SAP HANA Cloud Integration for SAP Sales and Operations Planning

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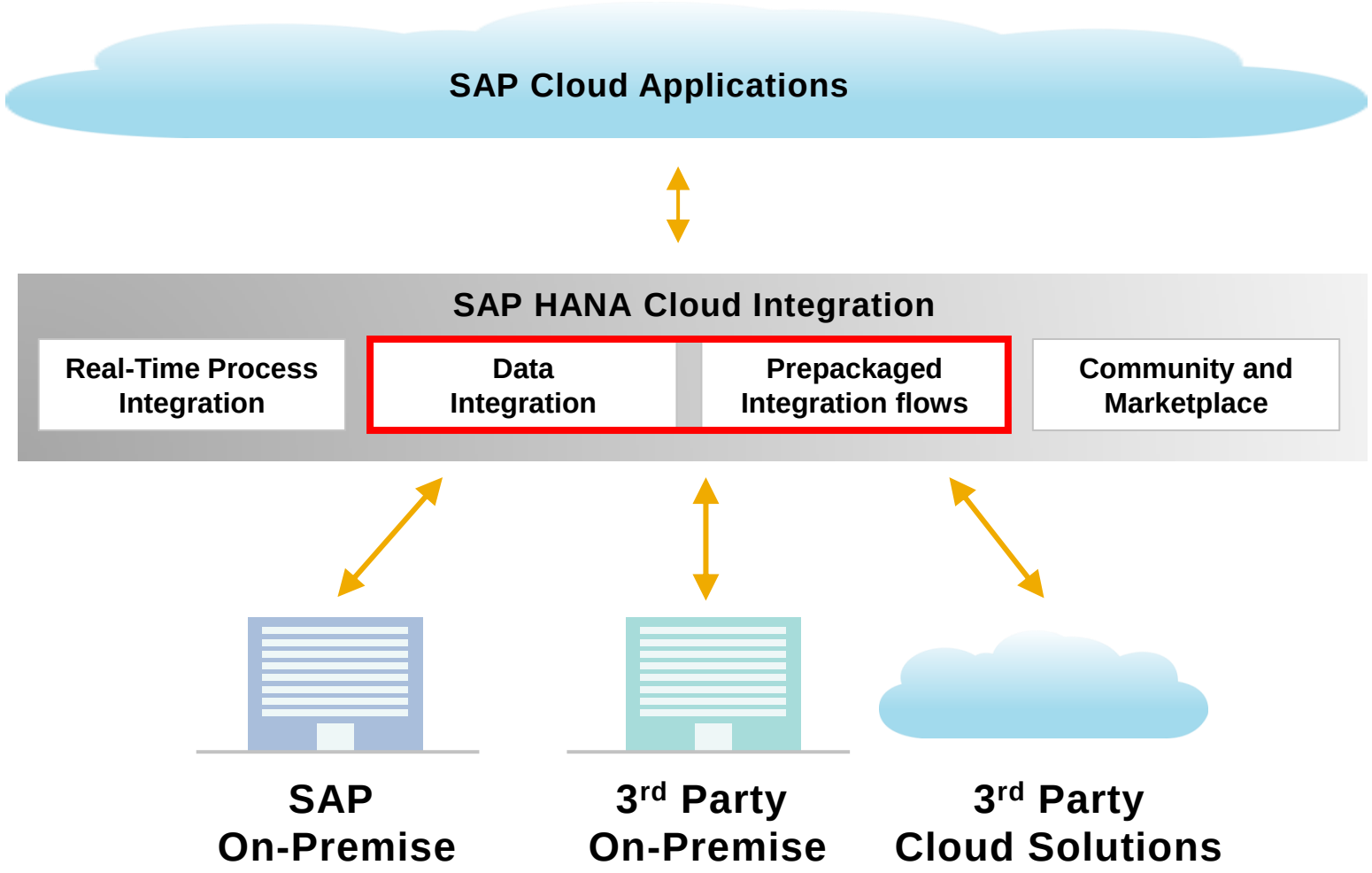
Overview / Content

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-directiona**l data transfer: write back to onPremise systems is required as well.

