Unit 3 – Managing APIs

Developing with SAP Integration Suite

C_CPI_2404

Agenda

- SAP API Management
- Components of SAP API Management
- Creating an API Provider
- Creating an API (proxy)
- Using Policies
- Creating a Product
- Logging and Monitoring
- Key Summary Points

SAP API Management

- Building APIs (proxies)
- Publishing APIs (Bundle APIs as Product)
- Analyzing APIs
- Consuming APIs
- Monetizing APIs
- Discover API Packages
- API (proxy) Designer

Relevant Use Cases

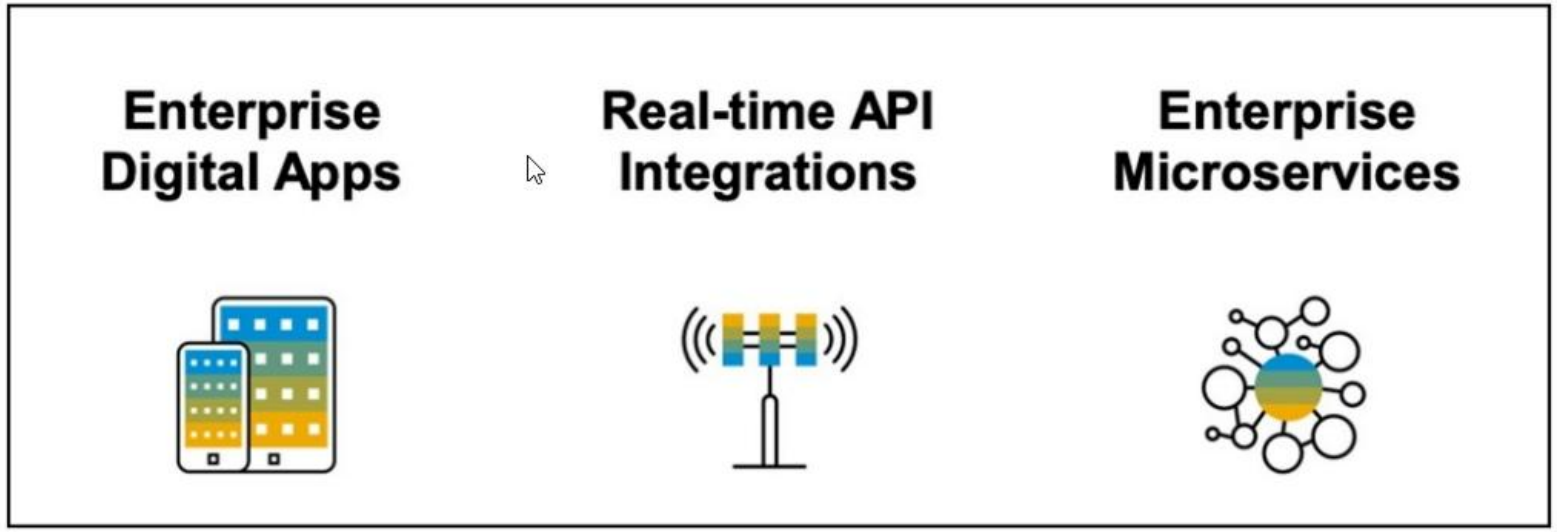
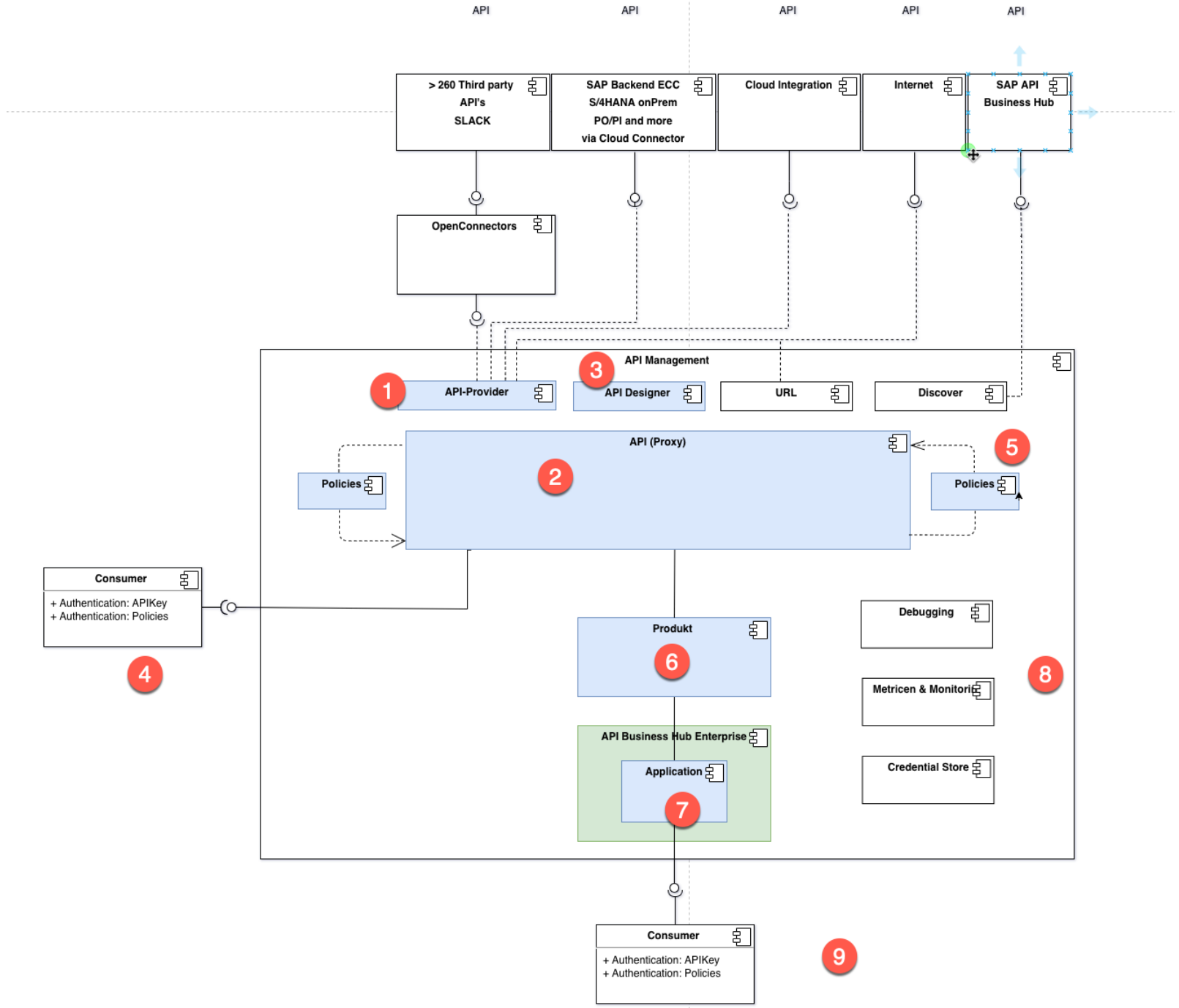


Figure 22: Relevant Use Cases

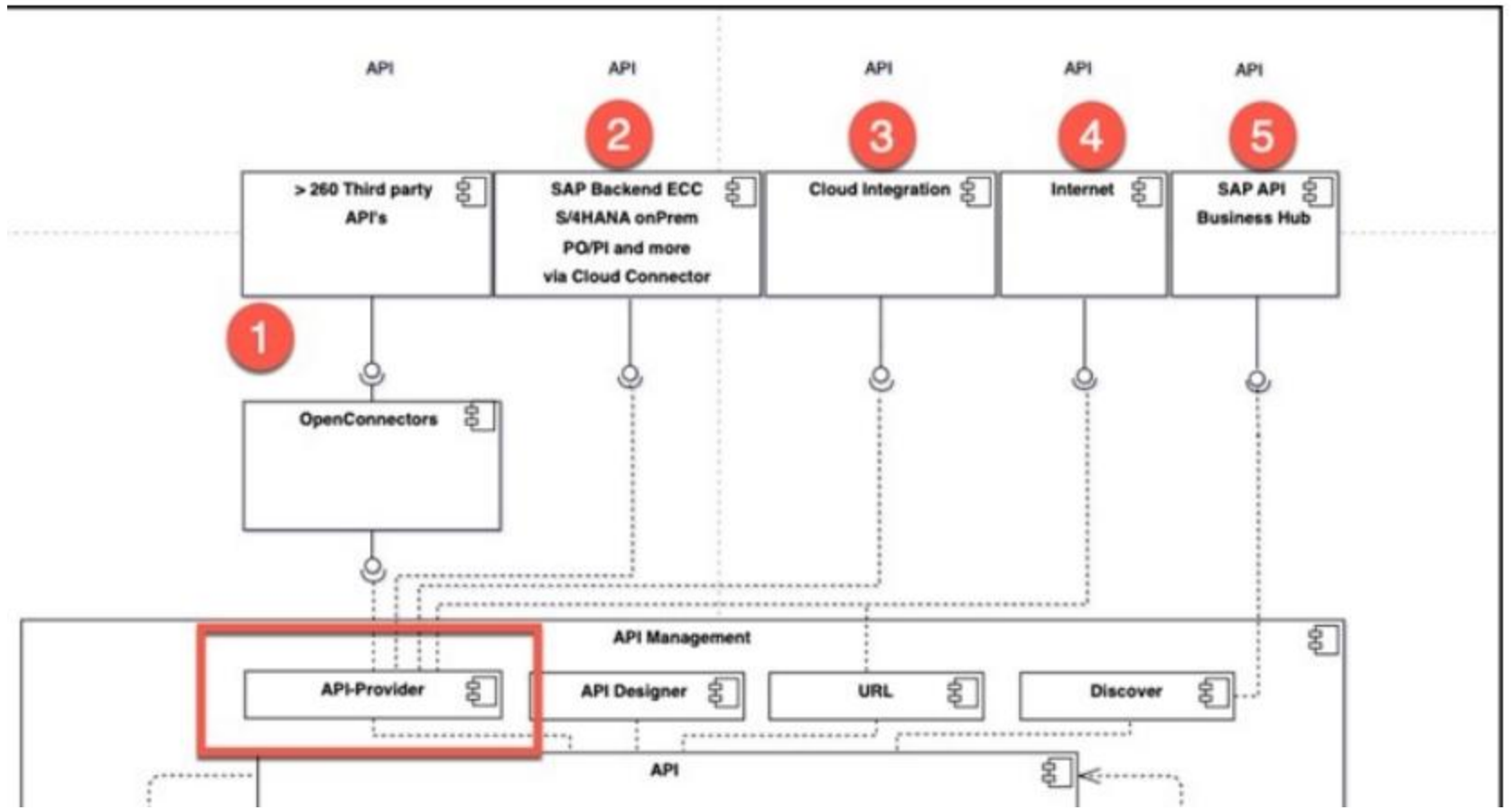
Components of SAP API Management

- API Provider
  - Concept in API Management that defines connection details for existing services
- API (Proxy)
  - Managed facades for existing services (sits in front of the existing service)
  - Applications connect to API (proxy)
- Policies
  - Provides capabilities to define behavior of an API (proxy)
- Product
  - Bundle and publish API (proxies) as a Product for consumption
- Application
  - Consumes the Product (bundle of API proxies) using api key and secret


