Integrating Systems to “**Talk Smarter**”

Event-Driven Architecture, ***SAP BTP*** *and* ***Advanced Event Mesh*** *in Action*

SAP INSIDE TRACK
İSTANBUL 2025

Barış Büyüktanır || Deniz Zilyas

May’2025

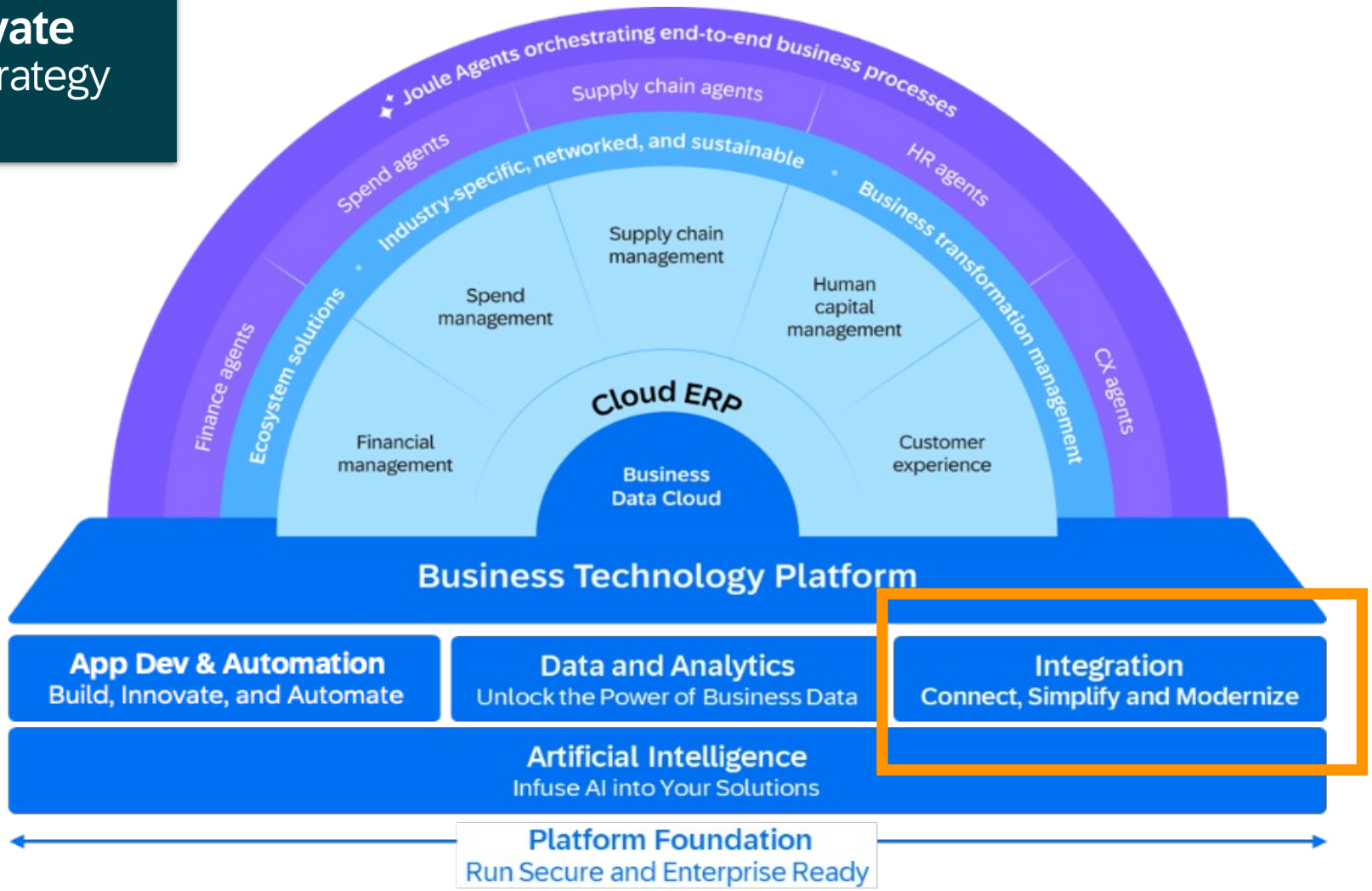
Agenda

- **Walk through** SAP's Integration and Event-Driven Capabilities
- SAP BTP Integration Suite: "**talking smarter**"
- Event-Driven Architecture **"in action"** with Advanced Event Mesh
- Recap and Roadmap for SAP BTP Integration & AEM
- Final words and key takeaways

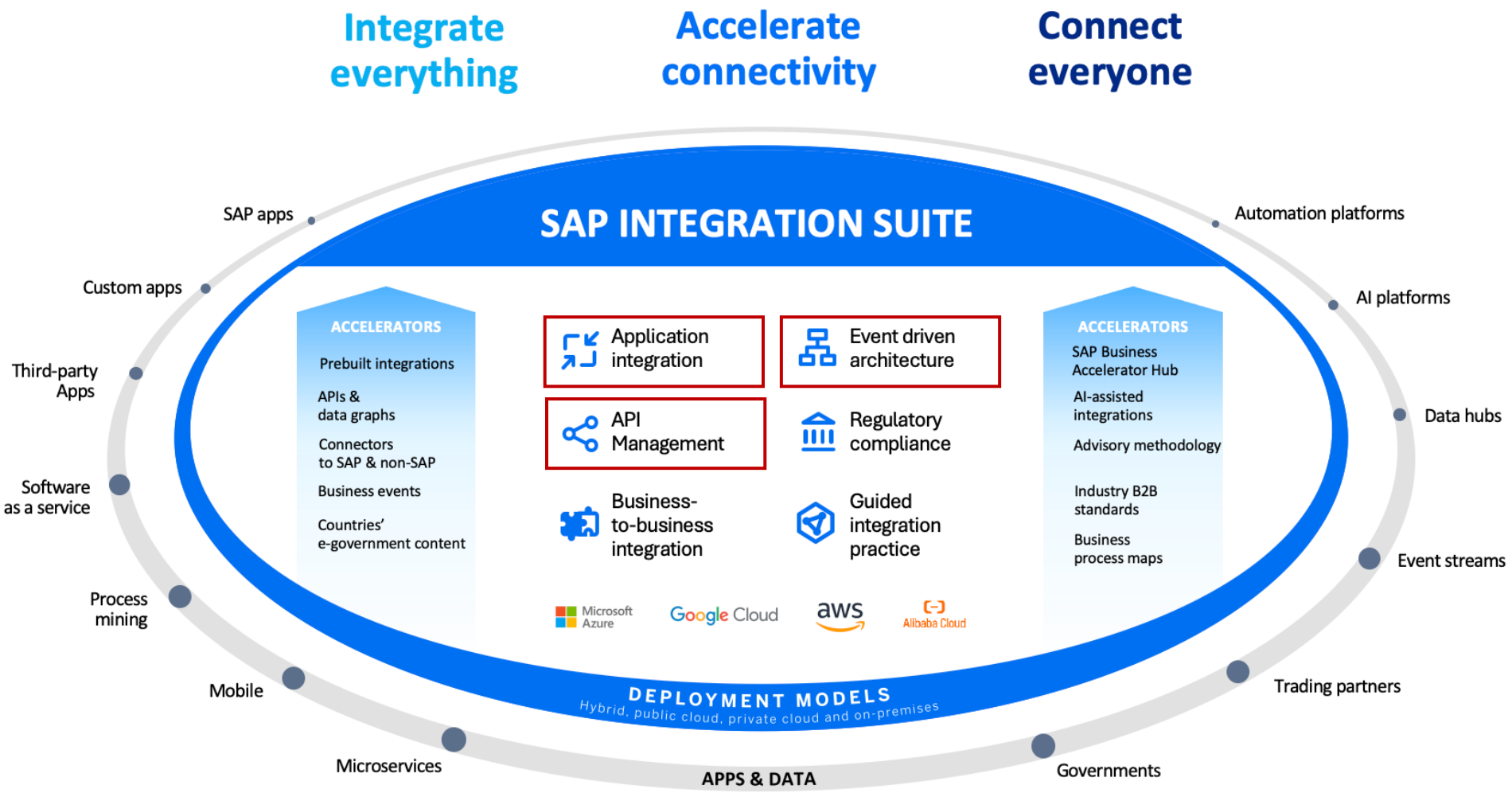
Walk Through **SAP's Integration and Event-Driven** Capabilities

SAP’s Integration Strategy & BTP Integration Capability

Integrate to Innovate
SAP’s Integration Strategy
White Paper

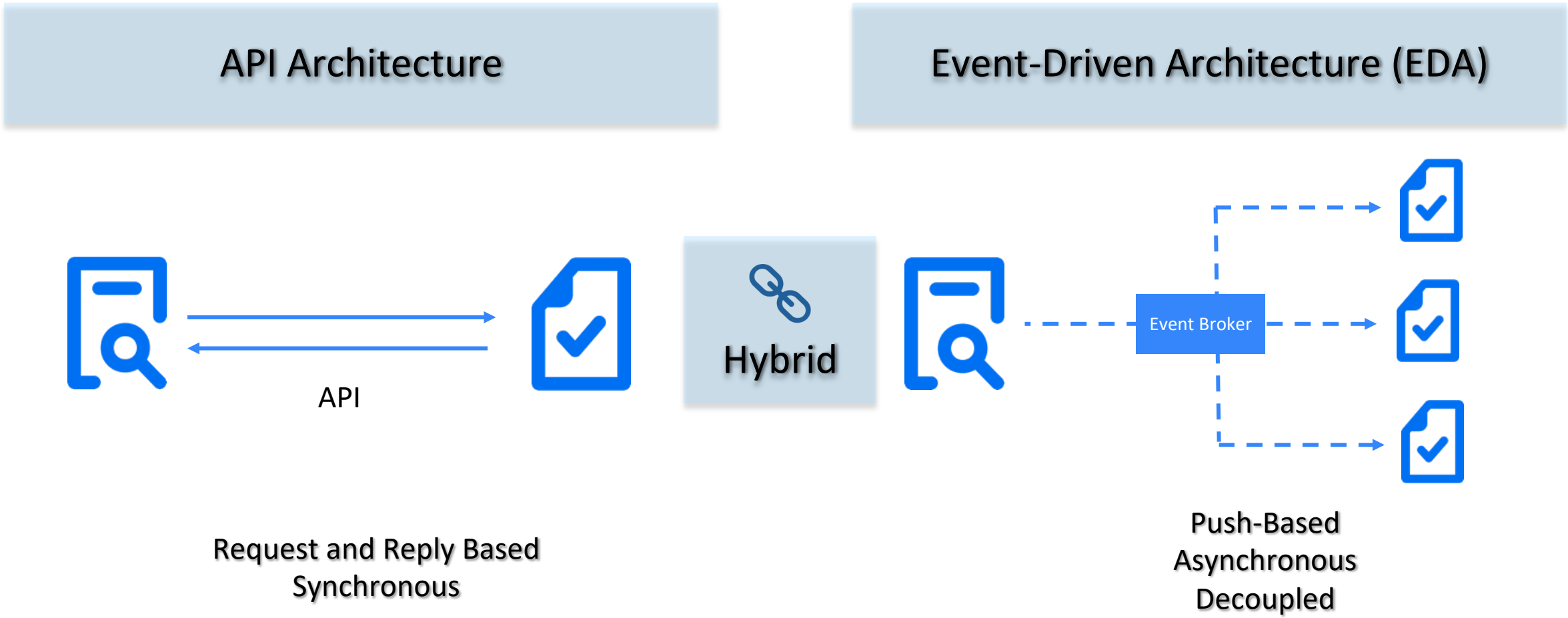


Integration via BTP : **SAP Integration Suite**



API-led classical, **Event-Driven** and **Hybrid** Integrations

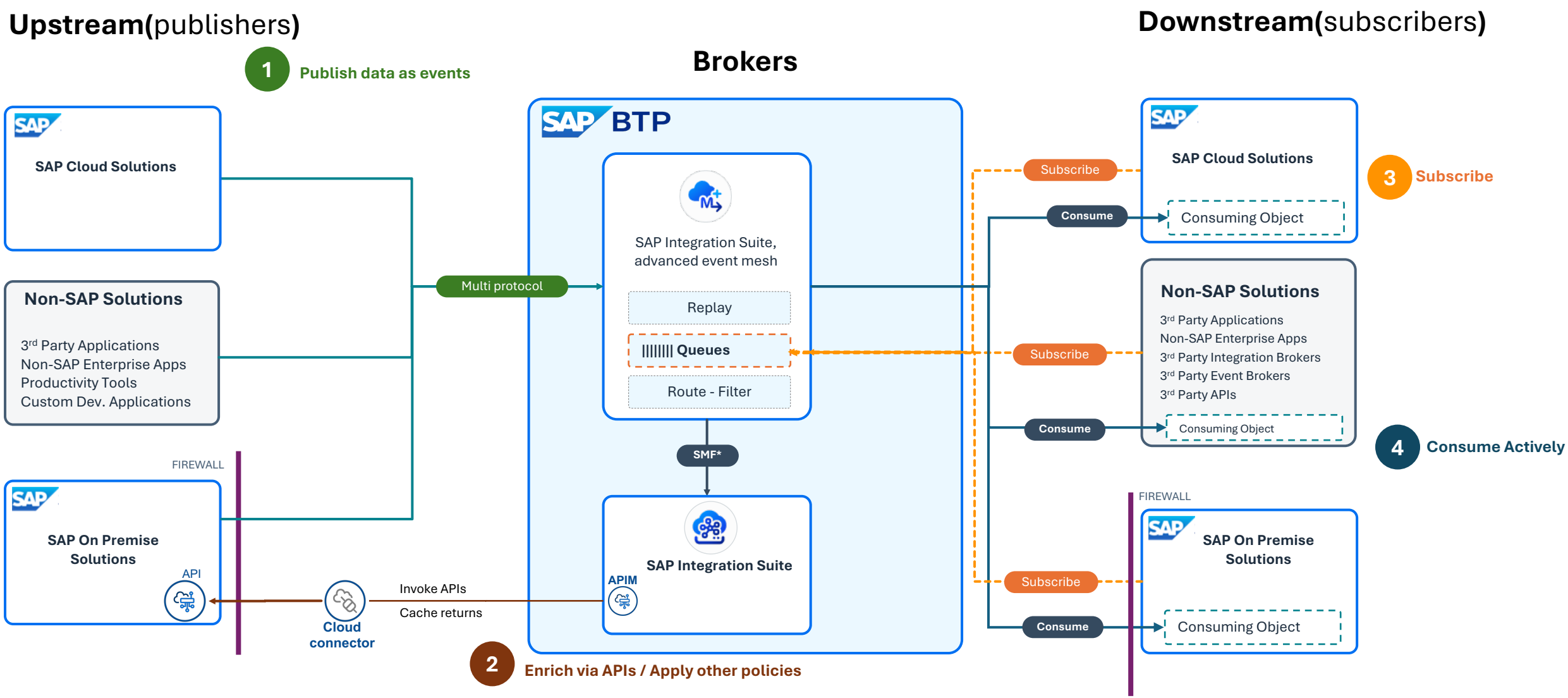
When to use which



Why Event-Driven ? – too many reasons

- Loose coupling of systems and applications (**minimum dependencies**)
- (Near)**real time** information published to **distributed systems..** No polling .. **Everything is event**, every component acts as soon as possible
- **Publish once**, do not stop/wait for other service(s).
- Shifting from **huge batches to small blocks of data** over time
- **Handle slower consumers**, back-off / back-pressure
- Load balance - **scale and fail independently**, add new consumers easily
- No loss of messages, **replay the history** for late joiners / errors
- **«Smart routing»** based on topics

The Big Picture – Architecture



SAP BTP Integration Suite

Talking "Smarter" than ever

SAP’s Event Brokers

SAP **Event-Driven Integration Offerings** for BTP

Application development and automation | Data and analytics | Extended planning and analysis | **Integration** | Artificial intelligence

Advanced Event Mesh
Use an event-streaming and management platform for the real-time enterprise.

Event Mesh
SAP Event Mesh allows applications to communicate through asynchronous events.

SAP Event Hub
Flexible solution to distribute business events across the SAP cloud landscape.

FEATURED

Integration Suite
Simplify and accelerate enterprise integration.

