



The Retail Innovators

SAP Dynamic Pricing by GK

Integration Guide

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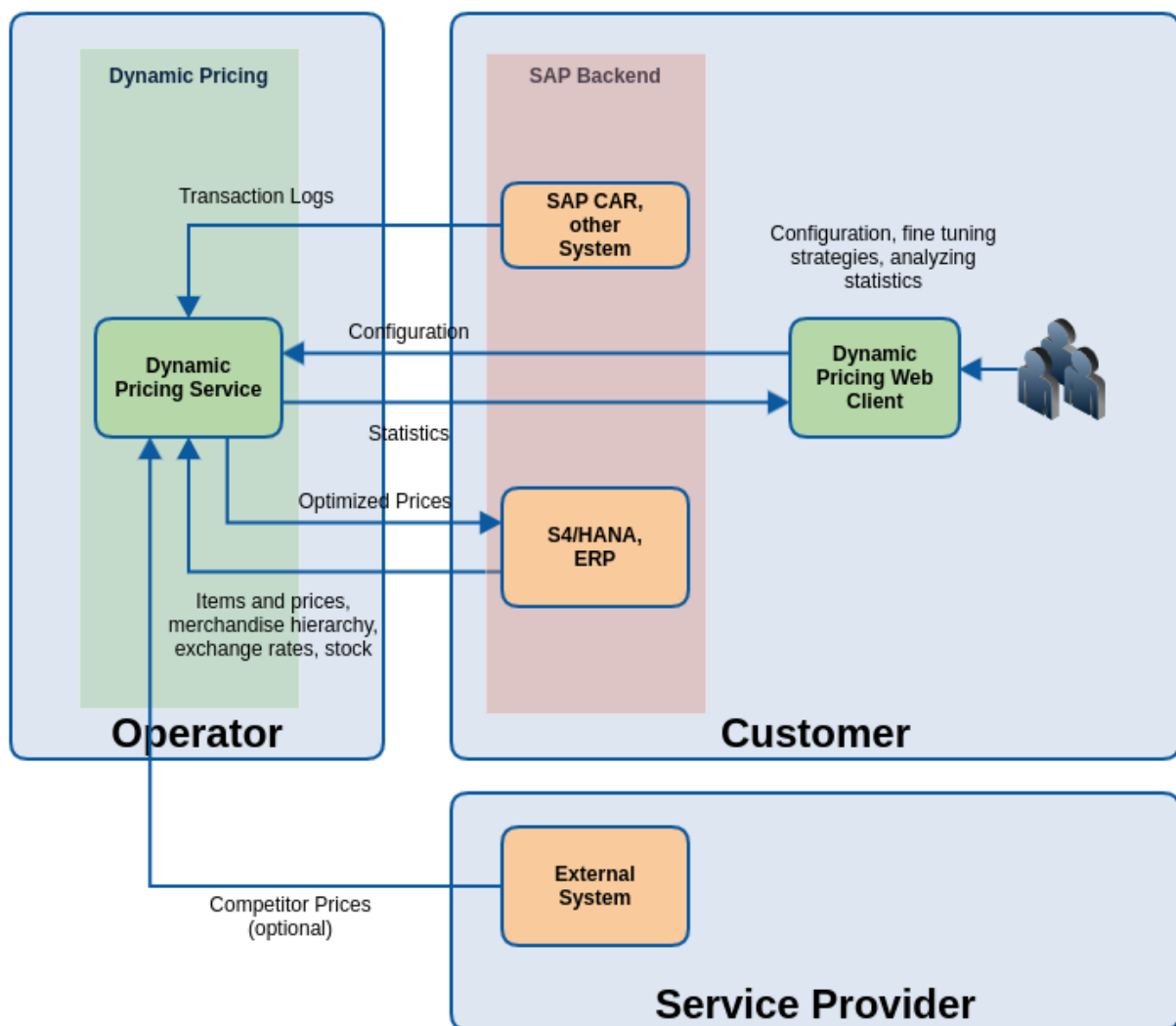
1 Overview

This document describes details about typical integration scenarios. It provides information about:

- How to integrate systems that provide master data, transactions, etc.
- How to integrate systems that receive optimized prices
- How to setup the communication between cloud and on premise installations

Before reading this guide it's recommended to read the document "Architecture Guide".

