Session 4002: Data Provisioning from SAP and non-SAP Data Sources to SAP HANA for both Real time and Batch type Data Replication

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SAP

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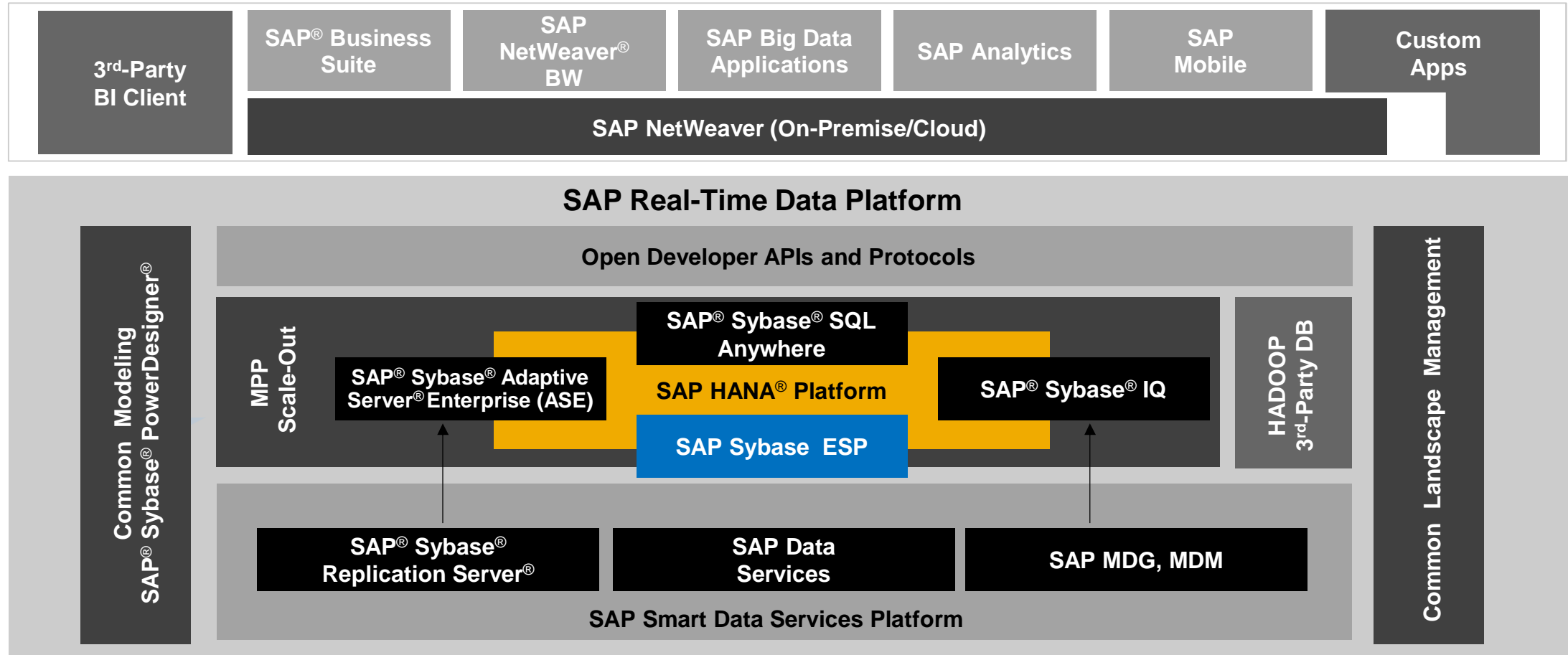
Agenda

Real Time Data Platform – SAP HANA

Data Provisioning with SAP HANA - Options

- **SAP LT Replication Server (Real Time)**

- **SAP Sybase Replication Server (Real Time)**

- **SAP Data Services 4.1 (Batch)**

- **SAP Sybase Event Stream Processor 5.1 (Real Time)**

- **Other Data Provisioning - Options**
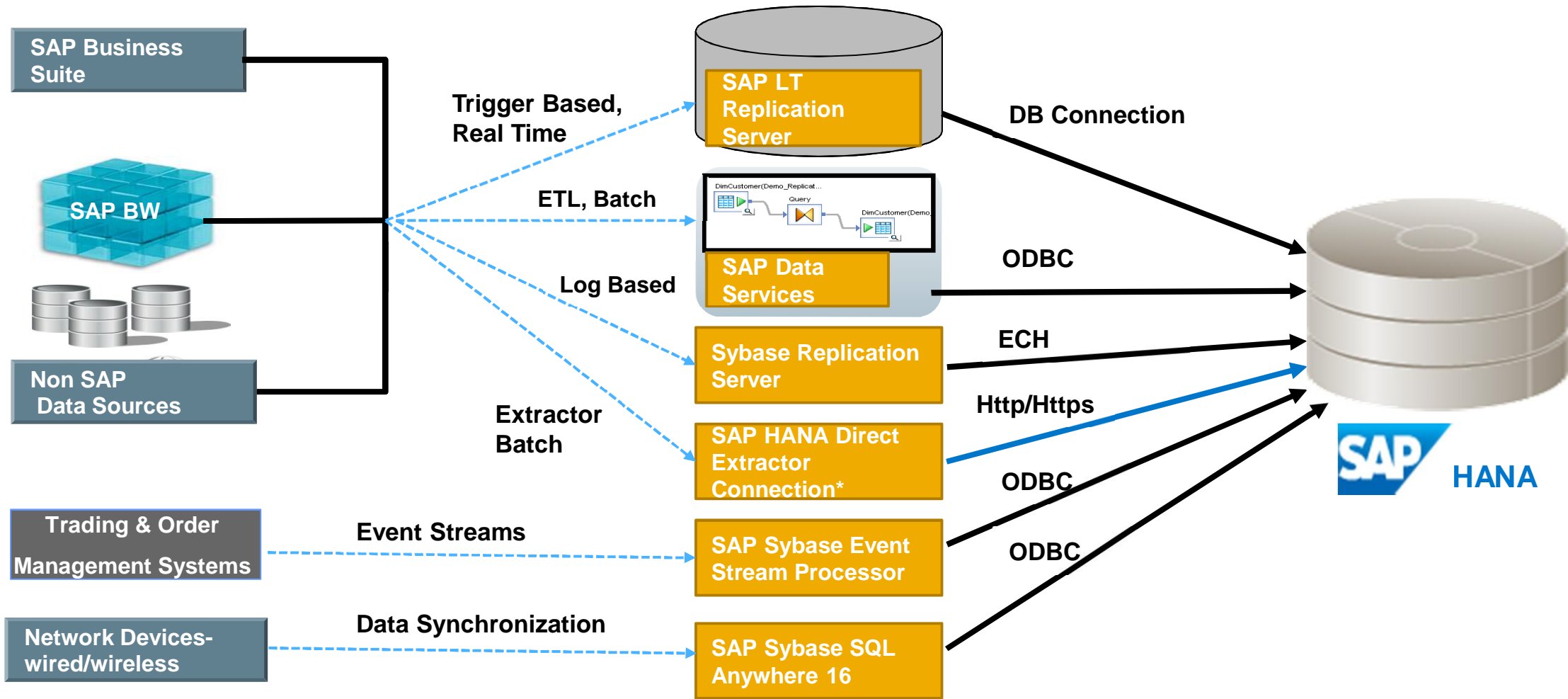
- **3rd Party Integration - SAP HANA Certification.**