API
API
API
API
API
> 260 Third party
API's
SLACK
SAP Backend ECC
S/4HANA onPrem
PO/PI and more
via Cloud Connector
Cloud Integration
Internet
SAP API
Business Hub
OpenConnectors
API Management
1
API-Provider
3
API Designer
URL
Discover
API (Proxy)
2
Policies
Policies
5
Consumer
+ Authentication: APIKey
+ Authentication: Policies
4
Produkt
6
Debugging
Metricen & Monitorin
8
API Business Hub Enterprise
Application
7
Credential Store
Consumer
+ Authentication: APIKey
+ Authentication: Policies
9

Creating an API Provider

- Concept in SAP API Management
- Defines the connection details for services
  - Details of the host
  - Additional details to establish connection – for example, proxy settings


API
API
API
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2
3
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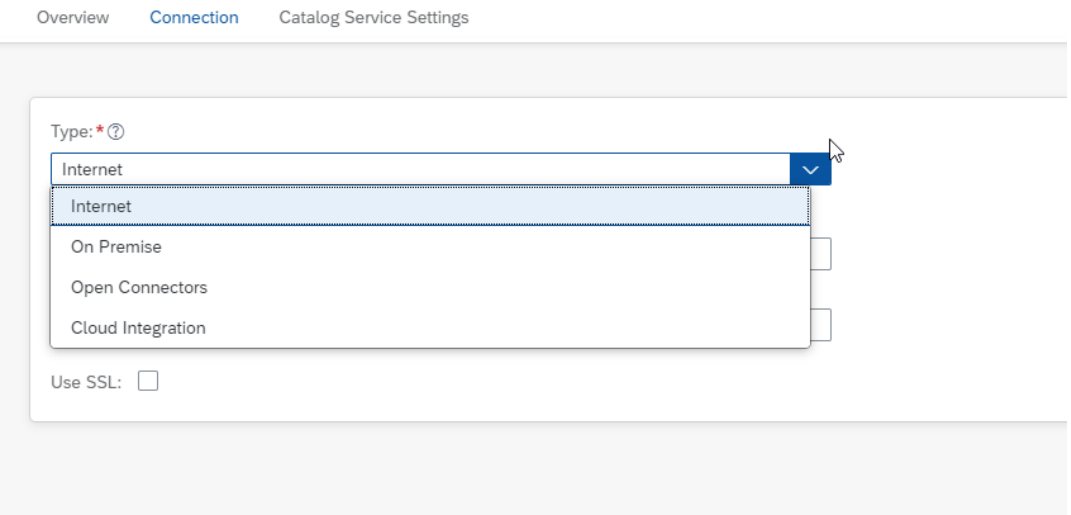
> 260 Third party
API's
SAP Backend ECC
S/4HANA onPrem
PO/PI and more
via Cloud Connector
Cloud Integration
Internet
SAP API
Business Hub
1
OpenConnectors
API Management
API-Provider
API Designer
URL
Discover
API

Demo: API Provider (5 different sources)

- Open Connectors
- Through Cloud Connector to SAP On-Premise backends
- Cloud Integration
- APIs from internet
- SAP Business Accelerator Hub (API Business Hub)



Demo: API Provider

Field Name	Input
Type	Internet
Host	sapes5.sapdevcenter.com
Port	443
Use SSL	Checked
Path Prefix	/sap/opu/odata
Service Collection URL	/IWFND/CATALOGSERVICE/ServiceCollection
Authentication Type	Basic
Username	*Credentials only used to create API Provider*
Password	*Not for the actual call of API*

Catalog Service

The catalog service provides a list of all available services for your area. Exploration of OData services is crucial for several tools to identify a suitable service for the realization of a business use case. Therefore certain search capabilities are required.

Metadata exploration is available using standard OData mechanisms. It is built on top of OData Channel to have full OData feature support when accessing the local database. Exposure of metadata uses search capabilities (scanning the English version of a description of a service), for example, search for all service documents where SalesOrder is used in the description.

> **Note**
> Exploration of the remote OData Channel's services and the registration of its services on SAP Gateway is also provided.

The **catalog service** retrieves a list of all available services on SAP Gateway. It is based on a catalog service pattern proposed by Microsoft™ and consists of an implementation approach of the catalog service pattern in the context of SAP Gateway.

> **Note**
> There are two versions of the catalog service available in SAP Gateway, Version 1 and Version 2. Version 2 has EntitySet collection, Tag collection, Vocabulary collection and Annotations. The open search functionality is also enhanced in Version 2. You can choose the version based on your requirement.

Creating an API (proxy)

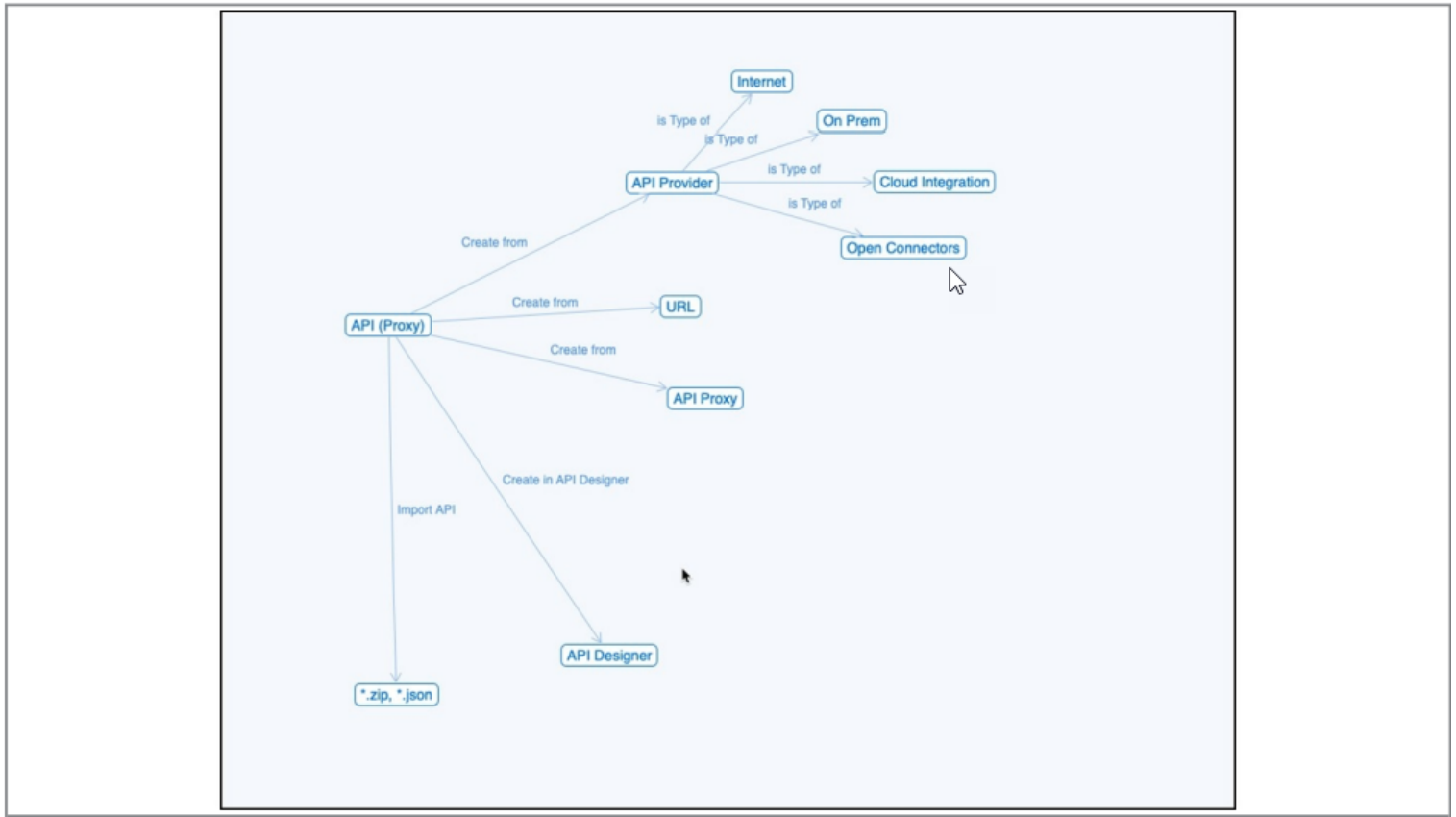
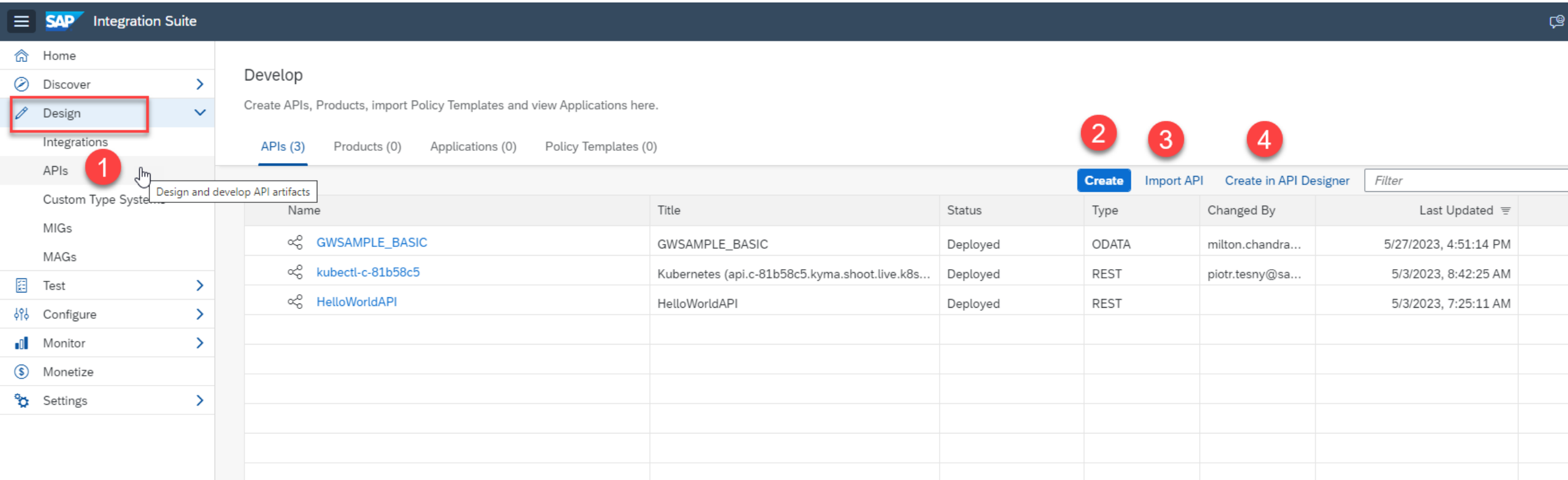


Figure 26: The Options as a Concept Diagram

Demo: API Proxy

- Create Button
  - API Provider
  - API Proxy (copy an existing proxy)
  - URL
- Import API
- Create in API Designer