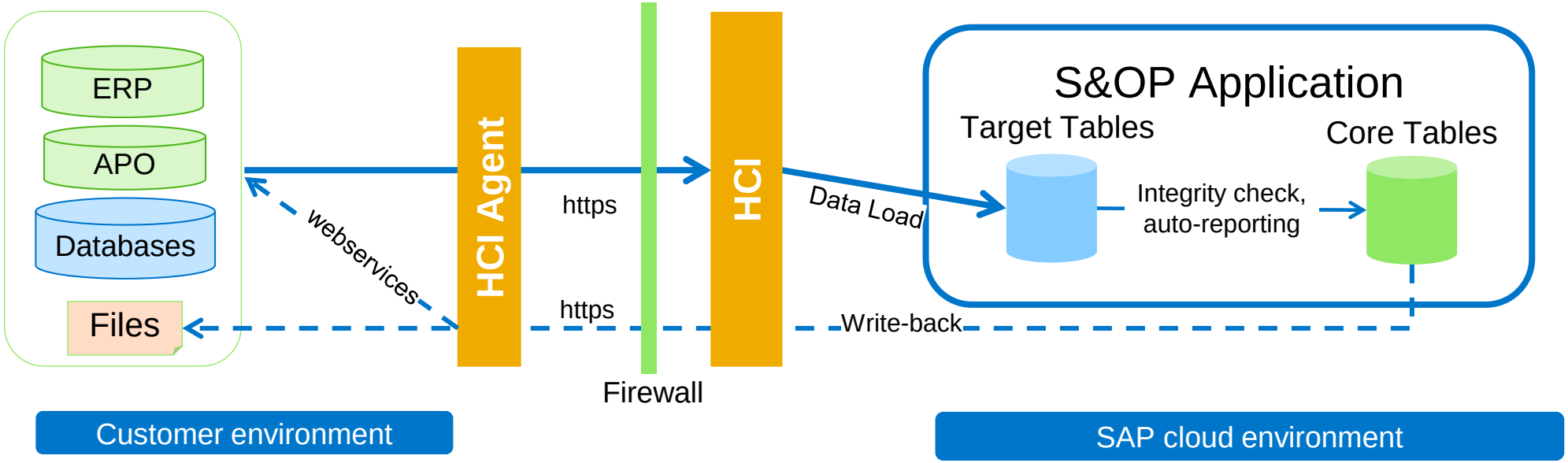
Load frequency:

- **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

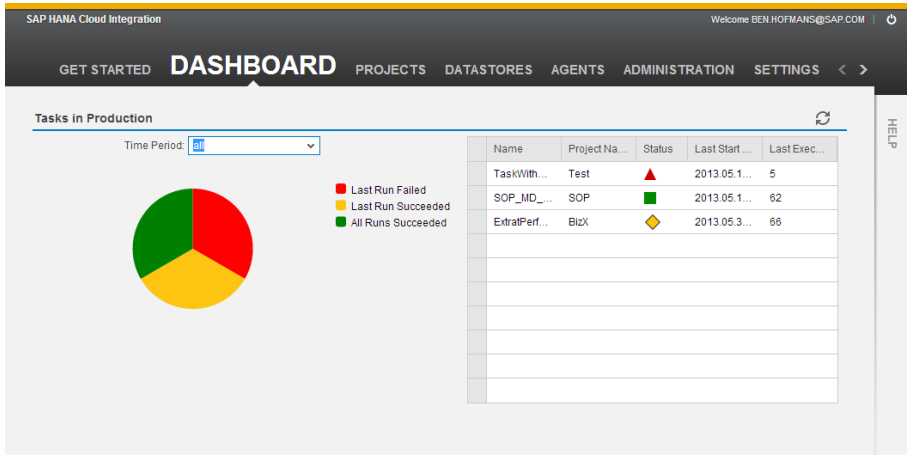
- Access on premise ECC and APO data sources directly (no files involved).
- Access to non-SAP system via native database access (Oracle, DB2, SQL Server) or files.
- Web based wizard driven UI to browse metadata directly to design integration flows.
- Manage integration flows from anywhere via secure 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