Demo

Key Takeaways

Real Time Data Platform – SAP HANA

SAP Real-Time Data Platform

- 3rd-Party BI Client
- SAP® Business Suite
- SAP NetWeaver® BW
- SAP Big Data Applications
- SAP Analytics
- SAP Mobile
- Custom Apps
- SAP NetWeaver (On-Premise/Cloud)

Common Modeling SAP® Sybase® PowerDesigner®

Open Developer APIs and Protocols

MPP Scale-Out

SAP® Sybase® Adaptive Server® Enterprise (ASE)

SAP® Sybase® SQL Anywhere

SAP HANA® Platform

SAP Sybase ESP

SAP® Sybase® IQ

HADOOP 3rd-Party DB

Common Landscape Management

SAP® Sybase® Replication Server®

SAP Data Services

SAP MDG, MDM

SAP Smart Data Services Platform

SAP innovation without customer disruption

Data Provisioning with SAP HANA 1.0 - Options

SAP Business Suite

SAP BW

Non SAP Data Sources

Trigger Based, Real Time

ETL, Batch

Log Based

Extractor Batch

SAP LT Replication Server

DimCustomer(Demo_Replicat...
Query
DimCustomer(Demo

SAP Data Services

Sybase Replication Server

SAP HANA Direct Extractor Connection*

DB Connection

ODBC

ECH

Http/Https

ODBC

Trading & Order Management Systems

Event Streams

SAP Sybase Event Stream Processor

ODBC

Network Devices- wired/wireless

Data Synchronization

SAP Sybase SQL Anywhere 16

SAP HANA

Data Sources

* SAP ERP & BW Extractors
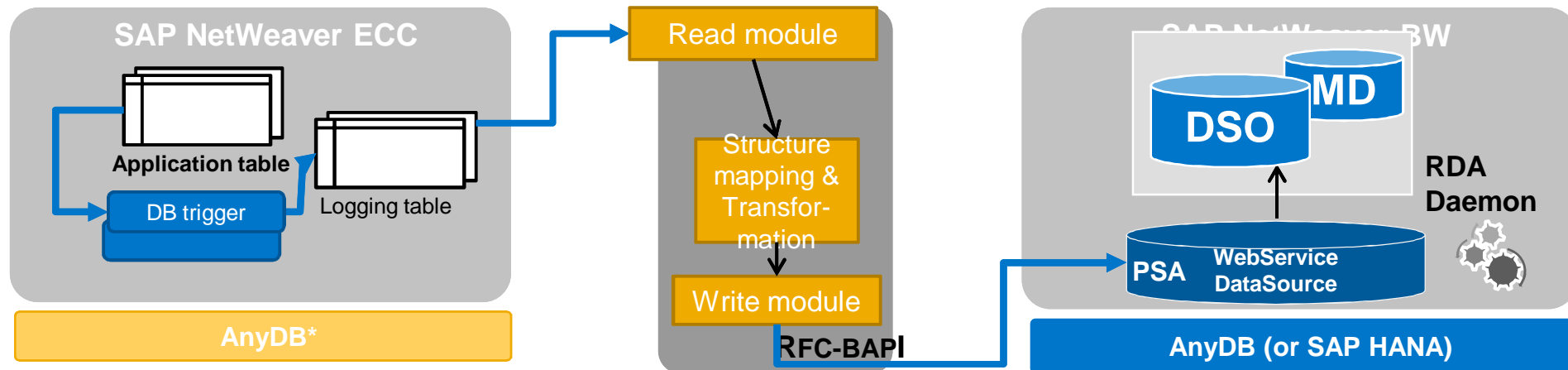
1. SAP LT Replication Server
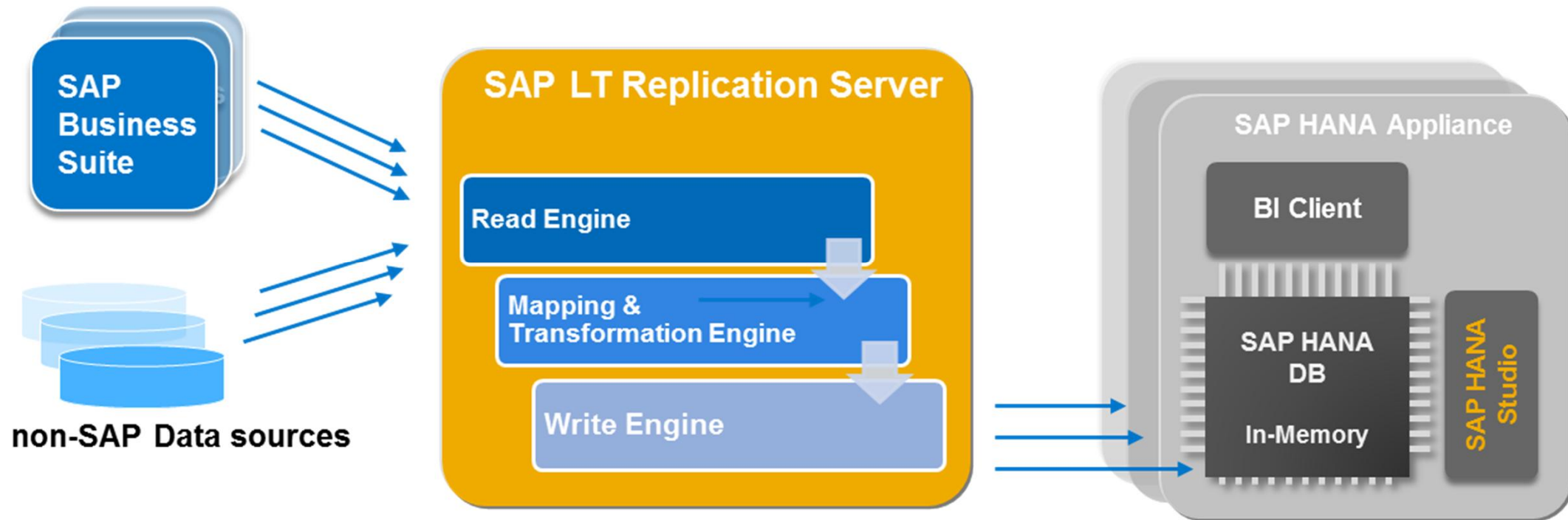
SAP LT Replication Server is the real time data provisioning (Trigger Based) for extracting and loading data into SAP HANA

