAP IS-U to SAP BW:
  - 200 records per second
  - 108 tables in replication

- Company wide used SLT for data replication from SAP CRM to SAP BW on HANA and add. MSSQL Server
  - 95% data transfer reduction from full loads (350 GB, more than 12 hours every night)
    to delta loads
  - No noticeable Network impact with current set-up.

- Replacement of CRM extractors with SLT functionality
- Replacement of generic extractors with SLT (Database Views)

41 ABAP systems
connected with one SLT to SAP BW

>95% reduction
batch load with delta technology

SLT lowers **TCO**
0.1 FTE to manage
company-wide data replication

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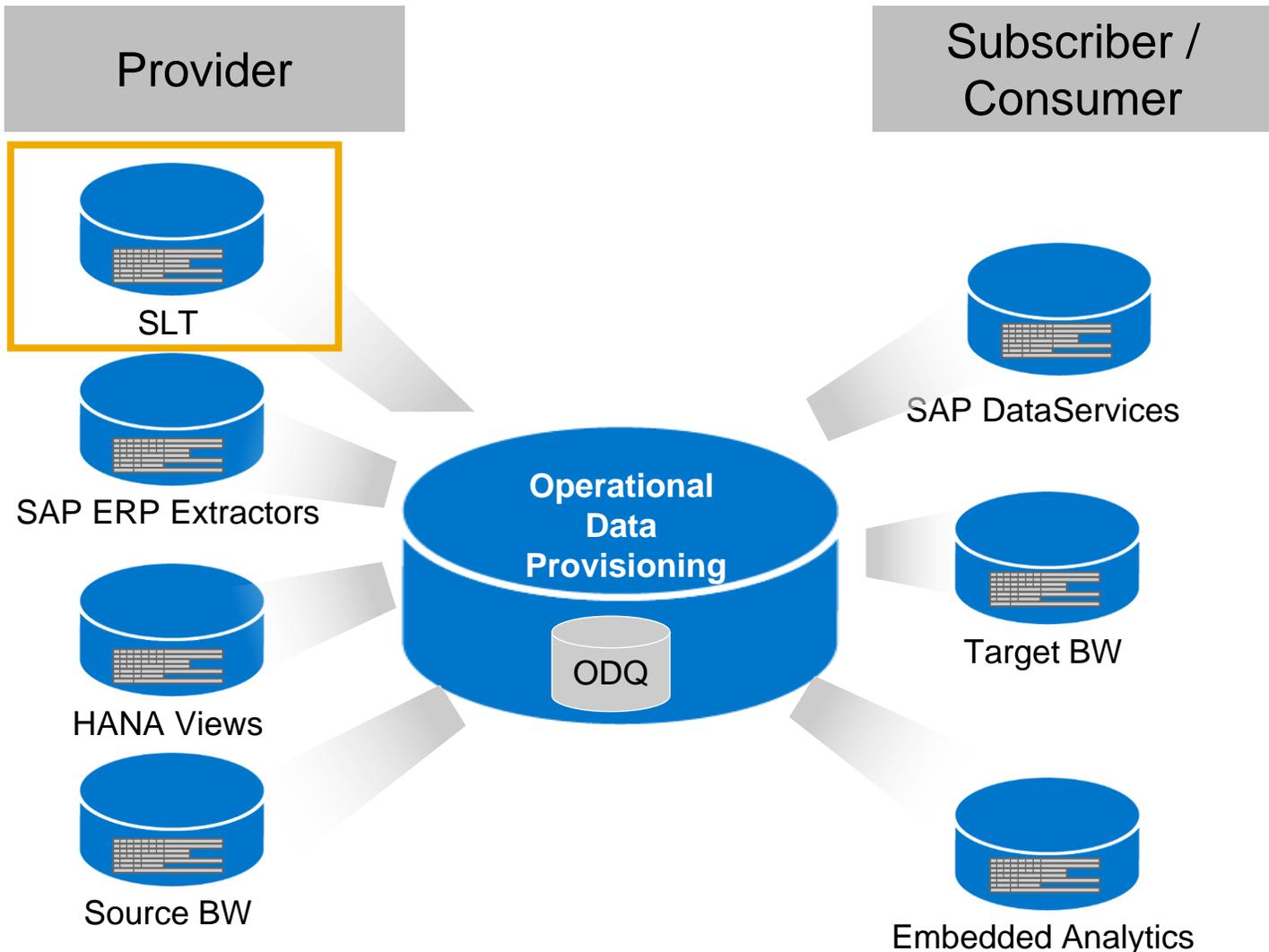- Architecture with SLT