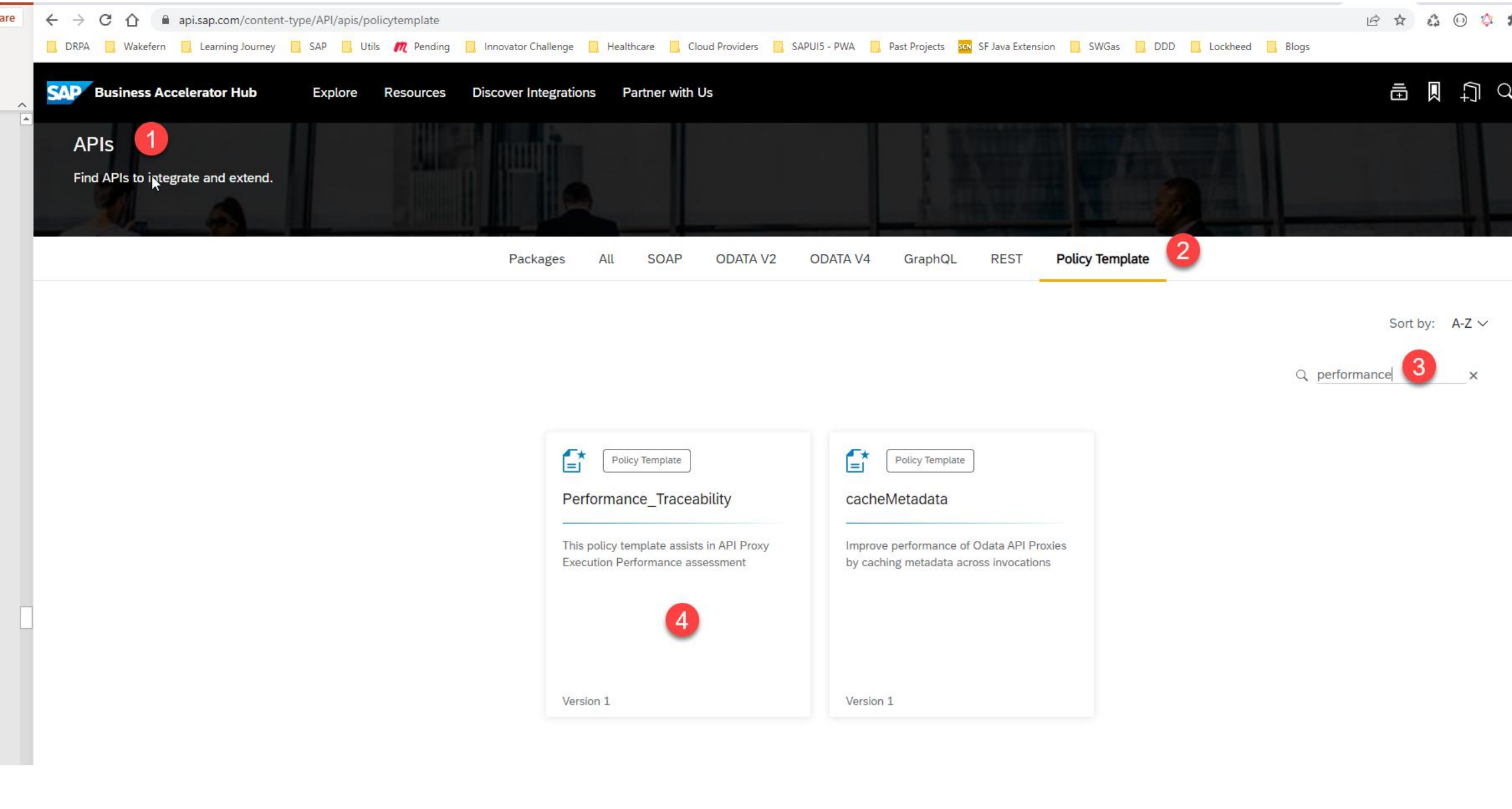

SAP Integration Suite
Home
Discover
Design
Integrations
APIs
Custom Type Systems
MIGs
MAGs
Test
Configure
Monitor
Monetize
Settings
1
Design and develop API artifacts
Develop
Create APIs, Products, import Policy Templates and view Applications here.
APIs (3)
Products (0)
Applications (0)
Policy Templates (0)
2
3
4
Create
Import API
Create in API Designer
Filter
Name
Title
Status
Type
Changed By
Last Updated
GWSAMPLE_BASIC
GWSAMPLE_BASIC
Deployed
ODATA
milton.chandra...
5/27/2023, 4:51:14 PM
kubectl-c-81b58c5
Kubernetes (api.c-81b58c5.kyma.shoot.live.k8s...
Deployed
REST
piotr.tesny@sa...
5/3/2023, 8:42:25 AM
HelloWorldAPI
HelloWorldAPI
Deployed
REST
5/3/2023, 7:25:11 AM

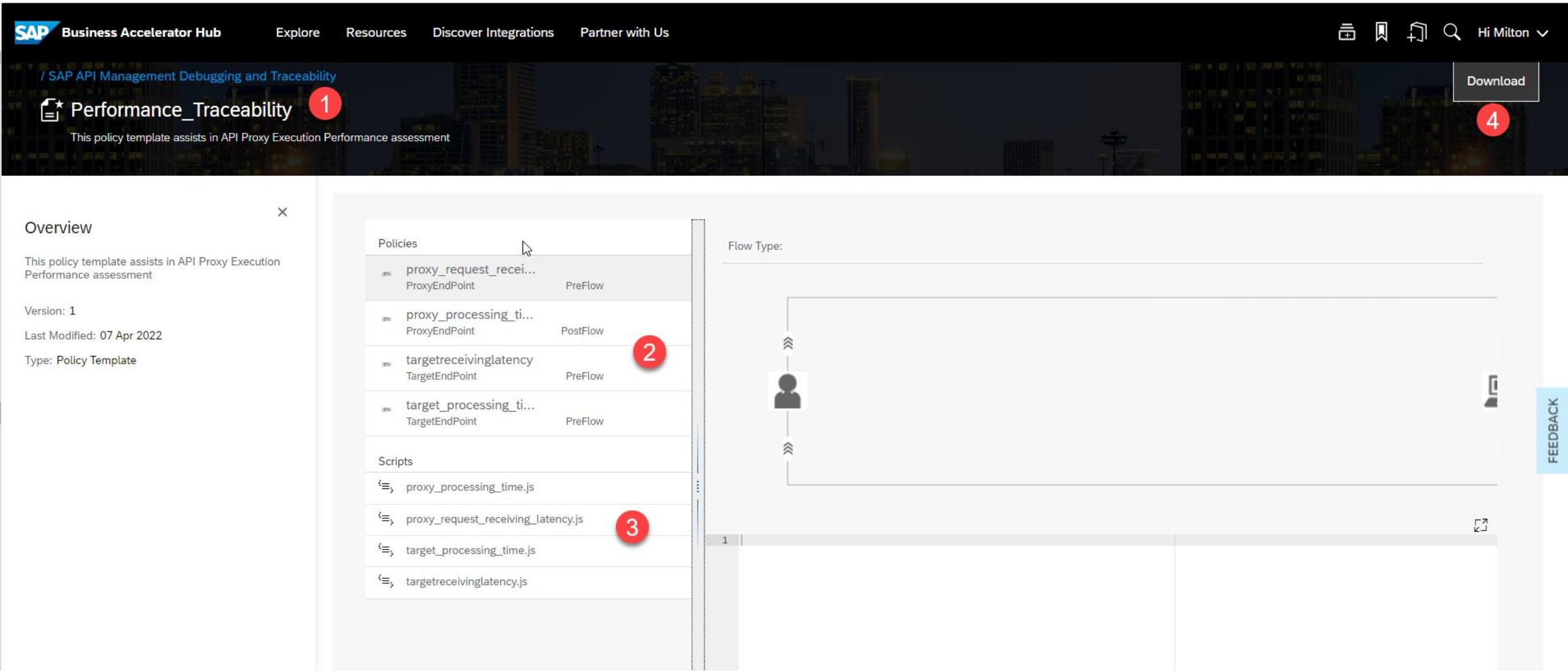
Using Policies

- Policy is a program that executes a specific function at runtime
- Adds common functionality to API (proxy)
- Provides features to secure APIs, control API traffic etc.
- Also customize the behavior of API by adding scripts

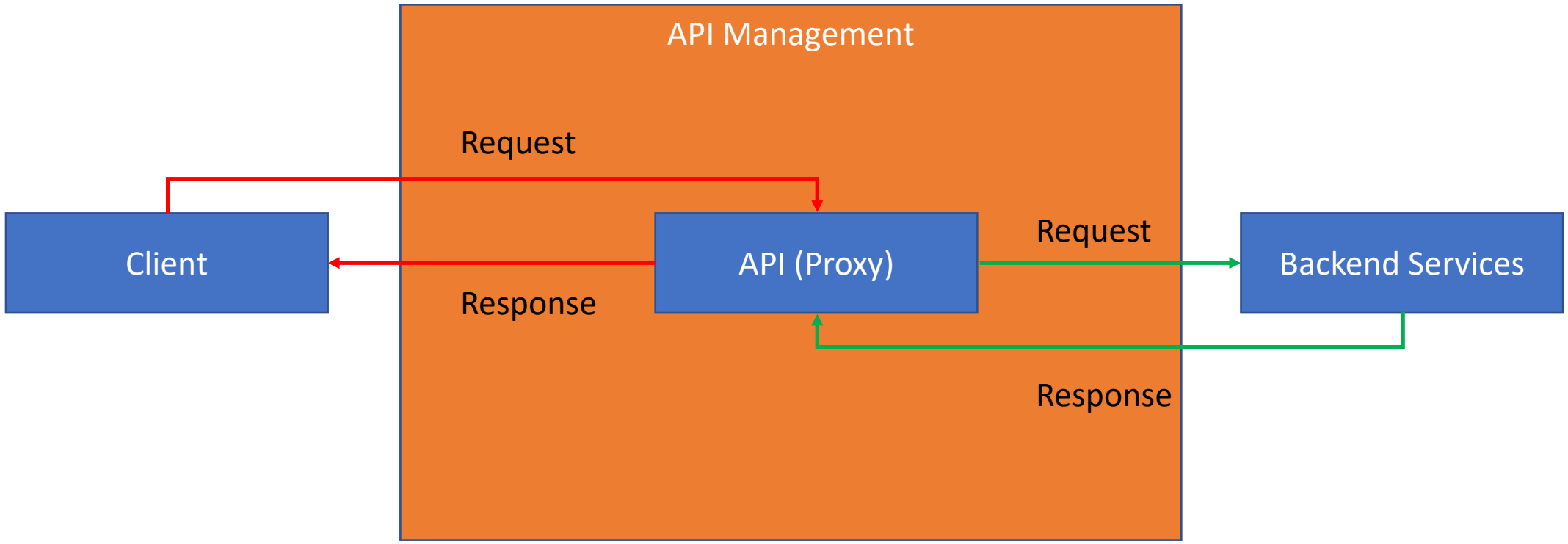
Prebuilt policies

- Access Control
- Basic Authentication
- Extract Variables
- JavaScript
- Oauth v2.0
- Quota
- Verify API Key
- And so on…