SAP LT Replication Server- Replication into SAP BW

Replication into a BW Data Source

Overview

- Data replication from SAP and non SAP systems into SAP NW BW 7.0 (onwards) possible with **SAP Landscape Transformation Replication Server** (SLT)

- Real-Time data processing via SAP BW Real time Data Acquisition (RDA) Daemon into a DataStore Object (DSO) or master data tables (MD)

- Recommended for simple tables (no join or transformation logic included) and data sources (extractors) without delta mechanism and complex business logic

  - via Persistent Staging Area (PSA) / Web Service Data Source: -> all BW customers (but rather not preferred option for BW on HANA)

  - via HANA DB schema / view – Virtual Provider or Transient Provider: -> BW on HANA customers only!

    * Including non-SAP sources replication for SAP supported DB versions as well!

SAP LT Replication Server Road map at a glance (planned innovation & future direction)

SAP LT Replication Server

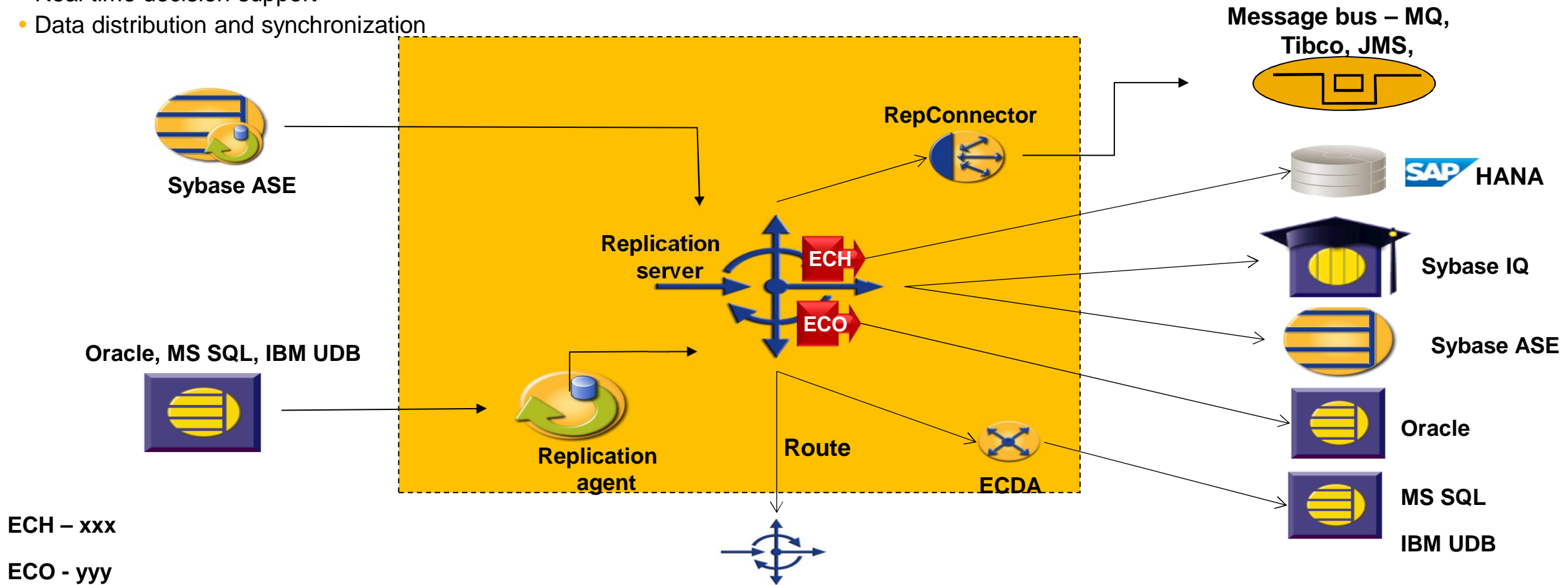|	Feature

Planned: Upcoming 'Release' (DMIS 2011 SP5)	• **New Features**
	  ○ ODQ - Operational Delta Queue
	
	• **Technical Readiness**
	  ○ HR Data Tables (HR Cluster tables)
	  ○ Redesign: Handling of non-SAP data sources and targets
	