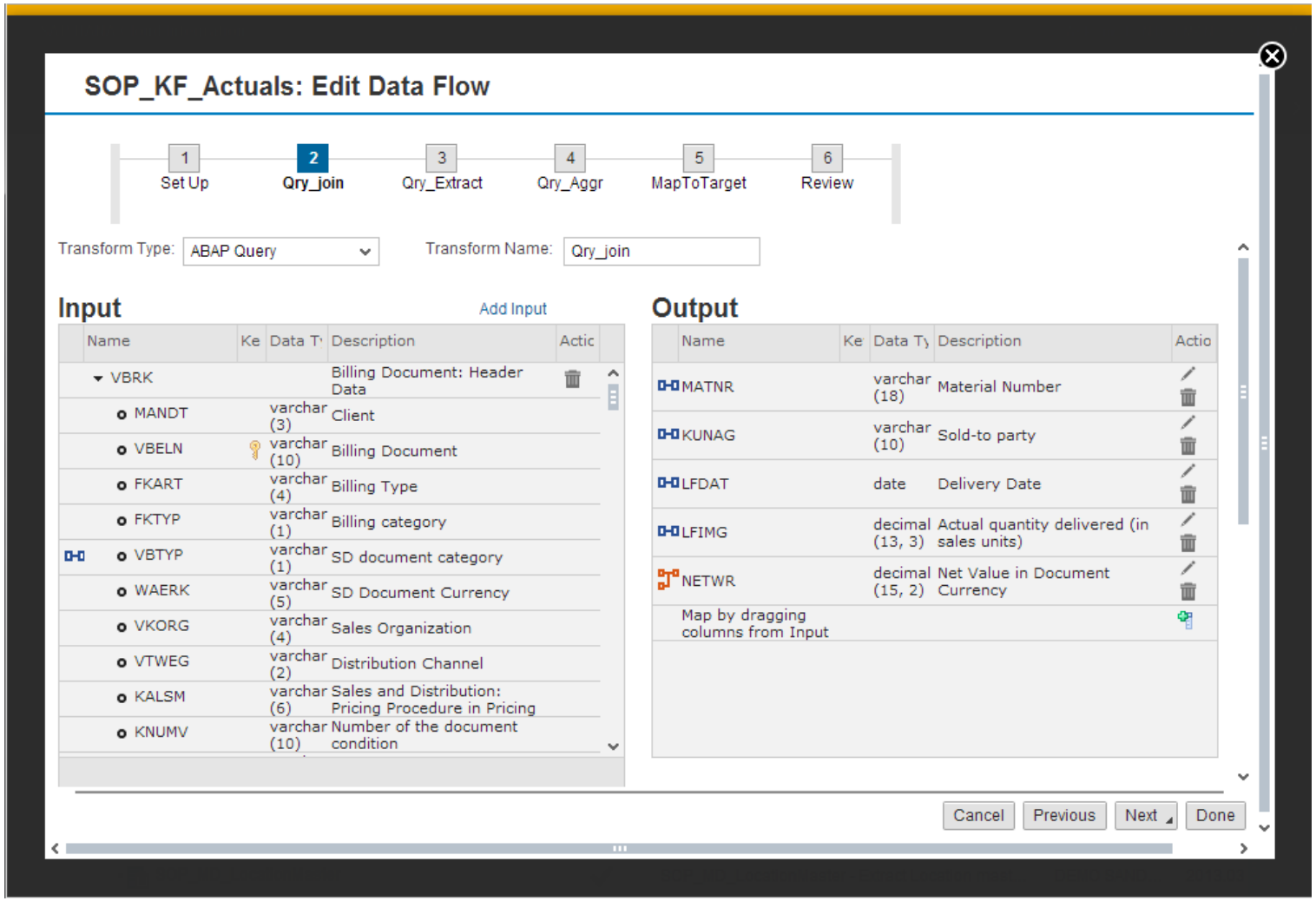
SAP HANA Cloud Integration – Web-based UI

