



SAP Business Unleashed Innovation Day

When you connect everything,
you can achieve anything.



Leverage real-time business insights with an event-driven architecture

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Agenda



What is Event-Driven Architecture?

SAP's event-driven ecosystem and strategy.

Focus: SAP Integration Suite, Advanced Event Mesh.

SAP solutions for event-driven integration

Demo: Event-driven integration with SAP S/4HANA and SAP Integration Suite, Advanced Event Mesh

Intelligent Enterprise EDA from SAP

Helpful resources

Event-driven architecture



- An **event** is a **significant change in state**.
- **Event source** sends an event to inform of change.
- Message holding event description in encoded format is distributed through an **event broker**.
- **Event consumers** have registered with event broker and are informed of event.
- Events come in different flavors: **notification events** or **data events**.



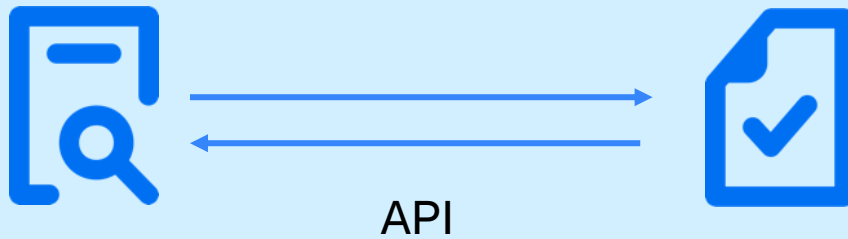
```
{ "type": "sap.s4.beh.product.v1.Product.Changed.v1", "specversion": "1.0", "source": "/default/sap.s4.beh/0000000007", "id": "fa163e0b-4824-1eec-83f7-32dfc754759c", "time": "2023-09-07T08:57:17Z", "datacontenttype": "application/json", "data": {"Product": "160", "ProductType": "FRIP"} }
```

API Architecture vs. Event-Driven Architecture

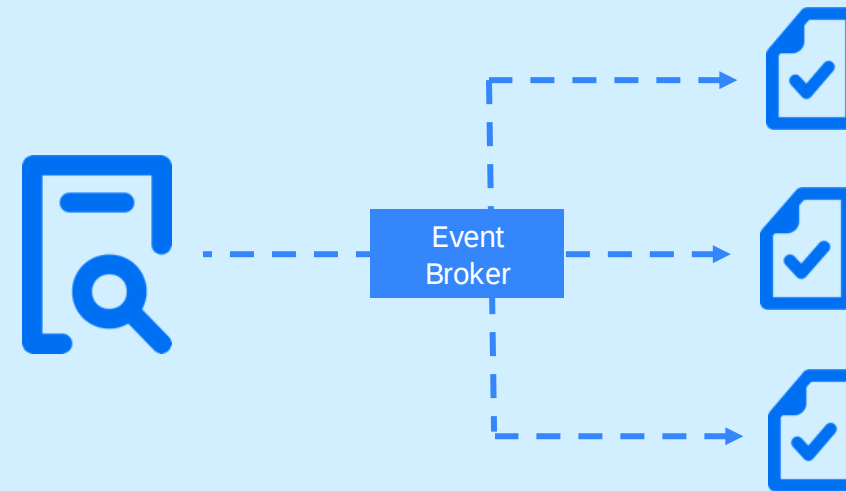


API Architecture

Event-Driven Architecture (EDA)



Request and Reply Based
Synchronous



Push-Based
Asynchronous
Decoupled

SAP Business Suite Event Sources



Business Accelerator Hub Integrations SAP Build Analytics Transformation Explore

Events

Explore all events in the SAP Business Accelerator Hub.

Event Objects Packages

Showing 1-12 of 21 results Page 1 of 2

- SAP Order Management Foundation Business Events**
Provides business events for SAP Order Management foundation to trigger follow-on processes in other applications.
1 Event Object
- SAP Cell and Gene Therapy Orchestration**
Orchestrate supply chain to deliver personalized therapies using late stage customization.
13 Event Objects
- SAP S/4HANA Business Events**
Provides the next generation digital events of SAP S/4HANA business objects
152 Event Objects
- SAP S/4HANA Add-On for SAP Cell and Gene Therapy Orchestration**
- SAP Sales Cloud and SAP Service Cloud Version 2 Business Events**
Use SAP Sales Cloud Version 2 to grow rev-
- SAP Intelligent Clinical Supply Management for Planning Event**
Exchange clinical study data with external

Topics:

- sap/s4/beh/purchaseorder/v1/PurchaseOrder/ItemChanged
- sap/s4/beh/businesspartner/v1/BusinessPartner/Created
- sap/ssc/caseService/caseCreated/v1