Extractor Replacement

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Operational Data Provisioning (ODP) Infrastructure
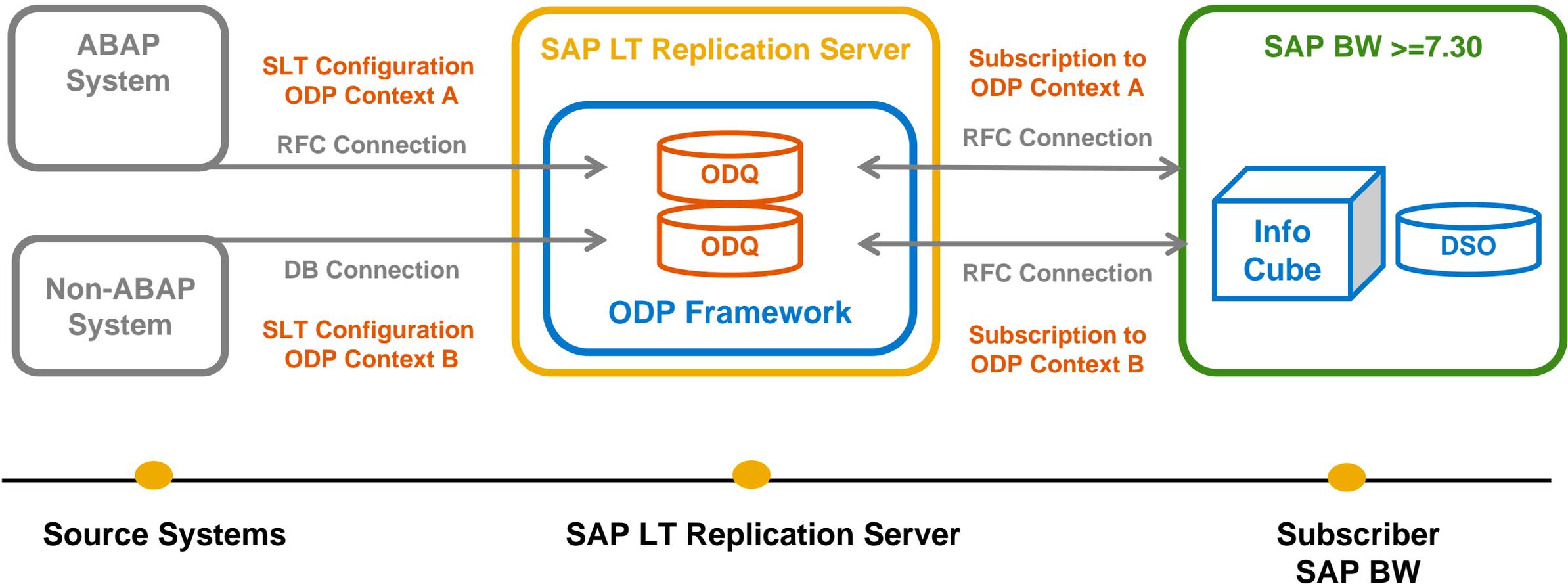
Main Use Cases for ODP data provisioning

