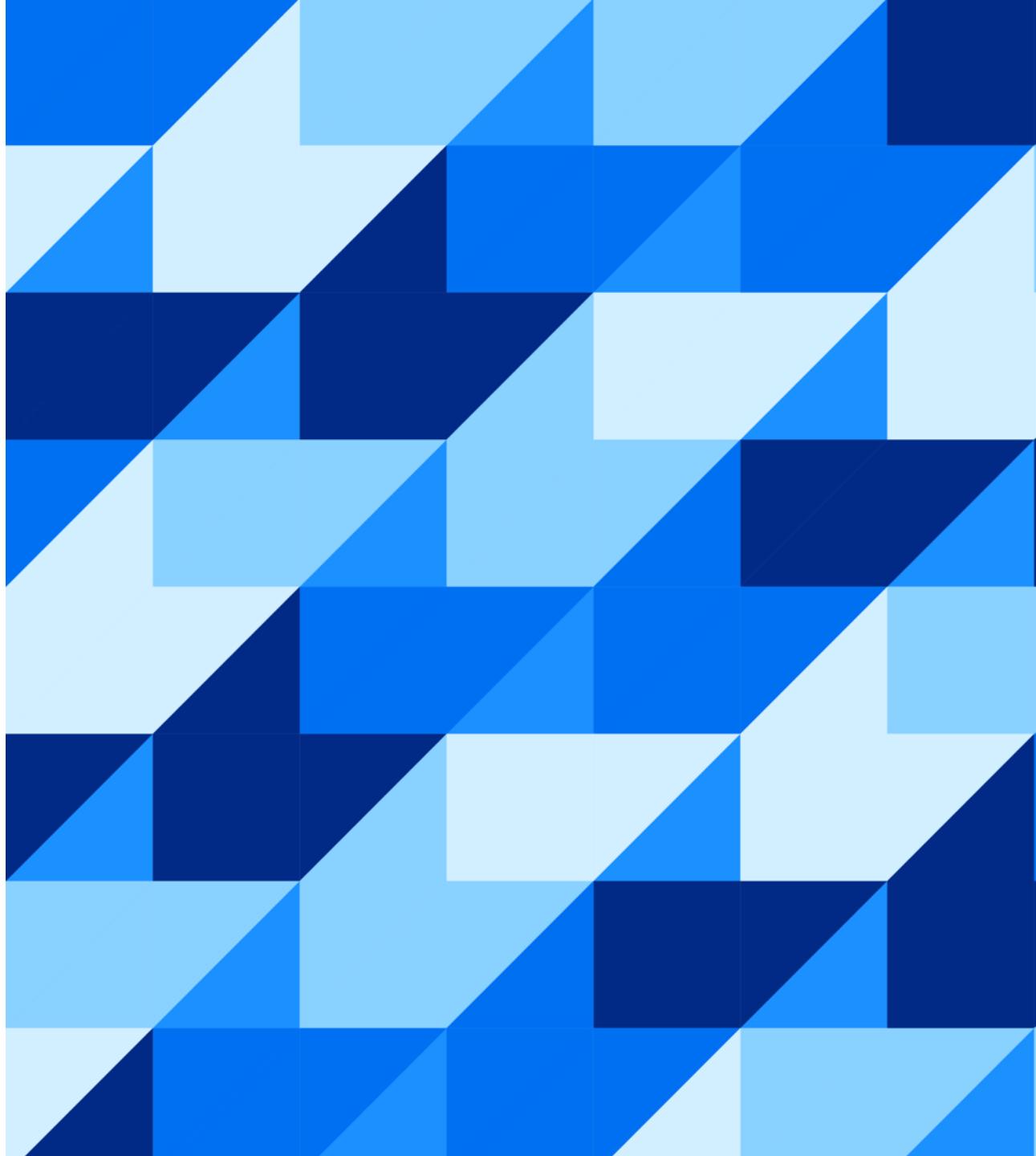




AEM- Raid Deployment Workshop

XXX
XXX, 2024

Customer & SAP Only



Prerequisites Bootcamp

[https://btpcsp.launchpad.cfapps.ap10.hana.ondemand.com/site#FREActivityRepository-display?sap-ui-app-id-hint=saas_approuter_activityrepo-fiori&/FREActivities\(00c2ca31-3d25-4389-938b-cccf80ee278b\)](https://btpcsp.launchpad.cfapps.ap10.hana.ondemand.com/site#FREActivityRepository-display?sap-ui-app-id-hint=saas_approuter_activityrepo-fiori&/FREActivities(00c2ca31-3d25-4389-938b-cccf80ee278b))

SAP Advanced Event Mesh (Day 1, Day 4)

- SAP Cloud Foundry Runtime with Quota (Day 1)

SAP IAS (Day 1)

SAP S/4HANA Cloud or SAP S/4HANA 2023 or SAP S/4HANA 2022 (incl. Patch) (Day 2)

SAP RAP /Eclipse (ABAP Development Tools) ? (Day 2)

SAP Integration Suite (Day 3)

SAP Process Automation (Day 3)

Roadmap: SAP CALM (optional Day 4)

Optional (for day 5)

SAP ECC with Application Interface Framework

SAP ECC with Asapio Integration Add-On

Day 1 (Basic)	Day 2 (S/4HANA)	Day 3 (Enhanced Integration)	Day 4 (Operations)	Day 5 (AIF & ASAPIO)
<ul style="list-style-type: none">• When to use which SAP Broker?• Events in context of S/4HANA• Starting of AEM instances and Mesh Creation• Simulator	<ul style="list-style-type: none">• Connect S/4HANA to SAP AEM• Configure Standard Event• Configure RAP Event	<ul style="list-style-type: none">• Connect AEM to SAP Integration Suite• Connect AEM to SAP Process Automation	<ul style="list-style-type: none">• Event Management<ul style="list-style-type: none">• Event Portal• Approval• Event Insights<ul style="list-style-type: none">• Monitoring• Distributed Tracing• AEM APIs	<ul style="list-style-type: none">• ECC Usage with AIF• ECC Usage with Asapio

SAP TEAM



Alex Pfeil



Erik Heinrich



Timo Maier



Nils Lorenz



Florian Okos

The World is Real Time – Use Cases

What is your Motivation and Use Case?



Inventories must be updated as soon as sales happen



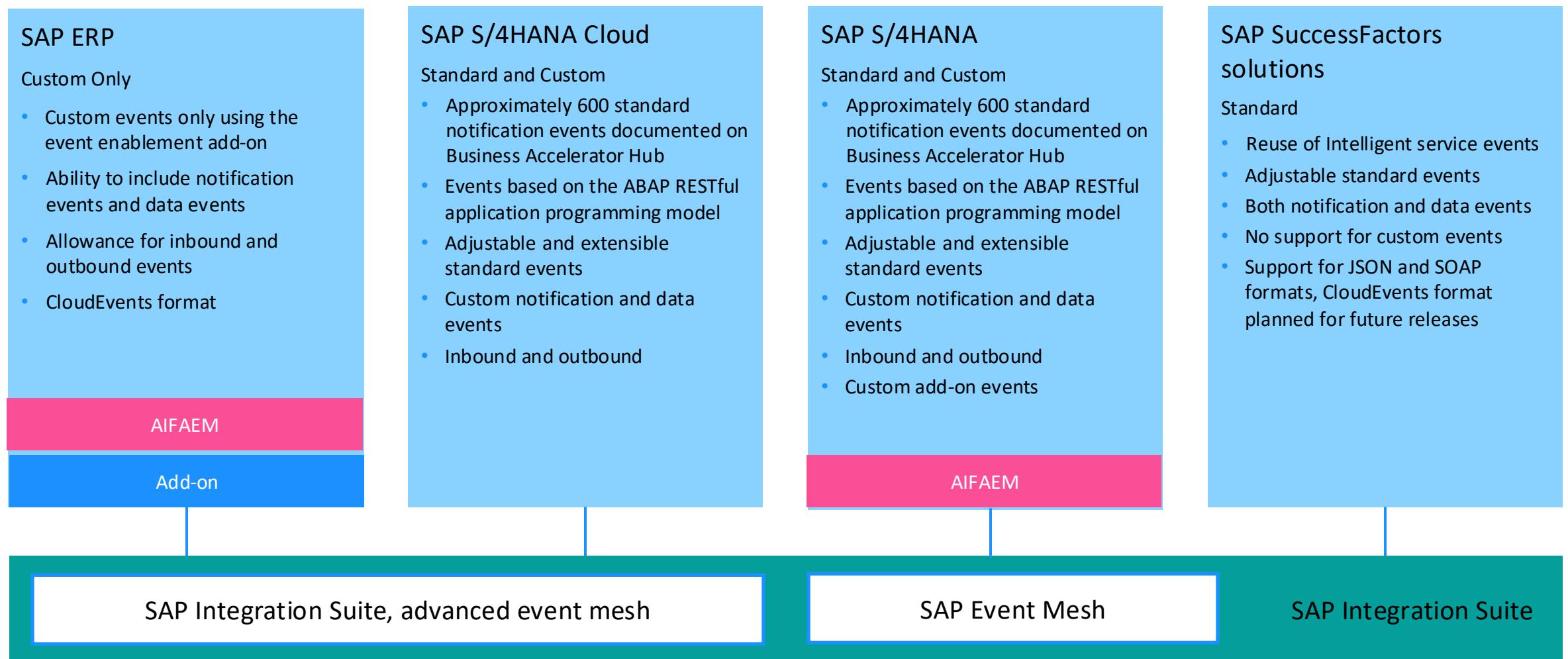
Maintenance teams need to know of breakdown as soon as possible



Passengers want to be informed of gate changes and delays

Event sources and consumers – standard SAP and custom add-ons for events

Big Picture



High-level comparison – SAP Event Mesh and advanced event mesh

	SAP Event Mesh	Advanced event mesh
Recommended for	SAP's event-driven ecosystem and third-party components around the ecosystem	General purpose including SAP ecosystem
Target scenarios	SAP to everything	SAP to everything and everything to everything
Main use cases	Integration and extension	Integration, event streaming, and event-driven backbone
Numbers	<ul style="list-style-type: none">▪ Message size up to 1 MB▪ 10 GB of storage▪ Guaranteed throughput of 250 Kbps	<ul style="list-style-type: none">▪ Message size up to 30 MB▪ Storage up to 6 TB▪ Up to billions of events per day
Interfaces	REST, JMS, AMQP, MQTT over WebSockets	REST, JMS, AMQP, MQTT, SMF over WebSockets and direct
Deployment	On SAP BTP	Almost anywhere including cloud and on premise
Pricing	Usage-based pricing, starting with zero cost	Various T-shirt sizes, grows with your business
Advanced features	<ul style="list-style-type: none">▪ Facilitated connectivity to selected SAP software back ends▪ Integration into SAP services and solutions	<ul style="list-style-type: none">▪ Opening on payloads▪ Support of transactions▪ Support of replay of events▪ Distributed tracing support

Comparison RAP based, AIF, and Add-On based event enablement

When to use what?

Criteria	RAP based Day 2	AIF Day 5	EE Add-On Day 5
Target Scenario	Standard SAP / Go To Approach for SAP S/4HANA environments 2022+	Good choice for older backends specifically for existing AIF customers	Great choice for older backends, specifically with No Code / Low Code approach
Event Type	Extensible Standard and Custom Events	Custom Events (data and notification)	Custom Events (data and notification)
Event Trigger	RAP BOs	BOR Objects Idocs BAPIs/RFC	BOR Objects IDocs BAPIs/RFC
Commercials	Free usage with EM, EMIS and AEM	Free usage with AEM	Included with EM and EMIS Partner Add-On (ASAPIO) for AEM
Supported Backends	SAP S/4HANA (2022 and 2023) SAP S/4HANA Cloud	SAP ECC SAP S/4HANA SAP S/4HANA Cloud	SAP ECC SAP S/4HANA
Delivery	Included in SAP S/4HANA	Included in SAP S/4HANA Add-on for ECC	Add-On for SAP ECC and SAP S/4HANA
Supported Brokers	SAP Event Mesh Event Mesh in Integration Suite Advanced Event Mesh	Advanced Event Mesh	SAP Event Mesh (Advanced Event Mesh – via paid partner version)
Highlights	<ul style="list-style-type: none"> • 600+ ready to use standard events • Very high scale out • Standard RAP Framework approach • A lot of sophisticated features 	<ul style="list-style-type: none"> • Huge installed AIF base • Great Monitoring Support • Commercials 	<ul style="list-style-type: none"> • Great time to event • Strong Low Code / No Code • Different event creation technologies • Goes back to very old backends

S/4HANA Feature Readiness and Service Packs?

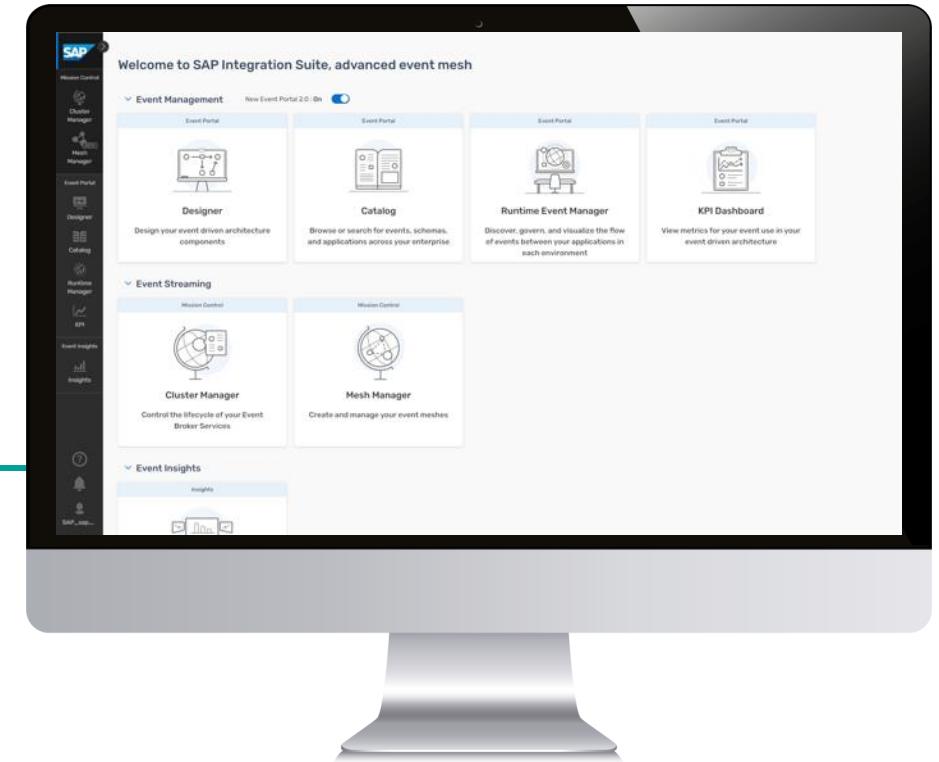
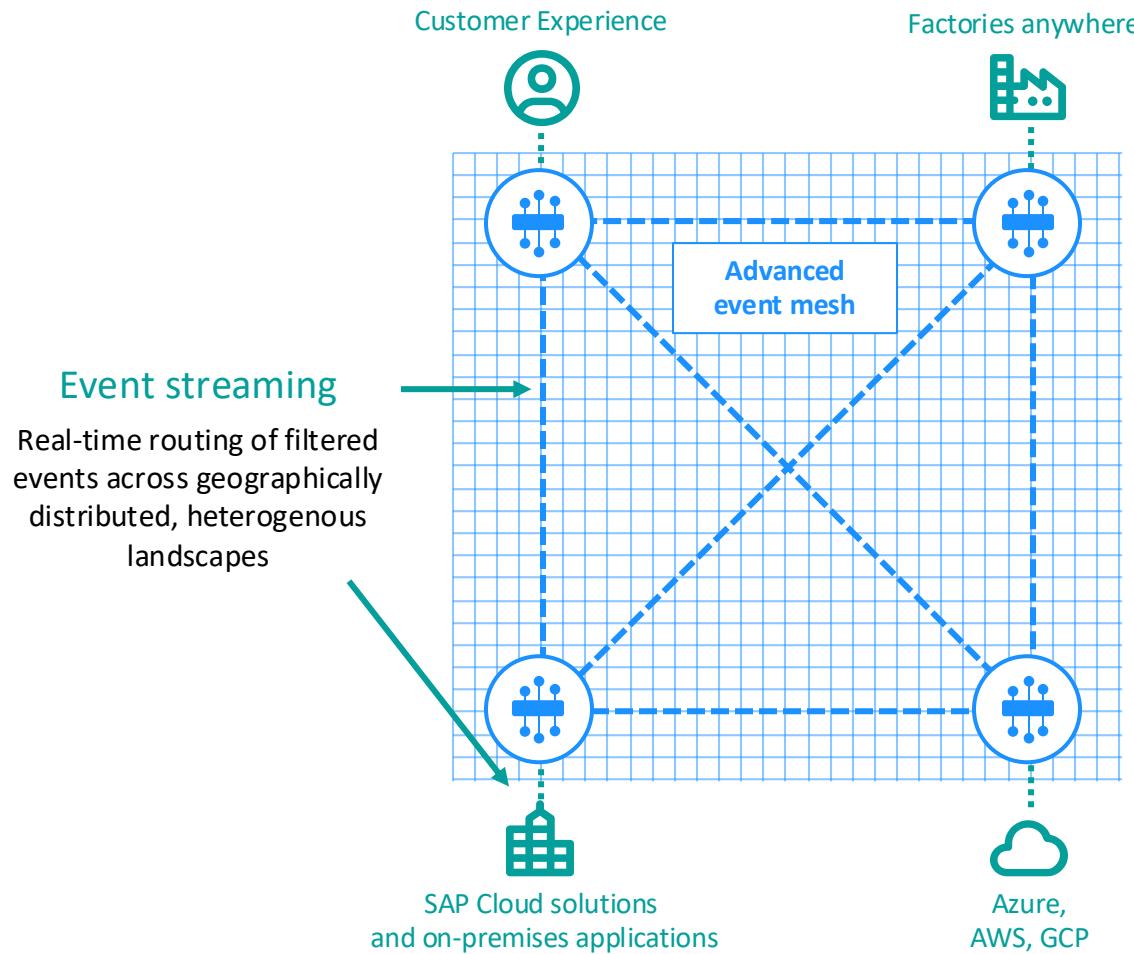
Am I ready?

Ergänzen

Feature	Feature Description	OnPrem Release	Cloud Release	Remarks
BEH GA	CloudEvents 1.0, can be used in production	2020		
EEEC/Inbound with XBE	Generating event consumption classes for customers to consume inbound events	2022	2208	
AMQP	Support of AMQP protocol (mostly needed for inbound events)	2021, 2020 SP05	2108	SAP Note 3145443
RAP	initial RAP scope, half of events migrated, customers can create own events	2022	2208	
RAP Extensibility	Derived Events, custom-defined context attributes for filtering & dynamic topics	2023	2308	
Local Events	Local event handling in RAP	2023	2308	
Filtering	Outbound Filtering based on annotation	2023	2402	SAP Note 3343266
AEM	Support of AEM	2023; 2022 SP04	2402	SAP Note 3464607
Dynamic Topics	Dynamic topic segments, e.g., sap/s4/custom/CustomBusinessObject/Created/v1/{Custom Context Attribute 1}/{Custom Context Attribute 2}.	2023SP02	2408	Note 3464972
Event Broker (kernel service)		PCE only	2308	
Dead Letter Queue	Failed events are never deleted	2023 SP02, 2022 SP04, 2025		SAP Note 3145443

SAP Integration Suite, advanced event mesh

Day 4



Event management

Design • Catalog • Discovery • Monitor

Managing and processing events at enterprise scale

SAP Integration Suite, advanced event mesh: Details

	SAP Integration Suite, advanced event mesh
Fully managed cloud service	✓
Infrastructure model	Exclusive in T-Shirt Sizes
Deployment options	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	Up to 30MB / Up to 6TB
Typical use case size	Small to Ultra Large
Network of event brokers	✓
Advanced event monitoring and analysis	✓
Dynamic event routing	✓
Filtering	✓
Event replay	✓
Event management	✓
Distributed Tracing	✓



Broker T-Shirts Sizes

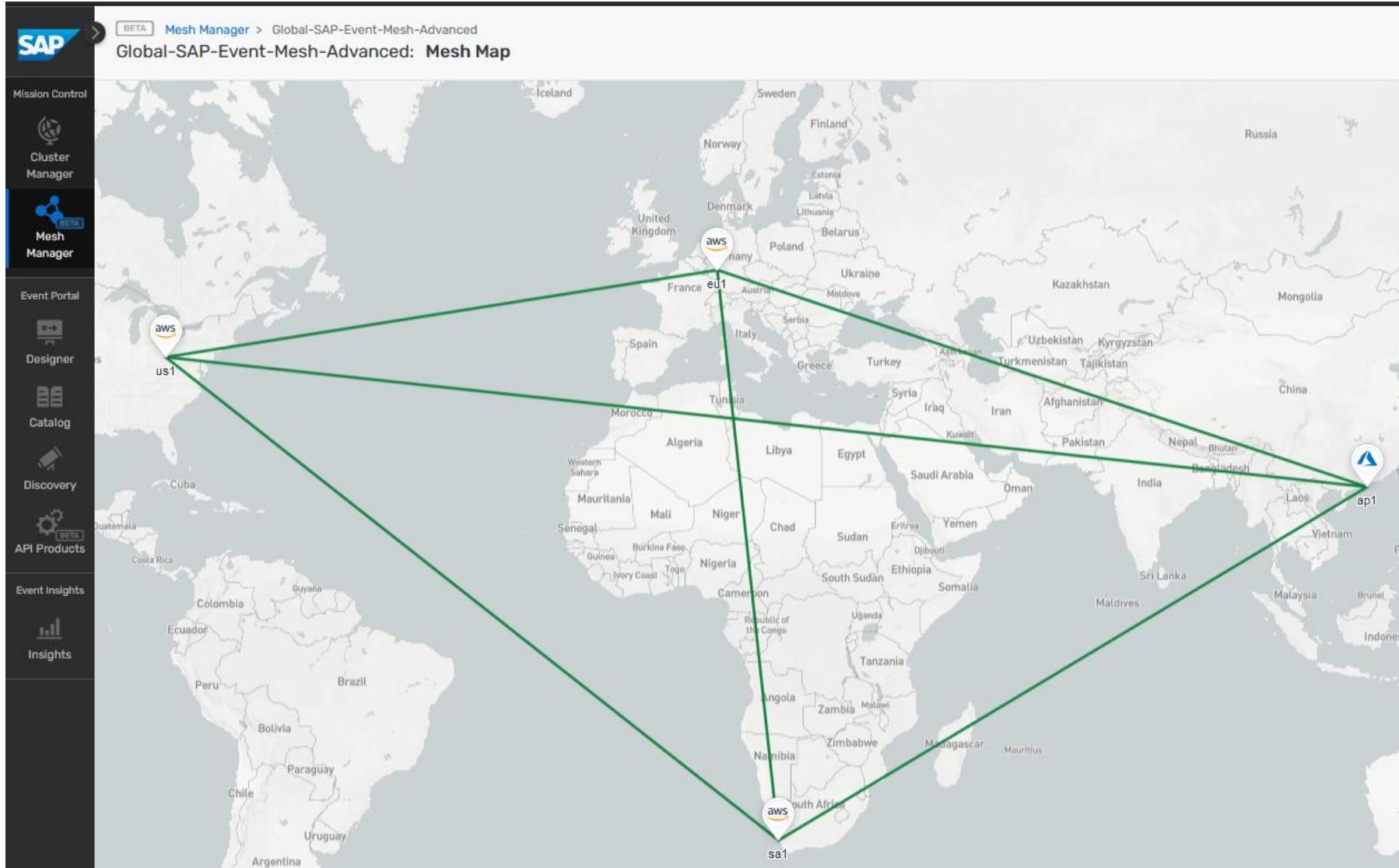
	 XXS	 XS	 S	 M	 L	 XL	 XXL
T-Shirt Sizes	XXS	XS	S	M	L	XL	XXL
Availability Configuration	Single node (no HA)	High-Availability (always deployed as a group providing fast, automatic HA-failover)					
Scaling Tier ¹⁾	100	250	1K	5K	10K	50K	100K
Maximum Concurrent Active/Open Connections	100	Up to 250	Up to 1000	Up to 5K	Up to 10K	Up to 50K	Up to 100K
Maximum Queues	100	250	1000	5K	10K	50K	100K
Cores In Use	2	4		8	16		
Maximum Throughput (Mbps)	8	450		750	1,000		
Default Storage (GB)	2	25		50	200	300	500
Maximum Storage (GB)	2	Configurable up to 800GB (6TB coming) ²⁾					
Maximum Message Size (MB) Persistent	10	10		30			
Maximum Message Size (MB) Non-Persistent	10	10	64				

¹⁾ A scaling tier determines how many resources a broker pre-allocates (CPU cores, RAM etc) and this shapes various resources and their limits available to clients, like – most importantly - number of max concurrent connections and queues, but also more. See [here](#) for more details.

