SAP HANA Cloud Integration
for SAP Sales and Operations Planning
Contact: Ben Hofmans, George Keller, Subha Ramachandran
March 27, 2014
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Strategy and Solution Overview

- HCI architecture and key capabilities for data integration for S&OP
- Pre-packaged integration b/w between SAP ECC, APO and S&OP
SAP HANA Cloud Integration Technology
Build, Deploy, and Monitor

- Cloud-based technology
- Bi-directional process and data integration
- Graphical flows & mappings
- Centralized monitoring and administration
- Pre-built adapters
- Community marketplace (future)
- Lower cost of change over time
Data Integration Requirements for S&OP

- **Extract, transform and load capabilities required:**
  - **Extract data from ERP and APO** (could be multiple systems), potentially also non-SAP applications.
  - **Map** the ERP/APO data structure to S&OP data structure (S&OP structure will be different and can be modeled based on planning requirements). An out-of-the-box model is available as a quick start.
  - **Convert** data types (and code pages) from ERP/APO to HANA data types (or files in case of file upload).
  - **Data transformations**, in particular aggregation to roll-up fine grained numbers to monthly key figures required by S&OP.
  - **Bi-directional** data transfer: write back to onPremise systems is required as well.

- **Load frequency:**
  - **Initial load** to load all historical data used for planning purposes in S&OP
  - **Scheduled delta loads**, usually weekly or even monthly.
  - Write back usually on-demand, once a month or once a quarter when the planning results are ready. This could be scheduled as well.
SAP Hana Cloud Integration Architecture for S&OP

Security and Convenience

• Access on premise ECC and APO data sources directly (no files involved).
• Access to non-SAP system via native database access (Oracle, DB2, SQL Server) or files.
• Web based wizard driven UI to browse metadata directly to design integration flows.
• Manage integration flows from anywhere via secure browser, integration flows persist in HCI repository enabling reuse.
• Use HCI to directly read from SOP’s calculation context on HANA and write back to on premise securely via https.
• “Set it and Forget it” automated scheduling for ETL jobs
SAP HANA Cloud Integration – Web-based UI
Design, Execute and Monitor from anywhere

- Web-based (HTML5)
- Easy-to-use (citizen developer), no coding
- Role based:
  - Designers
  - Operators
  - Administrators
SAP HANA Cloud Integration - Agent
The key to successful deployment

Lightweight installation inside the customer’s firewall
- Less than 100MB to download
- Installation is one screen, less than ten minutes
- Runs on Windows or Linux

Securely transfers data from on-premise to cloud
- Communicates with SAP apps through RFC (encryptable via SNC)
- Data sent over the cloud via HTTPS
- Data are streamed from source to target and never persisted

Operates without firewall exceptions
- Communication is always from the agent to the cloud
- No need for VPN, reverse proxy, or other firewall exceptions
- Agent uses long polling: places request to server and waits for response when a task is ready to execute
### Snapshot of how customers use HCI(DS) today

<table>
<thead>
<tr>
<th>Industry</th>
<th>SAP Cloud Application</th>
<th>Integration Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare, Hi-Tech, Consumer Products…</td>
<td>Sales and Operations Planning (S&amp;OP)</td>
<td>Integrate natively with ERP and APO on premise using standard and custom extractors, as well as with ABAP tables without any coding</td>
</tr>
<tr>
<td>Media and Broadcasting</td>
<td>SFSF Workforce Analytics (WFA)</td>
<td>Integrate natively with 3rd party database on premise that is real-time replicated from custom tables in ECC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Integrate with central on premise BW data (BW sources data from multiple regional ERP and APO systems)</td>
</tr>
<tr>
<td>Sports</td>
<td>SAP Scouting</td>
<td>Accurate deltas from SAP HCM &amp; payroll ABAP tables to SFSF WFA enabling right-time analytics that was previously not possible with file-based full destructive loads.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Integrating natively with 3rd party database on premise to SAP Scouting (HANA Cloud Application) to upload several gigabytes of data daily.</td>
</tr>
</tbody>
</table>
### Key Capabilities

- **Direct secure access** to multiple ECC sources to extract, transform, and load to targeted cloud applications.
- Read and write from **heterogeneous sources** – databases (HANA, DB2, Oracle, SQL Server) and files (XML or delimited).
- **Role-based, wizard driven web UI** in HTML5 for designing, executing, and monitoring ETL jobs.
- **End to end visibility** for data loads into the S&OP and **configurable e-mail notifications** to alert on integration flow operations.
- Built-in **scheduler** or invoke integration flow from 3rd party applications through a webservice call.

