SAP Sybase Replication Server
What’s New in 15.7.1 SP100

Bill Zhang, Product Management, SAP HANA
Lisa Spagnolie, Director of Product Marketing
Agenda

- SAP Sybase Replication Server Overview
- Replication for SAP HANA
- Real-Time CDC for SAP Data Services
- Disaster Recovery for SAP Business Suite on ASE
- Roadmap
- Key Information Sources
SAP Sybase Replication Server

SAP Sybase Replication Server, is a real-time data replication and synchronization solution that allows organizations to move and synchronize data across the extended enterprise to facilitate high availability/disaster recovery, real-time reporting, and data distribution

Known for being:
• Secure
• Reliable
• Low impact
• High performance
SAP Sybase Replication Server
A History of Enterprise-Scale Data Replication

Proven in the world’s most demanding **real-time, mission-critical data replication environments**, including

- Wall Street
- Public Services
- Retail & Logistics

**History of Leadership**

- 1st transactional replication tool in the market – now **over 3,000 customers** across all industries
- Recognized as an industry Leader by Gartner and Forrester
- 10+ technology patents to boost performance

**Proven Benefits**

- Improved disaster recovery and ability to store data at geographically distant sites
- High availability and performance for continuous, real-time access to critical data
- Unlimited scalability to grow as business dictates
- Secondary copy can be used for reporting while reducing demands on primary database
- Heterogeneous - Oracle, SAP Sybase ASE, IBM DB2, and Microsoft SQL Server as sources; SAP HANA, SAP Sybase IQ, Oracle, SAP Sybase ASE, IBM DB2, Microsoft SQL Server, and Message Bus as targets
The Magic Quadrant graphics was published by Gartner Inc. as part of a larger research note and should be evaluated in the context of the entire report.
SAP Sybase Replication Server
Most Commonly Deployed Use Cases

High Availability/Disaster Recovery
- Berlin Operations
- Off Line
- Primary Datacenter
- Secondary Datacenter
- London Operations

Real Time Reporting
- Decision Support
- Rep Server
- DBs
- Rep Server

Data Distribution
- New York
- Order Entry
- WAN
- WAN
- LAN
- Tokyo
- New York
- Financial Application
- London
- Manufacturing
- Sales Support
Product Architecture

Change Data Capture

Primary

Replication Engine

In-bound Connectivity (LTL)
- Administration & Monitoring
- Rules Engine
- Transformation
- Catalog DB
- Message Repository

Routing & Distribution

Target

Targets:
- SAP HANA
- SAP Sybase ASE
- SAP Sybase IQ
- SAP Sybase ESP
- Oracle
- Microsoft SQL Server
- IBM DB2/UDB
- Message bus
- IBM DB2/OS390

Sources (Log-based):
- SAP Sybase ASE
- Oracle
- MS SQL Server
- IBM DB2/UDB
- IBM DB2/OS390

Rep Agent

© 2013 SAP AG or an SAP affiliate company. All rights reserved.
Agenda

- SAP Sybase Replication Server Overview
- Replication for SAP HANA
- Real-Time CDC for SAP Data Services
- Disaster Recovery for SAP Business Suite on ASE
- Roadmap
- Key Information Sources
SAP Sybase Replication Server 15.7.1 SP100
New features and functions

Real-Time Replication for SAP HANA
Increase reporting and transactional performance

- Offloads reporting workloads from Microsoft, IBM, Oracle, or ASE to SAP HANA (new target)
- Log-based design moves data without disrupting transactional system

Disaster Recovery for Business Suite on ASE
Zero Downtime Solution for SAP Business Suite on ASE

- Zero Downtime solution for SAP Business Suite on ASE
- Avoid costs and risk of planned and unplanned downtime

Real-Time CDC for SAP Data Services
Faster, more accurate business intelligence with real-time CDC

- Real-time change data capture (CDC) now feeds SAP Data Services
- Fresher data drives more accurate analytics
SAP Sybase Replication Server for SAP HANA

SAP Sybase Replication Server (SRS) provides real-time or scheduled, log-based, transactional replication for SAP HANA

1. **Log-based Heterogeneous Solution**
   a) Supports Log-based ASE, Oracle, MS SQL and IBM DB2/UDB replication for low-impact and non-intrusiveness of production system