2 Landscape Overview



Data Import

Data	Mandatory	Direction
Transaction Logs	x	ERP/CAR/Webshop → Dynamic Pricing
Items and prices	x	ERP/Webshop → Dynamic Pricing
Category/Category Hierarchy		ERP/Webshop → Dynamic Pricing
Stock		ERP/Webshop → Dynamic Pricing
Competitor prices		External System → Dynamic Pricing
Exchange rates		External System → Dynamic Pricing

2.1 Data Export

Data	Mandatory	Direction
Optimized Prices	x	Dynamic Pricing → ERP/Webshop

3 Supported Interfaces

3.1 Import

3.1.1 Transactions

Data	Details	Data Source	Communication from/to	Pricing Interface Name	External Interface	Data Type	Compatible Third Party Software Version
Sales Transactions	E-Commerce and offline Retail	SAP CAR	Dynamic Pricing → SAP CAR	SAP Customer Activity Repository - Sales transactions	OData Service: MultiChannelSalesQueryResults	XML	>= SAP Customer Activity Repository 1.0 SP07
Sales Transactions, E-Commerce Clicks, E-Commerce Baskets	E-Commerce and offline Retail		Dynamic Pricing → External System	Standard - Transactions CSV		CSV	
Sales Transactions, E-Commerce Clicks, E-Commerce Baskets	E-Commerce and offline Retail	prudsys RDE	Dynamic Pricing → prudsys RDE	prudsys - Transactions RDE CSV		CSV	
Sales Transactions	E-Commerce and offline Retail	SAP CSI	Dynamic Pricing → SAP CSI	SAP CSI - Sales transactions	TLOGCollectorAPI	JSON	SAP CSI 1.0
Sales Transactions	POS	GK/Retail SDC	Both directions	GK/Retail - POSLog Sales transactions	GK/Retail POSLog	XML	SAP POS Server by GK >= 5.4

3.1.2 Item Masterdata

Data	Details	Data Source	Communication from/to	Pricing Interface Name	External Interface	Data Type	Compatible Third Party Software Version
Items, item category assignment, item Prices		SAP ERP	SAP ERP → Dynamic Pricing	SAP S/4HANA - Items and item category assignments	Enterprise Service: MerchandiseERPReplicationBulkRequest	XML	SAP ECC Retail >= 6.0 EHP6 SP19 Component Version: EA-RETAIL 606 S/4HANA Retail
Categories, category hierarchy		SAP ERP	SAP ERP → Dynamic Pricing	SAP S/4HANA - Categories and Category Hierarchies	Enterprise Service: ProductCategoryHierarchyERPReplicationRequest	XML	SAP ECC Retail >= 6.0 EHP6 SP19 Component Version: EA-RETAIL 606 S/4HANA Retail
Item attributes		SAP ERP	SAP ERP → Dynamic Pricing	SAP S/4HANA - Item attributes IDoc	ARTMAS09 IDoc	XML	SAP ECC 6.0 EHP8 SP6
Item stock count		SAP ERP	SAP ERP → Dynamic Pricing	SAP S/4HANA - Item stock	Enterprise Service: InventoryBulkRequest_Out	XML	SAP ECC 6.0 (ECC-SE 602)
Items, item category assignment, categories, category hierarchy, item prices		ERP	Both directions	Standard - Master data CSV		CSV	
Items, item prices		ERP	Both directions	Standard - Item data addon CSV		CSV	
Item linking			Both directions	Standard - Item families and linking		XML	
Manual changes (prices, expiry date, etc.)			Both directions	Standard - Manual Prices CSV		CSV	
Items, item category assignment Prices		GK/Retail SDC	Both directions	GK/Retail - Items and Item Category assignments		XML	
Categories, category hierarchy		GK/Retail SDC	Both directions	GK/Retail - Categories and Category Hierarchies		XML	
Categories, category hierarchy		SAP ERP	SAP ERP → Dynamic Pricing	SAP ECC - Merchandise group and group hierarchy IDoc	WPDWGR01 IDoc	XML	SAP ECC