### Key Customer Benefits

- Seamless and secure integration of onPremise to SAP Cloud **eliminating need to open firewall to inbound traffic**.
- Data never persists in SAP HANA Cloud Integration, but is piped from OP source to target data-store in SAP cloud.
- Guided user experience for creating and editing ETL jobs **without coding**.
- “Set it and forget it “ **automated with scheduling**, no manual work.

### Key Considerations

- Minimal on premise footprint (<100Mb) with software “agent” for secure connectivity.
- Supports ABAP dataflows and Extractors for extracting from SAP Business Suite.
- Automatic provisioning of sandbox and production **repositories; 1-click promotion of jobs to production**.
- Supports delta loads.

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**Supported Integration Scenarios:** SAP HANA Cloud based applications (SAP Sales and Operations Planning, SAP Scouting), SuccessFactors BizX and Employee Central applications and HANA One Premium Edition.
What content is available for loading S&OP?

Out-of-the-box content to load data into S&OP’s standard planning model

Content includes:

- Extracts from ERP and APO
- Mappings for master data and keyfigure data
- Initial load and delta load logic


Review this document to get more details on the available content.
Thank you

Contact information:

Subha Ramachandran
Ben Hofmans

subha.ramachandran@sap.com
ben.hofmans@sap.com
APPENDIX
### Out-of-the-box content for loading Master Data & Key Figures

*http://help.sap.com/cloudintegration*

<table>
<thead>
<tr>
<th>Task name</th>
<th>SAP Application source</th>
<th>Source tables or extractors</th>
<th>S&amp;OP target table</th>
<th>S&amp;OP key figure columns</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOP_KF_Actuals</td>
<td>ERP</td>
<td>OPLANT_ATTR TOOLW</td>
<td>SOPMD_STAG_SMLOCA TION</td>
<td>SMIACTUALS QTY SMIACTUALSREV</td>
</tr>
<tr>
<td>SOP_KF_Inventory</td>
<td>ERP</td>
<td>MATERI AL_ATTR MAK T</td>
<td>SOPMD_STAG_SMIPRODUCT</td>
<td>SIINI TIALINVENTORYQTY SIINVENTORYTARGETQTY</td>
</tr>
<tr>
<td>SOP_KF_OpenOrders</td>
<td>ERP</td>
<td>2LIS_11 VAHDR</td>
<td>SMIOPENORDERSQTY SMIOPENORDERSREV</td>
<td></td>
</tr>
<tr>
<td>SOP_KF_SalesForecastPrice</td>
<td>ERP</td>
<td>2LIS_13 VDIRM</td>
<td>SMISALESFORECASTPRICE</td>
<td></td>
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<tr>
<td>SOP_KF_CapacityLimit</td>
<td>SCM/APO</td>
<td>/SAPAO/RES_ HEAD 9ACAPACITY</td>
<td>SMLCAPA SUPPLY</td>
<td></td>
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<tr>
<td>SOP_KF_Consumption</td>
<td>SCM/APO</td>
<td>BAPI_LOCSRVAPS_SETLIST2</td>
<td>SMLCAPA CONSUMPTION*</td>
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<tr>
<td>SOP_KF_DemandPlanning</td>
<td>SCM/APO</td>
<td>9ABPC_EXTRACT</td>
<td>SMIDE MANDPLANNINGQTY</td>
<td></td>
</tr>
<tr>
<td>SOP_KF_StatisticalForecast</td>
<td>SCM/APO</td>
<td>9ABPC_EXTRACT</td>
<td>SMISALESFORECASTQTY</td>
<td></td>
</tr>
</tbody>
</table>
Extraction from SAP Applications (ECC and APO)

- Direct read from ABAP tables (RFC_Read_Table)
  - For individual tables (no joins) in a regular dataflow
  - Data is streamed (over RFC) from SAP application server to the agent

