

MASTERINGSAP

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Mastering SAP Collaborate

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Publish and subscribe to real time events from S/4HANA using BTP Event Mesh and BTP Advanced Event Mesh.

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What I will be covering

- What is an **event** and why are they important?
- S/4HANA event sources
- BTP Event Brokers - **Event Mesh** and **Advanced Event Mesh**
- Demo - S/4HANA purchase order change event published to Event Mesh
- Demo - event consumption using an BTP Cloud Integration - Integration Flow
- Demo - S/4HANA purchase order change event publish to Advanced Event Mesh. Event consumed by the AEM Kafka Bridge and published to a Kafka broker
- Demo – Custom event consumption in S/4HANA to create a Service Entry Sheet
- Latest improvements for data events in S/4HANA

Events and real-world event-driven architecture

An **event** is a **significant change in state**.

Notification events or **data events** can be sent from the **event source** to inform of the change.

A message holding the event description in an encoded format is sent through an **event broker**.

Event consumers have registered with the event broker and are informed of the event.



```
{"type":"sap.s4.beh.businesspartner.v1.BusinessPartner.Changed.v1","specversion":"1.0","source":"/default/sap.s4.beh/000000007","id":"fa163e0b-4824-1eec-83f7-32dfc754759c","time":"2021-09-07T08:57:17Z","datacontenttype":"application/json","data":{"BusinessPartner":"1000187"}}
```

APIs vs. Events. We need both!

Application programming interfaces are a contract between client and server.

Synchronous and blocking.

Need to be called actively.



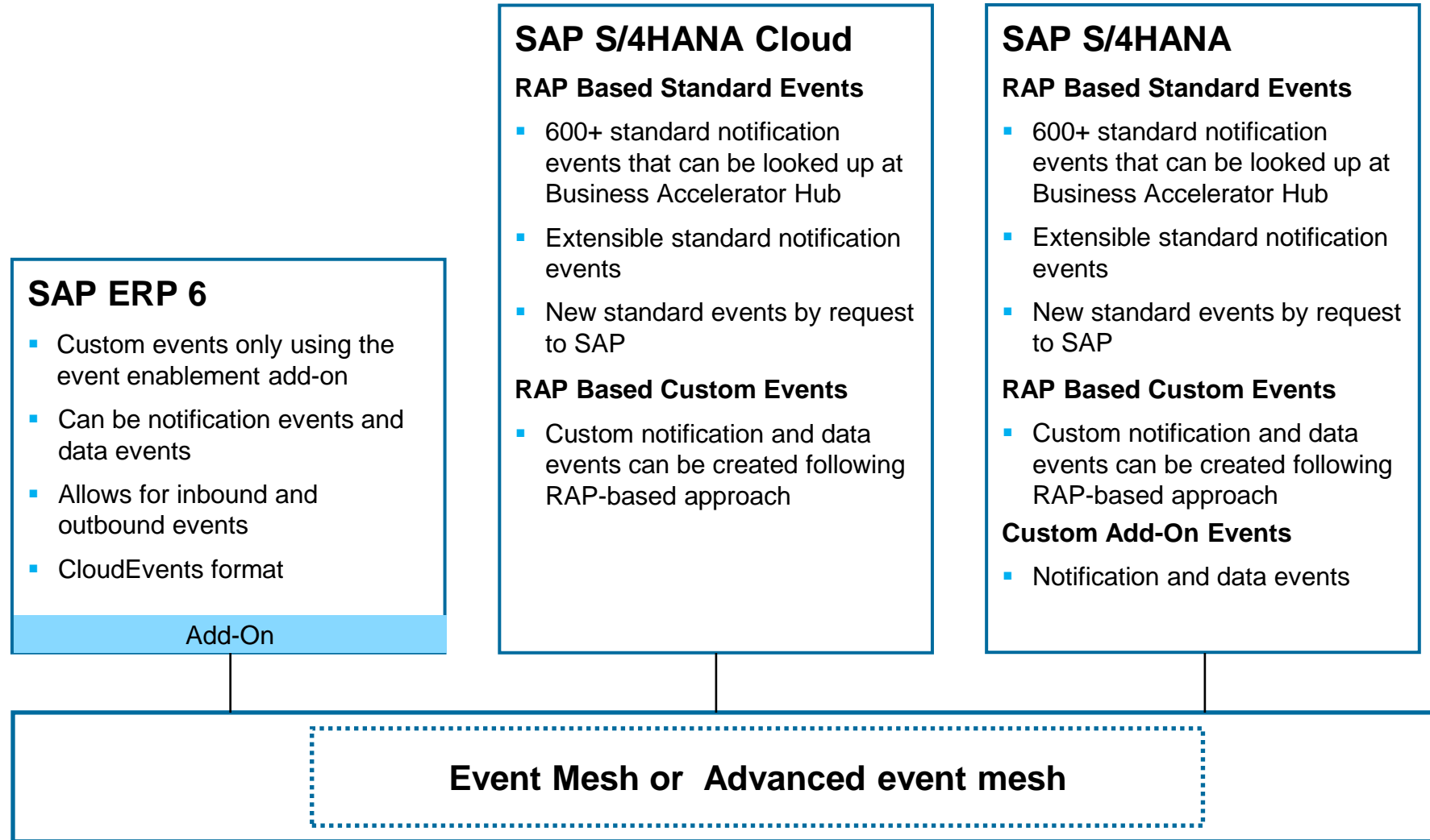
Events inform interested parties on significant changes.