²⁾ See <https://help.pubsub.em.services.cloud.sap/Cloud/Configure-Message-Spools.htm> for details.

Mesh Manager for creating and managing your Mesh

Event Mesh Details



Health Summary

All links are up

> Latest Health Check

Success

Last Sync Time

Apr 08, 2022 15:41

Services (4)

aws eu1
EU (Frankfurt)

ap1
East Asia (Hong Kong)

aws sa1
Africa (Cape Town)

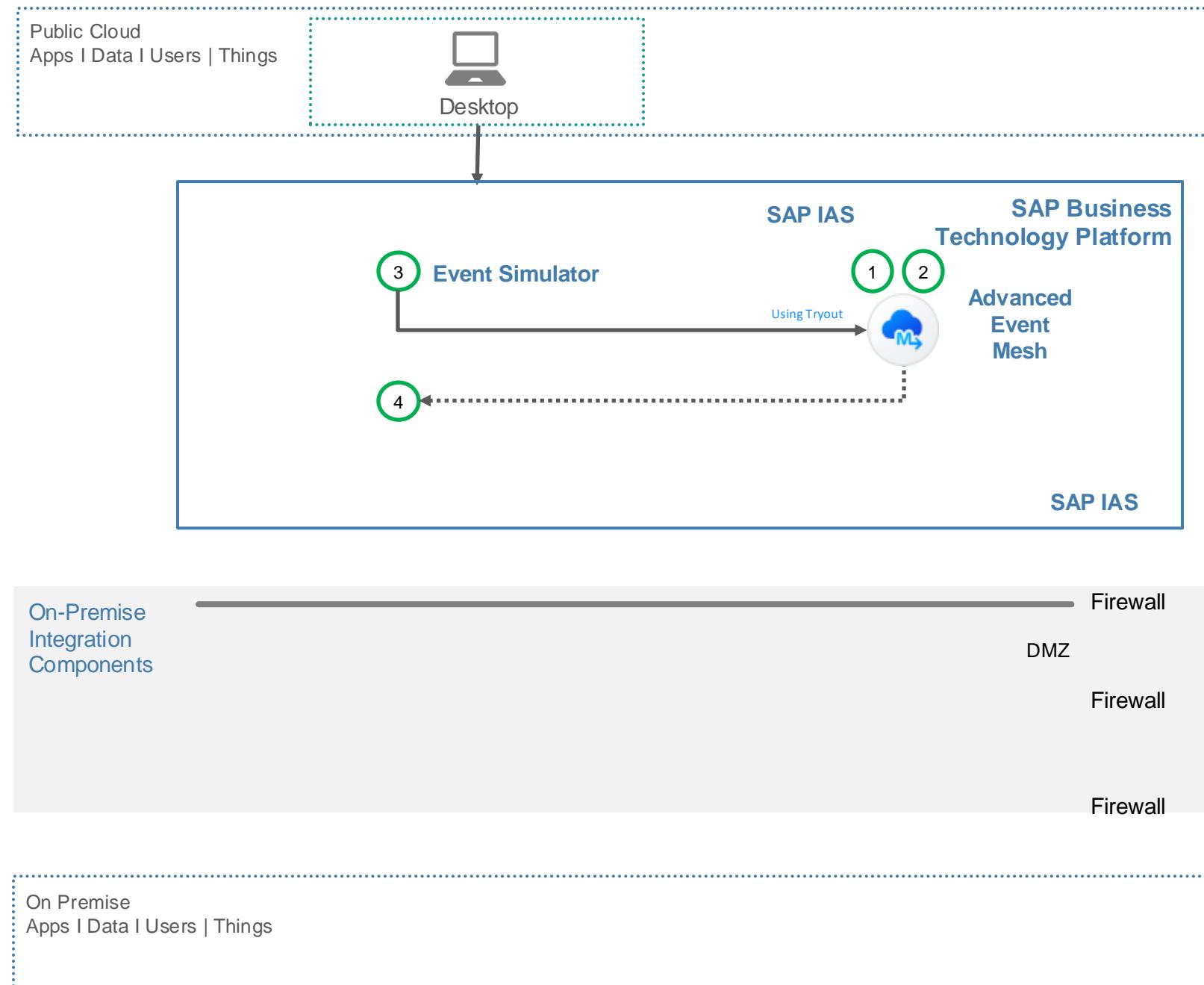
aws us1
Ohio

Exercise Flow

Digital Integration Hub

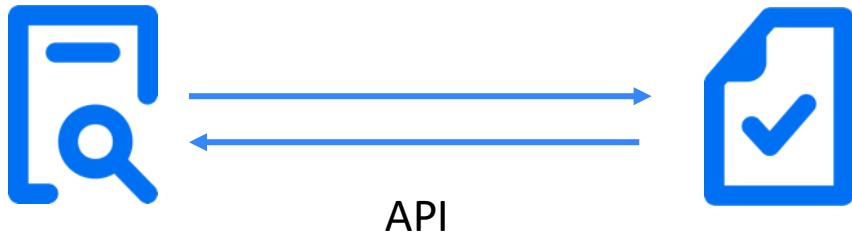
Day 1

1. Start Advanced Event Mesh
2. Create Message Broker and Event Mesh
3. Deploy ERP Simulator within CF Runtime (will be provided)
 - Create Test Events
 - Consume via SAP AEM Tryout
4. Usage of Event Dashboard, Display/ Consume Events



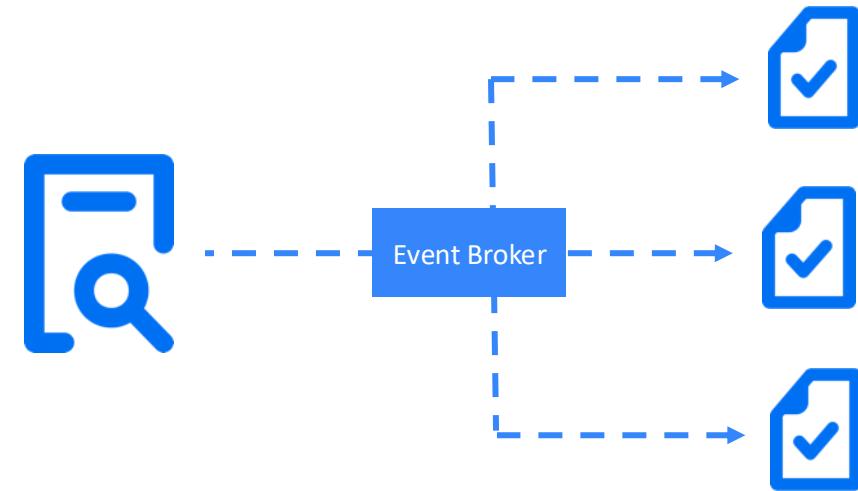
API Architecture vs. Event-Driven Architecture

API Architecture



Request and Reply Based
Synchronous

Event-Driven Architecture (EDA)



Push-Based
Asynchronous
Decoupled

Event sources: Notification and data events

Data Event

Advantages

- All needed **data included** in event
- Good when full data set required in majority of cases

Challenges

- Larger event size results in **higher resource consumption** for source, event broker, and consumer
- Raises topics like data access and protection

Notification Event

Advantages

- Very **small**
- Only minimal required data set, **controlled data access**

Challenges

- **Additional synchronous step** required
- **Suitable API needed** on top of suitable event
- Additional configuration for API access

Event sources: Custom and standard events

Day 2

Standard Event

- Provided by SAP business applications / back ends as part of SAP standard
- Can be looked up at SAP Business Accelerator Hub (api.sap.com) or in SFSF Intelligent Services documentation
- Typically notification events; can be data events too
- Means to adjust/extend standard events provided by back ends and differ from back end to back end
- For some back ends, no adjustments are possible

Day 2

Custom Event

- Created by customers to address use cases for which no standard events are available
- Ways to create custom events differ from back end to back end
- Typical tools are the event-enablement add-on or the RAP-based approach
- Custom events can be completely tailored to fit specific customer needs

Event sources: Outbound and inbound events

Outbound Event

- Outbound (from a back-end perspective) means that an SAP back end is the event source
- Today this is 90 percent the case
- Standard outbound events enabled with just one click
- Custom outbound events can be created with low-code/no-code to pro-code approaches

Inbound Event

- Inbound (from a back-end perspective) means that an SAP back end is the event consumer
- Today this is 10 percent the case
- Pro-code development effort needed to specify what to do when receiving an event
- Calling an API is often seen as an easier alternative

Day 2 - Business Events in S/4HANA

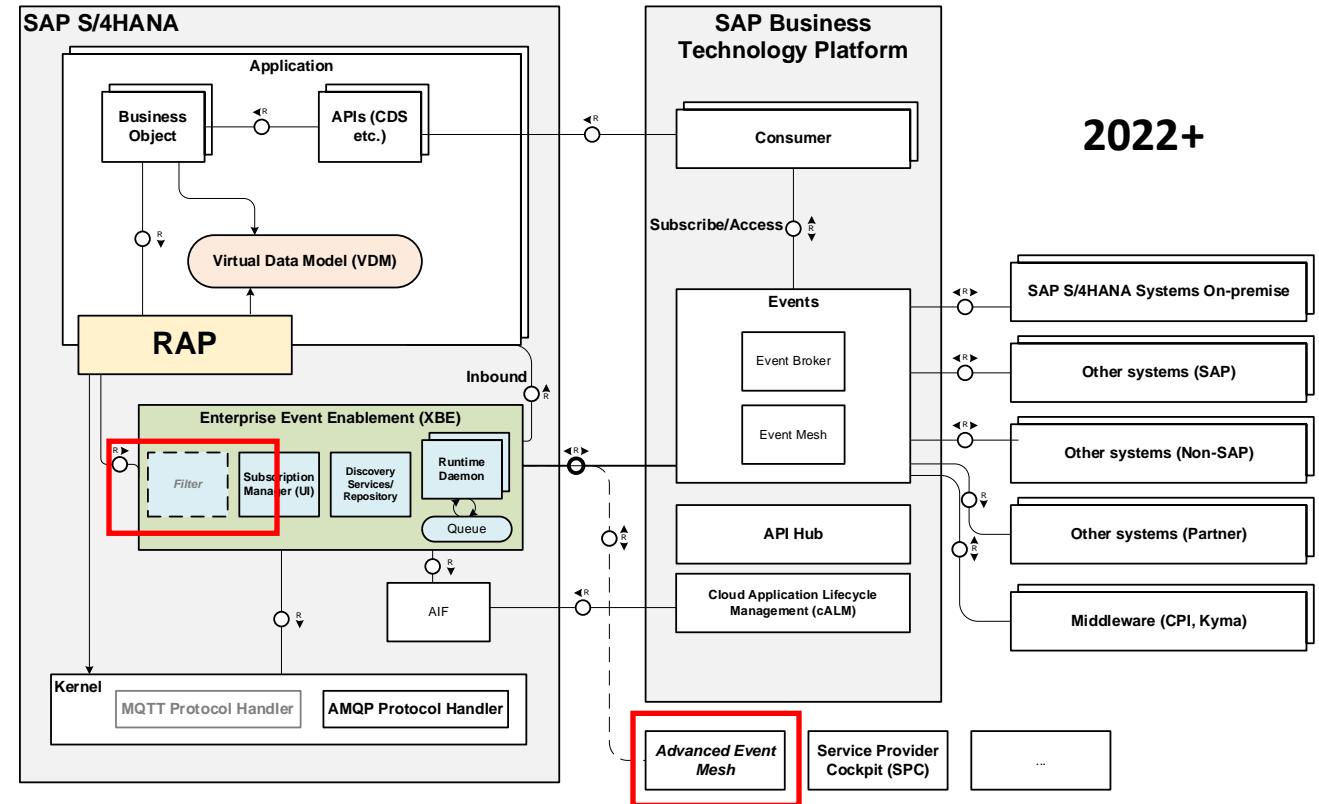
- S/4HANA Business Events
 - Standard Content
- Creating Custom Business Events
- Customizing and Consuming Business Events
 - Derived Events
 - Inbound Events

S/4HANA Business Events based on RAP

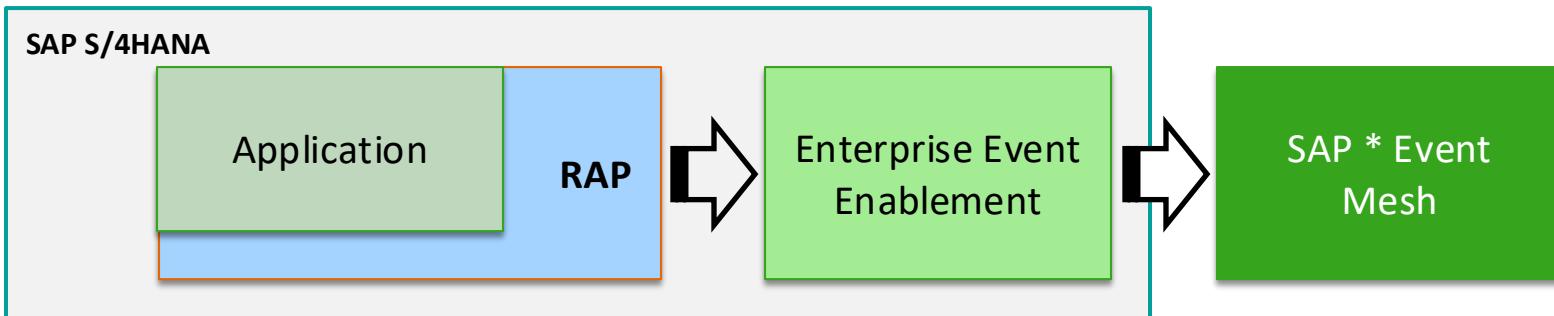
ABAP RESTful Application Programming Model (RAP) combines concepts, tools, languages, and powerful frameworks to build cloud-ready enterprise applications. RAP offers **standardized development flow** based on Core Data Services (CDS), ABAP, and business services in Eclipse-based ABAP Development Tools (ADT).

Seamless integration of reuse components such as **business events in the RAP framework** is offered to lower total cost of development.

Developers can easily **enable the exposure of business events within RAP based applications**.



RAP-improved S/4HANA Event Enablement



Event enablement of applications leverages RAP

- Events as integral part of programming model
- Significant improvements in performance, robustness and administration
- Custom events enabled

Infrastructure Features

- Improved error handling through (enhanced) integration of Application Integration Framework (AIF)
- Performance: Parallelization
- Open Resource Discovery (ORD) – discoverability by (future) services
- Inbound Events

RAP based Events	
May 23	144
September 23	389

Standard Content on SAP Business Accelerator Hub

Currently (2402) released for public cloud: **139 objects with 538 events**

Roughly the same content for private cloud/on premise (2023FPS1): **147 objects with 555 events**

SAP S/4HANA Cloud

The next generation digital core designed to help you run simple in a digital economy. It provides the industry-specific capabilities you need.

Overview APIs Events CDS Views Developer Extensibility

Event Objects Pack

Showing 1 of 12 results

Event Object

Freight Booking Events

Informs a remote system when a freight booking is created, changed, or deleted in the SAP S/4HANA Cloud tenant

Version 1.0.0 ACTIVE

Event Object

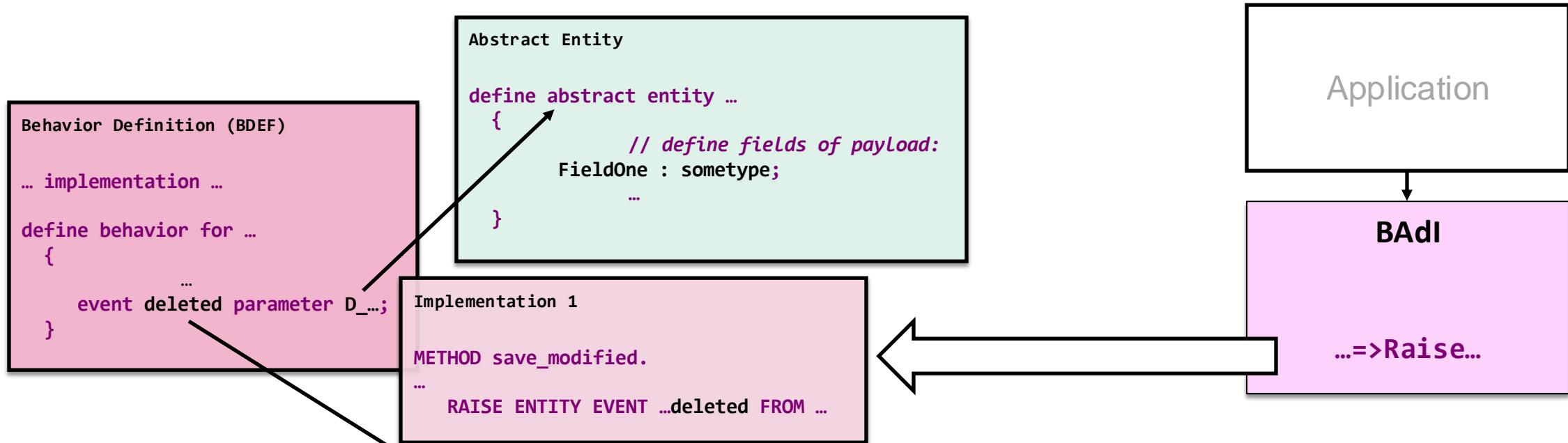
Batch Events

Informs a remote system about created and changed batch master record in an SAP S/4HANA Cloud tenant

Version 1.0.0 ACTIVE

Version

Custom Events



Event Binding: ZJCN_LG

General Information

Type Namespace: *	customer.lg
SAP Object Type: *	Cab
Operation: *	Deleted
Type:	customer.lg.Cab.Deleted.v*

Event Versions

Major Version	Minor Version	Patch Version	Entity Name	Entity Event Name	Add...
	0	0	CAB_DETAILS_ROOT	DELETED	Edit...
					Remove

S/4HANA: New Features and Way Forward

Source-side filtering (2308)

Internal event consumption (2308)

More and better content

- Notification events grow in number and in size
- First data events (on demand and on CUSTOMER request)

Event extensibility

- Enhancements of standard events (context attributes, remove payload; add payload)

Overall infrastructure improvements

- Monitoring, tracing, performance, robustness

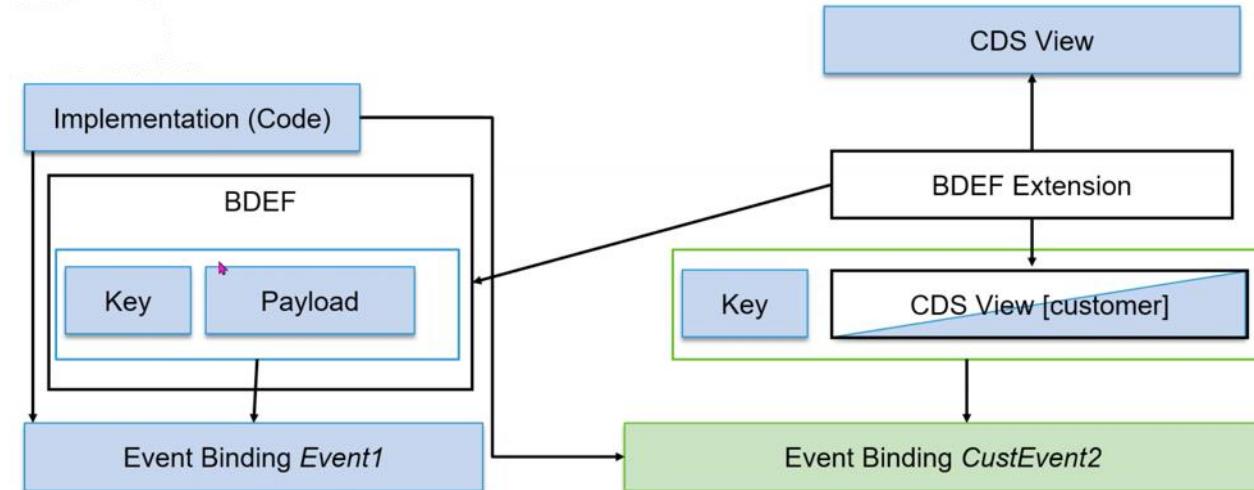
Continuous adoption of internal SAP event standards



