

# Cloud Integration Services on SAP HANA Cloud Platform

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Customer

# SAP HANA Cloud Platform

The Enterprise Capabilities You Need to Succeed in the Cloud

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Collaboration



User Experience



Integration



Internet of Things



Analytics



Security



Mobile



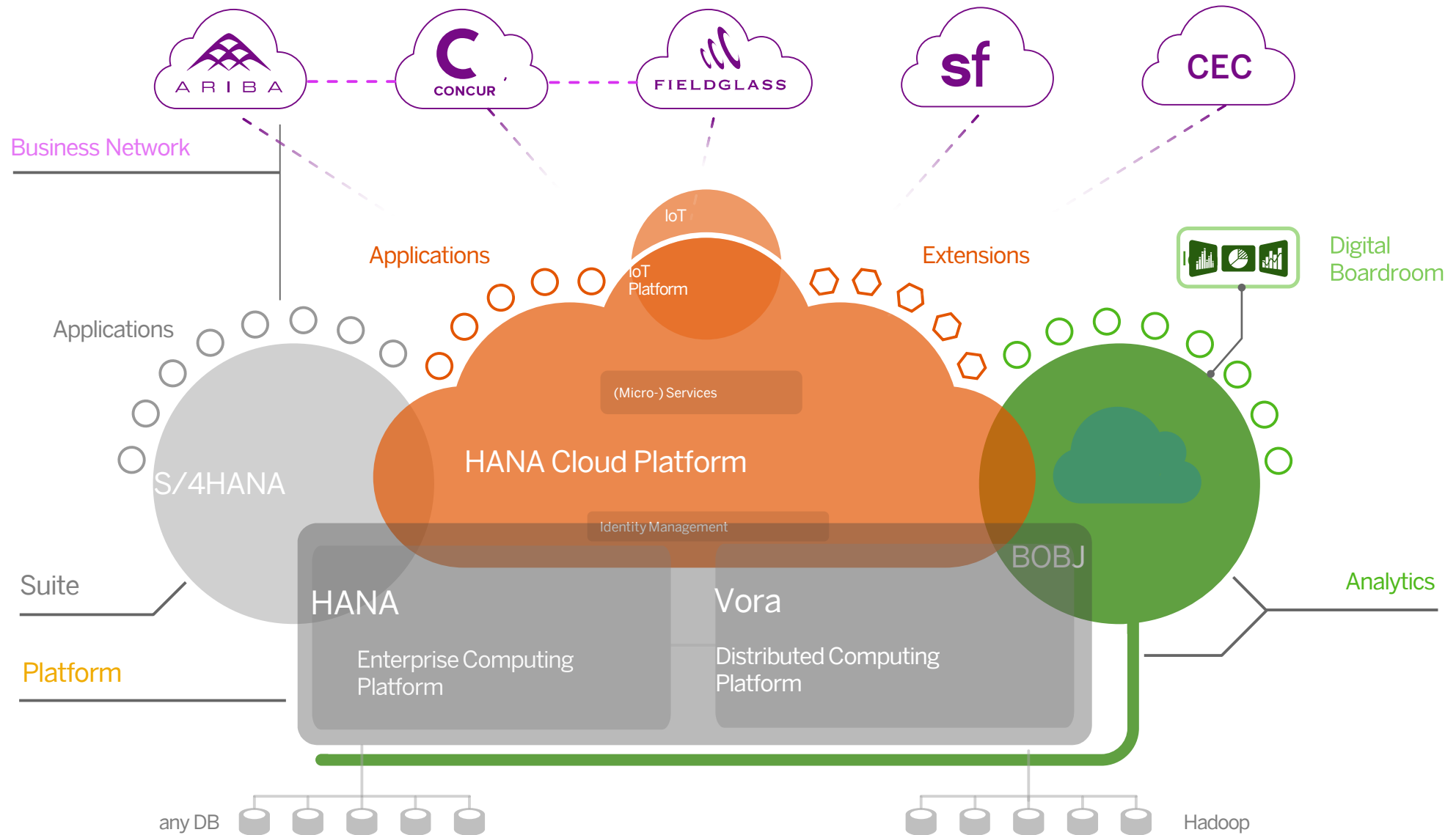
Data & Storage



Business Services

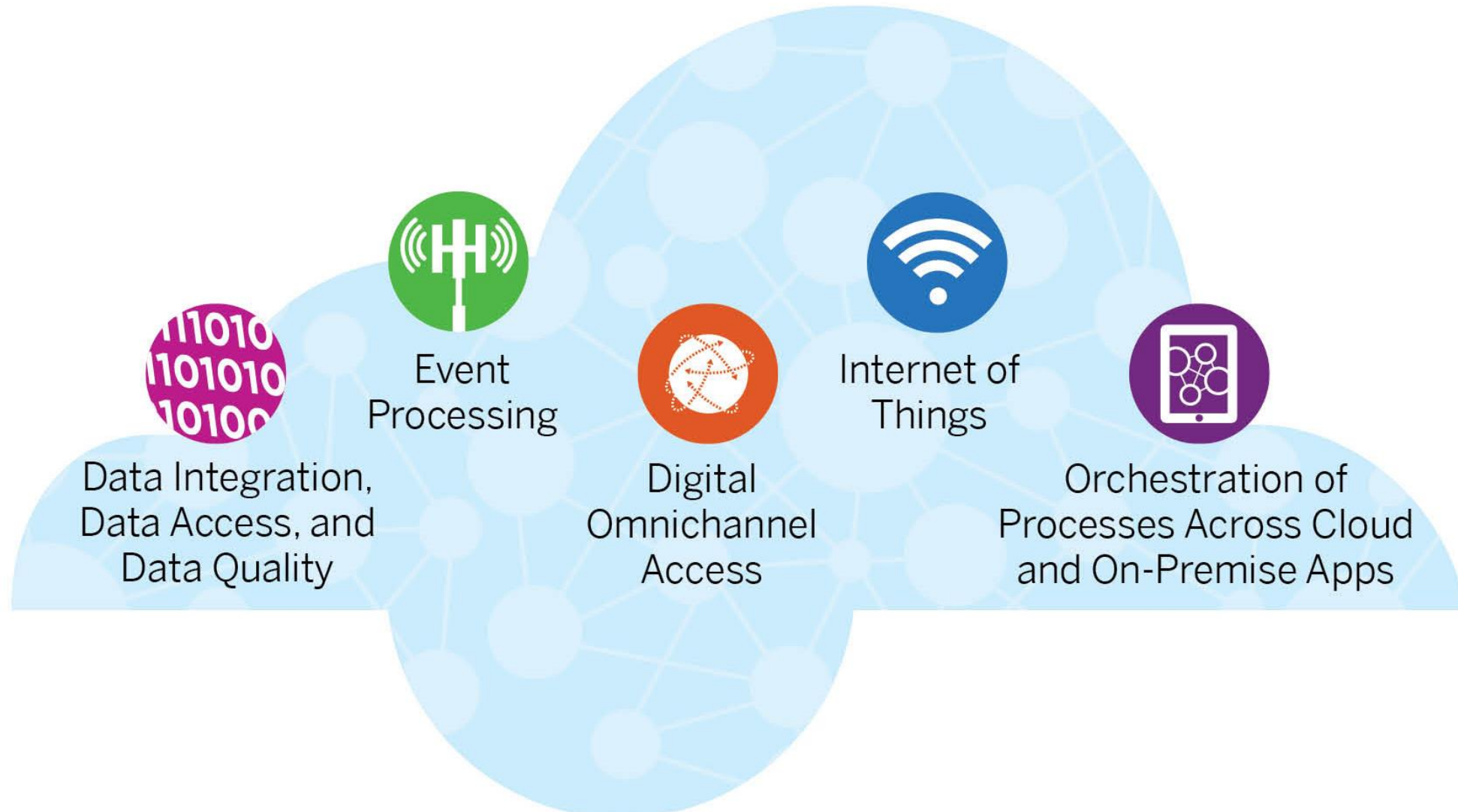


Dev & Ops



# SAP HANA Cloud Platform

## The Only Platform Covering the Full Spectrum of Cloud Integration



# Orchestrate Processes Across Cloud and On-Premise Apps

## Unify Your Enterprise Landscape

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**Connect your apps, data, and business processes**—regardless of who built them or where they are deployed

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**Jumpstart integration by leveraging pre-built integration flows and adapters** to integrate applications

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**Get the right information and business processes** into the right hands on the right device at the right time

### **SAP HANA Cloud Platform, integration service**

Accelerates process integration in the cloud and between cloud and on-premise deployments with pre-built integration flows and graphical modeling

### **SAP HANA Cloud Platform, cloud connector**

Provides simple and secure access to establish on-premise connectivity from applications running in the cloud

### **SAP HANA Cloud Platform Identity Authentication**

Offers employees, customers, and partners unified, secure, cloud-based access to the business processes, applications, and data they need

### **SAP HANA Cloud Platform, OData provisioning**

Exposes SAP applications' data and business logic as open standard services and leverages SAP Gateway technology

# Event Processing

## Capture, Analyze, and Act on Events As They Happen

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**Extract actionable information from event streams or IoT** and generate alerts when fast action is needed

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**Initiate automatic responses** to changing conditions based on a single event, or a combination of events

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**Natively incorporate complex event processing** into apps quickly to monitor, analyze, and act on data in real time