Design, Execute and Monitor from anywhere

- **Web-based (HTML5)**
- **Easy-to-use (citizen developer), no coding**
- **Role based:**
  - Designers
  - Operators
  - Administrators



Operator Dashboard



Designer's dataflow editor (mappings)

SAP HANA Cloud Integration - Agent

The key to successful deployment

Lightweight installation inside the customer's firewall

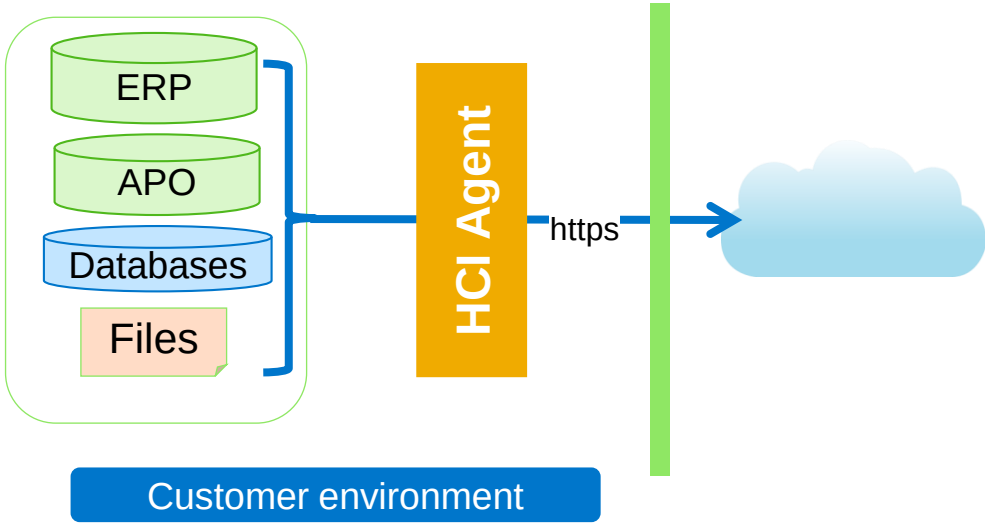
- Less then 100MB to download
- Installation is one screen, less than ten minutes
- Runs on Windows or Linux