S/4HANA Business Events: Derived Events

2023

- 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”

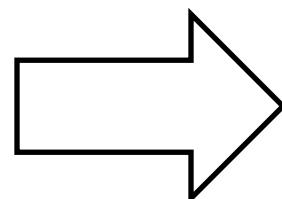


Add attributes **from payload to context** (header)

Requires an extension of the **CDSview**, which must be extensible (prerequisite for ABAP cloud)

Context is used for **outbound filtering** in S/4HANA

Context will be supported for further operations in infrastructure (routing, filtering)



```
define view entity ZD_ITEM_ORDER_VIEW
as select from zi_online_shop
{
    key Order_Uuid,
    Order_Id,
    @Event.context.attribute: 'xsapordereditem'
    Ordereditem,
    Deliverydate
}
```



```
{
  "type": "zevent.OnlineShop.derived.v1",
  "specversion": "1.0",
  "source": "/default/sap.s4.custom/T33CLNT800",
  "id": "fa163e75-aaba-1edf-9eb0-49257ed45ba6",
  "time": "2024-09-23T08:03:15Z",
  "xsapordereditem": "Order 013",
  "datacontenttype": "application/json",
  "data": {
    "Order_Uuid": "fa163e75-aaba-1edf-9eb0-49257ed3dba6",
    "Order_Id": "13",
    "Ordereditem": "Order 013",
    "Deliverydate": "2024-10-03"
  }
}
```

Send out only events that match “filter” (on source side)

Selection screen like conditions for “filter”

Channel-based

Condition based on **Context** attributes

Works with derived events

Event Filter Configuration

Channels Outbound Bindings

Channels with Bindings

- Active Channels
 - BEH_FINAL
 - Outbound Bindings
 - * demo/RAPTestObject/Changed/v1
 - * demo/RAPTestObject/Created/v1
 - * demo/SalesOrder/Changed/v1
 - * sap/s4/beh/CNxBillOfExchangeAccept/
 - * sap/s4/beh/Cab/Deleted/v1
 - * sap/s4/beh/Cab/Created/v1
 - * sap/s4/beh/Cab/Changed/v1

Filter Conditions: demo/SalesOrder/Changed/v1

	Property Name	Option	Low Value	High Value	Defined By
	xsaptotalnetamountdc	greater than	75		

S/4HANA Business Events: Inbound Processing

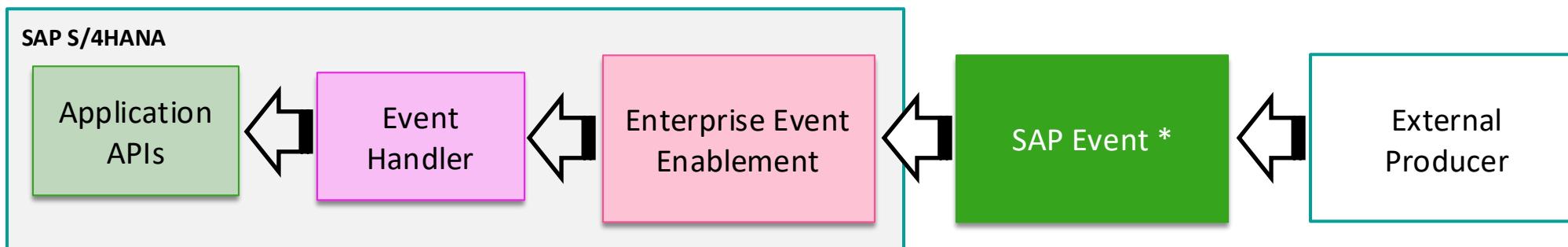
Inbound processing can be implemented using ABAP Cloud technology

Event handler (“agent”) local implementation in S/4HANA generated from event specification (AsyncAPI) -> leverage internal APIs

Based on event definition (Async API)

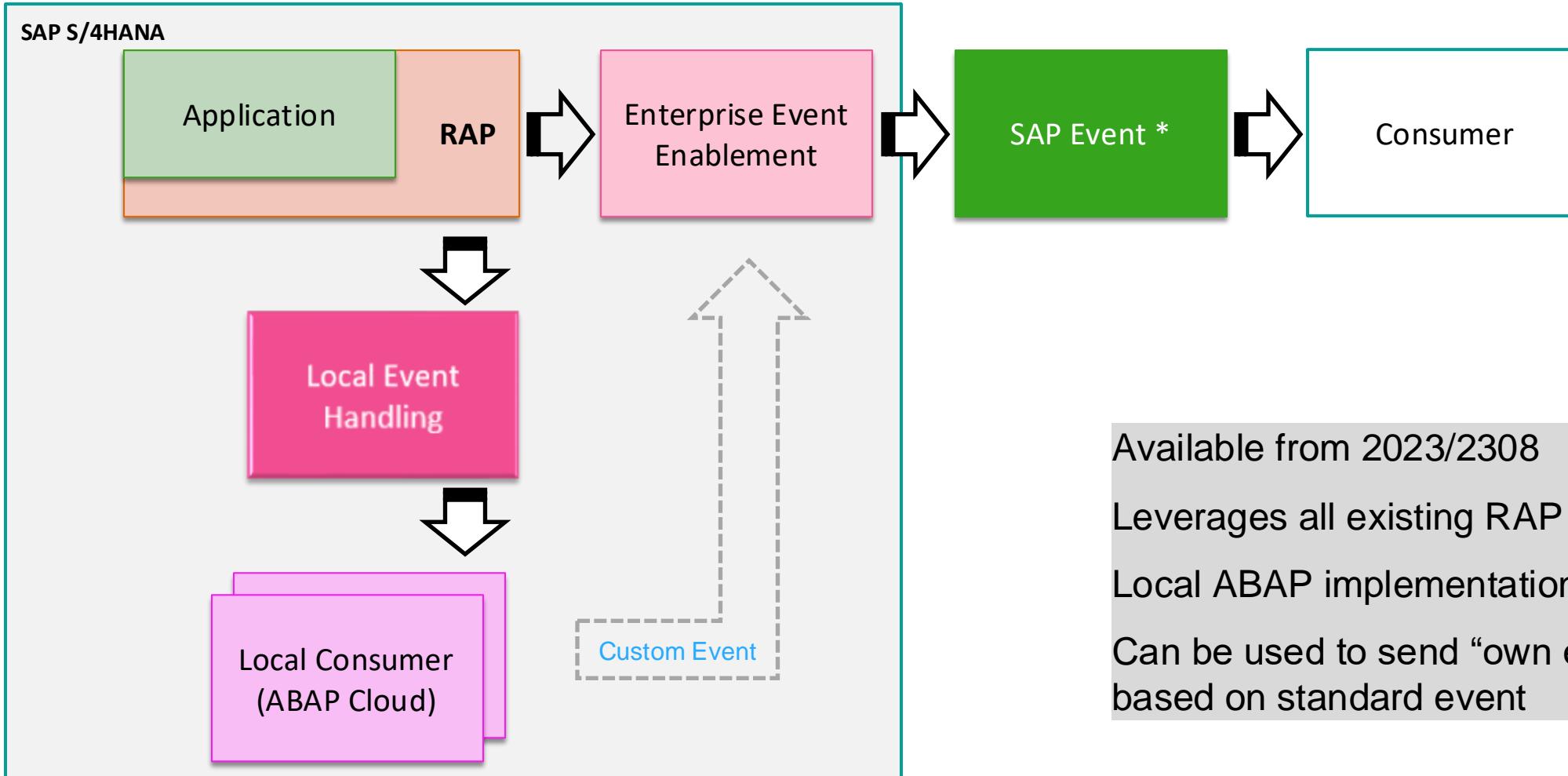
...

This is a sophisticated architecture pattern and its use should be carefully evaluated!



S/4HANA Business Events: Local Event Handling

2023

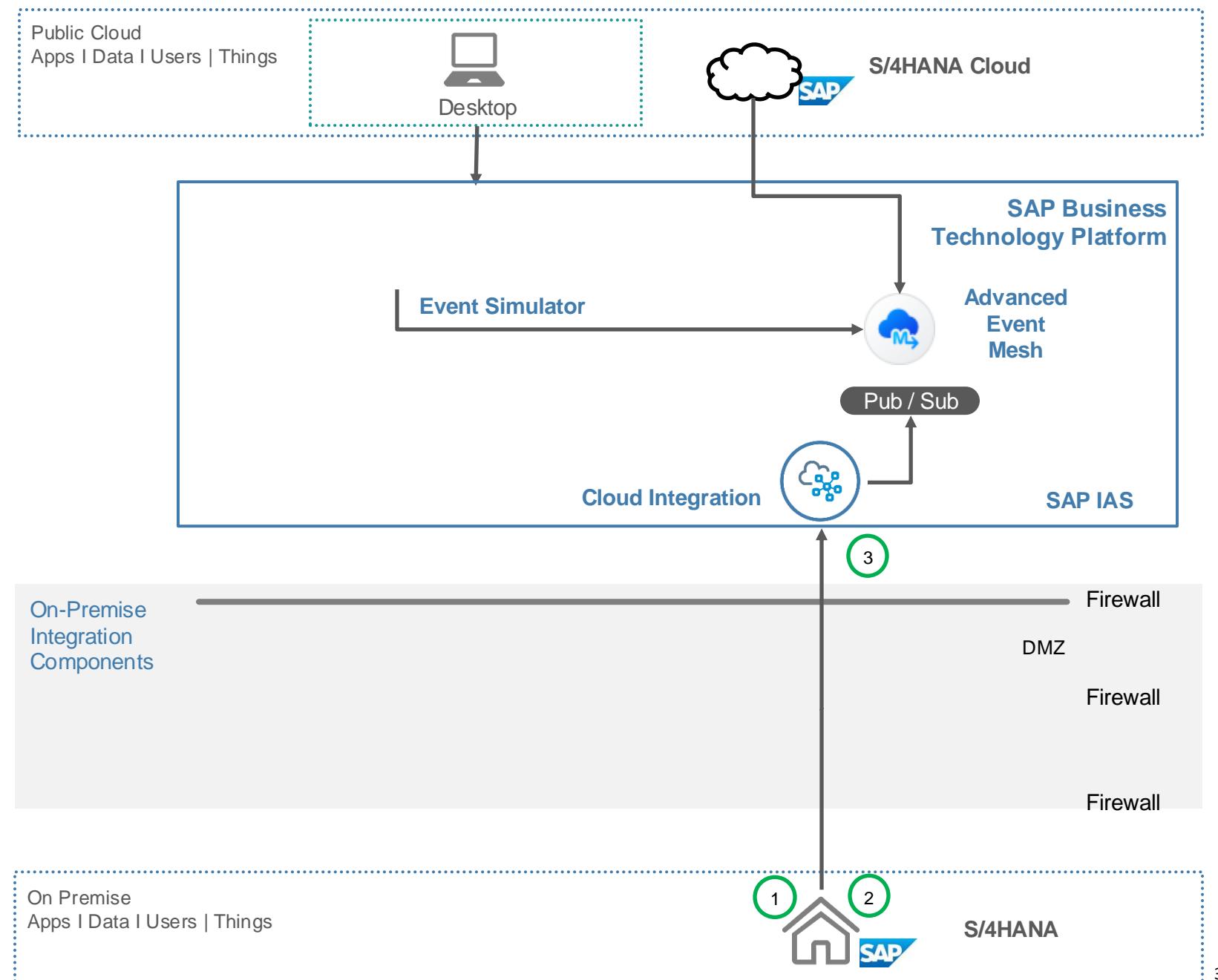


Exercise Flow

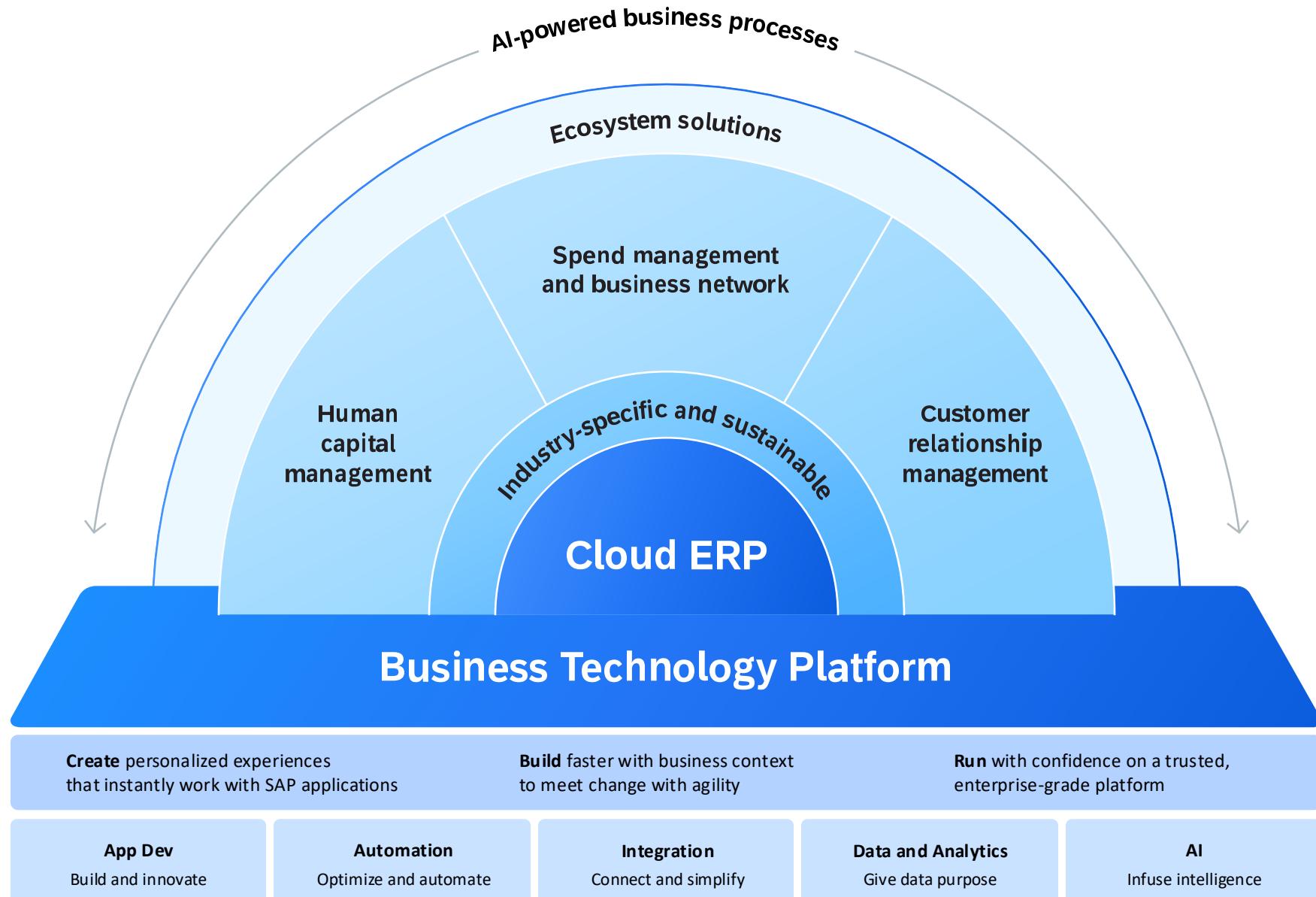
Digital Integration Hub

Day 2

1. Connect S/4HANA or S/4HANA Cloud with Standard Events
 - Connect AEM to S/4HANA
 - Publish Standard Events from S/4HANA to AEM
2. Connect S/4HANA or S/4HANA Cloud with Custom Events
3. Consume Events with S/4HANA or S/4HANA Cloud



Day 3 – Enhanced Integration using the SAP BTP



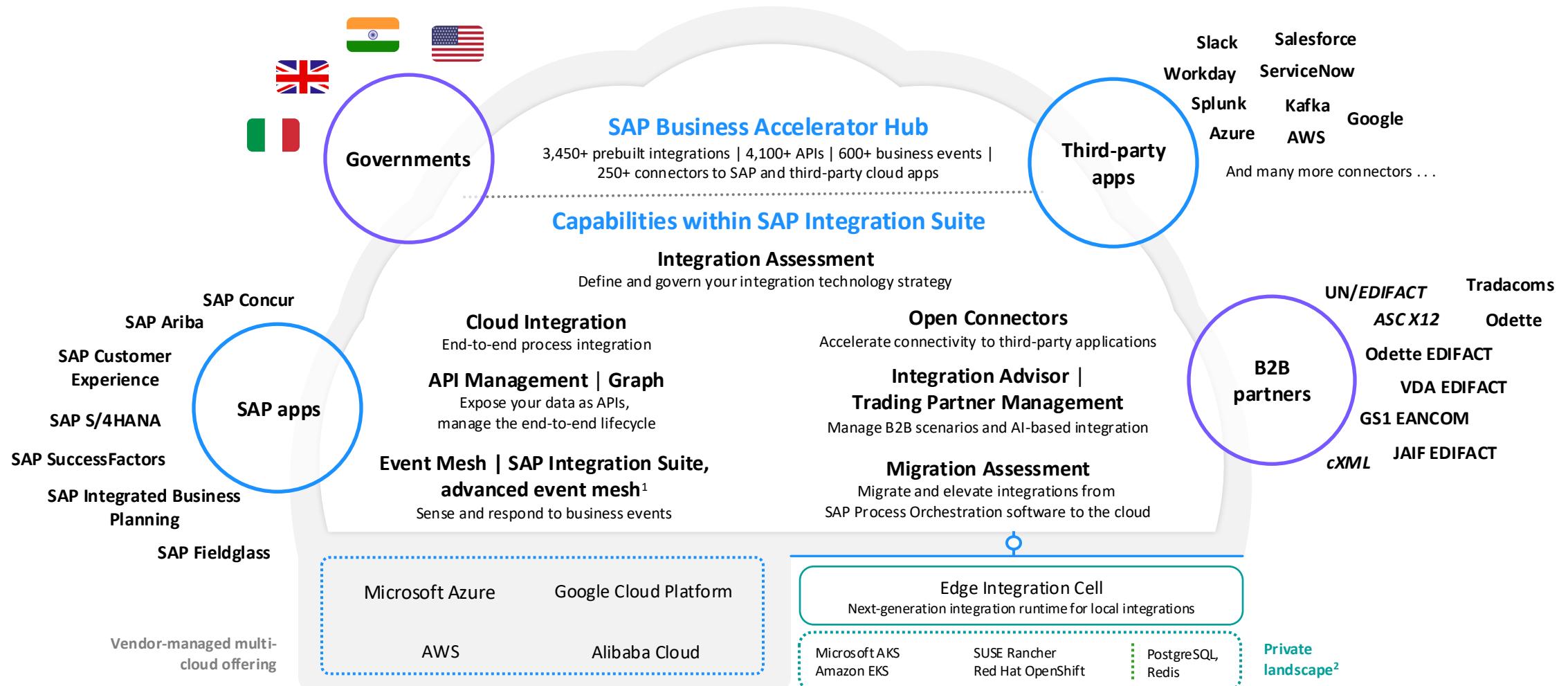
Goals

What you will learn/see today:

- ❑ Configuration of queues and topic subscriptions in AEM
- ❑ Event enabling IFlows in SAP Integration Suite by connecting them to AEM (SMF Protocol)
- ❑ Understand how to handle exceptions in Dead Message Queues
- ❑ Understand how to use SAP Build Process Automation to review event exceptions (REST Protocol)
- ❑ Small outlook on Day 4: Using the brokers APIs to automate configuration and enable CI/CD pipelines

SAP Integration Suite

SAP's hybrid integration platform for the Intelligent Enterprise



¹ Optional separate license | ² Private landscape corresponds to on-premise or private cloud

Scenario Cloud Integration

Pre-packaged content covering

- First connectivity

Create your own IFlow and learn how to connect it to the SAP Advanced Event Mesh via the AEM Adapter using the SMF protocol

- Dead Message Queues

Learn how to configure and handle retries and error behaviors

The screenshot shows the SAP Integration Suite interface. At the top, there's a header bar with the SAP logo and the text "Integration Suite". Below the header, the URL "Integrations and APIs / AEM Rapid Pilot Program" is visible. The main content area is titled "AEM Rapid Pilot Program" and contains a brief description: "This package contains prepackaged content for use during the AEM Rapid Pilot workshop." To the right, there are fields for "Vendor" (set to "Mode: Editable") and "Version: 1.0.0". Below the title, there are tabs for "Overview", "Artifacts (5)", "Documents", "Tags", and "Comments". The "Artifacts (5)" tab is selected. A table lists five artifacts:

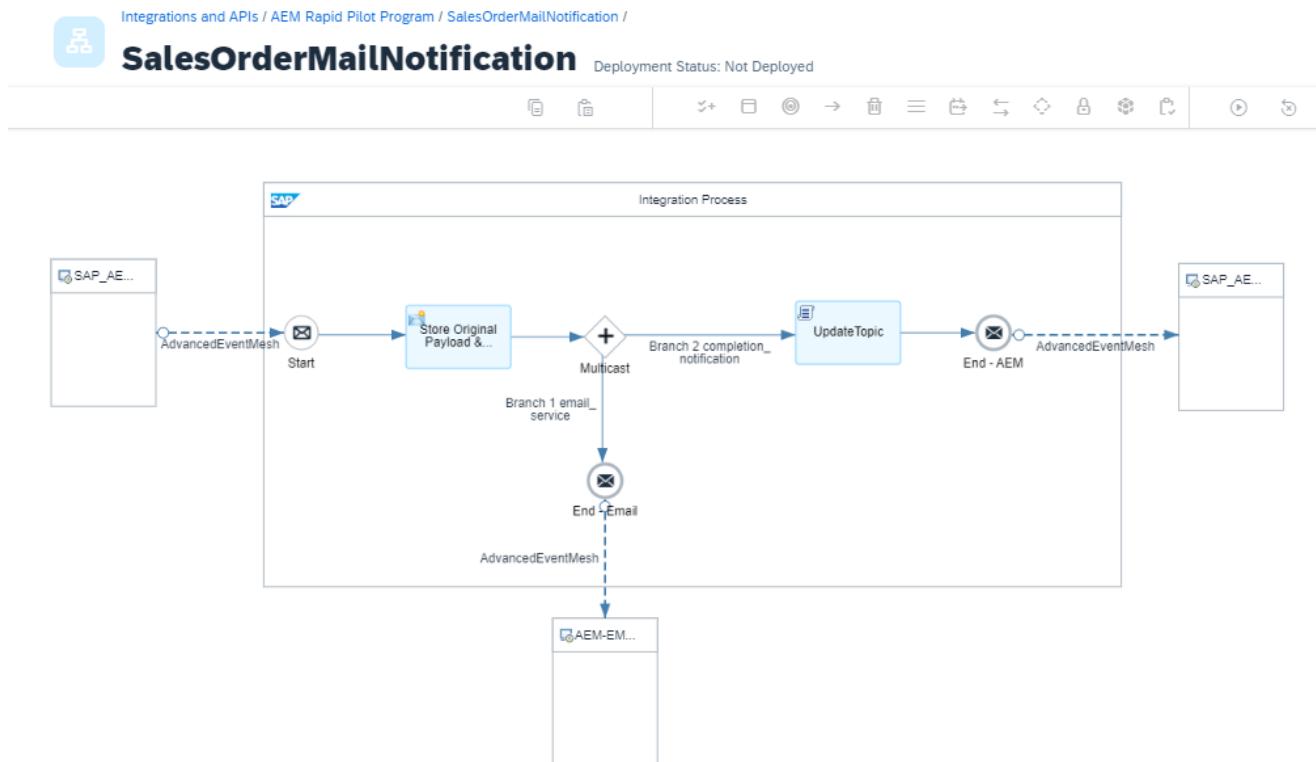
Name	Type
BusinessPartnerAddressCheck	Integration Flow
Business Partner address checking flow, uses SAP BTP's Data Quality Management service for geo-location data to check and correct addresses in Business Partner events.	
Created	
DatastoreToLegacyOutputAdapter	Integration Flow
Created	
SalesOrderMailNotification	Integration Flow
Sales Order email notification flow.	
Created	
SalesOrderToBPA	Integration Flow
Created	
SalesOrderToDatastore	Integration Flow
Store Sales Order event payload in datastore	
Created	

The screenshot shows the SAP Integration Suite interface with a different perspective. On the left, a sidebar menu is open under the "Design" section, specifically the "Integrations and APIs" subsection. It includes options like "B2B Scenarios", "Custom Type Systems", "MIGs", "MAGs", "Configure", "Monitor", "Inspect", "Operate", and "Settings". The main workspace is titled "AEM From Scratch" and displays an integration process diagram. The diagram shows a "Sender" box connected to an "AdvancedEventMesh" node, which then connects to a "Start" event, followed by a transition to "End 1". The workspace also features various toolbars and status indicators at the top and right.