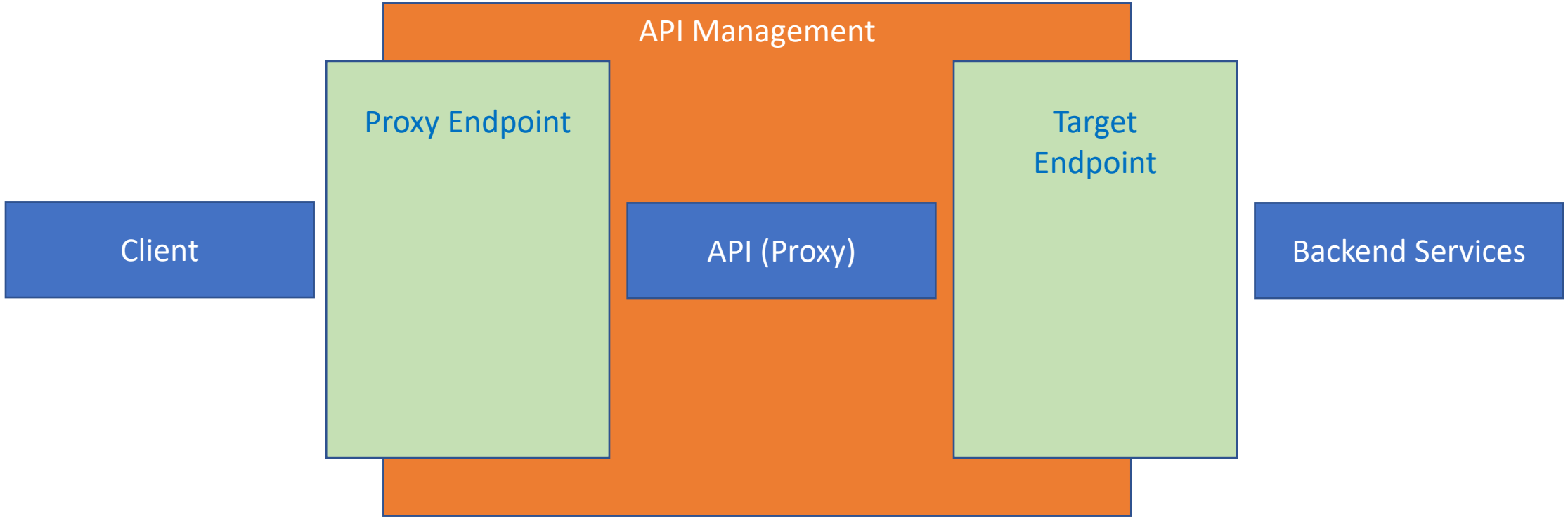

api.sap.com/content-type/API/apis/policytemplate
DRPA
Wakefern
Learning Journey
SAP
Utils
Pending
Innovator Challenge
Healthcare
Cloud Providers
SAPUI5 - PWA
Past Projects
SF Java Extension
SWGas
DDD
Lockheed
Blogs
SAP Business Accelerator Hub
Explore
Resources
Discover Integrations
Partner with Us
APIs
1
Find APIs to integrate and extend.
Packages
All
SOAP
ODATA V2
ODATA V4
GraphQL
REST
Policy Template
2
Sort by:
A-Z
performance
3
Policy Template
Performance_Traceability
This policy template assists in API Proxy Execution Performance assessment
4
Version 1
Policy Template
cacheMetadata
Improve performance of Odata API Proxies by caching metadata across invocations
Version 1


SAP Business Accelerator Hub
Explore
Resources
Discover Integrations
Partner with Us
Hi Milton
/ SAP API Management Debugging and Traceability
Performance_Traceability
1
This policy template assists in API Proxy Execution Performance assessment
Download
4
Overview
This policy template assists in API Proxy Execution Performance assessment
Version: 1
Last Modified: 07 Apr 2022
Type: Policy Template
Policies
proxy_request_recei...
ProxyEndPoint
PreFlow
proxy_processing_ti...
ProxyEndPoint
PostFlow
targetreceivinglatency
TargetEndPoint
PreFlow
2
target_processing_ti...
TargetEndPoint
PreFlow
Scripts
proxy_processing_time.js
proxy_request_receiving_latency.js
3
target_processing_time.js
targetreceivinglatency.js
Flow Type:
1
FEEDBACK

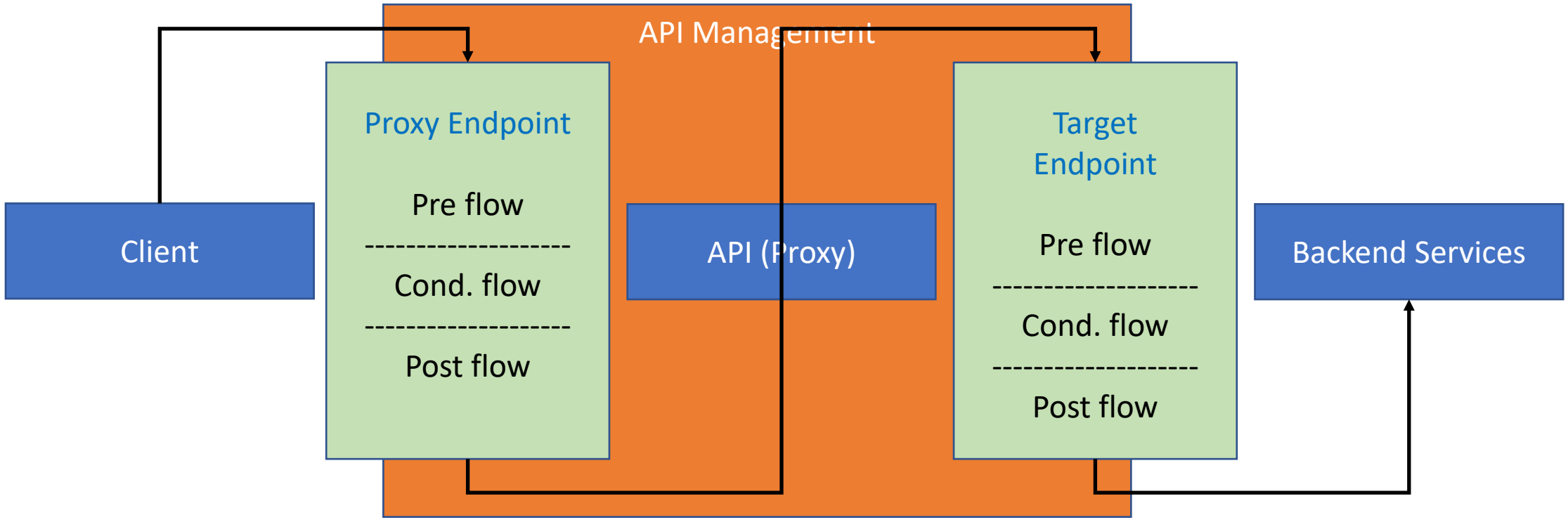
Flows – Where should I apply my policies ?



Flows – Where should I apply my policies ?

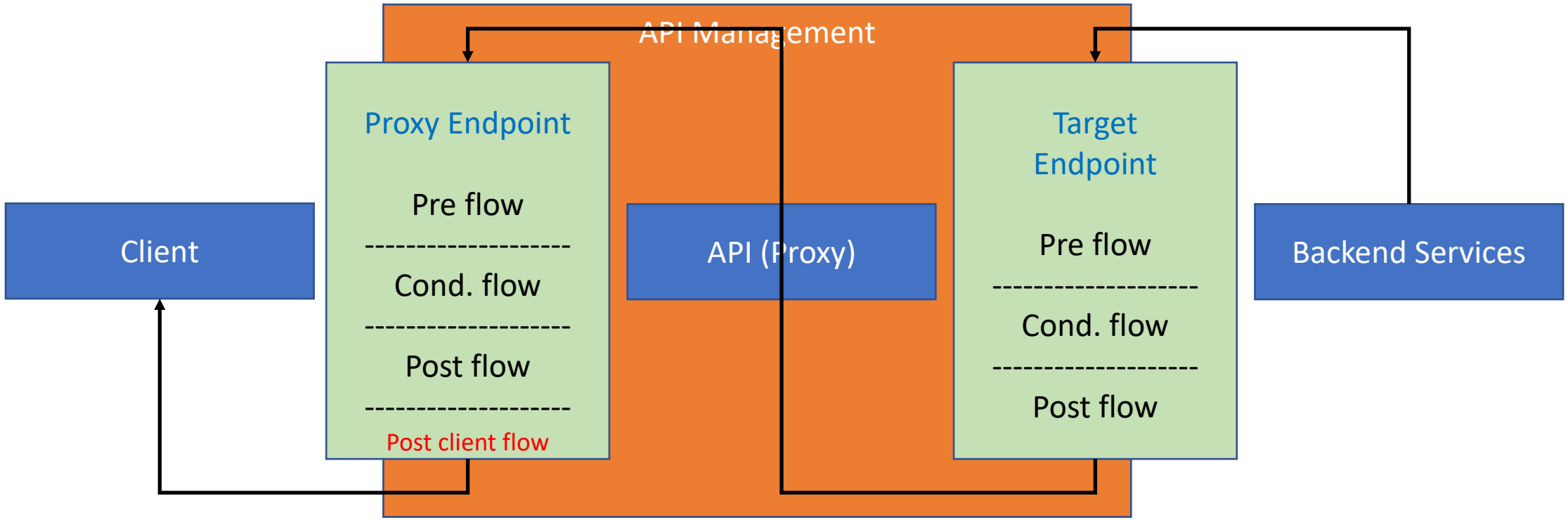


Flows – Where should I apply my policies ?



REQUEST

Flows – Where should I apply my policies ?