Event Mesh Capability (EM-IS)

Free Tier

SAP’s Event Brokers

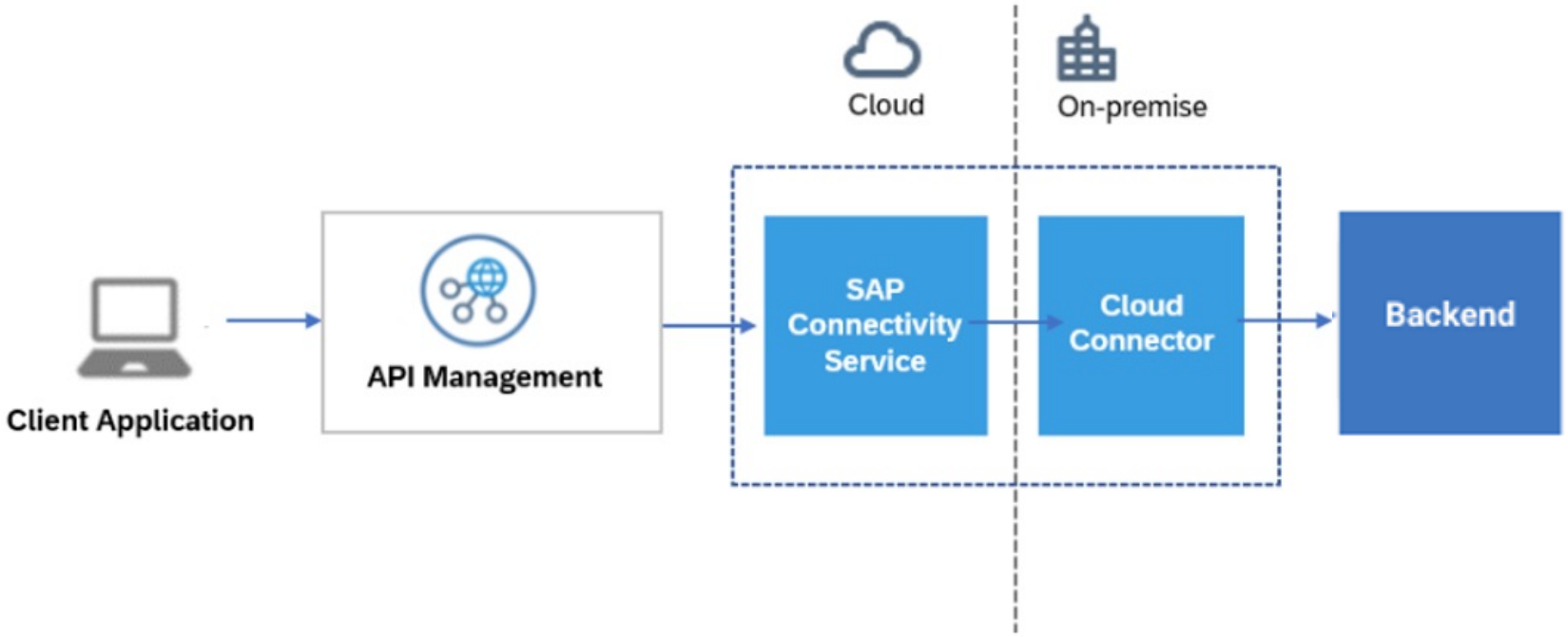
Feature / Service	Event Mesh (Standalone Subscription)	Event Mesh (Integration Suite Capability)	Advanced Event Mesh (AEM)	Cloud Application Event Hub (CAEH)
What is it?	Standalone event broker service on BTP	Same broker engine, integrated into Integration Suite	Solace-powered, distributed high-scale event mesh	Lightweight event publisher for SAP Cloud apps
Who is it for?	BTP apps, CPI, external systems	CPI-based integration scenarios with event-driven logic	Global, high-load, enterprise-grade architectures	SAP Cloud apps sending events to 3rd party systems
Usage model	Pub-sub, queue/topic creation, general purpose	Pub-sub, usually tied to CPI flows	Mesh network, geo-distributed, high throughput	Publish-only (Cloud App → external consumer)
Subscriber support	✅ Yes (AMQP, Webhook, Kafka, REST)	✅ Yes (CPI, Webhook, Kafka, REST)	✅ Yes (same + Solace tools)	✅ Yes (REST, Webhook, Kafka, etc.)
Management UI	✅ BTP Cockpit + REST APIs	✅ BTP Cockpit (limited to CPI scenarios)	Solace Admin UI / CLI / APIs	Simple, embedded in SAP Cloud admin tools
Routing & QoS	Durable queues, topic filters, retry logic	Same (in CPI context)	Advanced: replay, mesh routing, guaranteed delivery	Basic delivery, limited routing
Setup & Operations	Separate subscription, full configuration	Automatically provisioned in Integration Suite tenant	High – dedicated brokers with infrastructure setup	Lightweight provisioning, low ops effort
Example Use Case	SAP → Event Mesh → AMQP → 3rd Party	S/4HANA Cloud → CPI (iFlow) triggered by event	Black Friday load handling across regions	SAP Subscription Billing → Kafka or webhook
Key Differentiator	Standalone, reusable across multiple apps	CPI-optimized, fast integration build	Enterprise-grade mesh for massive throughput	SAP SaaS-native, fast external exposure

SAP API Management

“Unlocking the Power of APIs»

What is API Management?

SAP API Management is an API management solution running on the SAP BTP. Its main purpose is to expose services from on-premise or cloud systems to the outside world (or internal systems) in a secure, scalable, and manageable way.



The Key to Digital Ecosystems: SAP API Management

🔧 What Does It Do?

Exposure of backend services

API Security

Monitoring & Analytics

Rate Limiting, C**aching**, and T**raffic Control**

Versioning of APIs

🌐 Where Is It Used?

Exposing SAP systems (e.g., **S/4HANA**, **SF**, **Ariba**) to partners and third-party applications

B2B and partner integrations, mobile apps, and portals

IoT scenarios needing secure, controlled access to SAP data

Acting as a **central API gateway** in hybrid system landscapes

Supporting **digital business models** with service-based offerings

Real-World Use Cases of SAP API Management

Response Caching
Improve performance by caching repetitive requests when backend data changes infrequently.

Key-Value Map (KVM)
Manage dynamic parameters like tokens or endpoints externally using get/set scripting.

Quota + Spike Arrest (Rate Limiting)
Protect public APIs from overload and define per-subscriber call limits.

VerifyAPIKey + OAuth2 Security
Control who accesses your API with robust, app-based authentication policies.

Backend Failover / Mock Response
Ensure business continuity with static or KVM-based fallback responses when backend fails.

JavaScript Payload Manipulation
Enrich responses with dynamic fields like timestamp, clientId, or geo info.

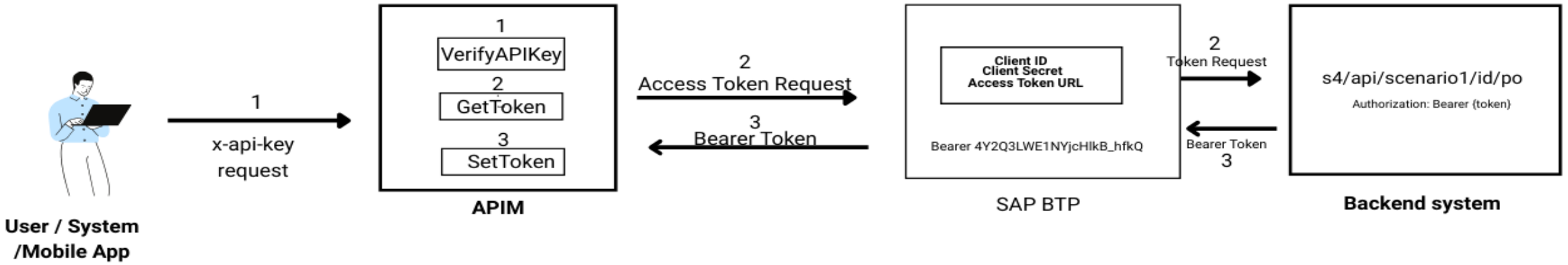
Header Injection & Sanitation
Auto-inject headers (e.g., Authorization, X-Correlation-ID) to enhance security and traceability.

Request/Response Validation (JSON/XML)
Enforce strict schema validation to prevent malformed data from affecting backend systems.

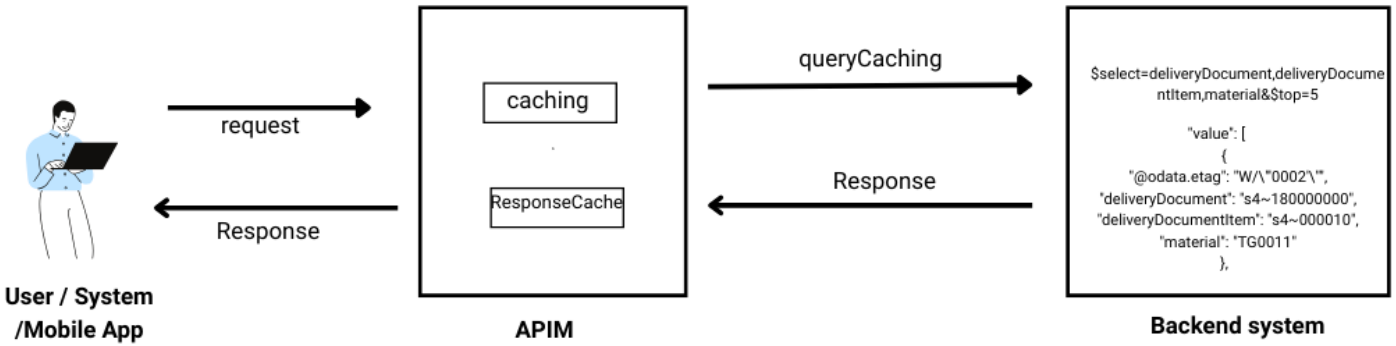
SAP API Management

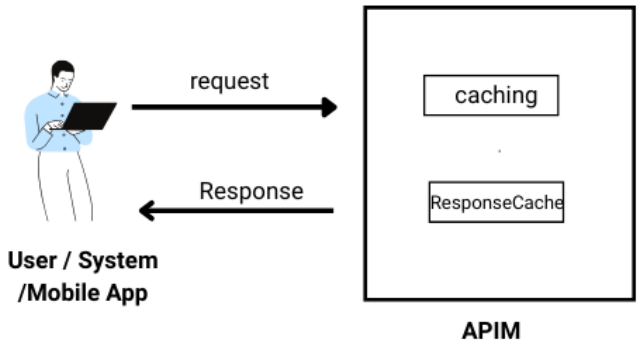
”Fast and Secure: SAP S/4HANA API Consumption with APIM»

Fast and Secure: SAP S/4HANA API Consumption with APIM



Fast and Secure: SAP S/4HANA API Consumption with APIM

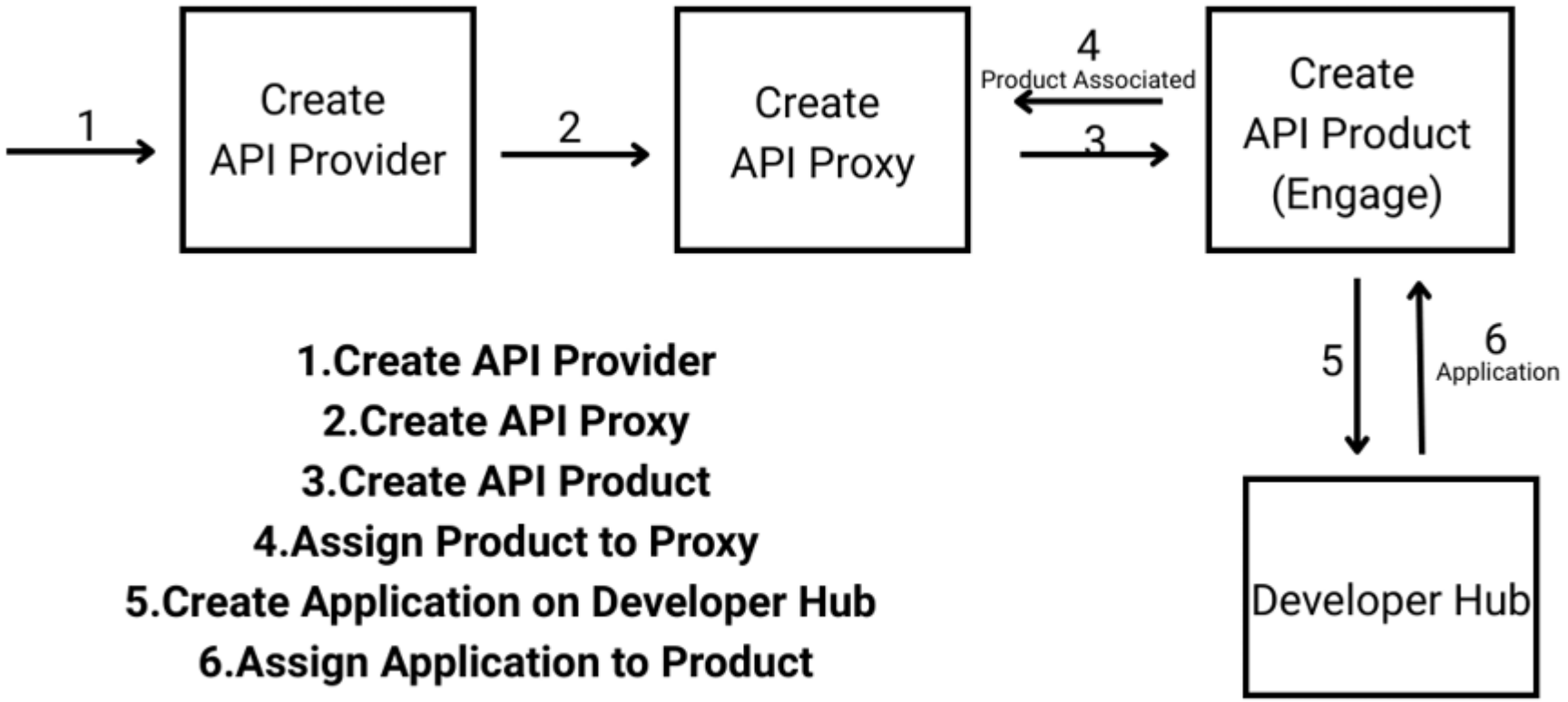




Purpose

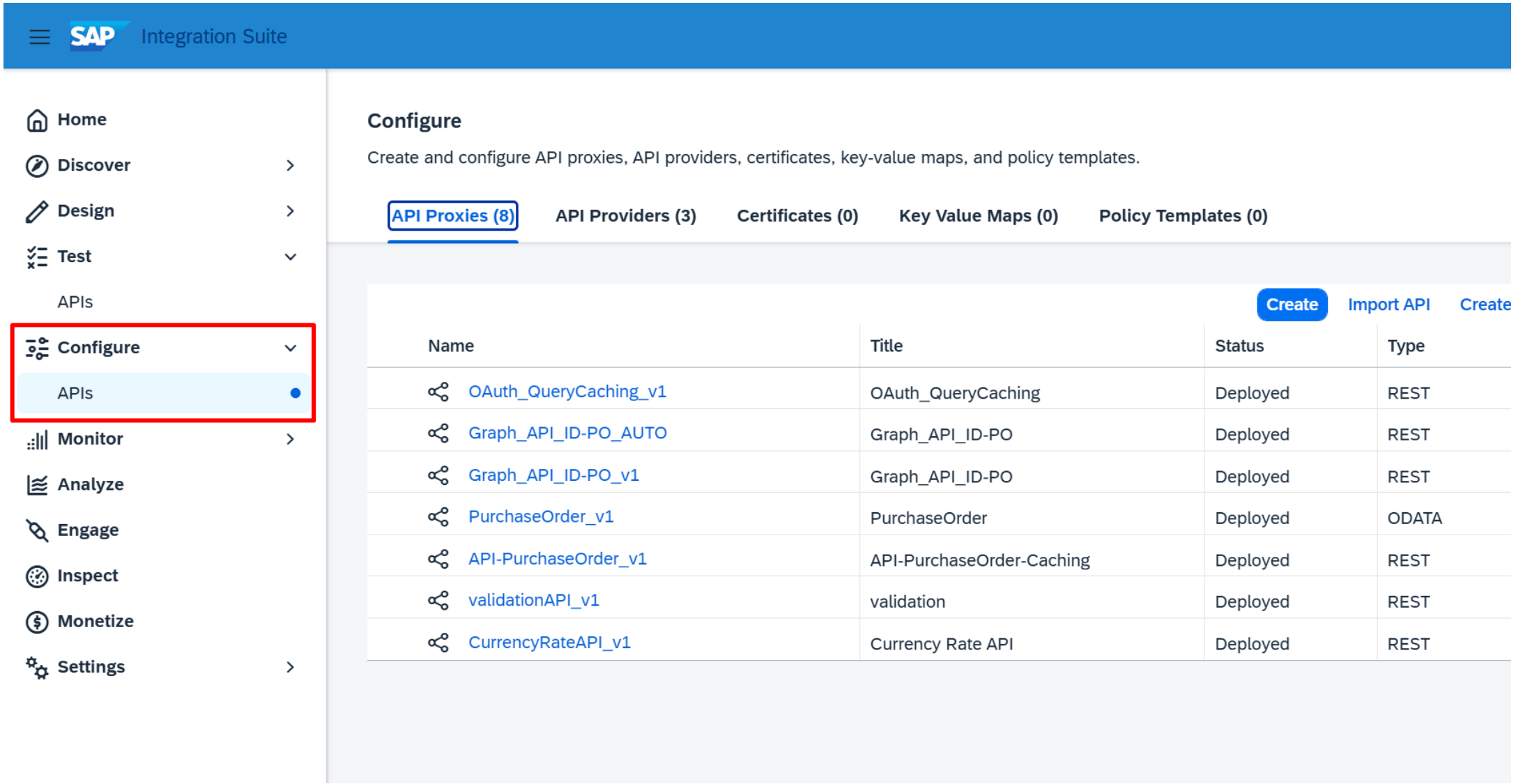
Thanks to caching, we can return responses to frequently repeated queries directly through APIM without calling the backend system.
This not only preserves SAP BTP resources but also allows us to deliver near-instant responses to users.
By defining our own cache duration, we provide second-level access while only engaging the backend system when truly necessary.

Fast and Secure: SAP S/4HANA API Consumption with APIM

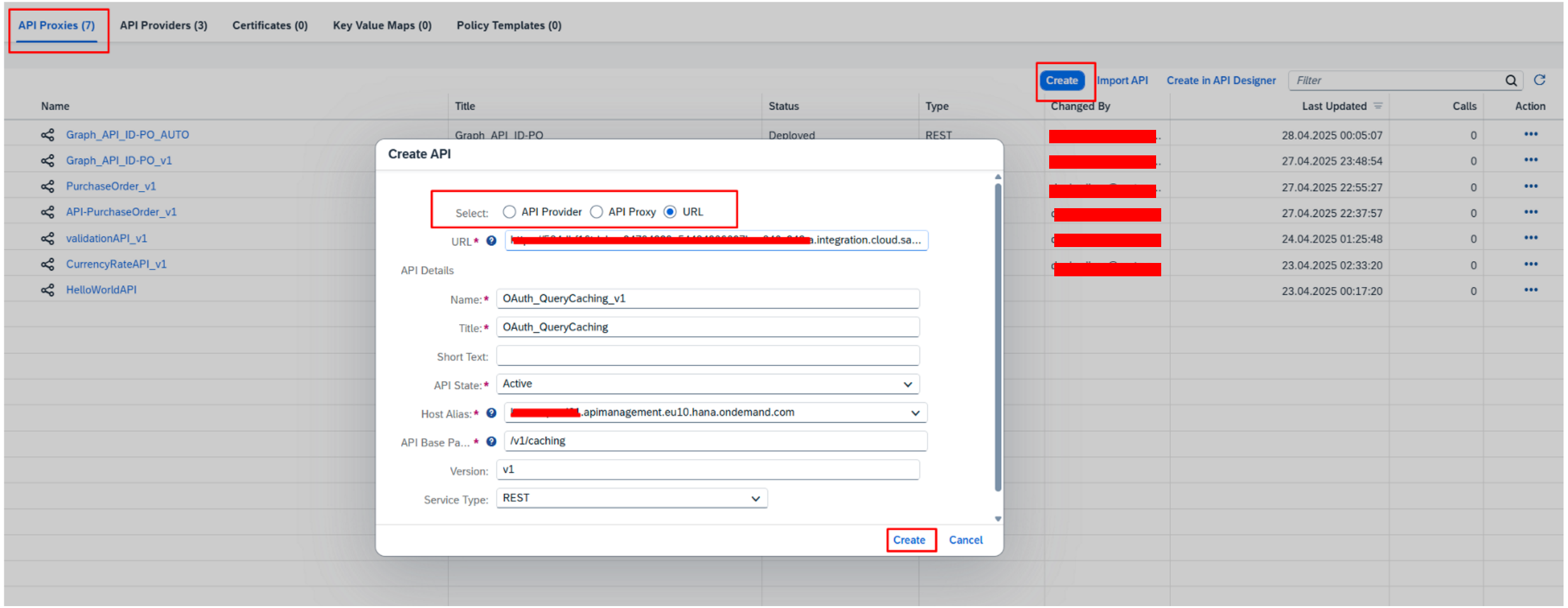


1.Create API Provider
2.Create API Proxy
3.Create API Product
4.Assign Product to Proxy
5.Create Application on Developer Hub
6.Assign Application to Product