Scenario Cloud Integration

Mail Notification Flow

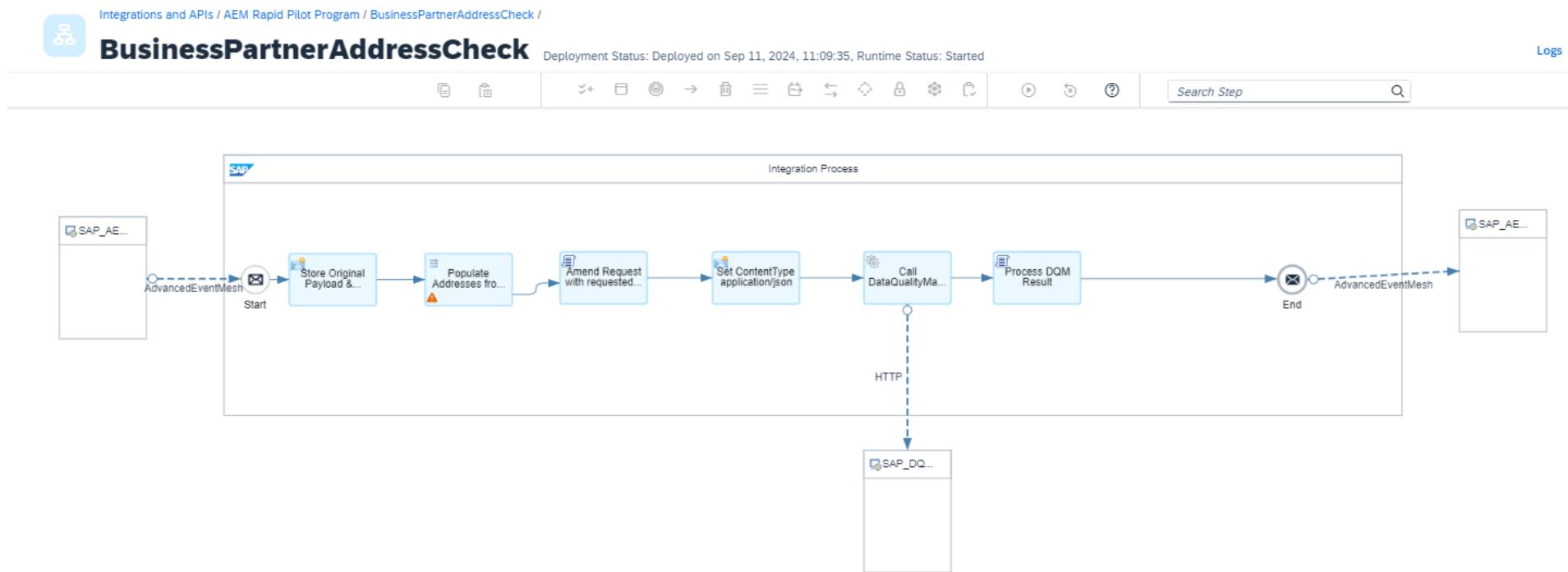
Connect your events to a basic notification service via E-Mail



Scenario Cloud Integration

SAP Data Quality Management

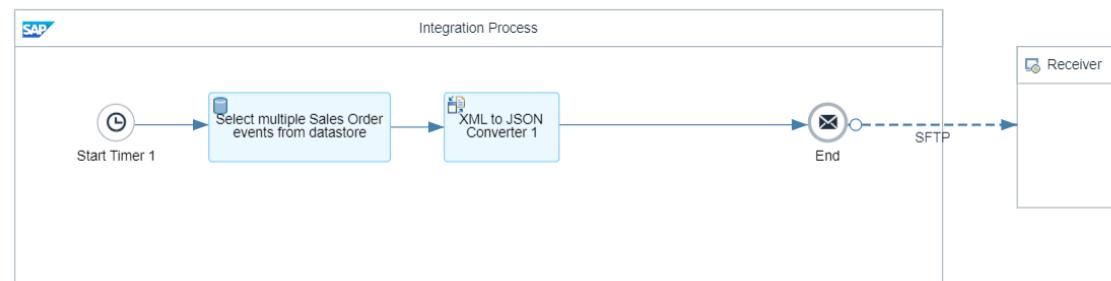
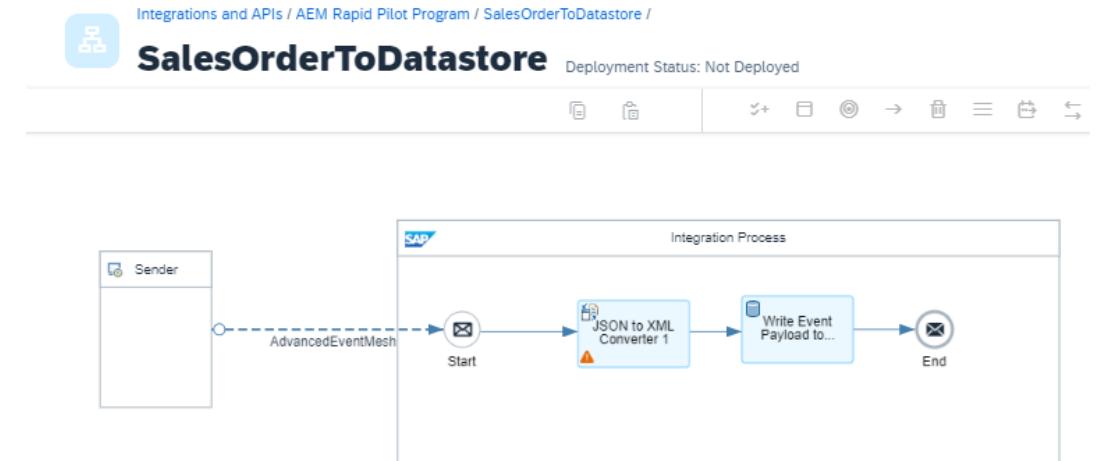
Integrate with SAP DQM to cleanse address data in BusinessPartner events



Scenario Cloud Integration

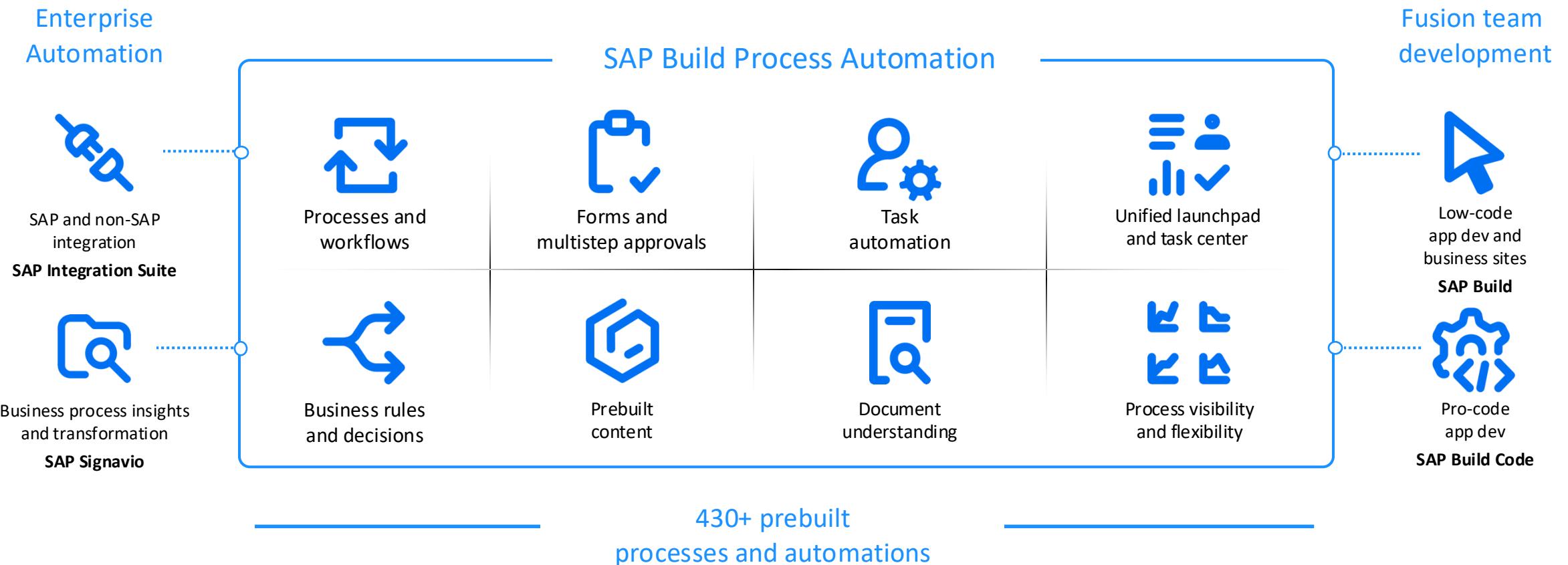
File-based integration via SFTP

Leverage Integration Suite to enable legacy integrations by batching events in the Cloud Integration Data Store



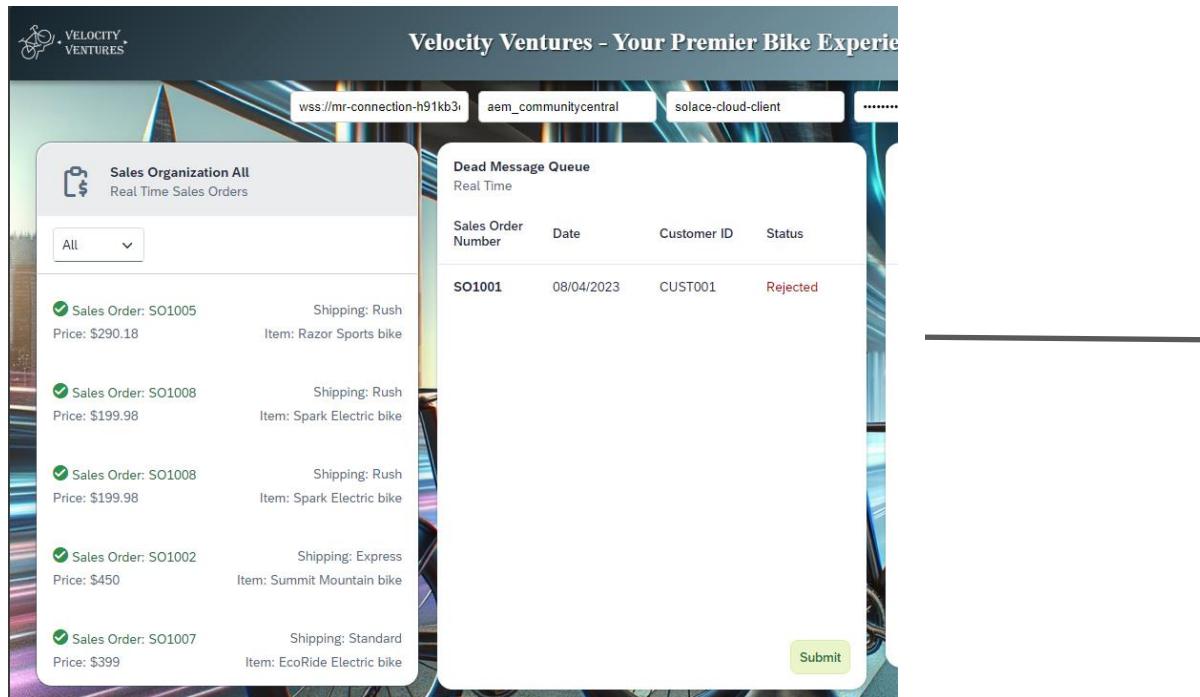
SAP Build Process Automation

Automate processes and tasks with drag-and-drop-simplicity



Scenario BPA

Pre-packaged content for Build Process Automation to handle the approval/rejection of failed SalesOrders from the users Inbox



Velocity Ventures - Your Premier Bike Experience

Sales Organization All
Real Time Sales Orders

All

Sales Order: SO1005 Shipping: Rush
Price: \$290.18 Item: Razor Sports bike

Sales Order: SO1008 Shipping: Rush
Price: \$199.98 Item: Spark Electric bike

Sales Order: SO1008 Shipping: Rush
Price: \$199.98 Item: Spark Electric bike

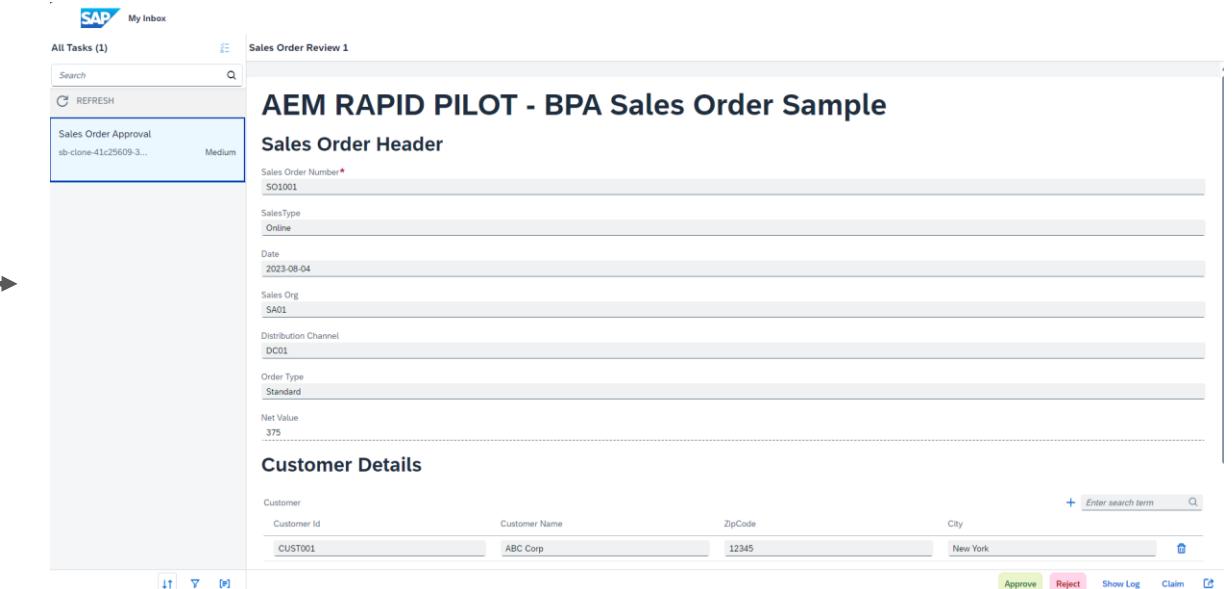
Sales Order: SO1002 Shipping: Express
Price: \$450 Item: Summit Mountain bike

Sales Order: SO1007 Shipping: Standard
Price: \$399 Item: EcoRide Electric bike

Submit

Dead Message Queue
Real Time

Sales Order Number	Date	Customer ID	Status
SO1001	08/04/2023	CUST001	Rejected



SAP My Inbox

All Tasks (1)

REFRESH

Sales Order Approval
sb-clone-41c25609-3... Medium

Sales Order Review 1

AEM RAPID PILOT - BPA Sales Order Sample

Sales Order Header

Sales Order Number*
SO1001

SalesType
Online

Date
2023-08-04

Sales Org
SA01

Distribution Channel
DC01

Order Type
Standard

Net Value
375

Customer Details

Customer	Customer Id	Customer Name	ZipCode	City
CUSTOMER	CUST001	ABC Corp	12345	New York

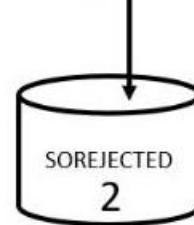
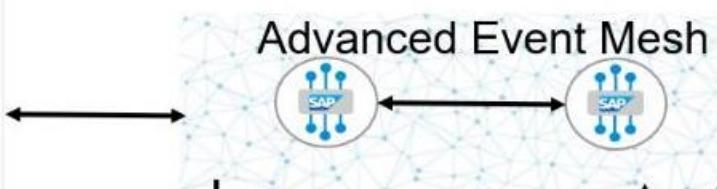
Approve Reject Show Log Claim

Scenario BPA

SAP UI5

Dead Message Queue Real Time				
Sales Order Number	Date	Customer ID	Status	
SO1006	08/08/20 23	CUST006	Rejected	
SO1004	08/06/20 23	CUST004	Rejected	
SO1008	08/10/20 23	CUST008	Rejected	
SO1010	08/12/20 23	CUST010	Rejected	
SO1010	08/12/20 23	CUST010	Rejected	
SO1002	08/04/20 23	CUST002	Rejected	
SO1004	08/06/20 23	CUST006	Rejected	
SO1008	08/10/20 23	CUST008	Rejected	

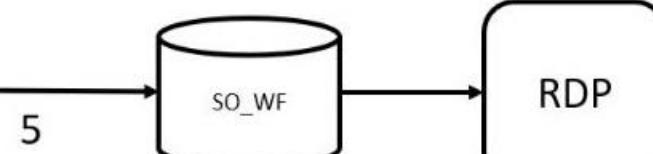
1) Sap.com/salesorder/rejected/V1



sap.com/bpasalesorder/rejected/V1

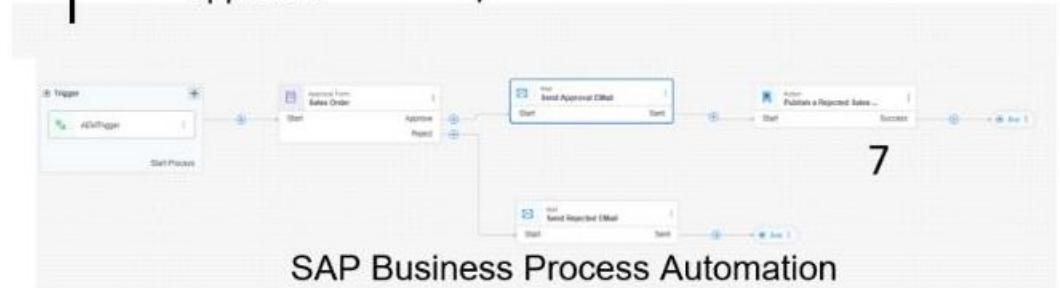


iFlow



8

A new event is published each time sales order is approved



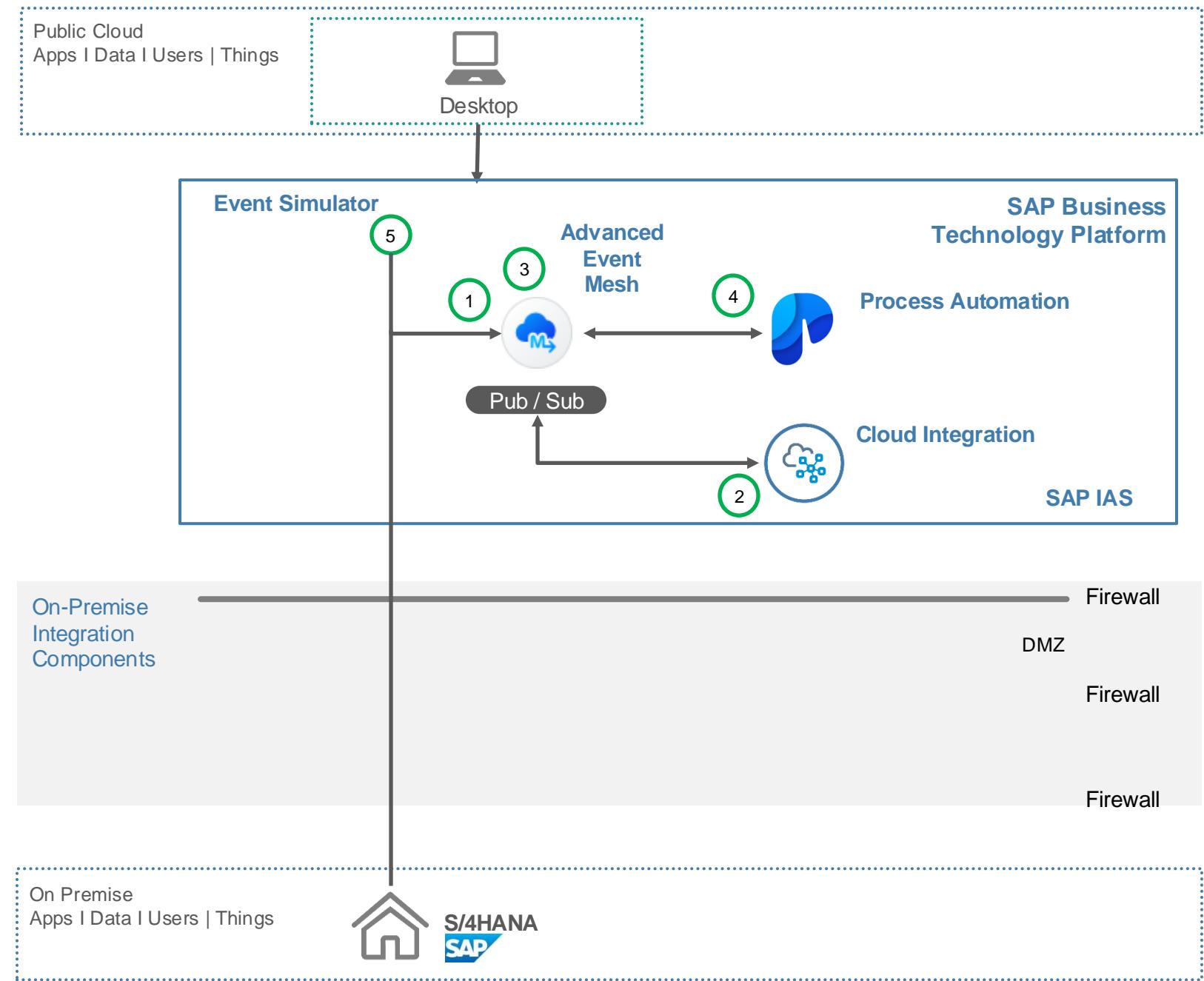
Each event placed in the SORJECTED Queue is picked up by the Rest Delivery Point and results in the configured API being called. The API being called is used to start a BPA Process