RESPONSE

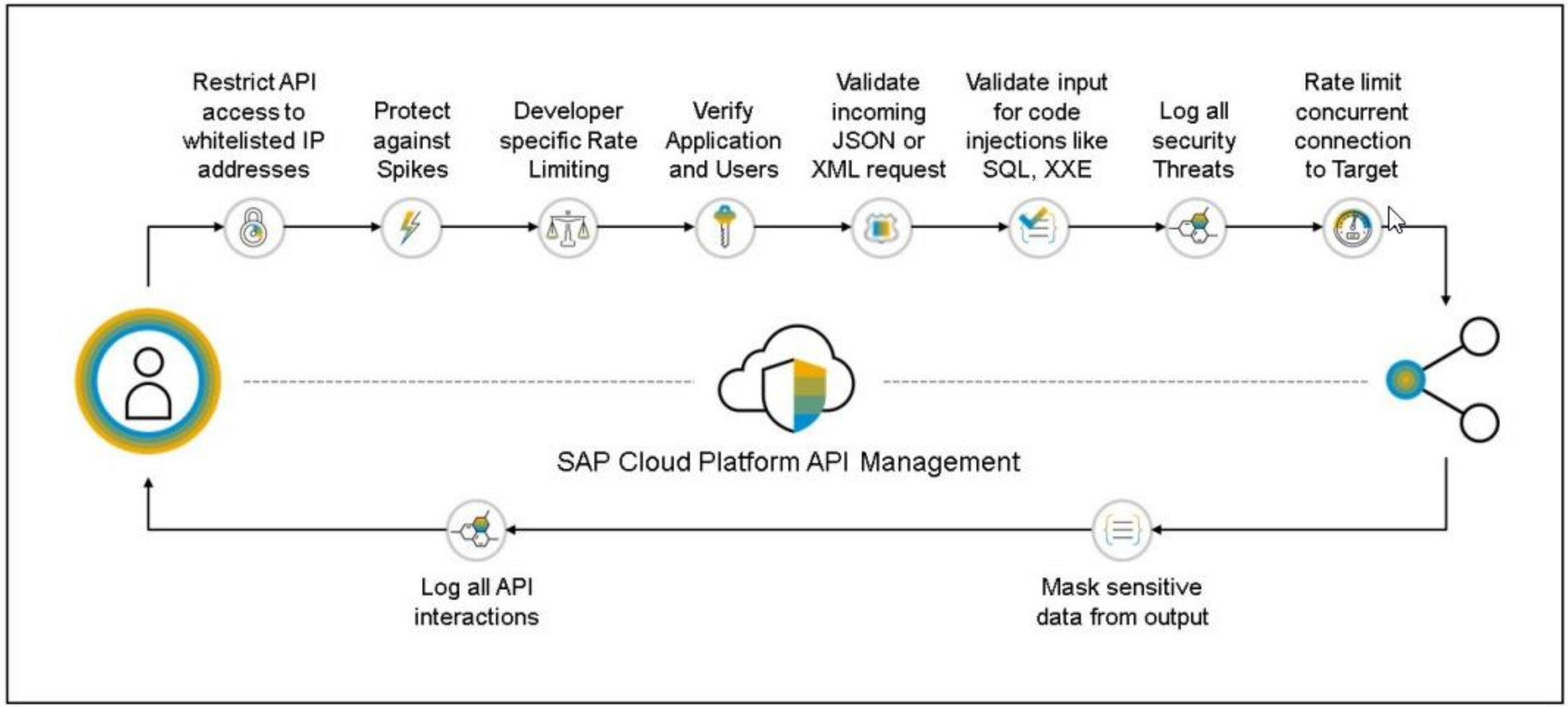
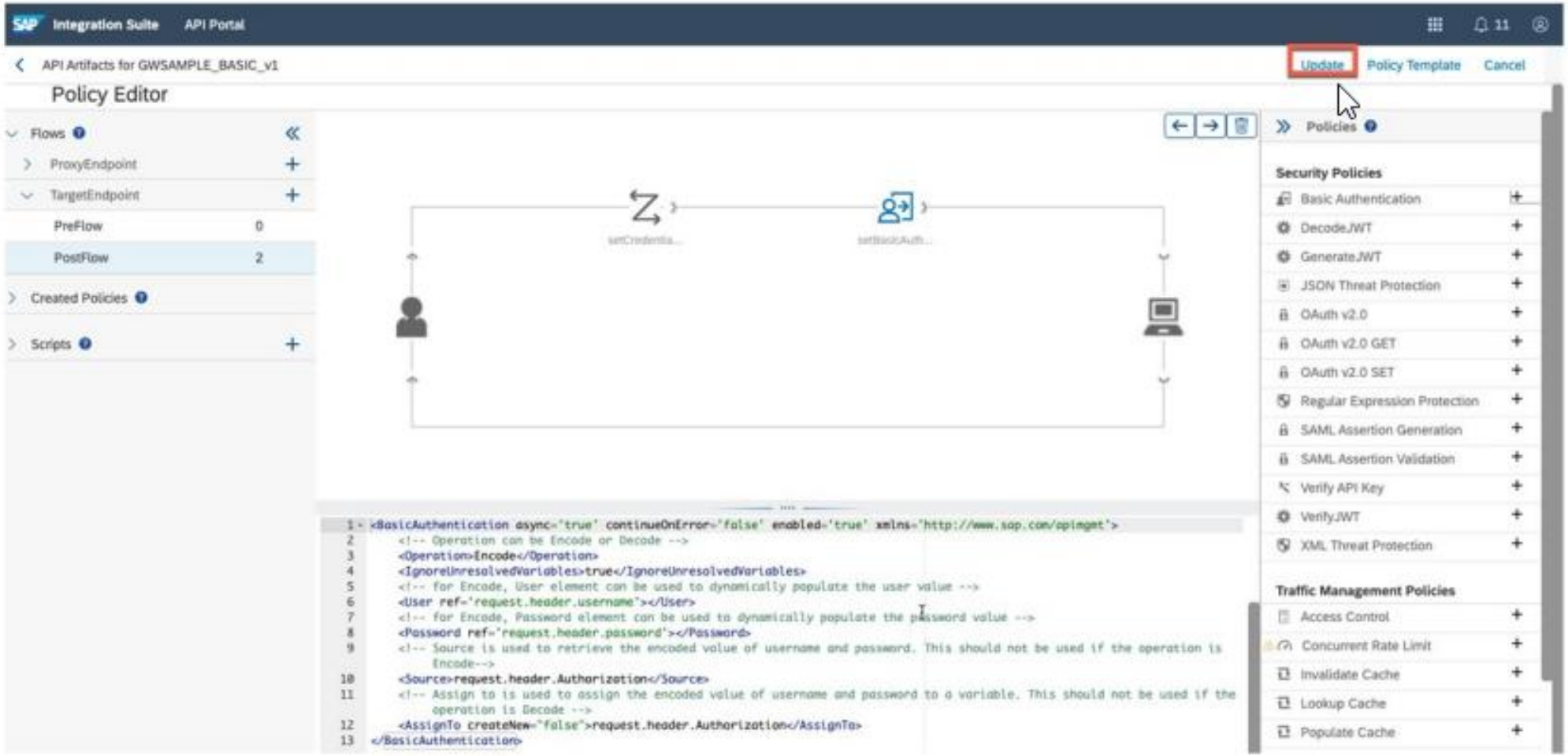


Figure 44: SAP Cloud Platform API Management

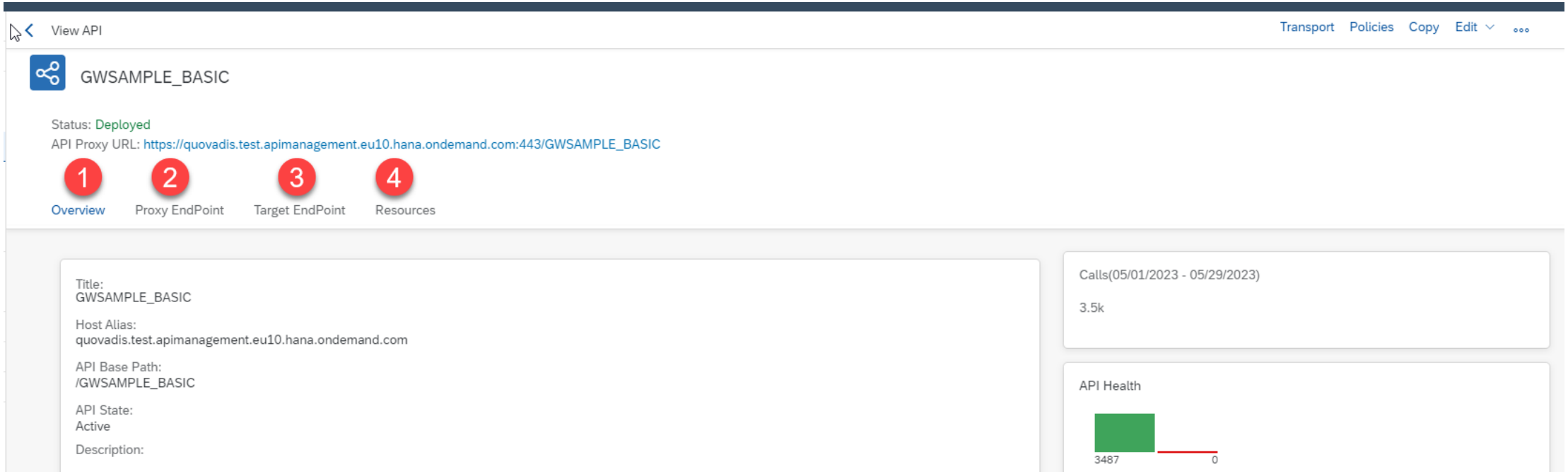
Demo: Policies for basic authentication



Demo: Policies for basic authentication

Field Name	Value
Policy Type	Assign Message
Policy Name	setCredentials
Endpoint Type	TargetEndpoint
Flow Type	Postflow
Stream	Incoming Request
Policy Type	Basic Authentication
Policy Name	setBasicAuthentication
Endpoint Type	TargetEndpoint
Flow Type	Postflow
Stream	Incoming Request

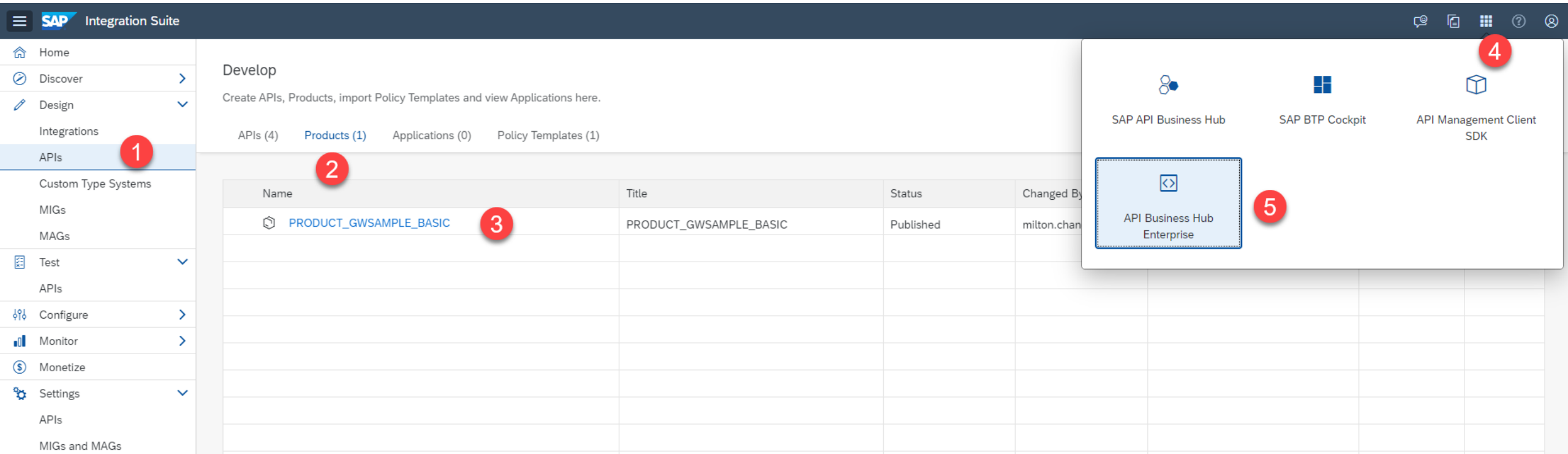
Editing APIs



Creating a Product

- Products are artifacts that appear in the SAP API Business Hub Enterprise Portal

- Role Collections
  - AuthGroup.API.Admin
  - AuthGroup.API.ApplicationDeveloper


SAP Integration Suite
Home
Discover
Design
Integrations
APIs
Custom Type Systems
MIGs
MAGs
Test
APIs
Configure
Monitor
Monetize
Settings
APIs
MIGs and MAGs
Develop
Create APIs, Products, import Policy Templates and view Applications here.
APIs (4)
Products (1)
Applications (0)
Policy Templates (1)
Name
Title
Status
Changed By
PRODUCT_GWSAMPLE_BASIC
PRODUCT_GWSAMPLE_BASIC
Published
milton.chan
SAP API Business Hub
SAP BTP Cockpit
API Management Client SDK
API Business Hub Enterprise
1
2
3
4
5