Provider

SLT

SAP ERP Extractors

HANA Views

Source BW

Operational Data Provisioning

ODQ

Subscriber / Consumer

SAP DataServices

Target BW

Embedded Analytics

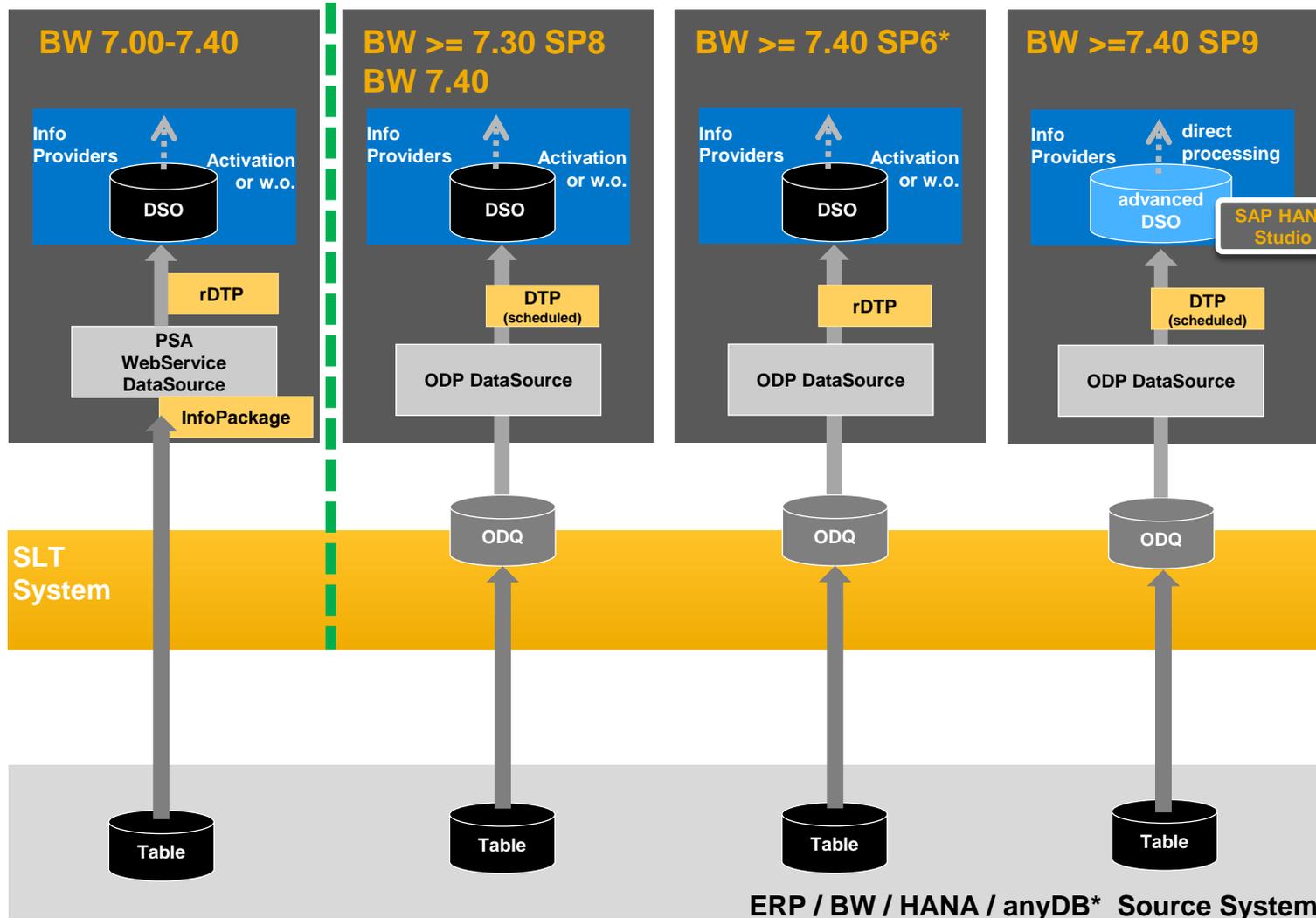**Unified infrastructure for data provisioning and consumption**

- Enables extract once deploy many architectures for sources
- Unified configuration and monitoring for all provider and subscriber types
- Time stamp based recovery mechanism for all provider types with configurable data retention periods
- Highly efficient compression enables data compression rates up to 90% in Operational Delta Queue (ODQ)
- Quality of service: „Exactly Once in Order" for all providers
- Intelligent parallelization options for subscribers in high volume scenarios