Exercise Flow

Digital Integration Hub

Day 3

1. Create queues/topic subscriptions in AEM
2. Create consumer IFlows in Integration Suite
3. Automation configuration of AEM using API (optional)
4. Connect Process Automation
5. Test and review with events

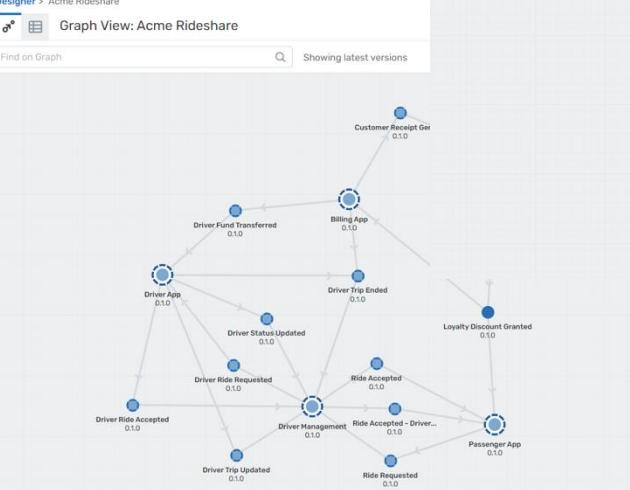
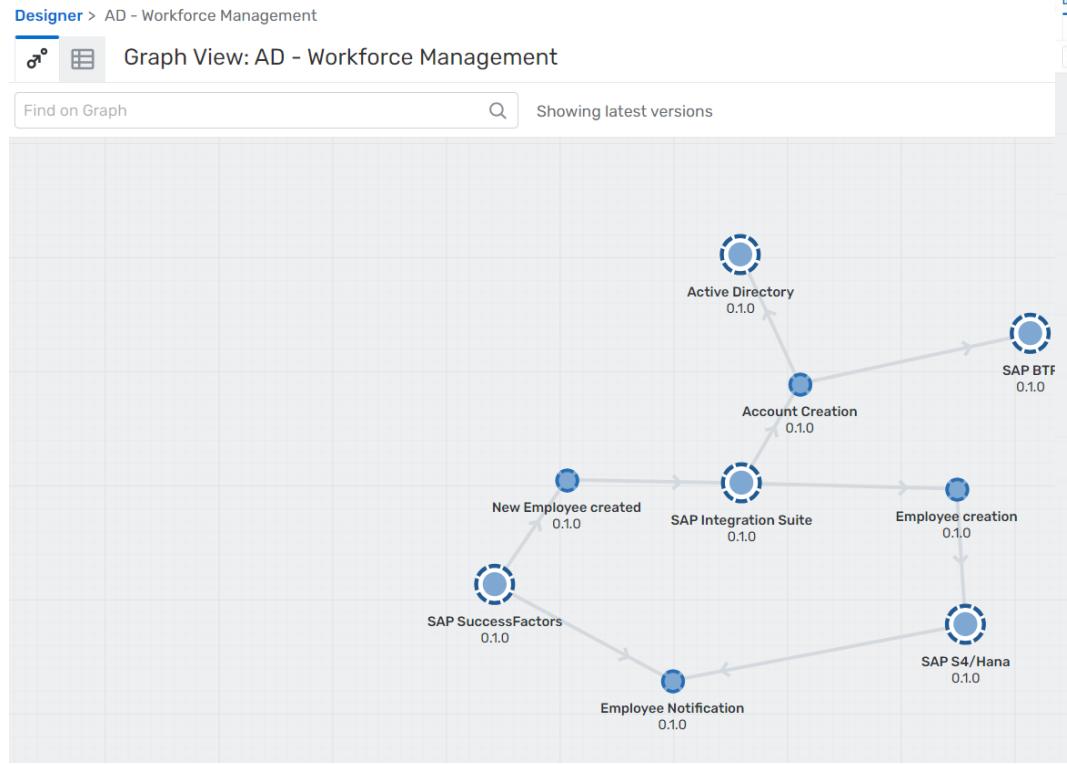


Day 4 - Agenda

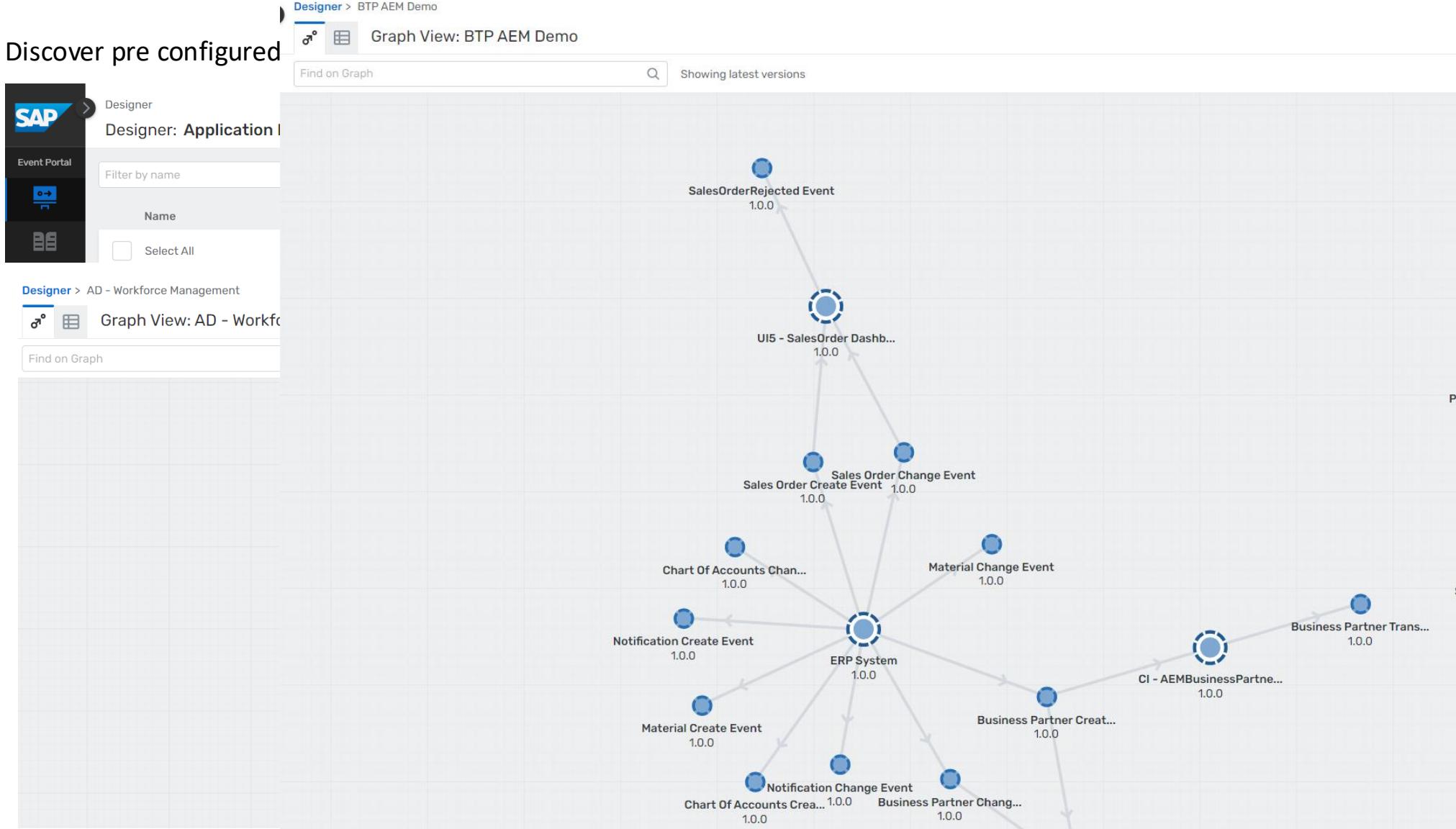
- Event Management
 - Event Portal
 - Event Approval Process
- Event Insights
 - Monitoring
 - Distributed Tracing
- Advanced Event Mesh – API's

Event Management - Event Portal

Discover pre configured Application Domains (Import the json content)



Event Management - Event Portal



Event Manager

Designer > Acme Rideshare



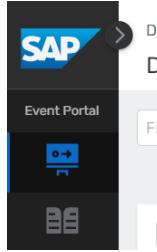
Graph View: Acme Rideshare

Discover pre configured

Find on Graph



Showing latest versions



Designer
Designer: Application

Filter by name

Name

Select All

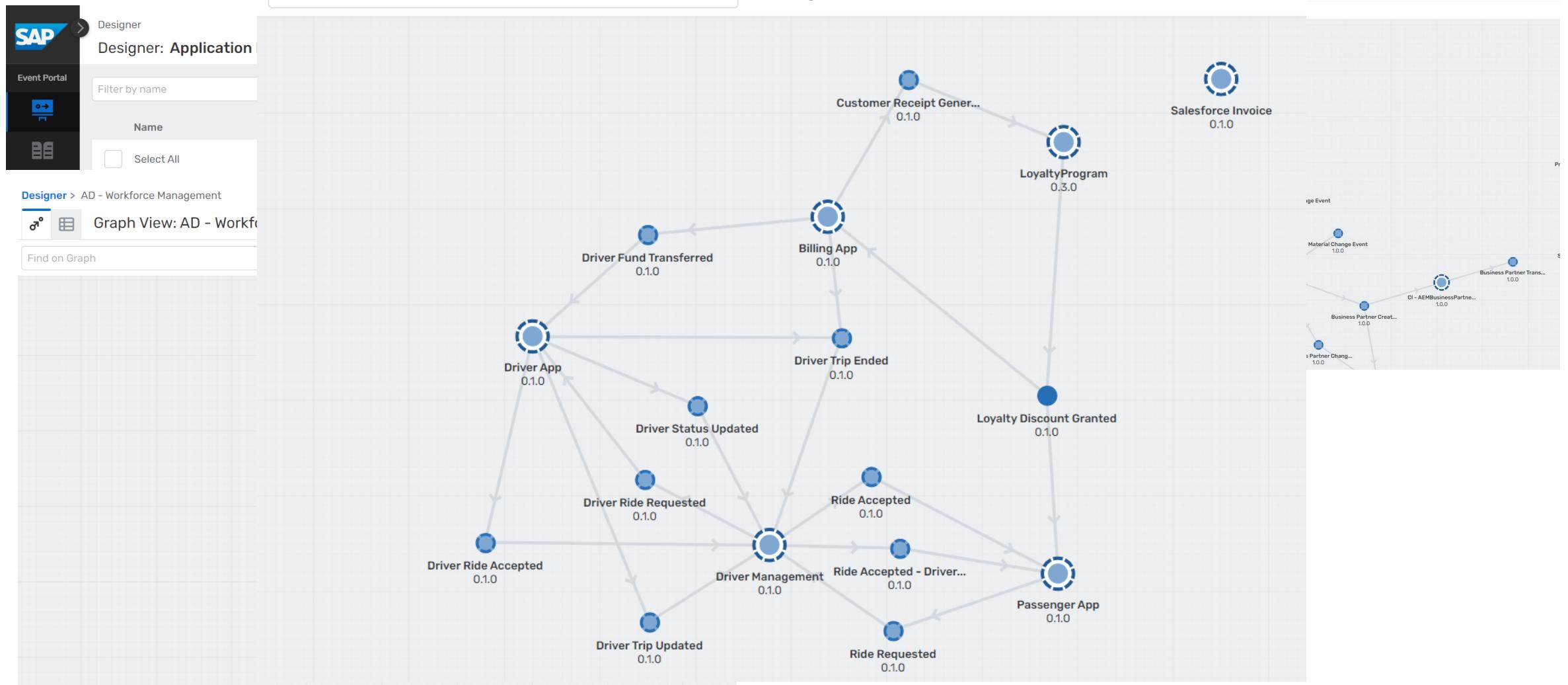
Designer > AD - Workforce Management

Graph View: AD - Workfo...

Find on Graph

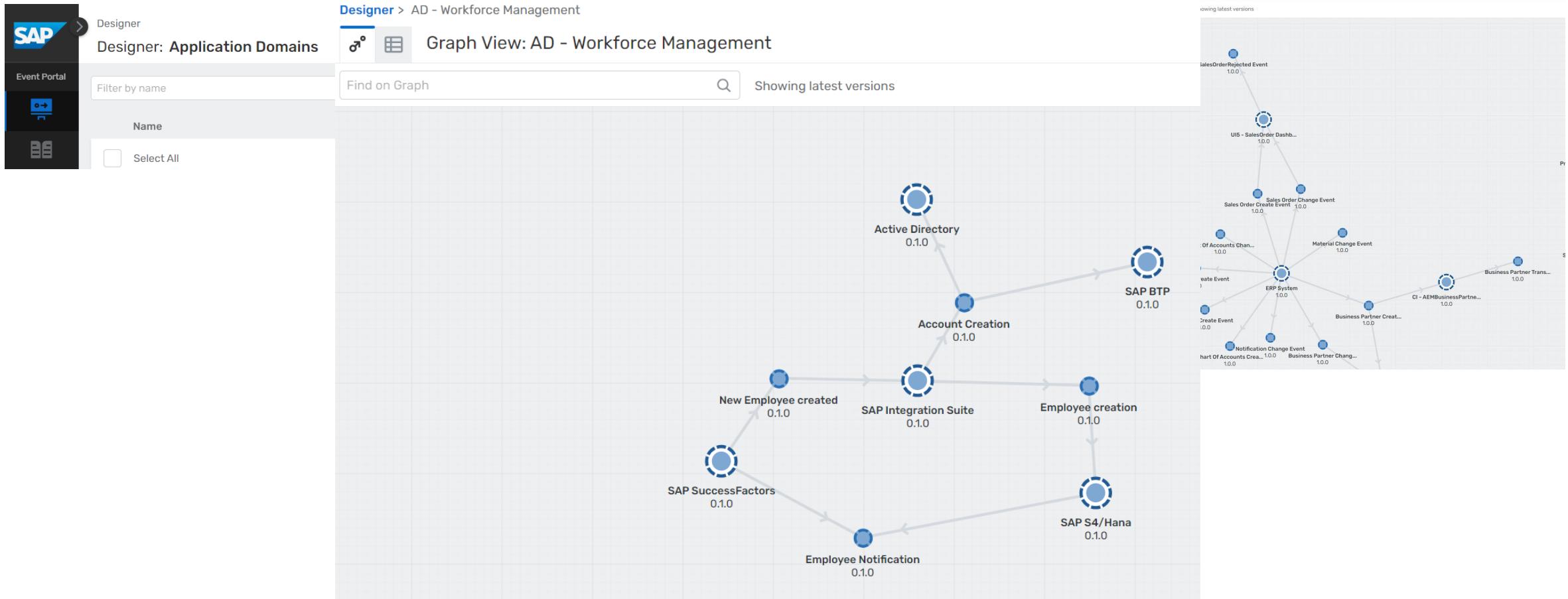
Graph View: Acme Rideshare

Find on Graph



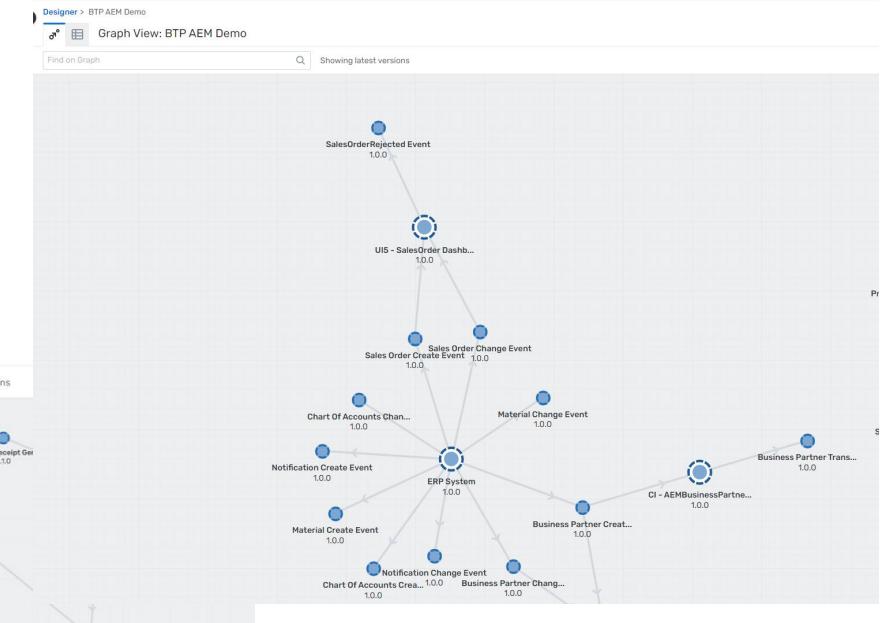
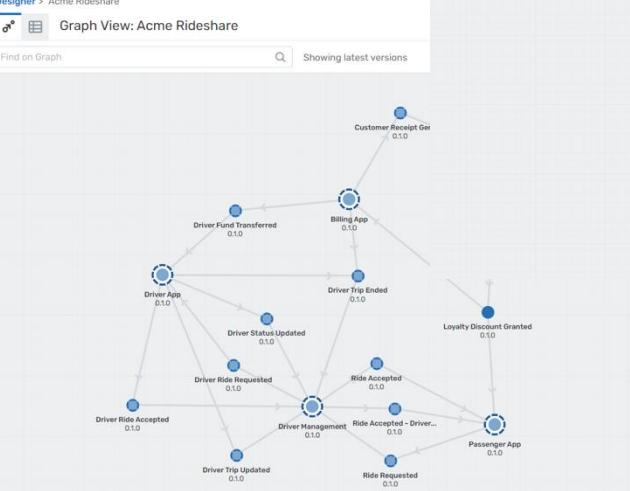
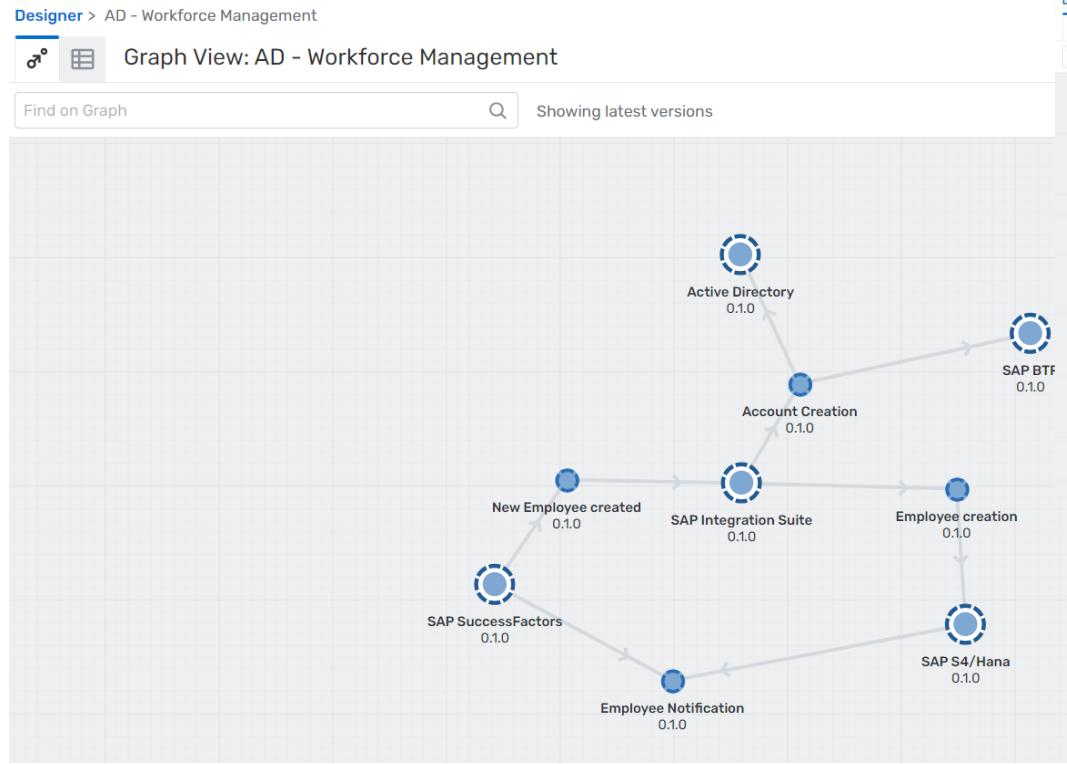
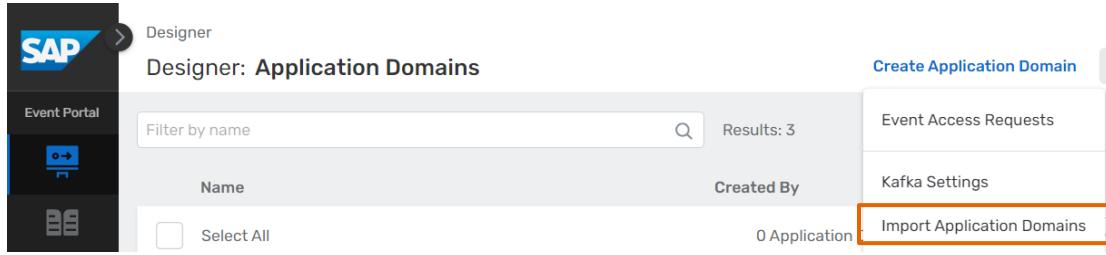
Event Management - Event Portal

Discover pre configured Application Domains (Import the json content)



Event Management - Event Portal

Discover pre configured Application Domains (Import the json content)



Event Management - Event Portal

Type	Function
Application Domains	Application domains organize your applications, events, and other associated objects for different teams, groups, or lines of business within your organization.
Applications	An application in Event Portal is an object that represents software that produces and consumes events
Events	Event is an object that defines the properties that describe and categorize actual event instances. Events represent formally messages that applications publish for every event happening in real time (e.g. state change, field change, button click etc.)
Schemas	A schema defines the payload of an event. Most of the Events and Messages are JSON, XML or csv related payloads.
Enumerations	A limited set of acceptable values – predefined. Use enumerations to define values for a level in a topic address or topic domain (e.g. country codes)

Event Management – Event Approval Process

Event Data Access Request/Approval Workflows



What it Offers:

Governance of sensitive event data

- App teams can designate which events need approvals before broker access is configured

Puts control in the hands of the data owners

- Allows data owners or centralized data governance teams to manage which applications have access to what event data
- No longer needs to be the responsibility of Middleware or Integration teams

Significant efficiency gains including runtime control

- Simple in-app workflow with notifications
- Self-service provisioning of all required broker configuration changes possible immediately after all approvals are obtained

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Proprietary & Confidential

The screenshot displays the Solace Event Access Request/Approval Workflows interface across multiple devices. On the left, a dark panel lists the three offerings. To the right, a 'Designer' window shows the 'Shipment Status' configuration with an 'Access Approval' dropdown set to 'Requires Approval'. A red arrow points from the 'Requires Approval' text in the Designer to the 'Requires Approval' status circled in the 'Catalog' table. Another red arrow points from the 'Requires Approval' status in the Catalog to the 'Requires Approval' status circled in the 'Event Access Requests' card. A third red arrow points from the 'Requires Approval' status in the Event Access Requests card to the 'Requires Approval' status circled in the 'Event Access Progress' card. Below these are two mobile device screenshots showing notifications for new event access requests and approved requests, both with 'Review Requests' and 'Open Application' buttons.