Home Manage My Workspace Test Console

New Design Hi Milton Logout

API Business Hub Enterprise

Centralized API catalog to discover, consume and monitor APIs

Type here to search

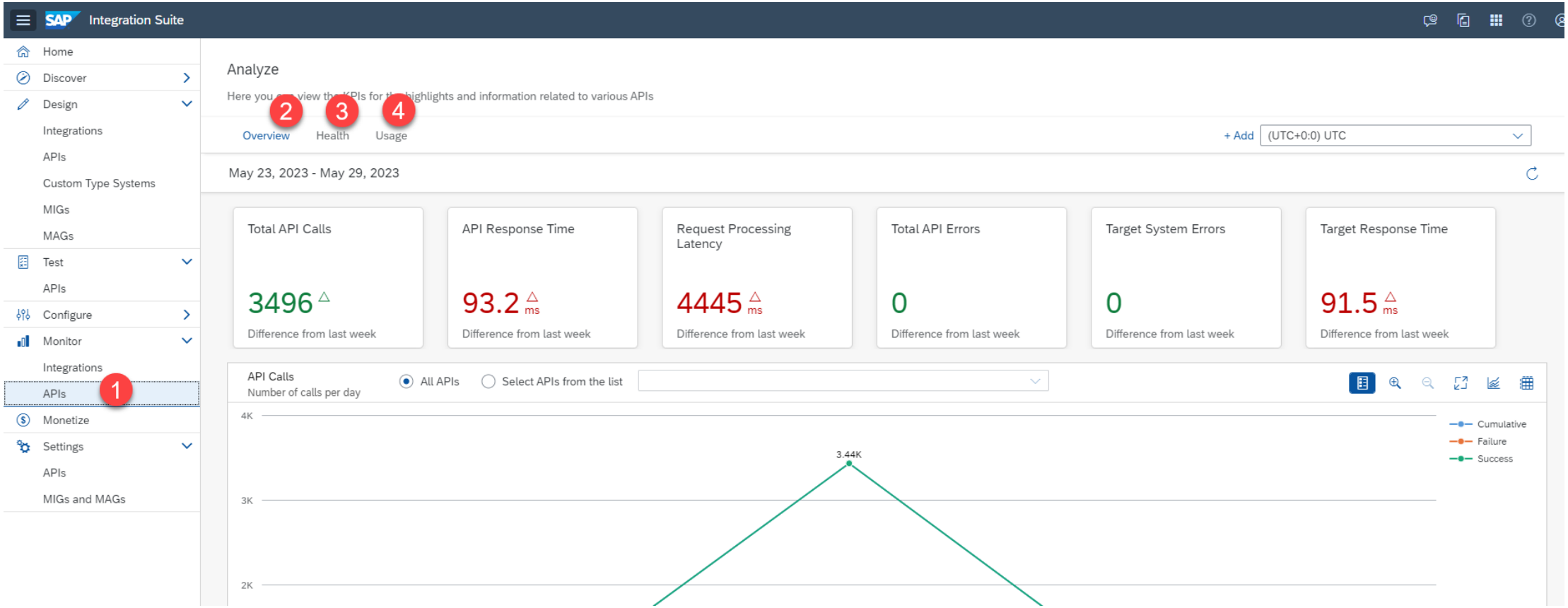
PRODUCT_GWSAMPLE_BASIC

API Based on the SAP Gateway Demo System (ES5). The authorization against the source interface is realized via policies. No...

Published on May 29 2023

1 API

Logging and Monitoring



Key Summary Points – Unit 3

Q10. What are the reasons for using policies in API management?

- ✓ Access Control
- B Identity Management
- C Data Management

✓ Correct

Correct. The reason for using policies in API management is Access Control.

Key Summary Points – Unit 3

Q8. Where can you download standardized, reusable policy templates?

A SAP API Business Hub Enterprise

B Enterprise Hub for APIs

SAP Business Accelerator Hub

Correct

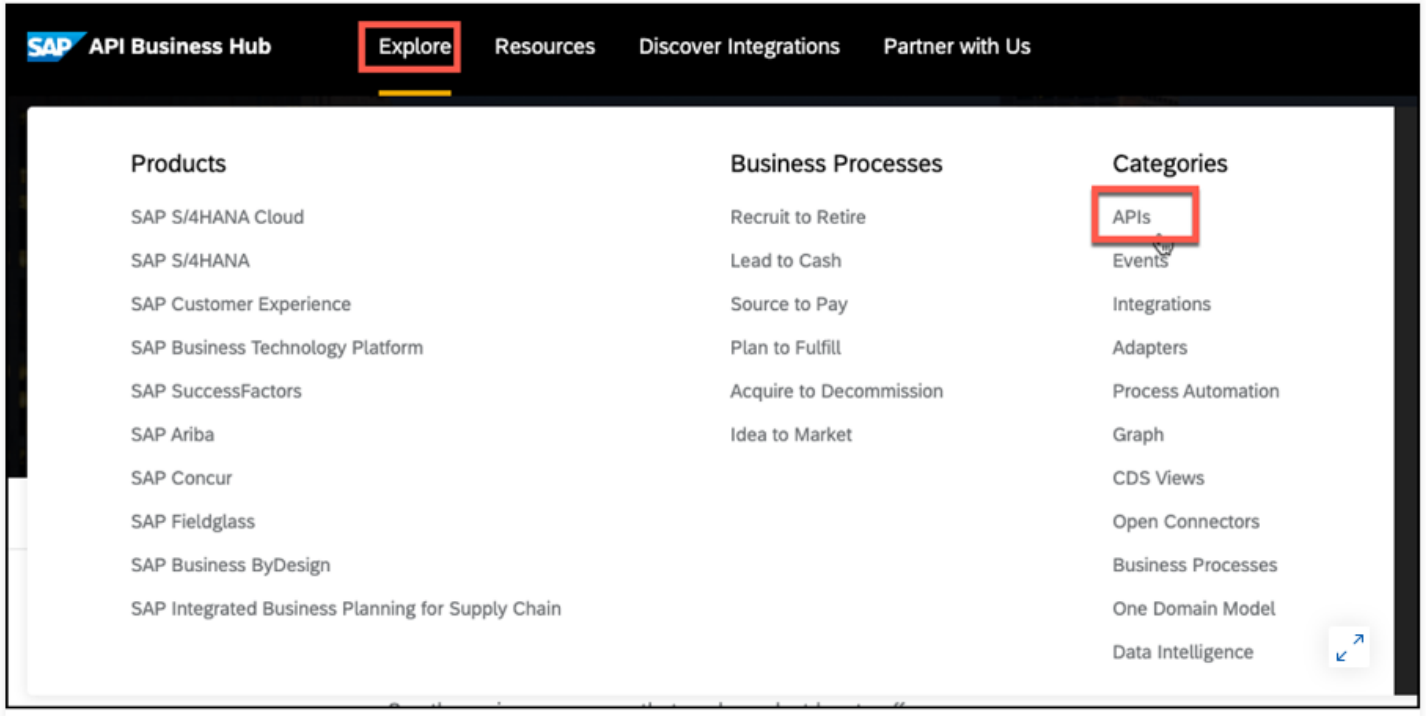
Incorrect. You can you download standardized, reusable policy templates from the SAP Business Accelerator Hub.

Key Summary Points – Unit 3

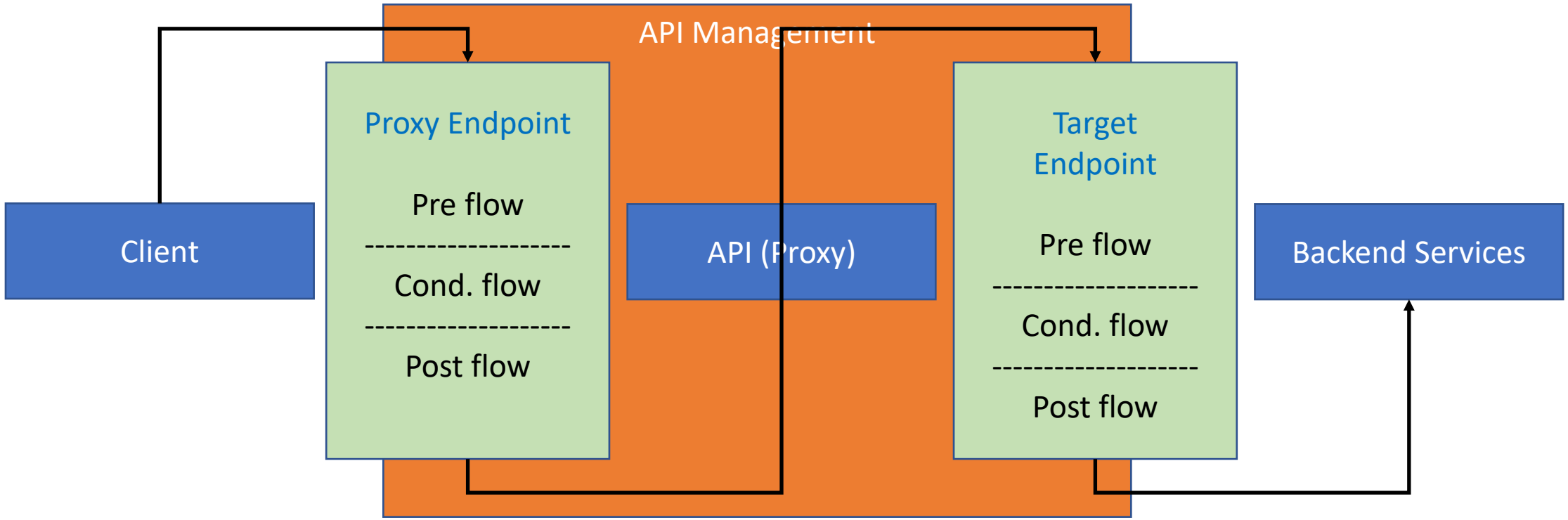
Use predefined policies

There are predefined sets of policies for specific applications. These can be found in the SAP Business Accelerator Hub.

Navigate to https://api.sap.com/ to *Explore* → *APIs*.

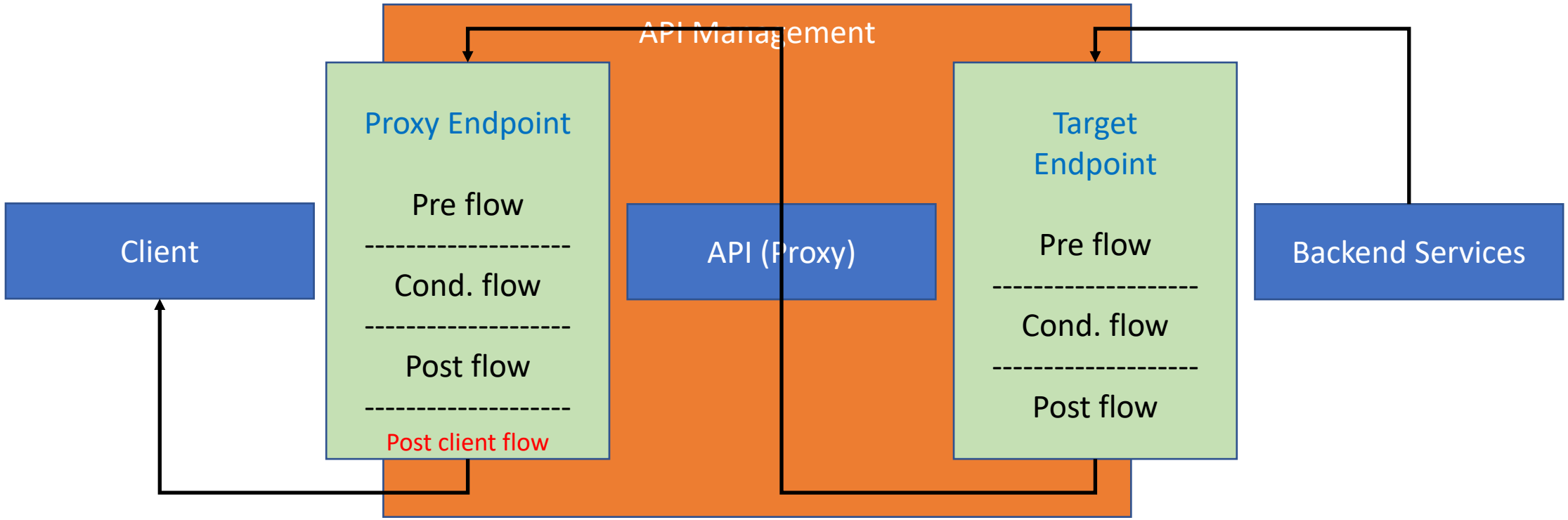


Flows – Where should I apply my policies ?