Architectural Concepts
Replication from ABAP and non-ABAP source system into ODP

ABAP System

SLT Configuration ODP Context A

RFC Connection

Non-ABAP System

DB Connection

SLT Configuration ODP Context B

SAP LT Replication Server

ODQ

ODQ

ODP Framework

Subscription to ODP Context A

RFC Connection

RFC Connection

Subscription to ODP Context B

SAP BW >=7.30

Info Cube

DSO

Source Systems

SAP LT Replication Server

Subscriber SAP BW

Options of Data Transfer into DataStore Objects

BW 7.00-7.40

Info Providers
Activation or w.o.
DSO
rDTP
PSA WebService DataSource
InfoPackage

BW >= 7.30 SP8
BW 7.40

Info Providers
Activation or w.o.
DSO
DTP (scheduled)
ODP DataSource

BW >= 7.40 SP6*

Info Providers
Activation or w.o.
DSO
rDTP
ODP DataSource

BW >=7.40 SP9

Info Providers
direct processing
advanced DSO
SAP HANA Studio
DTP (scheduled)
ODP DataSource

SLT System

ODQ   ODQ   ODQ

Table   Table   Table   Table

ERP / BW / HANA / anyDB* Source System

*or BW 7.40 SP5 with SAP Note 1848485

Scenario

SAP LT Replication Server offers 2 scenarios for replicating data into SAP BW. For SAP BW 7.00 onwards, data can be transferred into the PSA layer of BW into WebService DataSources and then processed into the InfoProviders.

With Support Package SP8 of BW 7.30, the Operational Data Provisioning Infrastructure can be used with SLT, where the data from the source systems is stored and SAP BW is registered as a consumer. Using operational data provisioning, you can load the data directly into the **InfoProviders** (bypassing the PSA layer) by using:

- a scheduled DTP (Data Transfer Process) to load data in a DSO (*SAP BW 7.30 SP8 on anyDB onwards*)

- an rDTP to load data in a DSO (SAP BW 7.40 SP6 on anyDB onwards)

- a scheduled DTP to load data into an advanced DSO (SAP BW 7.40 SP9 on HANA onwards)

- **Future direction: real-time streaming into aDSO, see SAP Note** 2070577

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How can SLT cover SAP BW pain points

Pain points

Data transfer window is not sufficient anymore
Volume is increasing day by day

Departments request near real-time data
Analytical operations based on latest information from different sources

Generic extractors with full data load generate enormous traffic
Customer-built extractors often base on tables without delta capabilities, so full loads are required

Solution

- | SAP LT Replication Server | -

Delta   capabilities to minimize the transfer volume by transferring only changed data

Real-time   data transfer immediately into PSA or ODQ, reporting can be enabled on minute basis

ABAP && non-ABAP   systems can be connected to SAP BW to achieve simplified data flow

Frequent Question: how do I make my Generic Extractor delta-capable?

Generic Extractor- Delta based on FPLTC, FPLT, FPLA tables

This question has been **Answered.**

I have a requirement where the business want to report on Credit card activities at the Sales and Billing level in SD.

My investigation shows that SAP did not provide a standard extractor (correct me if i am wrong please) for this table which leave me with generic extractor option.

I want to join this 3 table together using a view based on RPLNR, FPLNR and FPLTR. But the issue is there is no way i can create my delta based on this generic datasource view. The 3 table doesn't have a Date or time stamp that i can create my delta on.

Please, any suggestion?

The few thread that discussed this issue mentioned creating a custom table in ECC which will be populate the custom table at the same time that the application table is been updated.

Any simpler approach please?

Re: Generic Extractor- Delta based on FPLTC, FPLT, FPLA tables

Hi Phil,

When data source doesn't support delta. we have to follow two options.

1. Load data from source system to DSO and then to Cube.
DSO have overwrite functionality, so from source we load full load every time. from DSO to Cube we can update thru delta mode.

2. Need do daily full load to info cube and delete the overlapping request before loading to info cube. There is process type "delete overlapping request from info cube". by using that we need to delete old request and load new request to info cube.

Thanks

Only full load of data into DSO possible

Re: Generic Extractor- Delta based on FPLTC, FPLT, FPLA tables

Hi Andreas & Raman

@ Raman,

I dont want to do full load everyday because of the time and the high volume of table data that the system will read everyday. That will be my last resort if there is no other way.