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

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

SAP HANA Cloud Integration for data services

Current capabilities

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

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

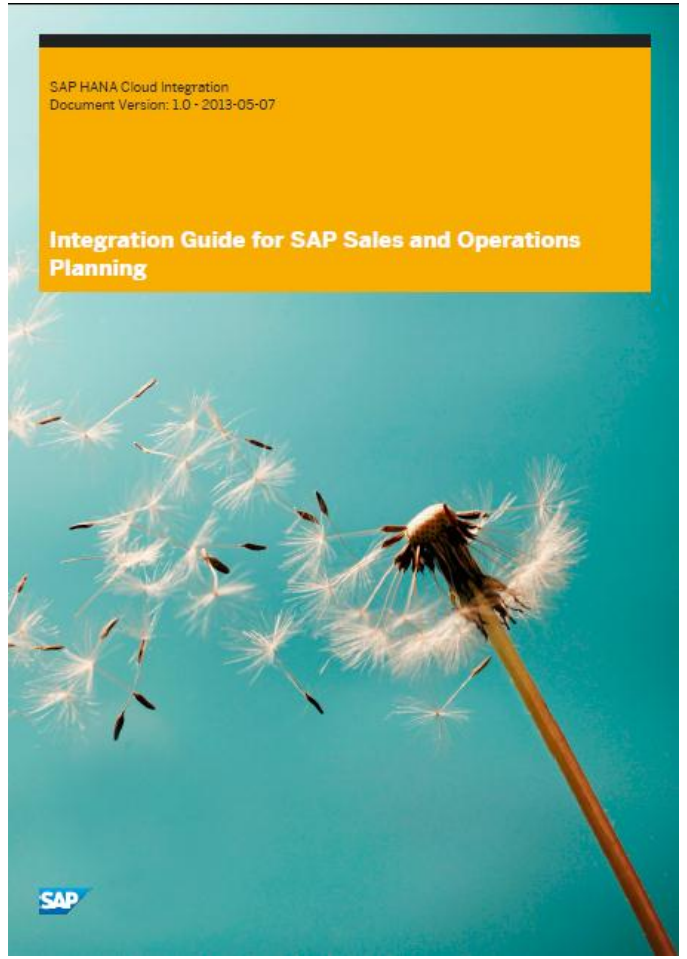
- Minimal on premise footprint (<100Mb) with software "agent" for secure connectivity
- Supports ABAP dataflows and Extractors for extracting from SAP Business Suite
- Automatic provisioning of sandbox and production **repositories; 1-click promotion of jobs to production**
- Supports delta loads

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



Documentation is available on http://help.sap.com/cloudintegration :

Integration Guide for SAP Sales and Operations Planning

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

Thank you

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APPENDIX

Out-of-the-box content

for loading Master Data & Key Figures

http://help.sap.com/cloudintegration

Task name	SAP Applications source	Source tables or extractors	S&OP target table
SOP_MD_LocationMaster	ERP	0PLANT_ATTR T001W	SOPMD_STAG_SM1LOCATION
SOP_MD_ProductMaster	ERP	0MATERIAL_ATTR MAKT	SOPMD_STAG_SM1PRODUCT
SOP_MD_LocationProd	ERP	MBEW MARA MARC	SOPMD_STAG_SM1LOCATIONPRODUCT
SOP_MD_Customer Master	ERP	0CUSTOMER_ATTR KNVP KNVH	SOPMD_STAG_SM1CUSTOMER
SOP_MD_Resource	SCM	/SAPAPO/RES_HEAD	SOPMD_STAG_SM1RESOURCE

Task name	SAP Application source	Source tables/ extractors/BAPI functions	S&OP key figure columns
SOP_KF_Actuals	ERP	2LIS_12_VCITM_SOP VBRK VBRP	SM1ACTUALSQTY SM1ACTUALSREV
SOP_KF_Inventory	ERP	MARC MARA MARD	SM1INITIALINVENTORYQTY SM1INVENTORYTARGETQTY
SOP_KF_OpenOrders	ERP	2LIS_11_VAHDR 2LIS_11_VAITM 2LIS_11_VASTI	SM1OPENORDERSQTY SM1OPENORDERSREV
SOP_KF_SalesForecastPrice	ERP	2LIS_13_VDITM	SM1SALESFORECASTPRICE
SOP_KF_CapacityLimit	SCM/APO	/SAPAPO/RES_HEAD 9ACAPACITY	SM1CAPASUPPLY
SOP_KF_Consumption	SCM/APO	BAPI_LOCSRVAPS_GETLIST2 BAPI_PDSSRVAPS_GETLIST	SM1CAPACONSUMPTION*
SOP_KF_DemandPlanning	SCM/APO	9ABPC_EXTRACT	SM1DEMANDPLANNINGQTY
SOP_KF_StatisticalForecast	SCM/APO	9ABPC_EXTRACT	SM1SALESFORECASTQTY