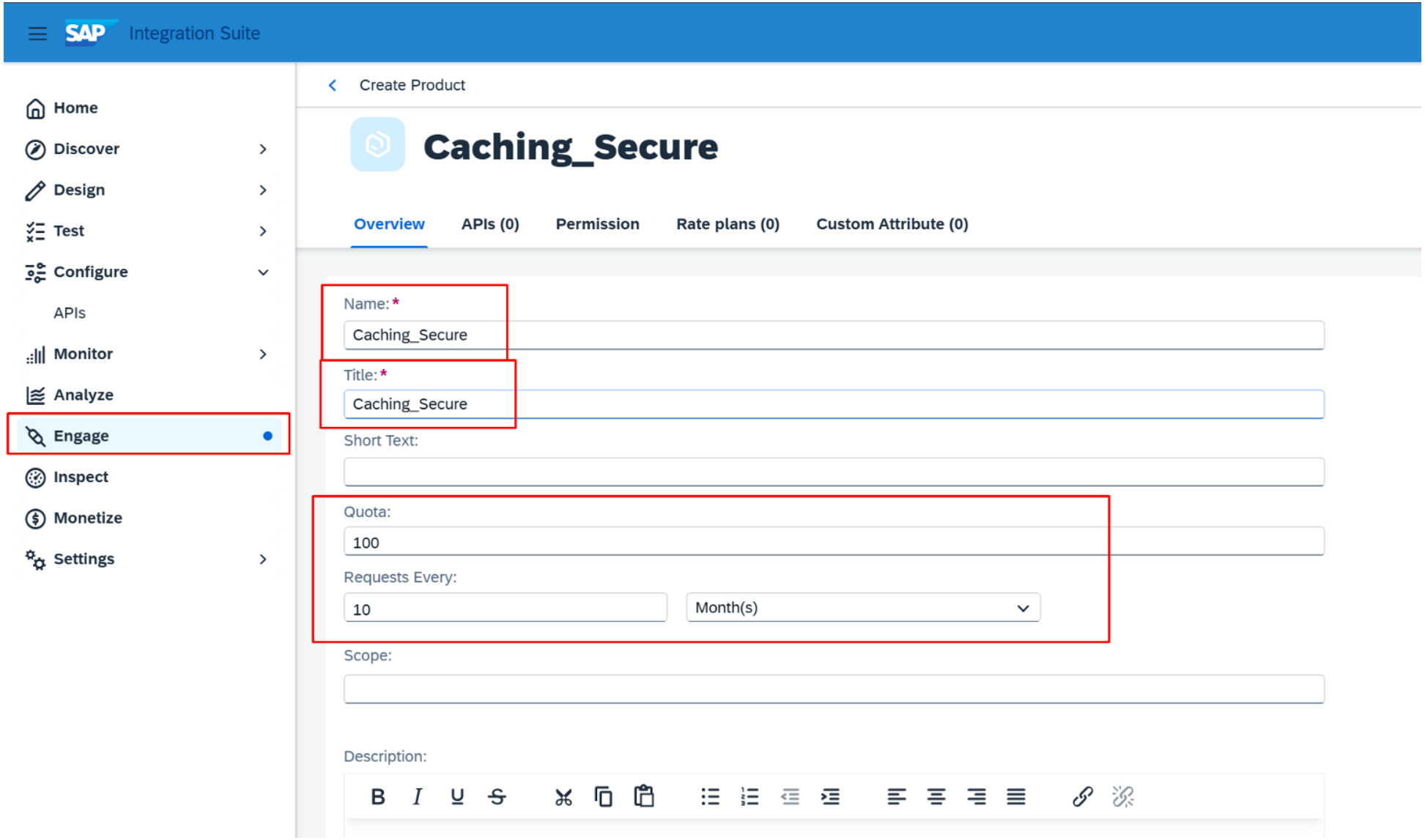
Fast and Secure: API Management



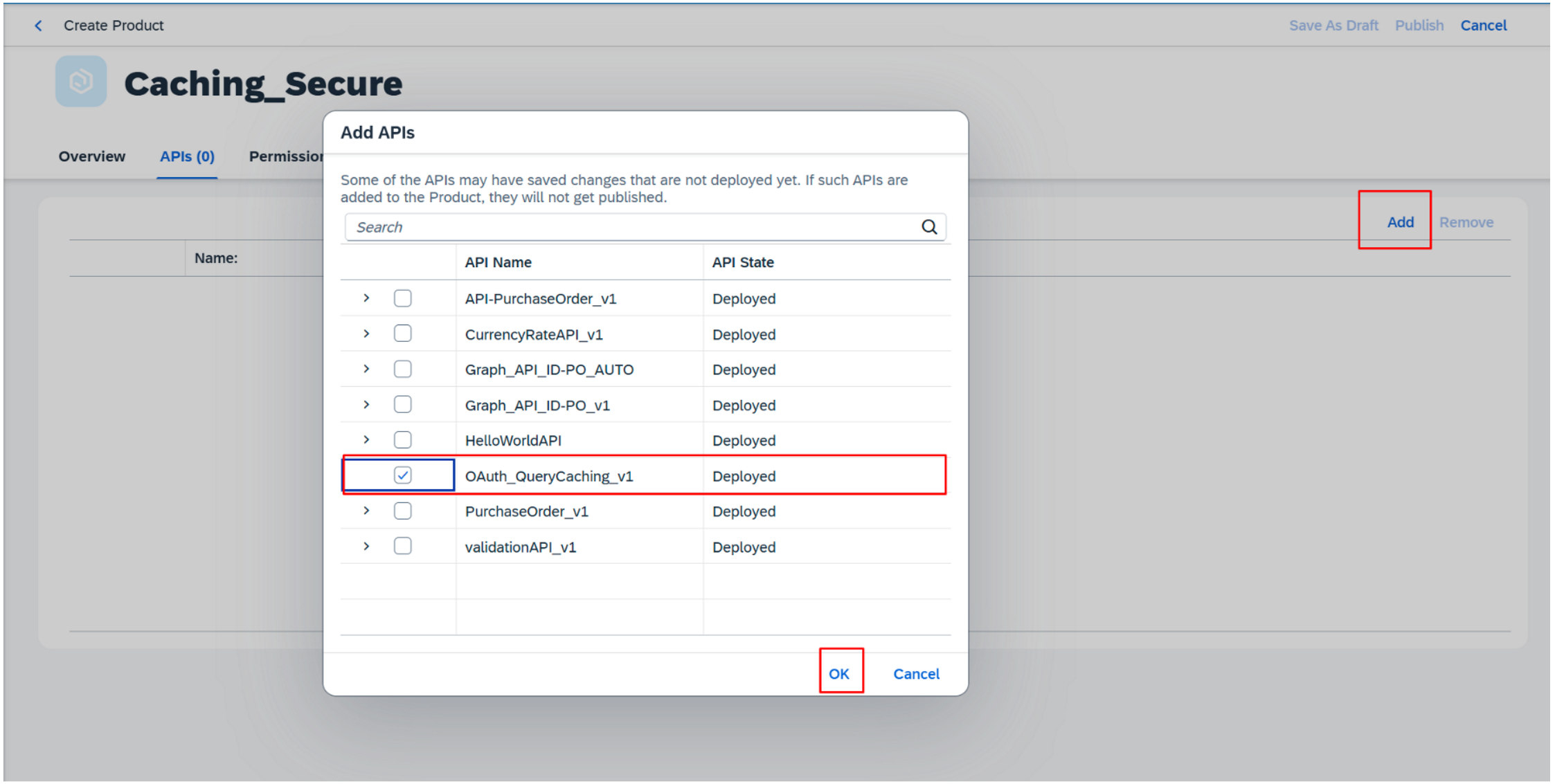
Fast and Secure: Create API Proxy



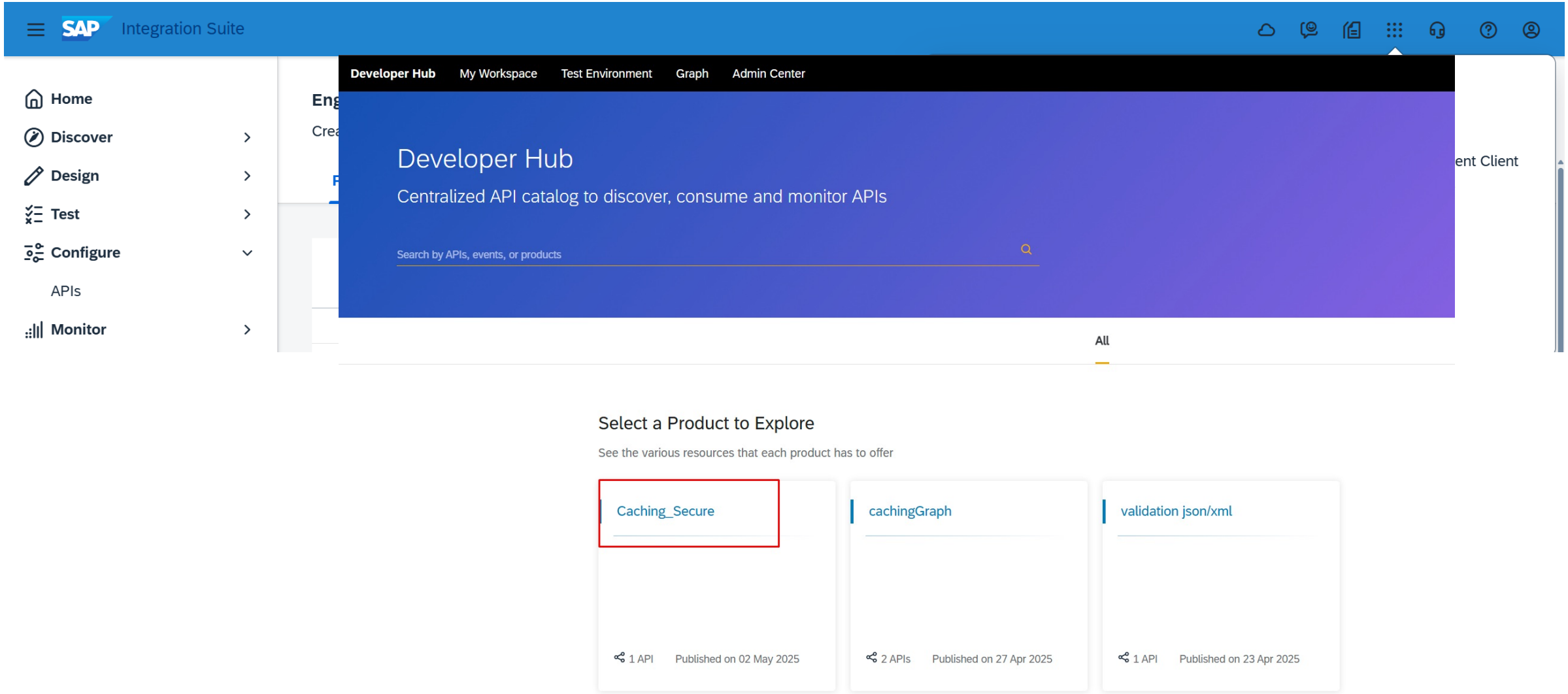
Fast and Secure: Create Product



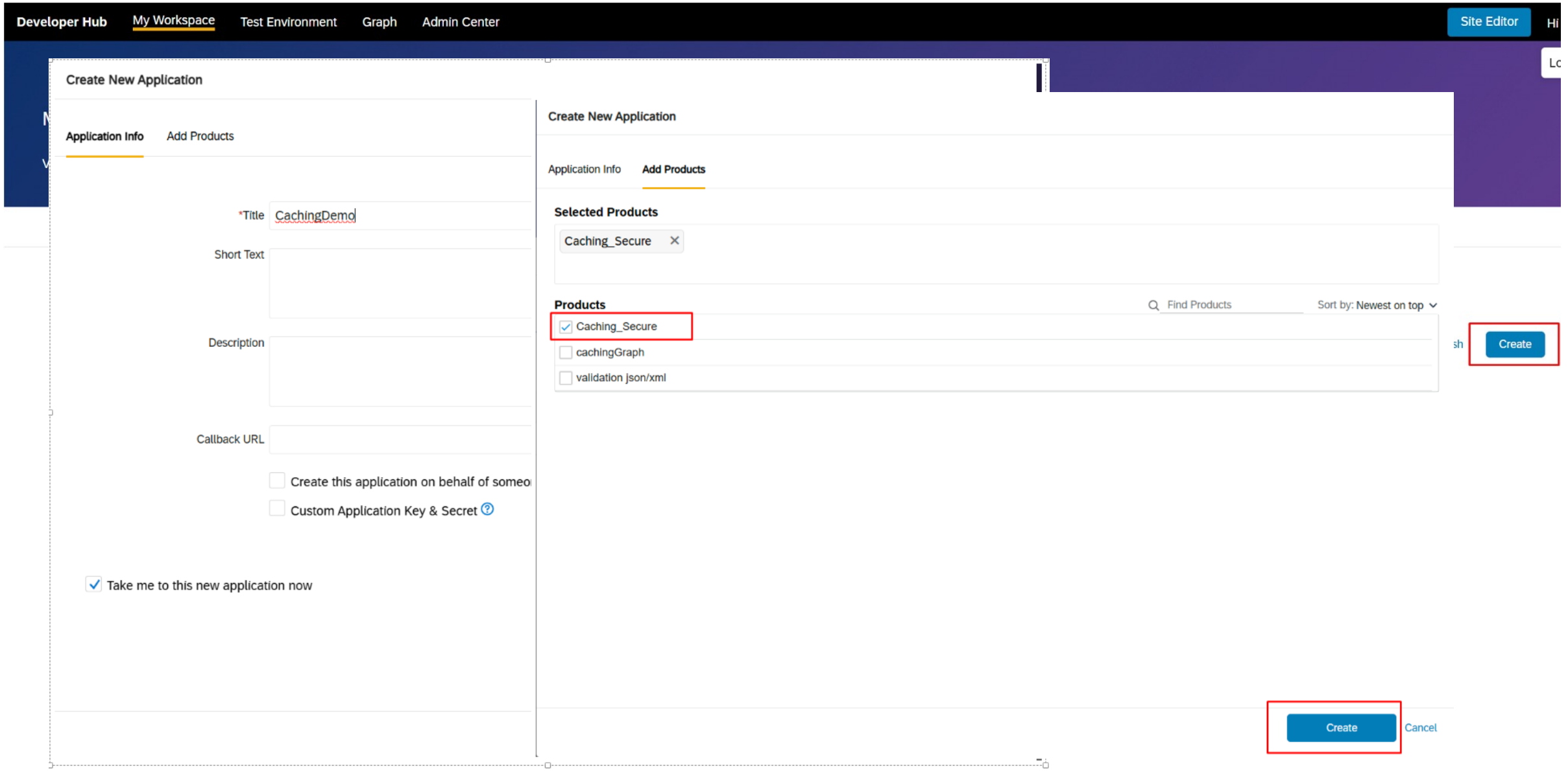
Fast and Secure: Create Product



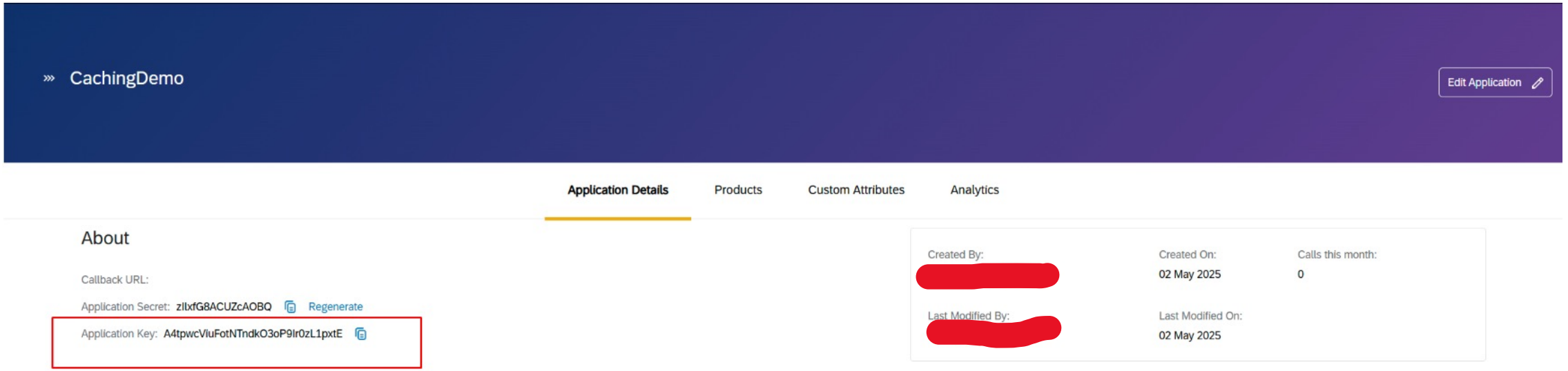
Fast and Secure: Developer Hub



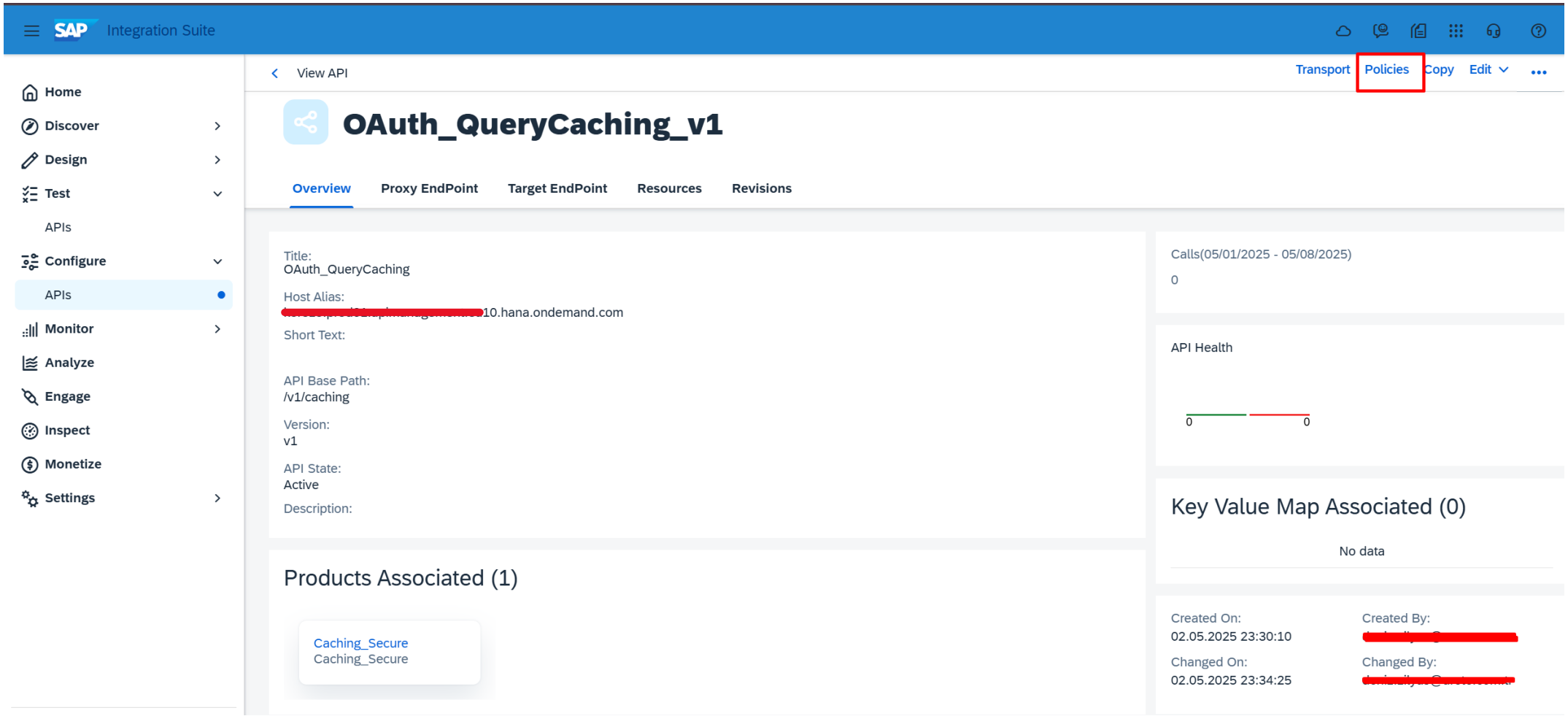
Fast and Secure: Create Application



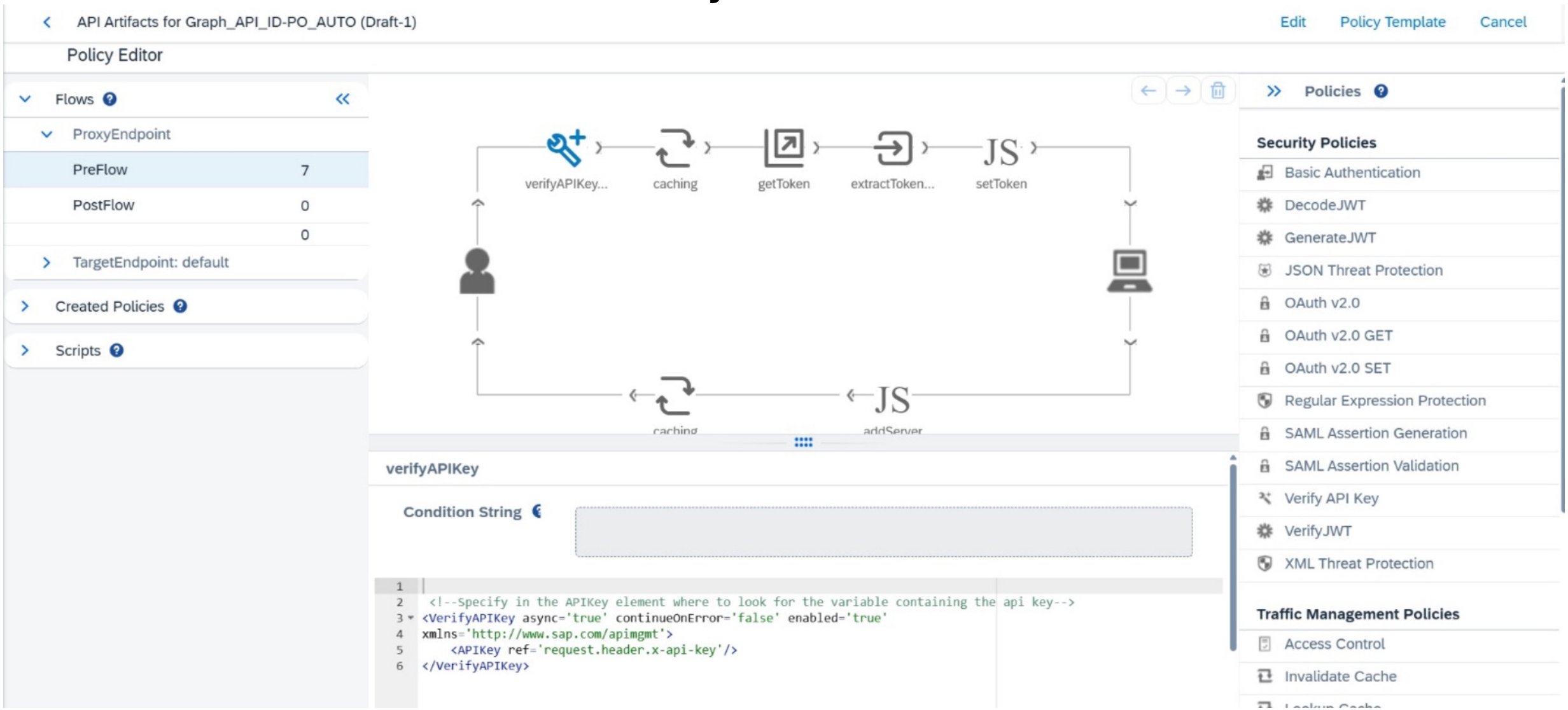
Fast and Secure: Associate with Product



Fast and Secure: API Proxy Policies

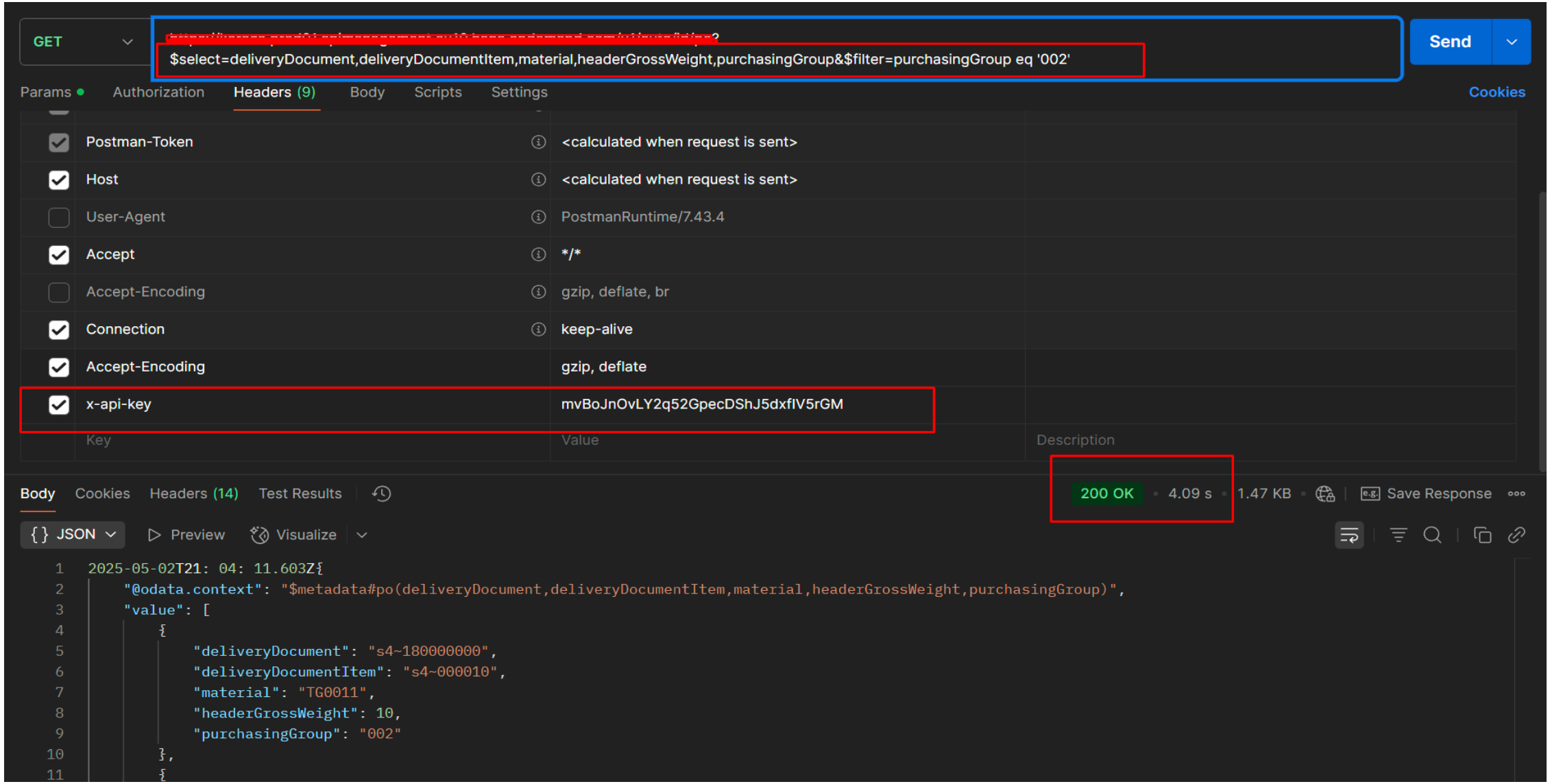


Fast and Secure: API Proxy Policies

