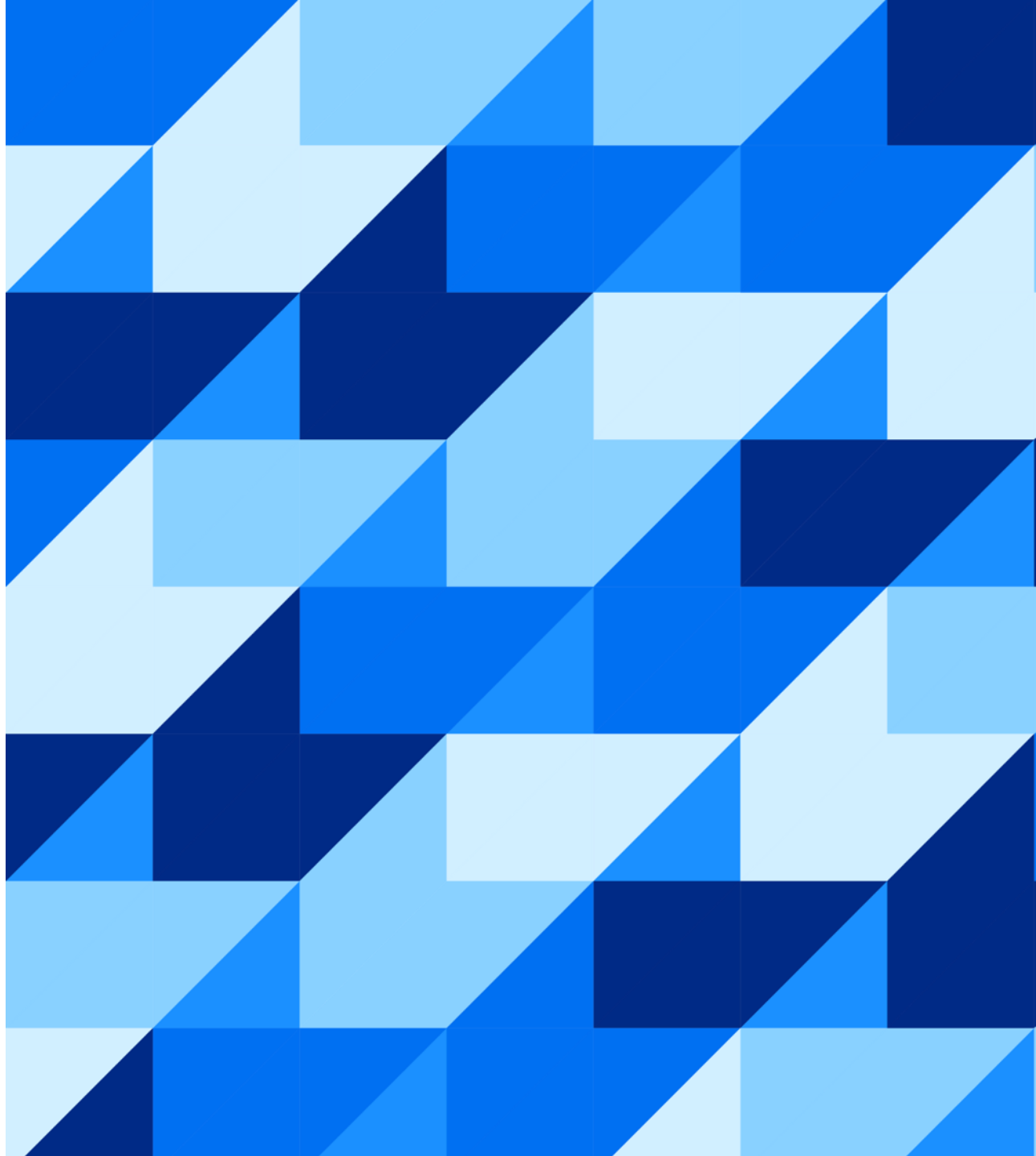
AEM- Raid Deployment Workshop

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)

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

Bootcamp Agenda

Invite

Day 1 (Basic)	Day 2 (S/4HANA)	Day 3 (Enhanced Integration)	Day 4 (Operations)	Day 5 (AIF & ASAPIO)

• When to use which SAP Broker?
• Events in context of S/4HANA
• Starting of AEM instances and Mesh Creation
• Simulator
	• Connect S/4HANA to SAP AEM
	• Configure Standard Event
	• Configure RAP Event
		• Connect AEM to SAP Integration Suite
		• Connect AEM to SAP Process Automation
			• Event Management
			  • Event Portal
			  • Approval
			• Event Insights
			  • Monitoring
			  • Distributed Tracing
			• AEM APIs
				• ECC Usage with AIF
				• ECC Usage with Asapio

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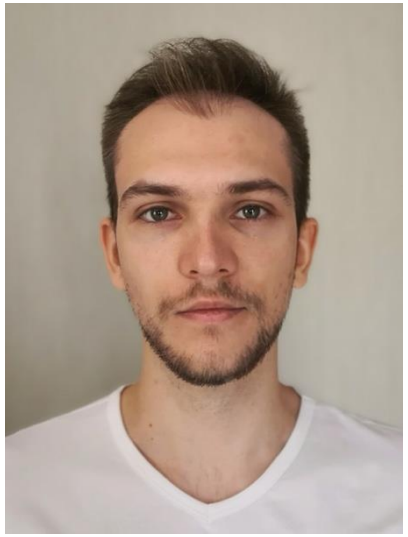
SAP TEAM

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

SAP ERP

Custom Only

- Custom events only using the event enablement add-on
- Ability to include notification events and data events
- Allowance for inbound and outbound events
- CloudEvents format

AIFAEM

Add-on

SAP S/4HANA Cloud

Standard and Custom

- Approximately 600 standard notification events documented on Business Accelerator Hub
- Events based on the ABAP RESTful application programming model
- Adjustable and extensible standard events
- Custom notification and data events
- Inbound and outbound

SAP S/4HANA

Standard and Custom

- Approximately 600 standard notification events documented on Business Accelerator Hub
- Events based on the ABAP RESTful application programming model
- Adjustable and extensible standard events
- Custom notification and data events
- Inbound and outbound
- Custom add-on events

AIFAEM

SAP SuccessFactors solutions

Standard

- Reuse of Intelligent service events
- Adjustable standard events
- Both notification and data events
- No support for custom events
- Support for JSON and SOAP formats, CloudEvents format planned for future releases

SAP Integration Suite, advanced event mesh

SAP Event Mesh

SAP Integration Suite

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	▪ Message size up to 1 MB ▪ 10 GB of storage ▪ Guaranteed throughput of 250 KBps	▪ 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	▪ Facilitated connectivity to selected SAP software back ends ▪ Integration into SAP services and solutions	▪ 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	• **600+ ready to use standard events** • Very high scale out • **Standard RAP Framework approach** • A lof of sophisticated features	• **Huge installed AIF base** • Great Monitoring Support • **Commercials**	• **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?

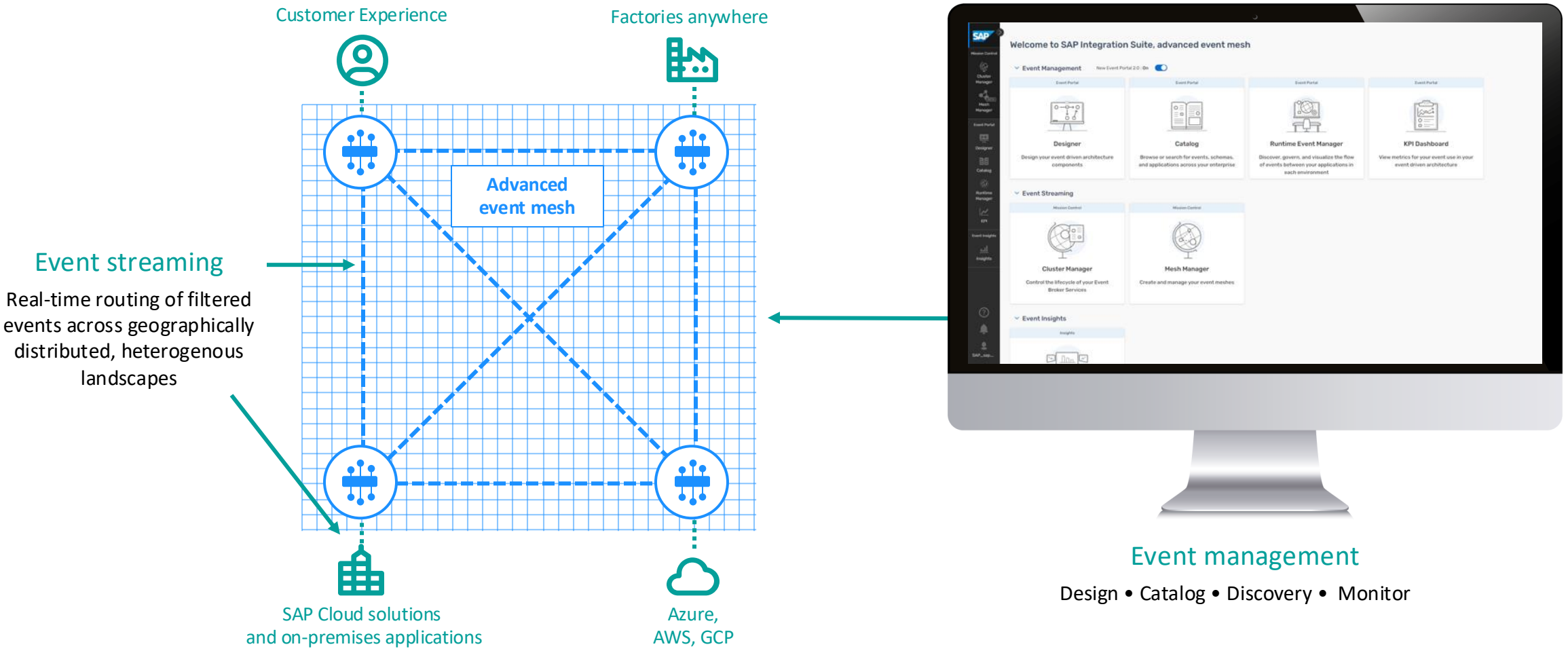
Am I ready?

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	✓

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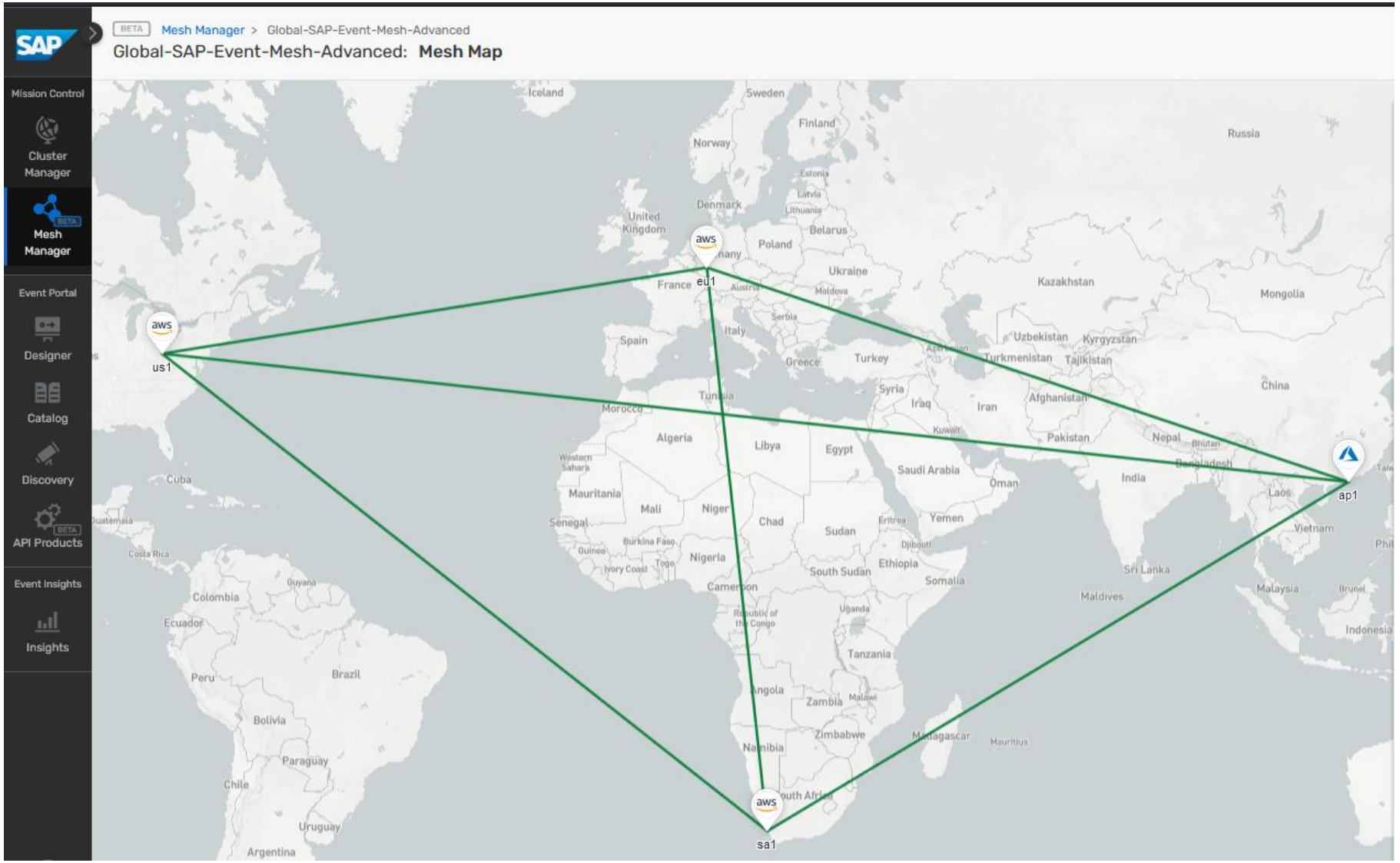
Broker T-Shirts Sizes

	Developer	Enterprise Services					
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)

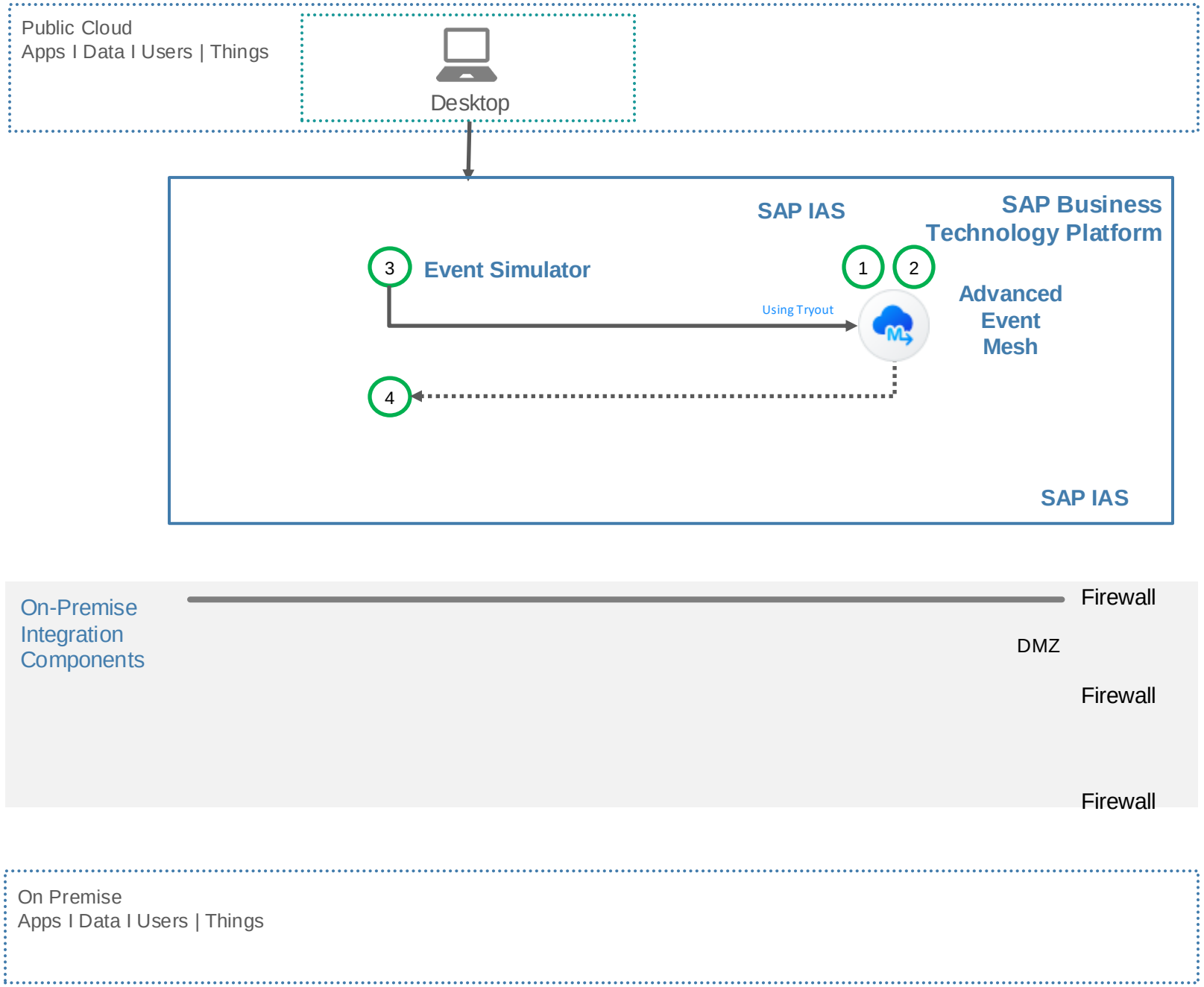
- aws eu1 — EU (Frankfurt)
- ap1 — East Asia (Hong Kong)
- aws sa1 — Africa (Cape Town)
- aws us1 — Ohio

Exercise Flow

Digital Integration Hub

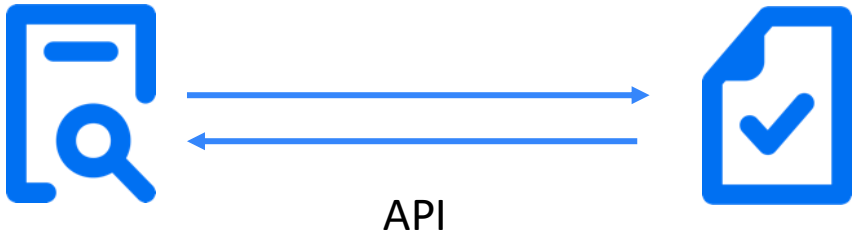
Day 1

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

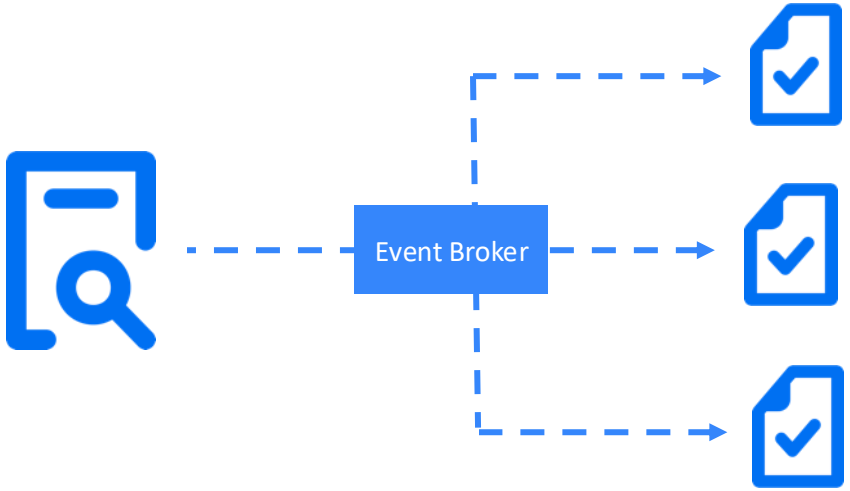


API Architecture vs. Event-Driven Architecture

API Architecture	Event-Driven Architecture (EDA)



Request and Reply Based
Synchronous



Push-Based
Asynchronous
Decoupled

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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

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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

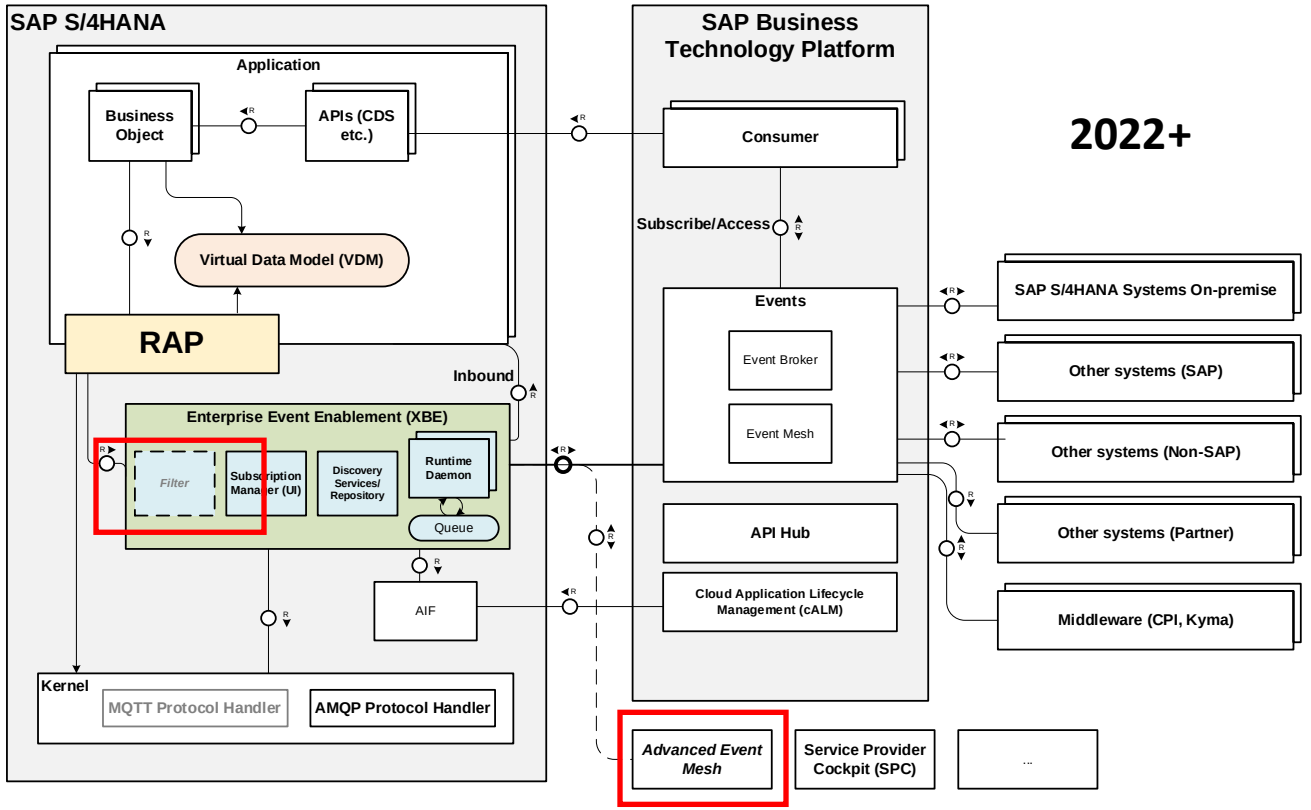
- S/4HANA Business Events
  - Standard Content
- Creating Custom Business Events
- Customizing and Consuming Business Events
  - Derived Events
  - Inbound Events