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### SAP HANA Cloud Platform, smart data streaming

Consumes high-volume, high-velocity event streams (including IoT applications) while correlating and analyzing events as they happen, allowing your organization to respond immediately

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### SAP HANA Cloud Platform, Internet of Things service

Uses the power of the SAP HANA platform and the integration features of SAP HANA Cloud Platform to employ devices, sensors, and real-time data in building IoT applications. Works in conjunction with smart data streaming analytic services to make your IoT applications smarter.

# Digital Omnichannel Access

## Make Digital Access Simple and Secure

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**Make digital access simple, secure, and scalable** by providing governed access to enterprise information and services

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**Unlock access to SAP and non-SAP corporate data** and ease development by leveraging easy-to-use open programming standards

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**Discover, test, and build apps** quickly extending the value of existing solutions

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### **SAP HANA Cloud Platform, OData provisioning**

Exposes SAP applications' data and business logic as open standers services and leverages SAP Gateway technology

### **SAP HANA Cloud Platform, API management**

Allows you to publish APIs based on open standards so you can share data and services securely and at scale with customers, partners, or business units

### **SAP API Business Hub**

Allows developers to discover, test, and consume the services and applications needed to quickly extend SAP applications on SAP HANA Cloud Platform

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SAP HANA Cloud Platform

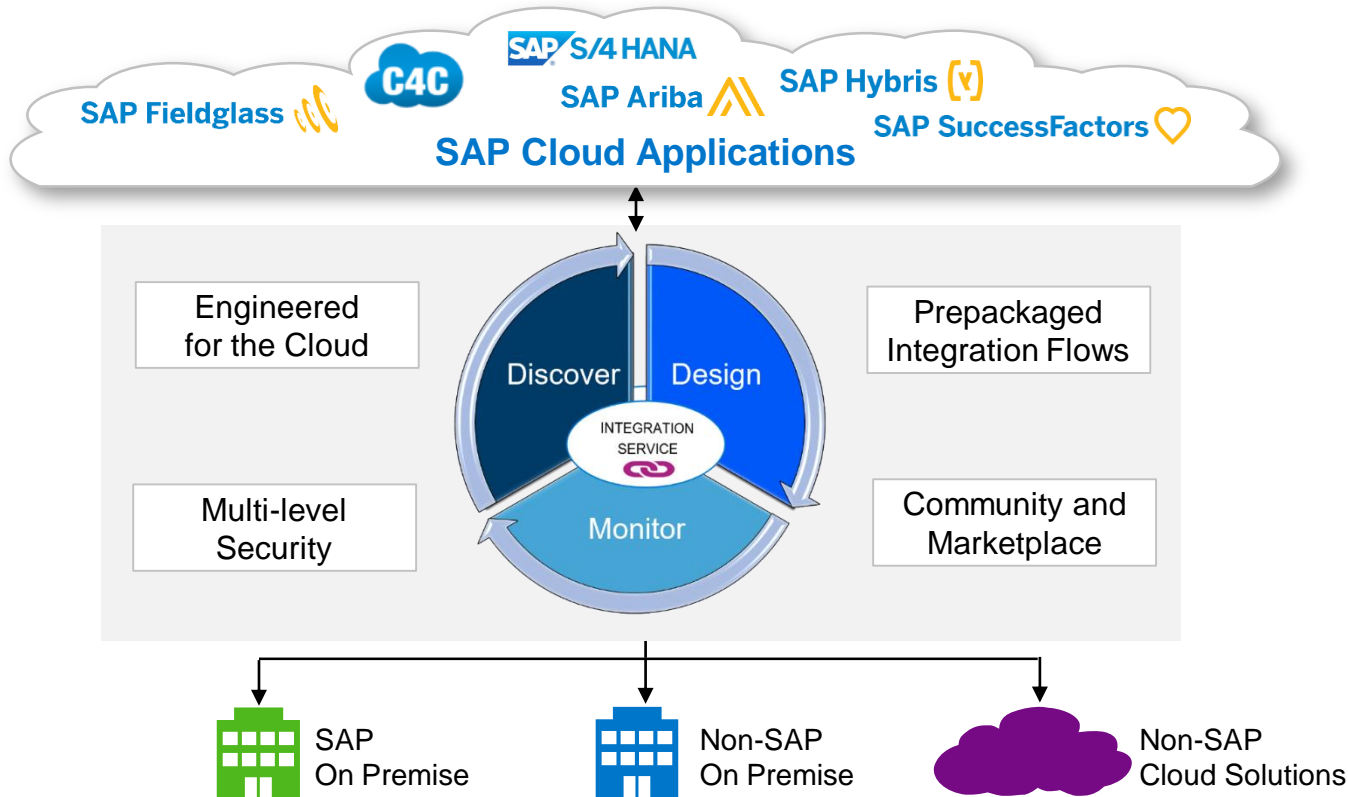
# Integration Service





# SAP HANA® Cloud Platform, integration service

Lowers cost, increases speed, and enhances simplicity for our customers



- Strategic service for cloud-to-cloud and cloud-to-on-premise
- Prepackaged integration content hub: “Discover, Configure, Manage”
- Multi tenancy, rolling software updates, horizontal scalability, subscription-based
- Strong focus on security including data isolation
- Complements SAP Process Orchestration
- Open to partners – projects, content, and connectivity adapters