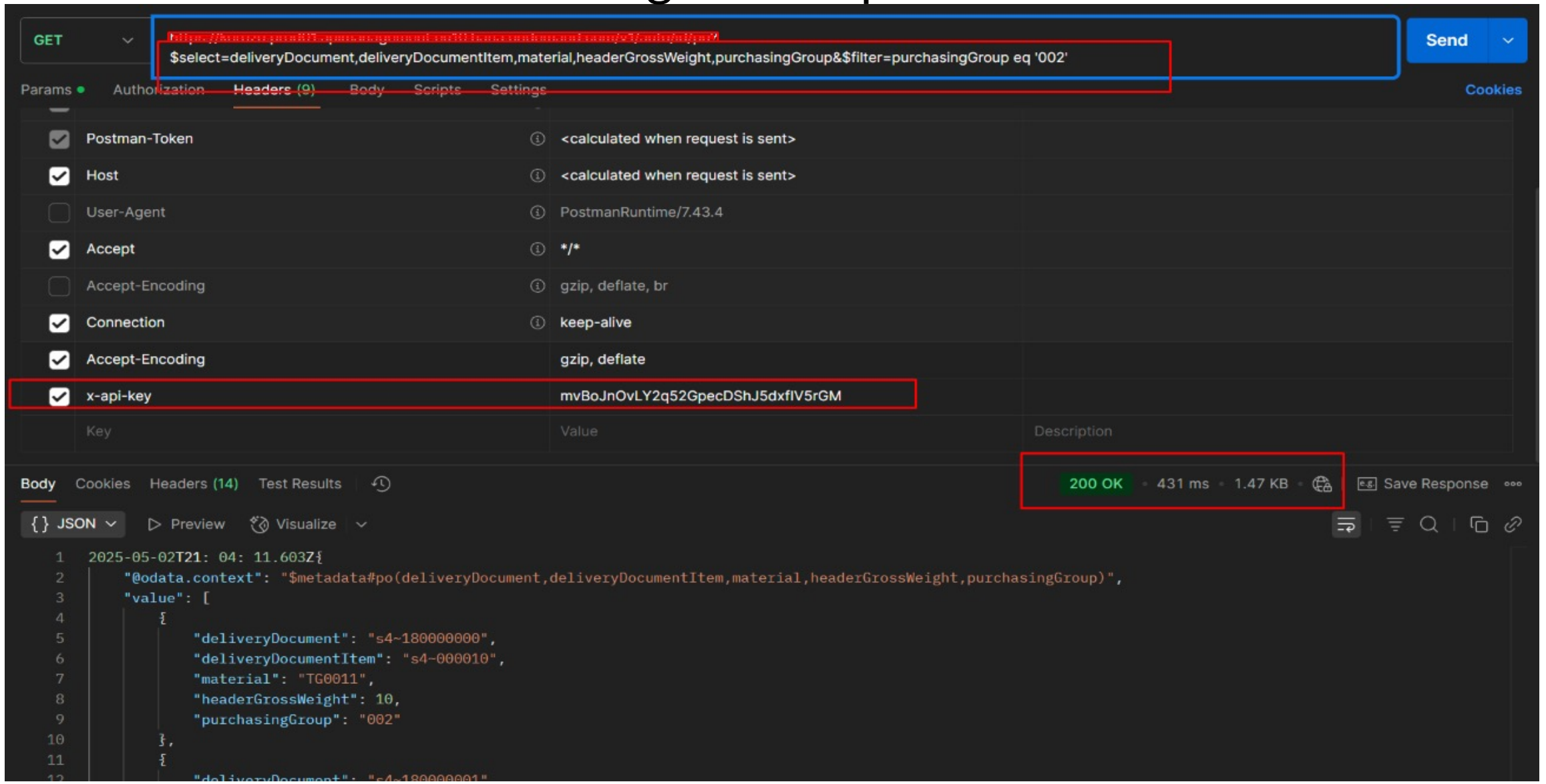


Fast and Secure: API Proxy Policies

Fast and Secure: Testing the Endpoint with Postman



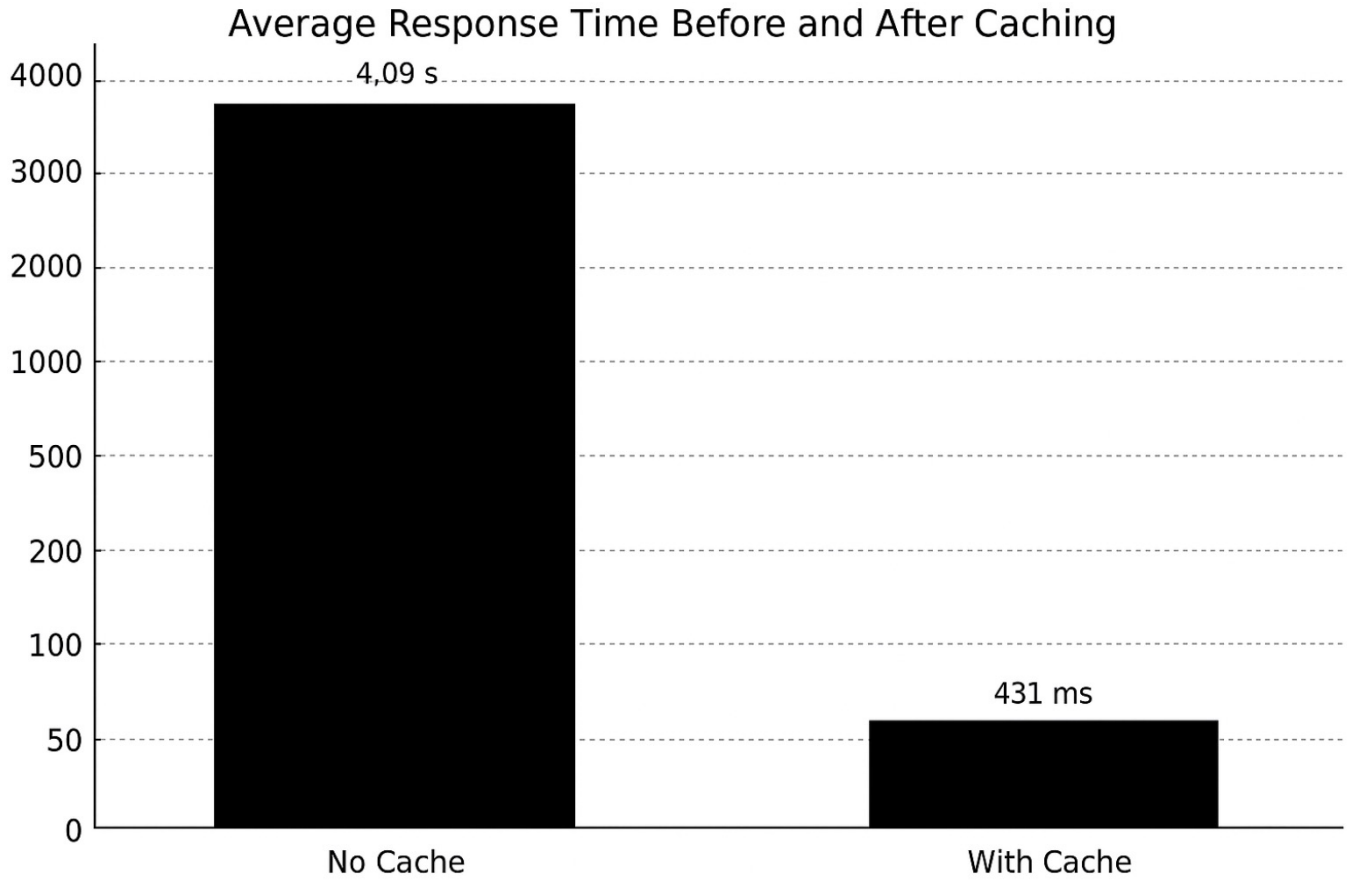
Fast and Secure: Testing the Endpoint with Postman



Business Benefits of Response Caching in SAP APIM

GAINS

Faster Response Times → Improves user experience, especially for mobile users
Lower Backend Load → Reduces pressure on SAP Graph or backend systems
Cost Savings → Avoids redundant backend calls to pay-per-use services
API Quota Efficiency → Prevents hitting rate limits from repeated queries
Improved Stability → Enables continued responses even during backend outages