Asynchronous and non-blocking.

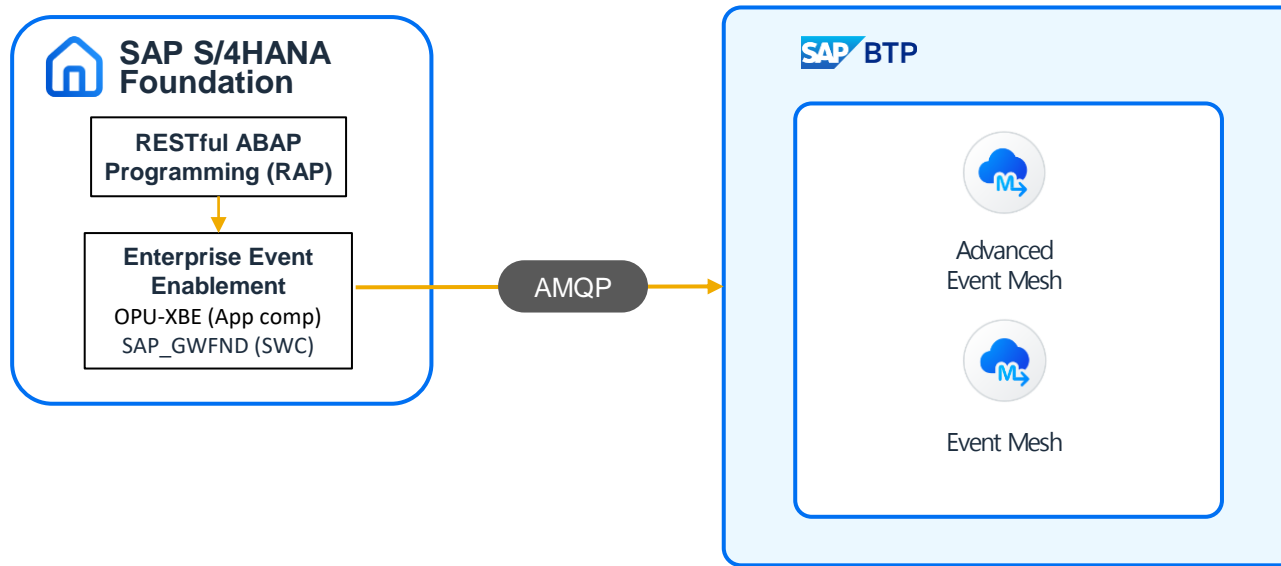
Register once - no additional action needed.