/ SAP S/4HANA Business Events

Purchase Order Events

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

Overview Event References Event Consumption Documents

OPERATIONS

- ce/sap/s4/beh/purchaseorder/v1/PurchaseOrder/ItemChanged/v1
- ce/sap/s4/beh/purchaseorder/v1/PurchaseOrder/ItemCreated/v1
- ce/sap/s4/beh/purchaseorder/v1/PurchaseOrder/ItemChanged/v1
- ce/sap/s4/beh/purchaseorder/v1/PurchaseOrder/ItemCreated/v1
- ce/sap/s4/beh/purchaseorder/v1/PurchaseOrder/ApprovalRejected/v1
- ce/sap/s4/beh/purchaseorder/v1/PurchaseOrder/ItemBlocked/v1
- ce/sap/s4/beh/purchaseorder/v1/PurchaseOrder/ItemCreated/v1

Operations

ce/sap/s4/beh/purchaseorder/v1/PurchaseOrder/ItemChanged/v1

Accepts the following message:

```
sap.s4.beh.purchaseorder.v1.PurchaseOrderItemChanged.v1
PurchaseOrder Item Changed
This event is raised when a purchase order item instance has been changed.
Payload > Expand all Object uid:sap_s4_beh_purchaseorder_v1_PurchaseOrder_ItemChanged_v1
Headers > Expand all Object
```

Examples

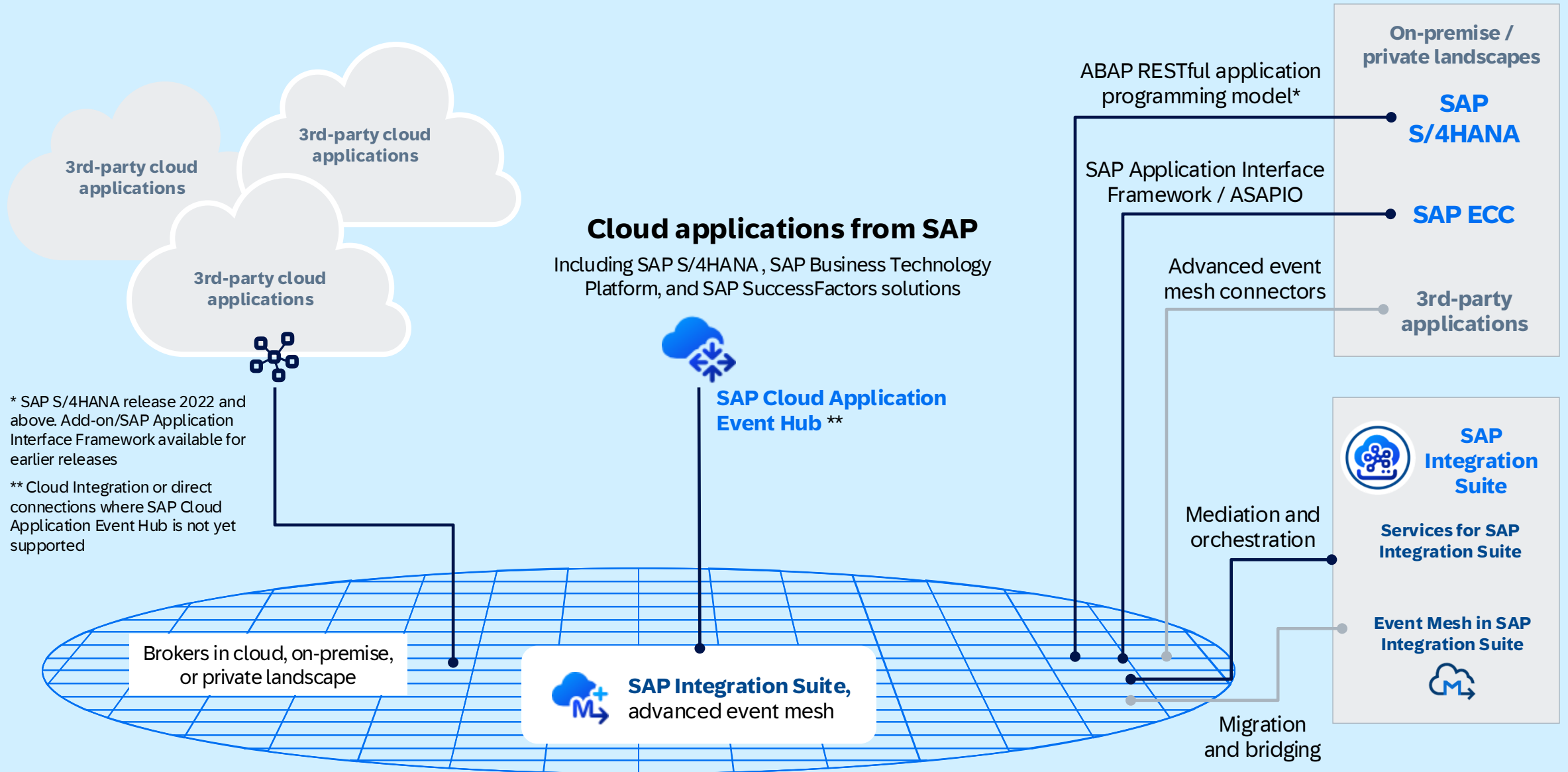
Payload >

Headers >

ce/sap/s4/beh/purchaseorder/v1/PurchaseOrder/ItemCreated/v1

Accepts the following message:

SAP's event-driven technical ecosystem and strategy



* SAP S/4HANA release 2022 and above. Add-on/SAP Application Interface Framework available for earlier releases

** Cloud Integration or direct connections where SAP Cloud Application Event Hub is not yet supported

SAP S/4HANA connectivity to SAP Integration Suite, AEM



- Enterprise Event Enablement
 - Administration
 - Channel Connection Settings
 - Manage RFC Destination**
 - Manage OAuth Client Setup
 - Manage Channel and Parameters
 - Activate Event Discovery Service
 - Logging Settings
 - Troubleshooting
 - Configuration
 - Maintain Subscriptions
 - Maintain Inbound Event Topics
 - Maintain Outbound Event Topics
 - Maintain Event Filters
 - Monitoring
 - Test Tools

Channel Configuration

Channels

Status	Channel	Active	Protocol	Destination	Topic Space	Service Plan	Description
●	BTP_AEM_BROKER	<input checked="" type="checkbox"/>	AMQP	BTP_AEM	S/4HANA/Events	Advanced	BTP AEM Instance

Parameters of Channel BTP_AEM_BROKER

Parameter	Value	Default Value	Description
<input type="checkbox"/> Daemon User	BTPUSER		Daemon User
<input type="checkbox"/> Event Mesh Validation Endpoint	715E3B51D2171EEFBFF9C69AB8C5E884		Event Mesh Validation Endpoint
<input type="checkbox"/> Max Reconnect Attempts	0	0	Reconnect attempts
<input type="checkbox"/> Number of publish connections	1	1	Number of publish connections
<input type="checkbox"/> OAuth 2.0 Client Profile	/!WXBE/MGW_MQTT		OAuth 2.0 client profile
<input type="checkbox"/> OAuth 2.0 Configuration	BTP_AEM_OAUTH		OAuth 2.0 configuration
<input type="checkbox"/> Quality of Service	1	1	Quality of service
<input type="checkbox"/> Reconnect Waittime	10	10	Reconnect wait time(sec)

AMQP connection to AEM broker

Create outbound binding

Outbound Bindings of Channel BTP_AEM_BROKER

Status	Filter	Topic
<input type="radio"/>	✓	sap/s4/beh/businesspartner/v1/BusinessPartner/*
<input type="radio"/>	✓	sap/s4/beh/product/v1/Product/Changed/*
<input checked="" type="radio"/>	✓	sap/s4/beh/salesorder/v1/SalesOrder/Changed/*
<input type="radio"/>	✓	sap/s4/beh/salesorder/v1/SalesOrder/Created/*

Outbound topics to publish

Connection Test

RFC Destination: BTP_AEM

Connection Type: HTTP Connection to External Server

Description

Administration **Technical Settings** Logon & Security Special Options

Target System Settings

Host: tcps://mr-connection-8c8xf763e6g.messaging.solace.clo... Port: 5671

Path Prefix:

AEM broker connection details

Create Outbound Binding

Topic: sap/s4/beh/salesorder/v1/SalesOrder/Changed/*

Restrictions

Topic

- sap/s4/beh/billingdocumentrequest/v1/BillingDocumentRequest/Rejected/*
- sap/s4/beh/billingdocumentrequest/v1/BillingDocumentRequest/Rejected/v1
- sap/s4/beh/billingdocumentrequest/v1/BillingDocumentRequest/SuccessDo...
- sap/s4/beh/billingdocumentrequest/v1/BillingDocumentRequest/SuccessDo...
- sap/s4/beh/billingdocumentrequest/v1/BillingDocumentRequest/SuccessDo...
- sap/s4/beh/billingdocumentrequest/v1/BillingDocumentRequest/SuccessDo...
- sap/s4/beh/businesspartner/v1/BusinessPartner/*
- sap/s4/beh/businesspartner/v1/BusinessPartner/Changed/*
- sap/s4/beh/businesspartner/v1/BusinessPartner/Changed/v1
- sap/s4/beh/businesspartner/v1/BusinessPartner/Created/*
- sap/s4/beh/businesspartner/v1/BusinessPartner/Created/v1

1435 Entries found

Publish-Subscribe Messaging Pattern



Event-Driven Architecture (EDA)



Publisher

Publishes event messages to topics or queues

```
{ "type": "sap.s4.beh.product.v1.Product.Changed.v1",  
  "generation": 1,  
  "source": "/default/sap.s4.beh/0000000007", "id": "fa163e0b-4824-1eec-83e7-32dfc754759c", "time": "2023-09-07T08:57:13Z",  
  "dataobjecttype": "application/json", "data":  
  [{"Product": "160", "ProductType": "PRIP"}]}
```

Publishing messages on topics:

- sap/s4/beh/product/v1/Product/Changed
- sap/s4/beh/salesorder/v1/SalesOrder/Changed
- sap/s4/beh/businesspartner/v1/BusinessPartner/Created
- sap/s4/beh/businesspartner/v1/BusinessPartner/Changed
- sap/ssc/caseService/caseCreated/v1