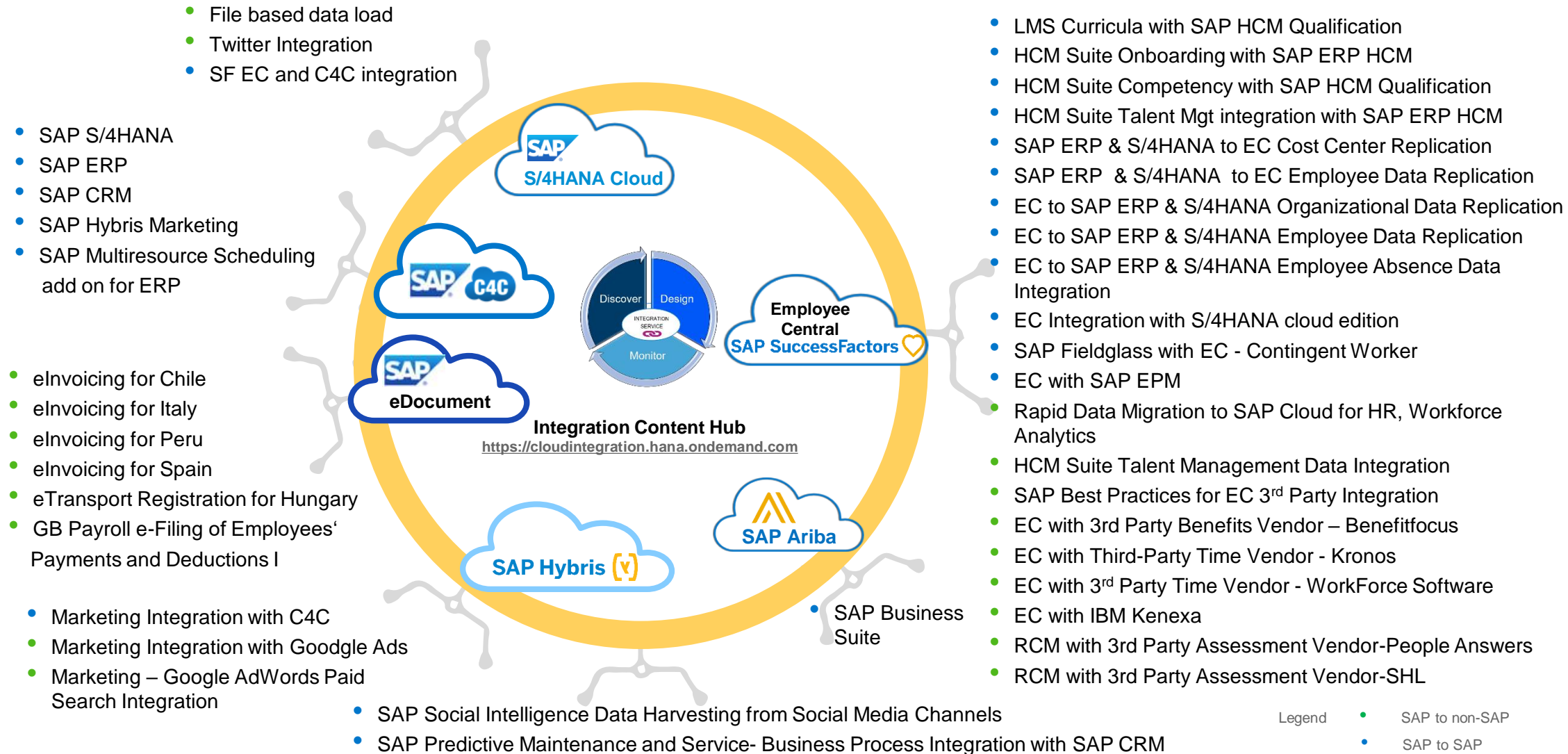


“[...] The new standard integration model to integrate our [SAP’s] entire portfolio will be based on SAP HANA Cloud Platform, integration services [...] SAP HANA Cloud Platform and related integration services will become a mandatory component in your entire landscape if you don’t want to give up your biggest assets of integration.”

*Bernd Leukert, Member of the Executive Board of SAP Products & Innovation, keynote from SAPPHERE Now 2016, Orlando*

# SAP HANA® Cloud Platform, integration service

## Accelerated integration through HCI content packages



# HCP: Connecting CRM to C4C



## Company or Organization

Bentley Systems, Inc.

## Headquarters or Location

Exton, PA, USA

## Industry

High-Tech

## Products and Services

Software company that produces solutions for the design, construction and operation of infrastructure

## Employees

~3000 in 45 countries

## Web Site

[www.bentley.com](http://www.bentley.com)

## Objectives

- Streamlining Bentley global Sales process with an Intuitive UI, Complete mobile solution, Improved performance, and productivity tools while keeping the data originating in SAP CRM
- Provide real-time synchronization of sales data for Bentley's Hybrid CRM model

## Why SAP

- Long time SAP CRM customer with user adoption challenges, leveraging SAP footprint for provisioning sales a seamless user experience
- SAP Hybrid approach allowed for a smoother transition to the cloud platform vs. a rip and replace approach

## Benefits

- Usage of pre-packaged integration content for integrating SAP Cloud for Customer with SAP CRM
- SAP HCI tooling helps in extending existing standard content
- Bi-directional replication of Business Partners, Activities, Opportunities, and Leads
- Unidirectional replication of Account Hierarchies, Employees, Product Categories, Organization Unit, and Products
- Lower TCO since hardware now owned by SAP

## Project Facts

- SAP Cloud Service Center provided the consultation for this project
- Initial rollout to 100 sales users followed by another 450 world wide

“Using the SAP Hybrid cloud approach enabled by HCI, has allowed us to successfully maintain our business process continuity without any disruptions, while providing an enhanced user experience for our Sales Users”

Kiran Koons, Director, IT Enterprise Solutions

## Faster

Integration software updates

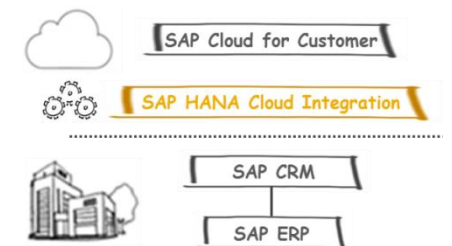
## Lower

TCO through leveraging existing SAP investments

## Better

Usability and adoption

Integrated near real-time user experience with a single source of truth



# O-I: Complying with Government Regulations



## Company

Owens-Illinois Inc. (O-I)

## Headquarters

Perrysburg, Ohio

## Industry

Mill products – packaging

## Products and Services

Glass containers

## Employees

21,100 in 21 countries

## Revenue

US\$6.8 billion

## Web Site

[www.o-i.com](http://www.o-i.com)

## Partners

SAP® Active Global Support (SAP AGS) and SAP Globalization Services organizations