S/4HANA & ERP Event sources



S/4HANA Events



S/4HANA Foundation

- Catalogue of [SAP Standard Events](#)
- Using the [Cloud Events specification](#) as the structure
- Likely to be notification events or key fields only
 - May require a call back to retrieve additional information on the object
- Transmitted via AMQP to **Advanced Event Mesh** or **Event Mesh**
- Topics pre-determined by SAP


Sample Business Partner Event

```
{
  "type": "sap.s4.beh.businesspartner.v1.BusinessPartner.Created.v1",
  "specversion": "1.0",
  "source": "sap/em/s4hana",
  "id": "CouqKdpHHuyPvSSTVBOzcg==",
  "time": "2021-11-05T03:33:29Z",
  "datacontenttype": "application/json",
  "data": {
    "BusinessPartner": "USCU_S11"
  }
}
```

Sample Sales Order Event


```
{
  "type": "sap.s4.beh.salesorder.v1.SalesOrder.ApprovalStsChanged.v1",
  "specversion": "1.0",
  "source": "sap/em/s4hana",
  "id": "CouqKdpHHuyPvSSTVBOzcg==",
  "time": "2021-11-05T03:33:29Z",
  "datacontenttype": "application/json",
  "data": {
    "DistributionChannel": "st",
    "EventRaisedDateTime": "2019-08-24T14:15:22Z",
    "OrganizationDivision": "st",
    "PreviousSalesDocApprovalStatus": "s",
    "SalesDocApprovalStatus": "s",
    "SalesOrder": "string",
    "SalesOrderType": "stri",
    "SalesOrganization": "stri",
    "SoldToParty": "string"
  }
}
```

How to find what notification events are available in S/4HANA – api.sap.com

 **Business Accelerator Hub**

ExploreResourcesDiscover IntegrationsPartner with Us

/ SAP S/4HANA Cloud Public Edition for Business Events

 **Purchase Order Events**

Informs a remote system about created and changed purchase orders in an SAP S/4HANA Cloud tenant

OverviewEvent ReferencesEvent Consumption

Introduction

A purchase order is a document issued by a purchaser to a supplier indicating types, quantities, and agreed prices for products or services. The following events are available for purchase order

- Created
- Changed
- Approved
- Approval Rejected
- Item Created
- Item Changed
- Item Deleted
- Item Blocked
- Item Unblocked