S/4HANA Business Events based on RAP

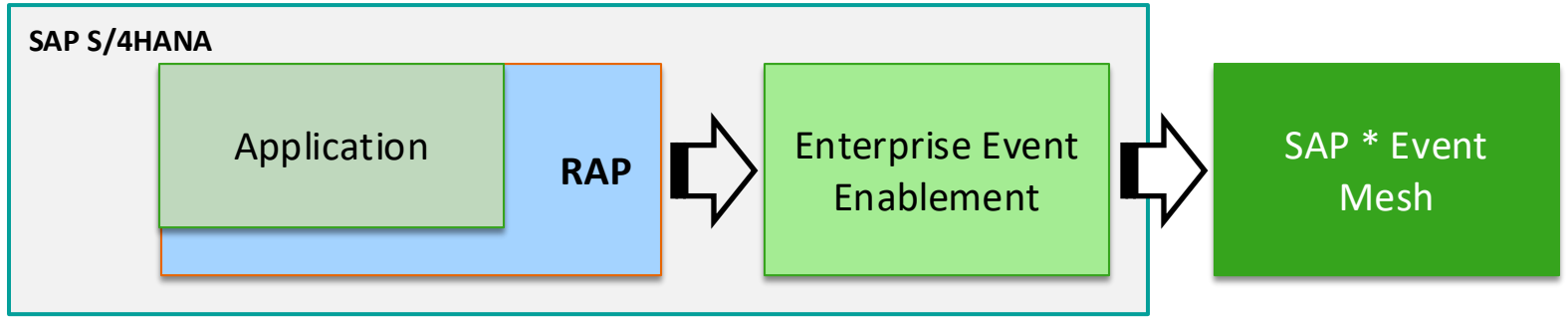
ABAP RESTful Application Programming Model (RAP) combines concepts, tools, languages, and powerful frameworks to build cloud-ready enterprise applications. RAP offers **standardized development flow** based on Core Data Services (CDS), ABAP, and business services in Eclipse-based ABAP Development Tools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

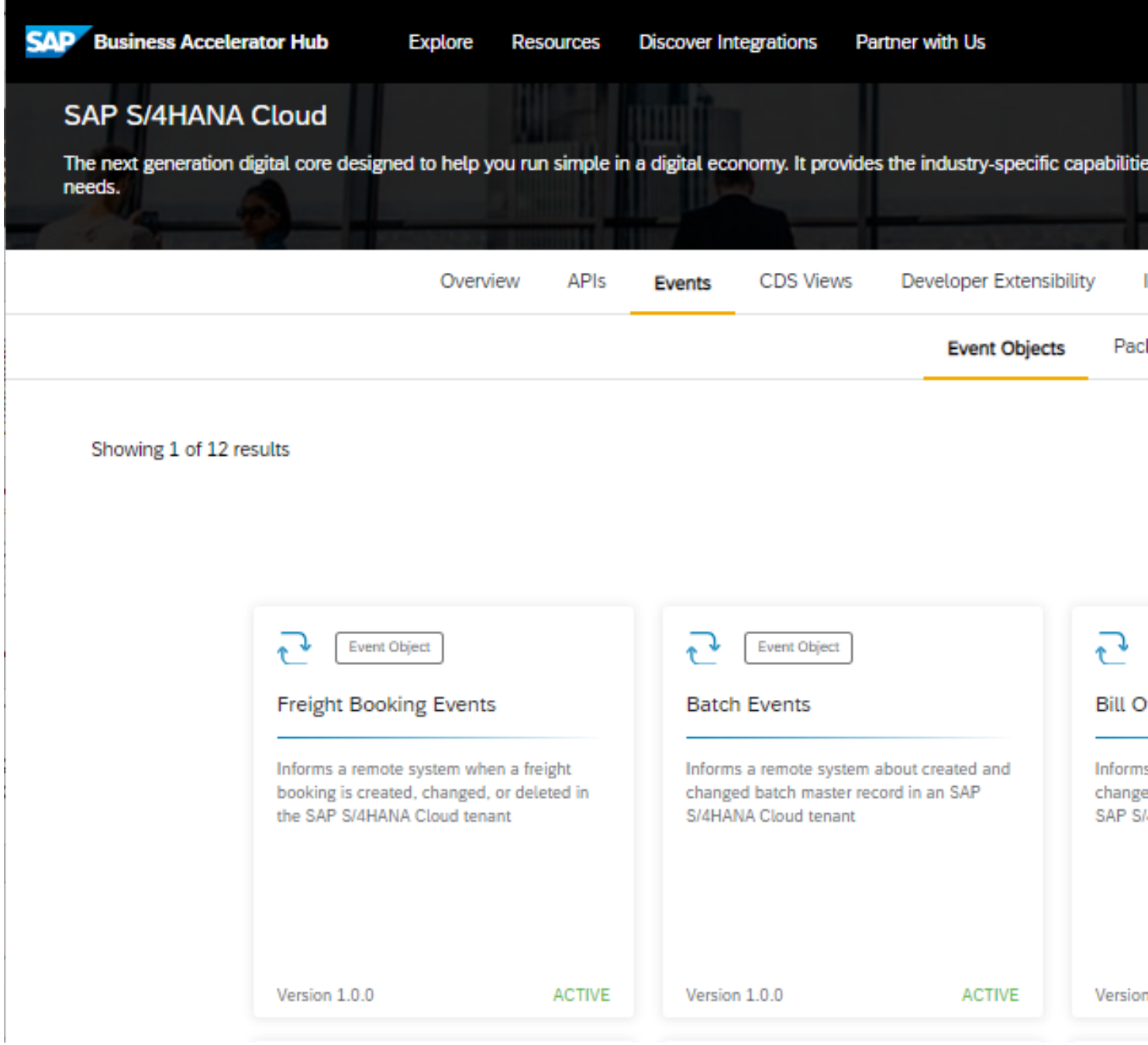
- Improved error handling through (enhanced) integration of Application Integration Framework (AIF)
- Performance: Parallelization
- Open Resource Discovery (ORD) – discoverability by (future) services
- Inbound Events

	RAP based Events
May 23	144
September 23	389

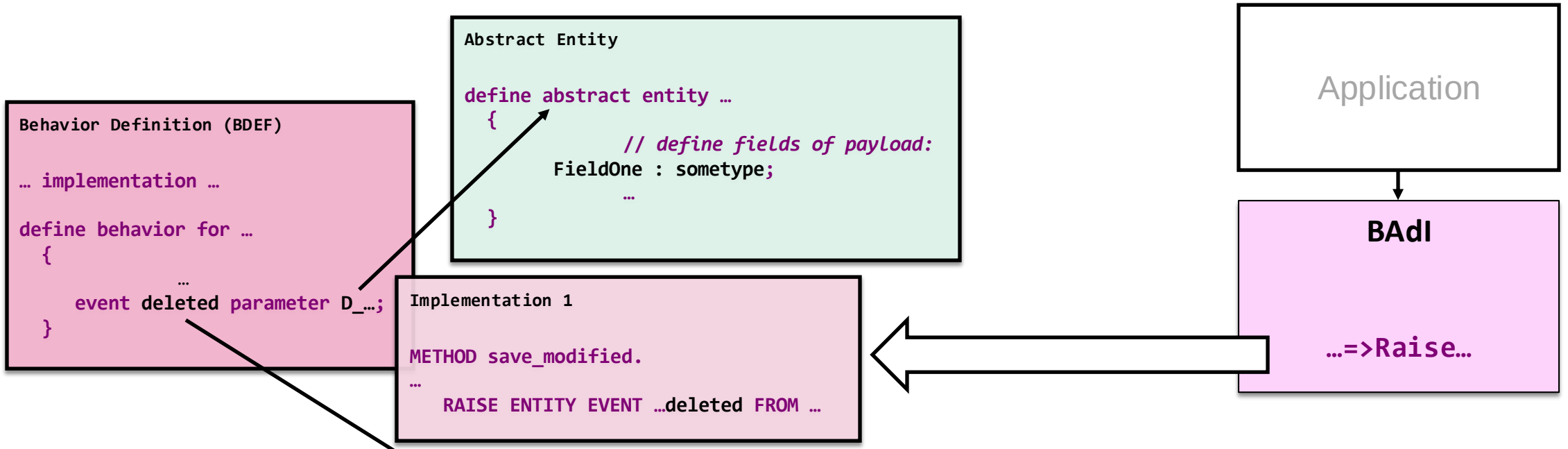
Standard Content on SAP Business Accelerator Hub

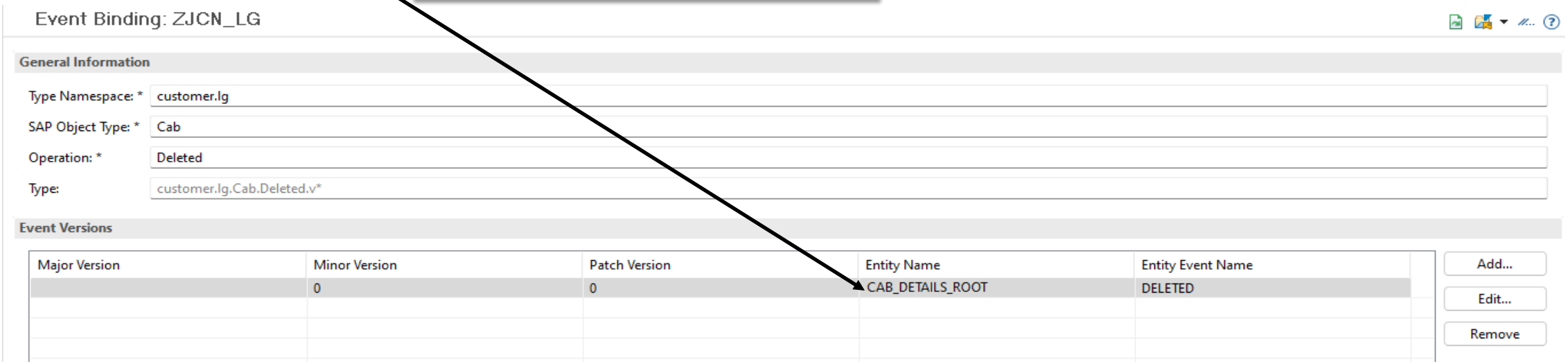
Currently (2402) released for public cloud: **139 objects with 538 events**

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



Custom Events





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

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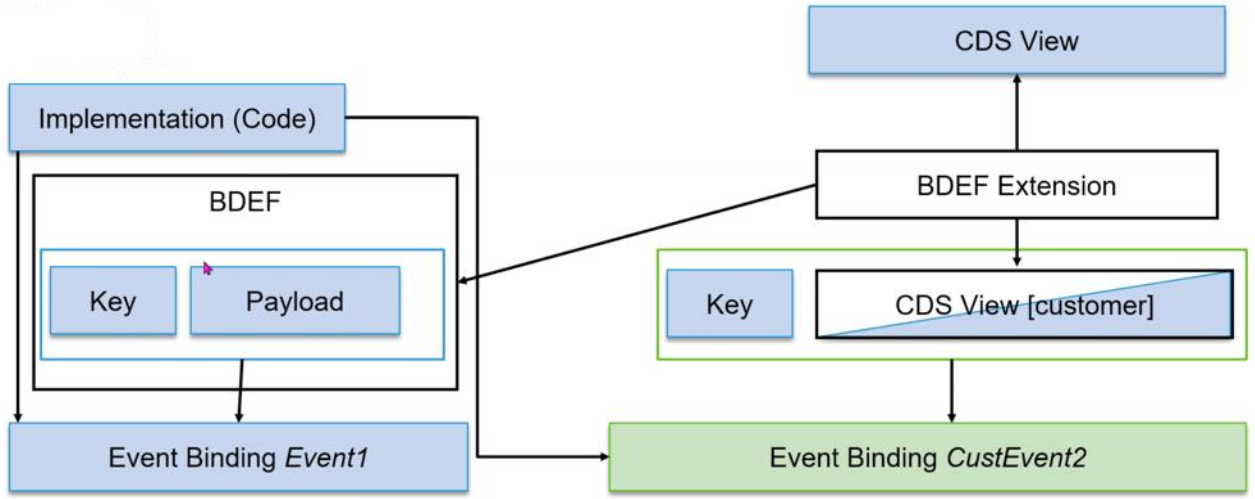
S/4HANA Business Events: Derived Events

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”