2. **ExpressConnect 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 direct load materialization (a.k.a. initial load)**
4. **Preserve Transactional Consistency between source and HANA target**
5. **Flexible Deployment over LAN/WAN, with multiple sources to multiple targets topology**
6. **Data Assurance support to ensure distributed data consistent**
Heterogeneous Direct Load Materialization

- Direct load materialization optimized for many tables with many rows
- Used with subscriptions to table replication definitions
- Replication to other tables not suspended during direct load materialization
- Multiple parallel threads can be configured to load data from one primary table to its corresponding replicate table. Default # of thread is configured as 5.
- Materialization progress can be monitored
SAP Sybase Replication Server Data Assurance for SAP HANA

- Ensures data consistency between sources and SAP HANA targets
- Highly scalable and can be deployed flexibly to meet high performance and complex topology requirements
Key Benefits of SAP Sybase Replication Server for HANA

SAP Sybase Replication Server provides real-time or scheduled, log-based, transactional replication for SAP HANA

1. Provides real-time replication without performance impact to existing production system using heterogeneous, log-based replication

2. Preserves transactional integrity between source and SAP HANA target

3. Allows flexible deployment over LAN/WAN, with multiple sources to multiple targets for deployment topology

4. Build-in Data Assurance capability to ensure consistency of distributed data
Agenda

• SAP Sybase Replication Server Overview
• Replication for SAP HANA
• **Real-Time CDC for SAP Data Services**
• Disaster Recovery for SAP Business Suite on ASE
• Roadmap
• Key Information Sources
Real-Time Change Data Capture for SAP Data Services

SAP Sybase Replication Server + SAP Data Services

- Single solution for real-time Change Data Capture (CDC) complex data transformation and data quality management
- Turn complex operational data into business user consumable information in real-time
- Improve business performance with the right data for real-time BI analytics and applications
Single, Integrated Solution for Better Business Intelligence

Provides a single solution for real-time change data capture (CDC), complex data transformation and data quality management with end to end enterprise modeling

- **SAP Sybase Replication Server**: low impact, low latency, real time change data capture
- **SAP Data Services**: complex transformation & data quality
- **SAP Sybase PowerDesigner**: enterprise modeling & runtime script generation
Real-time CDC for Data Services Process Flow

1. Changes to myCustomer table in Oracle database, such as: 1) adding new contacts 2) modifying existing contacts, are executed.

2. Data modifications to MyCustomer table are captured in real-time by SAP Sybase Replication Server.

3. CDC data is stored in runtime database, such as SAP Sybase ASE, for further processing by SAP Data Services.

4. SAP Data Services retrieves CDC data from runtime database to: 1) perform Data Quality or Transformation 2) update the CustomerMaster table.

SAP Sybase Replication Server

Runtime database (ASE)

CustomerMaster (ASE)

SAP PowerDesigner generates runtime models for SAP Sybase Replication Server and runtime database schema.

SAP Sybase PowerDesigner
Publications

- Tables and procedures can be replicated
- Creates “Articles” from some or all objects in RDBMS

Subscriptions

- Function strings
- Manage complex mappings or transforms
SAP Data Services Process Flow

1. **Configuration:**
   - SAP Data Services setup to retrieve CDC data from runtime database

2. **CDC Dataflow Design**
   - Use of continuous workflow

3. **CDC Data Retention**
   - Purging of old CDC data from runtime database
Key Benefits of Real-Time CDC for SAP Data Services

Provides end-to-end solution of real-time, continuous change data capture, combined with complex transformation and data quality for better business intelligence solutions

Existing SAP Data Services customers:
- Enrich batch data processing with real-time source data changes, including real-time data delivery, zero fault tolerance, and zero operational downtime

Existing SAP Sybase Replication Server customers:
- Data replication and synchronization across the enterprise combined with advanced-level data transformation and data quality capabilities
Agenda

- SAP Sybase Replication Server Overview
- Replication for SAP HANA
- Real-Time CDC for SAP Data Services
- Disaster Recovery for SAP Business Suite on ASE
- Roadmap
- Key Information Sources
SAP Business Suite on ASE and Replication Server