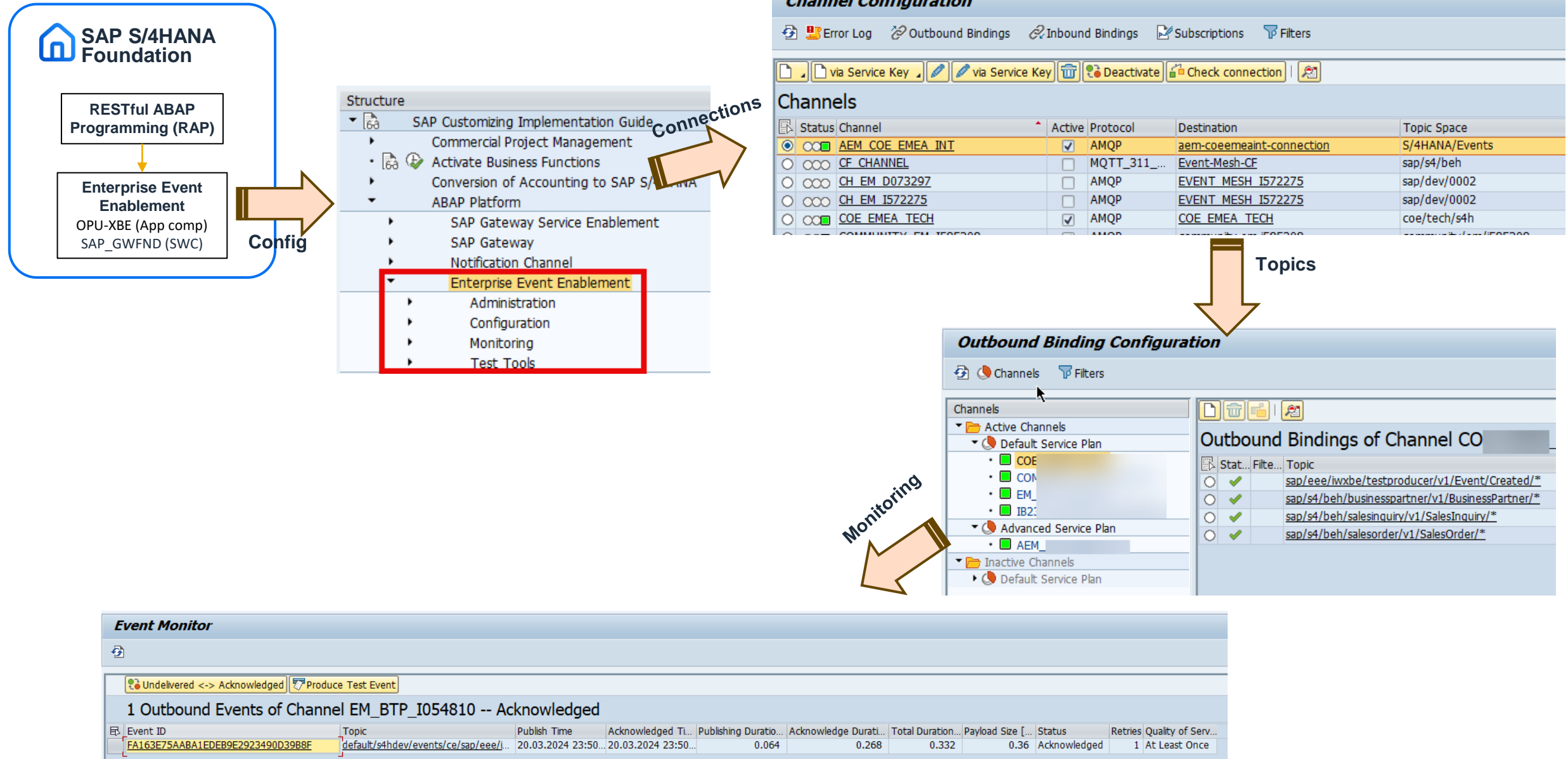
View Event Reference

Event Resources

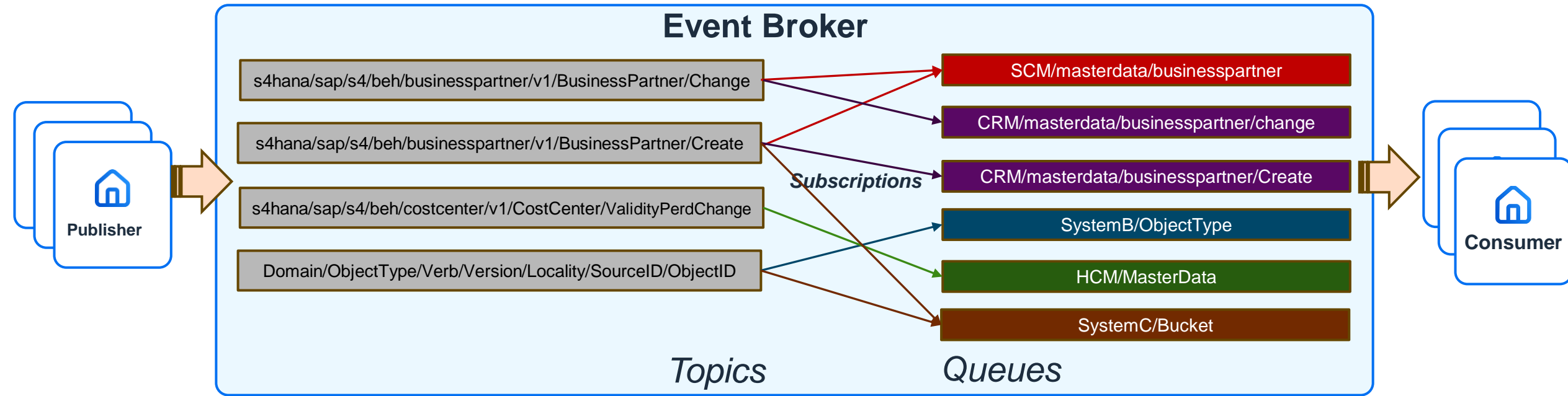
Event Specification

<https://api.sap.com/content-type/Events/events/events>

S/4HANA – configuration of channels and event brokers



Event Broker Concept (pub/sub)