	• **Improved Usability & Stability**
	in total a more than 50 person day Investment, i.e.:
	  ○ LTR Configuration UI will be redesigned:
	    → Guided Procedure with build-in check after each input section (data source, target, configuration parameters)
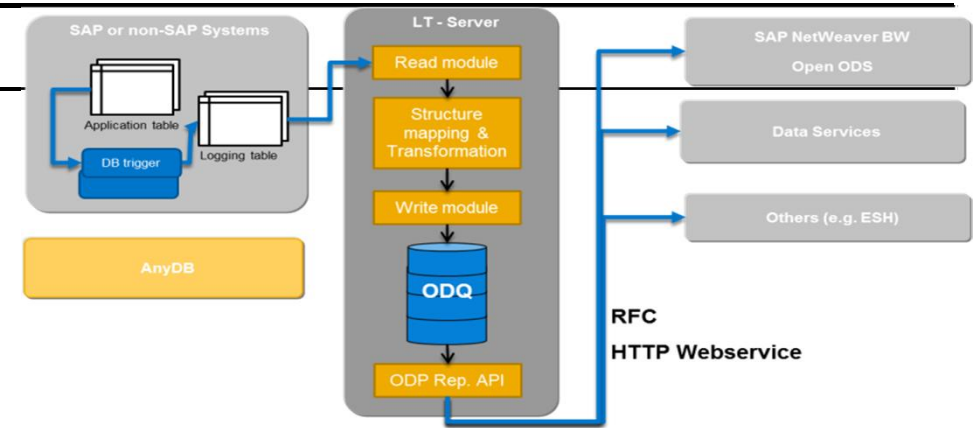
Planned: Future 'Release' (DMIS 2011 SP6)	• **New Scenario/Use Case:**
	  ○ 1:N data distribution scenario for non-SAP Data Sources, too
	  ○ 'Heterogeneous warm Standby'
	  ○ Replication to other target DBs (as project solution only!)
	
	• **Technical Readiness**
	  ○ Support of 'Point-in-Time Restore of Replication Landscape' – Scenario

PLANNED INNOVATIONS, FUTURE DIRECTION

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

2. SAP Sybase Replication Server

SAP Sybase Replication Server (SRS) performs real-time data movement to provide:

- High availability/disaster recovery for databases
- Real time decision support
- Data distribution and synchronization

Message bus – MQ, Tibco, JMS,

RepConnector

Sybase ASE

Replication server

ECH

ECO

SAP HANA

Oracle, MS SQL, IBM UDB

Replication agent

Route

ECDA

Sybase IQ

Sybase ASE

Oracle

MS SQL

IBM UDB

ECH – xxx

ECO - yyy

SAP Sybase Replication Server Support for SAP HANA

- Provide real time, log-based, transactional replication for HANA

- **SAP Sybase ASE**
- **Oracle**
- **MS SQL**
- **IBM DB2/UDB**
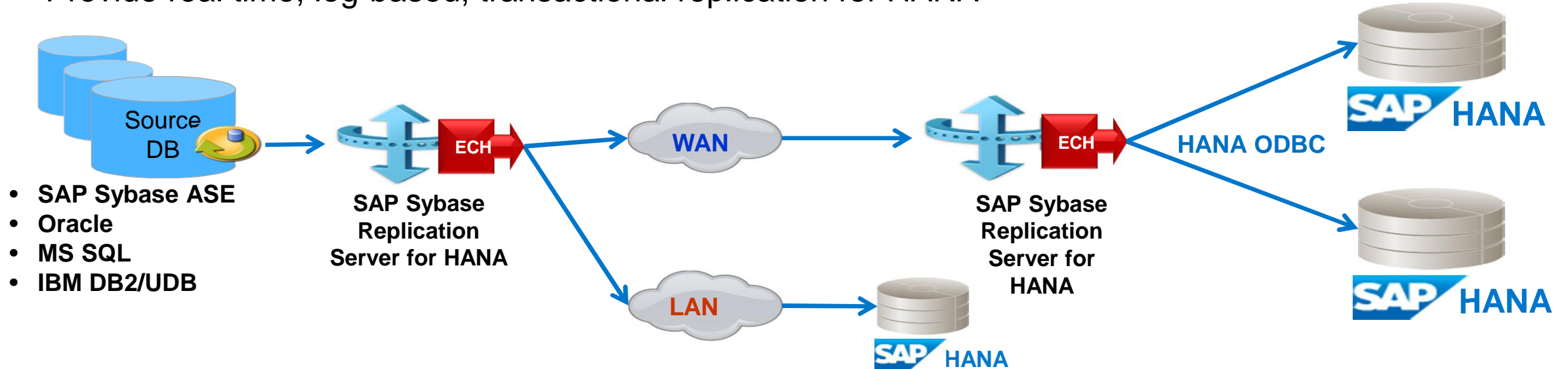
1. **Log-based Heterogeneity support**
   a) Supports Log-based ASE, Oracle, MS SQL and IBM DB2/UDB replication for low-impact and non-intrusiveness of production system
2. **Express Connector for HANA (ECH)**
   a) SRS dynamically loads ECH library with SAP HANA ODBC driver to leverage native HANA bulk capability for better performance
3. **Heterogeneous materialization**
4. **Preserve Transactional Consistency**
5. **Flexible Deployment topology**
6. **Data Assurance support**

Data Assurance (DA) for SAP HANA

- Ensure data consistency between sources and HANA targets
- Highly scalable and can be deployed flexibly to meet high performance and complex topology requirements

SAP Sybase Replication Server - DA

SAP HANA

SAP HANA

SAP HANA

SCC Plug-in
(DAMAP)