@ Andreas

My main table structure looks like this

Are you suggesting that i create a pseudo delta in BW as explained in this thread

http://scn.sap.com/people/shashank.dighe2/blog/2009/07/28/performance-tuning-of-loads-where-delta-is-not-possible

The issue is i might not be able to capture item line 1 as shown above if i use Authorization date as the delta trigger. 'Card Valid to' date is not an option because its not dynamic (i will not be able to capture changes to any line if i use 'Card Valid to' as the delta trigger)

High volume of table data, if data is transferred in full mode every day

Easy/Generic BW Extractors: Replacement with Views

View-based SLT delta-transfer technology:

In the SLT Scenarios, BW Extractors can be rebuilt with Views, if the following prerequisites are fulfilled:

- Z-Views need to be built which need to contain all relevant tables
- the view relations as well as the primary key of the view need to be designed
- there must be a hierarchy with one main table
- only this main table is triggered/recorded (means the line item table(s) attached to the main table are not triggered)
- Target is 1 transparent table (there is no data split after SLT transfer e.g. into two or more tables)

The capability is shipped as a framework; content is not part of the shipment!

See How-To Guide

Replication of Views – Architecture with Database View

Source System

Initial Load/Replication View C:
Table A plus 2 fields of B

Table A

Table B

SAP LT Replication Server

Read view C

+

Create table deviation of table A with
2 fields of B, load/replicate from view C

SAP HANA

Table A

Source System   **SAP LT Replication Server**   **Target Systems**
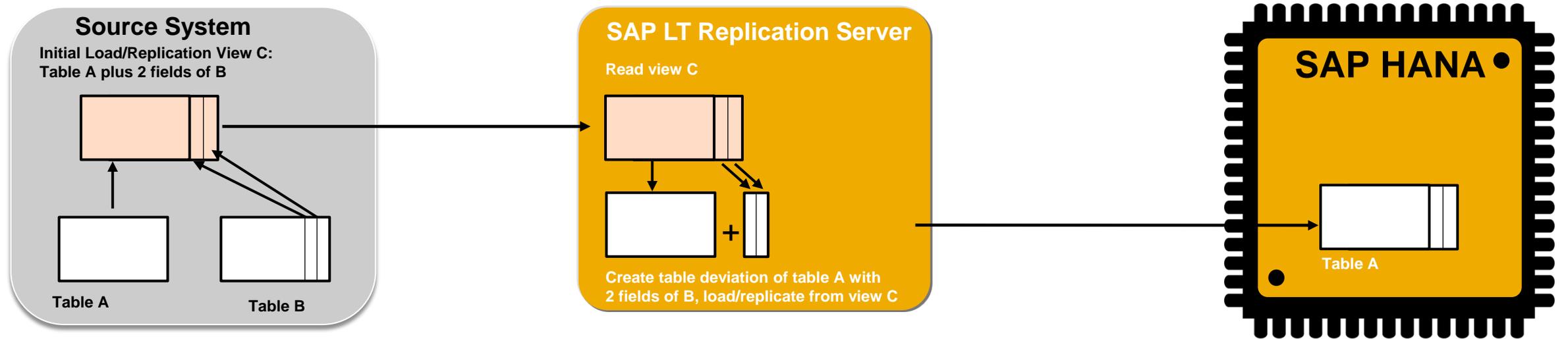
If you join fields of different tables into one view, one table (A) is the leading table and fields from other tables can be added. In the SLT system, the table deviation has to be built as a transformation of table A. The table keeps the name as in the source system but is enlarged with the additional fields.

Medium and Complex Extractors: Replacement Projects

Level 1

Extract Structure

Delta Record

Extractor

MARD

MARC

MARA

Level 2

Extract Structure

Delta Record

Extractor — Lookup → VBPA

VBAK

VBAP

VBEP

Level 3

Extract Structure

Delta Records

Extractor
KPI derivation

Example: 0CO_OM_OPA_1

14 key fields!