Big Picture

- Embedded analytics for business insight and control
- Harmonized UI across all applications and processes for increased end-user productivity
- SOA enablement for process flexibility and business agility
- End-to-end process for increased business and IT efficiency
- Industry best practices for improved performance in core process in all lines of business
- Enhancement packages for bringing non-disruptive innovation for SAP Business Suite
- ASE reduces total cost of ownership
- ASE provides high performance and scalability
- Replication server reduces business risk through continuous availability
SAP Sybase Replication Server - DR Agent Capabilities

Simplify the setup of a Business Suite disaster recovery environment
- Consolidate the steps required to produce the environment
- Produce a standard replication configuration
- Supports servers configured on separate hosts
- Integrate with the Business Suite’s SAP Installer, DBA Cockpit, DBCntrl

Automate the failover process
- Reverse the direction of replication
- Support both planned and unplanned events
- Provide solutions for different recovery scenarios
- Integrate ASE HADR to control database access

Monitor replication
- Availability of servers, connections, and routes
- Replication Latency
- Resource utilization
1. Set up Primary Replication Environment in SAP Installer

Installation steps:

1. Select “Setup of Replication Environment” from product catalog
2. Add Standby Environment and Configure

Installation steps:

1. Select “Setup of Replication Environment” from product catalog
2. Choose installation mode (typical)
3. Enter SAP profile directory
4. Specify default password for OS and DB users
5. Configuration of replication environment
   1. On standby: deselect configuration

   **Ready for installation now – no further screens**

   2. On primary: enable configuration specify standby ASE connection details
3. Choose Materialization Method for Replication Environment

Installation steps:

1. Select “Setup of Replication Environment” from product catalog
2. Choose installation mode (typical)
3. Enter SAP profile directory
4. Specify default password for OS and DB users
5. Select configuration, enter standby ASE connection details
6. Choose materialization method
Disaster Recovery Environment Architecture

- The setup is symmetrical on both sites
- Two replication server setup is used for draining the log quickly from primary site and for ease of failback
- Active Replication from Primary to Standby at steady state
Agenda

- SAP Sybase Replication Server Overview
- Replication for SAP HANA
- Real-Time CDC for SAP Data Services
- Disaster Recovery for SAP Business Suite on ASE
- Roadmap
- Key Information Sources
SAP Sybase Replication Server
Product roadmap overview - key themes and capabilities

Business Suite on ASE support & SAP HANA replication
- ASE 15.7 SP100 feature support
- Integrated ASE/SRS for Business Suite
- Planned and unplanned downtime support for SAP Business Suite/ASE
- HANA replication from ASE, Oracle, DB2 and MS SQL Server for non-SAP applications
- Heterogeneous materialization for SAP HANA
- RSME enhancement (JBoss cert.)
- Data Assurance – Business Suite on ASE, SAP HANA, Oracle & SAP Sybase IQ
- SRS and Data Services integration phase I

Business Suite on HANA Replication & Zero Data Loss (ZDL) for ASE
- HANA replication for Business Suite on ASE, Oracle, DB2 and MS SQL
- DDL replication support for HANA
- HANA Studio integration
- Data assurance for HANA (DB2, MS SQL)
- ZDL support for HADR using synchronous replication
- Report off-loading (use standby for read only reporting)
- Admin & monitoring support for HANA replication phase I
- SRS and Data Services integration phase II

Unified Replication Platform
- Extend integrated HA/DR, synchronous replication feature to all ASE customers
- Enable HANA out-bound replication for data distribution
- Tighter integration between SRS and Data Services to enable ELT capability
- Admin & Monitoring support for HANA replication phase II
- Data Replication for Cloud

Today
(version 15.7.1 SP100)

Planned Innovations

Future Direction

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

* See appendix for expansion of acronyms
Agenda

• SAP Sybase Replication Server Overview
• Replication for SAP HANA
• Real-Time CDC for SAP Data Services
• Roadmap
• Key Information Sources
Key Information Sources

Web Pages:
- SRS @ SCN: http://scn.sap.com/community/sybase-replication-server
- SRS Roadmap @ SAP Service Marketplace: http://service.sap.com/roadmap
- SRS @ SAP Community Network: https://community.wdf.sap.corp/community/dbms/srs

SRS – Key Documents and Links
- SAP Sybase Replication Server Overview (SCN)
- Getting Started
- Quick Start Guide for SAP HANA Database
- Design Guide
- Heterogeneous Replication Guide