Publishers

- Push data via a Topic reference (or direct to Queues)
- Topics should be as granular as possible (eg even down to region or state for example)
 - Publish to a topic once, the Event Broker manages 1:n subscribers/consumers

Consumers

- Retrieves or receives data from queues (push or pull)
- Additional consumers added without impacting the Publisher

Event Broker

- Creates queues, manages subscriptions to 1:n topics
 - Subscriptions filtered/wildcarded (eg `s4hana/customObject/*/Create`) based on requirements
- Generally payload unaware

BTP Event Brokers

		SAP Event Mesh	SAP Integration Suite, advanced event mesh
Standard	Fully managed cloud service	✓	✓
	Infrastructure Model	Shared	Exclusive in T-Shirt Sizes
	Deployment Options	BTP Deployment	Private and Public Clouds
	Connecting SAP and non-SAP systems	✓	✓
	Out-of-the box support for SAP event sources	✓	✓
	Support of Standard Protocols	✓	✓
	Message size and storage	1MB / 10GB	Up to 30MB / Up to 6TB
	Typical use case size	Small to Medium	Small to Ultra Large
Advanced	Network of Event Brokers	-	✓
	Advanced Event Monitoring and Analysis	-	✓
	Dynamic Event Routing	-	✓
	Filtering	-	✓
	Event replay	-	✓
	Event Management	-	✓

Demo – S/4HANA purchase order event published to Event Mesh

- Overview
- Services
- Service Marketplace
- Instances and Subscriptions
- Cloud Foundry
- HTML5 Applications
- Connectivity
- Security
- Users
- Role Collections
- Roles
- Trust Configuration
- Settings
- Entitlements
- Usage Analytics
- Legal Information

ANZ_BTP

BTP_AEM

Subaccount: BTP_AEM - Instances and Subscriptions

Create

All: 5

Search

All Services

All Plans

All Statuses

Subscriptions (2)

Instances (2)

Environments (1)

Applications to which your subaccount is currently subscribed

Application	Plan	Created On	Changed On	Status	
Event Mesh	standard	2 May 2024	2 May 2024	Subscribed	
SAP Integration Suite, advanced event mesh	standard	19 Apr 2024	19 Apr 2024	Subscribed	

Instances (2)

Service instances created in: Cloud Foundry | Kyma/Kubernetes | Other environments

Instance	Service	Plan	Runtime Environment	Scope	Credentials	Status	
AEM_Validation	SAP Integration Suite, advan...	aem-validation-service-plan	Cloud Foundry	dev	1 key	Created	
eventmesh	Event Mesh	default	Cloud Foundry	dev	1 key	Created	

Environments (1)

Environment instances created in this subaccount.

Name	Environment	Plan	Created On	Changed On	Status	
btp-aem-9ijku5wm_BTP_AEM	Cloud Foundry Runtime	standard	19 Apr 2024	19 Apr 2024	Created	

Demo - Event consumption using BTP Integration Flow

Default Plan

- Message Clients
- Queues
- Resource Allocation
- Resource Usage
- Test

Subdomain : btp-aem-9jku5wm

anzemesh

Namespace	Type	Management	Messaging	Messaging REST
sap/anzemesh/demo	Instance	Enabled	Enabled	Enabled

- Overview
- Rules
- Queues
- Webhooks
- Events
- Service Descriptor
- Test

Create Queue

Refresh

Search

Queue Name	Messages	Unacknowledged Messages	Queue Size (bytes)	Access Type	Actions
sap/anzemesh/demo/PurchaseOrderChanges	0	0	0	NON_EXCLUSIVE	
sap/anzemesh/demo/PurchaseOrderChangesWithNoAEMWebHook	317	0	168,961	NON_EXCLUSIVE	
sap/anzemesh/demo/s4/eeaddon/businesspartner	0	0	0	NON_EXCLUSIVE	
sap/anzemesh/demo/s4/purchaseorder/changes	0	0	0	NON_EXCLUSIVE	
sap/anzemesh/demo/s4/purchaseorder/changes/integrationflow	0	0	0	NON_EXCLUSIVE	

**Demo – S/4HANA purchase order event
publish to Advanced Event Mesh –
publish event to Kafka using the AEM
Kafka Bridge**