COSP ↔ COSS

Lookup → COST

BPGE

COSB

COOMCO

Join:
COKL,KEKO,KEPH

Rating: medium complex   complex
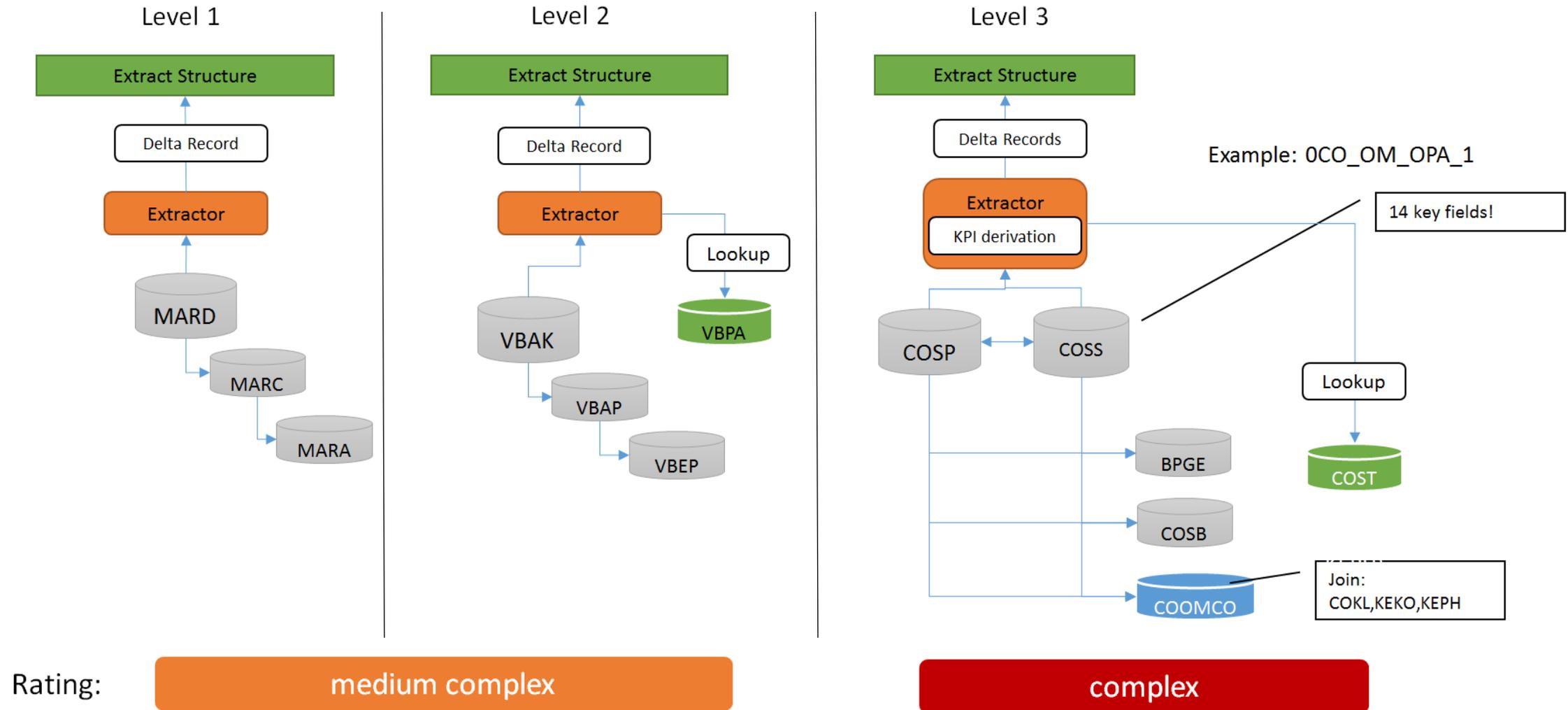
Example of Complex Extractor: ERP Logistics → BW
(special case: Transaction Data)

Transparent table of structure:
application structure + technical key fields

PSA

Data Source
2LIS_11_VAITM

Data Source

Extract Structure
MC11VA0ITM

Transfered data
(original fields + enhancement fields populated in User-Exit)