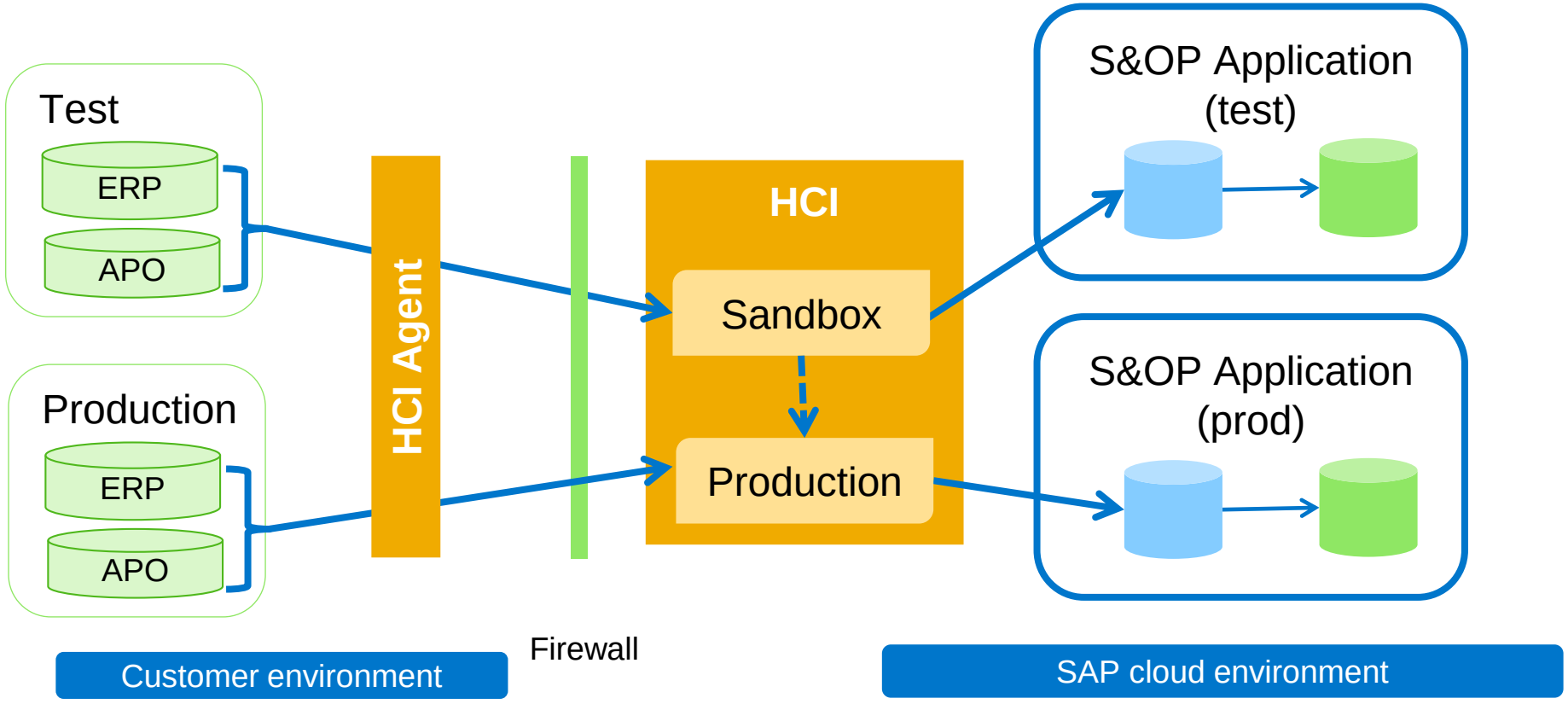
Extraction from SAP Applications (ECC and APO)