S/4HANA Business Events: Context Extensibility

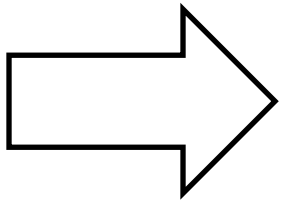
2023

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

Requires an extension of the **CDS view**, 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'
        Orderedlitem,
        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",
  "Orderedlitem":"Order 013",
  "Deliverydate":"2024-10-03"
 }
}
```

S/4HANA Business Events: Outbound Filtering

2023

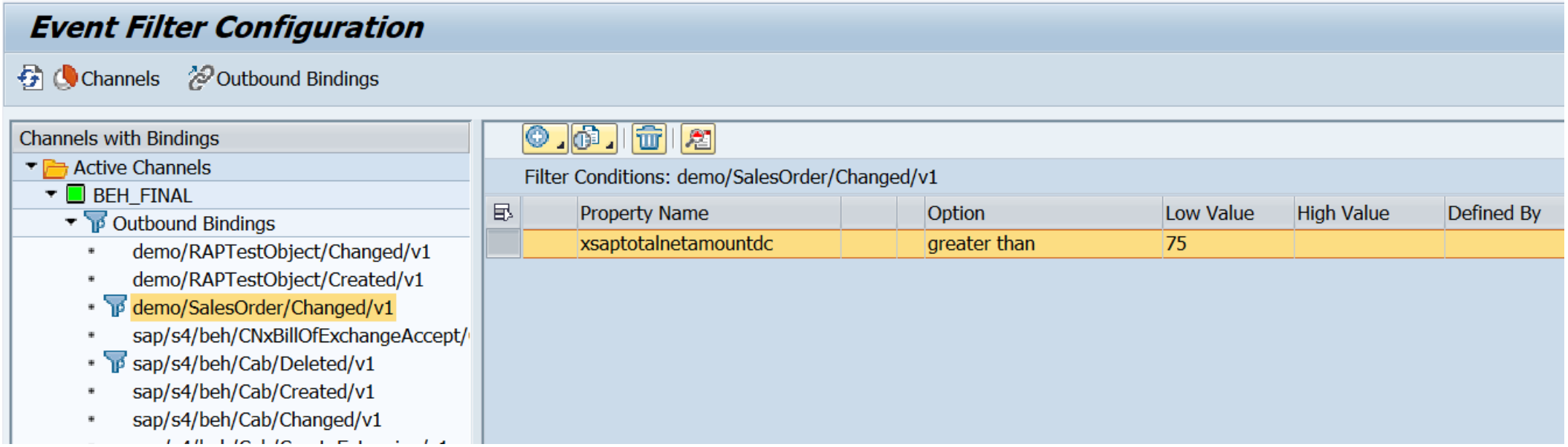
Send out only events that match “filter” (on source side)

Selection screen like conditions for “filter”

Channel-based

Condition based on **Context** attributes

Works with derived events



S/4HANA Business Events: Inbound Processing

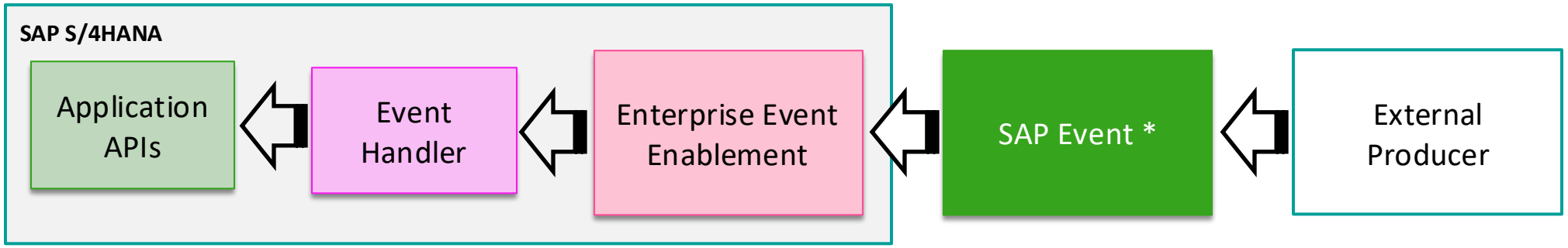
Inbound processing can be implemented using ABAP Cloud technology

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

Based on event definition (Async API)

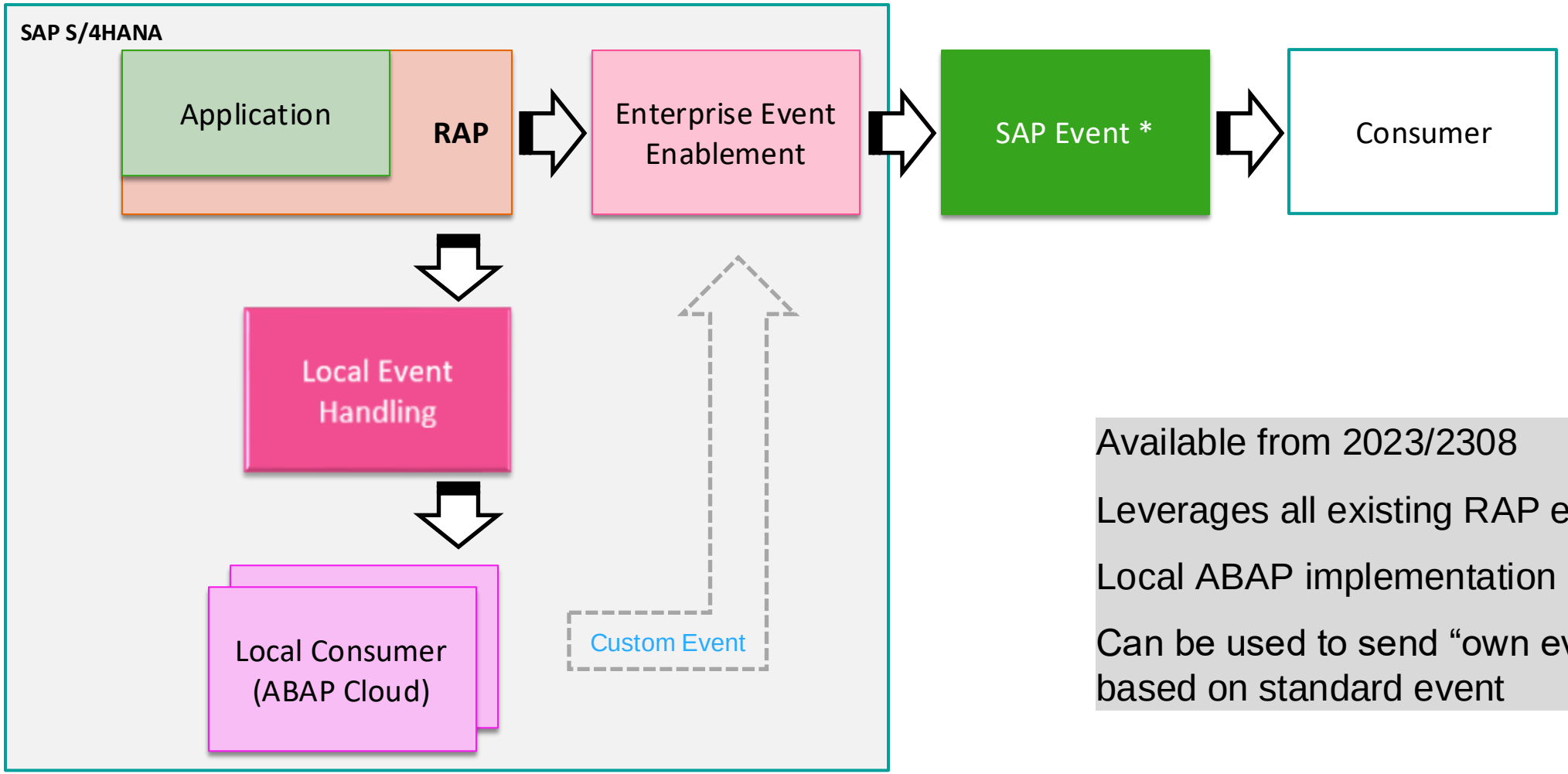
…

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



S/4HANA Business Events: Local Event Handling

2023



Available from 2023/2308

Leverages all existing RAP events

Local ABAP implementation

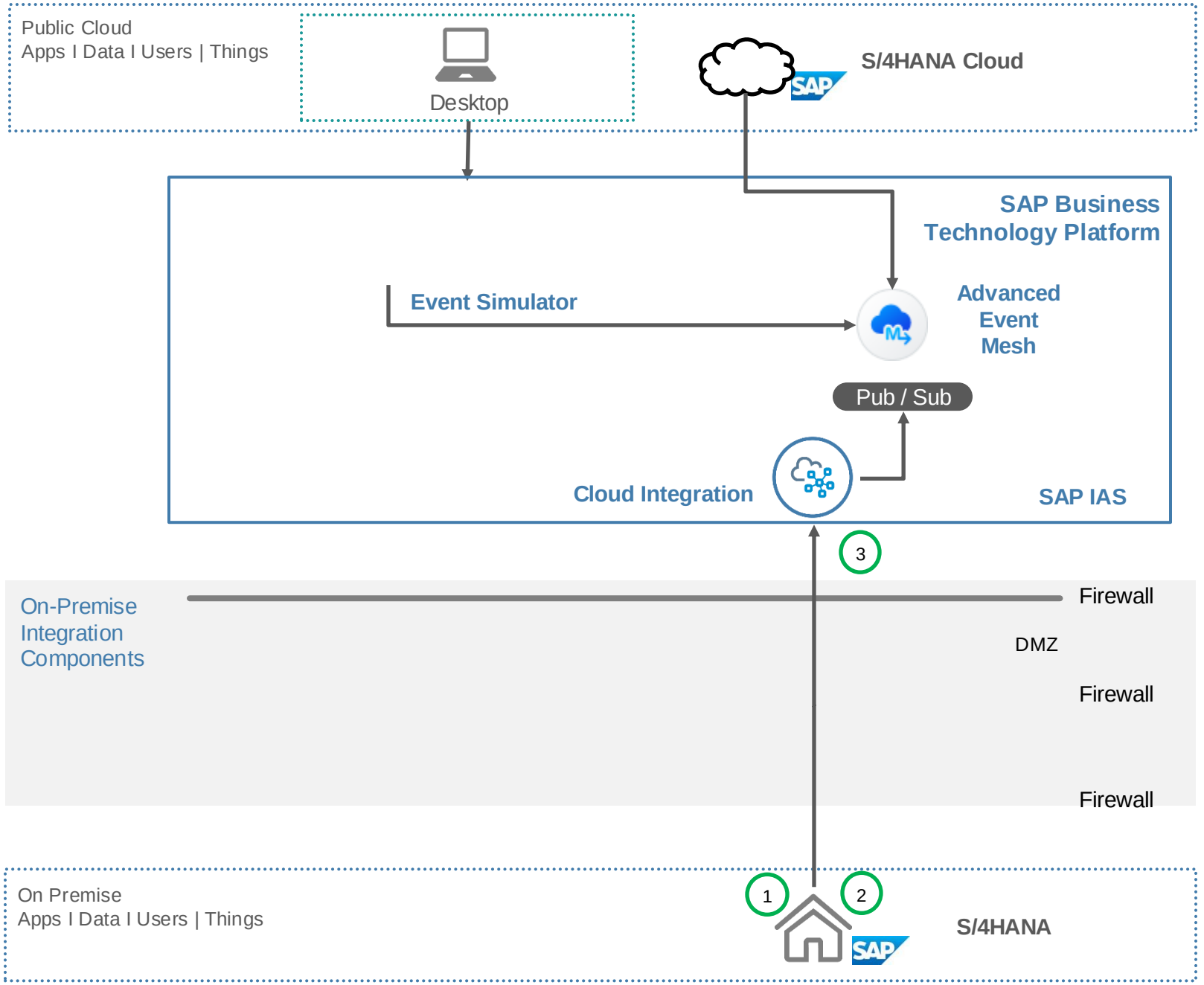
Can be used to send “own event” based on standard event

Exercise Flow

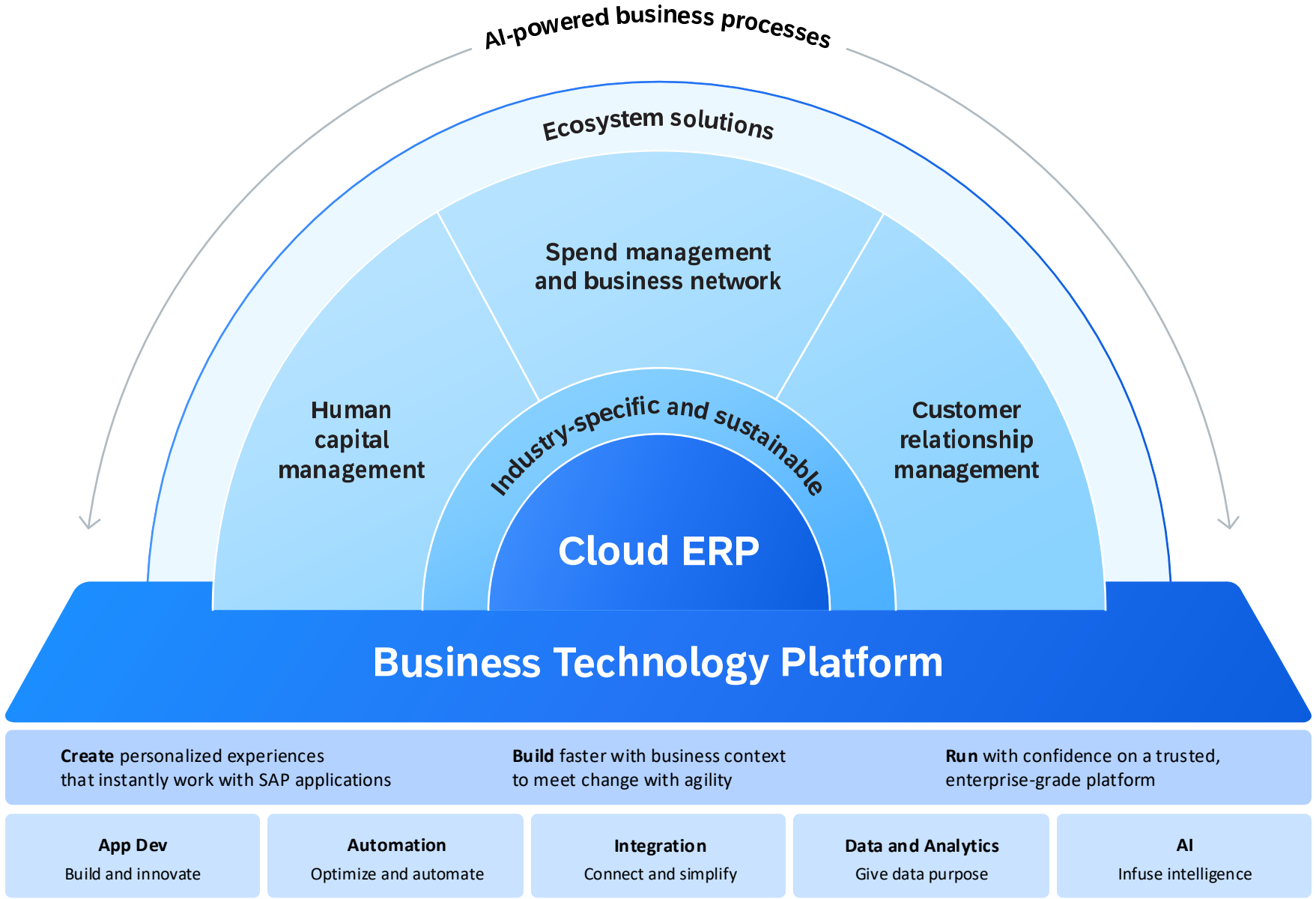
Digital Integration Hub

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



Customer & SAP Only

Goals

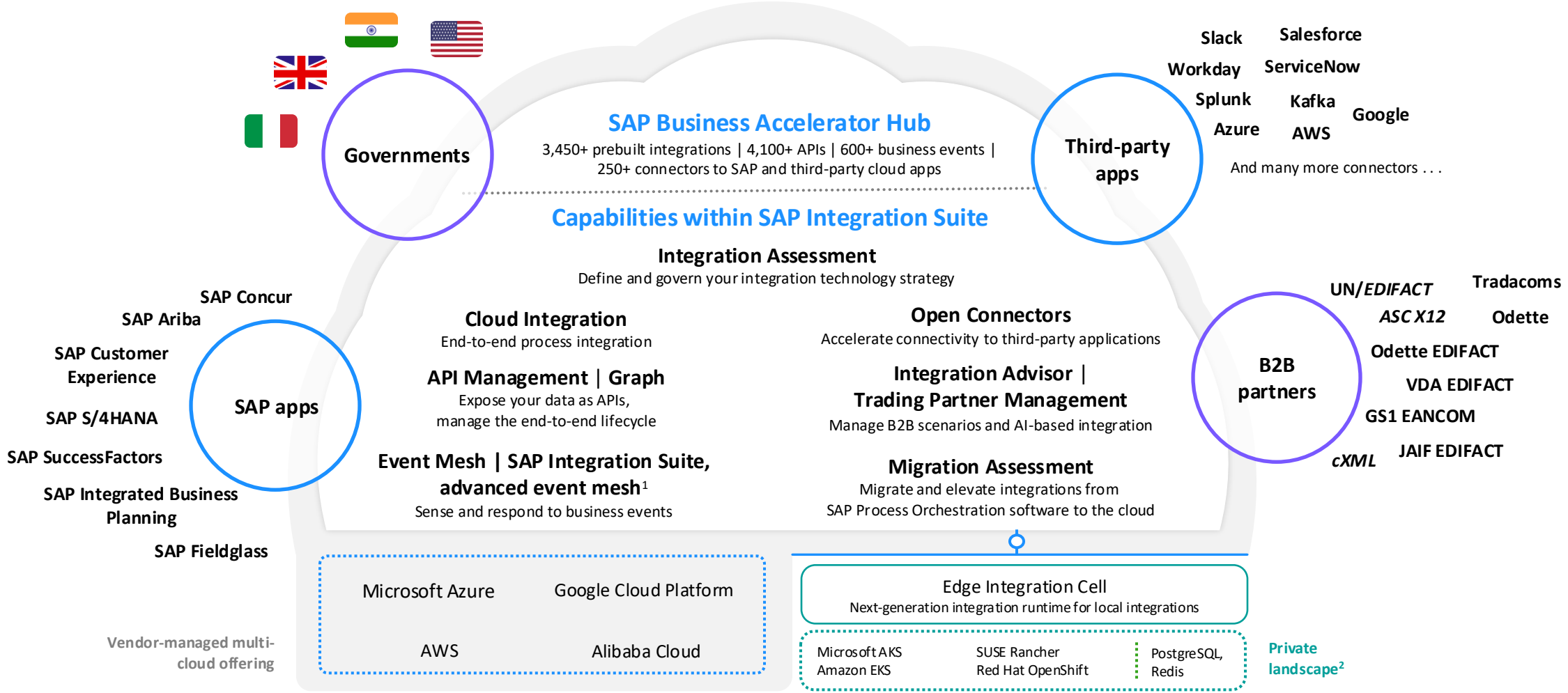
What you will learn/see today:

- ❑ 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

Customer & SAP Only

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