Event Broker

Queue

s4hanaBusinessPartnerMgmt

Topic Subscription(s):
sap/s4/beh/businesspartner/v1/BusinessPartner/*

s4hanaOrderChanges

Topic Subscription(s):
sap/s4/beh/salesorder/v1/SalesOrder/Changed

sscCaseManagement

Topic Subscription(s):
sap/ssc/caseService/caseCreated/v1

Topic subscription

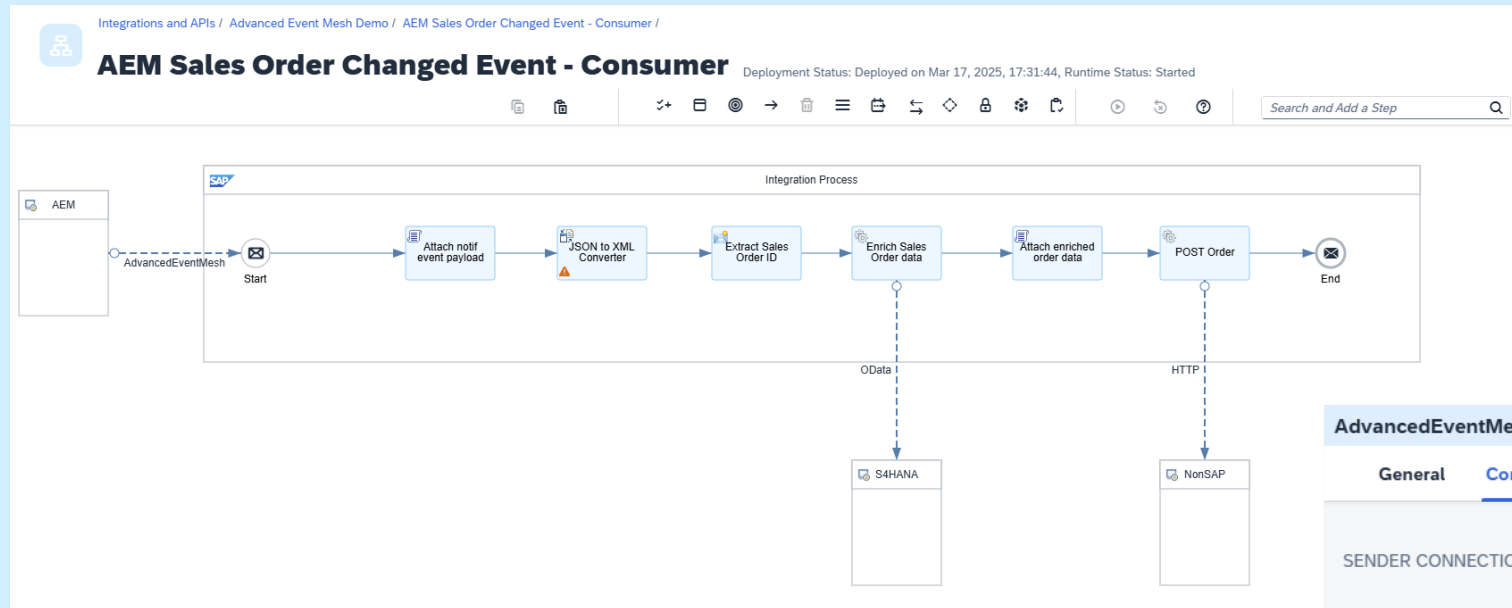
Used to attract published events.
Can contain wildcards for filtering and routing (e.g. /BusinessPartner/*).



Subscriber

Receives or consumes events from queues

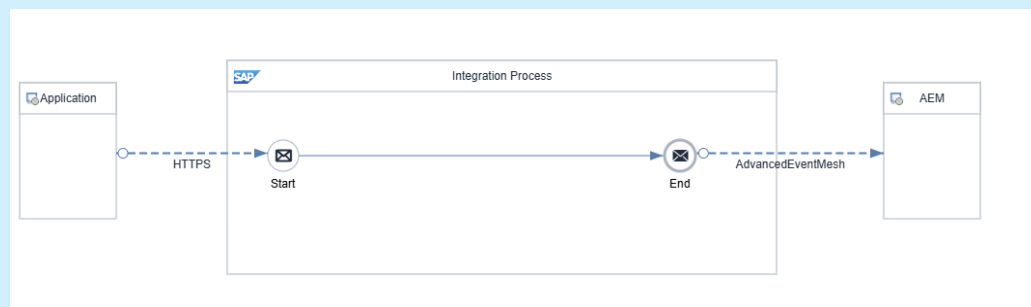
Integration Flow: Consumer or Producer of Events



Adapters:

AdvancedEventMesh (SMF message protocol)
AMQP
MQTT, HTTP

Demo scenario: iFlow as event consumer



iFlow as event publisher

AdvancedEventMesh

General | **Connection** | Processing

SENDER CONNECTION DETAILS

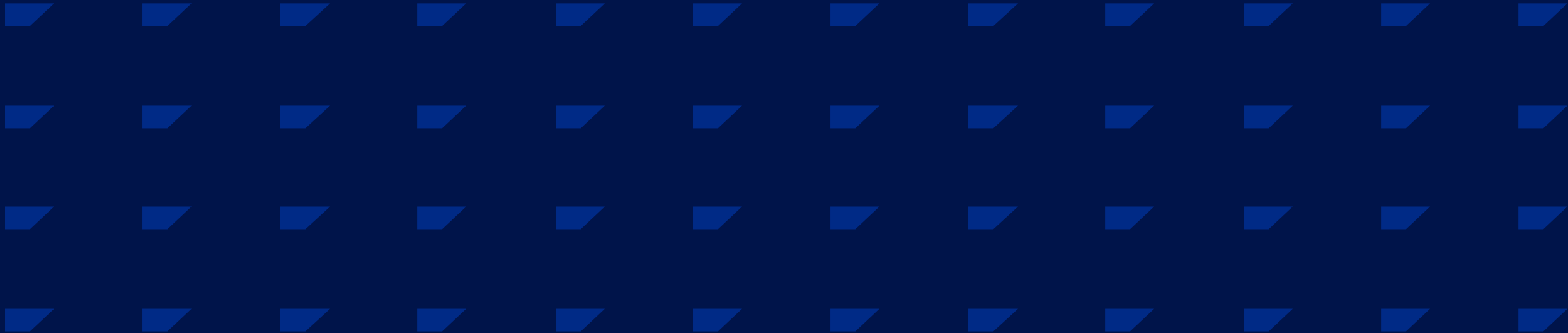
Host: *	tcps://mr-connection-8c8xf763e6g.messaging.solace.cloud:55443
Message VPN: *	aemdemo
Username: *	solace-cloud-client
Authentication Type:	Basic
Password Secure Alias: *	aemdemo-solace-cloud-client

Comparing SAP solutions for event-driven integration



		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



Cluster Manager: Services

[Create Service](#)