Event Insights - Monitoring

The image displays three distinct monitoring interfaces side-by-side:

- SAP Event Portal (Left):** Shows an "Alerts & Warnings" section with 0 alerts and 0 warnings, and a "Your Services Overview" section showing 2 total services, 0 active services, 2 development services, 20 endpoints, and 27 connections.
- Datadog (Center):** Features a "Your Notifications History (24 hours)" chart and an "Event Management" interface. The event management view shows a timeline from 16:03 to 16:07 with a search bar for "sources:alert tags:solace_insights". A "Queues Overview" section displays metrics like Last Endpoints (20), Last % Util Endpoints (10%), Last Connections (60), Last Queue Spool Util (0%), Last Queues (20), and Last Queues with Messages & N... (11).
- SAP Cluster Manager (Right):** Shows "Service Details: AEM_CommunitySubregion" with a "Monitoring" tab selected. It indicates "Service Connectivity Available" and provides a "Summary" section with "Message Rates" (Incoming 0 msgs/s, Outgoing 0 msgs/s) and "Bytes Rates" (Incoming 0 bytes/s, Outgoing 0 bytes/s). A "Message Rate" section is also present.

Event Insights - Monitoring

Insights

Account Overview

Event Portal

Designer

Catalog

Runtime Manager

KPI

Mission Control

Cluster Manager

Mesh Manager BETA

Insights

Account Overview

Alerts & Warnings

Current

0 Alert 0 Warning

Past 24h

0 Total Notifications

View in Datadog

Your Notifications History (24 hours)

Alert Notifications Warning Notifications Resolved Notifications

Sep 12 4PM Sep 12 5PM Sep 12 6PM Sep 12 7PM Sep 12 8PM Sep 12 9PM Sep 12 10PM Sep 12 11PM Sep 13 12AM Sep 13 1AM Sep 13 2AM Sep 13 3AM Sep 13 4AM Sep 13 5AM Sep 13 6AM Sep 13 7AM Sep 13 8AM Sep 13 9AM Sep 13 10AM Sep 13 11AM Sep 13 12PM Sep 13 1PM Sep 13 2PM Sep 13 3PM Sep 13 4PM

View in Datadog

Your Services Overview

2 Total Services

We consider a service active with

2 Development Services

20 Endpoints Count

17 Connections Count

Your Services Overview

2 Total Services 0 Active Services 2 Services - no activity

We consider a service active with 1 msg coming in over the past 24hrs

2 Development Services 0 Enterprise Services 1,492 Messages Sent (24h) 0 Outgoing Msgs/sec

What Are We Collecting?

951 Metrics

Learn about your metrics

What Are We Watching?

65 Monitors

Learn about your monitors

Who Is Receiving Notifications?

⚠ There are no recipients set up to receive alert notifications

Go to Account Settings

Who Has Access?

6 Users have Advanced Insights monitoring Access

KPI

Mission Control

Message Rate

Event Insights - Monitoring

The screenshot displays the SAP Event Insights - Monitoring interface. On the left, there is a navigation sidebar with various icons and sections: Event Portal, Designer, Catalog, Runtime Manager, KPI, Mission Control, Cluster Manager, Mesh Manager, and Insights. The Insights section is currently selected.

The main area is divided into several panels:

- Event Management:** This tab is active. It shows a timeline from 16:03 to 16:07. A search bar at the top right contains the query: `sources:alert tags:solace_insights`. Below the timeline, a facet search bar says "Showing 25 of 25" and "Add".
 - Source:** Facets listed include users, My Apps, Datadog, Monitor Alert, Error Tracking, and Watchdog.
 - Host:** Facets listed include Host.
 - Service:** Facets listed include Service.
 - Status:** Facets listed include Status.
- Case Management:** This tab is also present in the header.
- Alerts & Warnings:** Shows 0 Alerts and 0 Warnings.
- Your Notifications:** Shows 1 notification from Sep 12 4PM.
- Your Services Overview:** Shows 2 Total Services, 0 Active Services, and 2 Development Services.
- SAP Integration:** A sidebar on the right shows a Datadog logo and a "Go to..." button. It lists recent items like Dashboards, Monitors, Watchdog, and Service Mgmt. A sidebar menu includes Infrastructure, APM, Digital Experience, Software Delivery, Security, LLM Observability, Metrics, and Logs.
- Data Visualizations:** Includes a large orange number "11" and a "Bytes Rates" section showing Incoming 0 Bytes/s and Outgoing 0 Bytes/s.

Event Insights - Monitoring

The screenshot displays the SAP Event Management interface under the 'Event Management' tab. The left sidebar includes sections for Event, Des, Cat, Rur, Mar, Recent, Dashboards, Monitors, Watchdog, Service Mgmt, Infrastructure, APM, Digital Experience, Software Delivery, Security, LLM Observability, Metrics, and Logs. A prominent 'DATADOG' logo is visible.

The main area shows a 'Queues Overview' section with various metrics:

- Last Endpoints: 20
- Last % Util Endpoints: 10%
- Last Connections: 60
- Last Queue Spool Util: 0%
- Last Queues: 20
- Last Queues with Messages & N...: 11

Below these metrics is a table for 'Queues Monitor Count & Status':

STATUS	MONITOR NAME
OK	[Insights] System Log Alert: VPN_AD_MSG_SPOOL_HIGH
OK	[Insights] System Log Alert: VPN_AD_MSG_SPOOL_HIGH_CLEAR
OK	[Insights] System Log Alert: VPN_AD_MSG_SPOOL_QUOTA_EXCEEDED

At the bottom, there are sections for 'Runtime Manager', 'KPI', and 'Mission Control'. The 'Message Rate' section shows 0 Msgs/s and 0 Bytes/s for both Incoming and Outgoing traffic.

Event Insights - Monitoring

The screenshot displays the SAP Event Insights - Monitoring interface. On the left, a vertical sidebar lists various monitoring services: Event Portal, Designer, Catalog, Runtime Manager, KPI, Mission Control, Cluster Manager, Mesh Manager, and Insights. The 'Insights' icon is highlighted with a blue bar at the bottom. The main content area shows 'Service Details: AEM_CommunitySubregion'. The top navigation bar includes links for Status, Connect, Manage, Monitoring (which is underlined), Configuration, and Try Me!. A chart titled 'Your Notifications History (24 hours)' shows 1 notification from the past 24 hours, with categories for Alert Notifications, Warning Notifications, and Resolved Notifications. Below this, a summary section indicates 'Service Connectivity Available' with a green checkmark icon. The 'Summary' section contains two boxes: 'Message Rates' (Incoming: 0 Msgs/s, Outgoing: 0 Msgs/s) and 'Bytes Rates' (Incoming: 0 Bytes/s, Outgoing: 0 Bytes/s). At the bottom, a 'Message Rate' section is partially visible.

Event Insights - Monitoring

The screenshot displays the SAP Event Insights - Monitoring interface. The top navigation bar includes links for Insights, Account Overview, Cluster Manager > Service Details, Status, Connect, Manage, Monitoring (which is selected), Configuration, Try Me!, and View in Datadog.

The main content area shows the Service Details for the service **AEM_CommunitySubregion**. It includes sections for Summary, Message Rate, and a sidebar with various monitoring tools like Monitors, Watchdog, Service Mgmt, Infrastructure, APM, Digital Experience, Software Delivery, Security, LLM Observability, Metrics, and Logs.

Summary section:

- Message Rates: Incoming 0 Msgs/s, Outgoing 0 Msgs/s
- Bytes Rates: Incoming 0 Bytes/s, Outgoing 0 Bytes/s

Message Rate section:

We consider a service active with 1 msg coming in over the past 24hrs

Development Services	Enterprise Services
2	0

Endpoints Count	Messages Sent (24h)
20	1.492

Connections Count	Outgoing Msgs/sec
27	0

Service Connectivity status: Available

Open Advanced Insights in Datadog

Summary section (right side):

Message Rates	Bytes Rates
Incoming 0 Msgs/s	Outgoing 0 Bytes/s
	Incoming 9 Bytes/s
	Outgoing 4 Bytes/s

Message Spool Usage	Message Discards
Usage 0 %	Incoming 0 Msgs/s
10 MB	Outgoing 0 Msgs/s
	14093 Total Msgs
	8376 Total Msgs
	12329 Total Msgs

Event Insights - Monitoring

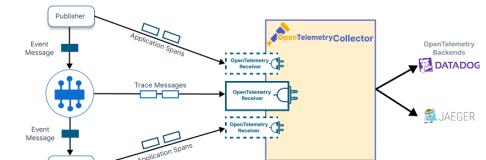
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- SAP Cluster Manager (Right):** Shows "Service Details" for "AEM_CommunitySubregion" with a status of "Available". It includes sections for "Summary", "Message Rates" (Incoming 0 msgs/s, Outgoing 0 msgs/s), and "Bytes Rates" (Incoming 0 bytes/s, Outgoing 0 bytes/s).

Event Insights - Distributed Tracing

Intention:

- Applications in large organizations consist of hundreds or thousands of services.
- These services run across many hosts and share messages over one or more event meshes.
- Diagnosing problems by troubleshooting error messages or logs is no longer feasible.
- A solution is needed to track an event from the sending application, through event brokers, to the receiving application



Approach:

- the event broker generates special guaranteed messages when certain operations happen
- the publisher and subscriber APIs also generate spans when messages are sent and received
- OpenTelemetry receivers consume these messages from a particular queue and convert to a format that can be received, processed, and viewed using DataDog.

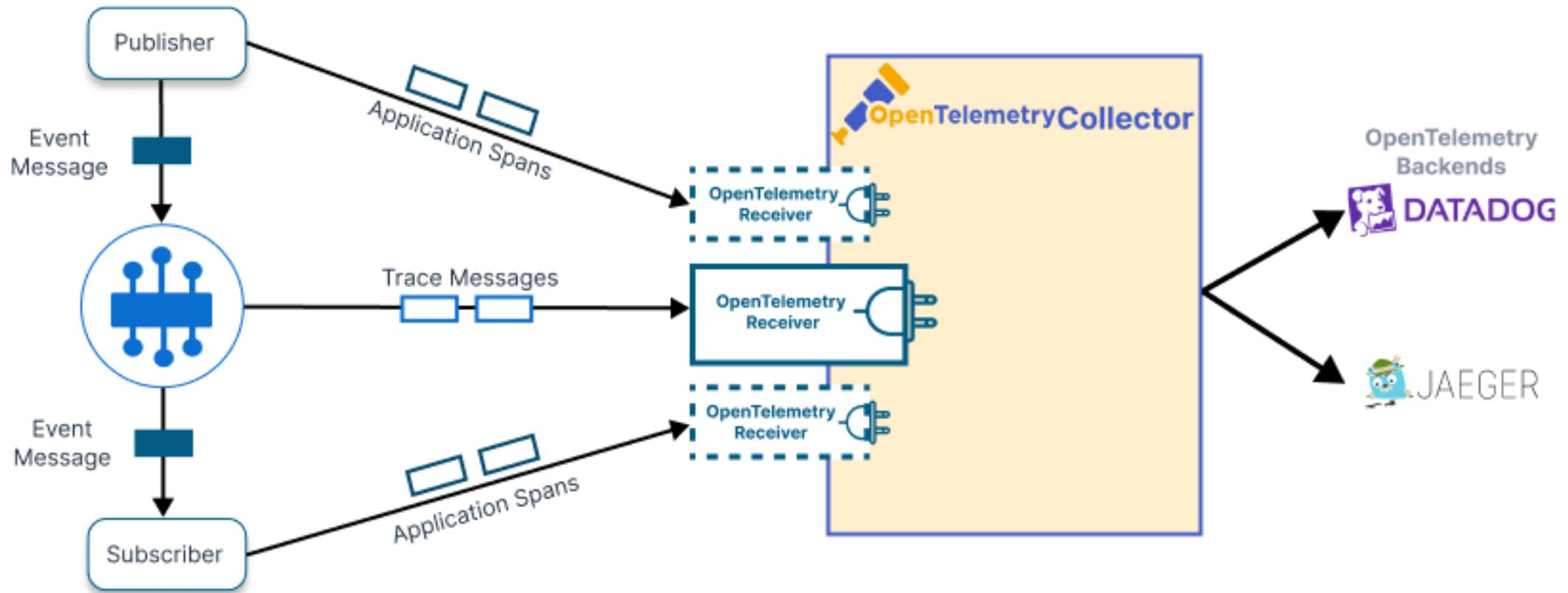
Conclusion: Distributed tracing ...

- ... allows tracking the lifecycle of an event as it moves through the event mesh.
- ... helps diagnosing issues by providing visibility into the event flow across different services and brokers.
- ... enables monitoring of performance metrics and identifying bottlenecks in the event processing pipeline.
- ... Improves overall observability of the system by correlating events and tracing their paths end-to-end.

Event Insights - Distributed Tracing

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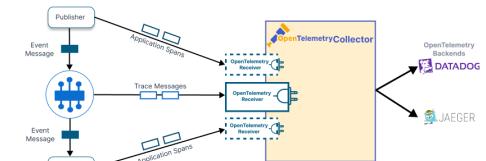
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Advanced Event Mesh – API's

API Overview

- Manage SAP Advanced Event Mesh
- Manage SAP Event Brokers
- Connection & Protocols

SAP Advanced Event Mesh - REST – API(v2) (PubSub+ Cloud REST API)

- Managing Services
- Configuration Reference

SEMP(v2) (Solace Element Management Protocol)

- Configuration Reference
- Action Reference
- Monitor Reference

Open API's & Protocols

- API's
- Open Wireline Protocols

Overview

SAP Advanced Event Mesh - REST – API(v2)

- In a nutshell: „Administration of the Cloud Env. of Advanced Event Mesh
- This API provide mechanism for you to manage event broker services, work with Event Portal and manage accounts for advanced event mesh
- Legacy v0/v1 available – not recommended to use
- For further documentation also known as: PubSub+ Cloud REST API

SAP Advanced Event Mesh - SEMP(v2) (Solace Element Management Protocol)

- In a nutshell: “Admin interface for the brokers”
- This Rest based API can be used for provision, operate, and maintain a single SAP Event Broker

Open APIs

- JMS (Java Message Service): allowing seamless integration with Java-based applications
- Open MAMA: Open Middleware Agnostic Messaging API (OpenMAMA) open-source, lightweight, vendor-neutral integration layer for sending and receiving market data information
- REST: REST Messaging API enables HTTP clients to send and receive messages with an event broker

Supported Protocols

- AMQP (Advanced Message Queuing Protocol) 1.0
- MQTT (support for MQTT 3.1.1 and MQTT 5.0 standards)
- WebSocket - Protocol

Support of Terraform

- <https://github.com/SolaceProducts/terraform-provider-solacebroker>
- <https://docs.solace.com/Admin/SEMP/Declarative-SEMP.htm>

Manage AEM API Access

REST – API(v2)

The maximum number of tokens that can be generated is fifty.

Name	Permissions	Created At	Last Modified
Token Mission Control	29 / 117	2024-08-07 10:15:39	...
Token Event Portal 2.0	32 / 117	2024-08-07 10:18:33	...
Token - Mesh Manager	2 / 117	2024-08-07 10:19:20	...

API tokens allow you to authenticate and authorize REST requests. Learn more about API tokens and Solace's Cloud REST API.

- create up to 50 API tokens (per user) in an account
- setup a proper authorization management, assign granular specific scopes and permissions for specific topics (Mission Control, Event Portal etc.)

SEMPv2

Service Details: AEM_CommunitySubregion

Event Broker Service Settings

Authentication: Enabled

Certificate Authorities: 0 Client Certificate Authorities, 1 Domain Certificate Authority

Client Profiles: 1 Client Profile

SEMP - REST API: The Solace Element Management Protocol (SEMP) is a REST API that you can use to manage the Event Broker Service.

Manage with SEMP

Base path to the config API: http://[...].connection:12345/config

SEMP Credentials

Message IP Name: aem-09
Username: aem-09
Password: aem-09

Open APIs – e.g. REST

Connection Details

Host URLs

Get Started

Source: identify the login / cloud URL: <https://help.pubsub.em.services.cloud.sap/Cloud/cloud-login-urls.htm>

SAP Advanced Event Mesh REST – API

- v1/v0 — Legacy versions of the REST APIs
- v2—the current (and more modern) v2 REST APIs (focused on)

GET BASE URL

- Set up on a per-region basis using the following format: <https://<region>.console.pubsub.em.services.cloud.sap?xyz> →
 - Example: Region [eu10](https://eu10.console.sap.pubsub.em.services.cloud.sap) → <https://eu10.console.sap.pubsub.em.services.cloud.sap>
 - Full API Reference: [REST API\(v2\) Reference](#)
-

Function

Example



Source: identify the login / Cloud URL: <https://help.pubsub.em.services.cloud.sap/Cloud/cloud-login-urls.htm>

SEMP(v2)

- This Rest based API can be used for provision, operate, and maintain a single SAP Event Broker

Full API Reference:

- [Configuration Reference](#)
 - [Action Reference](#)
 - [Monitor Reference](#)
-

Function

Example

Get a list of Message VPN objects	
-----------------------------------	---

Get a list of Queue objects	
-----------------------------	---

Get a list of Queue Message objects	
-------------------------------------	---

Open APIs - REST

- REST Messaging API enables HTTP clients to send and receive messages with an event broker

No explicit example - Referring to the demo and configuration steps: [Publish / Subscribe with REST](#)

The screenshot shows a REST client interface with two requests:

- Request 1:** POST to `https://aem:9443/topic/aem/topic/core/example`.
Technical Indicator: We will publish on a "topic"
Topic Subscription: `/aem/topic/core/example`
- Request 2:** POST to `https://aem:9443/queue/PurchaseOrder`.
Technical Indicator: publish direct on "queue"
Queue Name: PurchaseOrder

The screenshot shows the SAP Event Broker interface with two main sections:

- Queues:** A list of queues including `AEM_CommunityCentral` and `PurchaseOrder`.

Queue Name	Incoming	Outgoing
PurchaseOrder	On	On
- Subscriptions:** A list of subscriptions for the `PurchaseOrder` queue, showing one subscription for the topic `aem/topic/core/po`.

Day 5 – AIF & ASAPIO

- Application Interface Framework (AIF)

- Introduction
 - Demo
 - Exercise

- Event-Enablement Add-on (ASAPIO)

- Introduction
 - Demo
 - Exercise

Application Interface Framework (AIF)



Application Interface Framework (AIF)

SAP Application Interface Framework enables you to develop and monitor interfaces as well as execute error handling in a single framework residing in your SAP back end system.