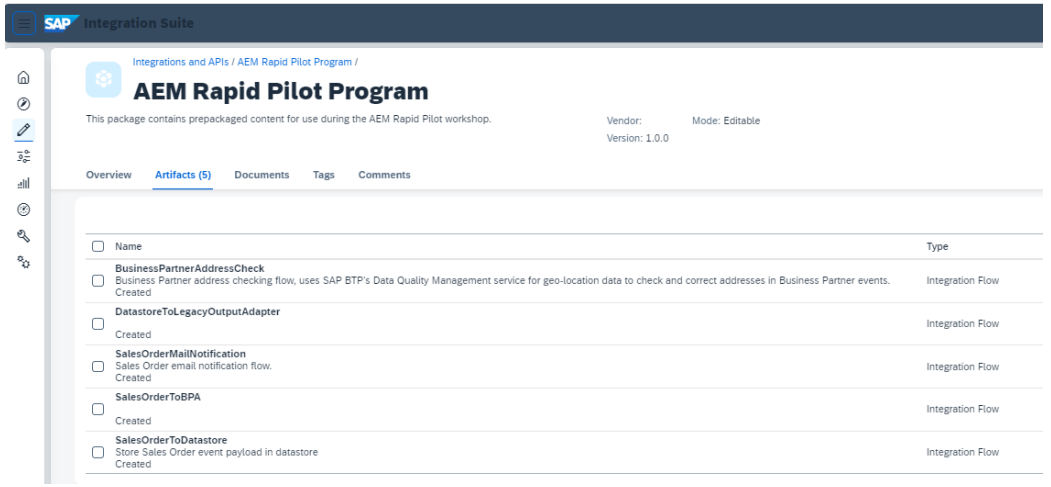
Customer & SAP Only

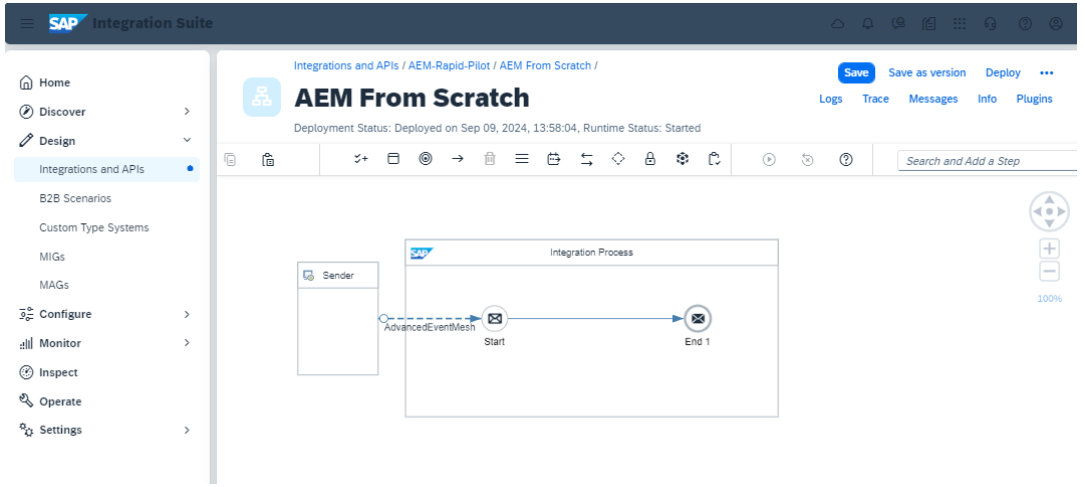
Scenario Cloud Integration

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

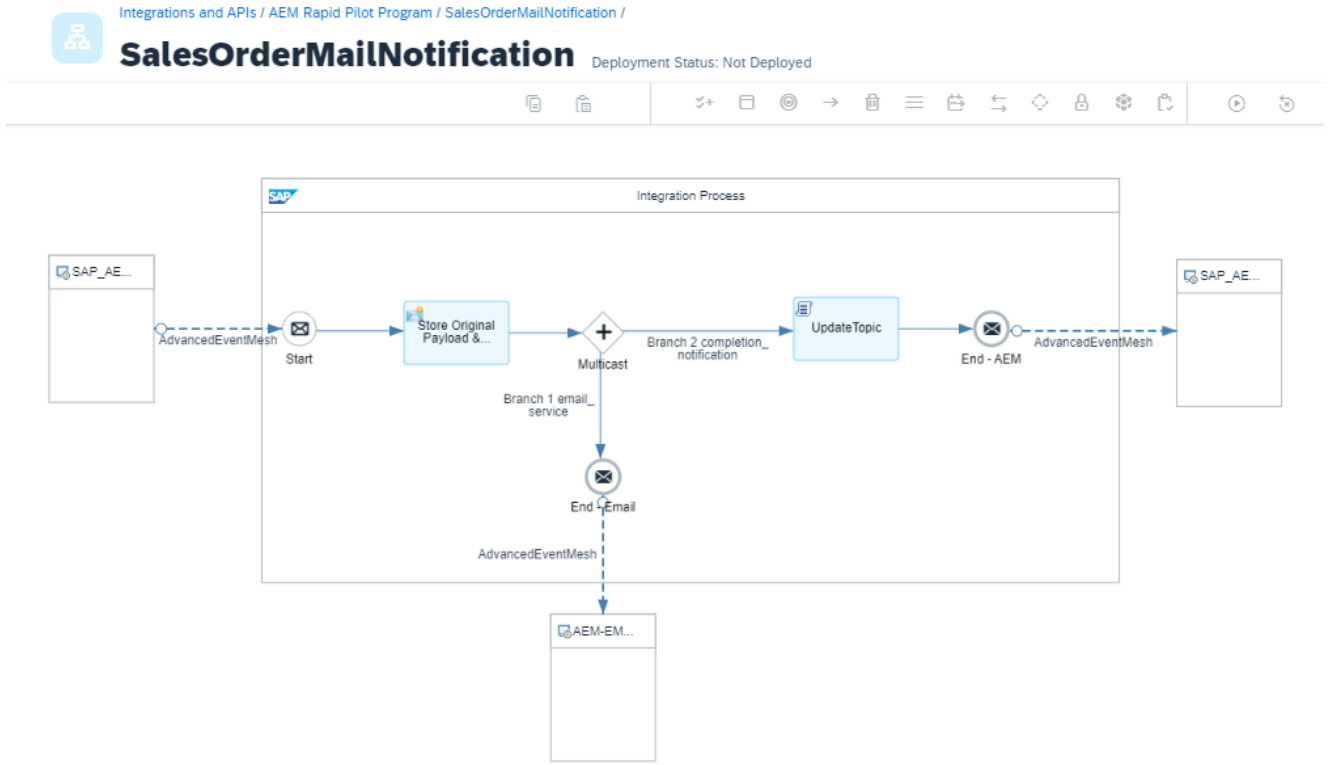




Scenario Cloud Integration

Mail Notification Flow

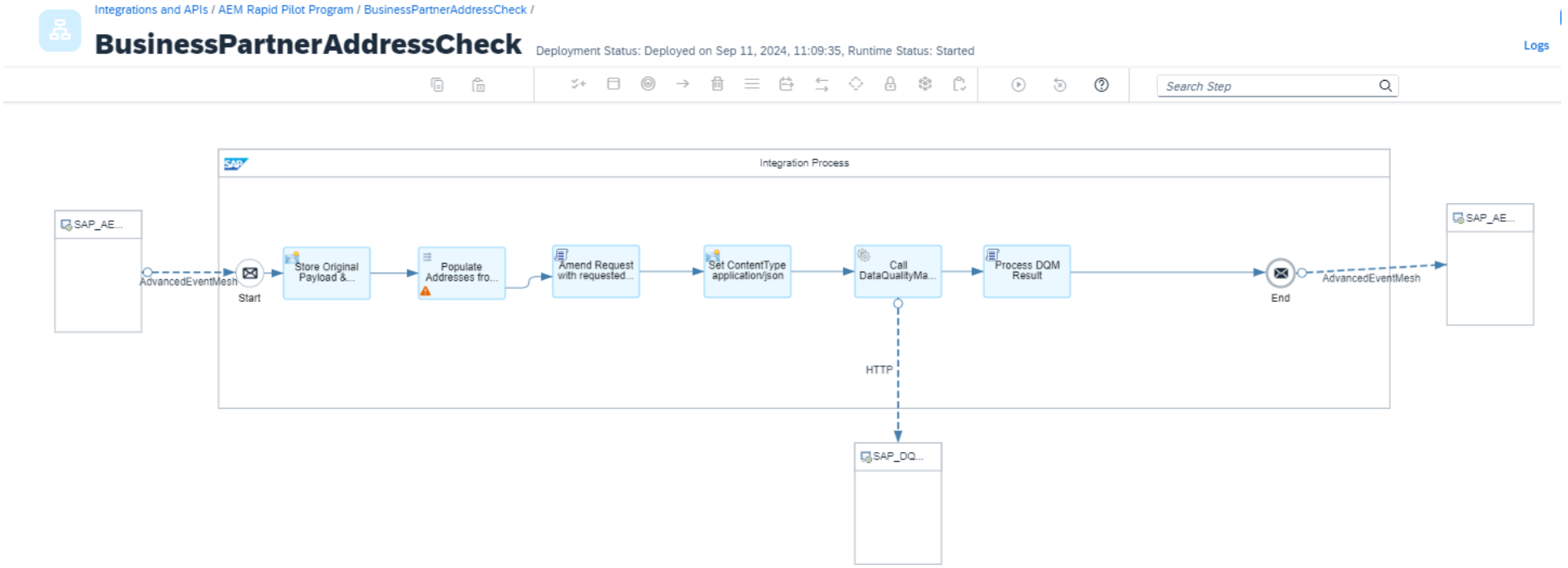
Connect your events to a basic notification service
via E-Mail



Scenario Cloud Integration

SAP Data Quality Management

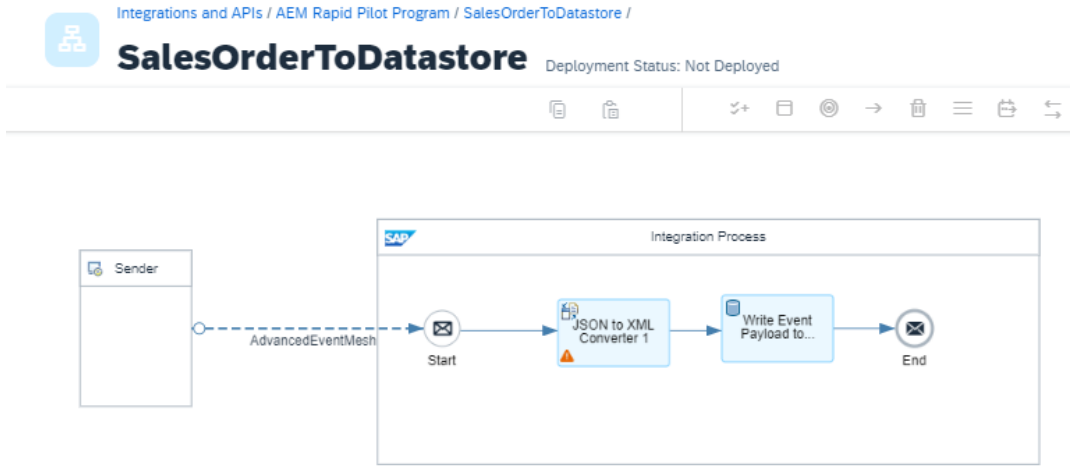
Integrate with SAP DQM to cleanse address data in BusinessPartner events

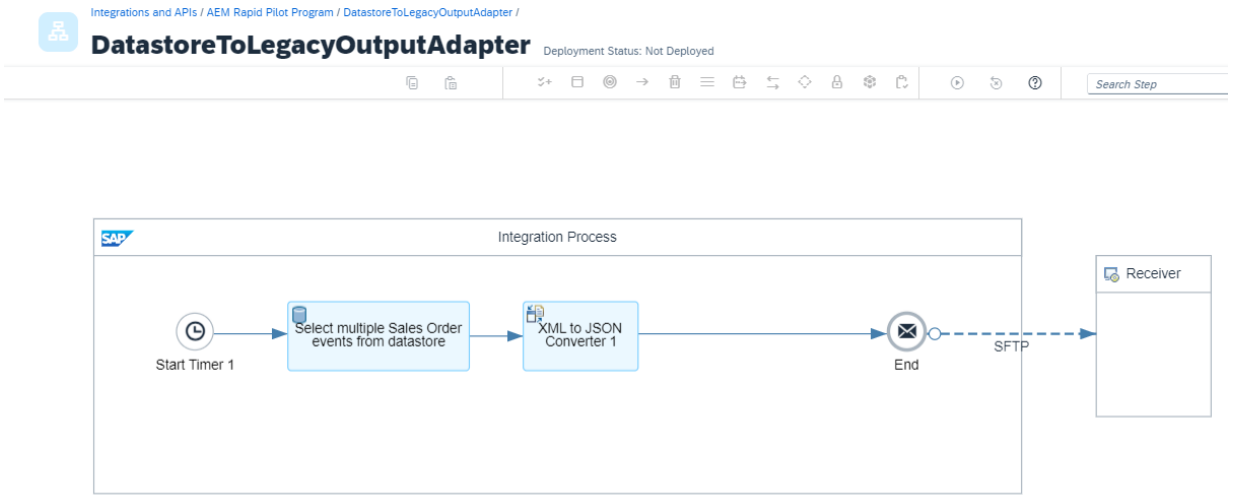


Scenario Cloud Integration

<u>File-based integration via SFTP</u>

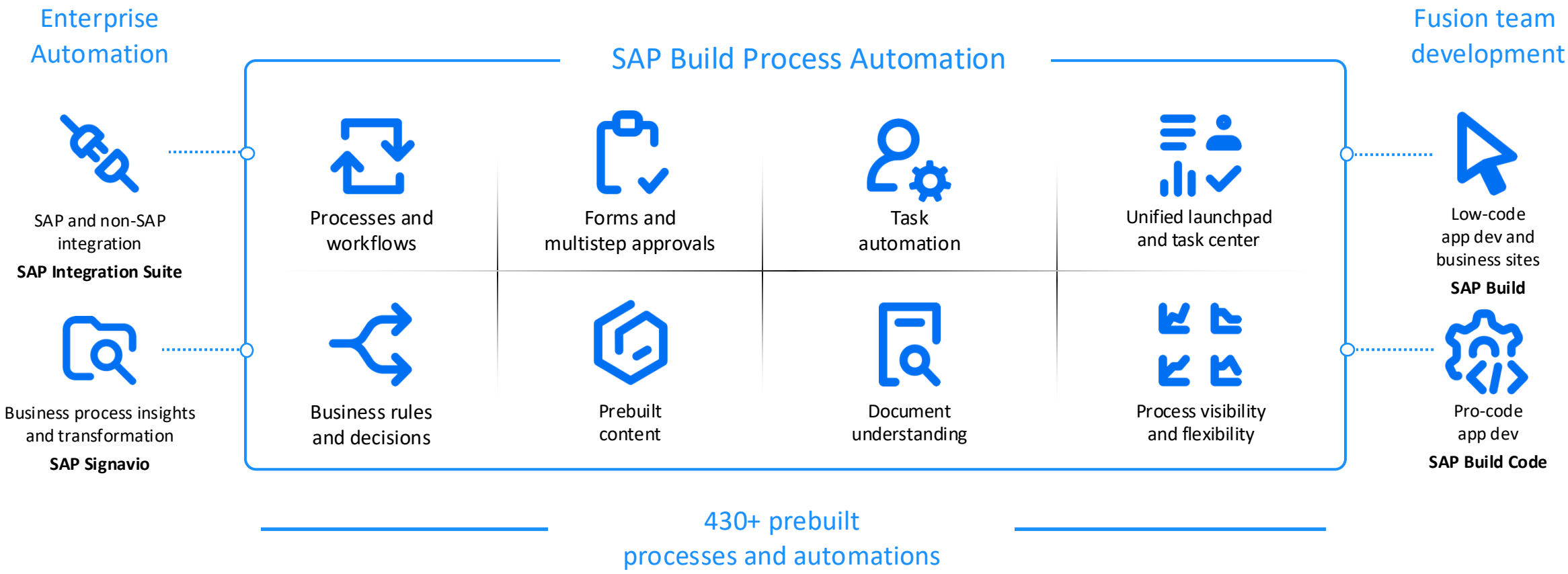
Leverage Integration Suite to enable legacy integrations by batching events in the Cloud Integration Data Store





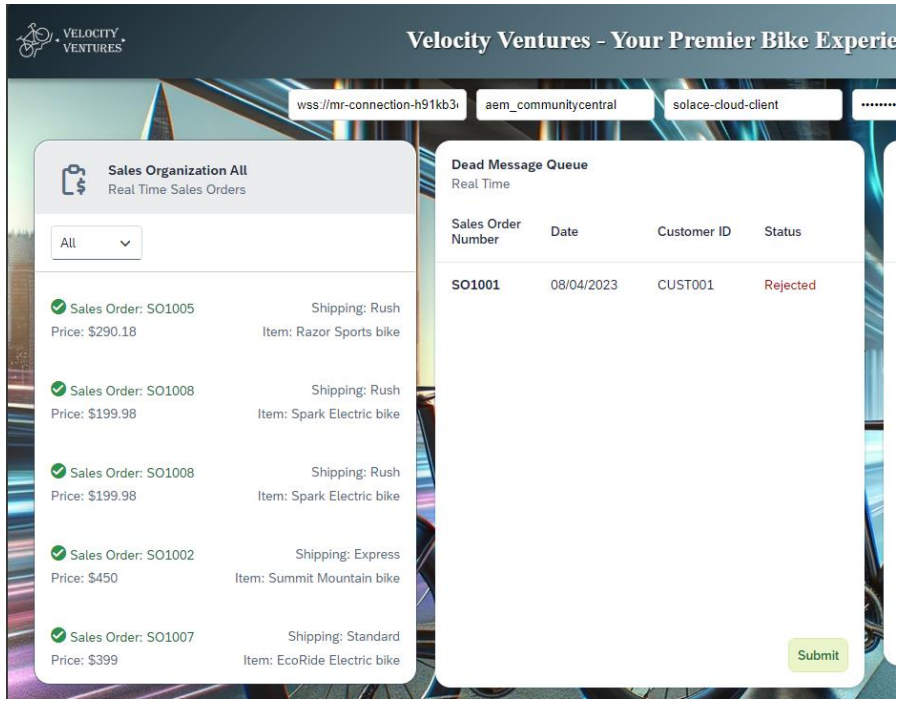
SAP Build Process Automation

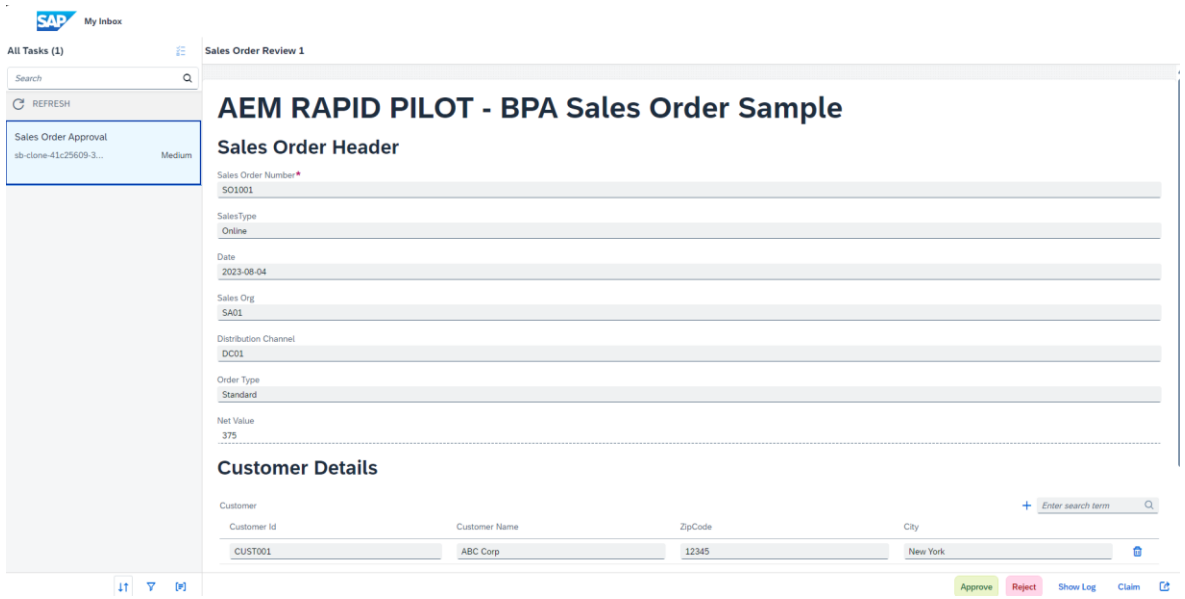
Automate processes and tasks with drag-and-drop-simplicity



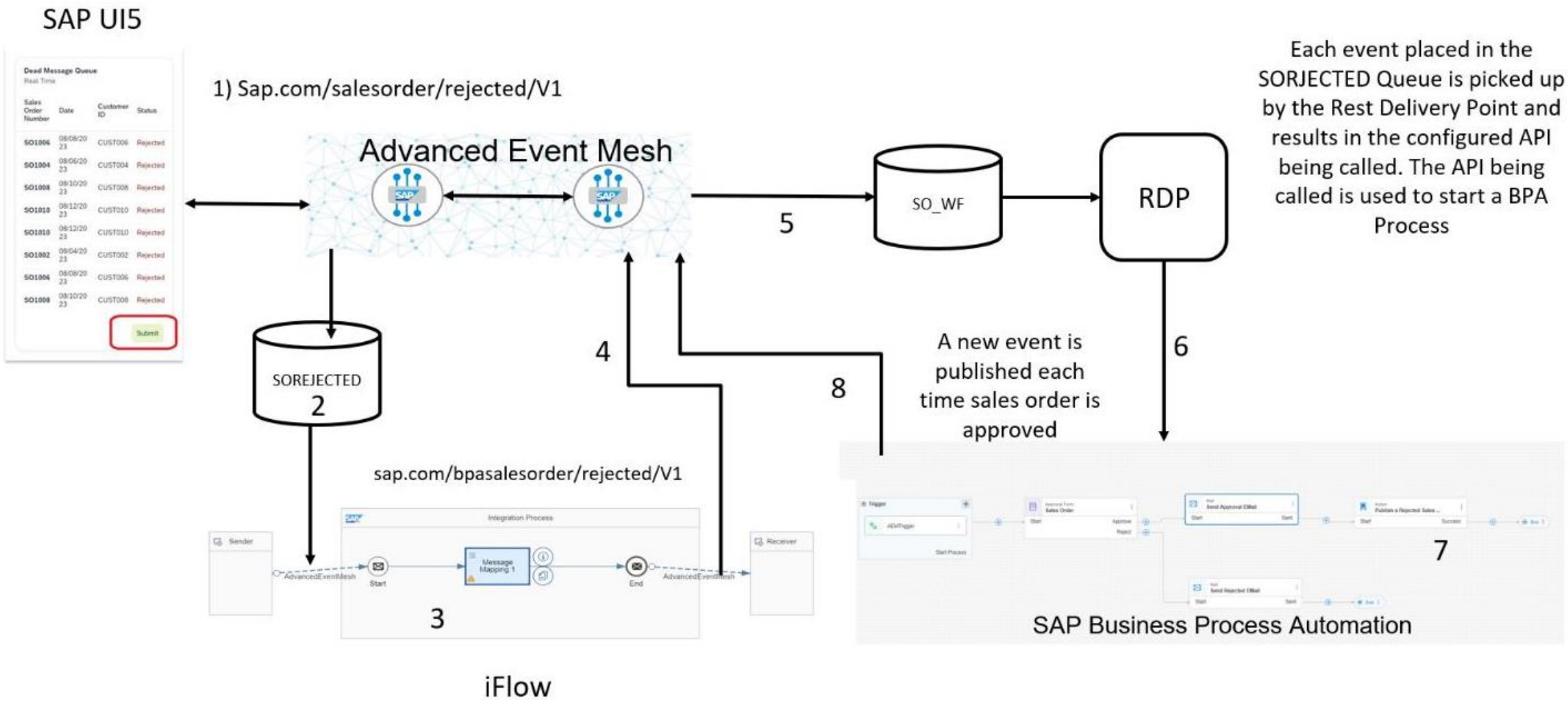
Scenario BPA

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





Scenario BPA

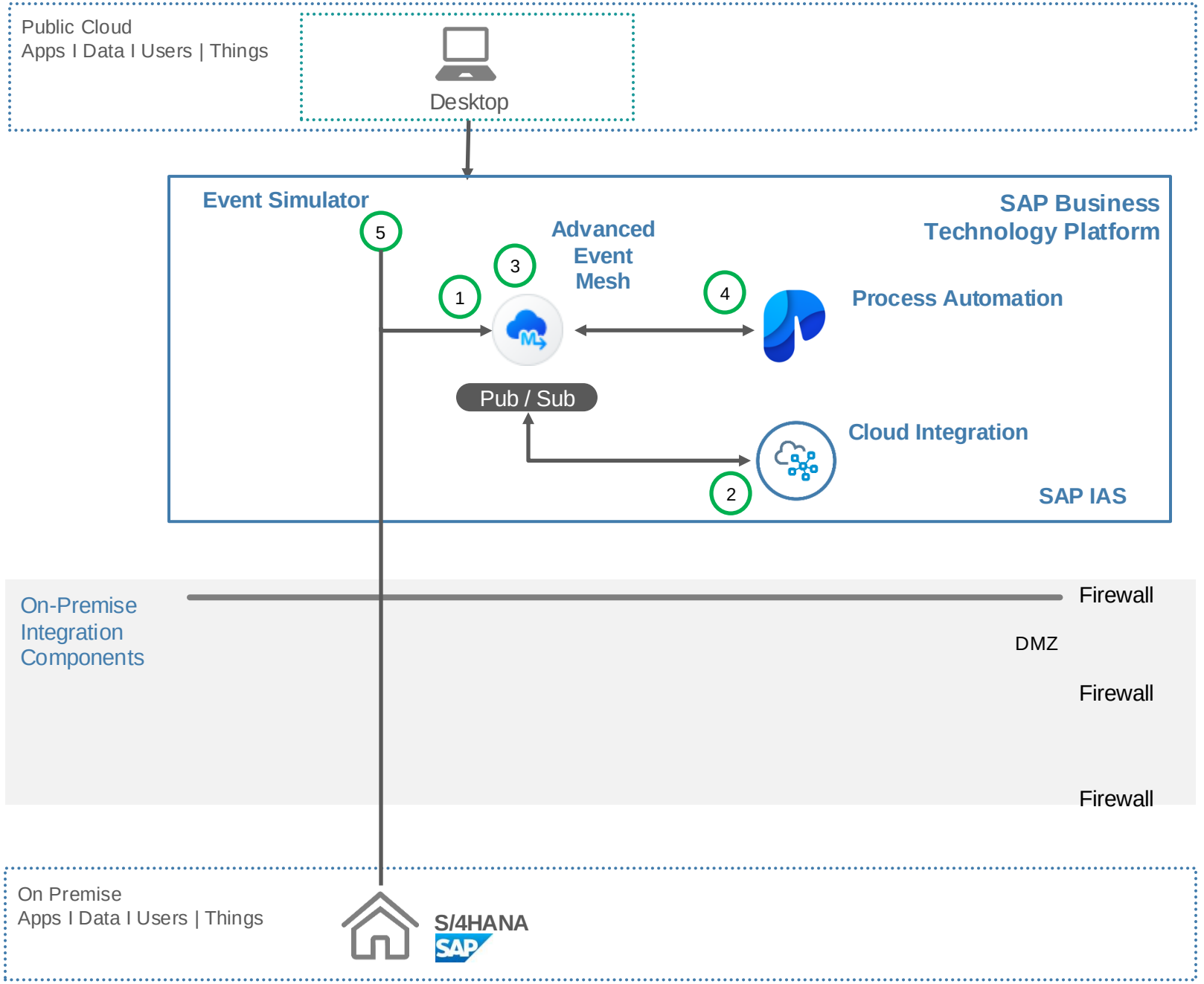


Exercise Flow

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



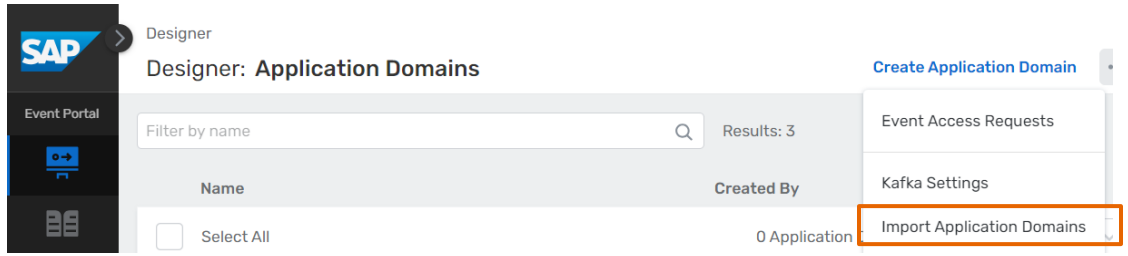
Day 4 - Agenda

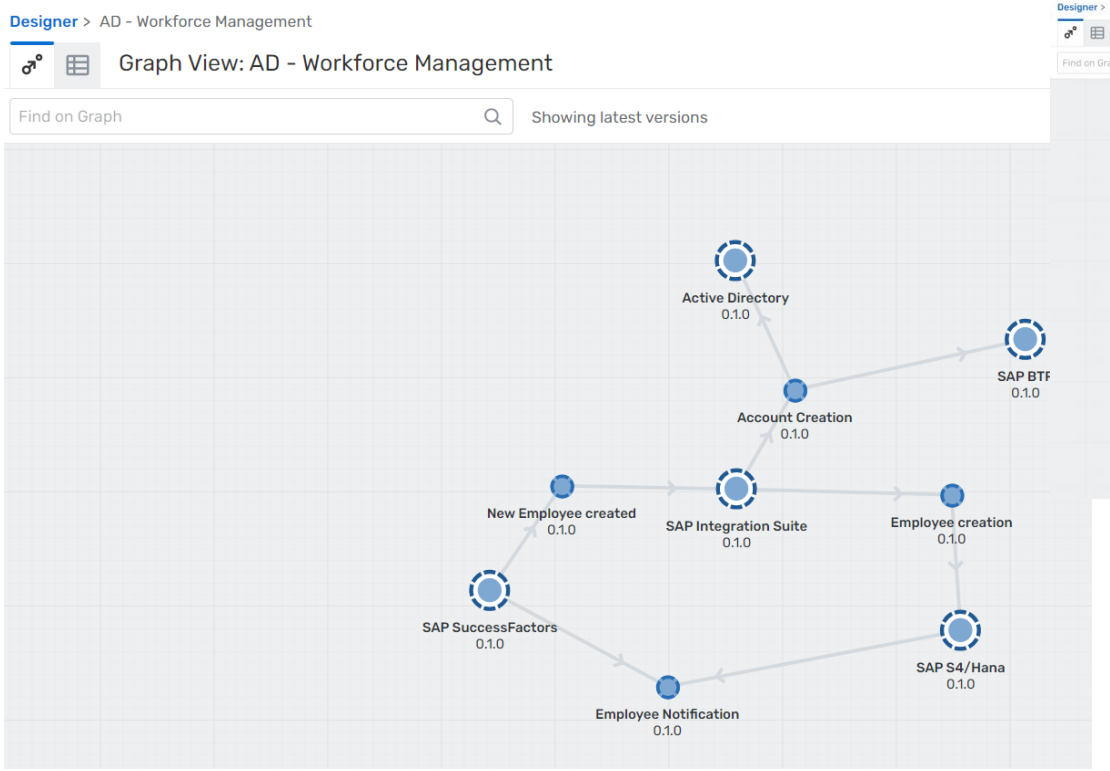
- Event Management
  - Event Portal
  - Event Approval Process
- Event Insights
  - Monitoring
  - Distributed Tracing
- Advanced Event Mesh – API’s

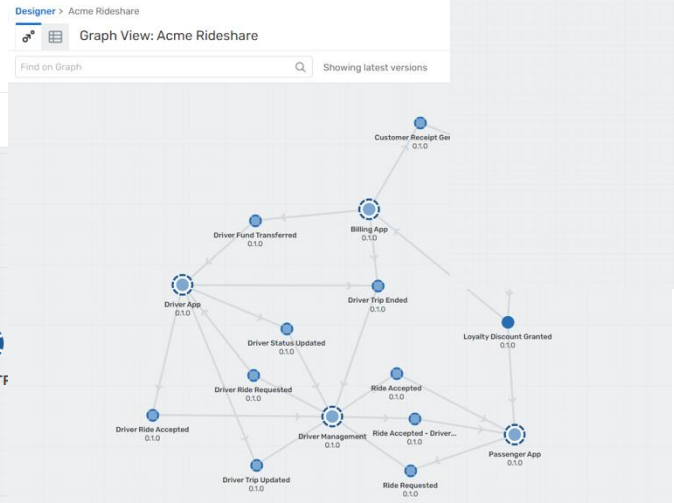
Customer & SAP Only

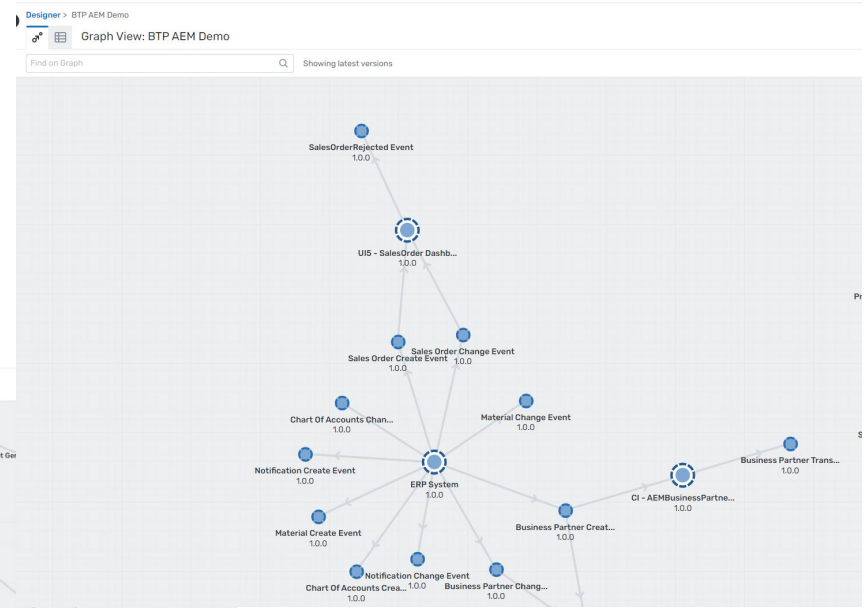
Event Management - Event Portal