Delta-Queue

ARFCSDATA

ARFCSSTATE

TRFCQOUT

Delta

Init/Full

MC11VA0ITMSETUP

Initial Setup Table

Posting Method

MCVBAK

MCVBAP

Communication Structures

Direct Delta
Queued Delta
Non serializ. V3

Sales Order

V1

VBAK

VBAP

Application Tables

Extractor Replacement Analysis

Analyzed extractors	Areas	Result
ERP: 500 extractors	• Flexible Real Estate Management (0REFX) • Corporate Finance Management (CFM) • Cost Center Accounting (CO-OM-CCA) • Financial Accounting: Master Data (FI-IO), Asset Accounting (FI-AA), Accounts Receivable (FI-AR) • Material Management (MM-IO) • Plant Maintenance (PM-IO) • Treasury Management (TR-CM-IO)	• 250 extractors replaceable with SLT technology by VIEW (by customer, with How-To Guide) • 12 extractors level 1 project (5-10 days) • 17 extractors level 2 project (15-20 days) • 151 extractors level 3 project (30-40 days)
CRM: 680 extractors	• CRM Cross Component Master Data (0CRM-IO) • CRM Interaction Center (0CRM-CIC) • CRM Marketing (0CRM_MKT) • CRM Sales (0CRM_SALES) • CRM Services (0CRM_SERVICE) • CRM Survey (0CRM_SURVEY) • CRM Workforce Management (0CRM_WFM)	• 304 extractors replaceable with SLT technology by VIEW (by customer, with How-To Guide) • 40 extractors replaceable with SLT technology with level 1 or 2 project (5-20 days) • 336 extractors replaceable with SLT technology with level 3 project (30-40 days)
FI: 1650 extractors	• Policy Management (FS-PM) • Claims Management (FS-CM) • Reinsurance Management Risk Manager (FS-RI-RMN) • Life Reasurance Module (FS-RI-LRM)	• 1483 extractors replaceable with SLT technology by VIEW (by customer, with How-To Guide) 127 extractors replaceable with SLT technology with level 1 or 2 project (5-20 days) • 40 extractors replaceable with SLT technology with level 3 project (30-40 days)

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Replication from ABAP source system into SAP BW via ODP