## Objectives

- Become one of the first companies chosen by the Peruvian government to support a major policy change to accept e-invoices
- Realize a cost-effective and secure means of exchanging business-to-government (B2G) e-invoices for legal and tax compliance

## Why SAP

- Expertise to enable compliance with global and local tax regulations
- Prepackaged content that can be integrated with government systems and provides the very best in security capabilities

## Resolution

Worked with SAP Globalization Services and SAP® AGS, utilizing SAP MaxAttention™ services, to deploy SAP HANA® Cloud Integration technology for market integration and the SAP Application Interface Framework tool

## Benefits

- Full and simplified compliance with the Superintendencia Nacional de Administración Tributaria (SUNAT) for e-invoices
- E-document framework that combines the interface management of SAP Application Interface Framework and the capabilities of SAP HANA Cloud Integration to deliver B2G integration for multiple countries
- Less integration effort and compliance risk by leveraging prepackaged content from SAP
- Adherence to the complex security requirements of e-communication
- Less compliance effort by relying on domain expertise and application support from SAP
- Faster time to value by delivering real-time legal changes
- Lower implementation costs and lower total cost of operations

• “Combining SAP HANA Cloud Integration and SAP Application Interface Framework and teaming up with SAP AGS and SAP Globalization Services helped us realize effective B2G auditing transactions with all the necessary security requirements.”

- Rodney Masney, VP of Technology Service Delivery, Owens-Illinois Inc.

## Speed

Faster time to value by delivering real-time legal changes

## Savings

Lower implementation costs and lower total cost of operations

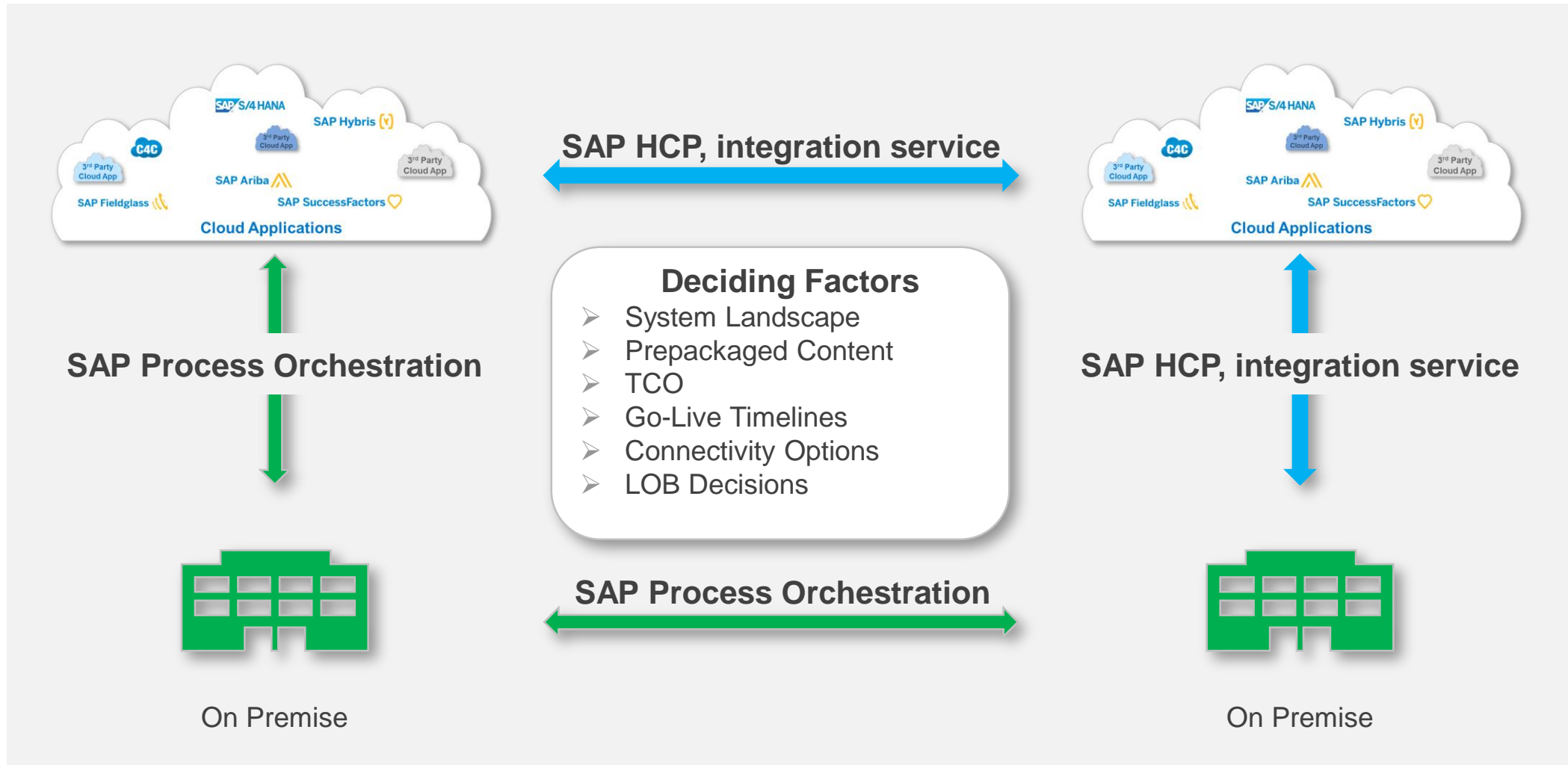
## Compliance

Comprehensive solution that enables full compliance with legal regulations in Peru



# SAP HANA® Cloud Platform, integration service

A complementary offering to SAP Process Orchestration





SAP HANA Cloud Platform

# Data Integration to HCP with onPremise Tools



# Agenda

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Data Integration for HANA databases on the HANA Cloud Platform:

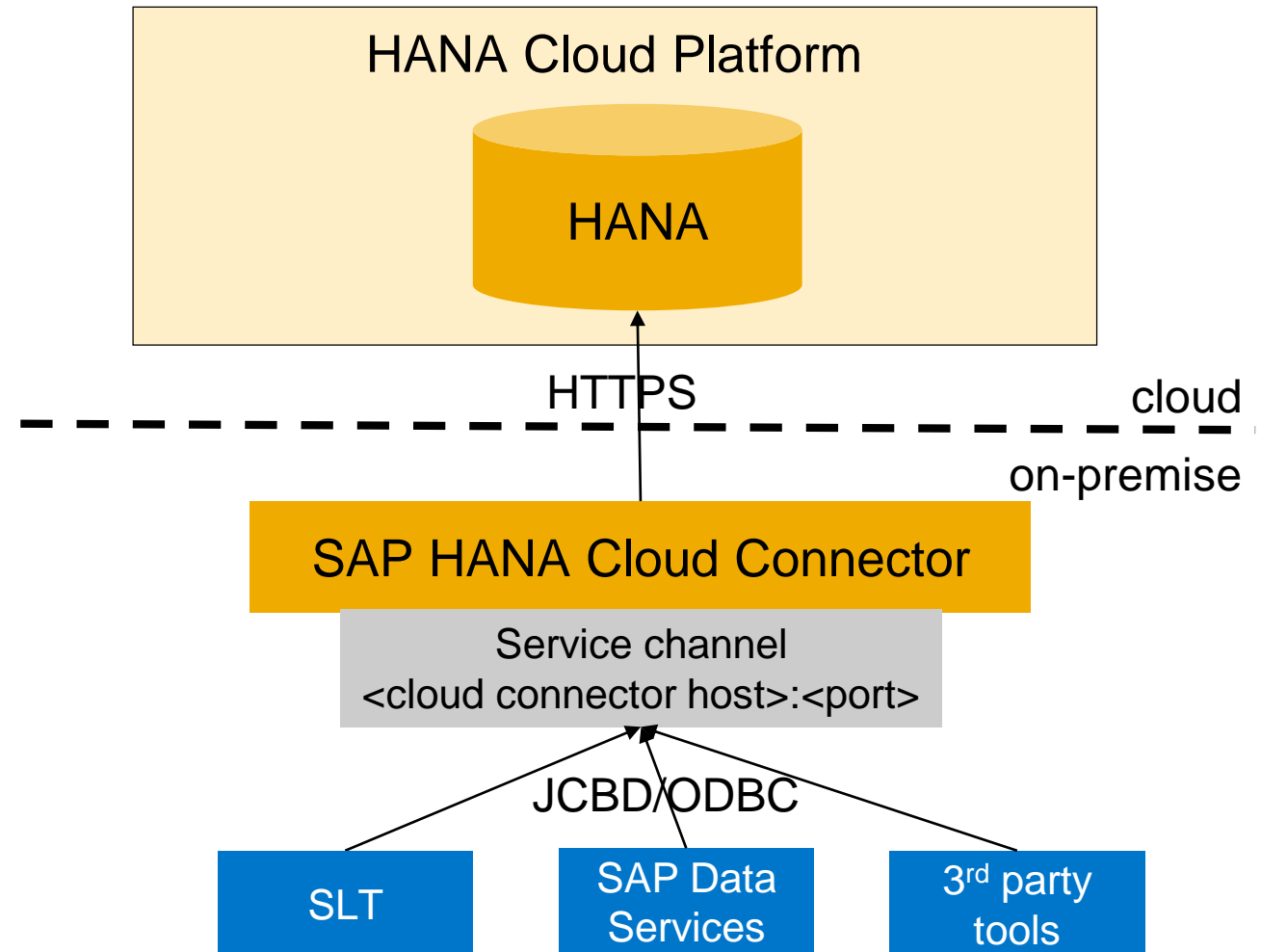
- Data integration to HCP with **onPremise tools** (1 slide)
- Native data integration on HCP with **HANA smart data integration**

# SAP HANA Cloud Connector

## Connecting on-premise data integration tools to HCP

The **SAP HANA Cloud Connector** establishes a **secure** and **reliable** tunnel so that on-premise data integration tools (e.g. SAP Data Services, SLT or 3<sup>rd</sup> party tools) can connect to the HANA database on the HANA Cloud Platform.

In SAP Cloud Connector create a database tunnel through a service channel. All ODBC/JDBC requests to this service channel will be redirected to the HANA instance on HCP





# **Native Data Integration on HCP with HANA smart data integration**

# SAP HANA smart data integration

## Overview

**SAP HANA smart data integration delivers built-in data movement capabilities into the HANA database to ingest data from a wide variety of sources, as well as move data out (bi-directionally).**

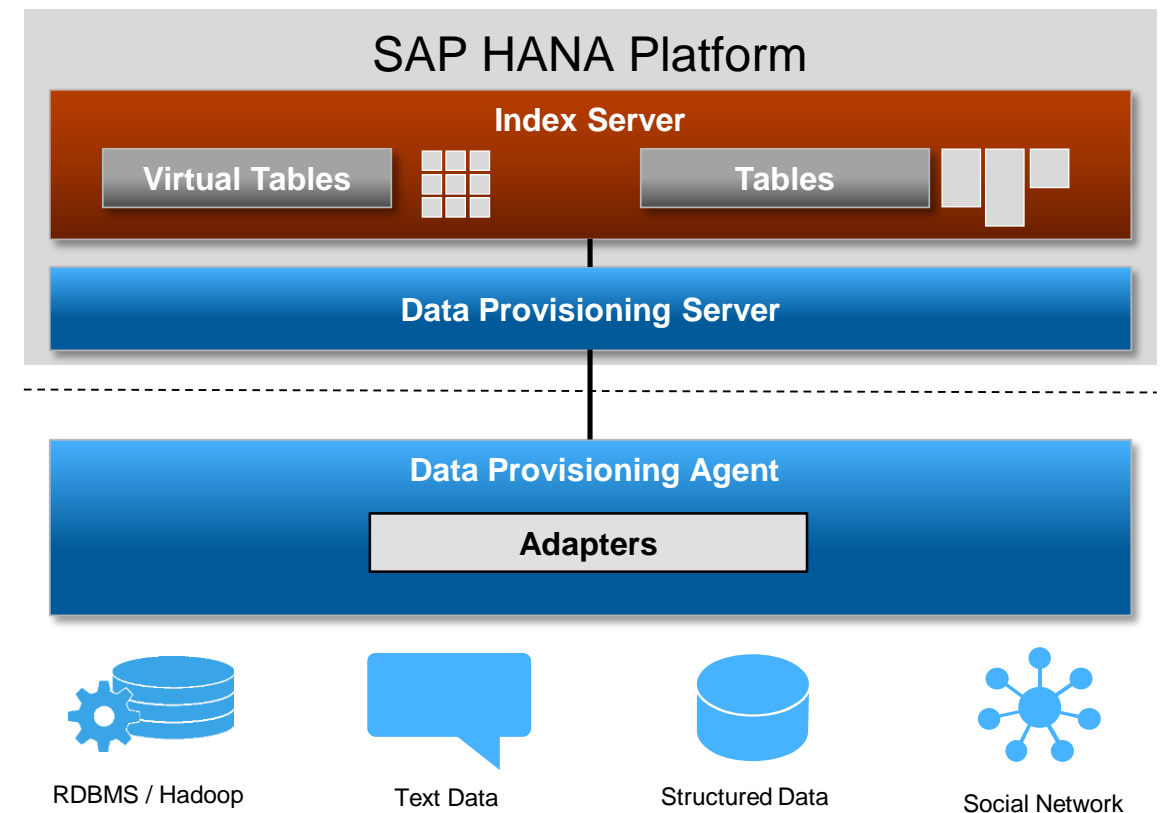
### Native Integration Capabilities

- Supports all styles of data delivery
  - Virtualization / Federation
  - Real Time (some data sources)
  - Batch
- Supports data distribution (bi-directional)
- Architected for on premise, cloud or hybrid deployments