Command Line Tool
(isql)
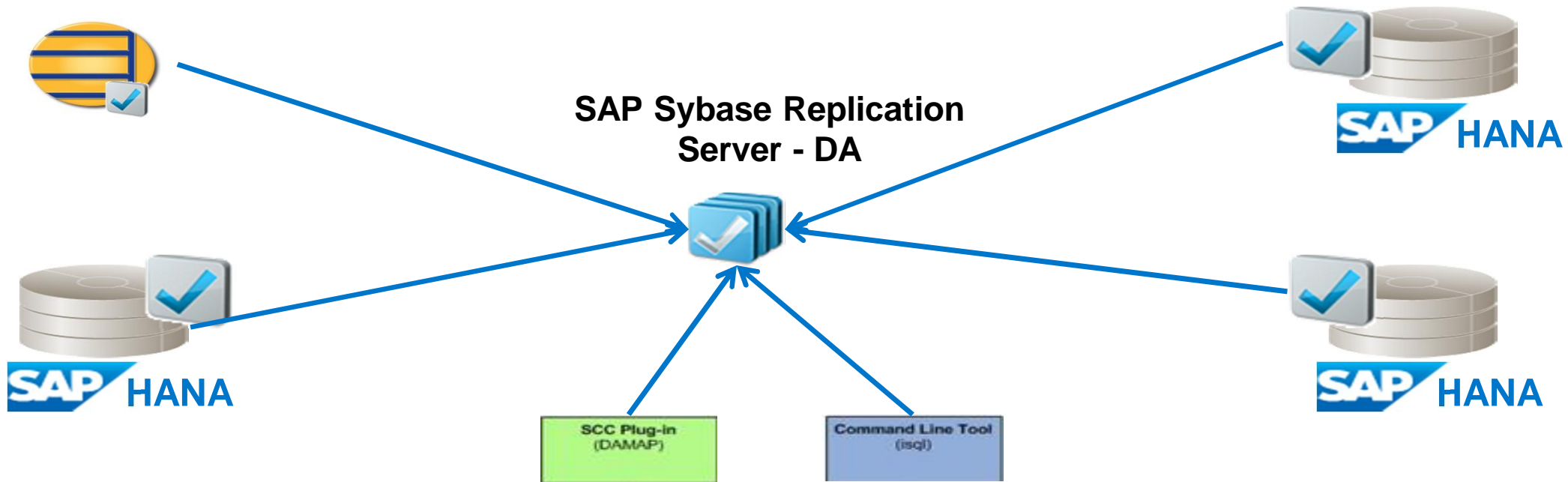
This is the current state of planning and may be changed by SAP at any time.

SAP Sybase Replication Server -High availability/disaster recovery

Minimize/eliminate user impact
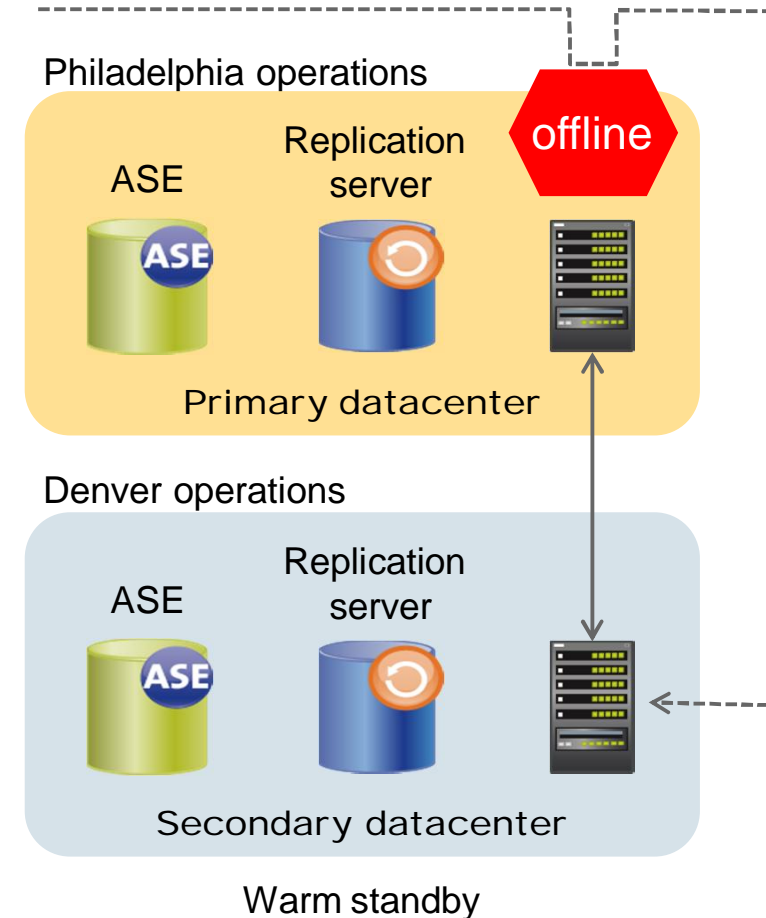
Protect against unplanned outages
- Software, hardware, application failure
- Unforeseen circumstances like data corruption

Protect against planned outages
- Software, hardware, application upgrades
- Enable ops to perform maintenance activities

Recover from natural disaster
- Without geographic restrictions

Philadelphia operations

offline

ASE

Replication server

Primary datacenter

Denver operations

ASE

Replication server

Secondary datacenter

Warm standby

SAP Sybase Replication Server
Product road map overview - key themes and capabilities

ASE 15.7 ESD#1 support

- Support ASE 15.7 ESD#1 features
- Heterogeneous and homogeneous MPR replication
- Replication server performance
- Usability improvements
- Enhanced Oracle replication (compression and encryption)
- DB2 v9.7 support