Filter by service name



Only show my services

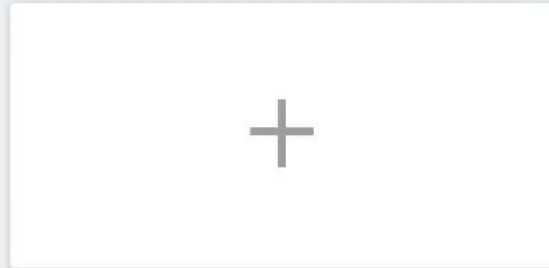


All services

AEMDemo ...
eks-ap-southeast-2a

Broker 100
paul.fewster@sap.com

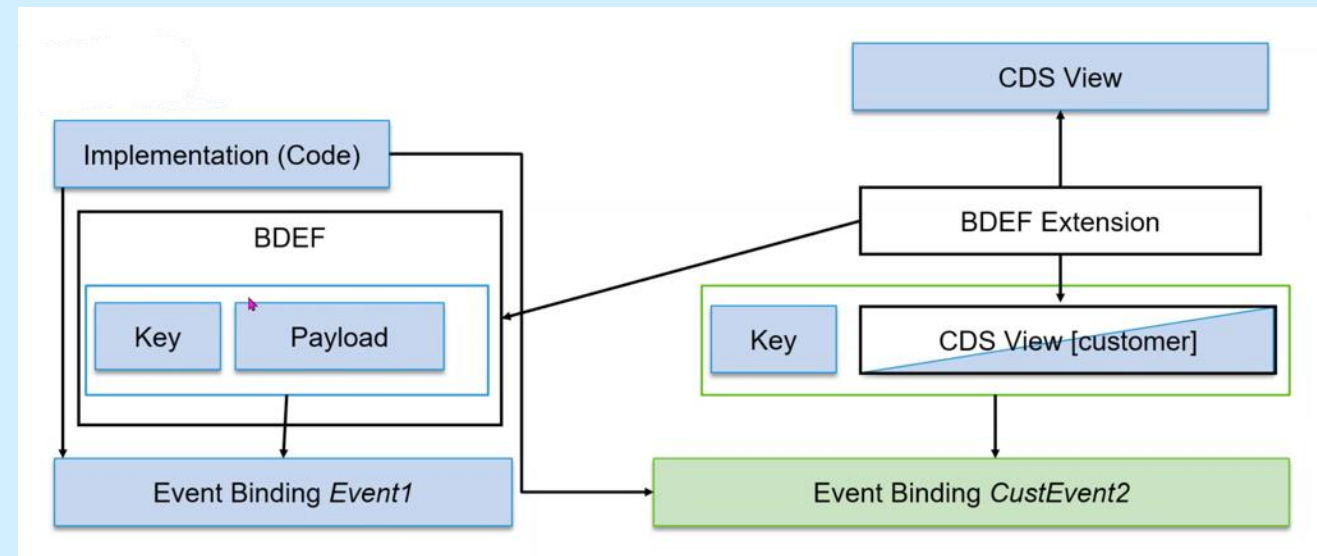
● Running



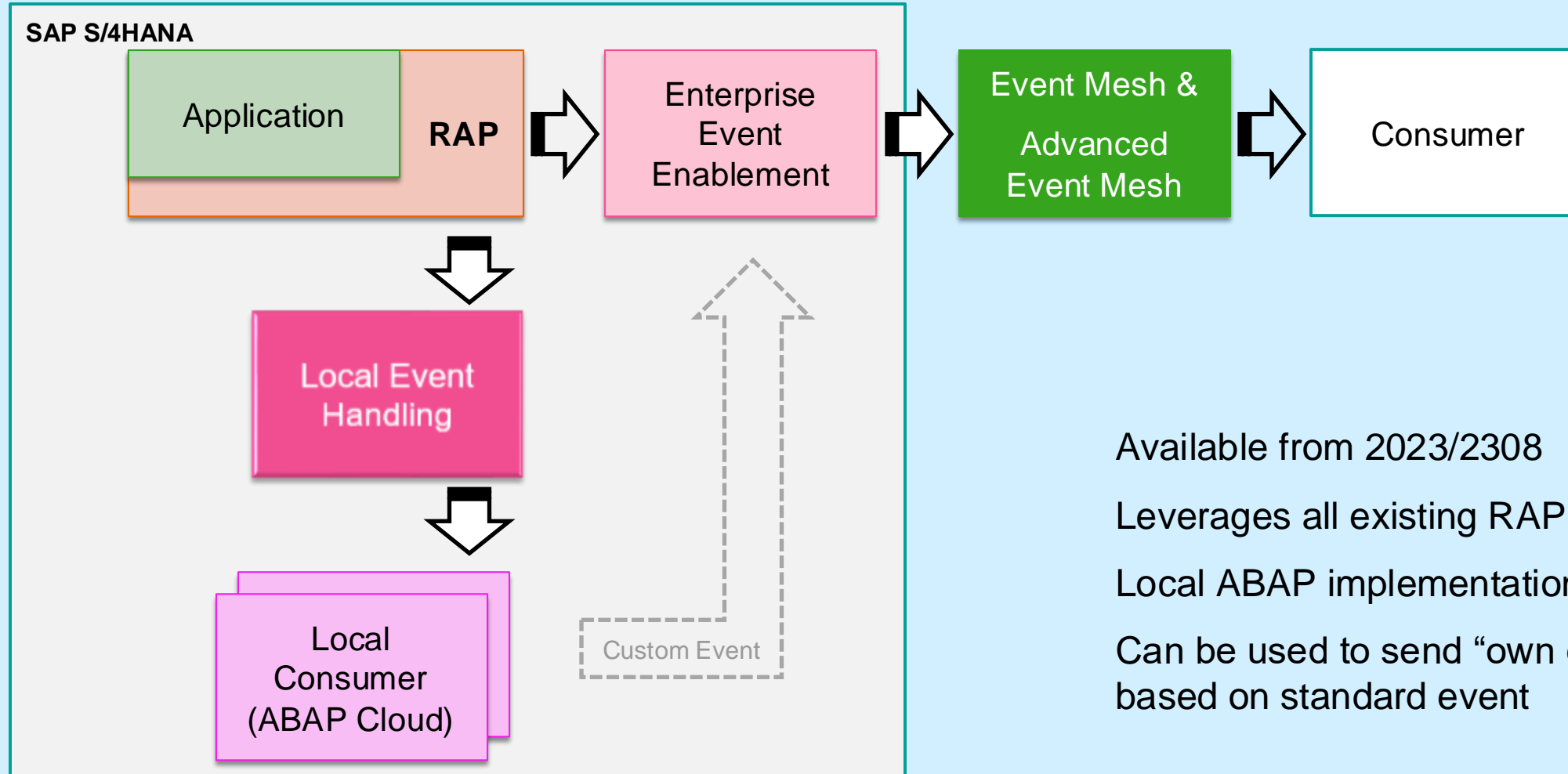
S/4HANA Business Events: Derived Events (2308)