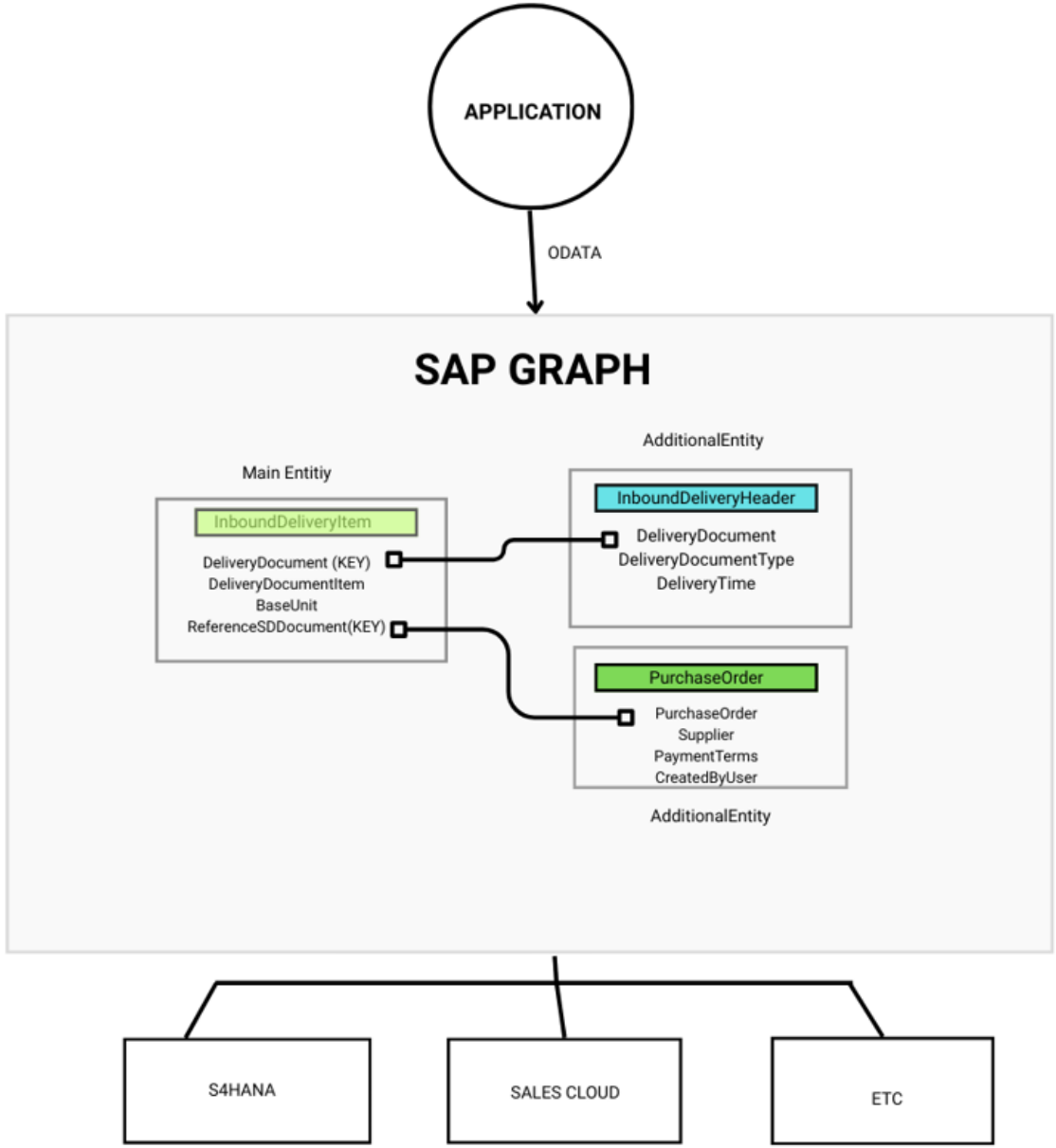
SAP Graph

” Single Access Point to Multiple SAP Systems»

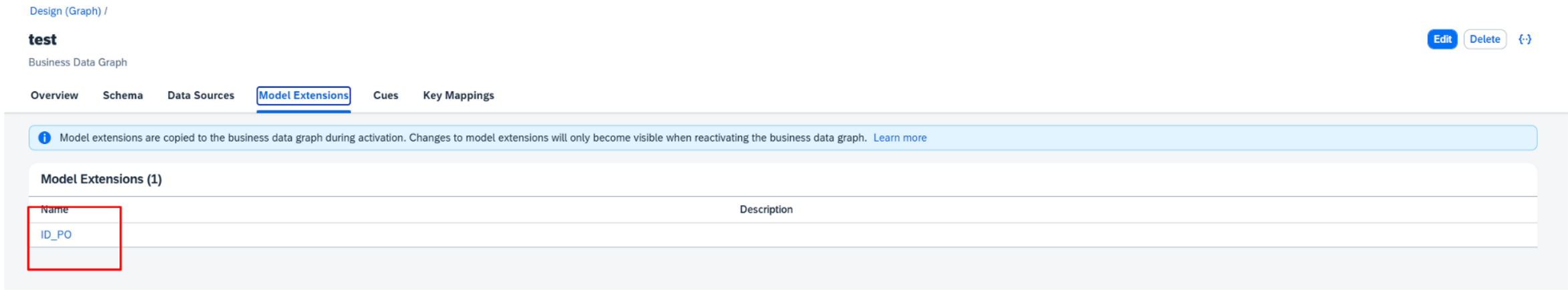
What is SAP Graph?

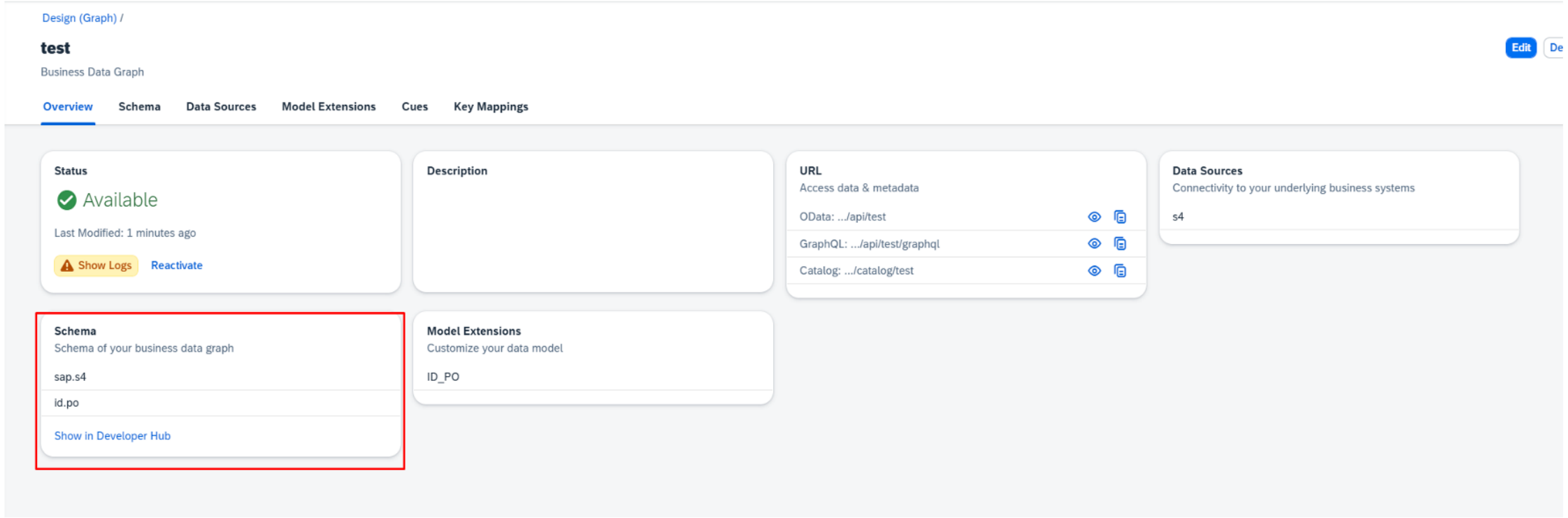
- **SAP Graph** is a service offered by SAP that consolidates data from various SAP systems into a single unified API layer.
  It allows access to data from different systems such as **SAP S/4HANA**, **SAP SuccessFactors**, **SAP Sales Cloud**, and **SAP Concur** through one unified API.
  While doing so, it hides the diversity and complexity of the backend systems.
  The end user (or the integration developer) can access the data through a single **global data model**.