- **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

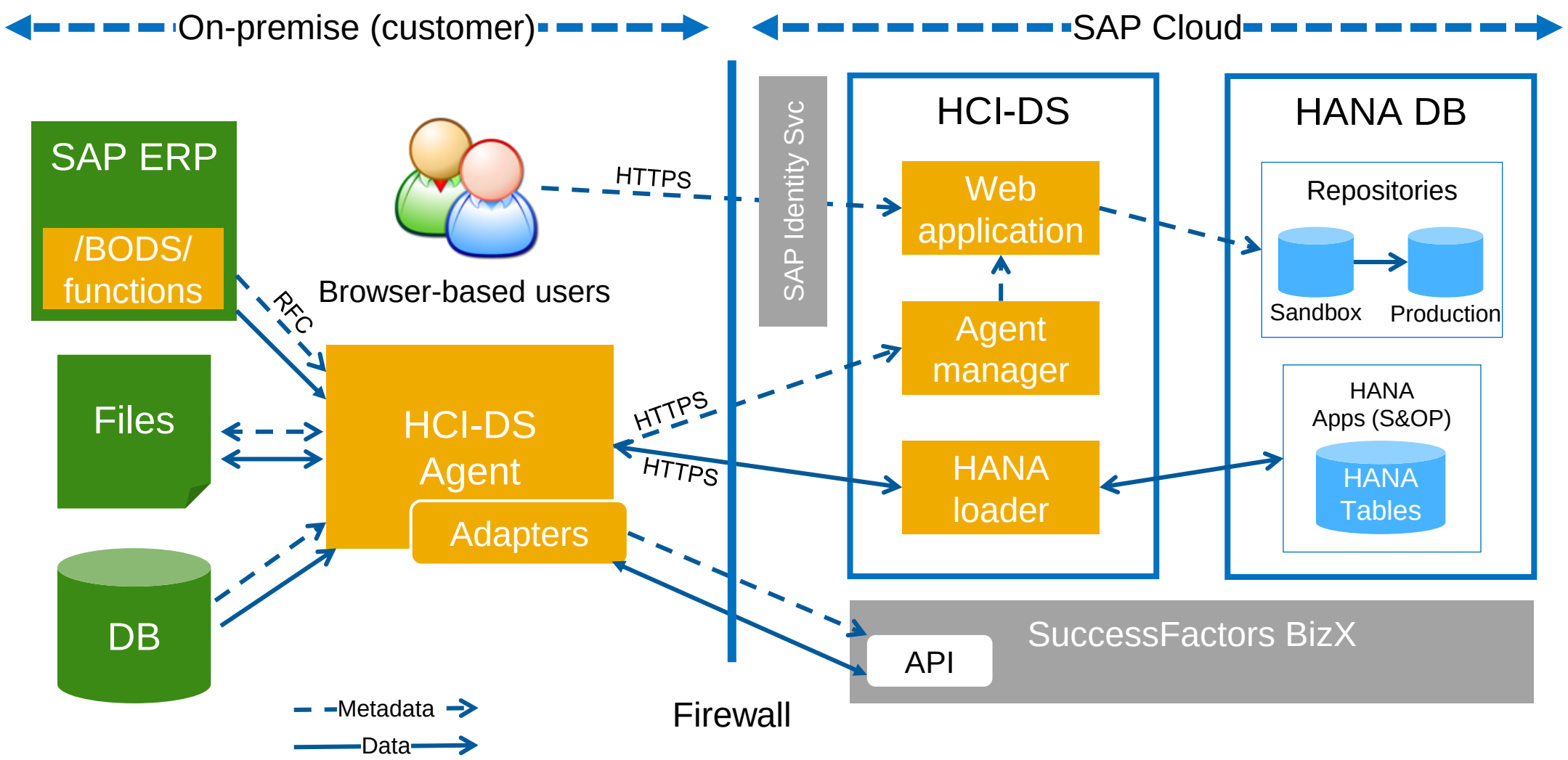
Built-in sandbox and production environment

- 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)