REQUEST

Flows – Where should I apply my policies ?



RESPONSE

Key Summary Points – Unit 3

Q9. Which Role Collections do you need to use the API Business Hub Enterprise?

A AuthGroupAPIADMINDesigner,AuthGroupAdministrator

✓ AuthGroup.API.Admin, AuthGroup.API.ApplicationDeveloper

C AuthgroupHeadofManager,AuthgroupChildhoodCaseManager

✓ Correct

Correct. To use the API Business Hub Enterprise you need the Role Collections AuthGroup.API.Admin, and AuthGroup.API.ApplicationDeveloper.

Components of SAP API Management

- API Provider
  - Concept in API Management that defines connection details for existing services
- API (Proxy)
  - Managed facades for existing services (sits in front of the existing service)
  - Applications connect to API (proxy)
- Policies
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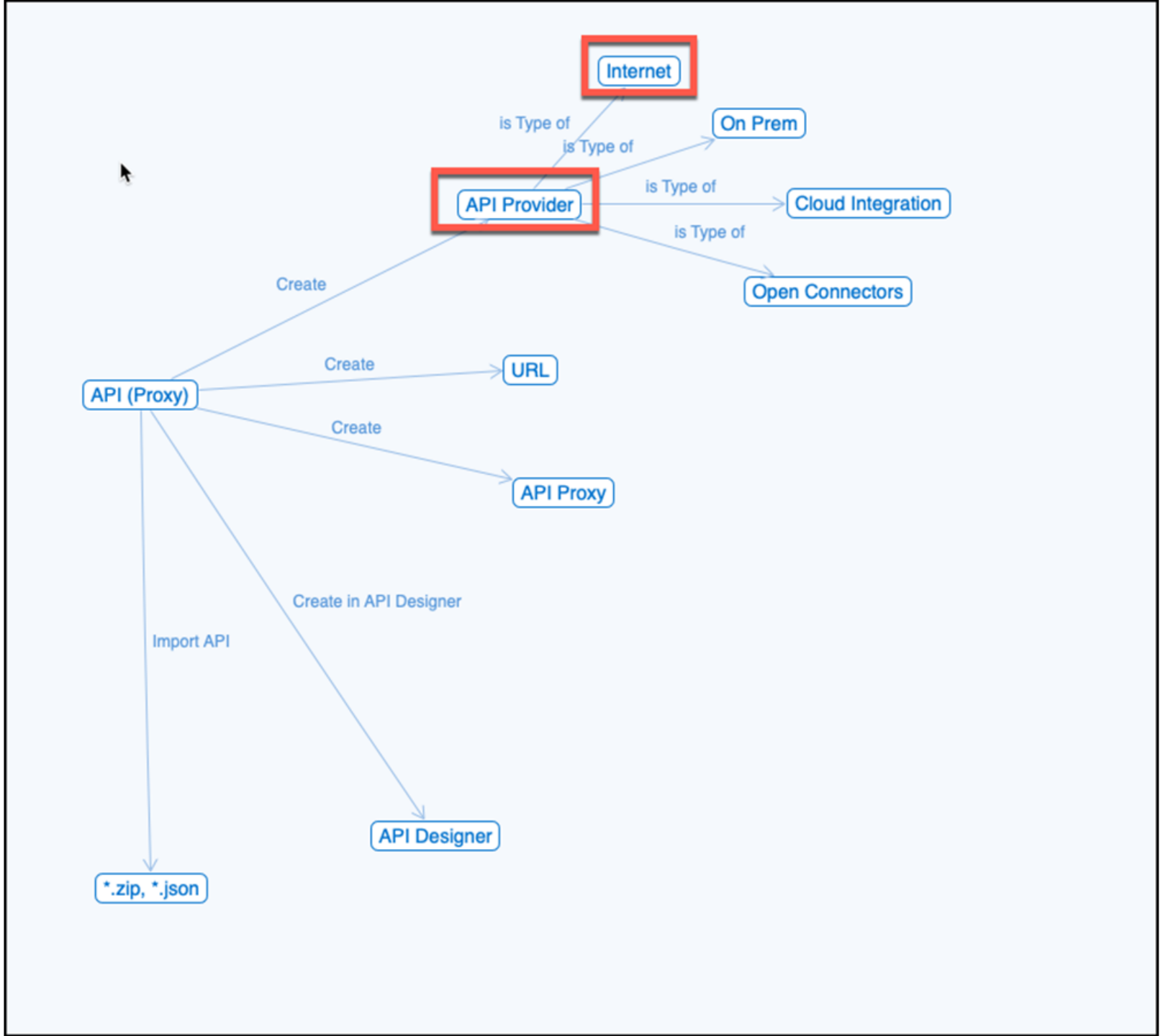
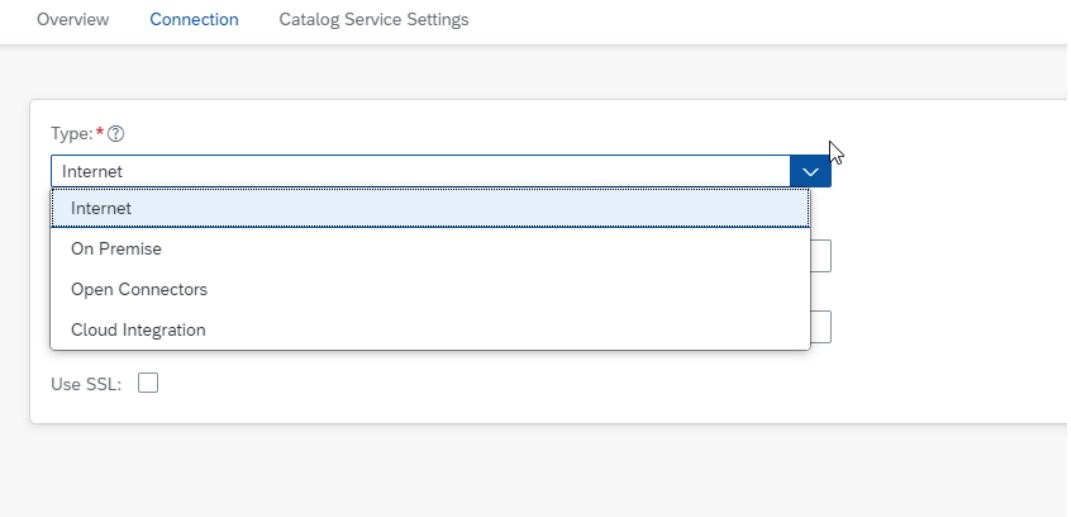
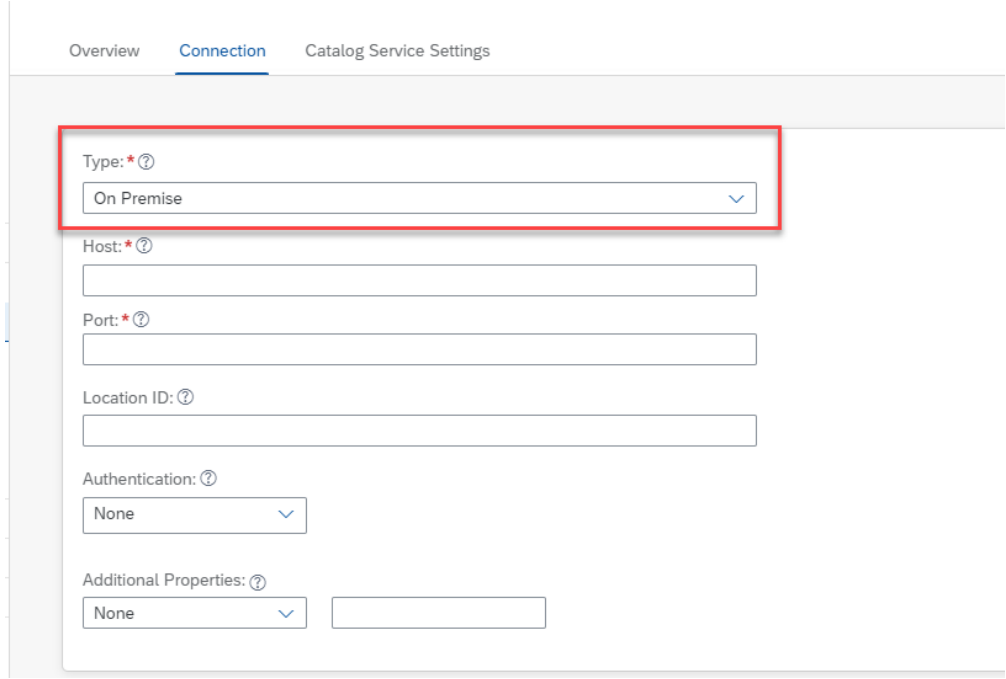

Internet
is Type of
On Prem
is Type of
API Provider
is Type of
Cloud Integration
is Type of
Open Connectors
Create
API (Proxy)
Create
URL
Create
API Proxy
Create in API Designer
Import API
API Designer
*.zip, *.json

Demo: API Provider (5 different sources)

- Open Connectors
- Through Cloud Connector to SAP On-Premise backends
- Cloud Integration
- APIs from internet
- SAP Business Accelerator Hub (API Business Hub)





Demo: API Provider

Field Name	Input
Type	Internet
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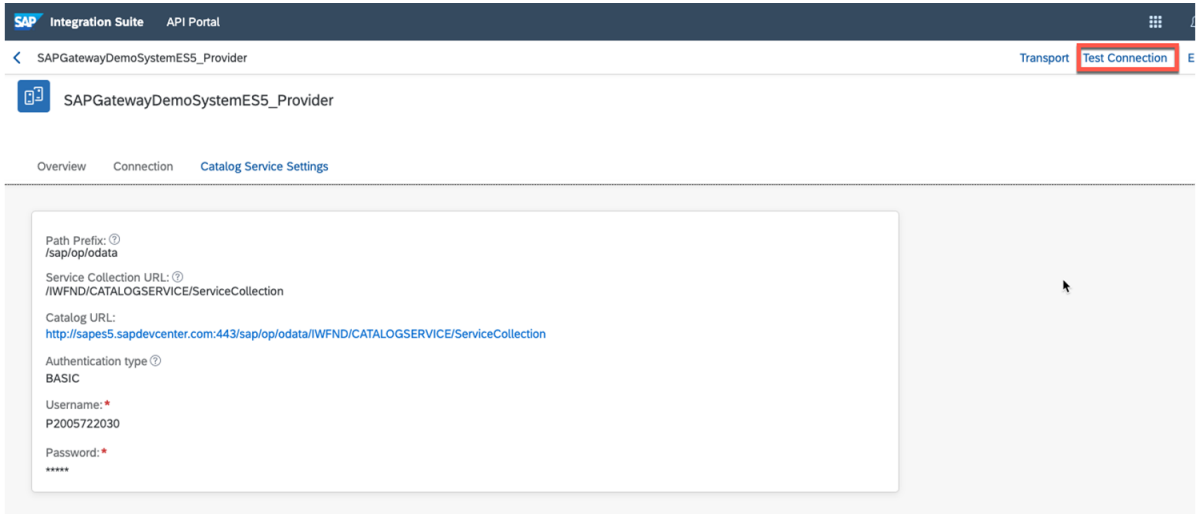
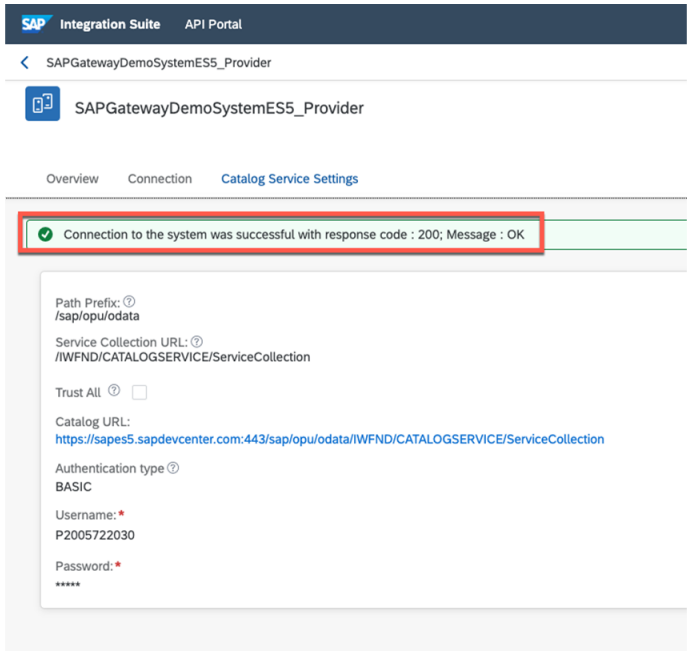
Port	443
Use SSL	Checked
Path Prefix	/sap/opu/odata
Service Collection URL	/IWFND/CATALOGSERVICE/ServiceCollection
Authentication Type	Basic
Username	*Credentials only used to create API Provider*
Password	*Not for the actual call of API*