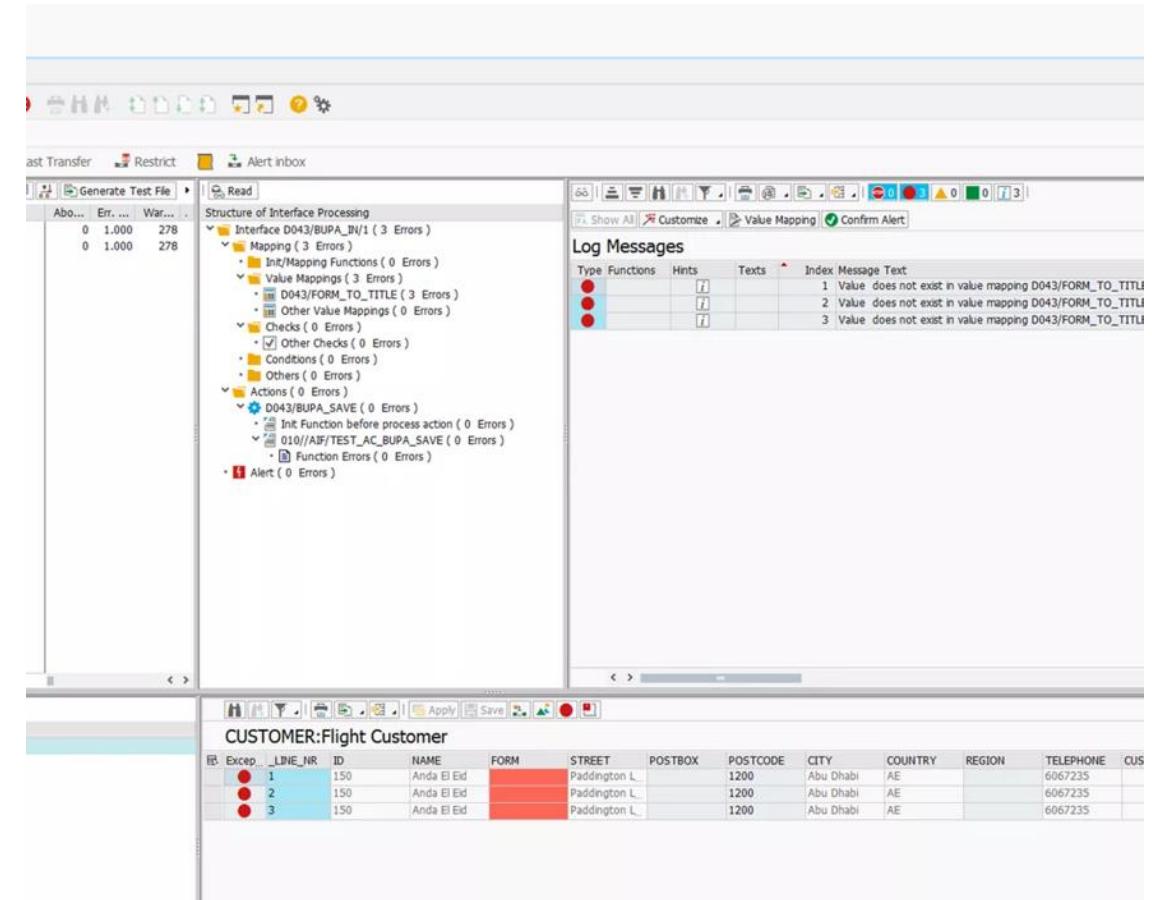
It is based on SAP NetWeaver technology and can therefore work for legacy systems as well. On S/4HANA it is preinstalled, on ECC Systems it can be installed as AddOn

AIF allows specifically:

- To use a powerful framework for the implementation of interfaces and the logic behind
- To monitor interfaces with different interface technologies (e.g. Idocs, ABAP Proxies)
- This works for both SAP ECC and SAP S/4HANA backends

SAP is delivering standard interfaces on AIF

Customers can build their own interfaces*



* requires AIF_GEN module and license

AIF Features



For business users:

- Automatic alerts that notify business users to errors
- User-friendly transactions for interface monitoring, error handling, and the correction of errors directly from within the application system
- Both SAP GUI and Web-based user interfaces
- Use of a single tool for monitoring and handling of messages regardless of the interface technology involved

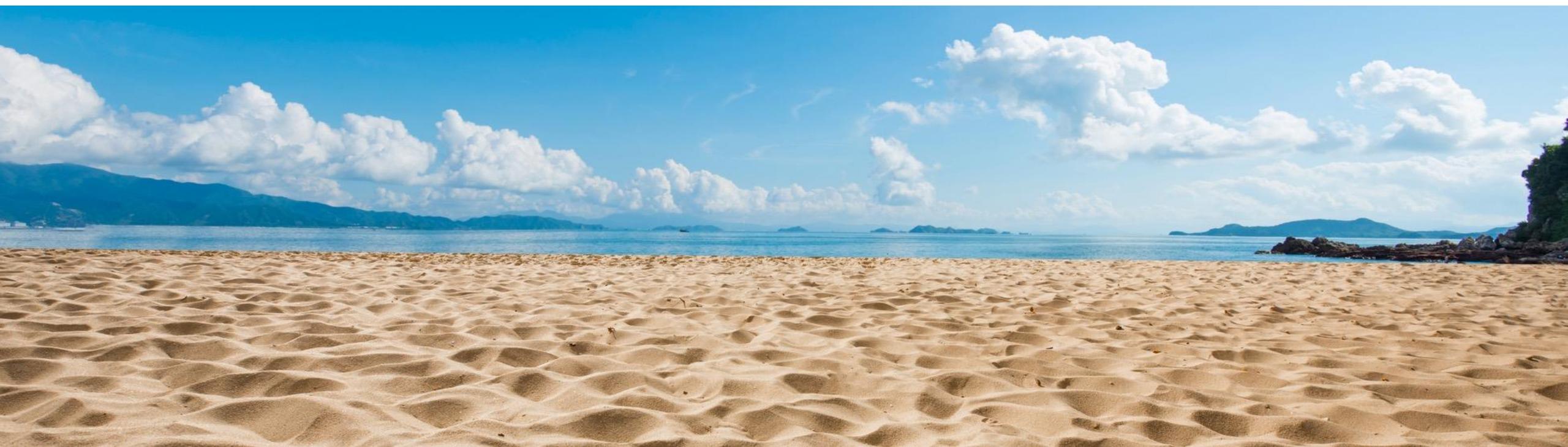


For IT personnel:

- A powerful framework for the implementation of interfaces
- A customizable interface framework for the generation and reuse of interface building blocks over multiple interfaces
- Flexible authorization rules to restrict access to data and to monitoring and error handling
- Tools for system configuration and operation
- Monitors interfaces with different interface technologies, for example, ABAP proxies and IDocs

* requires AIF_GEN module and license

AIFAEM



AIFAEAM

SAP Integration Suite, advanced event mesh is SAP's main event broker/mesh offering.

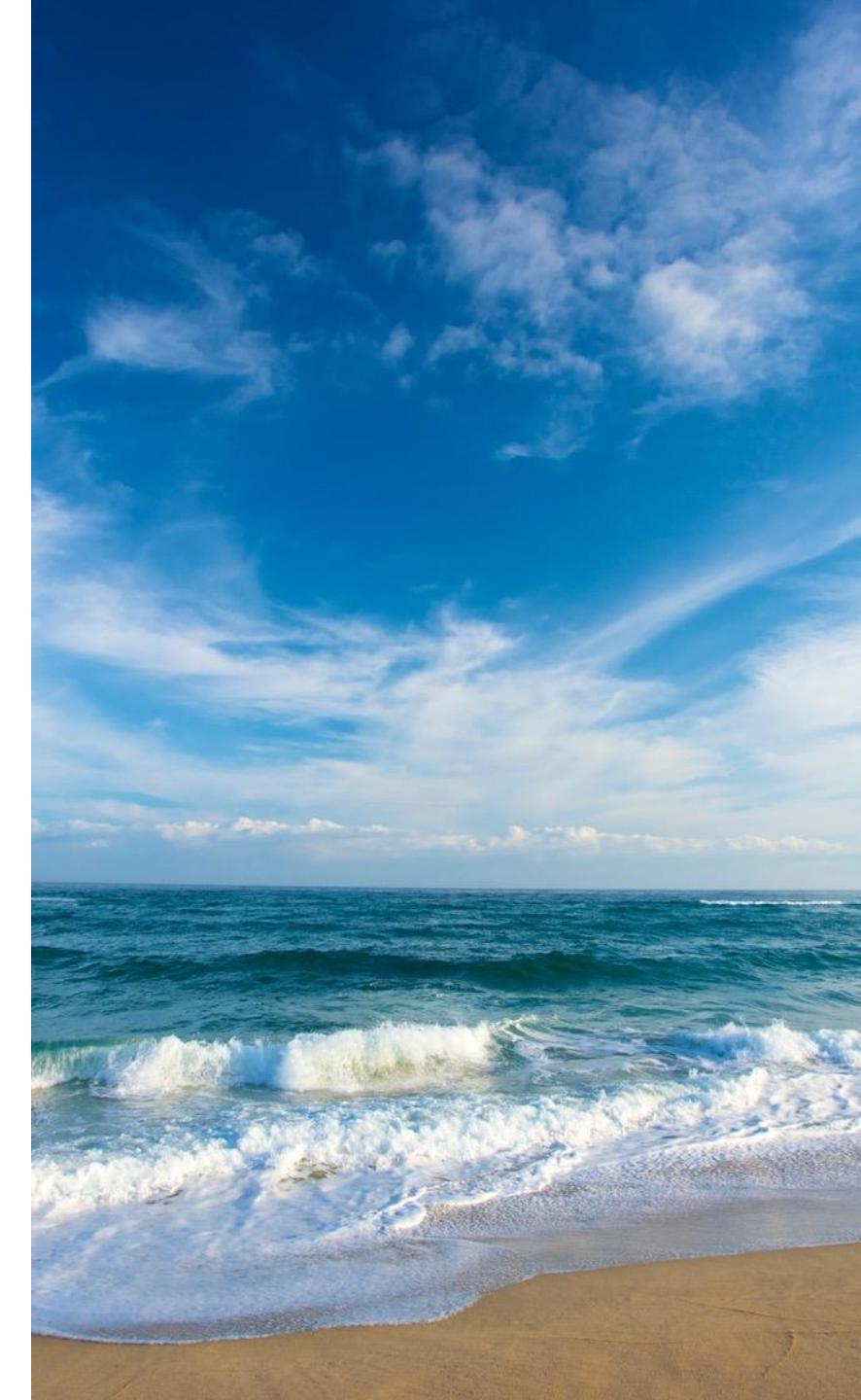
Newer SAP backends like SAP S/4HANA come with built in, standard event enablement approaches.

Older backends like SAP ECC lack out of the box event enablement support.

AIF is being used by thousands of SAP customers as of today

To allow for older SAP backends to expose events, **SAP AIF is a natural choice.**

Using the **new AIFAEAM software component of AIF**, custom events can be created to be exposed via SAP Integration Suite, advanced event mesh from both SAP ECC and SAP S/4HANA systems.



AIFAEM in Detail

AIFAEM allows to utilize AIF and its capabilities to publish custom events via AIF to SAP Integration Suite, advanced event mesh for processing and monitoring

AIFAEM is composed of two components:

- AIFAEM which mirrors the license within the ABAP system
- AEM Extension of AIF for the integration with SAP Integration Suite, advanced event mesh



AIFAEIM Features

Creation of custom events based on the BOR framework for SAP backends including SAP S/4HANA and SAP ECC

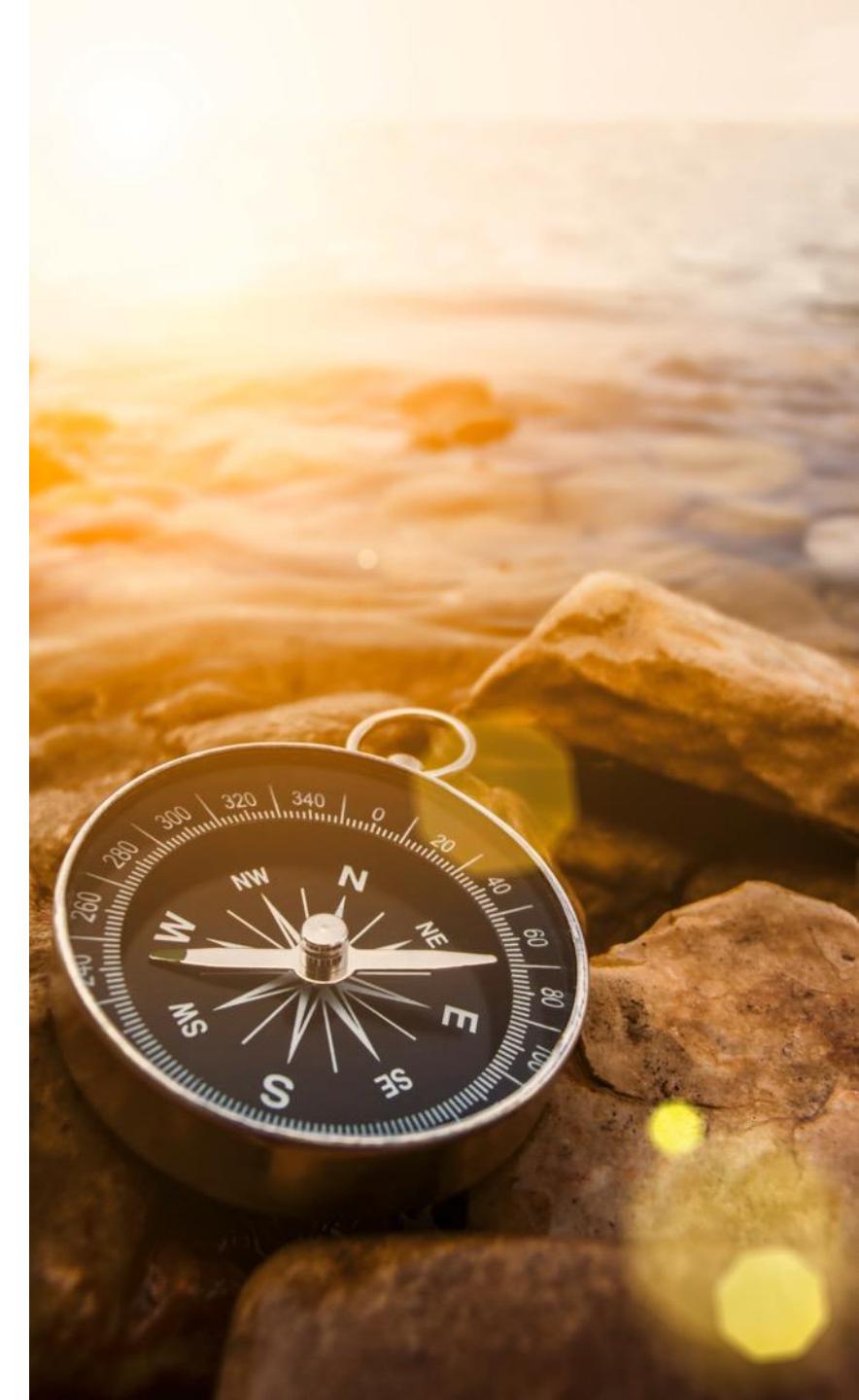
Support of CloudEvents format

Sophisticated structure mapping

Event connectivity to SAP Integration Suite, advanced event mesh

Monitoring and Error Handling Integration

- Transaction /AIF/ERR
- SAP Fiori Message Monitoring App



AIFAEM: Supported Releases

Supported releases for AIFAEM are:

- SAP NW 7.31 (ECC)
- SAP NW 7.55 (S/4 HANA 2020) and following

AIFAEM is delivered as ABAP Add-On downloadable by customers

- AIFAEM731: for SAP NW 7.31
- AIFAEM800: for SAP NW 7.55, and subsequent releases

AIFAEM does not need AIFGEN as a prerequisite. Both modules work seamlessly in single installation.



AIFAEM: Commercials

AIFAEM usage right is included with your SAP Integration Suite,
advanced event mesh entitlement

There is no additional charge for AIFAEM usage (i.e. events do not
count into AIF message quota)



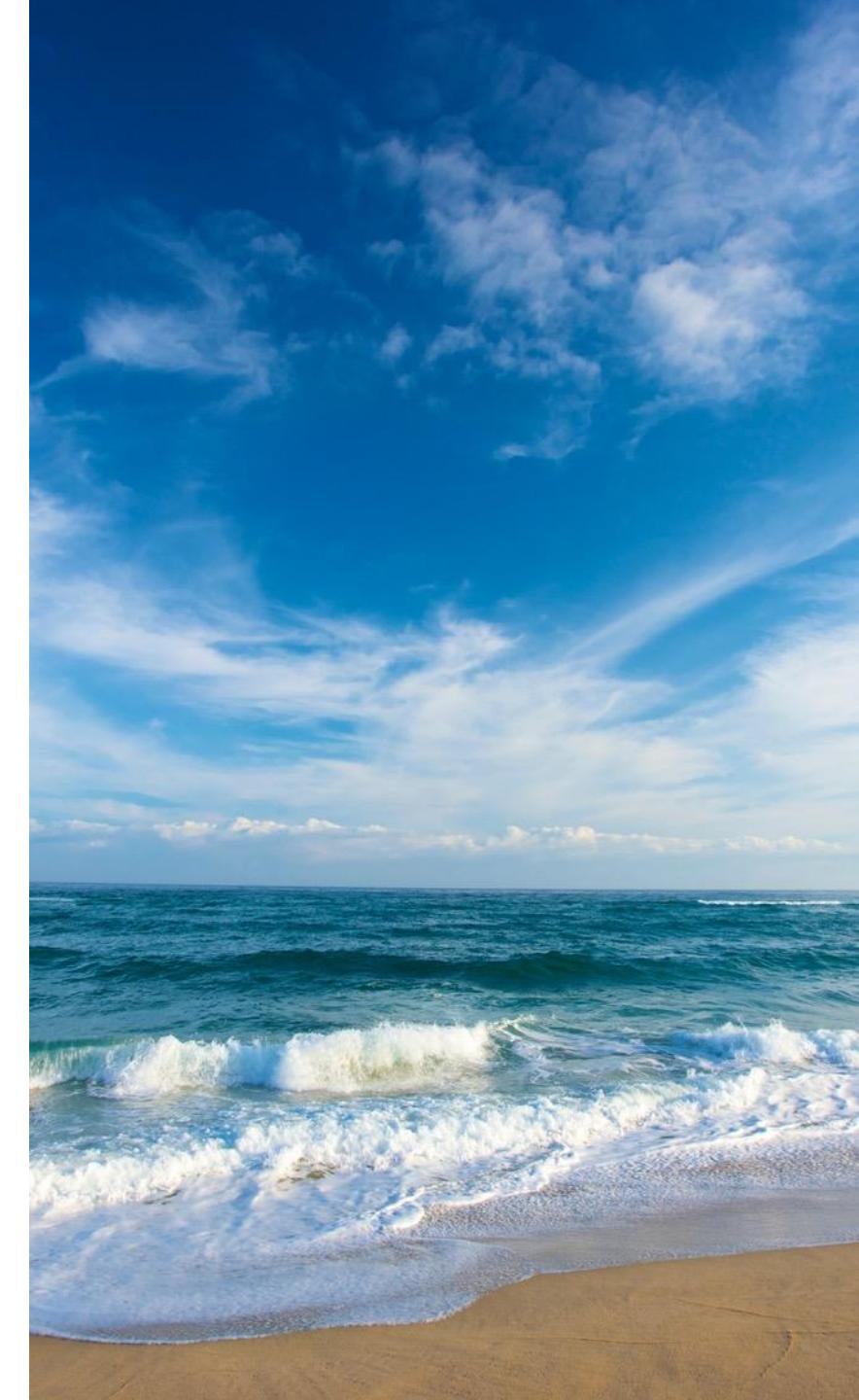
Additional Information on AIFAEM

Blog on AIFAEM: [A Natural Choice: SAP AIF can now expose events](#)

Blog on AIF: [SAP Application Interface Framework: All you need to know](#)

Blog creating an AIF based event: [How to integrate SAP S/4HANA BOR Framework with SAP Integration Suite, advanced event mesh using AIF](#) & [How to set up enhanced SAP Events for Advanced Event Mesh with Application Interface Framework](#)

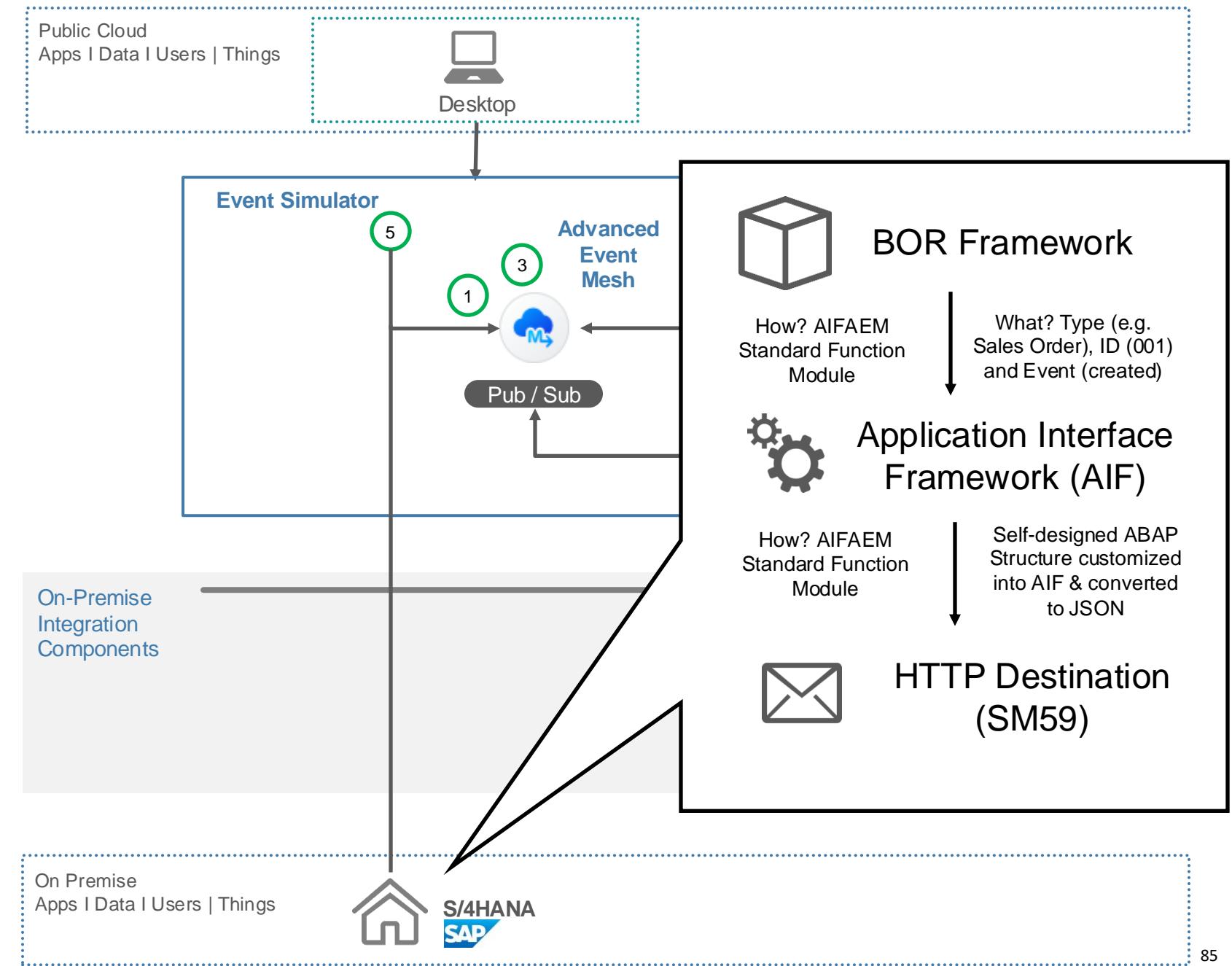
Note on AIFAEM: [Note on AIFAEM](#)