ZAEM_SAP_COM_0492

EditDisplay ChangesDelete

Scenario ID: [SAP_COM_0492](#)
Scenario: SAP Integration Suite, Advanced Event Mesh Integration

Changed By: Paul Fewster
Changed On: 04/29/2024, 09:53:50 PM

Editing Status: Active

Common Data

Arrangement Name: ZAEM_SAP_COM_0492

Own SAP Cloud System: 0M1V5LF

Communication System: * ZAEM_SAP_COM_0492

Display

API-URL: https://my300183-api.s4hana.ondemand.com

Additional Properties

Property Name	Property Value
Channel	S4_BTP_AEM
Description	S4 events AEM
Topic Space	sap/aem/demo
QoS	1
Number of Publish Connections	1
Reconnect Attempts	1
Reconnect wait time(sec)	10

Inbound Communication

Supported Authentication Methods

User Name: * AEM_USER

Authentication Method: User ID and Password

Inbound Services

Service	Application Protocol	Service URL/Service Interface	WSDL/Service Metadata	Additional Properties
EEE - Inbound Service for Subscribe Daemon	ABAP Daemon			
EEE - Inbound Service for Consume Daemon	ABAP Daemon			
EEE - Inbound Service for Publish Loadbalancer Daemon	ABAP Daemon			

Demo – Consume a custom event in S/4HANA

How to generate additional context for the event – data events

S/4HANA

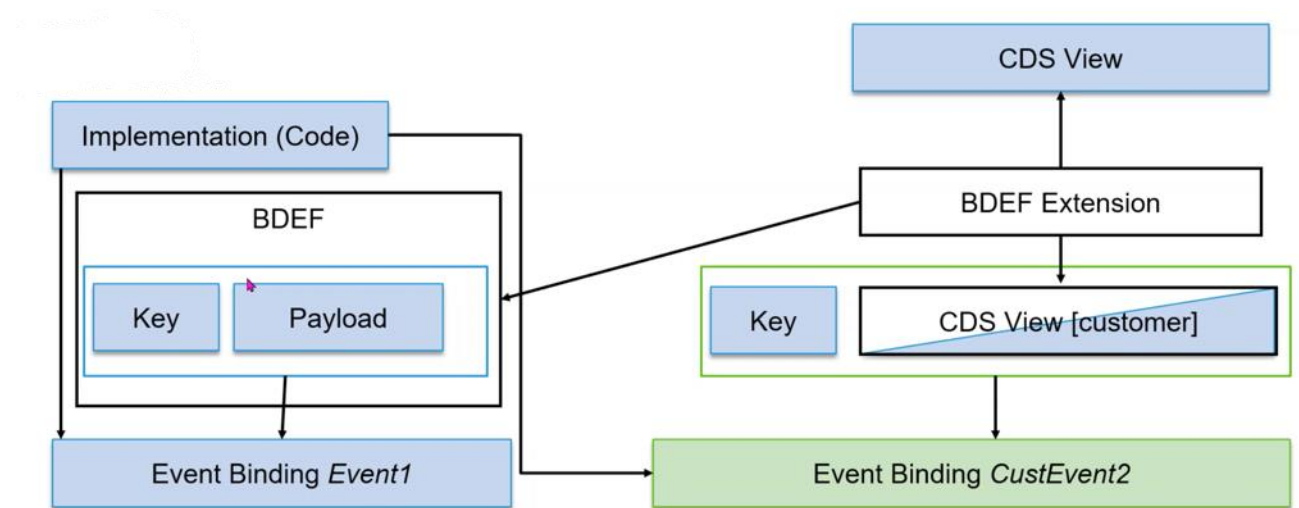
- Derived Events (as of 2023/2308)
- Local Event Handling (as of 2023/2308)
- NetWeaver Event Enablement Add On (Event Mesh as target only)