M96/M97

ABAP source System

SLT Configuration ODP Context Mxx0xx

RFC Connection SOURCE_M96

SAP LT Replication Server

ODQ

ODP Framework

Subscription to ODP Context Mxx0xx

RFC Connection M96_001

M39/M40

SAP BW

aDSO

Source System

SAP LT Replication Server
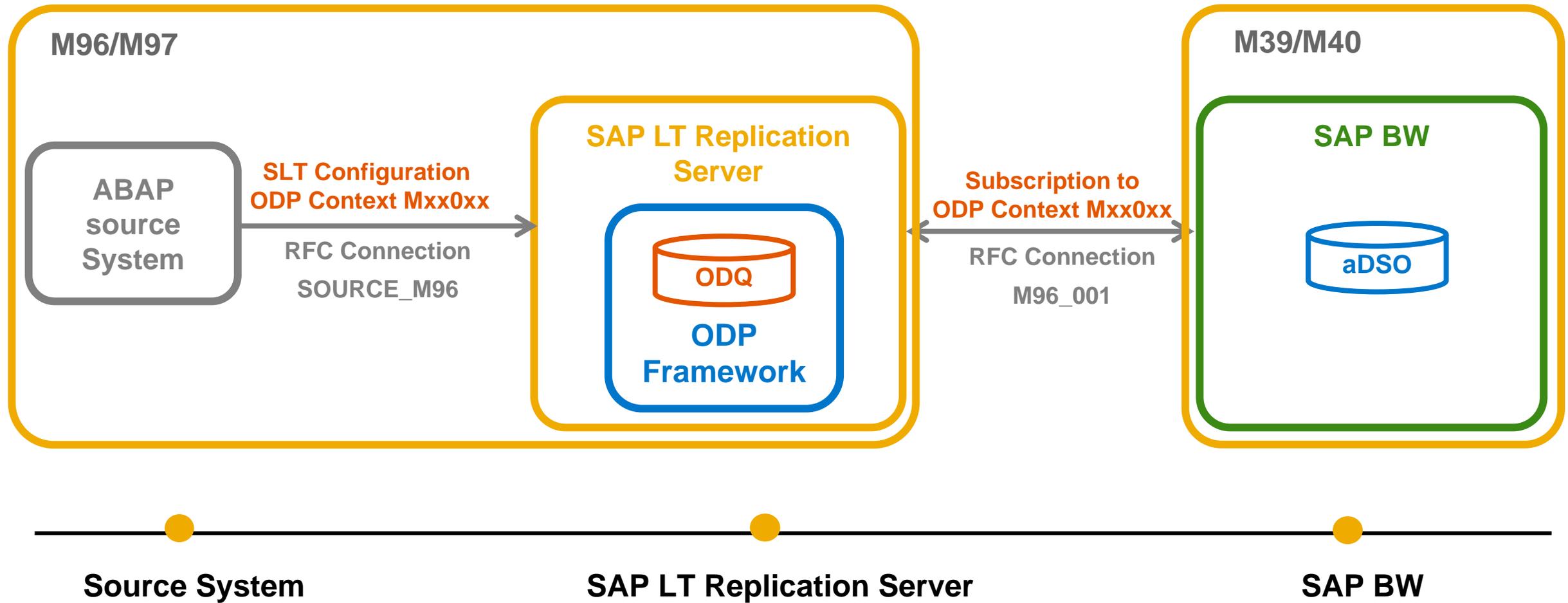
SAP BW

Exercise

„Use SLT to replicate delta data from a flight-info table with additional fields from a carrier-table into an advanced DataStore Object (aDSO) in SAP BW"

Steps:

- Create the SLT configuration for the ODP scenario
- Create the Database View to join fields from table zscarr_xx into table zsflight_xx in the source system
- Create the subscription from the SAP BW system to ODP
- Create the advanced DataStore Object
- Create the Data Flow into the aDSO
- Display the data

You will be assigned to one of these system landscapes:

ABAP/SLT System M96 and SAP BW System M39
ABAP/SLT System M97 and SAP BW System M40

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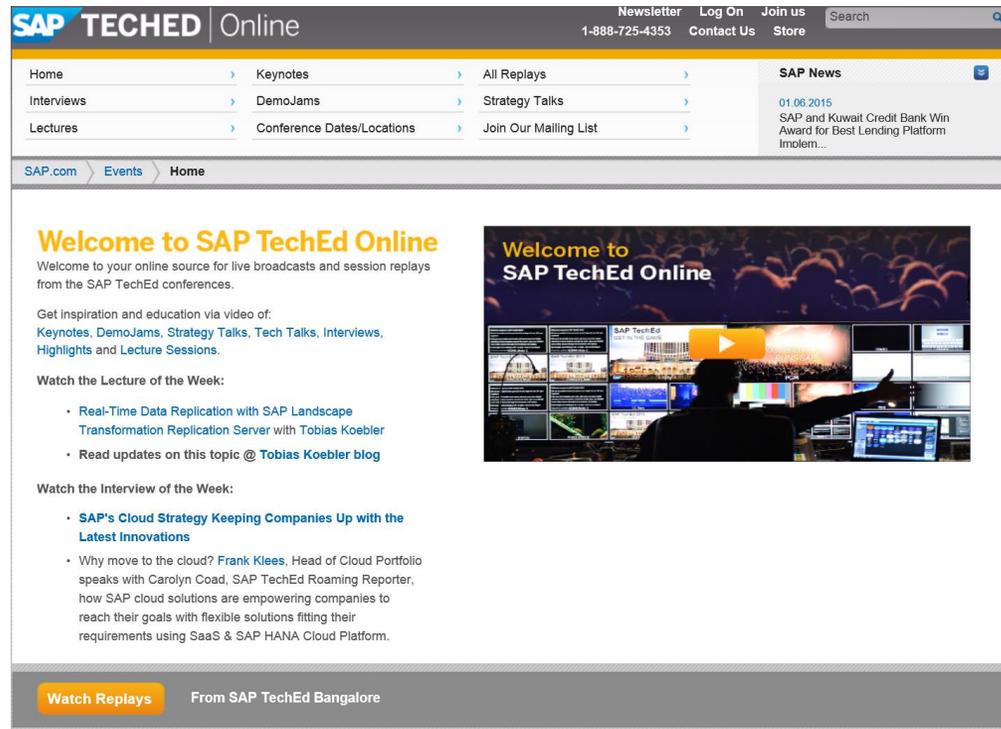
http://sapteched.com/online

Further Information

Feedback

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Thank you

Meet us at the POD SAP Landscape Transformation Management in the show floor!

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