SAP Business Suite support & SAP HANA replication

- Integrated RS and ASE for Business Suite
- DR support for SAP Business Suite/ASE
- ASE 15.7 ESD#2 features support
- HANA replication from ASE and Oracle for non-SAP applications
- MPR enhancements (column hash binding), multiple scanners
- RSME enhancement (JBoss Cert.)
- Data assurance – Business Suite ASE, HANA, Oracle & IQ
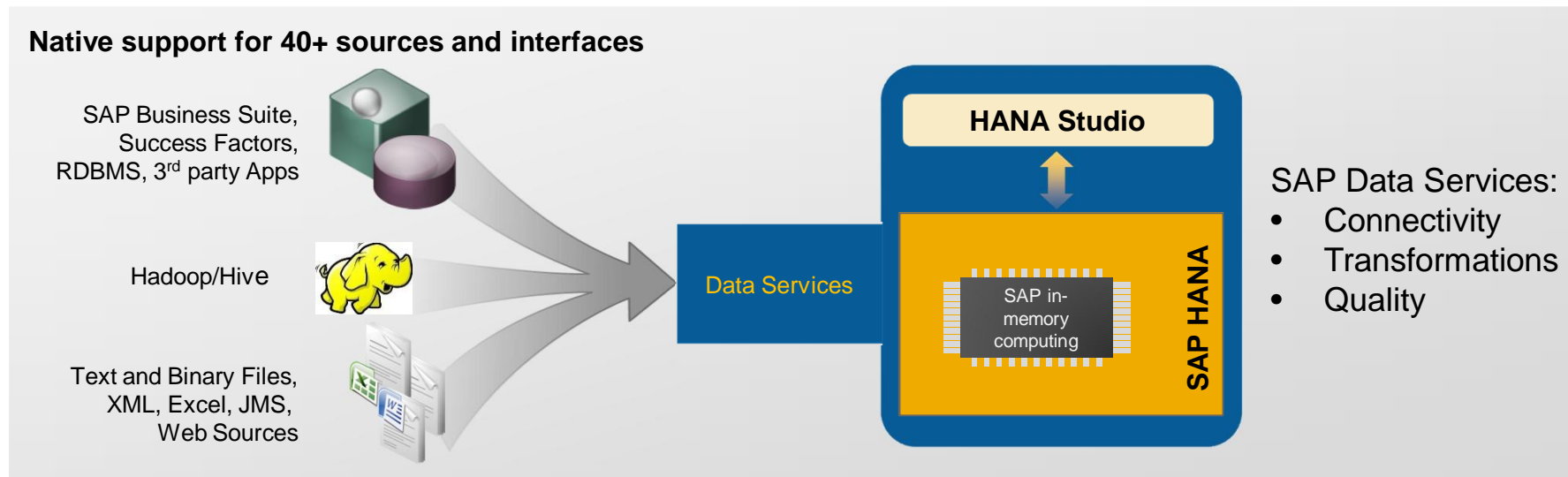
Zero Data Loss (ZDL) & HANA replication

- ZDL support for HADR using synchronous replication
- HANA replication for ASE, Oracle, DB2 for SAP applications
- Report offloading for Business Suite/ASE
- Oracle to ASE migration for Business Suite (unicode to unicode only)
- Replication server performance

Today
(Release 15.7.1 – Q2 2012)

See Appendix for abbreviations

Planned Innovations

Future Direction

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

3. SAP Data Services 4.1

SAP Data Services (DS) is suited for Data Integration (Batch), with HANA optimized capabilities for Transforming, Cleansing* and Integrating (bulk or delta) structured and unstructured* data from many different Sources (SAP and non-SAP) to the Target (SAP HANA**).**

Native support for 40+ sources and interfaces

SAP Business Suite, Success Factors, RDBMS, 3rd party Apps

Hadoop/Hive

Text and Binary Files, XML, Excel, JMS, Web Sources

HANA Studio

Data Services

SAP in-memory computing

SAP HANA

SAP Data Services:
- Connectivity
- Transformations
- Quality

* Data Integrator (for ETL only) is included with most HANA packages. A full Data Service license is required to utilize Data Quality and Text Data Processing.

SAP Data Services: Enterprise-Wide Data Access

SAP Data Services has a long history for providing broad connectivity to databases, applications, legacy systems, file formats, …

Databases	Applications	Files/Transport	Mainframe (with partner)	Unstructured Data

▪ HANA
   ▪ Tables
   ▪ Views **4.1**
▪ Oracle
▪ DB2 (LUW, z-series, i-series)
▪ Sybase ASE
▪ Sybase IQ
▪ SQL Server
▪ Informix
▪ MySQL
▪ Teradata
▪ ODBC
▪ HP NeoView
▪ Netezza
	▪ SAP Bus Suite
	   – Extractors
	   – ABAP
	   – BAPI
	   – Idoc
	▪ SAP NW BW
	▪ JD Edwards
	▪ Oracle Apps
	▪ PeopleSoft
	▪ Siebel
	▪ Salesforce.com
	▪ SuccessFactors **4.1**
		▪ Text delimited
		▪ Text fixed width
		▪ EBCDIC
		▪ XML
		▪ Cobol
		▪ Excel
		▪ HTTP
		▪ JMS
		▪ SOAP (Web Services)
		
		▪ HADOOP **4.1**
			▪ ADABAS
			▪ ISAM
			▪ VSAM
			▪ Enscribe
			▪ IMS/DB
			▪ RMS
			▪ Both direct and changed data
				▪ Any text file type
				▪ 6 languages
				▪ Extended to 31 languages. **4.1**
				▪ Expanded to PDFs, DOCs, PPTs, etc

Reference Data Services PAM for additional details   http://service.sap.com/pam

SAP Data Services - Roadmap

Big Data

- Real-time Data Provisioning of SAP and non-SAP sources

- Harness the Power of HANA for instant data profiling and transformations pushdown

- Expanding source data connectivity through Adapter SDK and web services

- Unlock SAP ECC data asset with certification and support of over 5000 Extractors

Smart and Simple

- New and intuitive user interface to support complex data replication

Enterprise Readiness

- New web-based job promotion management across Development, Test and Production Environment