Discover pre configured Application Domains (Import the json content)



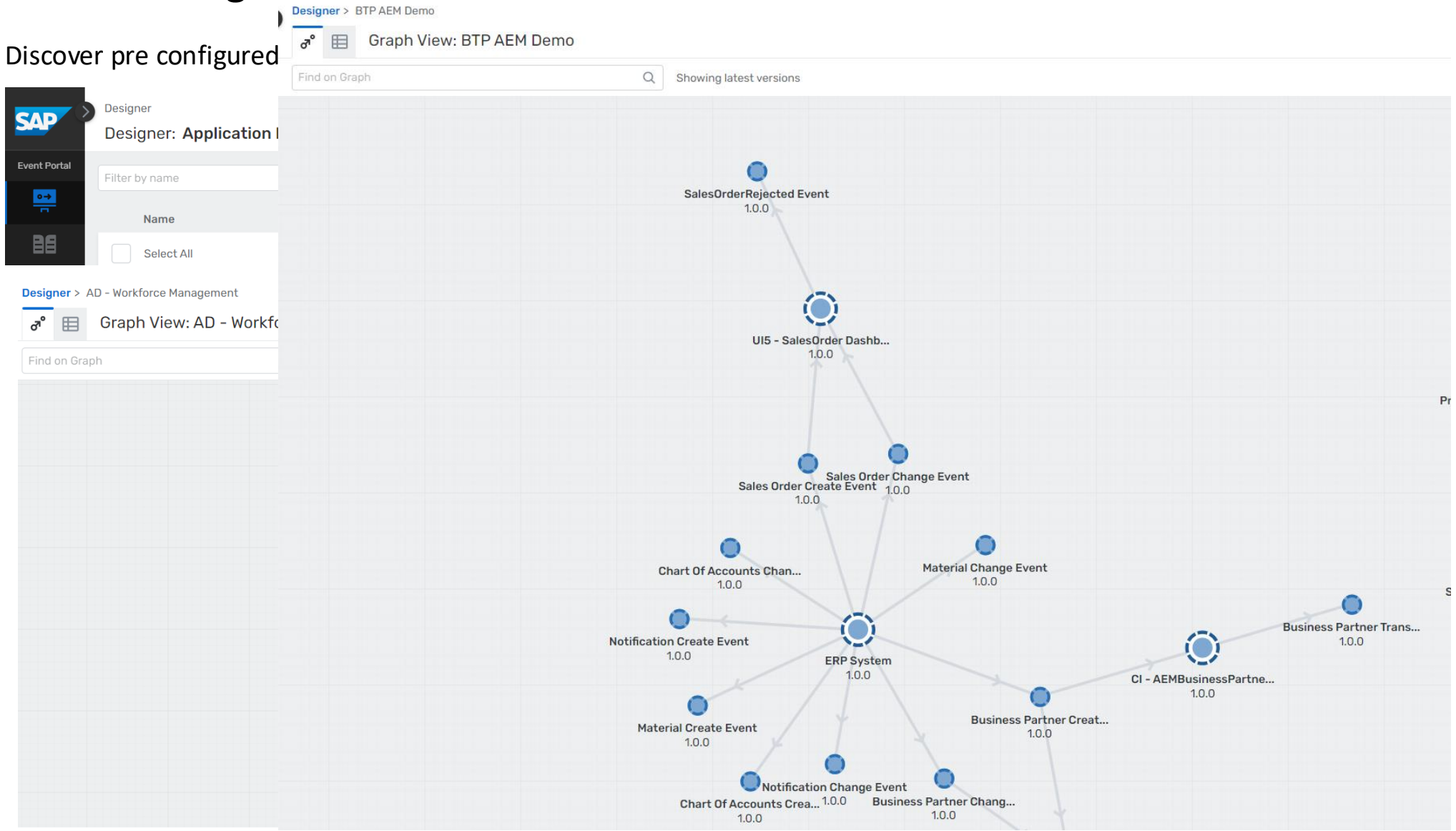






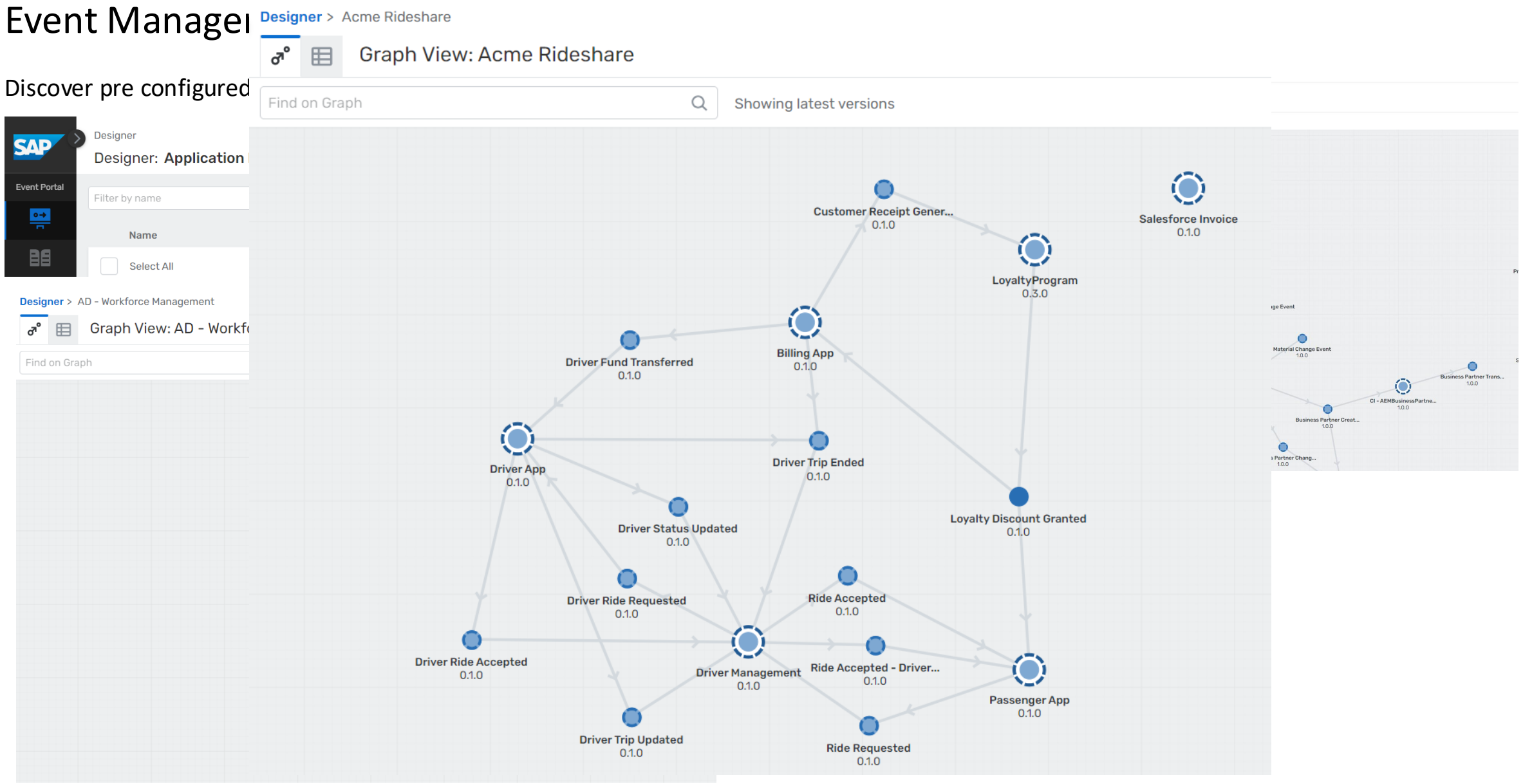
Event Management - Event Portal

Discover pre configured



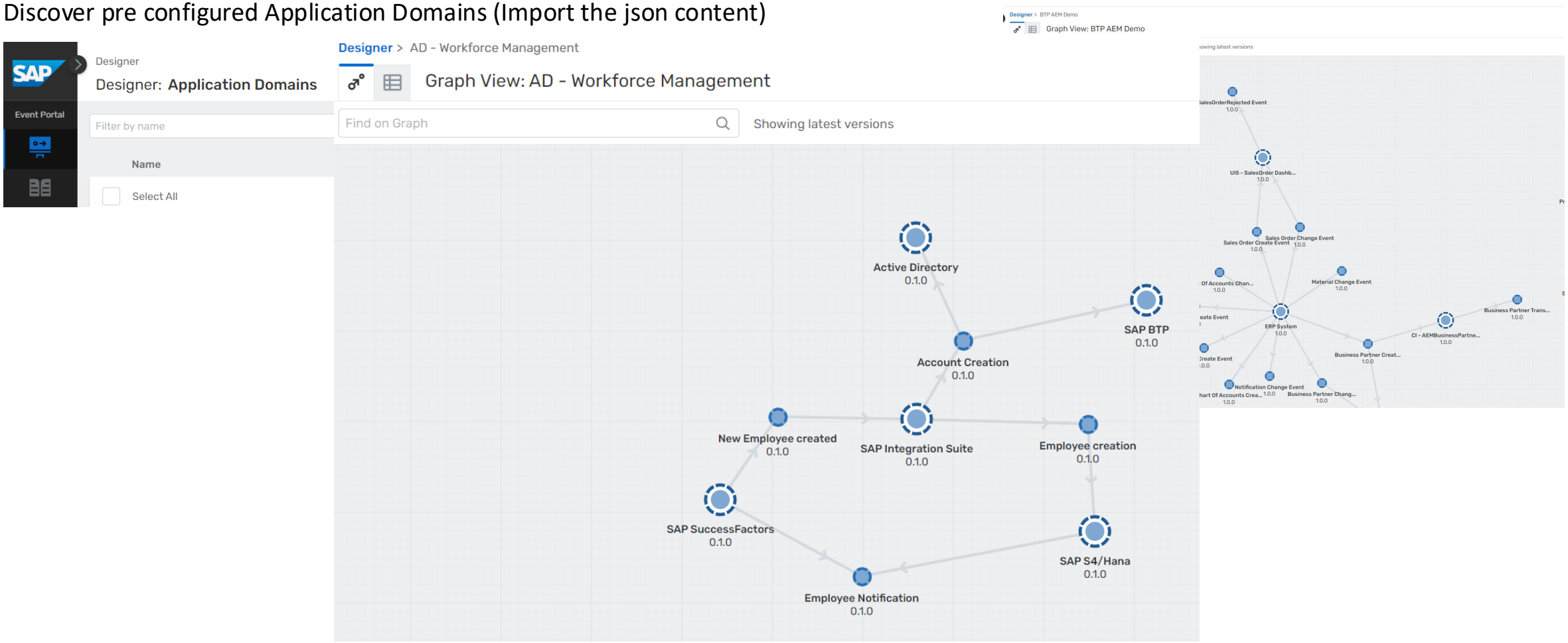
Event Manager

Discover pre configured



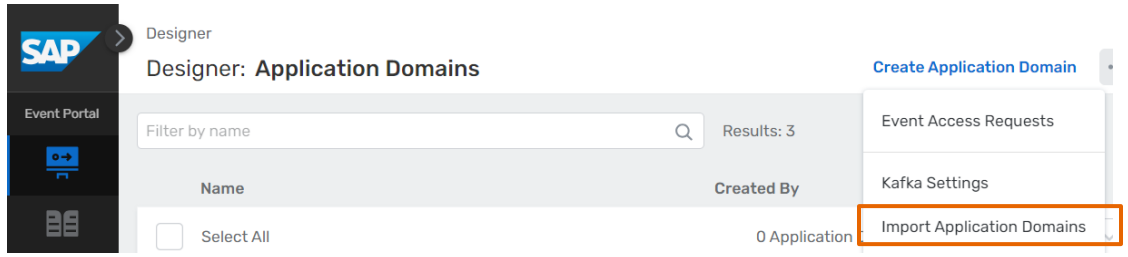
Event Management - Event Portal

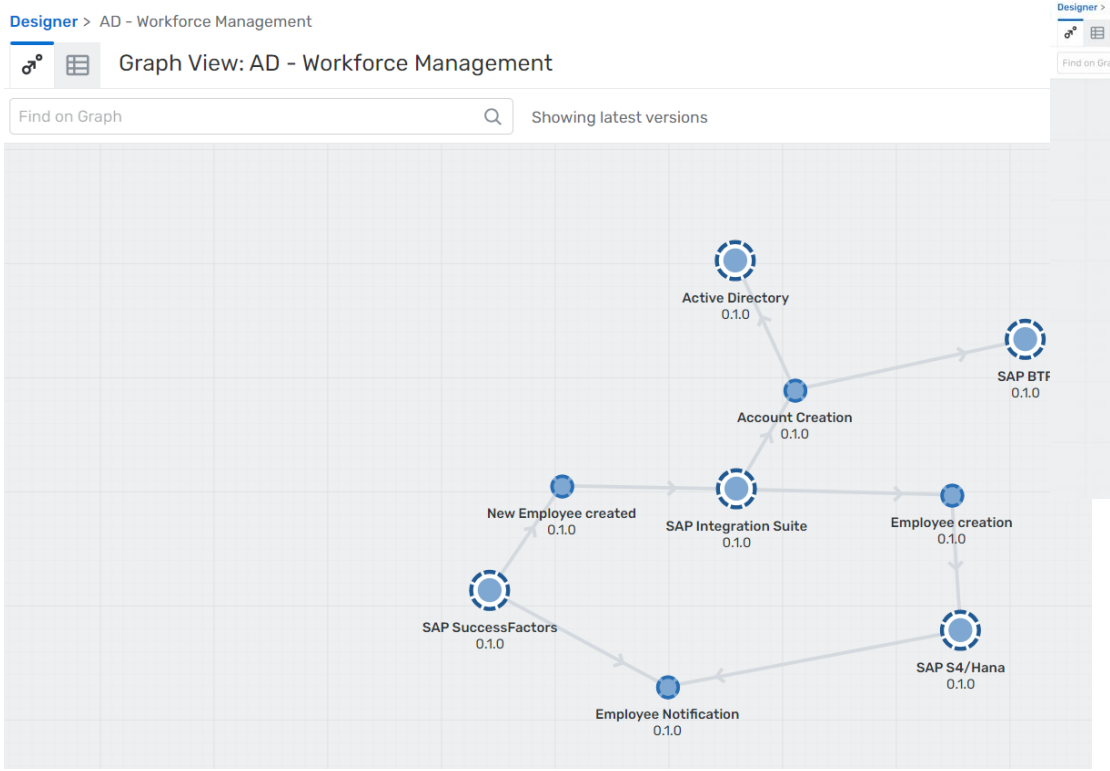
Discover pre configured Application Domains (Import the json content)

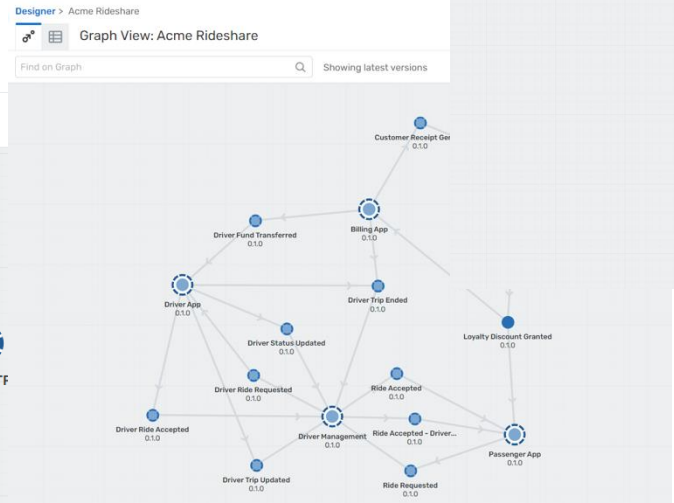


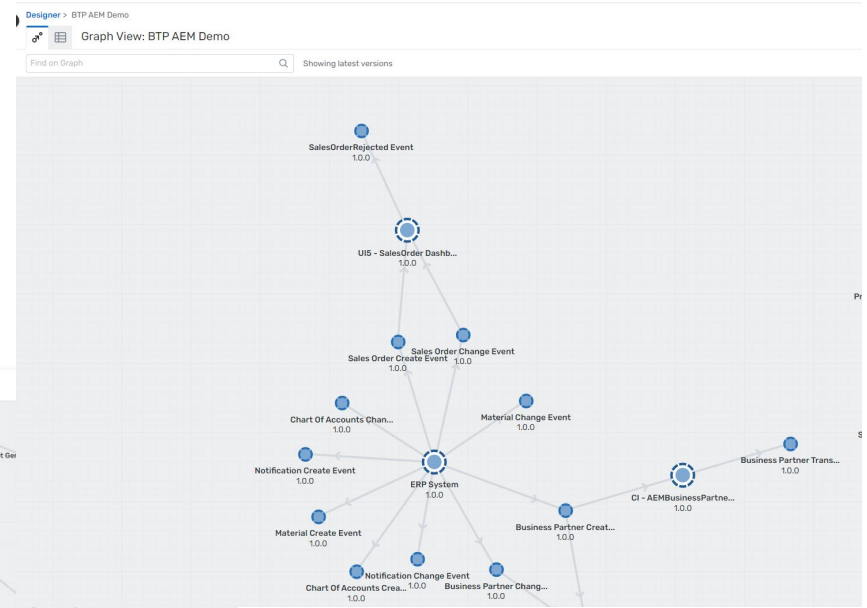
Event Management - Event Portal

Discover pre configured Application Domains (Import the json content)









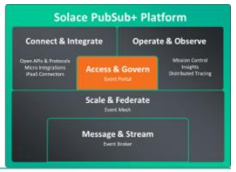
Event Management - Event Portal

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 happing 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 arr 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)

Customer & SAP Only

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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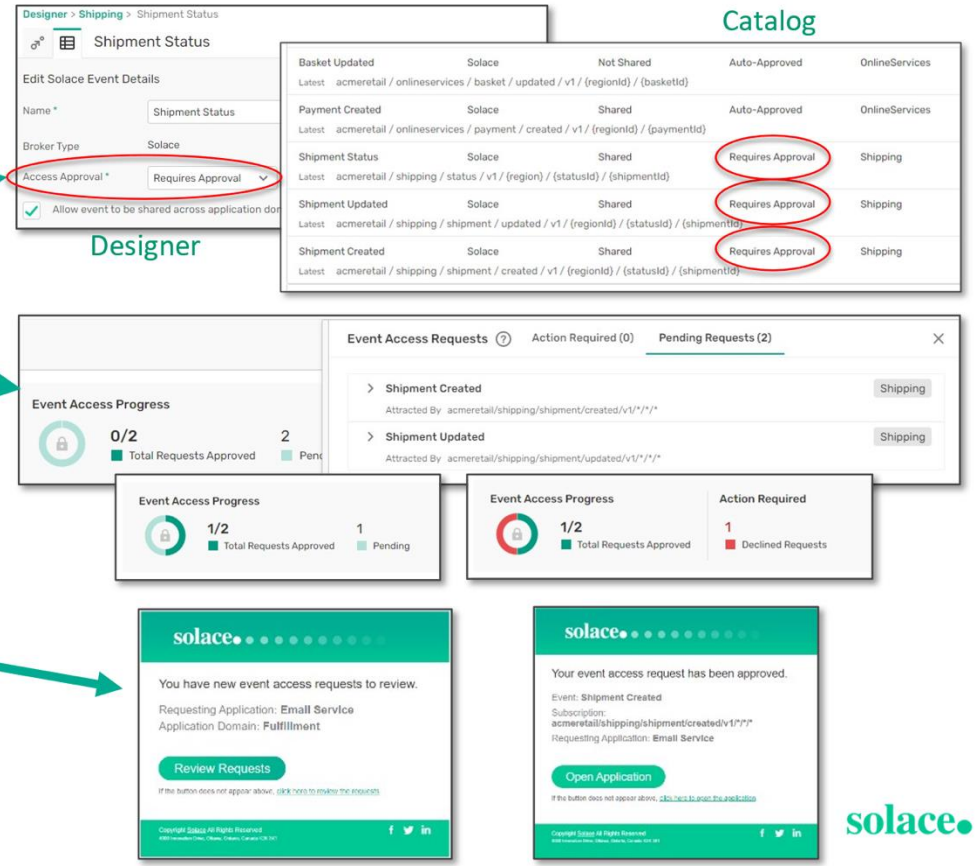
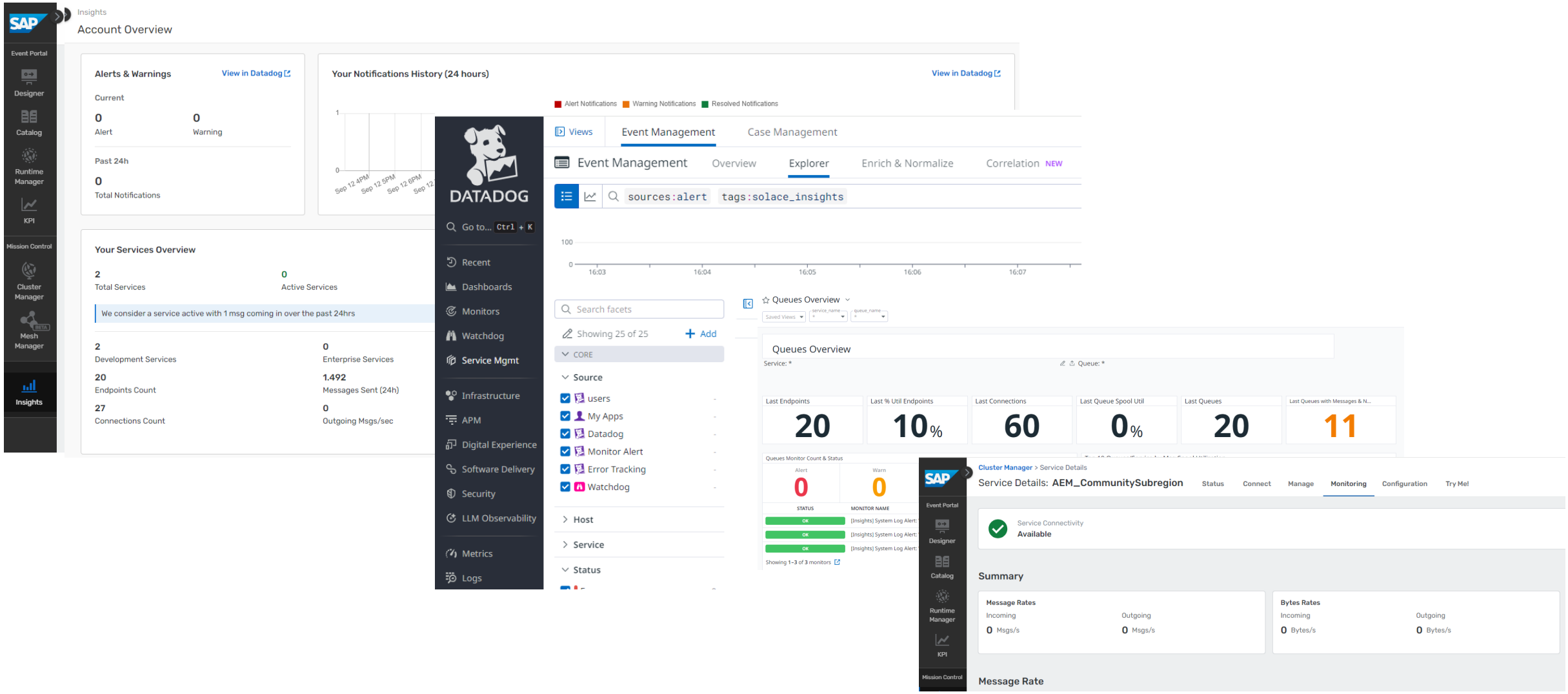


Event Insights - Monitoring



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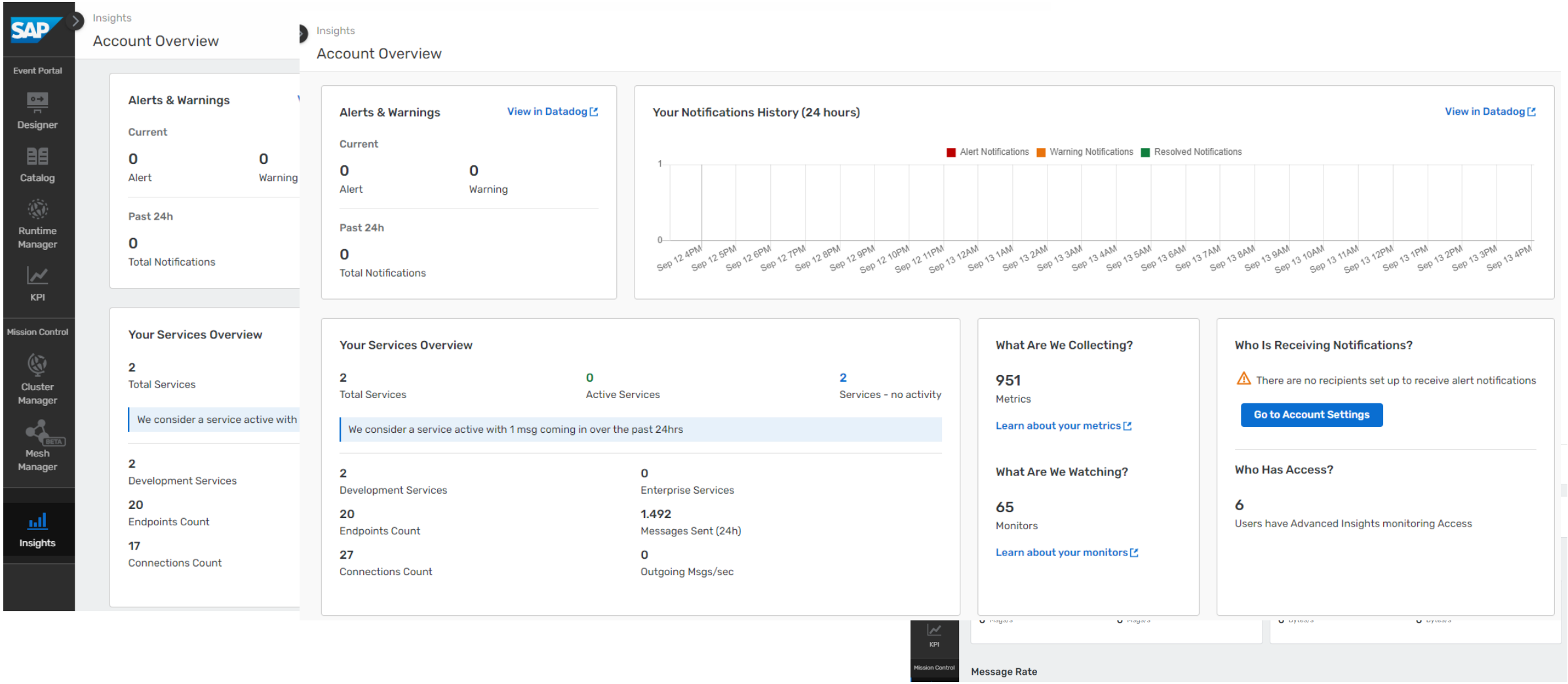

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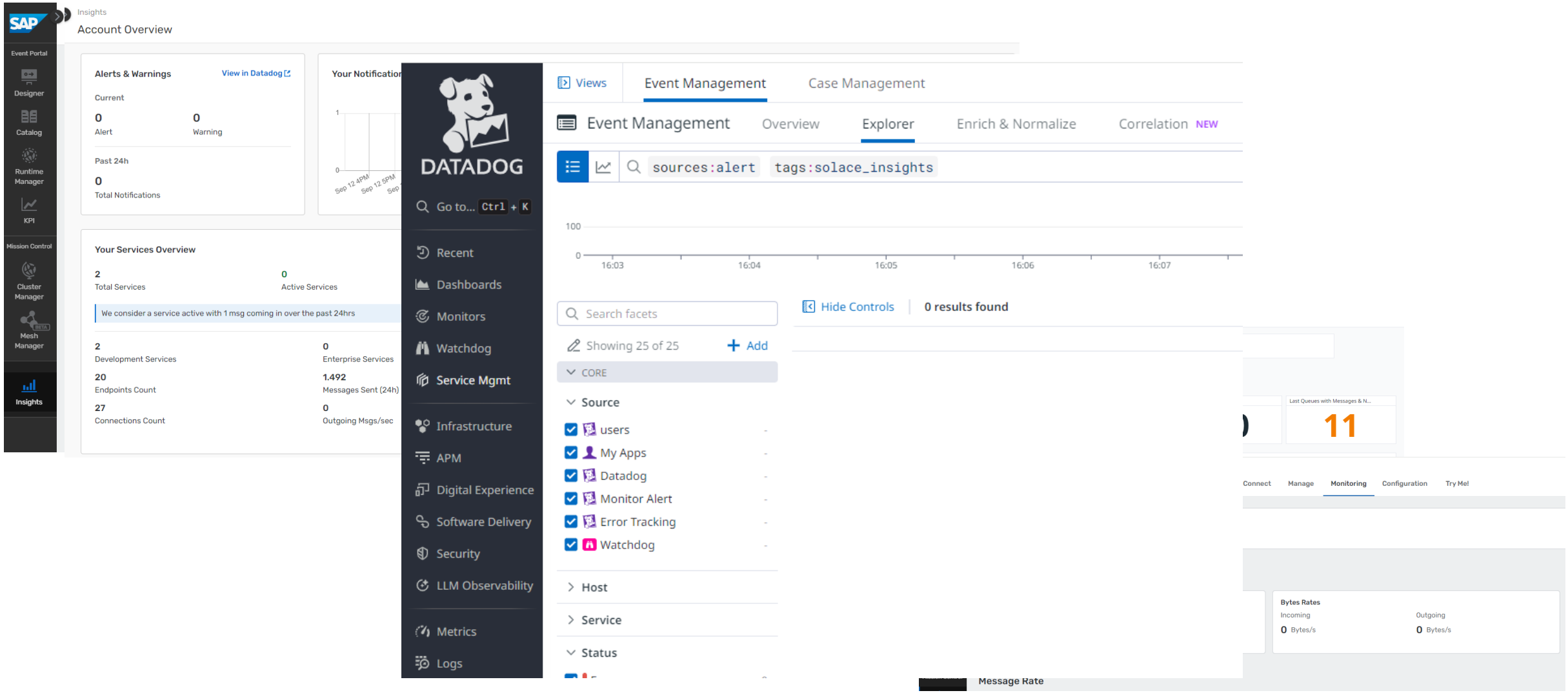

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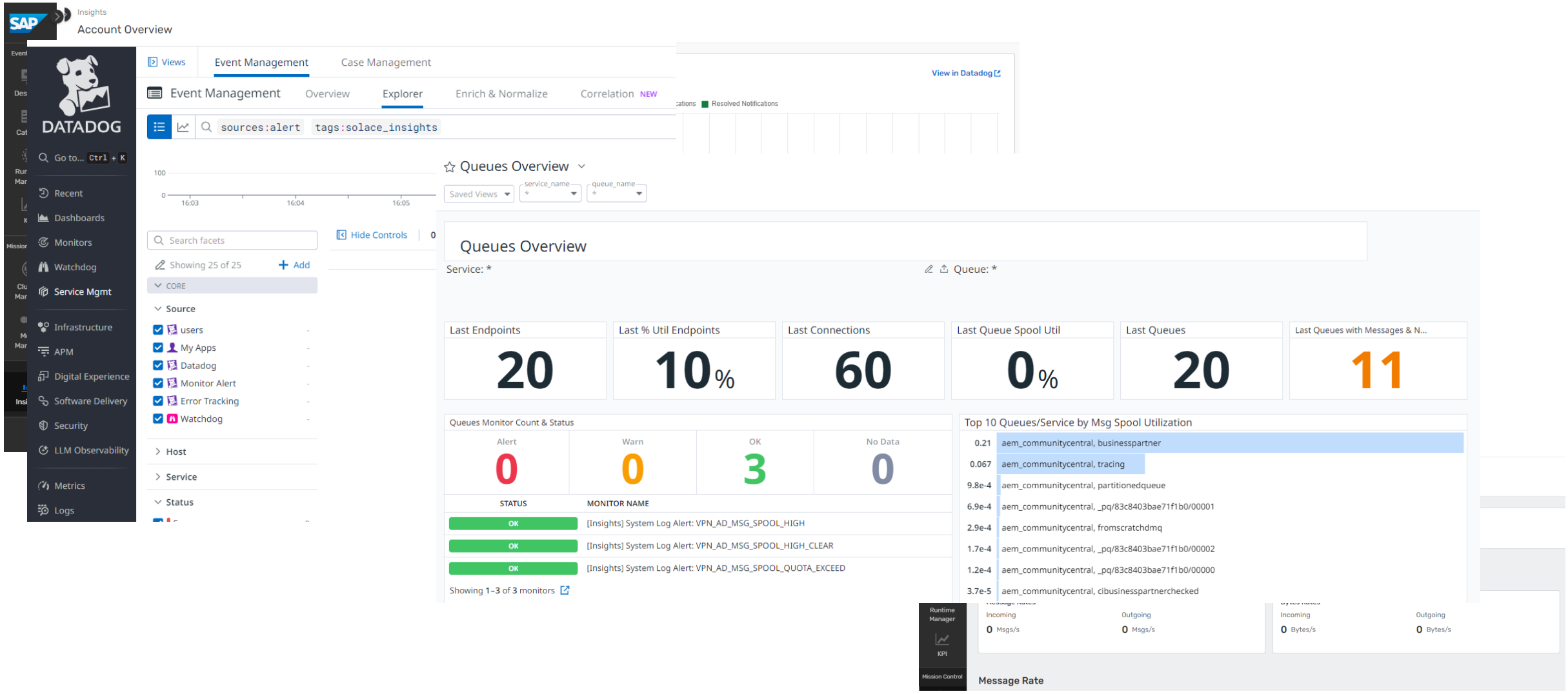

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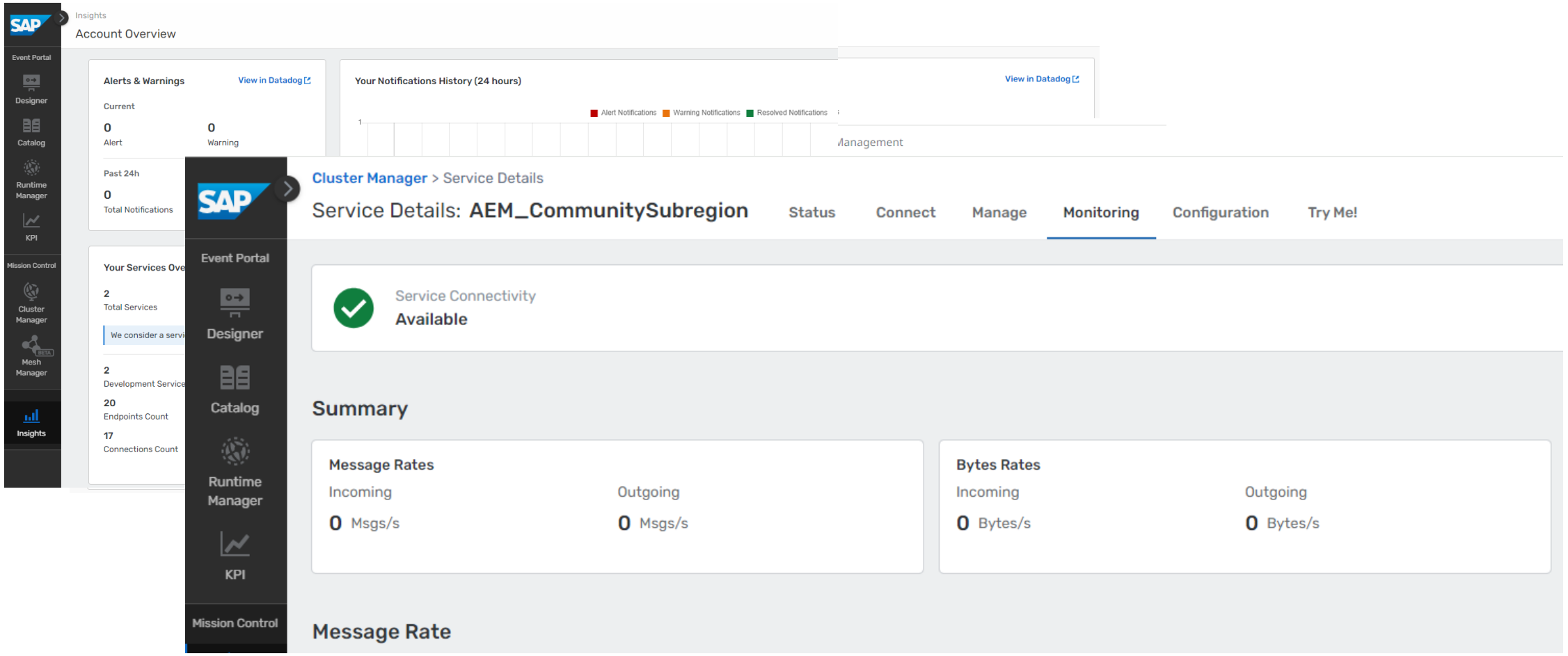

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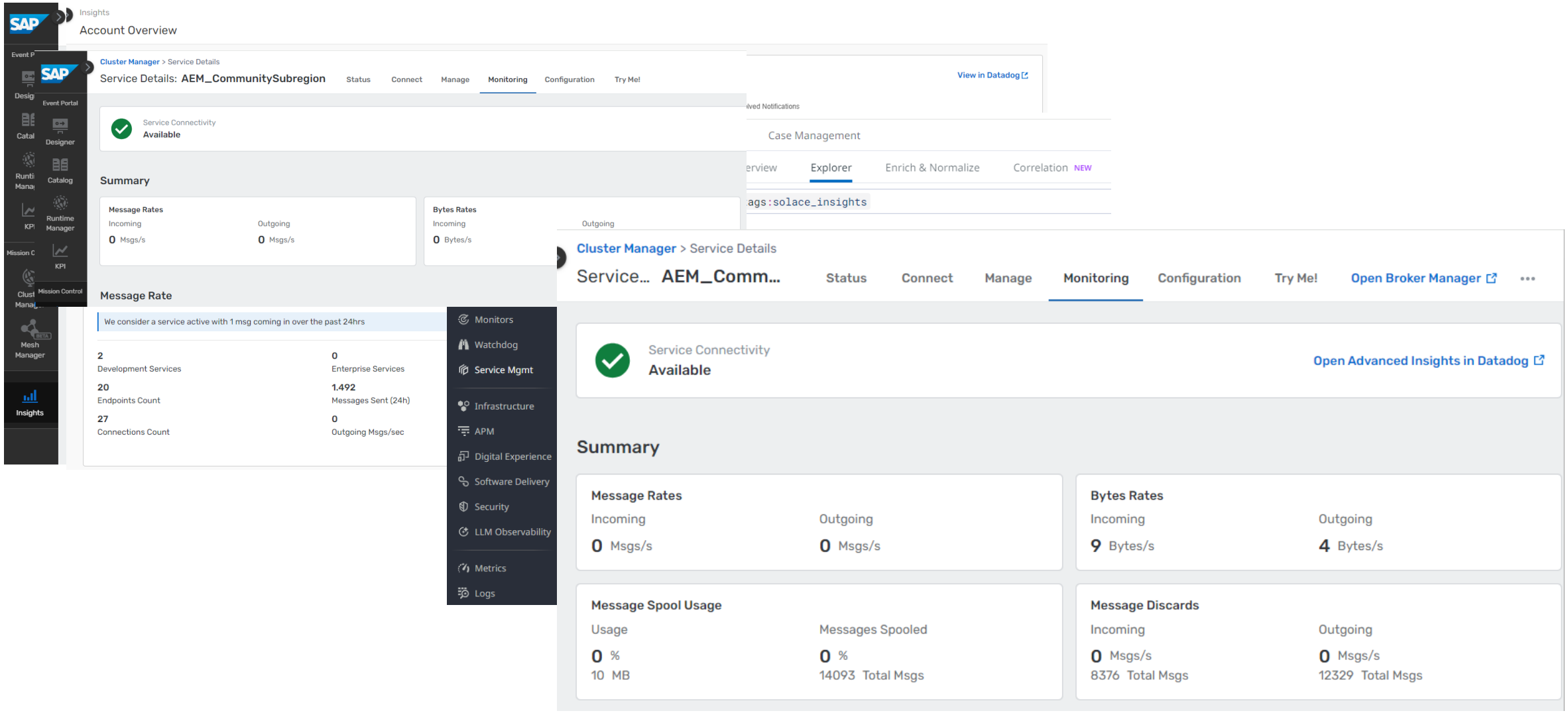