SAP Graph Architecture: Unified Access Across SAP Systems

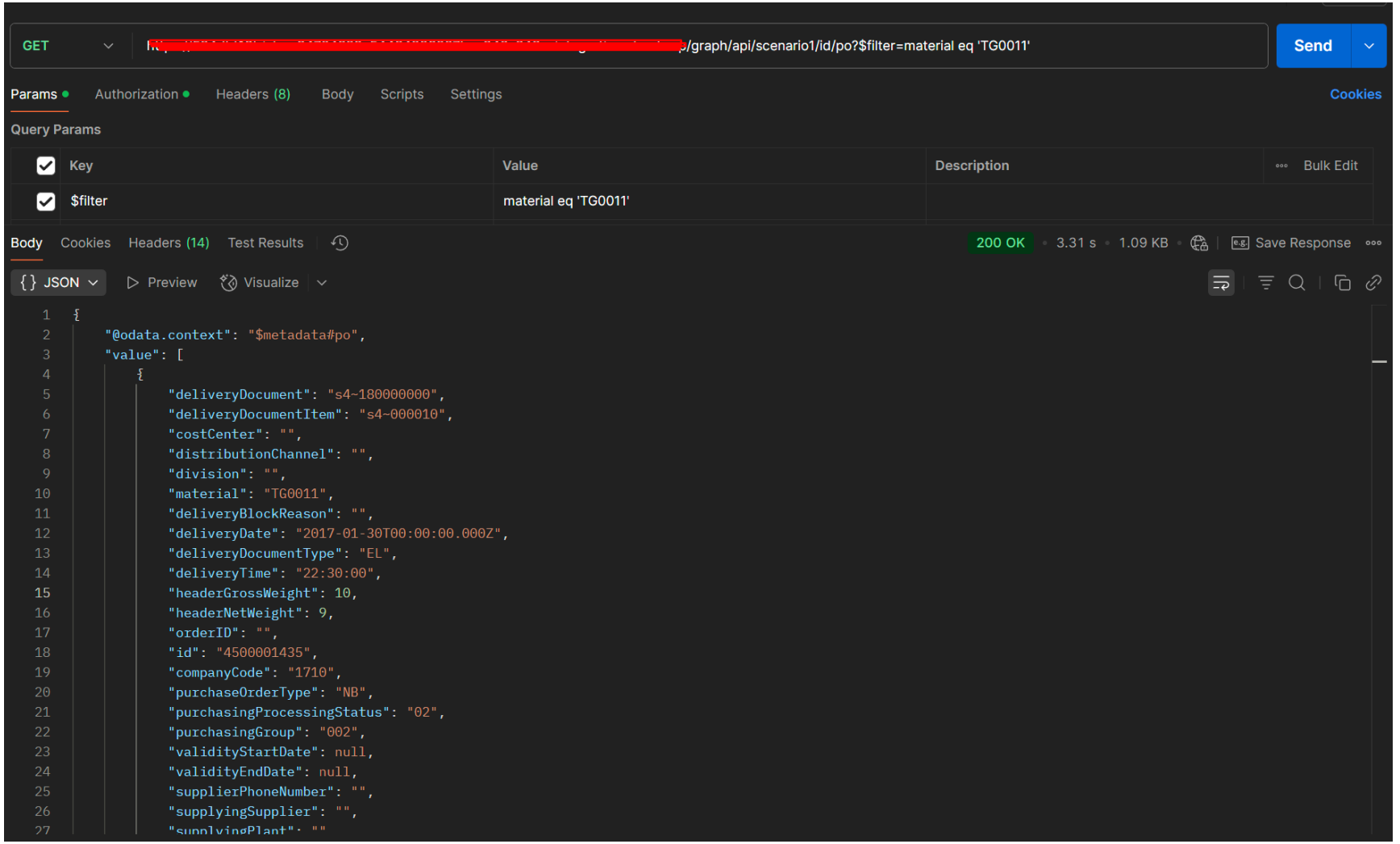


SAP Graph : Hands-on



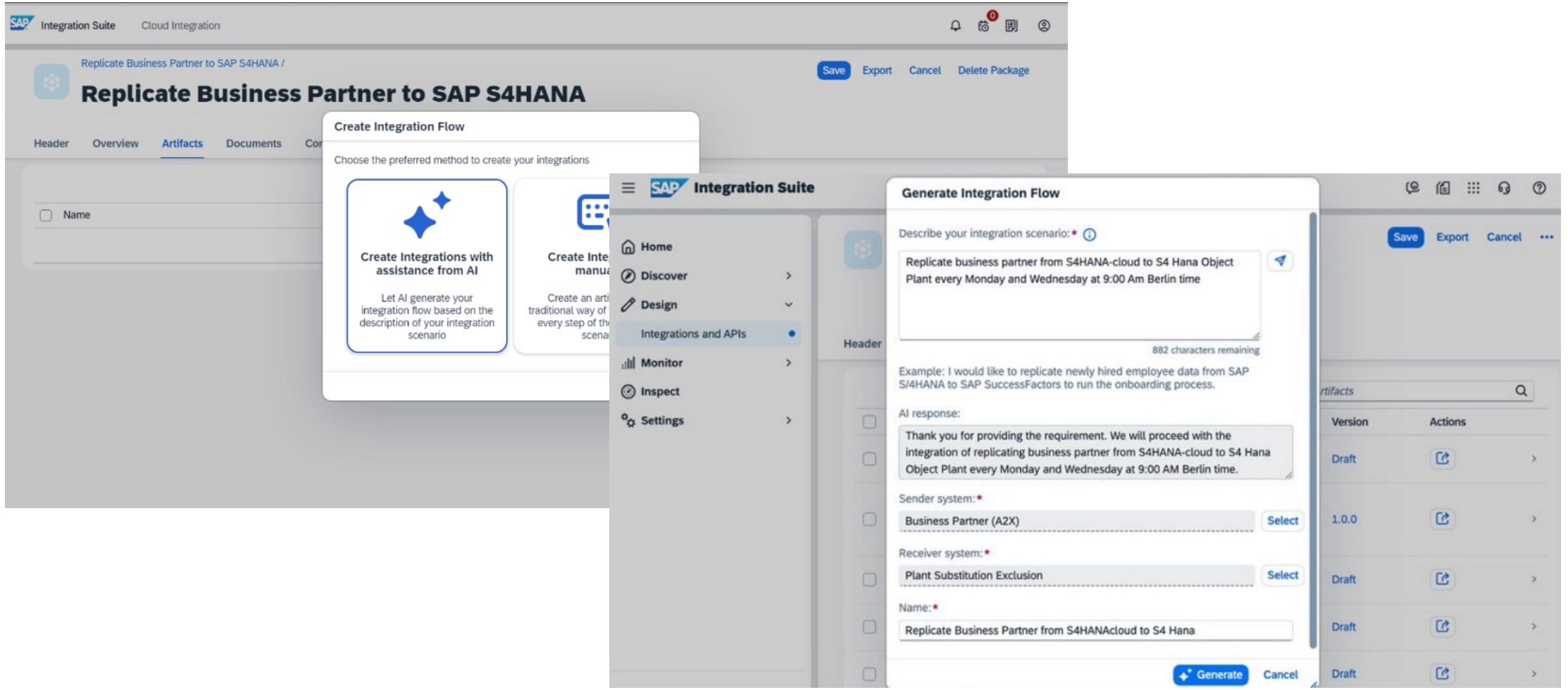


SAP Graph : Testing with Postman

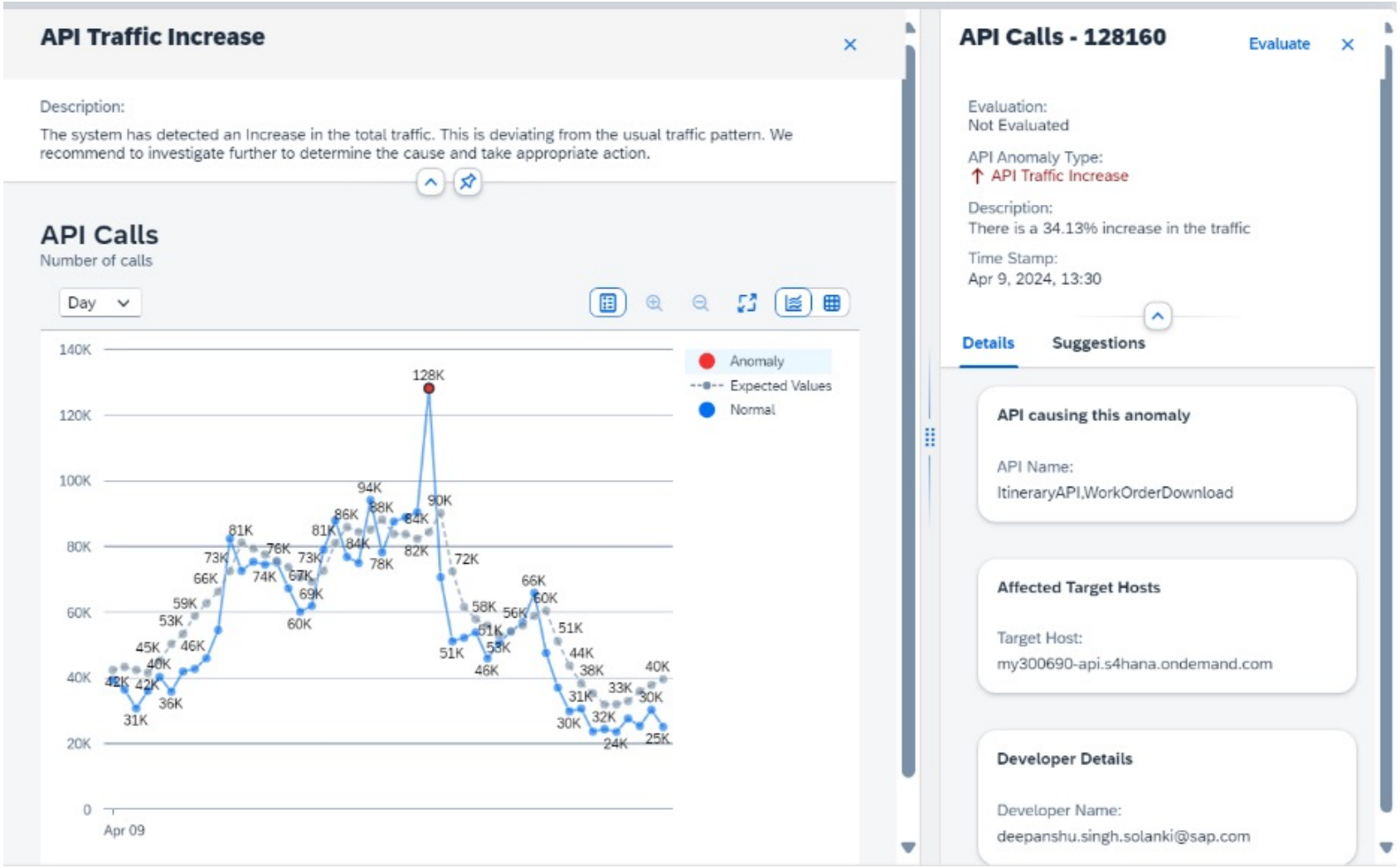


AI in Integration Suite

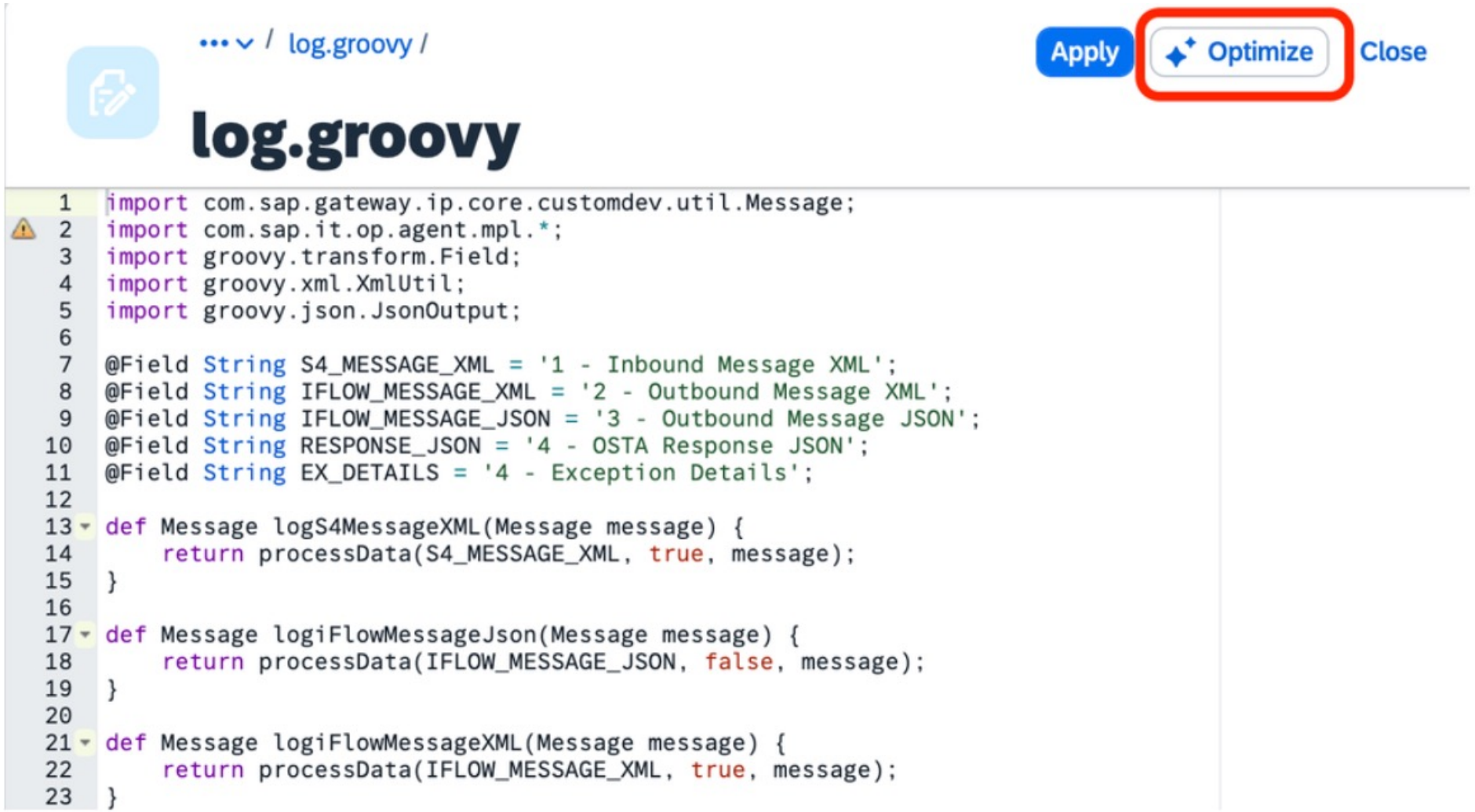
AI in Integration Suite



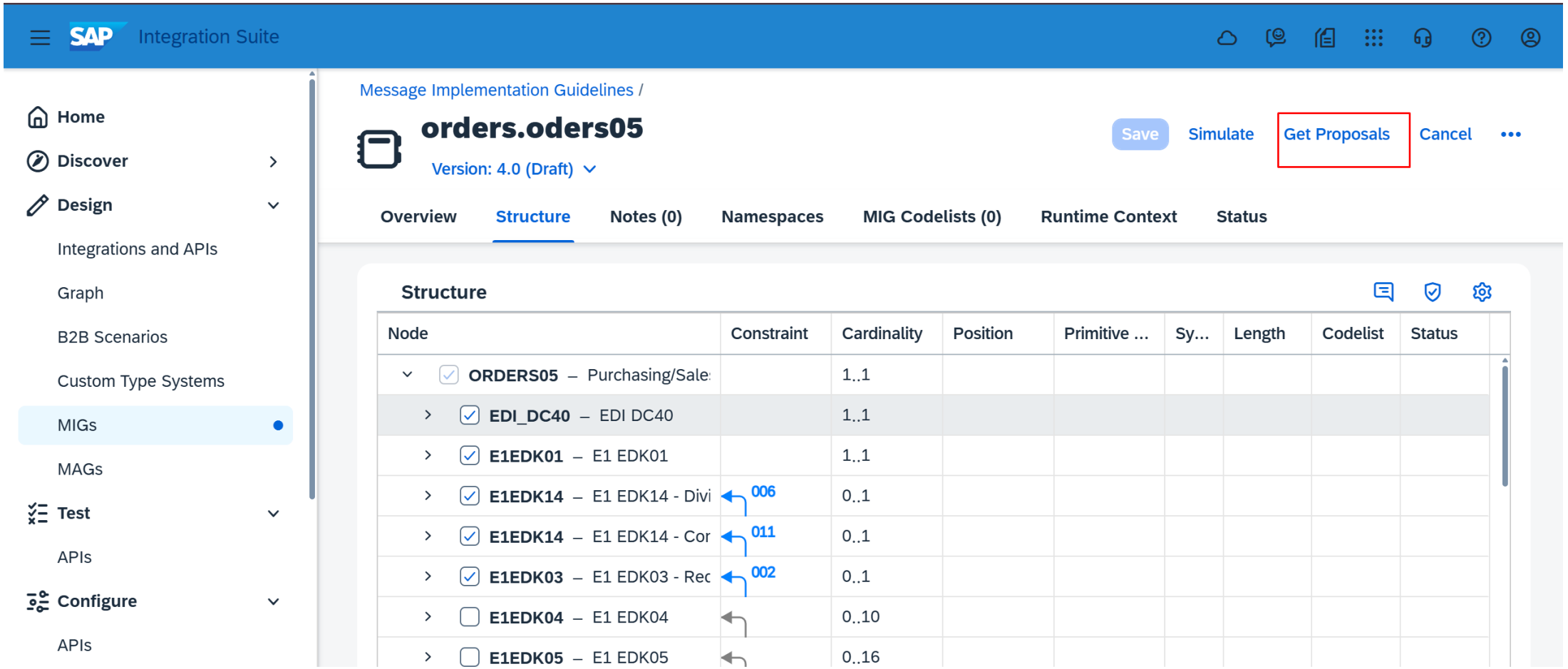
AI in Integration Suite



AI in Integration Suite



AI in Integration Suite

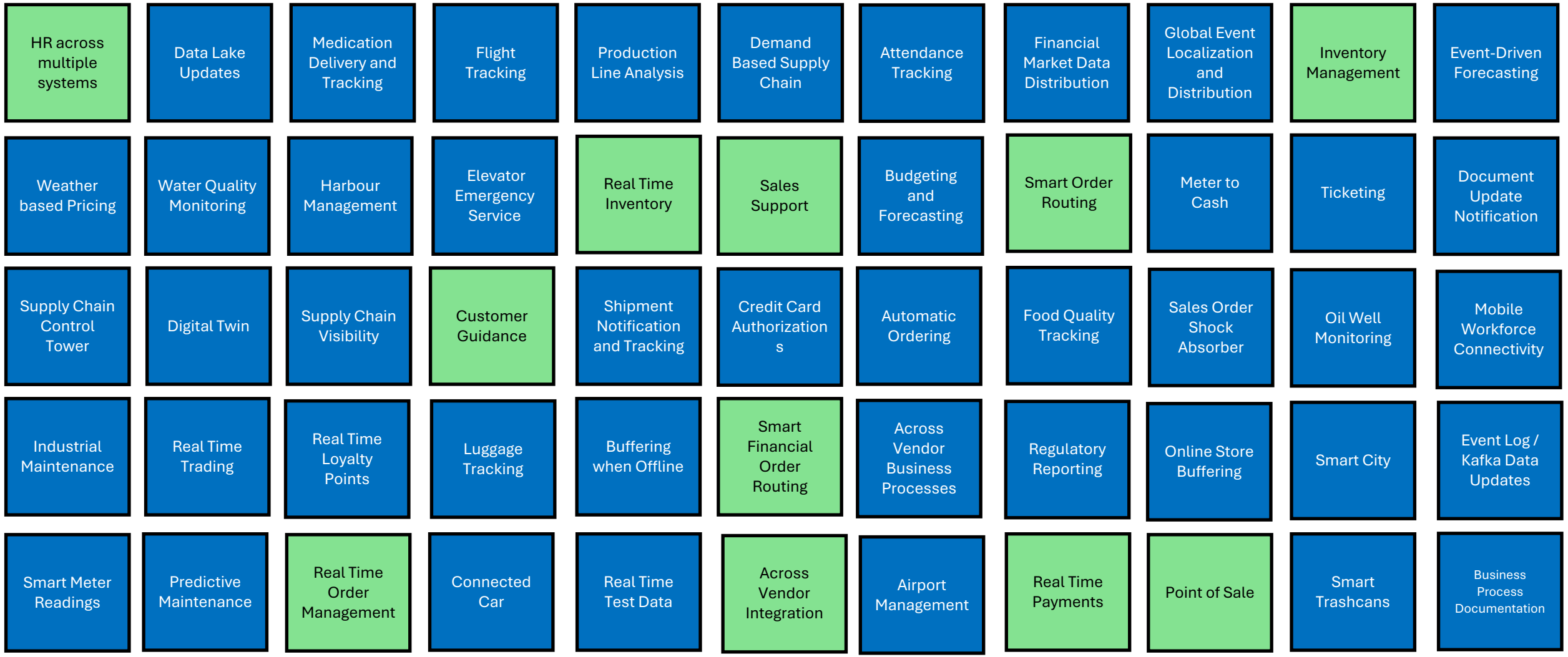


Event-Driven Architecture “in action”

with

SAP Advanced Event Mesh

A lot of **Event-Driven Use Cases**



Smart Routing – multi source / multi target

TOPIC [object] / [action] / [source] / [objectID] / [timestamp] / [type]

Events published

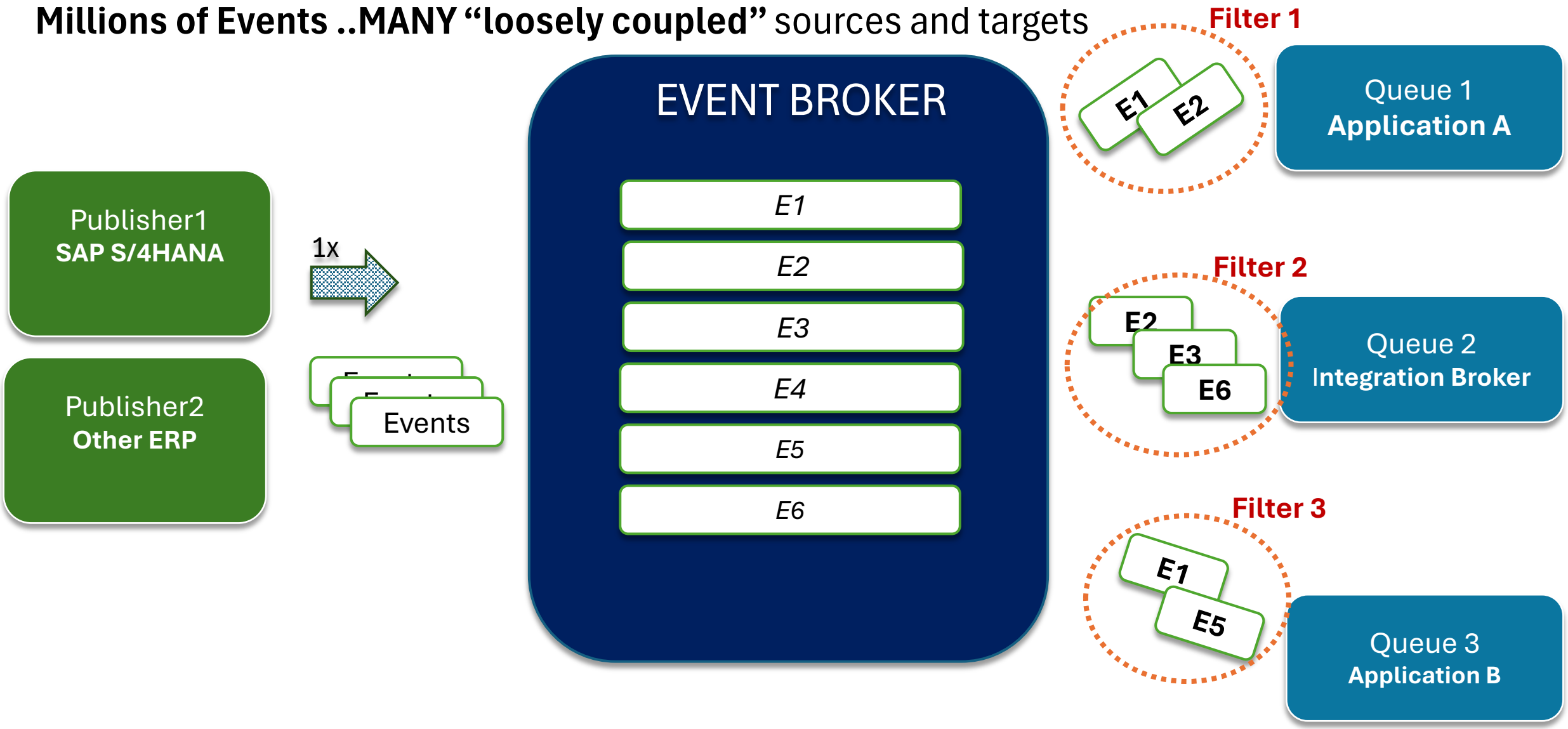
EVENT 1	customer	/	created	/	s4p500	/	998844	/	20250510131522	/	XYZ
EVENT 2	customer	/	created	/	erp200	/	999423	/	20250510131522	/	ABC
EVENT 3	customer	/	changed	/	s4p500	/	998844	/	20250510134322	/	XYZ

Route Events via Filters

FILTER 1	customer	*	s4p500	*	*	*
FILTER 2	customer	created	*	*	*	XYZ
FILTER 3	*	*	*	998844	*	*

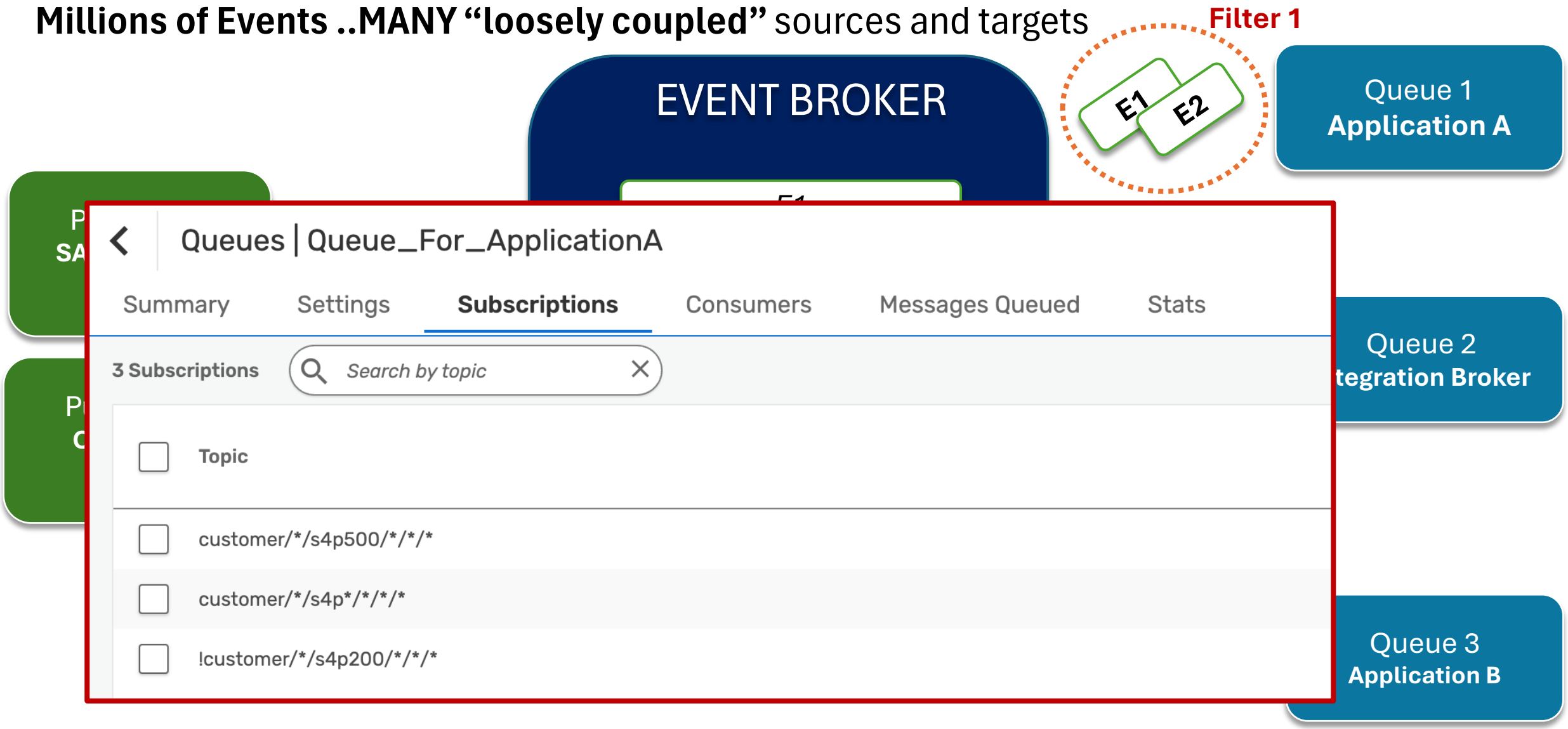
Smart Routing – multi source / multi target