- Installation and Design-time robustness

SAP Sybase Event Stream Processor
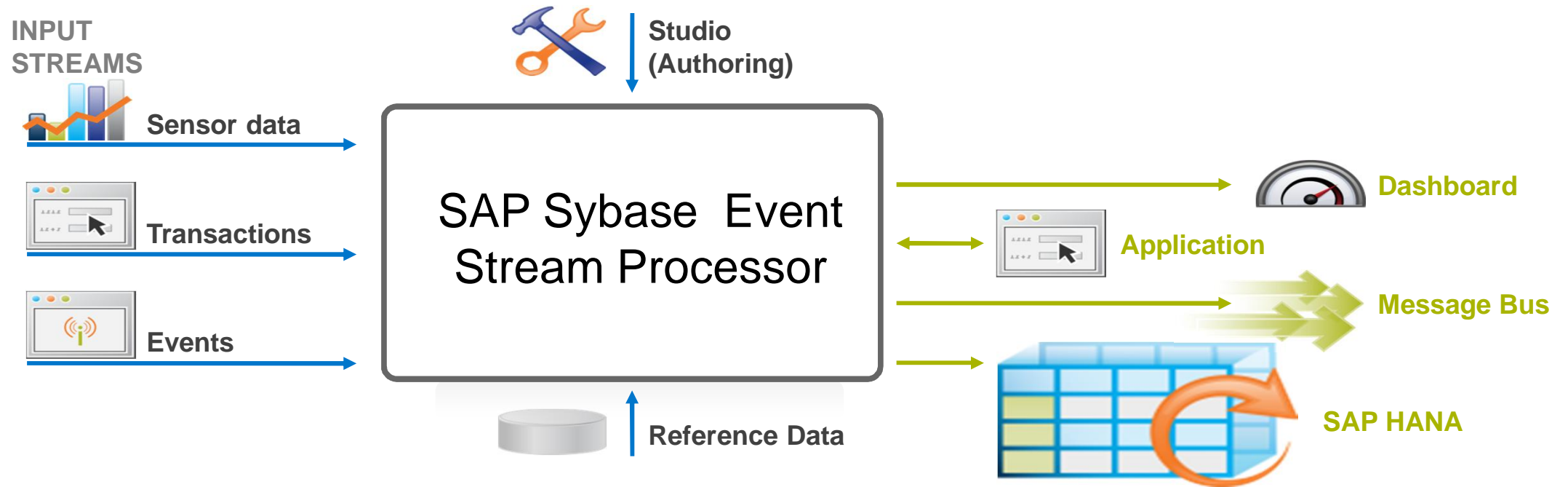
- ➤ **Unlimited number of input streams**

- ➤ **Incoming data passes through "continuous queries" in real-time**

- ➤ **Output is event driven**

- ➤ **Scalable for extreme throughput, millisecond latency**

# How SAP Sybase ESP 5.1 can be used with SAP HANA

Sensors

Transactions

Price Feeds

Click Streams

Etc, etc

ESP

1

SAP HANA

2

3
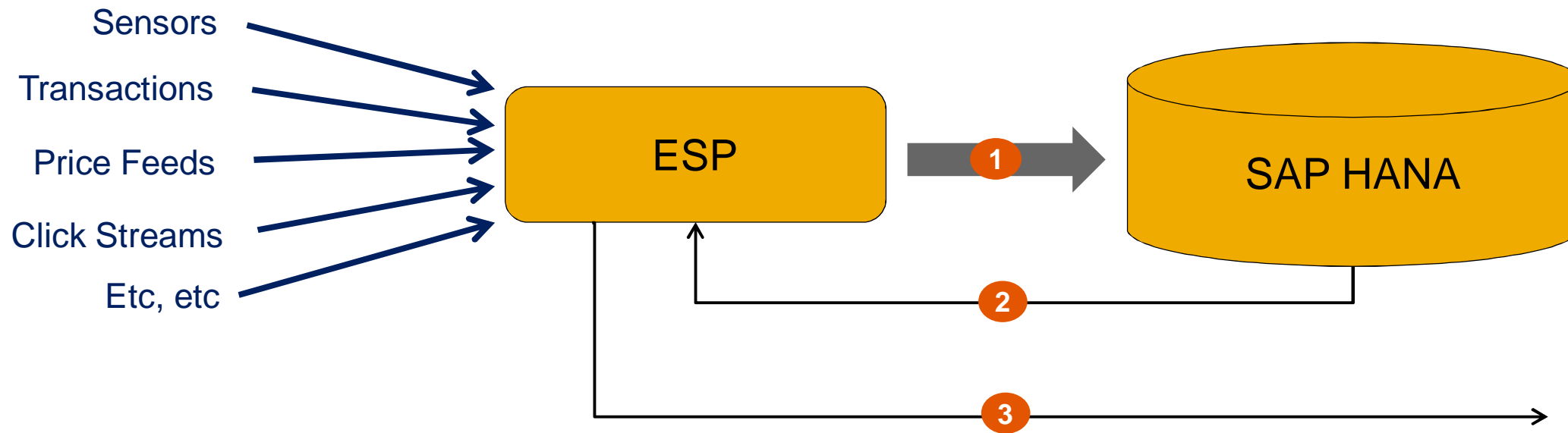
1 High speed smart capture: ESP can apply logic to transform, filter, aggregate, enrich incoming event streams and capture data in HANA