3.1.3 Exchange Rates

Data	Details	Data Source	Communication from/to	Pricing Interface Name	External Interface	Data Type	Compatible Third Party Software Version
Exchange rates		ERP	Both directions	Standard - Exchange Rates CSV		CSV	
Exchange rates		SAP ERP	Dynamic Pricing → External System	SAP S/4HANA - Exchange Rates	ExchangeRateByExchangeRateQueryResponse_In	XML	SAP ECC >= 6.0 EHP4 SP20 Component Version: ESA ECC-SE 604

3.1.4 Competitor Prices

Data	Details	Data Source	Communication from/to	Pricing Interface Name	External Interface	Data Type	Compatible Third Party Software Version
Competitors and competitor prices		External	Both directions	Standard - Competitor and competitor prices CSV		CSV	

3.2 Export

Data	Details	Destination	Communication Directions	Pricing Interface Name	External Interface	Data Type	Compatible Third Party Software Version
Optimized Prices		SAP ERP	Dynamic Pricing → SAP ERP	SAP S/4HANA - Optimized Prices	SalesPriceSpecCalcERPCreateRequestConfirmation_In	XML	SAP EA-Retail 606
Optimized Prices		ERP	Both directions	Standard - Optimized Prices CSV		CSV	

4 Backend Integration

There are two ways of integrating your backend:

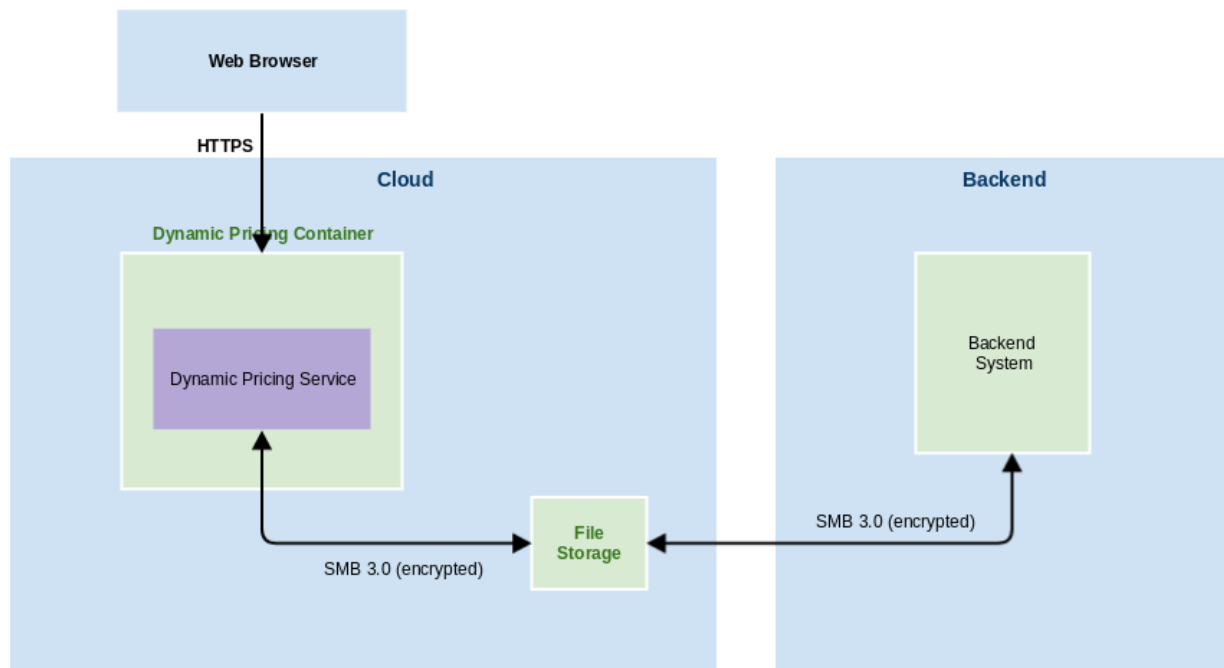
1. File
2. HTTP(s)

You can select the communication method independently for each import and export interface.