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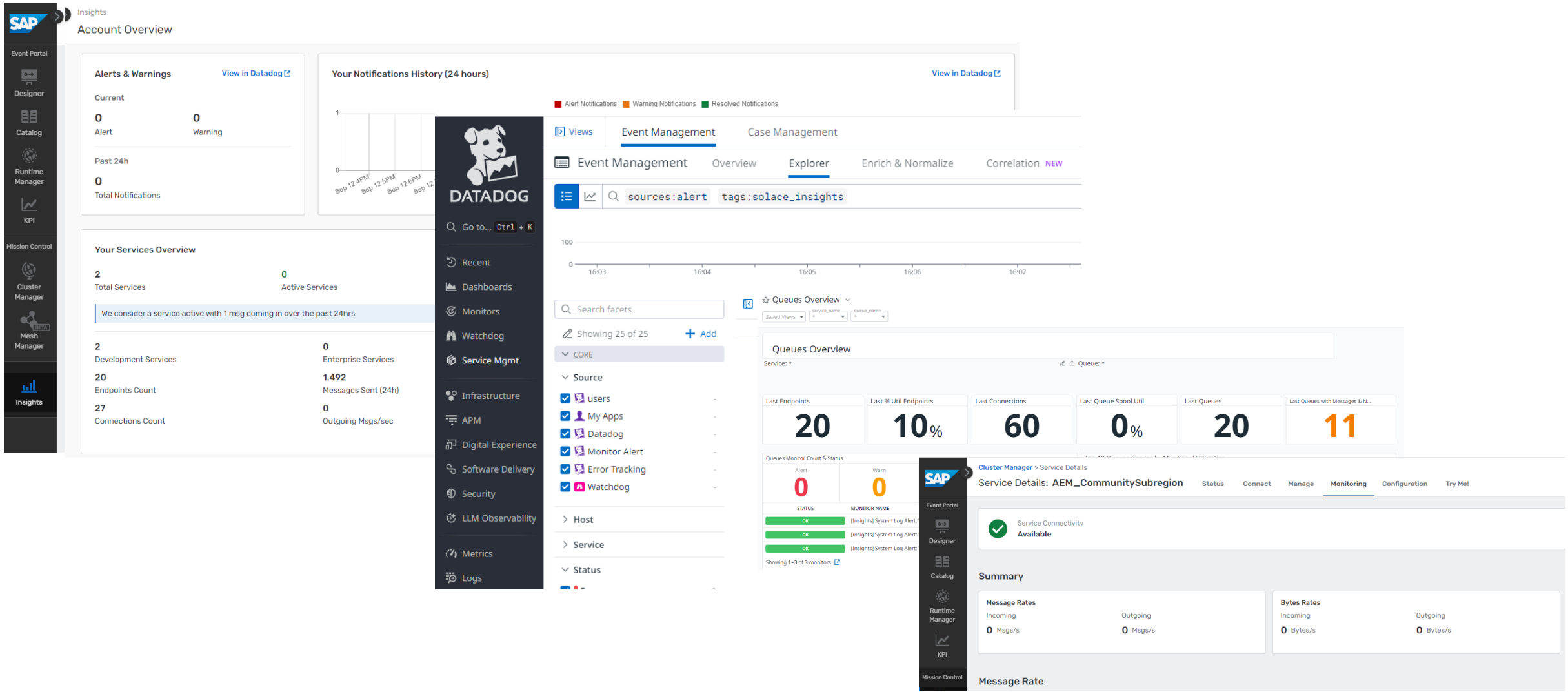
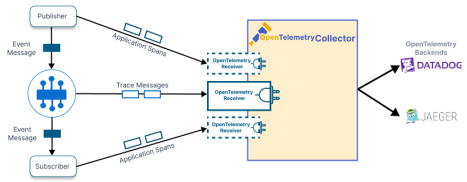


Event Insights - Distributed Tracing

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.

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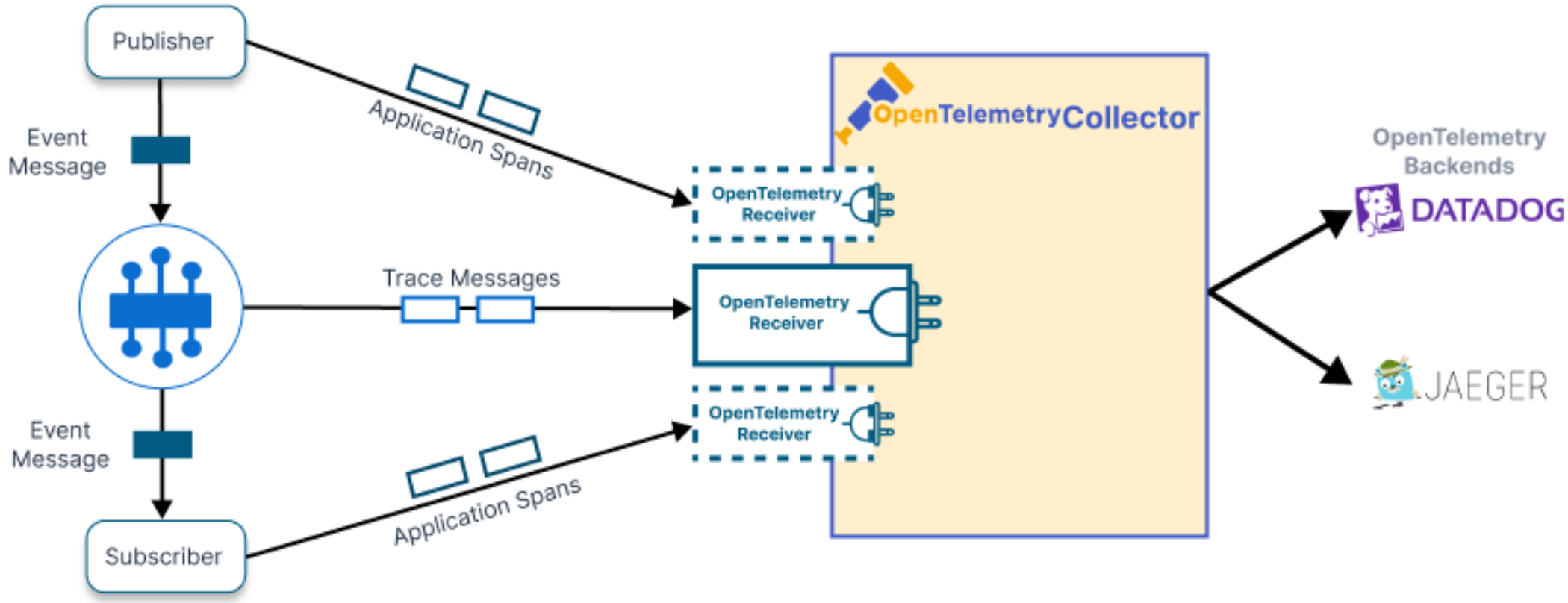

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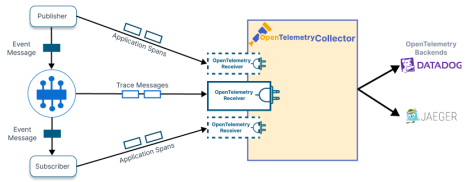

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Advanced Event Mesh – API’s

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

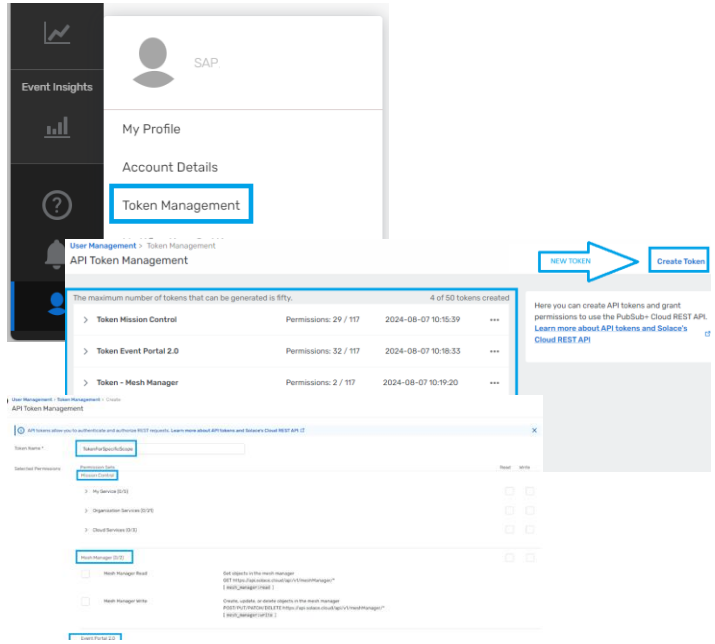
- AMQP (Advanced Message Queuing Protocol) 1.0
- MQTT (support for MQTT 3.1.1 and MQTT 5.0 standards)
- WebSocket - Protocol

Support of Terraform

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

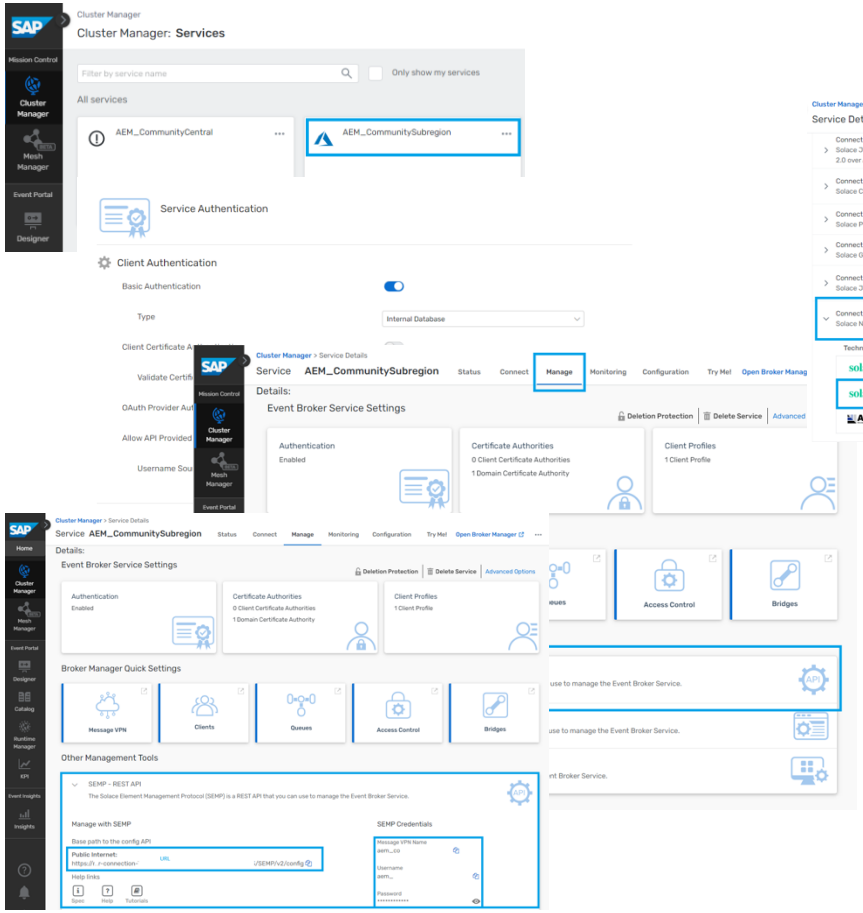
Manage AEM API Access

REST – API(v2)

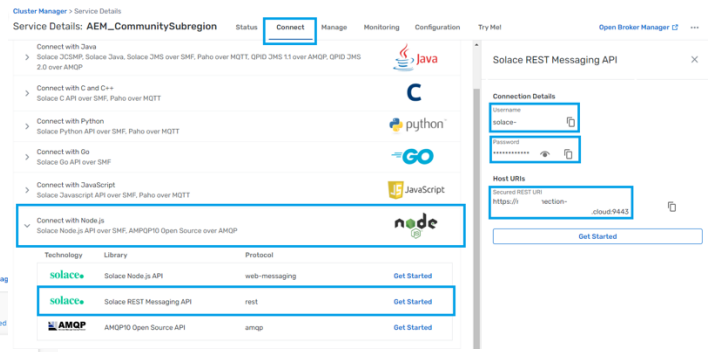


- create up to 50 API tokens (per user) in an account
- setup a proper authorization management, assign granular specific scopes and permissions for specific topics (Mission Control, Event Portal etc.)

SEMPv2



Open APIs – e.g. REST



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

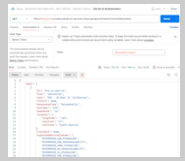
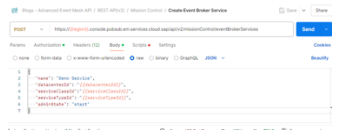
SAP Advanced Event Mesh REST – API

- 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

- Full API Reference: REST API(v2) Reference

Function	Example
Get list of all datacenters	
Get datacenters by ID	
Get Event Broker Services	
Create Event Broker Service	

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:

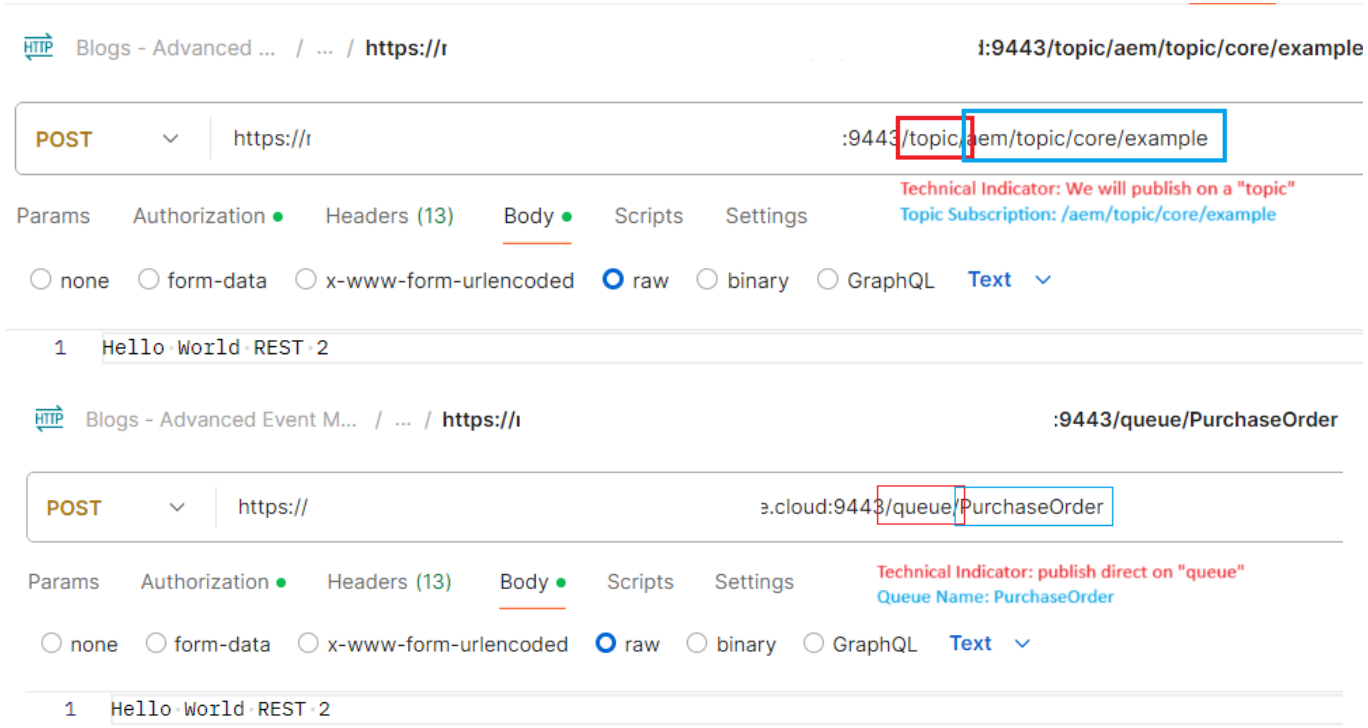
- Configuration Reference
- Action Reference
- Monitor Reference

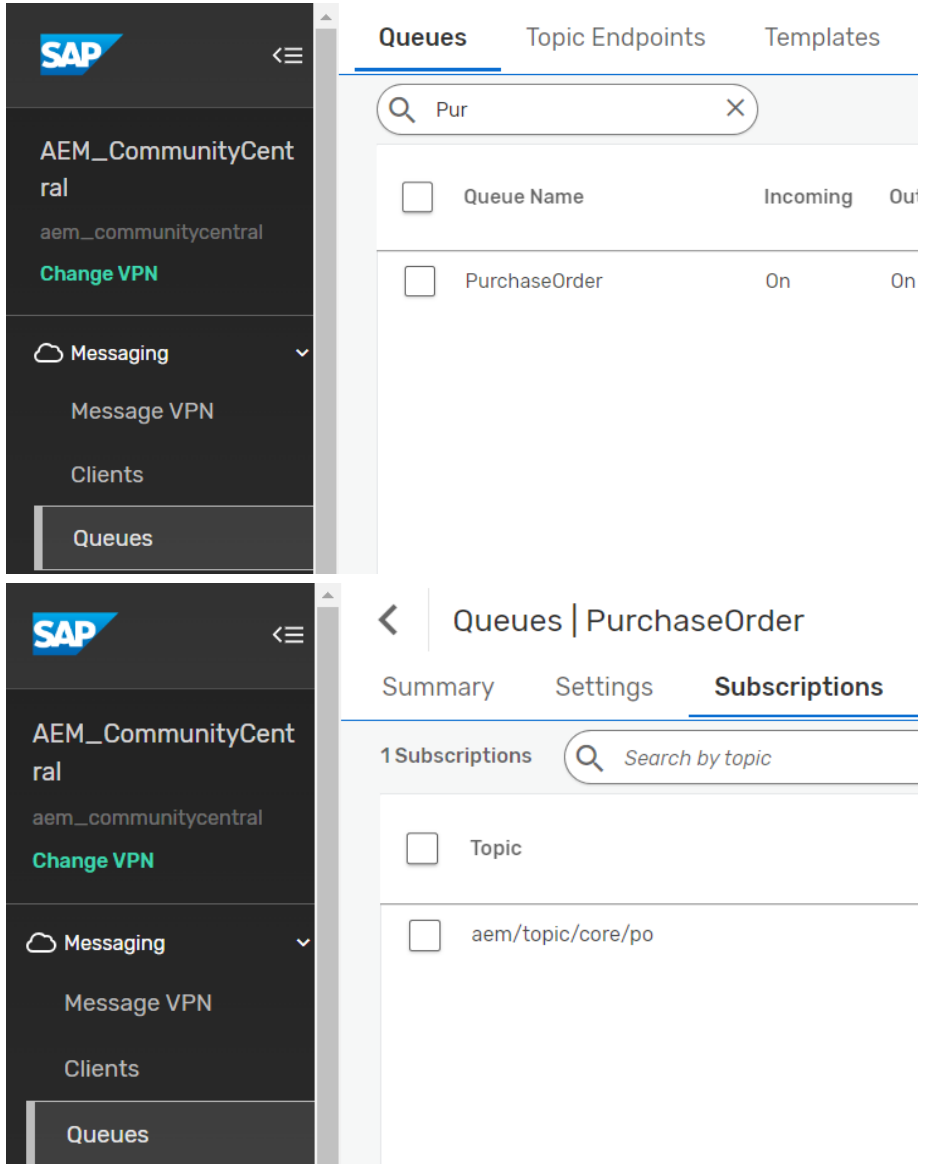
Function	Example
Get a list of Message VPN objects	
Get a list of Queue objects	
Get a list of Queue Message objects	

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





Day 5 – AIF & ASAPIO

- Application Interface Framework (AIF)
  - Introduction
  - Demo
  - Exercise
- Event-Enablement Add-on (ASAPIO)
  - Introduction
  - Demo
  - Exercise

Customer & SAP Only

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.

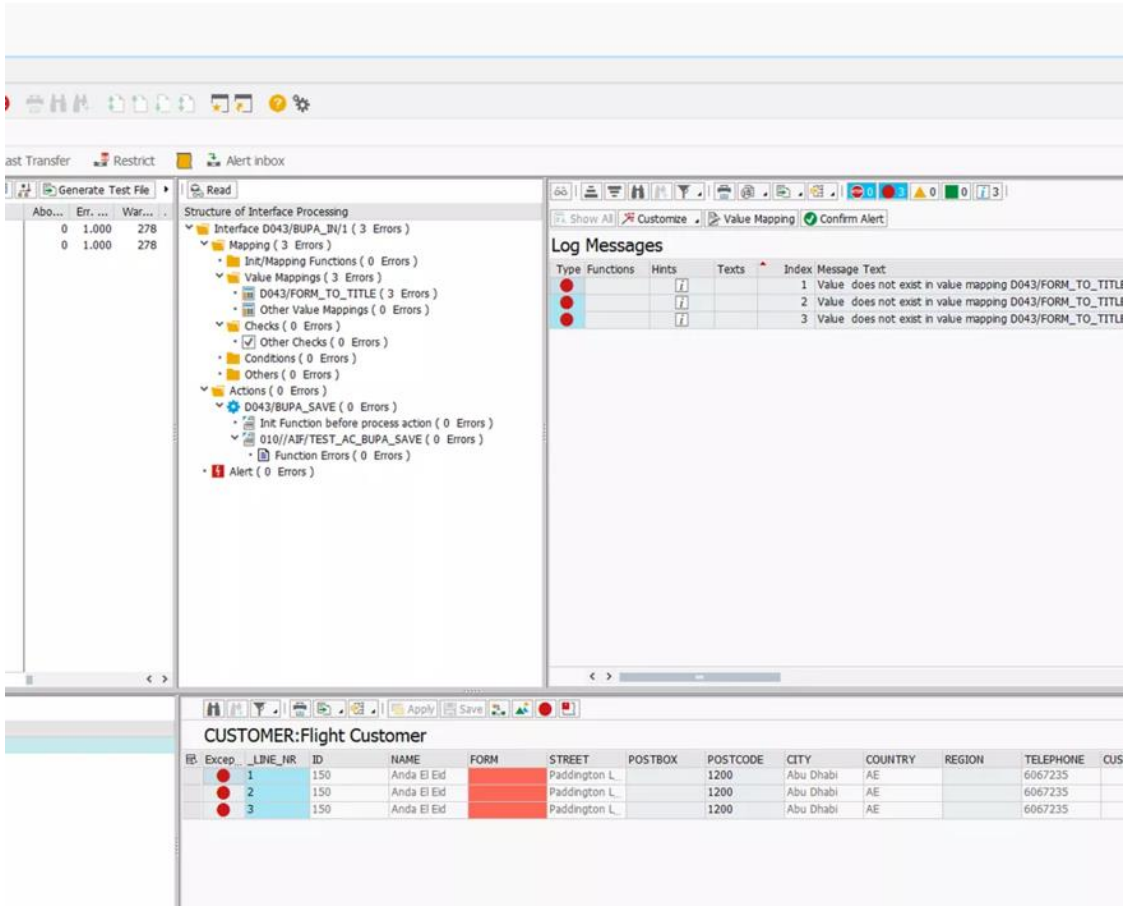
It is based on SAP NetWeaver technology and can therefore work for legacy systems as well. On S/4HANA it is preinstalled, on ECC Systems it can be installed as AddOn

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

AIFAEM

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 AIFAEM 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.

Customer & SAP Only

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

Customer & SAP Only

AIFAEM Features

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

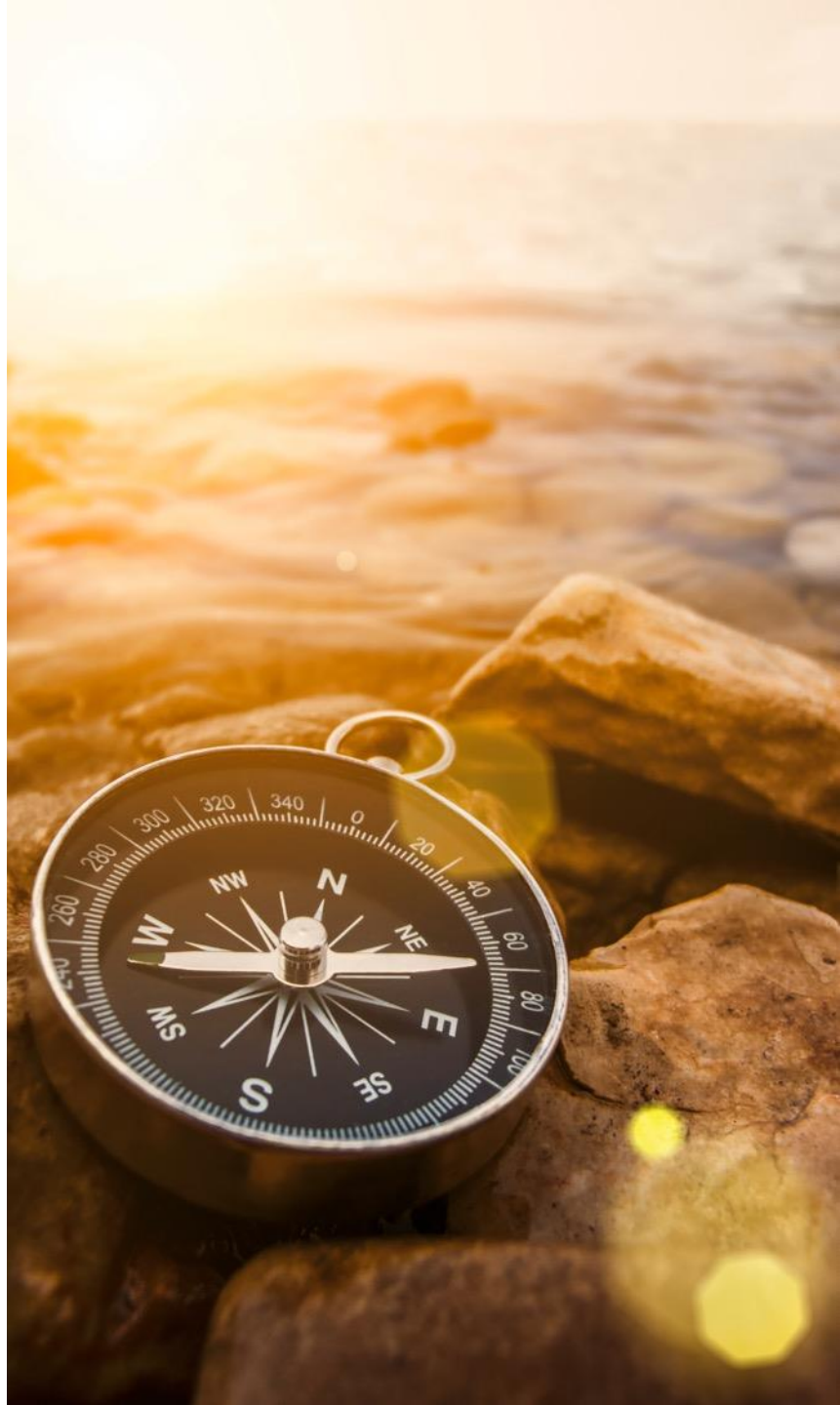
Support of CloudEvents format

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



Customer & SAP Only

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.

Customer & SAP Only

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)

Customer & SAP Only

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

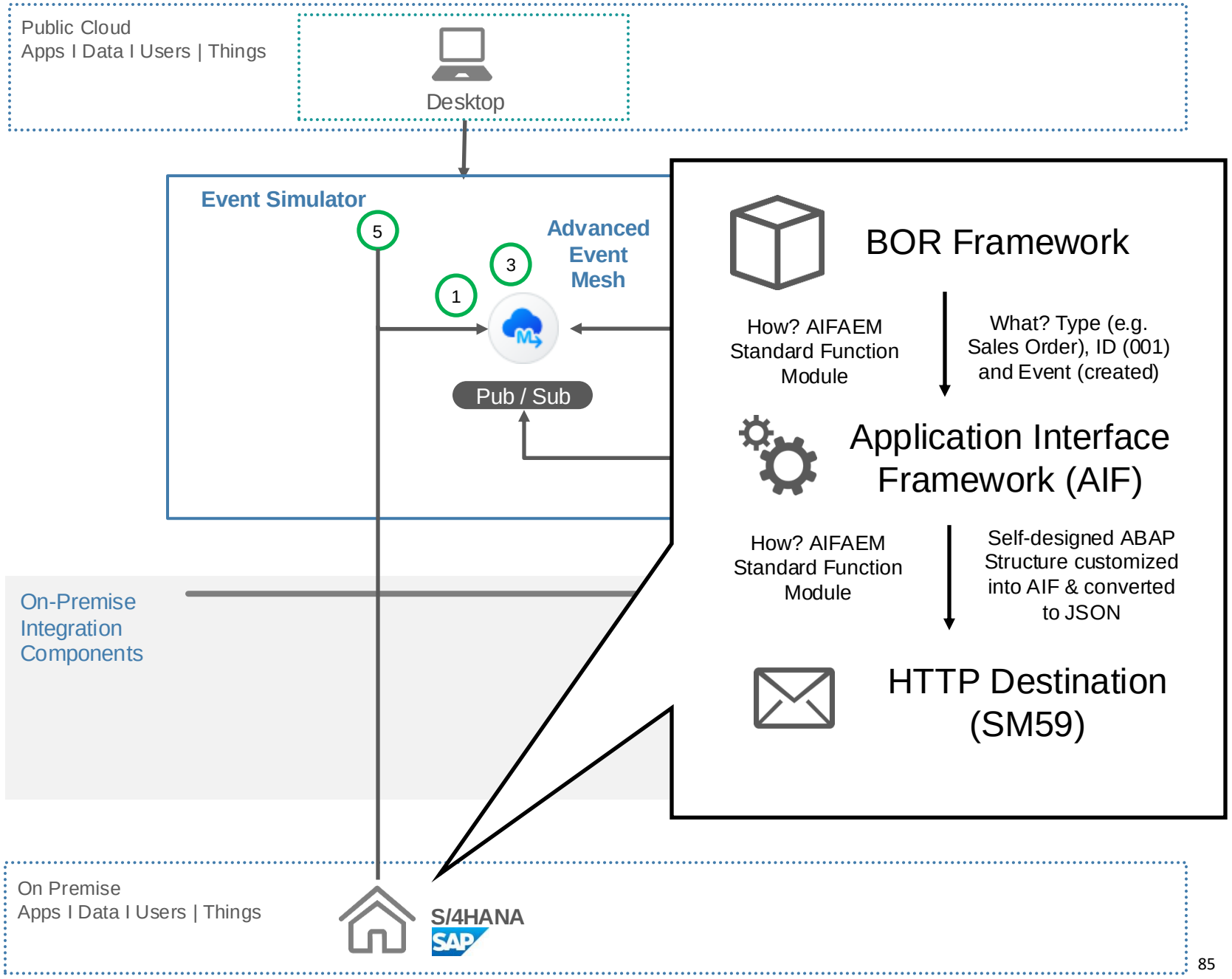
Note on AIFAEM: Note on AIFAEM

Customer & SAP Only

Exercise Flow

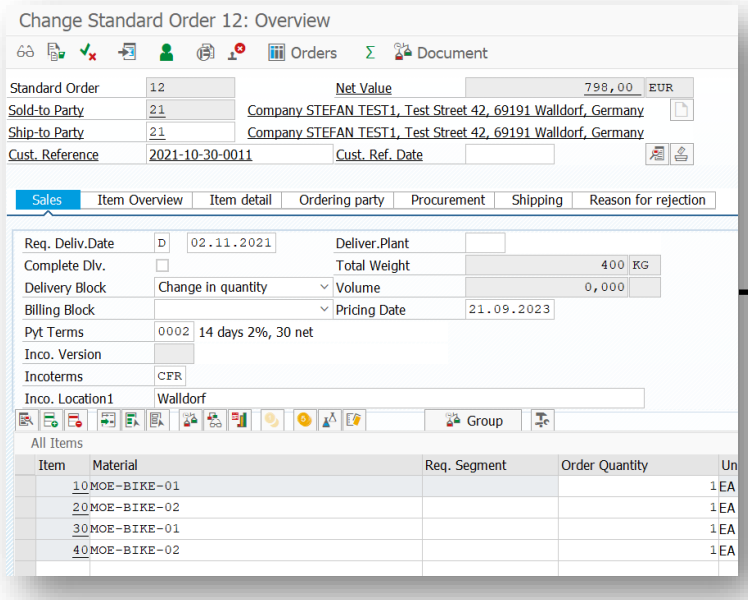