Millions of Events ..MANY "loosely coupled" sources and targets

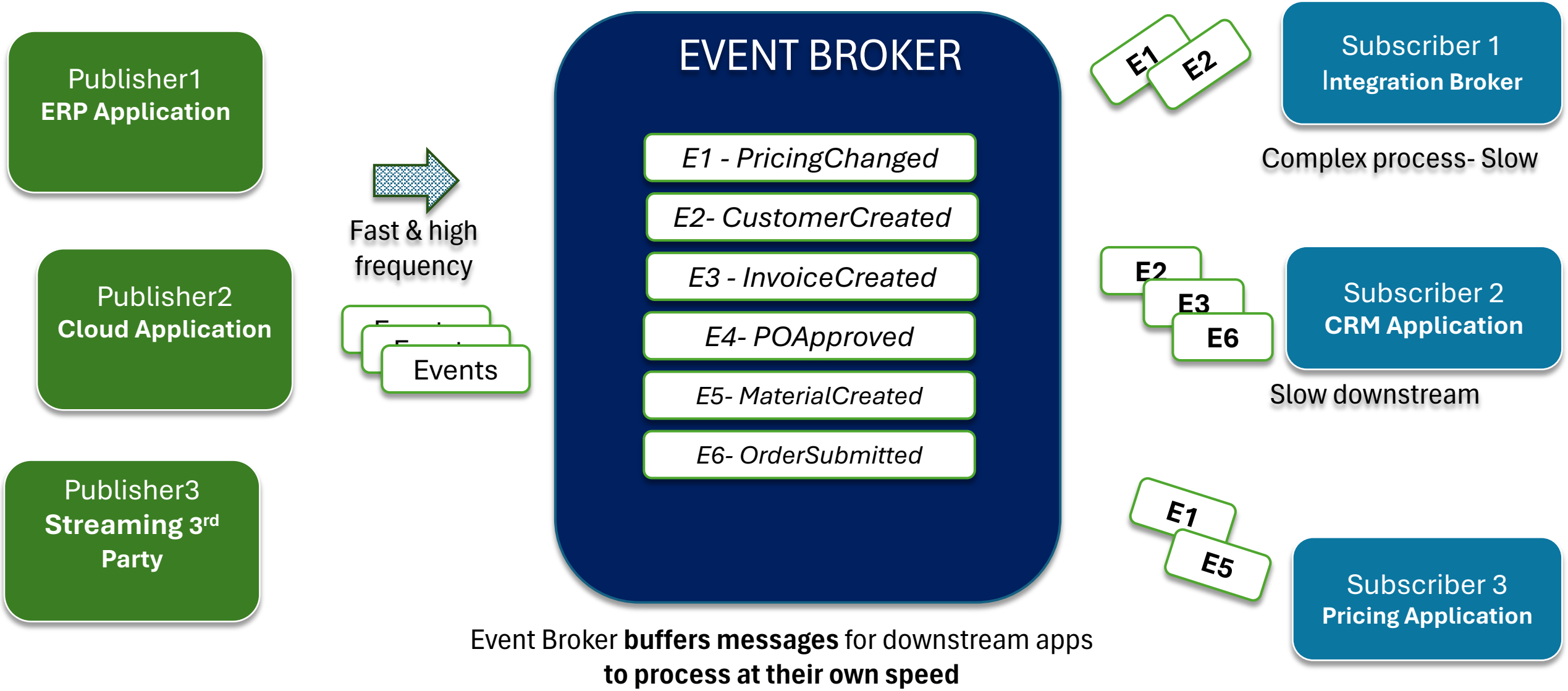


Smart Routing – multi source / multi target

Millions of Events ..MANY "loosely coupled" sources and targets

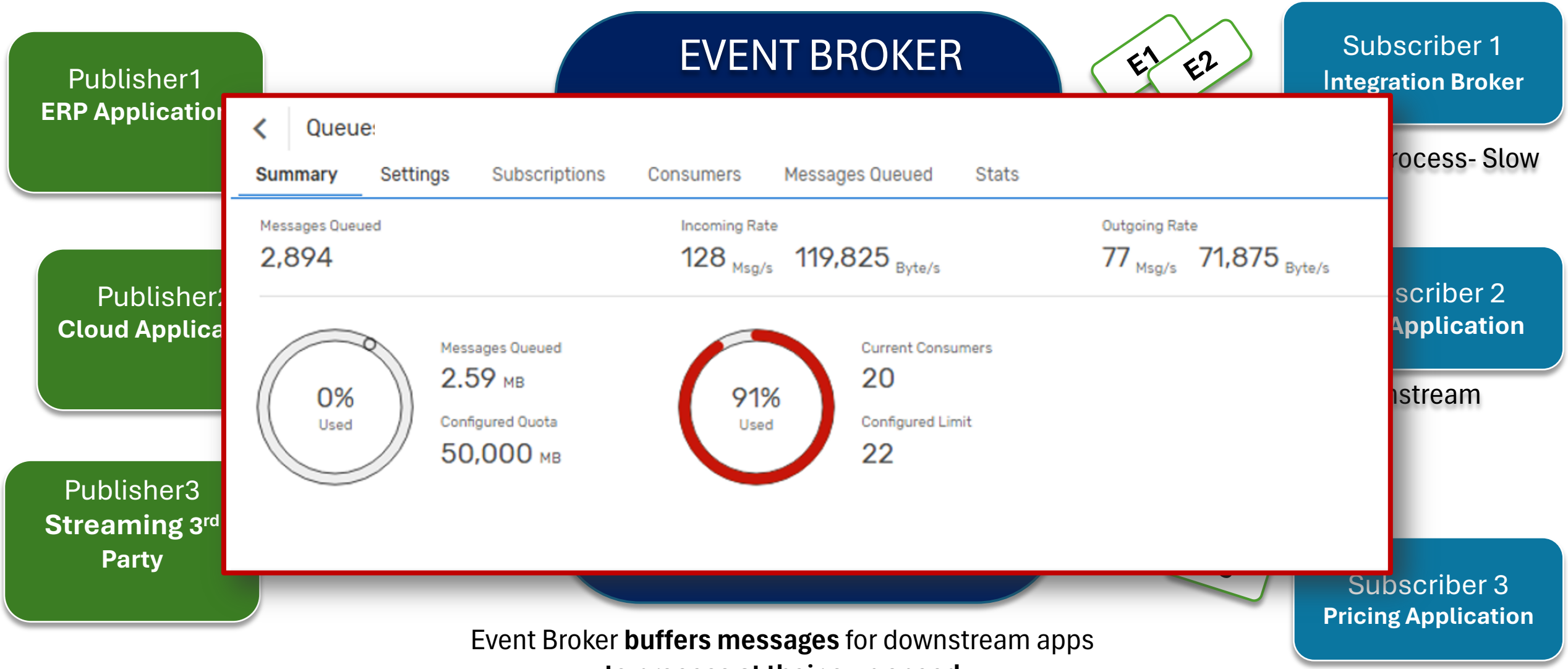


Managing back-pressure – Relaxing Consumers



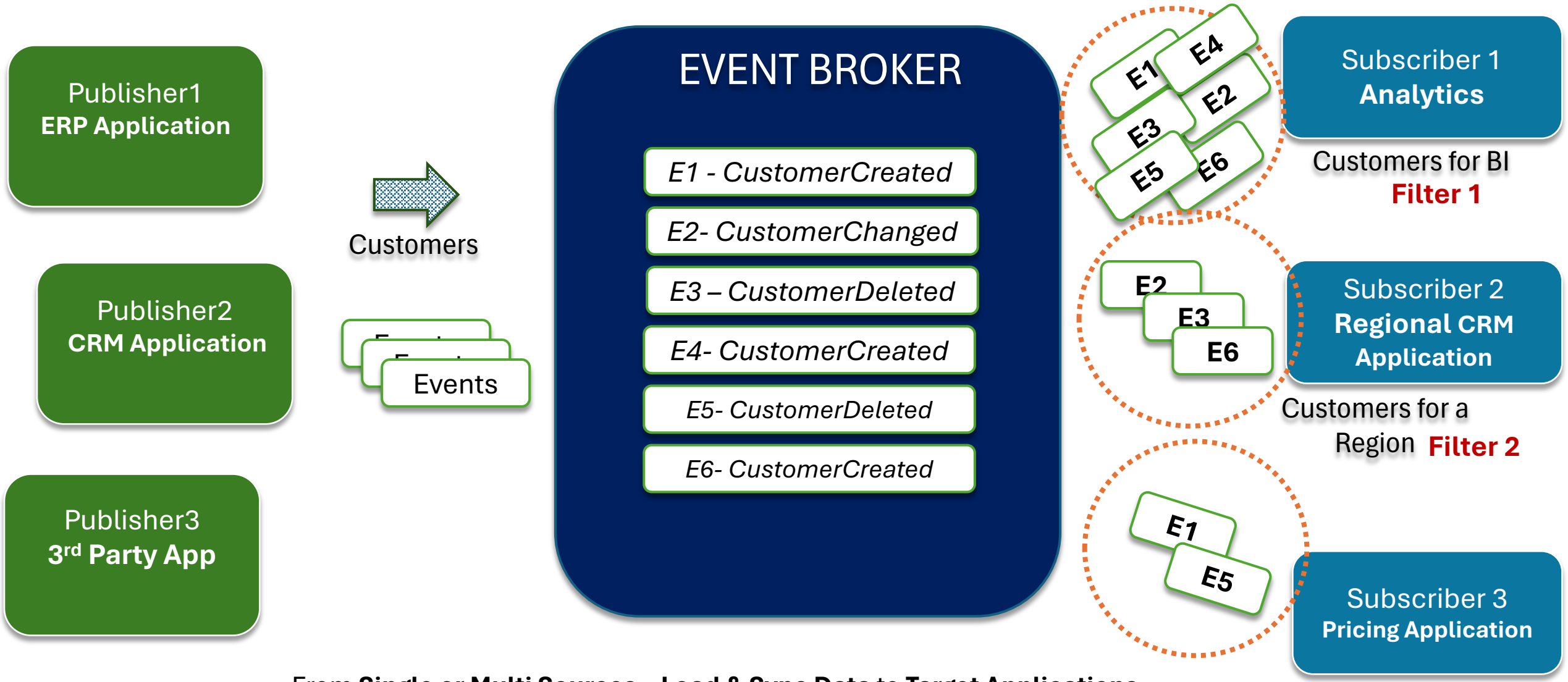
Event Broker **buffers messages** for downstream apps
to process at their own speed

Managing back-pressure – Relaxing Consumers



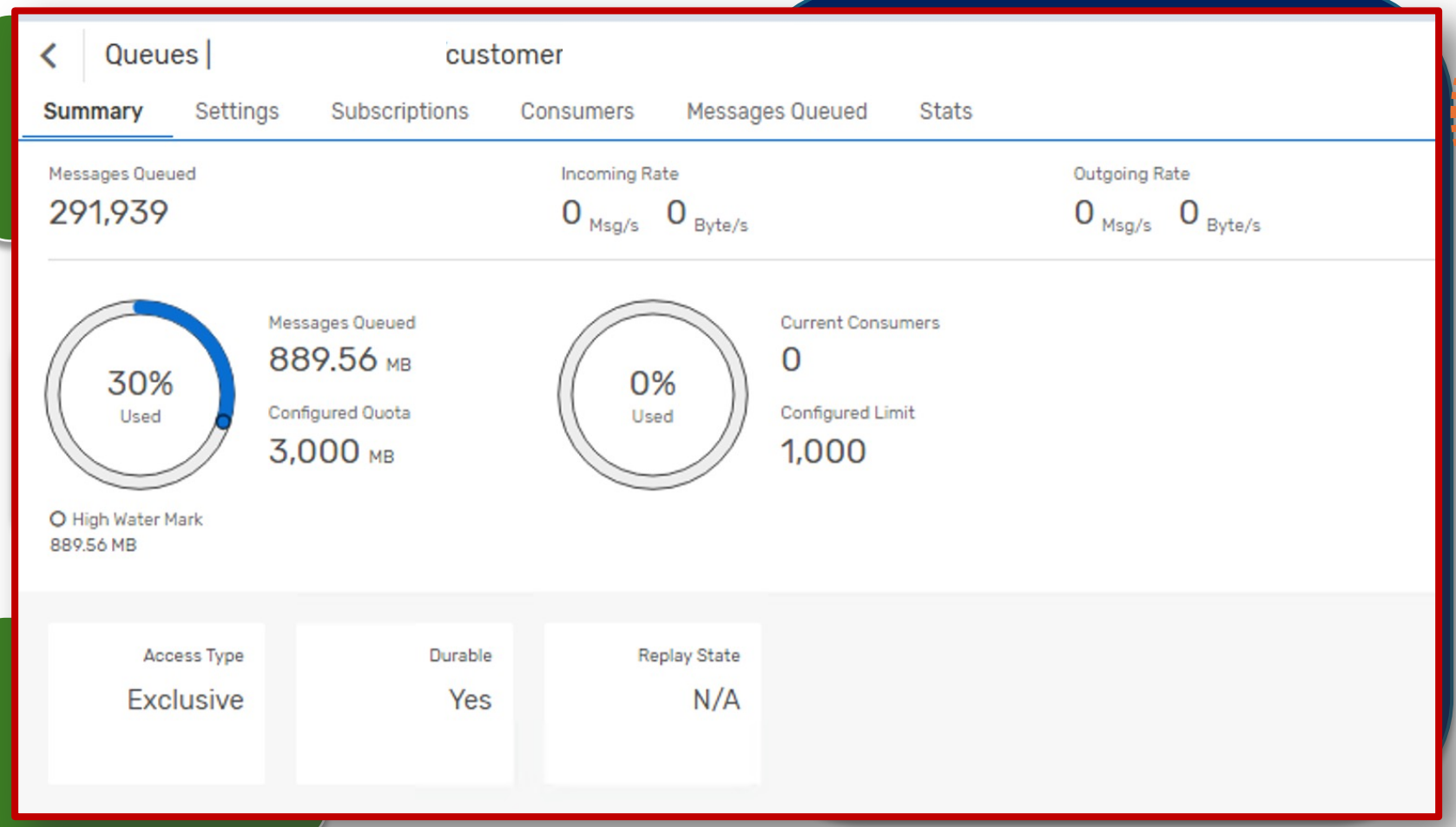
Event Broker **buffers messages** for downstream apps
to process at their <u>own speed</u>

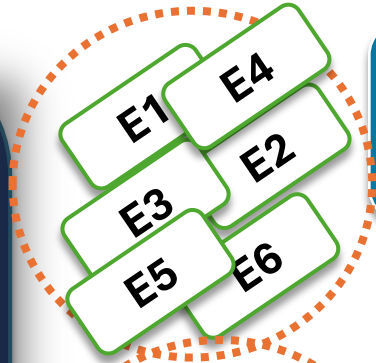
Initial Data Load – and sync near-real time



From **Single or Multi Sources** – **Load & Sync Data** to **Target Applications**

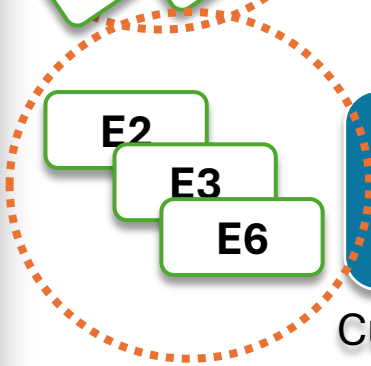
Initial Data Load – and sync near-real time