### Web Based Design Tools

### Open Framework

- Out of the box adapters for common sources
- Open SDK to build custom adapters



# Data Provisioning Agent

The key to successful deployment in cloud with security top of mind

## Lightweight installation inside the customer's firewall

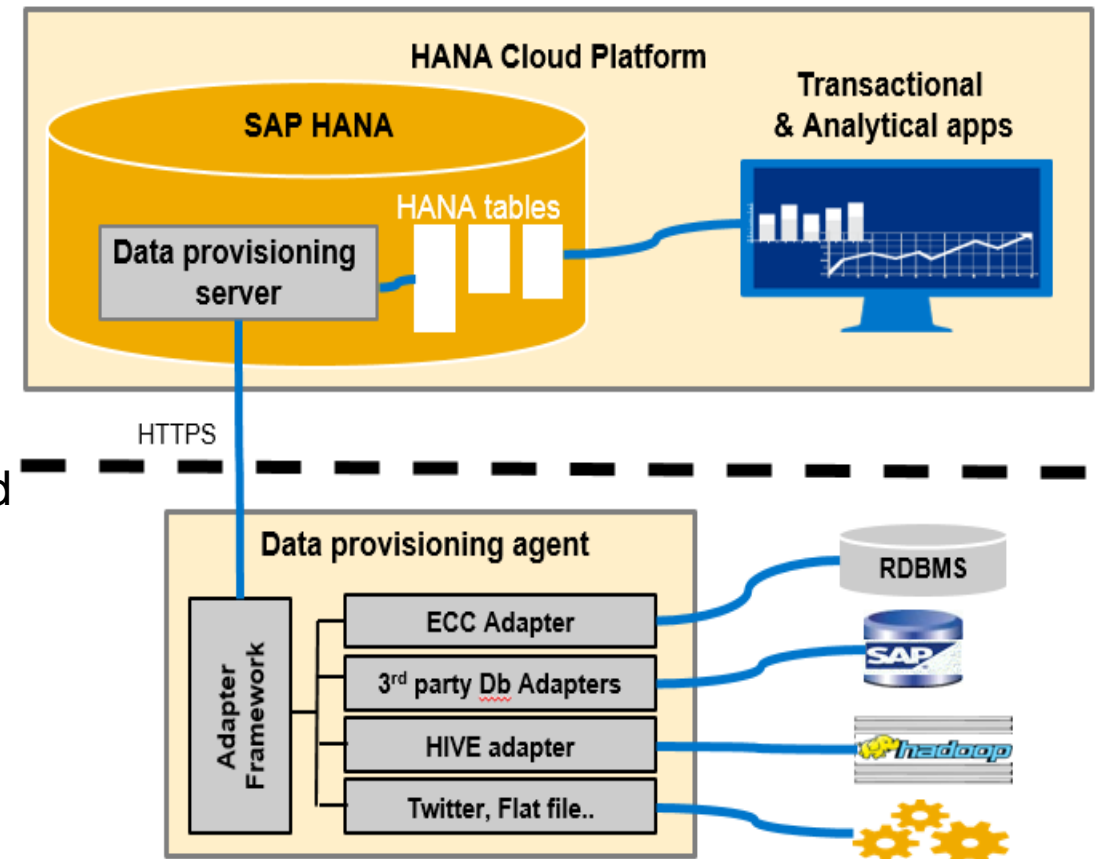
- Small download from SAP Service Marketplace
  - A Deployment Unit (DU) for HANA
  - An onPremise agent
- Simple installation and configuration
- Runs on Windows or Linux

## Securely transfers data from on-premise to cloud

- 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



# SAP HANA smart data integration adapters

Built-in real time adapters for common sources

## 3<sup>rd</sup> party DBMS adapters

- For Oracle, MSSQL, DB2, *HANA*, *Sybase ASE and Teradata*
- Real time push through log based changed data capture (Oracle, MSSQL, DB2, ASE) or trigger based changed data capture (HANA, Teradata).

## SAP ECC<sup>1</sup> adapters

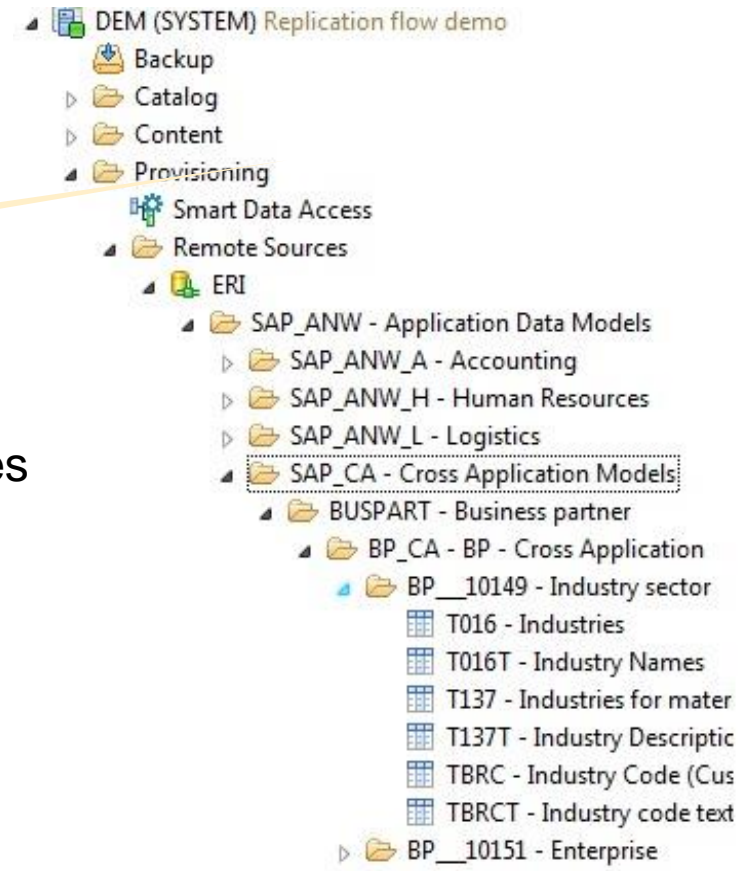
Implements real time push functionality on top of 3<sup>rd</sup> party DBMS sources (Oracle, DB2, MSSQL)

In addition, it takes into account

- SAP ABAP Transparent, Clustered and Pooled tables
- SAP catalog hierarchy metadata

## Twitter adapter

- Real time access to Twitter content on hashtags, users, etc.



1. Minimum supported version is ECC 6; Details on NetWeaver version dependency in PAM

# SAP HANA smart data integration adapters

Built-in batch adapters for common sources

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## **OData adapter**

- Generally accessible from the cloud (e.g. Success Factors)
- Runs on the DPserver in HANA, not on the agent

## **SOAP Adapter**

- Adapter for SOAP Webservices

## **Camel adapter for Facebook**

- Generic Camel adapter (100+ open source adapters available) – <https://camel.apache.org/components.html>
- In SP11 only tested for the Camel Facebook component

## **Hive adapter**

- Adapter for Hadoop

## **ABAP adapter**

- For business content extractors (aka BW datasources)