- 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

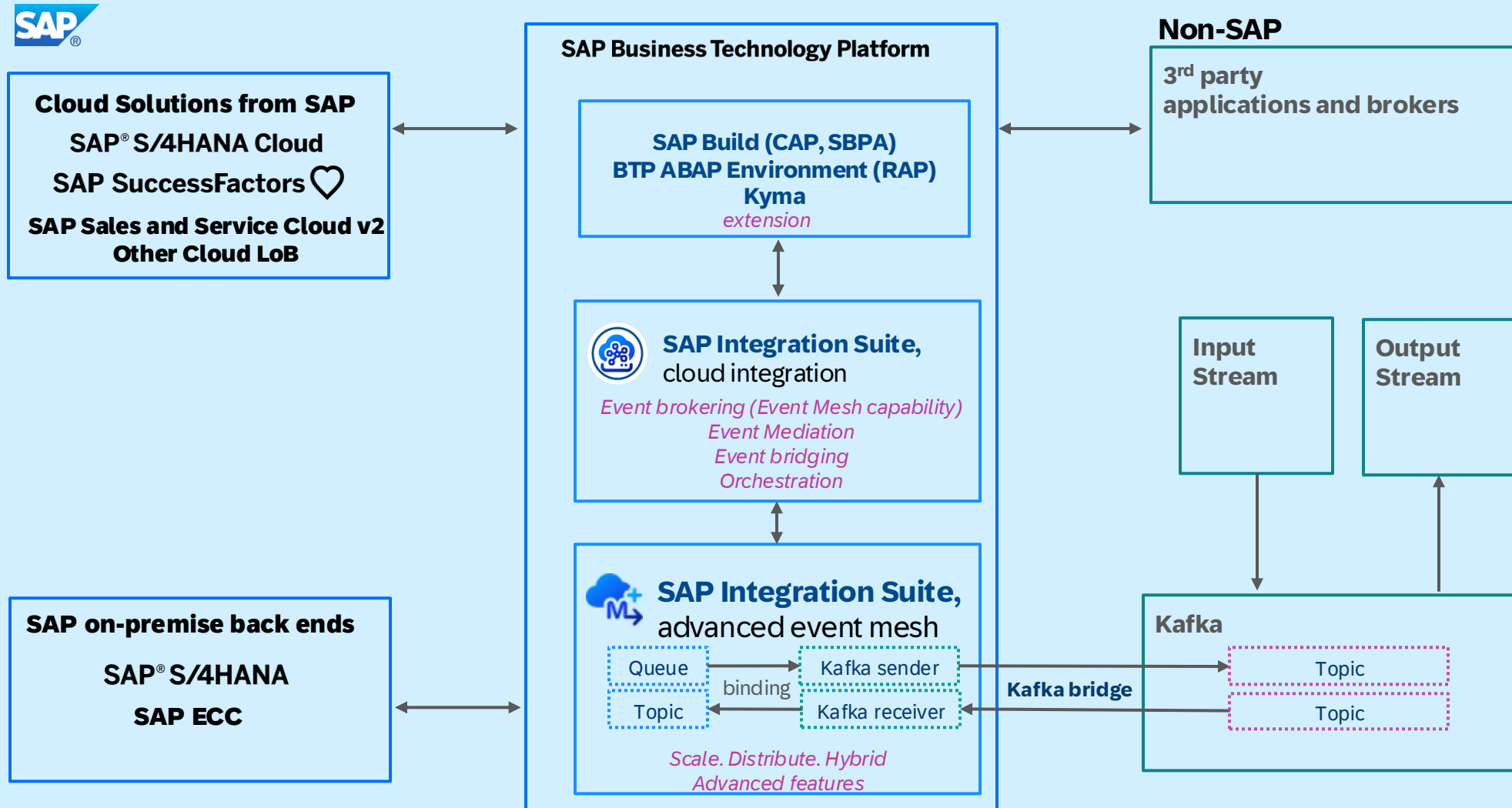
Leverages all existing RAP events

Local ABAP implementation

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

Intelligent Enterprise EDA from SAP

Focus: Kafka Bridge



Kafka bridge



The screenshot shows the SAP AEM Demo interface. On the left is a dark sidebar with navigation options: AEMDemo, Change VPN, Messaging, Message VPN, Clients, Queues, Connector Wizards, Access Control, Telemetry, Replay, and Bridges. The main area is titled 'Kafka Bridges' and has tabs for 'Static Bridges', 'DMR Bridges', and 'Kafka Bridges'. Under 'Kafka Bridges', there are sub-tabs for 'Kafka Senders' and 'Kafka Receivers'. A search bar 'Search by name' is present. Below it, a list of Kafka Senders is shown with checkboxes: 'Sender Name', 'Kafka', and 'Test'. A hand cursor is pointing at the 'Kafka' checkbox.

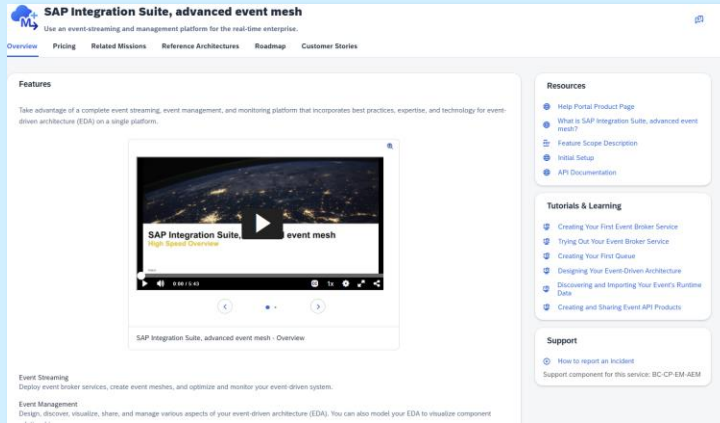
The screenshot shows the 'Queue Bindings' settings for the topic 's4hana/purchaseorder/changes'. The 'Settings' tab is active. The configuration includes: 'Enabled' (toggle on), 'Remote Topic' (s4hana.purchaseorder.changes), 'Remote Key Expression' (empty), 'Ack Mode' (All), 'Partition Scheme' (Consistent), 'Hash Algorithm' (Crc), and 'Random Fallback Enabled' (toggle on). A hand cursor is pointing at the 'Remote Key Expression' field.