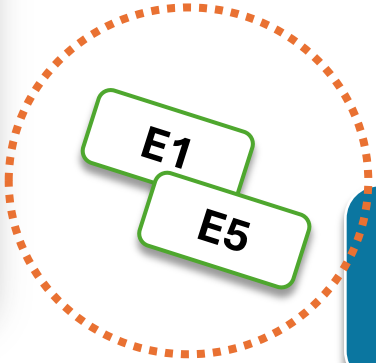
Subscriber 1
Analytics

Customers for BI
Filter 1



Subscriber 2
Regional CRM Application

Customers for a Region **Filter 2**

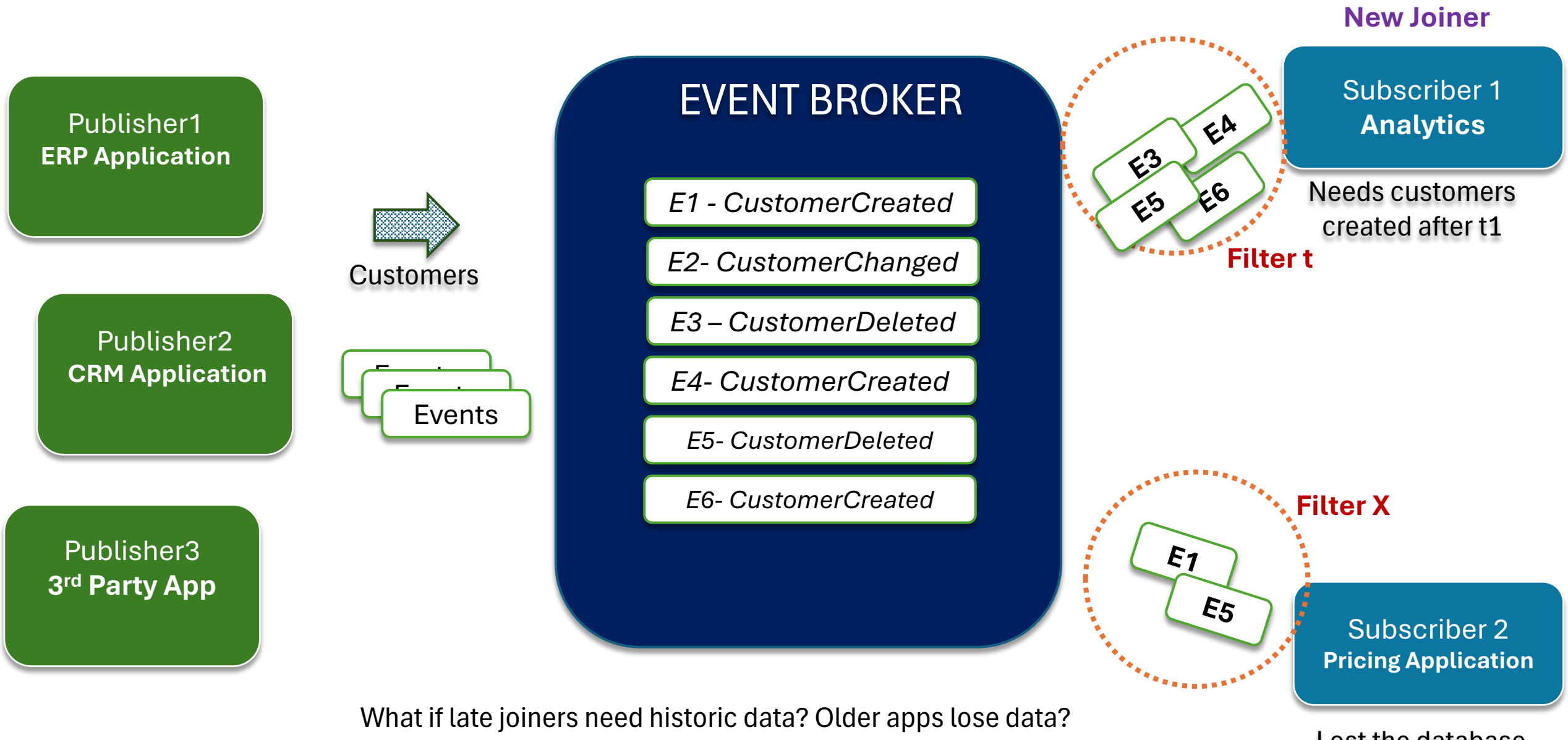


Subscriber 3
Pricing Application

Customers of a type **Filter 3**

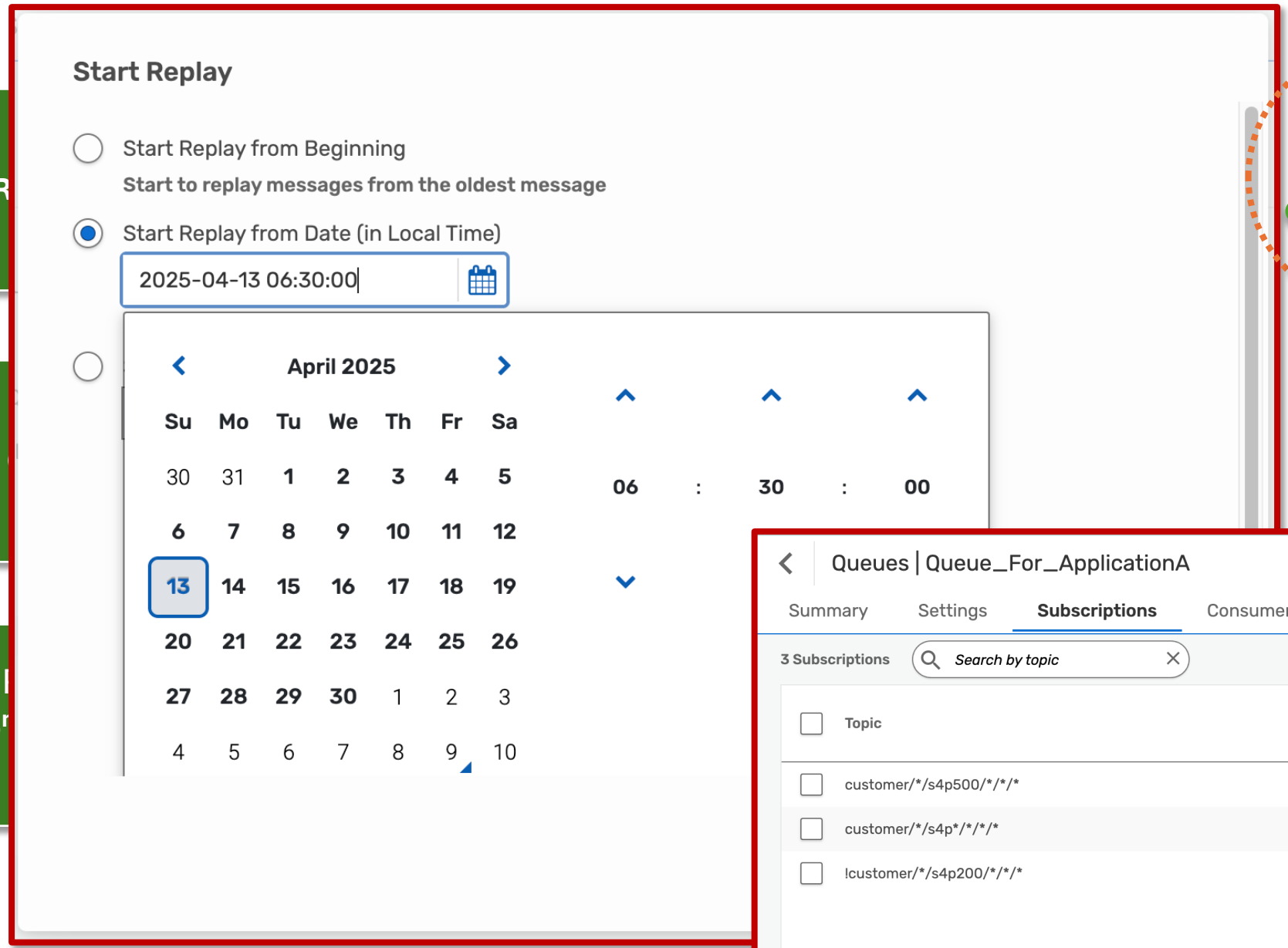
From **Single or Multi Sources** – **Load & Sync Data** to **Target Applications**

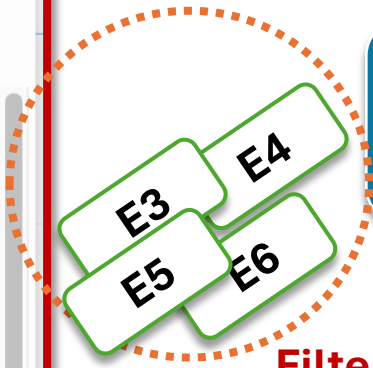
Replay– what if some target apps need historical data?



What if late joiners need historic data? Older apps lose data?

Replay– what if some target apps need historical data?





New Joiner

Subscriber 1
Analytics

Needs customers created after t1

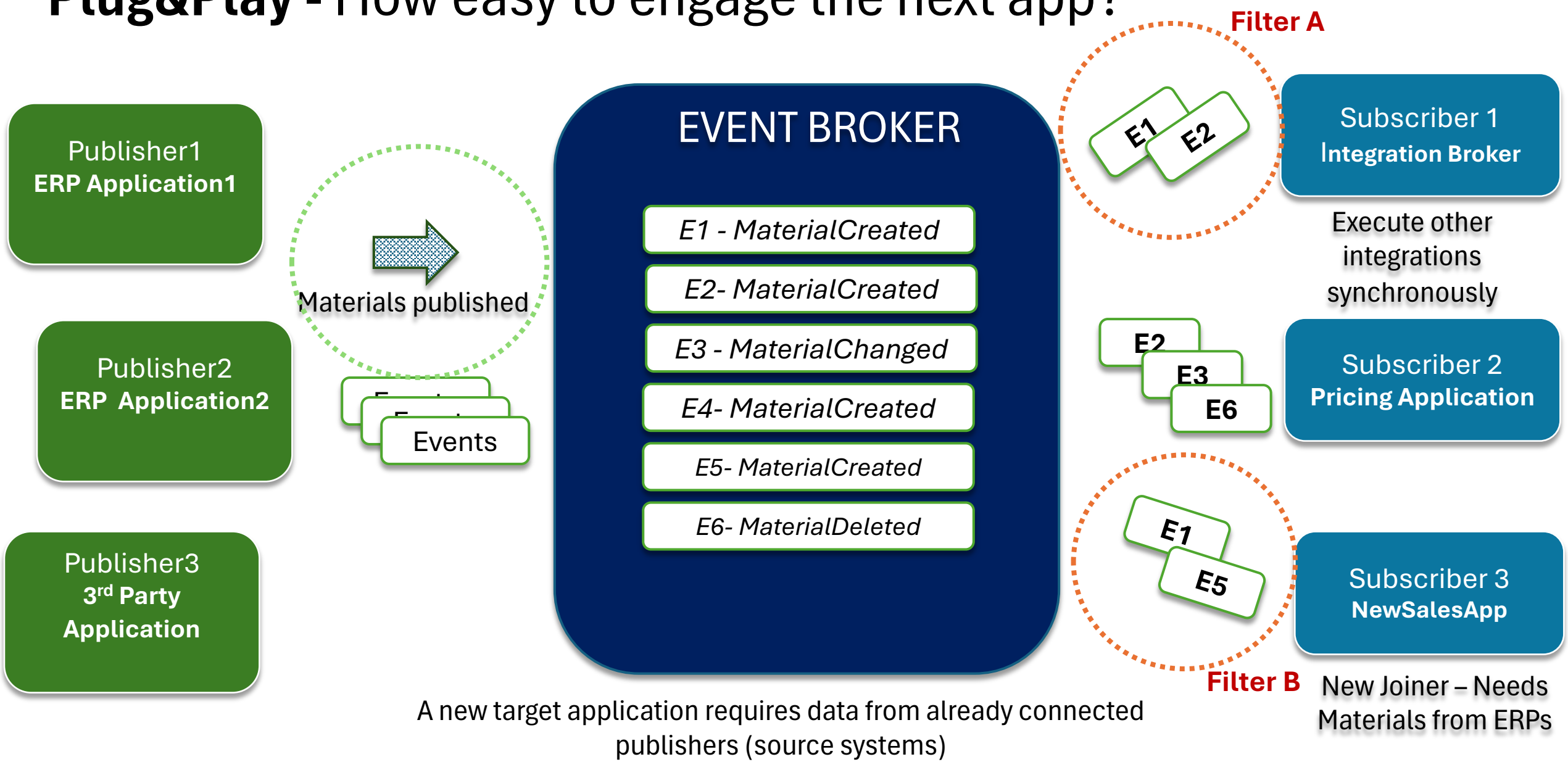
Filter t

Filter X

Subscriber 2
Pricing Application

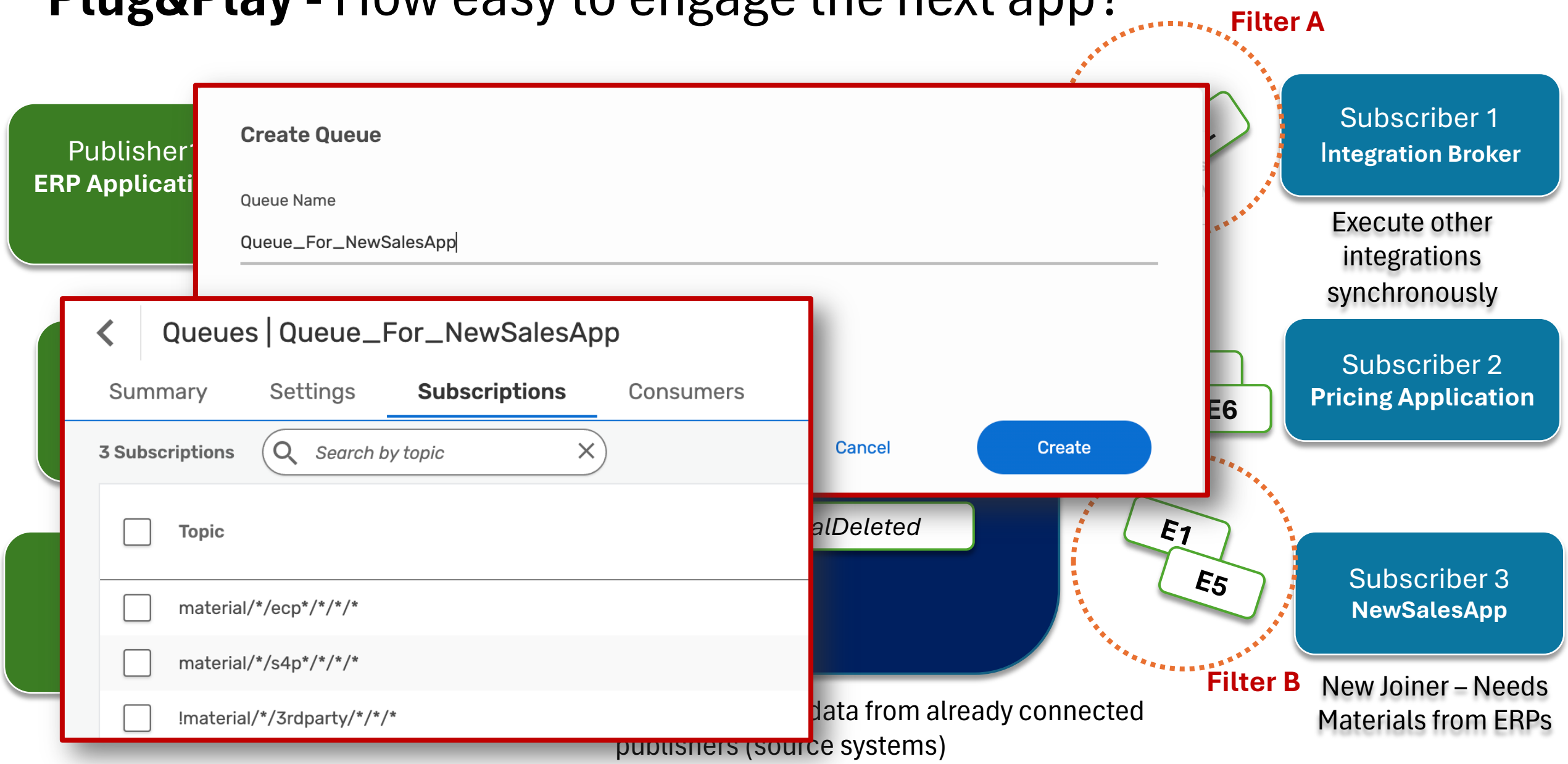
Lost the database

Plug&Play - How easy to engage the next app?



A new target application requires data from already connected publishers (source systems)

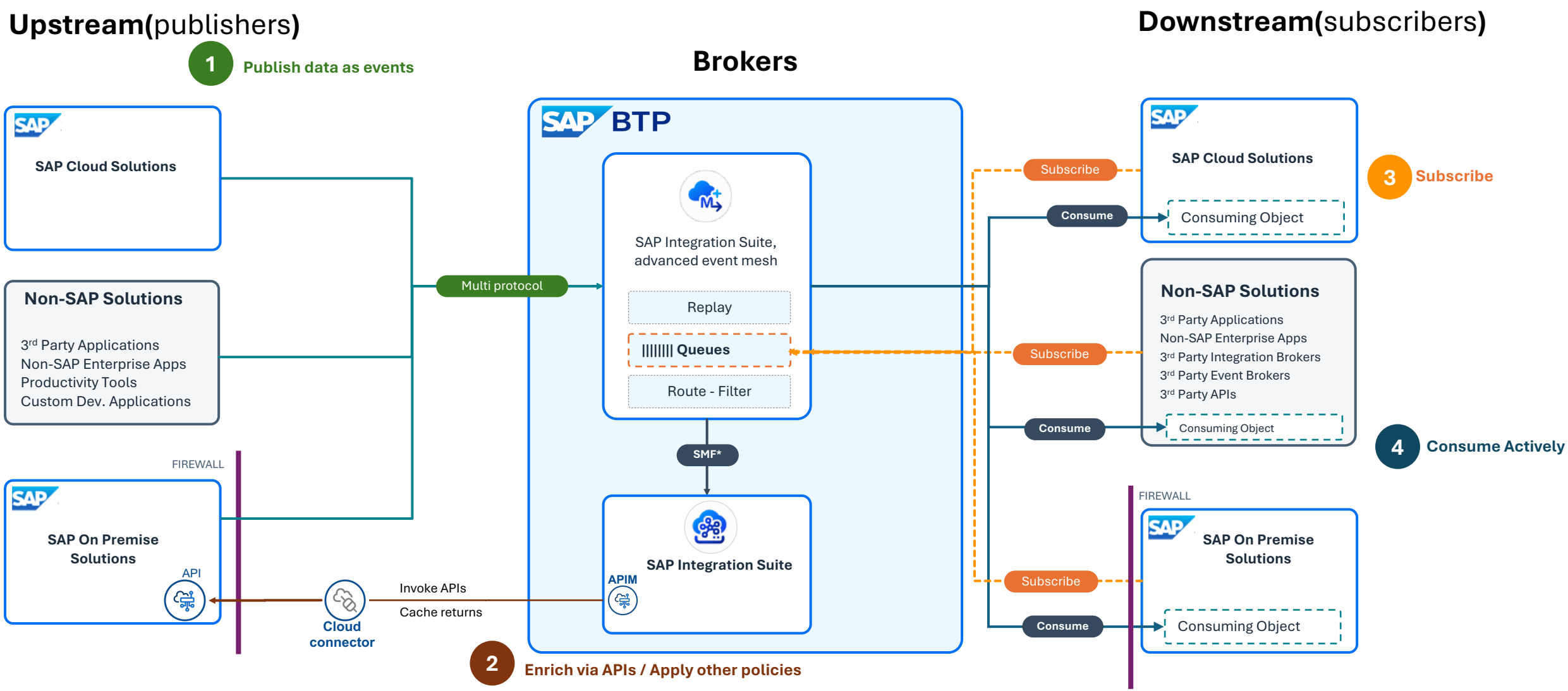
Plug&Play - How easy to engage the next app?



Recap & Next..

” Integration & EDA Roadmap and Take Aways»

The Big Picture – Architecture



The Roadmap – BTP Integration & Advanced Event Mesh

FUTURE RELEASE

Integrating SAP Cloud Application Programming Model and advanced event mesh

Providing support for SAP Integration Suite, advanced event mesh in SAP Cloud Application Programming Model

SAP Integration Suite, advanced event mesh

Open

FUTURE RELEASE

Integration of advanced event mesh for health monitoring in SAP Cloud ALM and SAP Focused Run

Use SAP Cloud ALM, our central entry point for monitoring SAP landscapes, for monitoring the health of SAP Integration Suite, advanced event mesh

SAP Integration Suite, advanced event mesh

Open

FUTURE RELEASE

Distributed tracing enablement between SAP S/4HANA and advanced event mesh

Enable the distributed tracing feature of SAP Integration Suite, advanced event mesh for SAP S/4HANA as an event source

SAP Integration Suite, advanced event mesh

Open

FUTURE RELEASE

Scenario monitoring in SAP Cloud ALM and SAP Focused Run

Use SAP Cloud ALM, our central entry point for monitoring SAP landscapes, for monitoring integration scenarios through SAP Integration Suite, advanced event mesh

SAP Integration Suite, advanced event mesh

Open

FUTURE RELEASE

AI adapter

Provide an AI adapter as an additional built-in connectivity option for the Cloud Integration capability within SAP Integration Suite to connect to large language models

SAP Integration Suite

Open

FUTURE RELEASE

“Where-used” functionality for security materials

- Enable "where-used" functionality in SAP Integration Suite for identifying the integration artifacts in credentials, key pairs, and certificates
- Availability with standard and premium editions of SAP Integration Suite and with CPEA

Cloud Integration SAP Integration Suite

Open

FUTURE RELEASE

AI-based payload size anomaly identification in API traffic

Detect unusual request payload sizes and flag them as anomalies

SAP Integration Suite

Open

FUTURE RELEASE

XML threat protection policy for XML-based APIs

XML threat protection policy in the API Management capability to help mitigate various security threats, such as XML bombs attacks, by validating, filtering, and restricting XML payloads before they reach backend services

SAP Integration Suite Edge Integration Cell

Open

Final Words - Key Takeaways

- Design for the long-term benefits (consider maintenance, reusability)
- Modernize your existing interfaces whenever possible (replace inefficient, old-technology)
- Think End-to-End (for all current & possible future sources and targets)
- Start smart / Start small

Thank you..

Barış BÜYÜKTANIR

baris@blackbelt.solutions

https://www.linkedin.com/in/barisbt/

@barisbt

Deniz ZİLYAS

kilitogludeniz@gmail.com

https://www.linkedin.com/in/deniz-zilyas/