- Read via ABAP programs
  - 100% flexibility without coding: join tables, use functions, complex filters, ...
  - Two execution modes:
    - Generate and Execute (Sandbox): ABAP program executed on the fly and executed.
    - Execute pre-loaded (Production): generated ABAP programs from sandbox are reviewed and uploaded to production server, no dynamic generation of ABAP, only executing pre-loaded programs.
  - Data is streamed (over RFC) from SAP application server to the agent

- Business Content Extractors (datasources in BW)
  - Standard content, with out-of-the-box delta support
SAP Hana Cloud Integration
Built-in sandbox and production environment

- Built in sandbox and production environment – one click promotion from sandbox to production
- Role based access control
- Different connection information to source and target for sandbox and production tasks
HANA Cloud Integration (DS)
Architecture

On-premise (customer)  SAP Cloud

SAP ERP
/BODS/
functions

Files

DB

HCI-DS
Agent
Adapters

Web application
Agent manager
HANA loader

Repositories
Sandbox  Production
HANA Apps (S&OP)

HANA Tables

Metadata
Data

Firewall

API

SAP Identity Svc

HANA DB

SuccessFactors BizX

Browser-based users

RFC

HTTPS

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S&OP Data Integration without HCI-DS
Using onPremise ETL tools to generate files

- Extract data with Data Services and persist the data on disk as flat files
  - Must manage and remove the persisted flat files
- Use SFTP or a manual web UI to upload the files to the S&OP server in the cloud
- To write-back, invoke S&OP export KF API (via SOAP call) from Data Services on premise, then write the data to the applicable source systems – no native access to HANA
- More difficult to schedule end-to-end; no central place to manage the process
SAP Data Services vs SAP HANA Cloud Integration (DS)
Comparison onPremise vs. Cloud

<table>
<thead>
<tr>
<th>Licensing</th>
<th>HANA Cloud Integration (HCI-DS)</th>
<th>SAP Data Services On Premise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscription based. Available today with select SAP Cloud Apps. “Platform offering” target: Q1’ 2013</td>
<td>Perpetual License</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deployment</th>
<th>Cloud deployment with minimal on-premise footprint (agent less than 100MB)</th>
<th>On-premise installation (additional hardware etc:)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>ETL Functionality</th>
<th>Focused on cloud Integration with mappings, filters and functions support for target integration scenarios</th>
<th>General purpose platform with full ETL and Data Quality functionality</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Data Loading to the cloud (HANA)</th>
<th>Securely piped over HTTPS from SAP sources to target; data does not persist in files or in HCI</th>
<th>Data import via files or a VPN connection to the cloud database is required.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Supported sources</th>
<th>SAP Business Suite, SuccessFactors adapter, databases (Oracle, DB2, SQL Server, mySQL) and delimited files.</th>
<th>Broad connectivity to applications, databases, files and adapters.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Prepackaged content</th>
<th>Prepackaged content available for target cloud applications (S&amp;OP, Employee Central, …).</th>
<th>N/A</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Design Experience</th>
<th>Web-based, wizard-driven UI, targeted at a citizen developer.</th>
<th>Windows thick client targeted at the traditional ETL developer.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Integration Innovation</th>
<th>Quarterly releases. Keeps pace with Cloud application innovation</th>
<th>Yearly release. General purpose ETL platform is not tied to any cloud application</th>
</tr>
</thead>
</table>
# SAP HANA Cloud Integration

One platform for process and data integration

## SAP HANA Cloud Integration

<table>
<thead>
<tr>
<th>Process Integration</th>
<th>Data Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>Synchronization of data</td>
</tr>
<tr>
<td>Interaction Type</td>
<td>System-2-System</td>
</tr>
<tr>
<td>Coupling to Application</td>
<td>Process-Level</td>
</tr>
<tr>
<td>Primary Trigger</td>
<td>Application Event</td>
</tr>
<tr>
<td>Urgency of Completion</td>
<td>Near Real-Time / Real-Time</td>
</tr>
<tr>
<td>Unit of Data Exchange</td>
<td>Single Business Objects</td>
</tr>
<tr>
<td>Specific Requirements</td>
<td>Data Quality Services: Cleansing, Matching, Consolidation</td>
</tr>
</tbody>
</table>

- Transactional Process Integrity
- Reliability (Guaranteed Delivery)
- Message Orchestration

- Complex transformation from multiple data sources
- Mass Data Handling