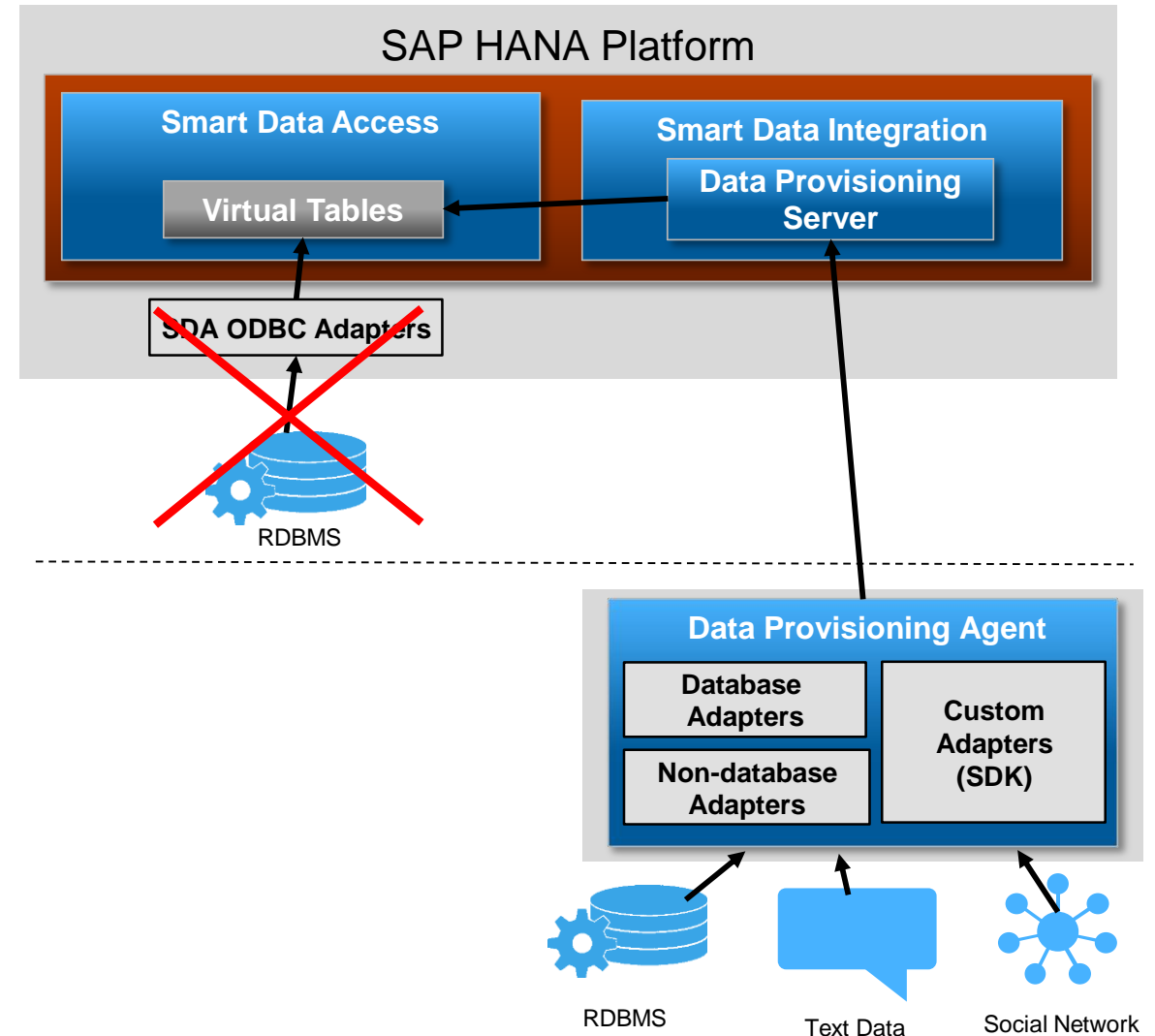
*New adapters added in every new release  
Check [support.sap.com/pam](https://support.sap.com/pam) for latest status*

# SAP HANA smart data integration

Use case: Data Federation (smart data access)

**Data Federation enables users to see data from remote sources as virtual tables in the HANA database, without physically moving all data into HANA.**

- Ideally suited for ad-hoc queries on data sets that cannot be moved in HANA.
- Initially delivered through Smart Data Access
  - Available since HANA SPS07
  - Was not available on HCP because the SDA architecture was not cloud ready (local ODBC drivers). But...
- Now extended to HCP with Smart Data Integration
  - Extends SDA functionality with more adapters that can run outside of HANA



# SAP HANA smart data integration

## Use case: Data replication

**With Data Replication data can be replicated in real-time from the source system into HANA, with minimal transformations.**

- Simple web UI to create a replication task:
  1. Select remote source
  2. Choose list of tables to replicate
  3. Save and activate
- Initial load followed by continuous real-time delta load
- More advanced options available
  - Replicate table structure changes
  - Filters and mapping expressions
  - ...

The screenshot shows the configuration interface for a data replication task. At the top, the 'Remote Source' is set to 'DB2ECC', the 'Target Schema' is 'KEN', and the 'Virtual Table Schema' is 'KEN'. There are checkboxes for 'Drop target table if exists' (checked) and 'Initial load only' (unchecked). The 'Virtual Table Prefix' is 'VT\_'. Below this are 'Add Objects' and 'Delete Object' buttons. A table lists the remote objects to be replicated:

Remote Object	Target Name
KNA1	KNA1
LFA1	LFA1
KNBK	KNBK
LFBK	LFBK
KNKA	KNKA

Below the table is a 'Details' section with tabs for 'Target Columns', 'Filter', 'Load Behavior', and 'Partitions'. The 'Table Level Replication' checkbox is unchecked. There are 'Add', 'Edit', and 'Delete' buttons. A table shows the column mapping:

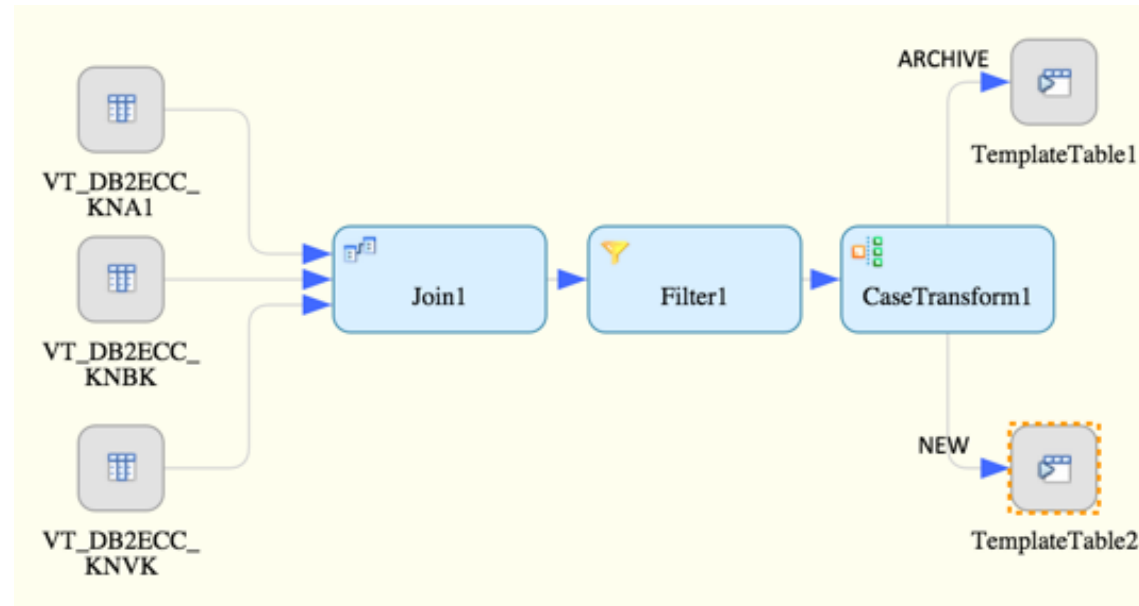
Column Name	Projection	Key	Nullable
MANDT	"MANDT"	<input checked="" type="checkbox"/>	<input type="checkbox"/>
KUNNR	"KUNNR"	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LAND1	"LAND1"	<input type="checkbox"/>	<input type="checkbox"/>
NAME1	"NAME1"	<input type="checkbox"/>	<input type="checkbox"/>
NAME2	"NAME2"	<input type="checkbox"/>	<input type="checkbox"/>
ORT01	"ORT01"	<input type="checkbox"/>	<input type="checkbox"/>
PSTLZ	"PSTLZ"	<input type="checkbox"/>	<input type="checkbox"/>