The screenshot shows the 'Senders | Kafka' Summary page. It features a navigation bar with 'Summary', 'Settings', 'Stats', 'Queue Bindings', and 'Remote Brokers'. The main content area shows a diagram of a 'Local VPN' connected to a 'Remote Kafka Cluster' via 'pkc-p11xm-us-east-1.aws.confluent.cloud'. Below the diagram, there are sections for 'Outgoing Message Rate' (0 Msg/s), 'Uptime' (0d 1h 2m 39s), 'Last Notice' (2024-05-13 12:56:16), 'Client Name' (#kafka/tx/Kafka), 'Queue Bindings' (Configured: 1, Up: 1), and 'Connection Count' (26). A 'Bridge Status' indicator shows 'Up'.

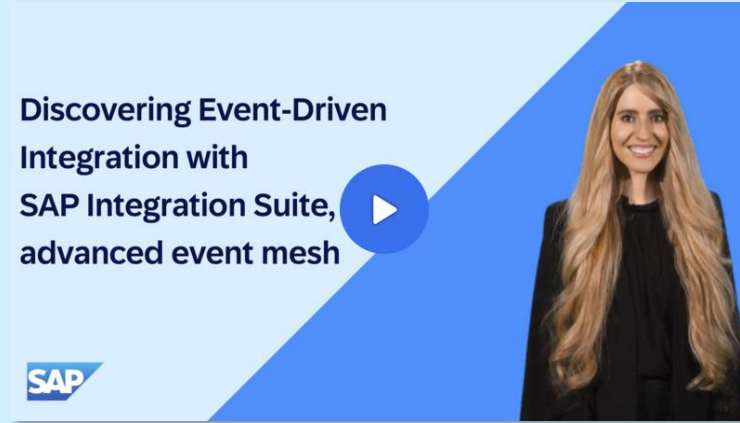
The screenshot shows the Confluent Kafka Topics page for the topic 's4hana.purchaseorder.changes'. The 'Messages' tab is active, displaying a summary of production and consumption rates, total messages (7), and retention time (1 week). Below the summary is a table of messages with columns for Timestamp, Offset, Partition, Key, and Value. A hand cursor is pointing at the 'Offset' column.

Timestamp	Offset	Partition	Key	Value
1715568976129	2	5	"	["type":"sap.s4.beh.purchaseorder.v1.PurchaseOrderChanged.v1","specversion":"1.0","source"/]
1715568966124	1	0	"	["type":"sap.s4.beh.purchaseorder.v1.PurchaseOrderChanged.v1","specversion":"1.0","source"/]
1715568313266	1	4	"	["type":"sap.s4.beh.purchaseorder.v1.PurchaseOrderChanged.v1","specversion":"1.0","source"/]
171556551121	0	4	"	["type":"sap.s4.beh.purchaseorder.v1.PurchaseOrderChanged.v1","specversion":"1.0","source"/]
171556541109	1	5	"	["type":"sap.s4.beh.purchaseorder.v1.PurchaseOrderChanged.v1","specversion":"1.0","source"/]
1715564592368	0	0	"	["type":"sap.s4.beh.purchaseorder.v1.PurchaseOrderChanged.v1","specversion":"1.0","source"/]
1715564578484	0	5	"	["type":"sap.s4.beh.purchaseorder.v1.PurchaseOrderChanged.v1","specversion":"1.0","source"/]

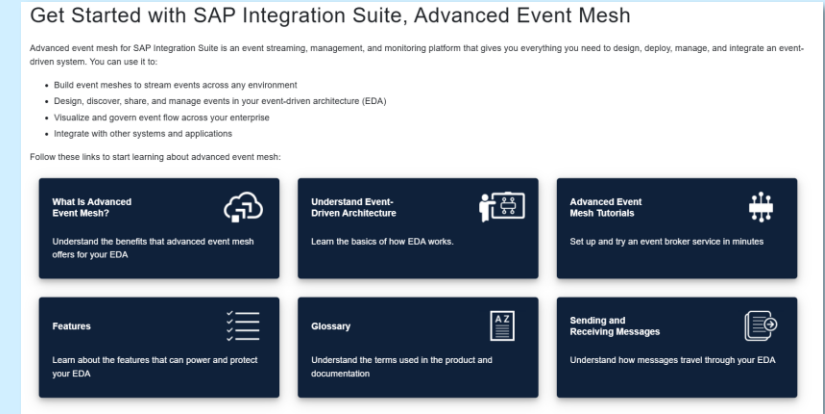
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[Learning Journey](#)



[Documentation](#)



Thank you



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