2 ESP can query HANA to provide context for processing incoming events

3 ESP publishes alerts or triggers response process

# Other Data Provisioning - Options

1. SAP HANA Direct Extractor Connection (DXC)

SAP HANA Direct Extractor Connection (DXC) is available as a simple option in batch mode for data replication from existing SAP Data Source extractors (SAP Business Suite) to Target (SAP HANA) for stand alone data mart scenarios.
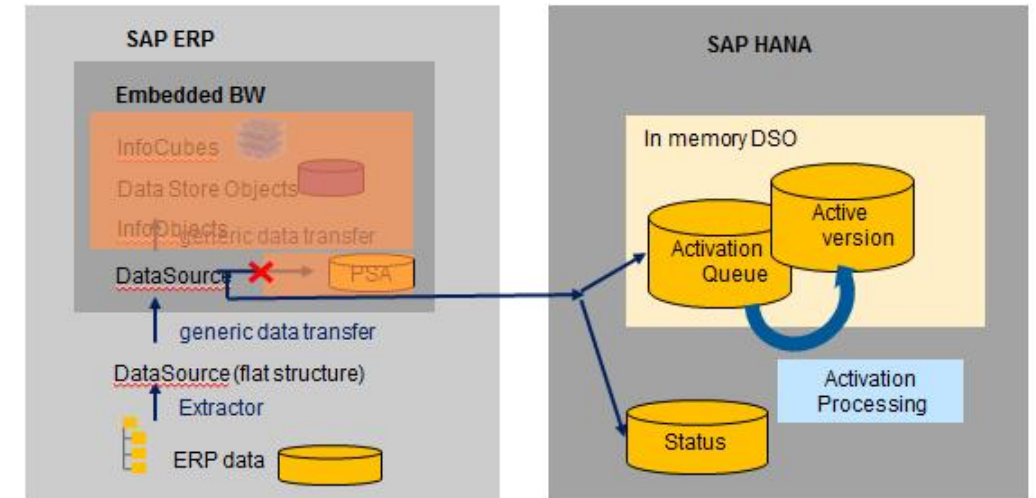
2. SAP Sybase SQL Anywhere 16 (Data Synchronization- Mobilink)

SAP Sybase SQL Anywhere is a comprehensive suite of solutions which provides data management, synchronization and data exchange technologies to enable the rapid development and deployment of database-powered applications in remote and mobile environments.
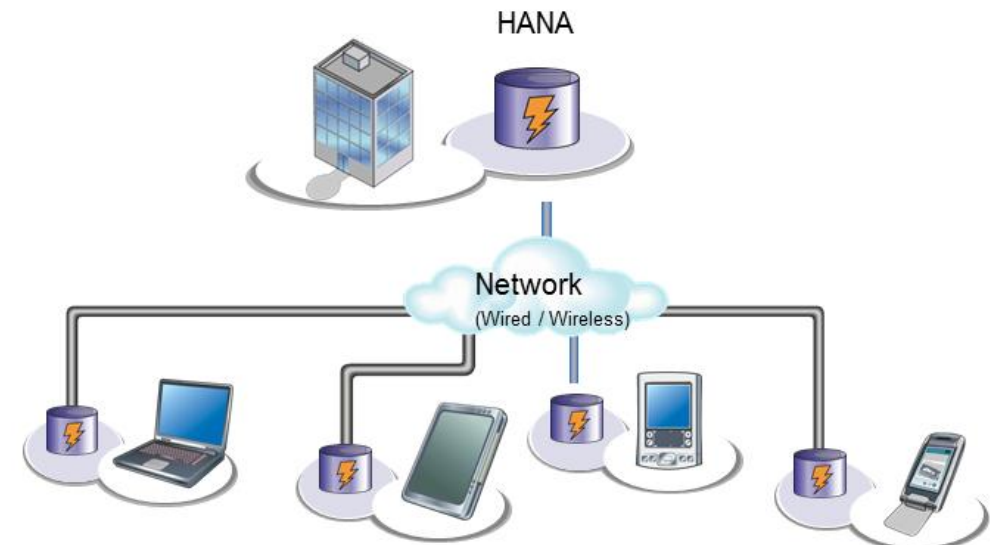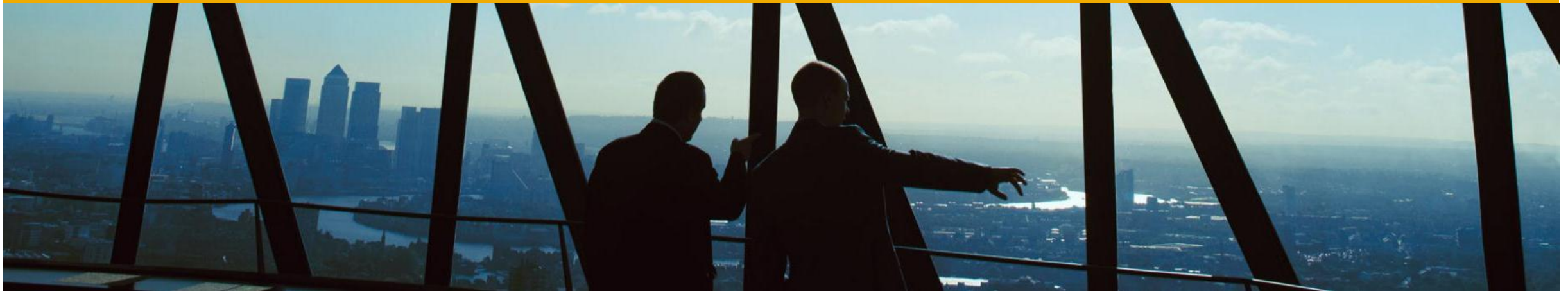
3rd Party Integration – SAP HANA Certification

• SAP Partners can enroll into SAP HANA Certification Program to integrate their ETL tools with SAP HANA for data loading use case scenarios.

• Only **JDBC** and **ODBC** interfaces are currently opened to certify with in the certification program

• Partners can initiate the discussions through their SAP partner manger

• SAP HANA PM team and SAP ICC team will provide additional details about the certification program requirements and the costs associated with the certification

For More Information, contact: **prasad.illapani@sap.com**

Interface	Environment	API Description	Version
JDBC	Java	Java Community Process (JCP)	3.0; 4.0
ODBC	C/C++	SQL Standard (SQL/CLI), Microsoft	3.0, 3.51

Demo

Key Takeaways

- **Real Time Data Platform - Overview**

- **Data Provisioning options with SAP HANA**

- **3rd Party Integration Tool Certification wth SAP HANA**

Further Information

- **SAP BusinessObjects Data Services**
  http://scn.sap.com/community/data-services

- **Experience SAP HANA**
  https://www.experiencesaphana.com/Cached

- **SAP Sybase ESP**
  http://www.sap.com/solutions/technology/database/complex-event-processing/index.epx
  http://scn.sap.com/community/event-processing
  http://scn.sap.com/community/developer-center/sybase-esp

  ▪ **SAP LT Replication Server**
  http://service.sap.com/hana
  http://scn.sap.com/community/replication-server

Thank you

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