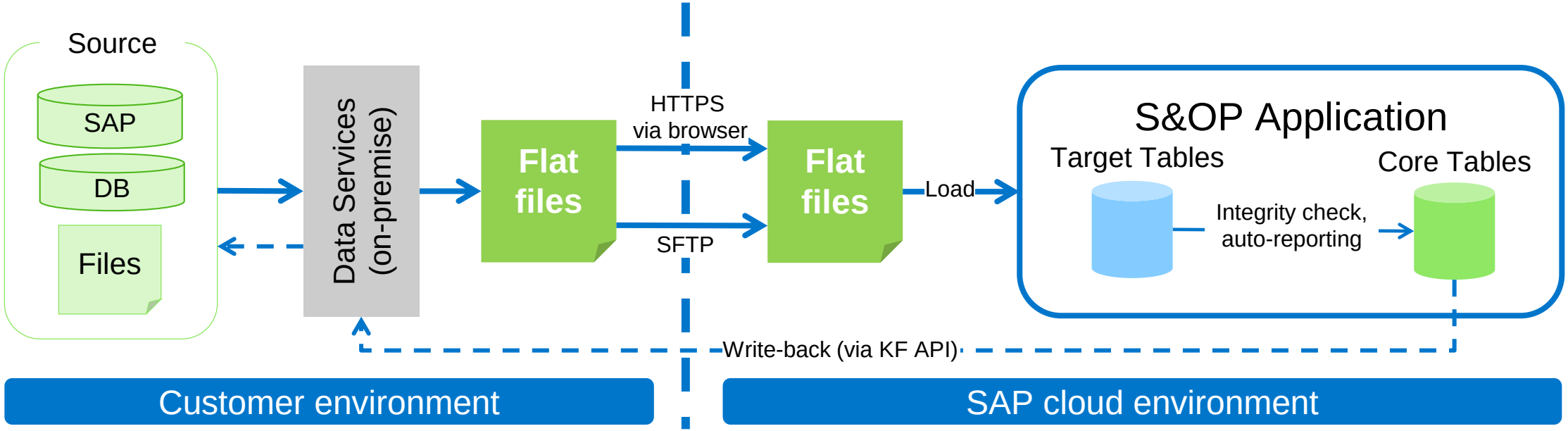
Architecture



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

	HANA Cloud Integration (HCI-DS)	SAP Data Services On Premise
Licensing	Subscription based. Available today with select SAP Cloud Applications. “Platform offering” target: Q1’ 2013	Perpetual License
Deployment	Cloud deployment with minimal on-premise footprint (agent less than 100MB)	On-premise installation (additional hardware etc:)
ETL Functionality	Focused on cloud Integration with mappings, filters and functions support for target integration scenarios	General purpose platform with full ETL and Data Quality functionality
Data Loading to the cloud (HANA)	Securely piped over HTTPS from SAP sources to target; data does not persist in files or in HCI	Data import via files or a VPN connection to the cloud database is required.
Supported sources	SAP Business Suite, SuccessFactors adapter, databases (Oracle, DB2, SQL Server, mySQL) and delimited files.	Broad connectivity to applications, databases, files and adapters.
Prepackaged content	Prepackaged content available for target cloud applications (S&OP, Employee Central, …).	N/A
Design Experience	Web-based, wizard-driven UI, targeted at a citizen developer.	Windows thick client targeted at the traditional ETL developer.
Integration Innovation	Quarterly releases. Keeps pace with Cloud application innovation	Yearly release. General purpose ETL platform is not tied to any cloud application

SAP HANA Cloud Integration

One platform for process and data integration

	SAP HANA Cloud Integration	
	Process Integration	**Data Integration**
Objective	Chaining of process steps	Synchronization of data
Interaction Type	System-2-System	System-2-System
Coupling to Application	Process-Level	Data-Level
Primary Trigger	Application Event	Schedule
Urgency of Completion	Near Real-Time / Real-Time	Batch
Unit of Data Exchange	Single Business Objects	Bulk-Data
Specific Requirements	• Transactional Process Integrity • Reliability (Guaranteed Delivery) • Message Orchestration	• Data Quality Services: Cleansing, Matching, Consolidation • Complex transformation from multiple data sources • Mass Data Handling

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