4.1 Integration via File

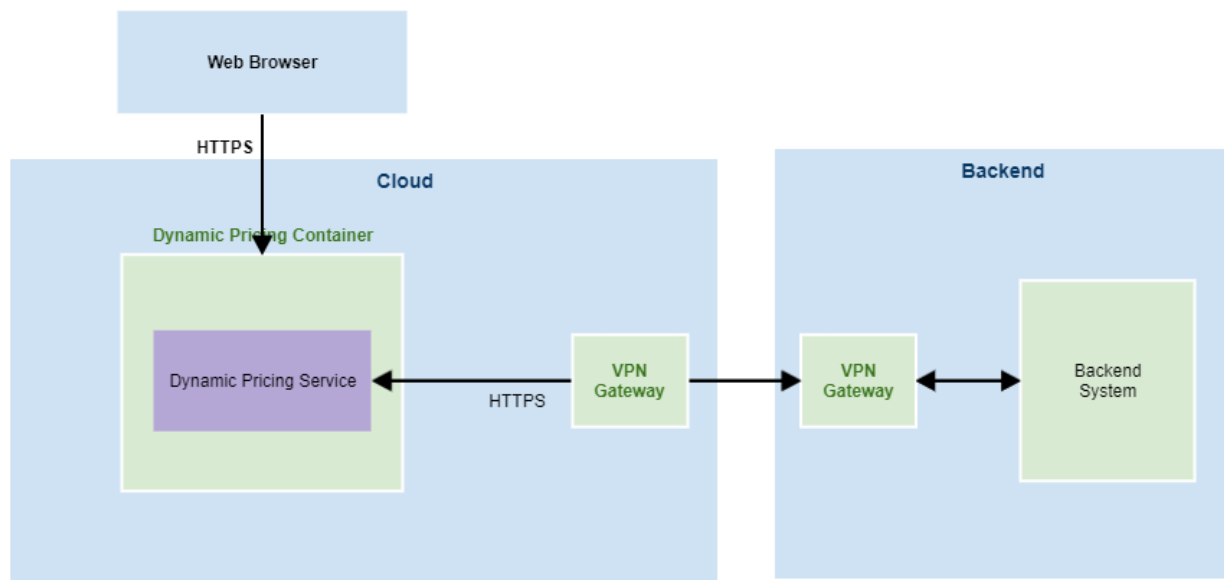
For file we support:

- SFTP
- SMB3 encrypted shares



4.2 Integration via HTTP(s)

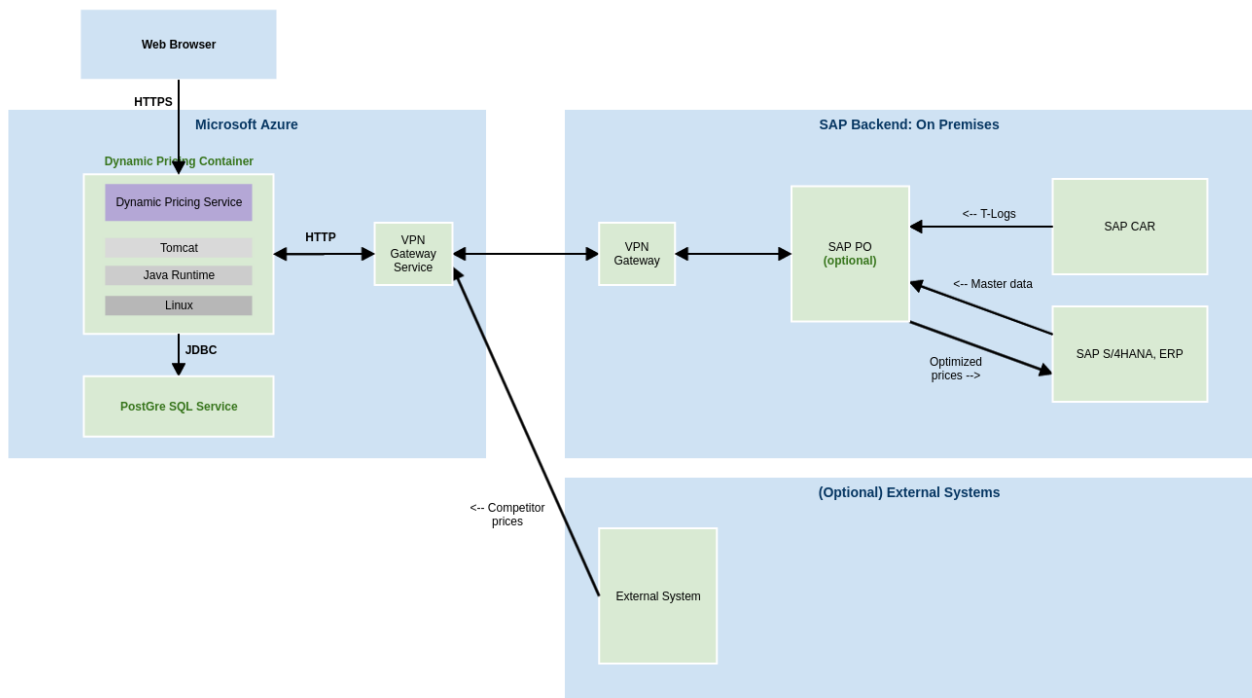
As a default, the service is deployed as HTTPS service. This is the general architecture, it varies for the different cloud platforms:



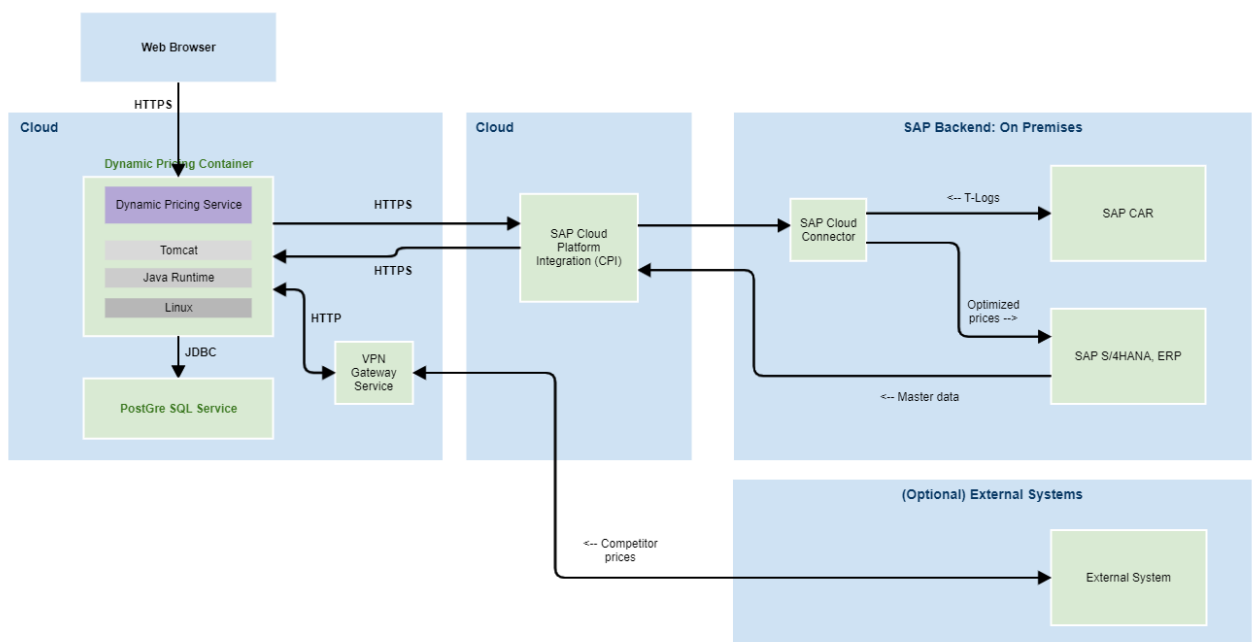
4.2.1 Microsoft Azure Cloud Foundry to On Premises Backend

4.2.1.1 Option: SAP Process Orchestration (PO)

This scenario can be used to connect to SAP and non SAP backend systems. The connection is established using a VPN tunnel between the dynamic pricing cloud service and the backend services.