Digital Integration Hub

Day 5 - AIF

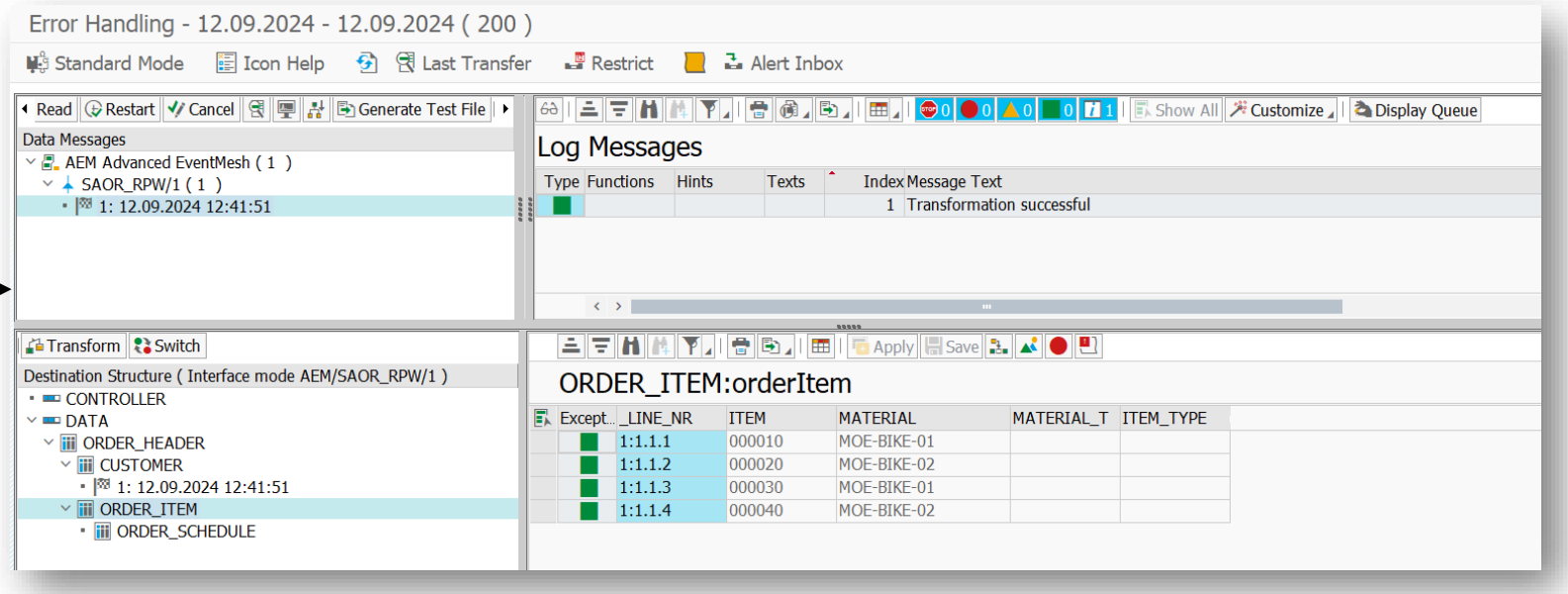


Day 5 – Expected Result on Event Publisher

Change of SalesOrder (VA02)

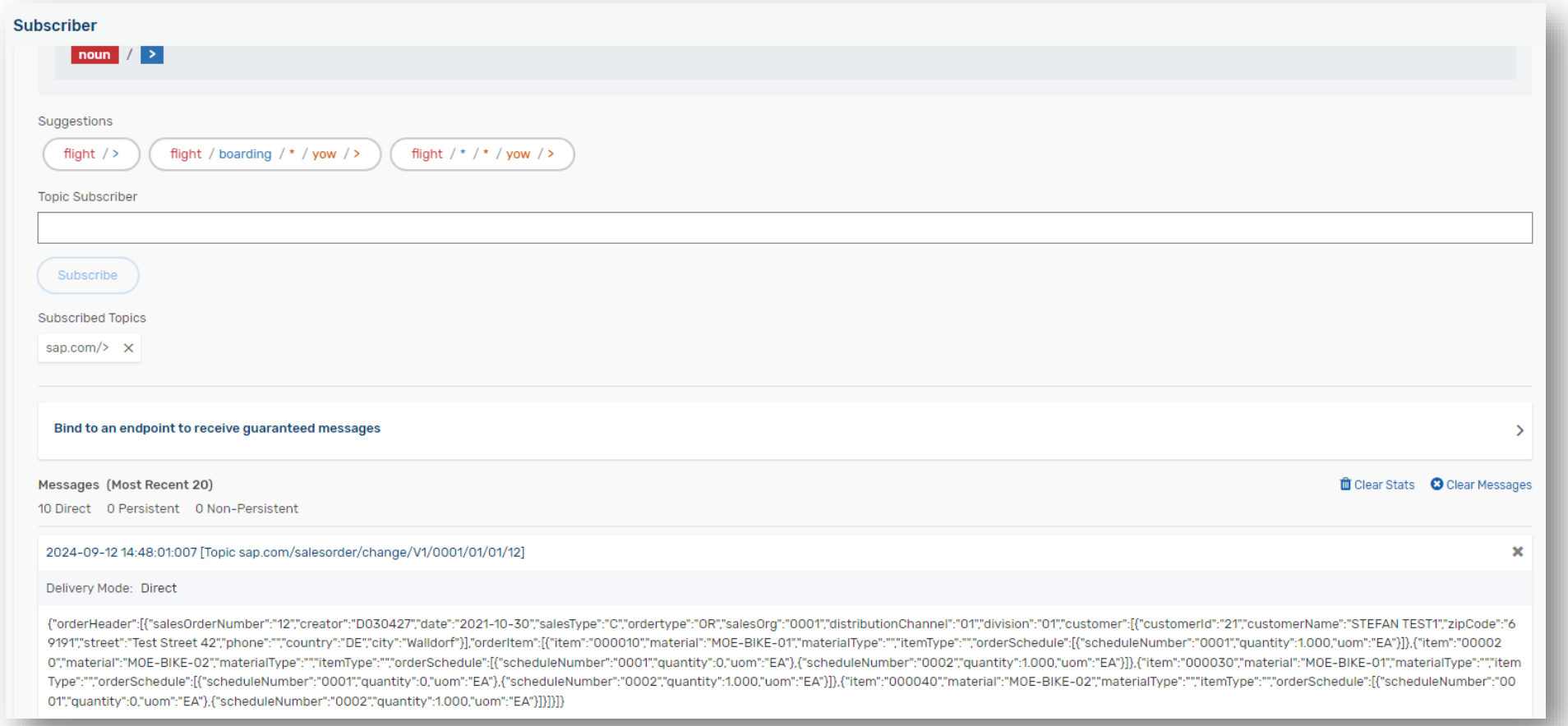


AIF Monitoring (/N/AIF/ERR)

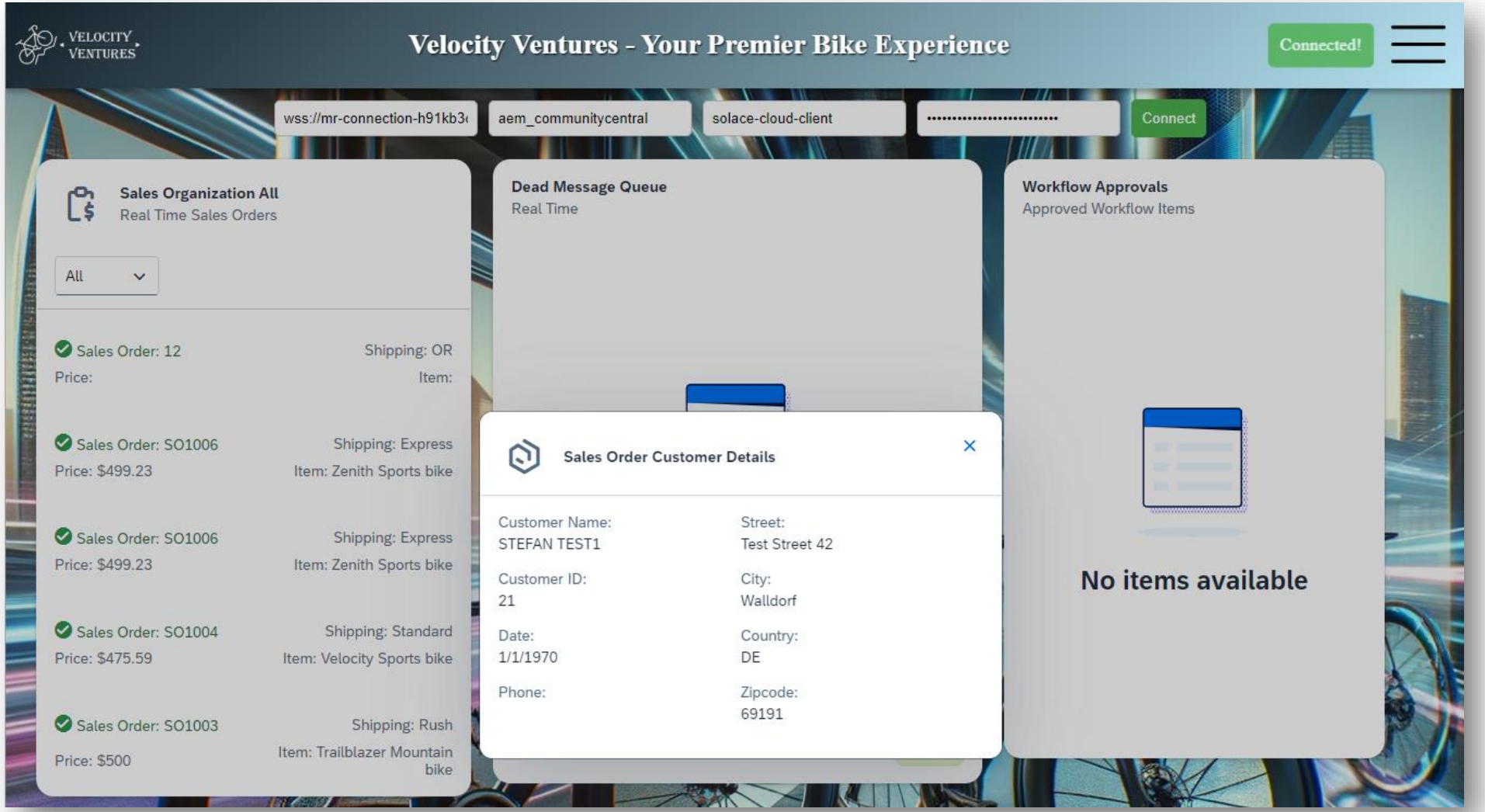


Day 5 – Expected Result on AEM

TryMe – Functionality on AEM



Day 5 – AIF: Expected Result on Dashboard



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

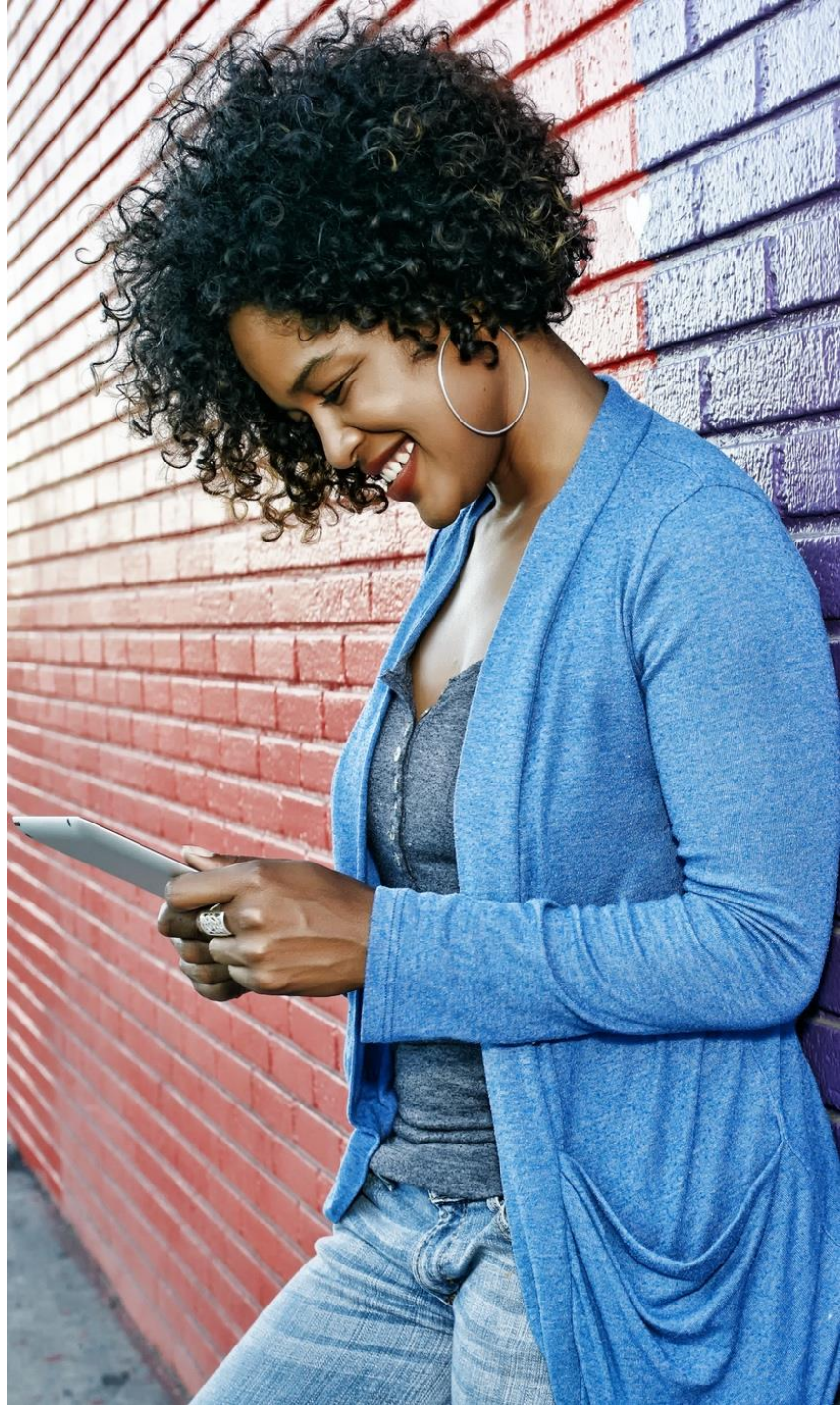
Features include:

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

Customer & SAP Only

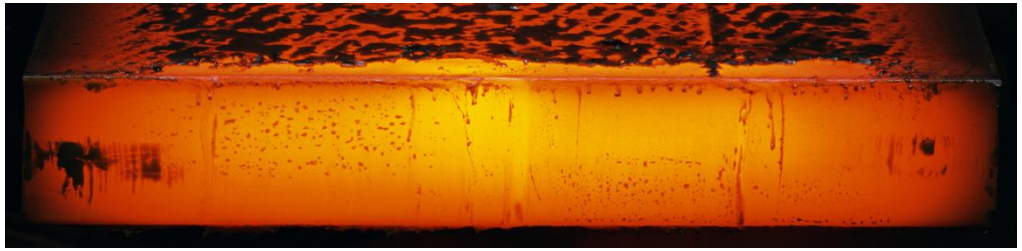
License and Commercials

- 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.



Customer & SAP Only

Event Origins & Creation Process

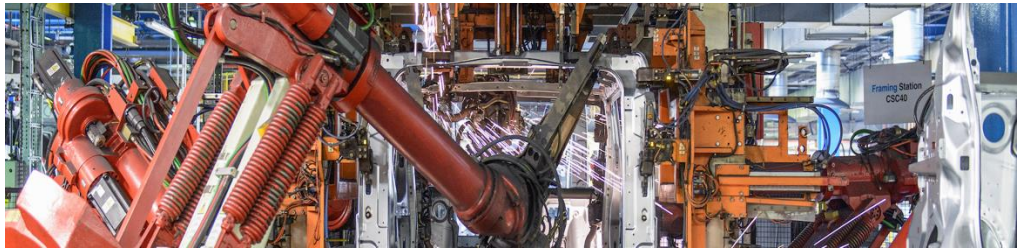


From <u>What</u> can Events be Created?

SAP Business Objects

IDoc Interfaces

BAPI/RFC Function Module Interfaces



<u>How</u> does the creation work?

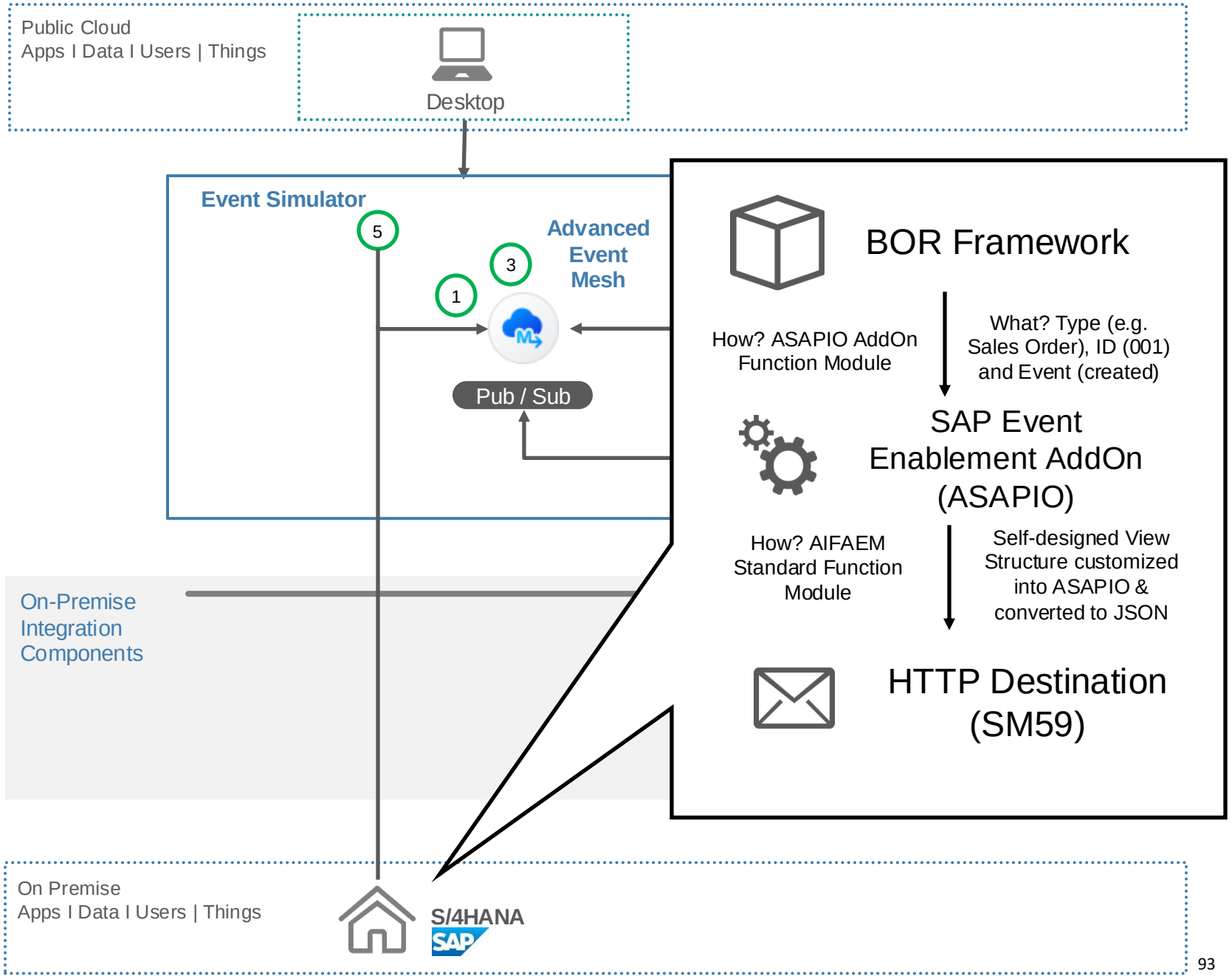
General Event Creation Process fully **configuration based** and requires no coding

Coding possible for advanced features

Exercise Flow

Digital Integration Hub

Day 5 - ASAPIO



Day 5 – Expected Result on Event Publisher

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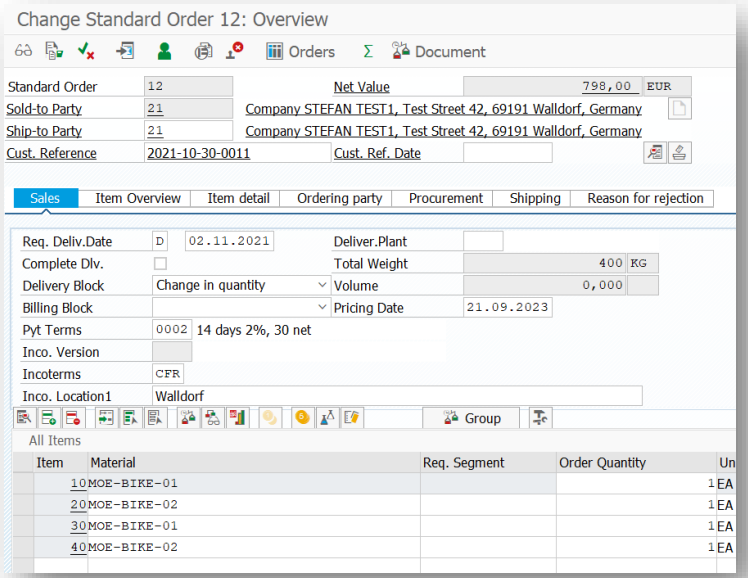
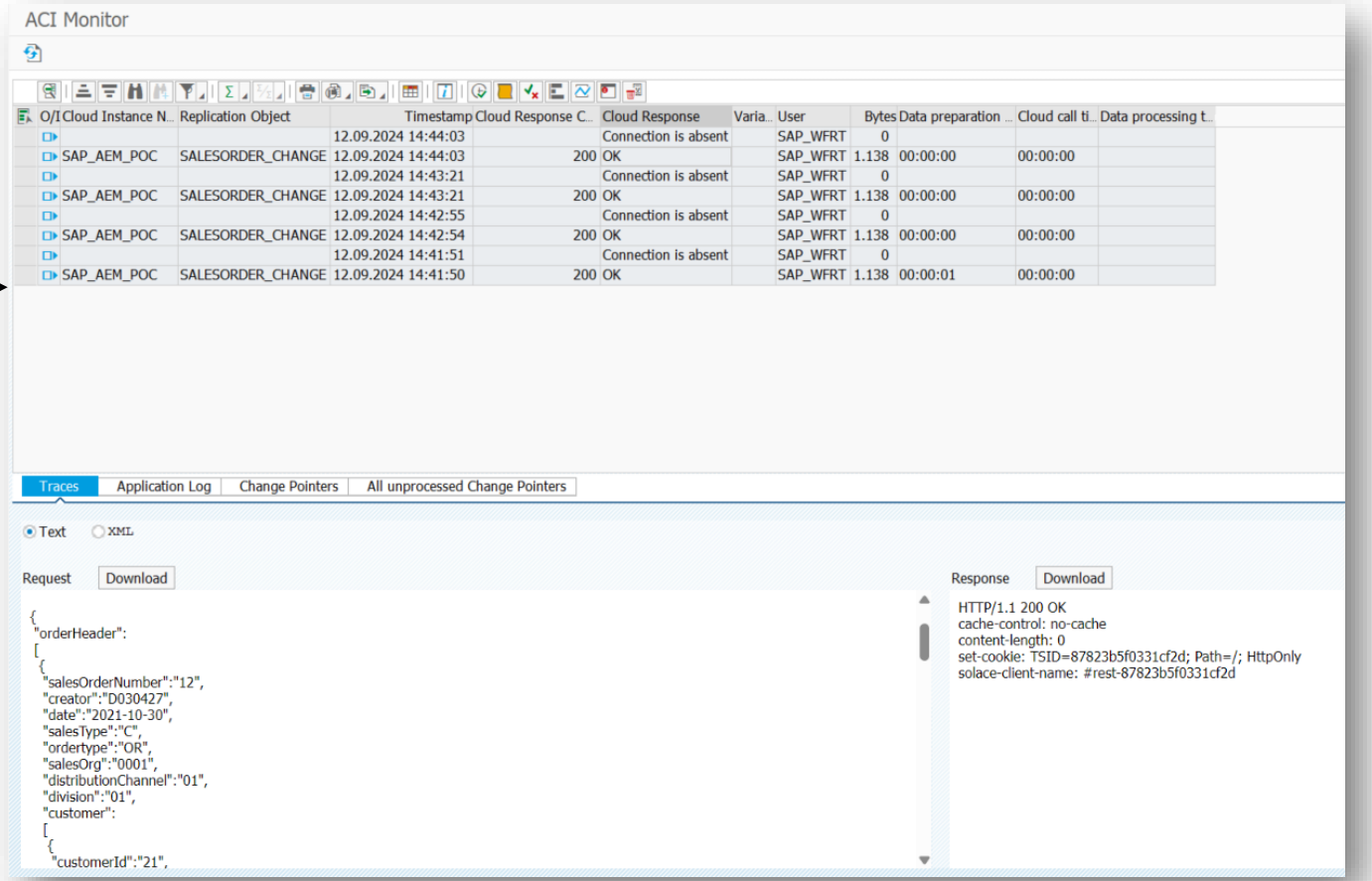
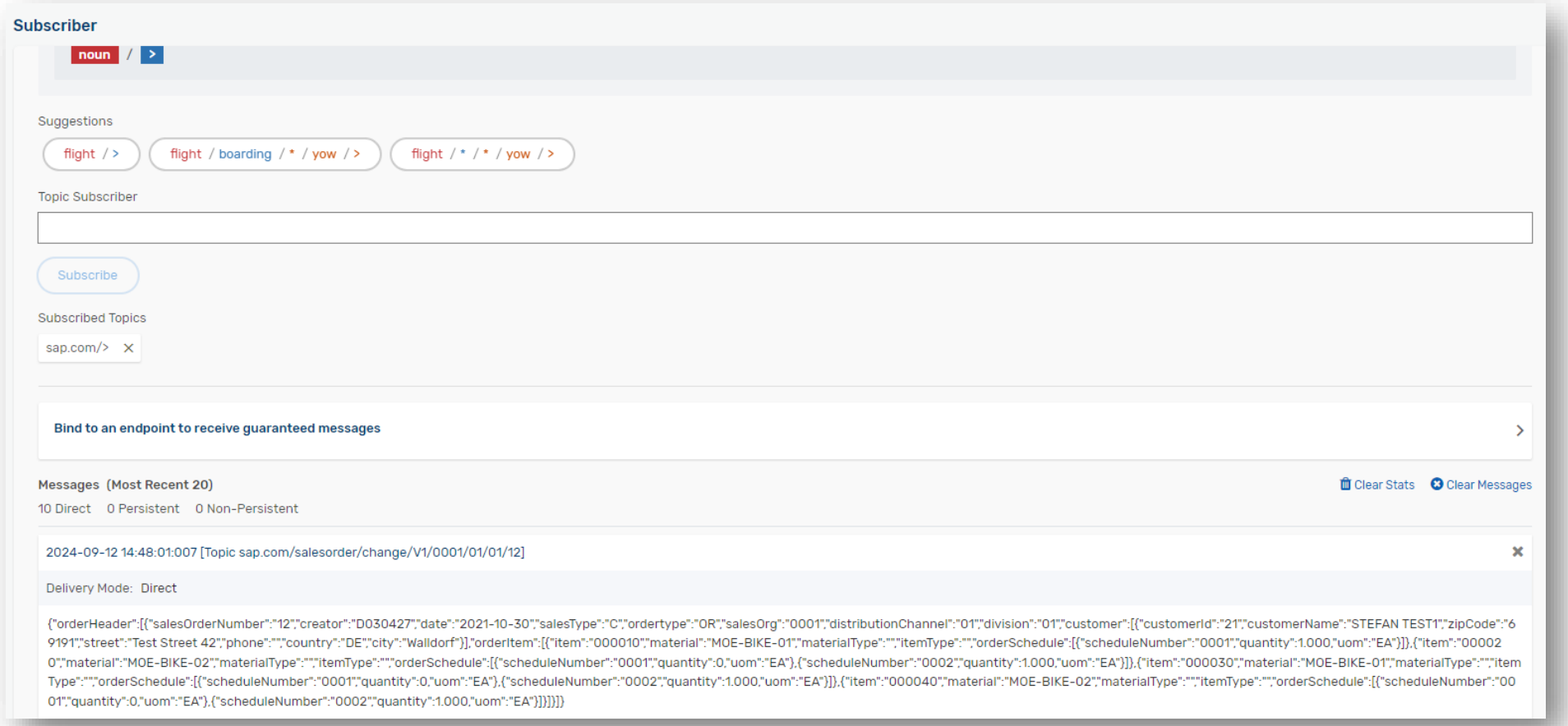


ASAPIO Monitoring (/N/ASADEV/ACI_MONITOR)

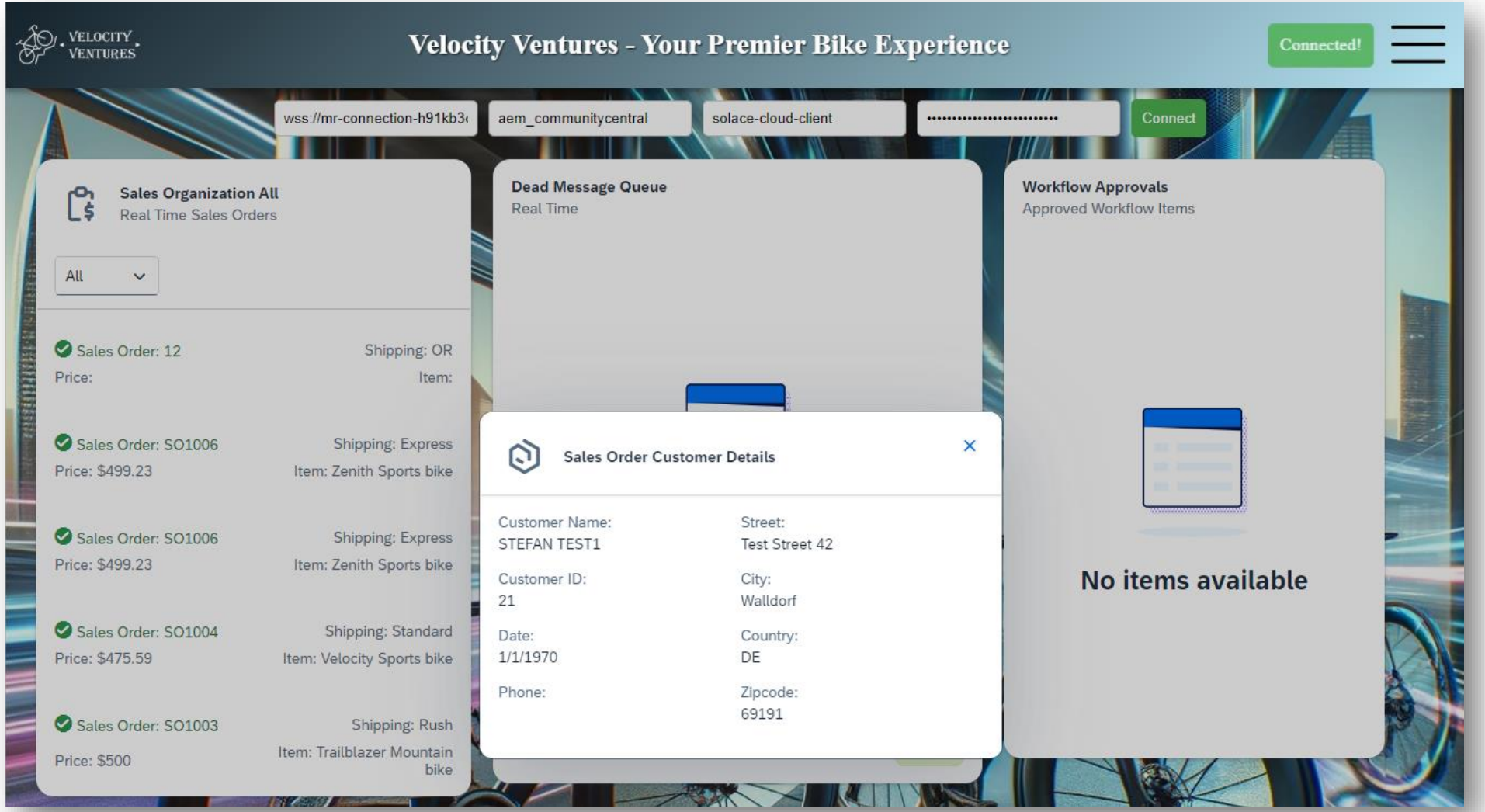


Day 5 – Expected Result on AEM

TryMe – Functionality on AEM



Day 5 – AIF: Expected Result on Dashboard



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