Exercise Flow

Digital Integration Hub

Day 5 - AIF



Day 5 – Expected Result on Event Publisher

Change of SalesOrder (VA02)

Change Standard Order 12: Overview

Standard Order 12 Net Value 798,00 EUR

Sold-to Party 21 Company STEFAN TEST1, Test Street 42, 69191 Walldorf, Germany

Ship-to Party 21 Company STEFAN TEST1, Test Street 42, 69191 Walldorf, Germany

Cust. Reference 2021-10-30-0011 Cust. Ref. Date

Sales Item Overview Item detail Ordering party Procurement Shipping Reason for rejection

Req. Deliv.Date D 02.11.2021 Deliver.Plant

Complete Div. Total Weight 400 KG

Delivery Block Change in quantity Volume 0,000

Billing Block Pricing Date 21.09.2023

Pyt Terms 0002 14 days 2%, 30 net

Inco. Version

Incoterms CFR

Inco. Location1 Walldorf

All Items

Item	Material	Req. Segment	Order Quantity	Un
10 MOE-BIKE-01			1 EA	
20 MOE-BIKE-02			1 EA	
30 MOE-BIKE-01			1 EA	
40 MOE-BIKE-02			1 EA	

AIF Monitoring (/N/AIF/ERR)

Error Handling - 12.09.2024 - 12.09.2024 (200)

Standard Mode Icon Help Last Transfer Restrict Alert Inbox

Data Messages AEM Advanced EventMesh (1) SAOR_RPW1 (1) 1: 12.09.2024 12:41:51 Transformation successful

Log Messages Type Functions Hints Texts Index Message Text 1 Transformation successful

Transform Switch Destination Structure (Interface mode AEM/SAOR_RPW/1)

- CONTROLLER
- DATA
 - ORDER_HEADER
 - CUSTOMER
 - 1: 12.09.2024 12:41:51
 - ORDER_ITEM
 - ORDER_SCHEDULE

ORDER_ITEM:orderItem

Except..._LINE_NR	ITEM	MATERIAL	MATERIAL_T	ITEM_TYPE
1:1.1.1	000010	MOE-BIKE-01		
1:1.1.2	000020	MOE-BIKE-02		
1:1.1.3	000030	MOE-BIKE-01		
1:1.1.4	000040	MOE-BIKE-02		

Day 5 – Expected Result on AEM

TryMe – Functionality on AEM

Subscriber

noun / ➤

Suggestions
flight / > flight / boarding / * / yow / > flight / * / * / yow / >

Topic Subscriber
[empty input field]

Subscribe

Subscribed Topics
sap.com/> X

Bind to an endpoint to receive guaranteed messages ➤

Messages (Most Recent 20)
10 Direct 0 Persistent 0 Non-Persistent

Clear Stats Clear Messages

2024-09-12 14:48:01:007 [Topic sap.com/salesorder/change/V1/0001/01/01/12] X

Delivery Mode: Direct

```
{"orderHeader": [{"salesOrderNumber": "12", "creator": "D030427", "date": "2021-10-30", "salesType": "O", "ordertype": "OR", "salesOrg": "0001", "distributionChannel": "01", "division": "01", "customer": [{"customerId": "21", "customerName": "STEFAN TEST1", "zipCode": "69191", "street": "Test Street 42", "phone": "", "country": "DE", "city": "Walldorf"}], "orderItem": [{"item": "000010", "material": "MOE-BIKE-01", "materialType": "", "itemType": "", "orderSchedule": [{"scheduleNumber": "0001", "quantity": 1.000, "uom": "EA"}]}, {"item": "000020", "material": "MOE-BIKE-02", "materialType": "", "itemType": "", "orderSchedule": [{"scheduleNumber": "0001", "quantity": 0.000, "uom": "EA"}, {"scheduleNumber": "0002", "quantity": 1.000, "uom": "EA"}]}, {"item": "000030", "material": "MOE-BIKE-01", "materialType": "", "itemType": "", "orderSchedule": [{"scheduleNumber": "0001", "quantity": 0.000, "uom": "EA"}, {"scheduleNumber": "0002", "quantity": 1.000, "uom": "EA"}]}, {"item": "000040", "material": "MOE-BIKE-02", "materialType": "", "itemType": "", "orderSchedule": [{"scheduleNumber": "0001", "quantity": 0.000, "uom": "EA"}, {"scheduleNumber": "0002", "quantity": 1.000, "uom": "EA"}]}]}
```

Day 5 – AIF: Expected Result on Dashboard

The dashboard for Velocity Ventures displays real-time data from various systems:

- Sales Organization All:** Shows five sales orders with details like Order ID, Price, Shipping Method, and Item.
- Dead Message Queue:** Shows a list of messages in real time.
- Workflow Approvals:** Shows approved workflow items.

A modal window titled "Sales Order Customer Details" is open, displaying customer information for Stefan Test1:

Customer Name:	Street:
STEFAN TEST1	Test Street 42
Customer ID:	City:
21	Walldorf
Date:	Country:
1/1/1970	DE
Phone:	Zipcode:
	69191

The dashboard also features a "Connected!" status indicator and a navigation menu icon.

Event-Enablement Add-on (ASAPIO)



SAP Event Enablement Add-on (ASAPIO)

Add-on to SAP ECC and SAP S/4HANA systems

Allows to create custom events

Both low code/no code and pro-code approach can be followed

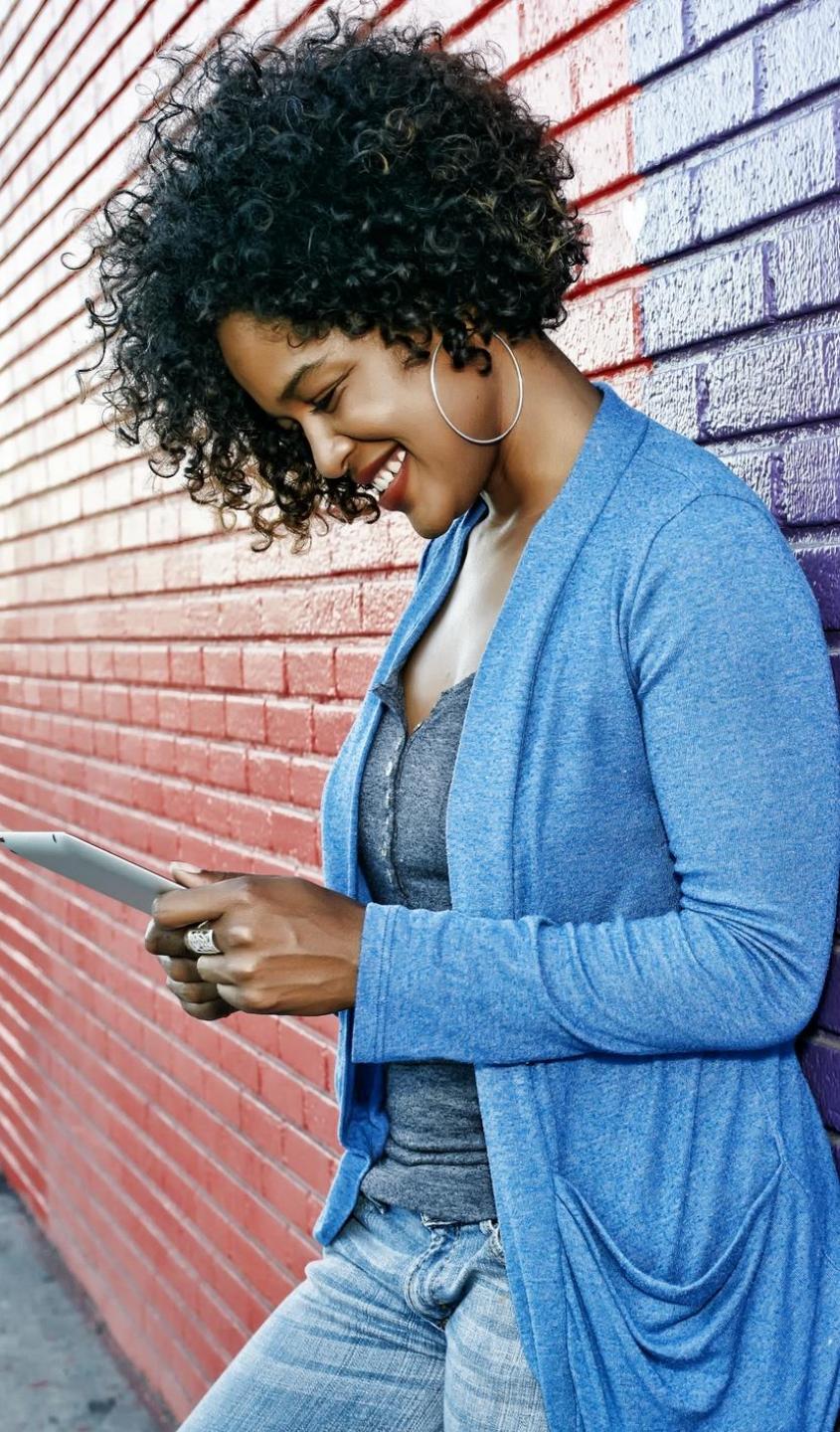
Features include:

- event based triggers
- Events come in CloudEvents format
- delta loads / change pointers
- Inbound and outbound events
- parallel data processing
- data splitting

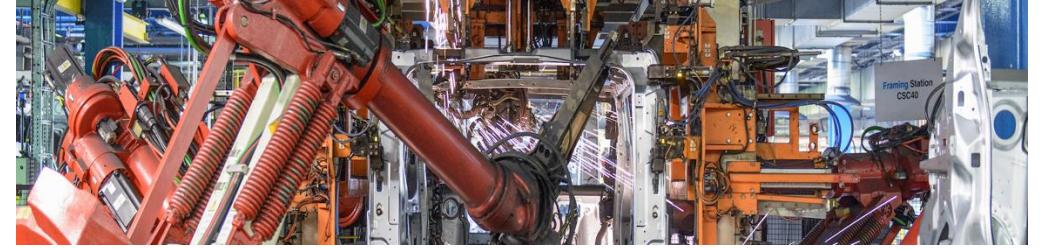
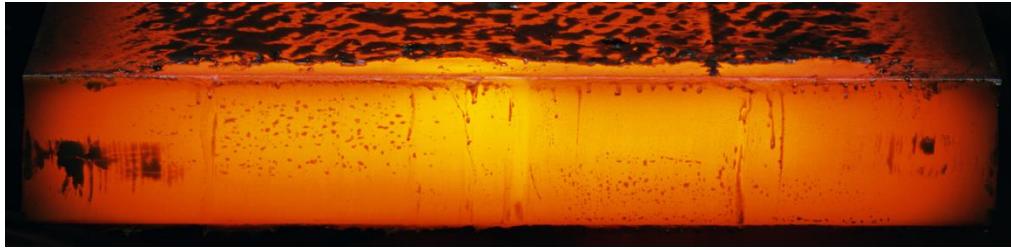


License and Commercials

- SAP NetWeaver Event-Enablement Add-On included with SAP Event Mesh. No additional license required.
- ASAPIO Partner add-on required for SAP Integration Suite, advanced events. Additional paid partner license for the add-on is required.



Event Origins & Creation Process



From What can Events be Created?

SAP Business Objects

IDoc Interfaces

BAPI/RFC Function Module Interfaces

How does the creation work?

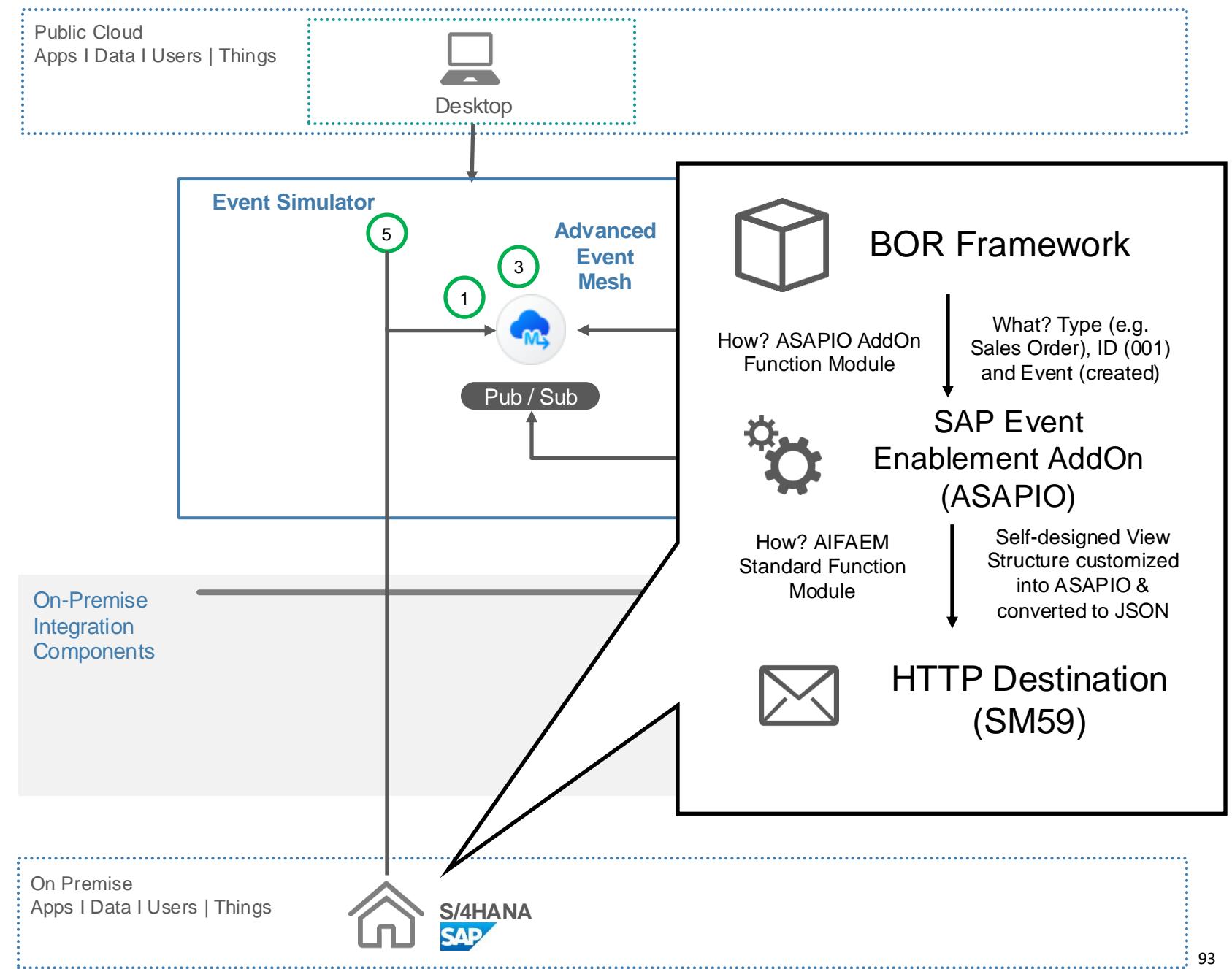
General Event Creation Process fully **configuration based** and requires no coding

Coding possible for advanced features

Exercise Flow

Digital Integration Hub

Day 5 - ASAPIO



Day 5 – Expected Result on Event Publisher

Change of SalesOrder (VA02)

Change Standard Order 12: Overview

Standard Order 12 Net Value 798,00 EUR

Sold-to Party 21 Company STEFAN TEST1, Test Street 42, 69191 Walldorf, Germany

Ship-to Party 21 Company STEFAN TEST1, Test Street 42, 69191 Walldorf, Germany

Cust. Reference 2021-10-30-0011 Cust. Ref. Date

Sales Item Overview Item detail Ordering party Procurement Shipping Reason for rejection

Req. Deliv.Date 02.11.2021 Deliver.Plant

Complete Deliv. Total Weight 400 KG

Delivery Block Change in quantity Volume 0,000

Billing Block Pricing Date 21.09.2023

Pyt Terms 0002 14 days 2%, 30 net

Inco. Version

Incoterms CFR

Inc. Location1 Walldorf

All Items

Item	Material	Req. Segment	Order Quantity	Unit
10MOE-BIKE-01			1 EA	
20MOE-BIKE-02			1 EA	
30MOE-BIKE-01			1 EA	
40MOE-BIKE-02			1 EA	

ASAPIO Monitoring (/N/ASADEV/ACI_MONITOR)

ACI Monitor

O/I Cloud Instance N...	Replication Object	Timestamp	Cloud Response C...	Cloud Response	Varia...	User	Bytes Data preparation ...	Cloud call ti...	Data processing t...
	SAP_AEM_POC	12.09.2024 14:44:03	200 OK	Connection is absent	SAP_WFR...	0	00:00:00	00:00:00	
	SAP_AEM_POC	12.09.2024 14:44:03	200 OK	Connection is absent	SAP_WFR...	0	00:00:00	00:00:00	
	SAP_AEM_POC	12.09.2024 14:43:21	200 OK	Connection is absent	SAP_WFR...	0	00:00:00	00:00:00	
	SAP_AEM_POC	12.09.2024 14:43:21	200 OK	Connection is absent	SAP_WFR...	0	00:00:00	00:00:00	
	SAP_AEM_POC	12.09.2024 14:42:55	200 OK	Connection is absent	SAP_WFR...	0	00:00:00	00:00:00	
	SAP_AEM_POC	12.09.2024 14:42:54	200 OK	Connection is absent	SAP_WFR...	0	00:00:00	00:00:00	
	SAP_AEM_POC	12.09.2024 14:41:51	200 OK	Connection is absent	SAP_WFR...	0	00:00:01	00:00:00	
	SAP_AEM_POC	12.09.2024 14:41:50	200 OK	Connection is absent	SAP_WFR...	0	00:00:01	00:00:00	

Traces Application Log Change Pointers All unprocessed Change Pointers

Request Download Response Download

```
{ "orderHeader": [ { "salesOrderNumber": "12", "creator": "D030427", "date": "2021-10-30", "salesType": "C", "ordertype": "OR", "salesOrg": "0001", "distributionChannel": "01", "division": "01", "customer": [ { "customerId": "21" } ] } ] }
```

```
HTTP/1.1 200 OK
cache-control: no-cache
content-length: 0
set-cookie: TSID=87823b5f0331cf2d; Path=/; HttpOnly
solace-client-name: #rest-87823b5f0331cf2d
```

Day 5 – Expected Result on AEM

TryMe – Functionality on AEM

Subscriber

noun / ➤

Suggestions
flight / > flight / boarding / * / yow / > flight / * / * / yow / >

Topic Subscriber
[empty input field]

Subscribe

Subscribed Topics
sap.com/> X

Bind to an endpoint to receive guaranteed messages ➤

Messages (Most Recent 20)
10 Direct 0 Persistent 0 Non-Persistent

Clear Stats Clear Messages

2024-09-12 14:48:01:007 [Topic sap.com/salesorder/change/V1/0001/01/01/12] X

Delivery Mode: Direct

```
{"orderHeader": [{"salesOrderNumber": "12", "creator": "D030427", "date": "2021-10-30", "salesType": "O", "ordertype": "OR", "salesOrg": "0001", "distributionChannel": "01", "division": "01", "customer": [{"customerId": "21", "customerName": "STEFAN TEST1", "zipCode": "69191", "street": "Test Street 42", "phone": "", "country": "DE", "city": "Walldorf"}], "orderItem": [{"item": "000010", "material": "MOE-BIKE-01", "materialType": "", "itemType": "", "orderSchedule": [{"scheduleNumber": "0001", "quantity": 1.000, "uom": "EA"}]}, {"item": "000020", "material": "MOE-BIKE-02", "materialType": "", "itemType": "", "orderSchedule": [{"scheduleNumber": "0001", "quantity": 0.000, "uom": "EA"}, {"scheduleNumber": "0002", "quantity": 1.000, "uom": "EA"}]}, {"item": "000030", "material": "MOE-BIKE-01", "materialType": "", "itemType": "", "orderSchedule": [{"scheduleNumber": "0001", "quantity": 0.000, "uom": "EA"}, {"scheduleNumber": "0002", "quantity": 1.000, "uom": "EA"}]}, {"item": "000040", "material": "MOE-BIKE-02", "materialType": "", "itemType": "", "orderSchedule": [{"scheduleNumber": "0001", "quantity": 0.000, "uom": "EA"}, {"scheduleNumber": "0002", "quantity": 1.000, "uom": "EA"}]}]}
```

Day 5 – AIF: Expected Result on Dashboard

The dashboard is titled "Velocity Ventures - Your Premier Bike Experience". It features a "Connected!" status bar at the top right. Below the title, there are three main cards:

- Sales Organization All**: Real Time Sales Orders. This card lists five sales orders with details like Price, Shipping Method, and Item Name. An "All" dropdown menu is present.
- Dead Message Queue**: Real Time. This card is currently empty.
- Workflow Approvals**: Approved Workflow Items. This card also displays a message: "No items available".

A central modal window titled "Sales Order Customer Details" is open, showing the customer information for Sales Order SO1006:

Customer Name:	Street:
STEFAN TEST1	Test Street 42
Customer ID:	City:
21	Walldorf
Date:	Country:
1/1/1970	DE
Phone:	Zipcode:
	69191

Learn more!



Blogs Getting You Started



[SAP's Event-Driven Ecosystem](#)



[Introducing Advanced Event Mesh](#)



[SAP S/4HANA integration with AEM](#)



Technical Resources



[Discovery Center](#)



[Road map](#)



[Documentation](#)



Learning Opportunities



[Embrace Event-Driven Architecture with SAP Integration Suite](#)



[TechEd: Deep dive into AEM](#)



[Devtoberfest: SAP S/4HANA and Advanced Event Mesh](#)