4.2.1.2 Option: SAP Cloud Platform Integration (CPI)



5 SAP Backend Integration

5.1 SAP Organization Structures

SAP organization structures impact the price computations in two ways:

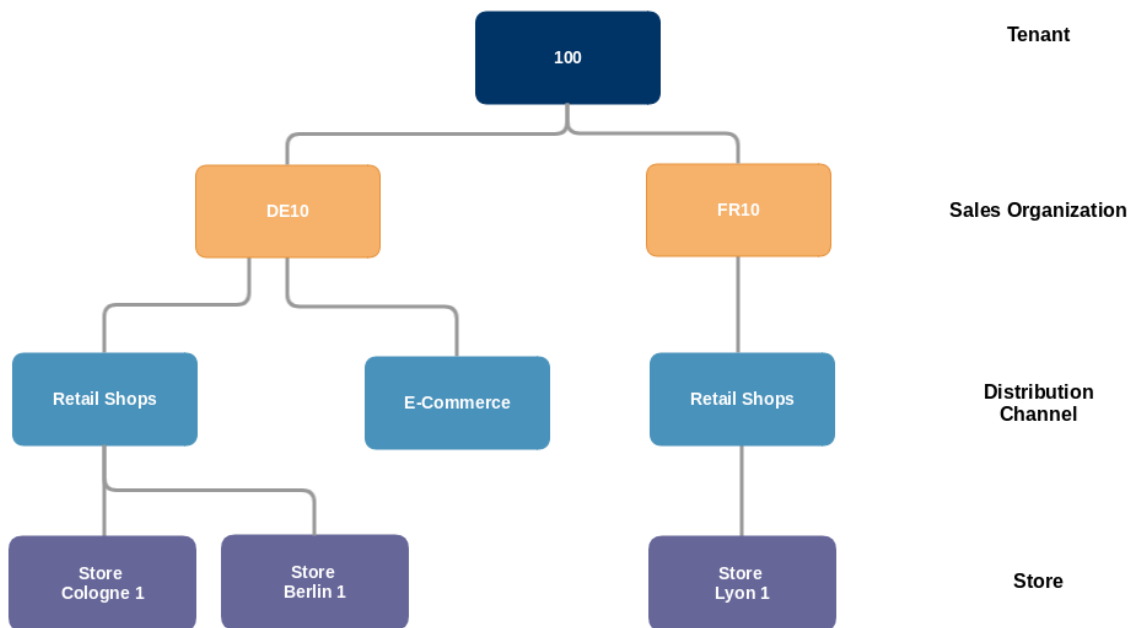
1. Import of item data from the SAP ERP
2. Export of optimized prices to the SAP ERP

5.1.1 Import of Item data from the SAP ERP

Item data can be consumed from any level in the SAP organizational structures. You can define that in the SAP export settings.

5.1.2 Export of Optimized Prices to the SAP ERP

The optimized price exports are configurable to address different SAP ERP organization structures.



Optimized prices can be sent to these levels:

- Sales organization
- Distribution Channel
- Store

On the Dynamic Pricing side you can create corresponding business units to map the SAP ERP organization structure:

SAP ERP Structure Element	Dynamic Pricing Structure Element
Tenant	Tenant or Business Unit
Sales Organization	Business Unit
Distribution Channel	Business Unit
Store	Business Unit

SAP Integration Scenario: POS

5.1.3 Orchestrating SAP Backend and Dynamic Pricing

The dynamic pricing service changes the VKP0 price of an item using conditions. This interface just offers a business day for validity.

If you plan to optimize prices once a day, you can configure the valid starting business day in the price export:

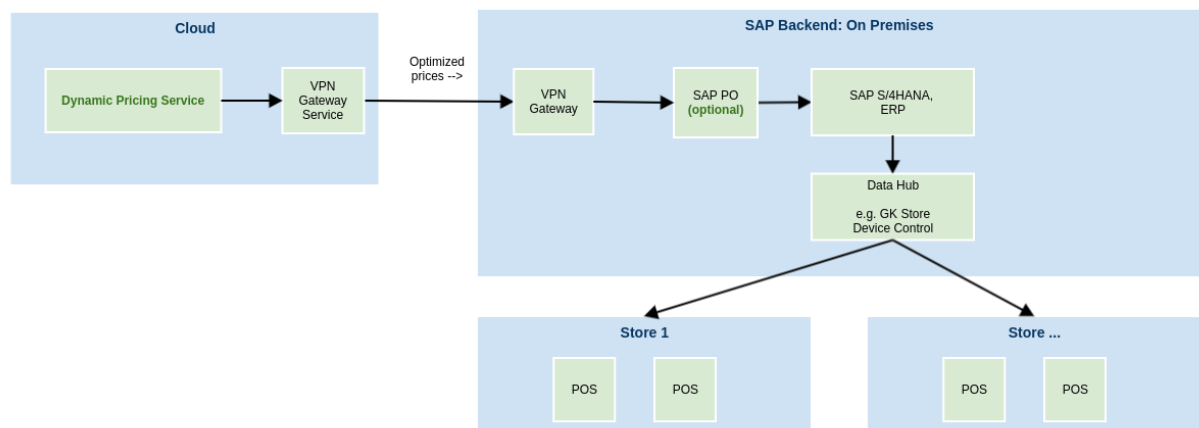
Next day if you compute it the day before or current day, if you compute it in the night. You then have to configure your POS export accordingly to run after the optimized prices are available in the SAP backend.

If you plan to optimize prices more than once a day, you need to fine tune the chain:

- Plan when to run the price computation and export
- Export setting to same business day
- Coordinate price exports to POS and price computation runs for best performance

5.1.4 Architecture for distributing Prices to POS Systems

This diagram outlines the architecture for the Azure cloud integration. It's also supported for Cloud foundry, just the communication between the pricing cloud and the SAP backend changes to Cloud Connector.



5.2 SAP Backend Customization

5.2.1 SAP Price Import via SalesPriceSpecCalcERPCreateRequestConfirmation

If there is no link to the customizing for price optimization is available you need to do:

1. Call transaction SM31
2. View is: V_RDMT_DCHAIN_SE
3. Click: Maintain
4. Create an entry for your distribution chain, example:

Change View "Distribution Chain Settings": Details

Change View "Distribution Chain Settings": Details

New Entries

Sales Org. RS10
Distr. Channel R1
System DM BS_PRUDSYS_PRICING3

Distribution Chain Settings

☒ Price Optimization
☒ Markdown Opt.
☒ PromoPriceOpt
☐ Promo Layout
Price Zone
Company
☐ Level2 Services
Acknowledge ☐

5. Save the data

5.2.2 SAP PO/PI Configuration

If SAP triggers the data import from WESOUT using the PI/PO the pricing server returns HTTP 200 with the task ID in the response body. PI/PO expects in this case a HTTP 202 code or a SOAP message in the answer.

You should switch off the SOAP answer in the PI/PO:

Display Communication Channel

Status: **Active**
Displayed Language: **Engli**

Communication Channel	SOAP_XI_Receiver_ProductCategoryHierarchyERPReplicatio_Cloud		
Party			
Communication Component	BS_PRUDSYS_PRICING3		
Description			

Parameters
Identifiers
Module

Adapter Type *	SOAP	http://sap.com/xi/XI/System	SAP BASIS 7.50
<input type="radio"/> Sender <input checked="" type="radio"/> Receiver			
Transport Protocol *	HTTP		
Message Protocol *	SOAP 1.1		
Adapter Engine *	Central Adapter Engine		

General
Advanced

Connection Parameters

Target URL *	http://10.242.5.6:8080/air/admin/res/demo/plugins/exec/prudsys/prudsys/pricing/imports/service/categories4hana/BU_f95045f5-0ae8-422c-97ec-7532893021a0/ImportService		
<input checked="" type="checkbox"/> Configure User Authentication			
User	sapinterface		
Password	*****	=	*****
<input type="checkbox"/> Configure Certificate Authentication			
<input type="checkbox"/> Configure Proxy			

Security Parameters

<input type="checkbox"/> Select Security Profile
--

Conversion Parameters

<input checked="" type="checkbox"/> Do Not Use SOAP Envelope
<input type="checkbox"/> Keep Headers
<input type="checkbox"/> Keep Attachments
<input type="checkbox"/> Use Encoded Headers
<input type="checkbox"/> Use Query String
SOAP Action

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