ERP 6

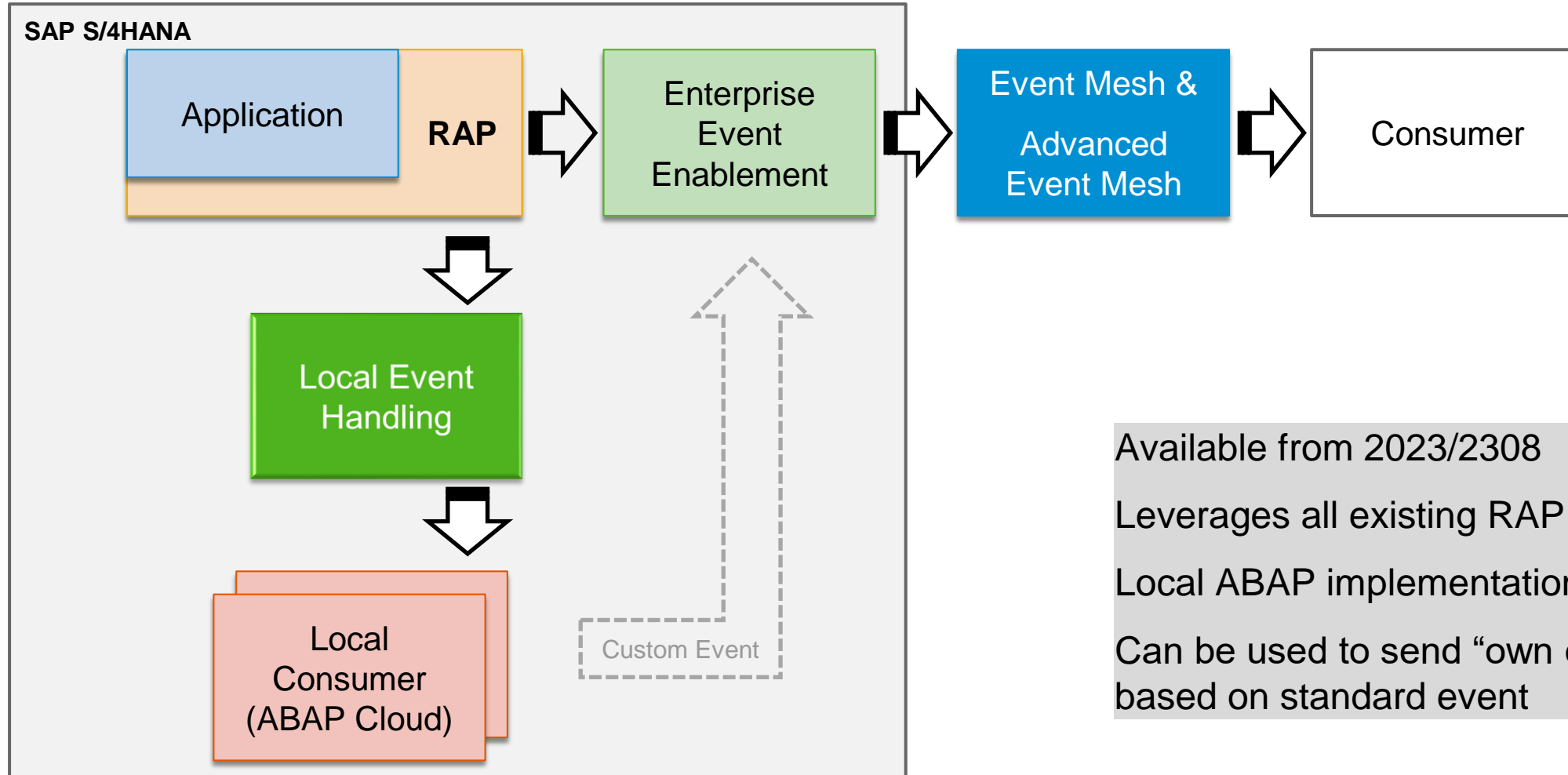
- NetWeaver Event Enablement Add On

S/4HANA Business Events: Derived Events (2308)

- Create a **Derived Event** based on standard notification events
- The original event remains **untouched**
- Standard payload is replaced with a matching CDS view (key available in standard event as well)
- No programming, just configuration
- Internally, the notification event is used as a trigger, the configuration defines the “enrichment”



S/4HANA Business Events: Local Event Handling



Available from 2023/2308

Leverages all existing RAP events

Local ABAP implementation

Can be used to send "own event"
based on standard event

Thanks for attending

Questions ?