# SAP HANA smart data integration

## Use case: Data integration with flowgraphs

**With flowgraphs more complex data transformation rules can be defined to extract, transform and load data into HANA.**

- Rich set of transformations available.
- Also flowgraphs can be real-time and replicate + transform data on the fly.



▼ General

- Input Type
- Output Type
- Data Source
- Data Sink
- Template Table
- Aggregation
- Filter
- Join
- Sort
- Union
- Procedure
- R-Script
- AFL Function

▼ Data Provisioning

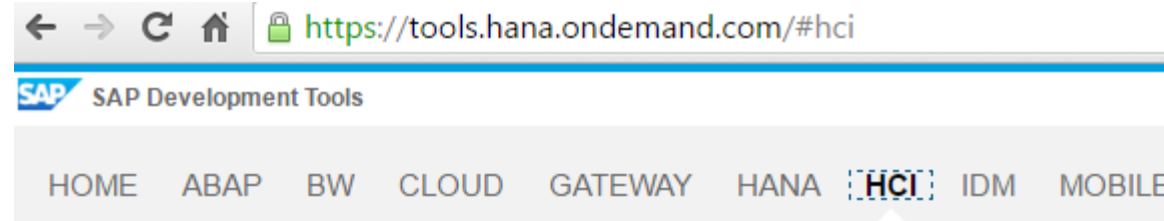
- Date Generation
- Row Generation
- Case
- Pivot
- Unpivot
- Lookup
- Cleanse
- Match
- Table Comparison
- Map Operation
- History Preserving



# SAP HANA smart data integration - Available on HANA Trial

During setup of a HANA MDC (Multitenant Database Containers) instance, you can **enable the data provisioning server**.

Data provisioning agent and deployment unit available under a developer license on [tools.hana.ondemand.com](https://tools.hana.ondemand.com) (HCI tab).

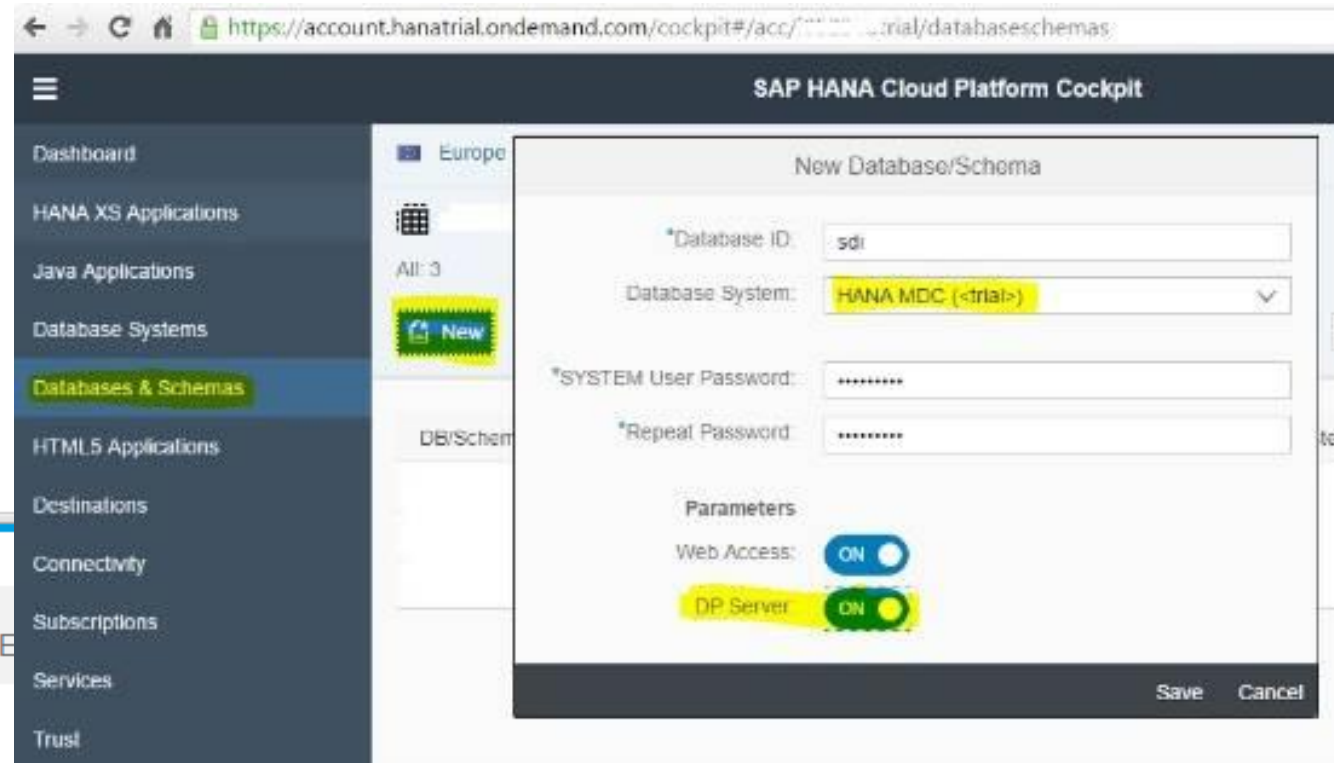


## Downloads

Component	Operation System	Architecture	Version	File Size	Download
SDI Data Provisioning Agent	Linux	x86_64	SP02 Patch 3	443.6 MB	<a href="#">Download Link</a>
SDI Data Provisioning Agent	Windows	x86_64	SP02 Patch 3	172.2 MB	<a href="#">Download Link</a>
SDI HANA Deployment Unit	N/A	N/A	SP02 Patch 2	72 kB	<a href="#">Download Link</a>

## More information on HANA smart data integration

<http://scn.sap.com/community/developer-center/cloud-platform/blog/2016/07/14/step-by-step-setup-sdi-for-your-hcp-trial-account>



# SAP HANA smart data integration

## Licensing and packaging for productive use

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**Check with your SAP account manager for latest details, but in summary:**

- HANA smart data integration is included in the premium and professional editions of the HCP extension bundles.
- HANA smart data integration is included in “HCP, integration service” bundles (Data and Enterprise edition).

**Note:** HANA smart data integration (SDI) is replacing HANA Cloud Integration for data services (HCI-DS) for use cases that involve loading data into HANA on HCP, so SDI has been included in all bundles that have HCI-DS.



**Thank you**

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