Key Summary Points – Unit 3

Summary

An API provider encapsulates access to APIs from various sources. More than 260 third-party REST-based APIs are connected through the Open Connector. SAP backend systems such as SAP S/4HANA On-Prem or ECC/PI/PO can be connected through the Cloud Connector. SOAP APIs can also be made available through the Cloud Integration. Ultimately, almost all APIs can be connected. The procedure for connecting a foreign API is wizard-controlled.





Key Summary Points – Unit 3

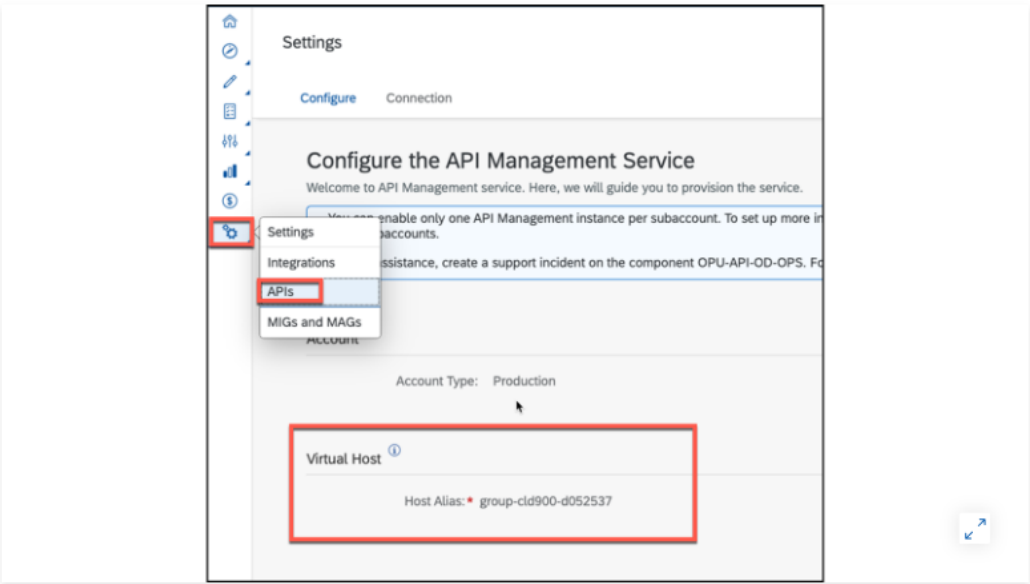
API URL - Proxy URL (No. 1)

At No. 1, you can see the new URL (proxy URL) with which you can now call the original source API. The *URL* consists of the following elements:

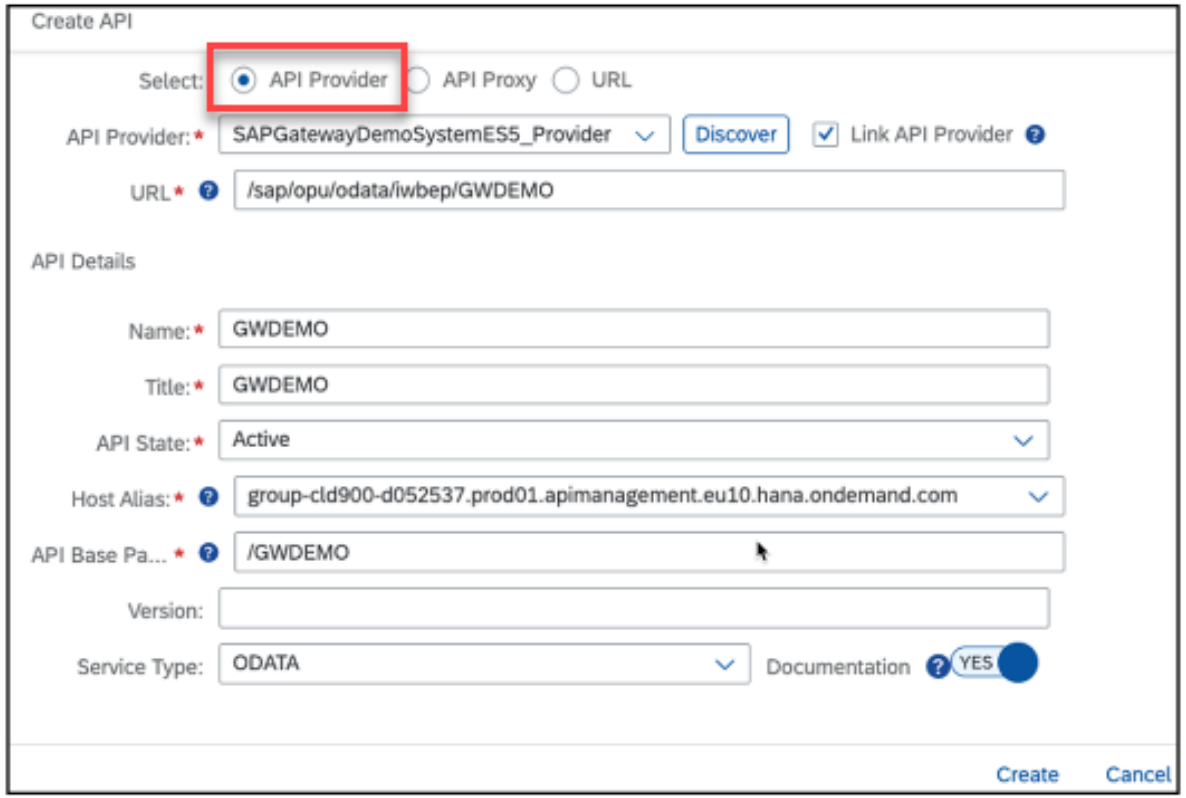
- API URL: https://group-cld900-d052537.prod01.apimanagement.eu10.hana.ondemand.com:443/GWSAMPLE_BASIC
- Application protocol: https
- Virtual Host: group-cld900-d052537
- API Host: prod01.apimanagement.eu10.hana.ondemand.com
- API Port: 443
- API Name: GWSAMPLE_BASIC

Virtual Host

The virtual host was created during the provisioning of API management and can be changed at any time using *Settings → APIs*.



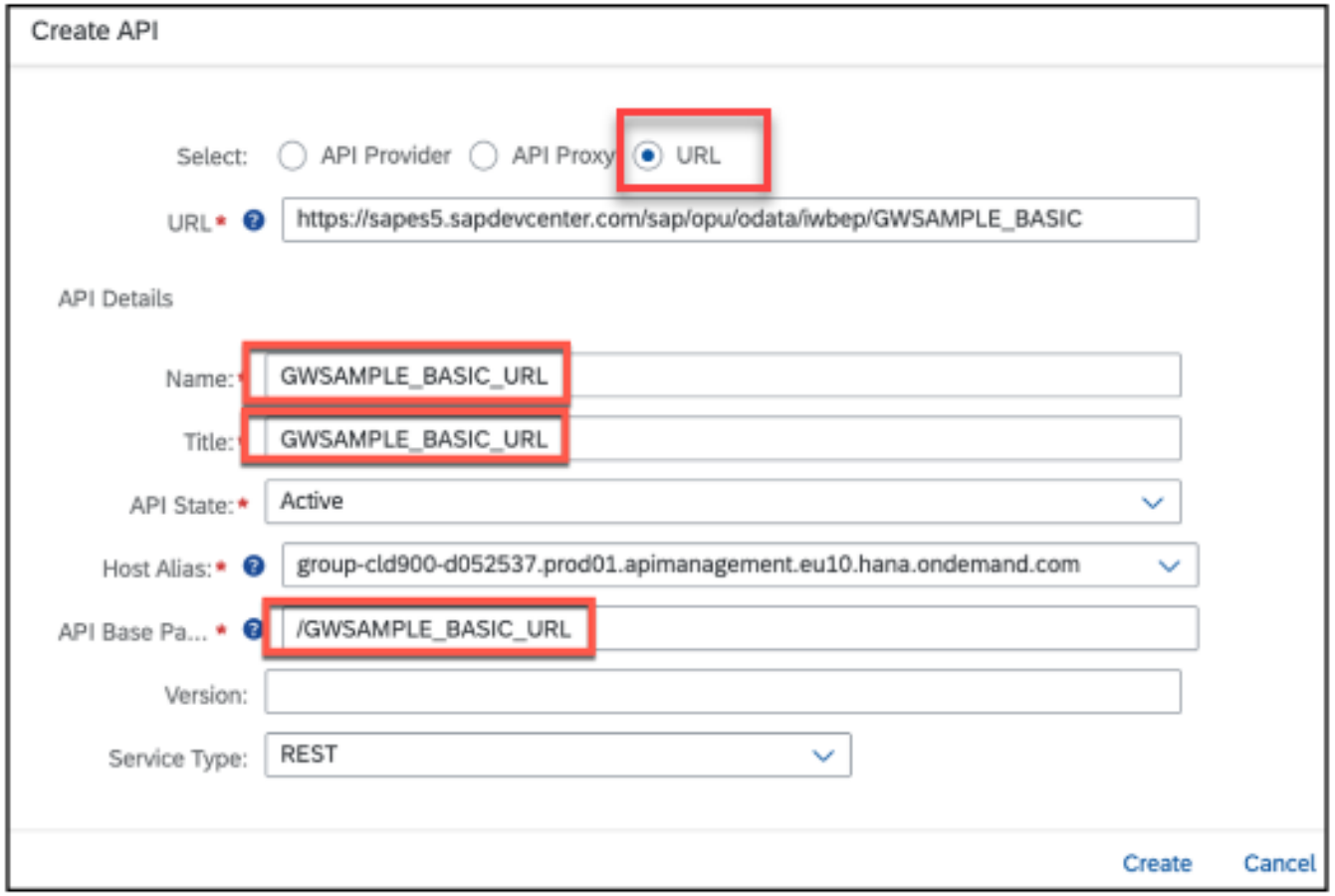
Key Summary Points – Unit 3



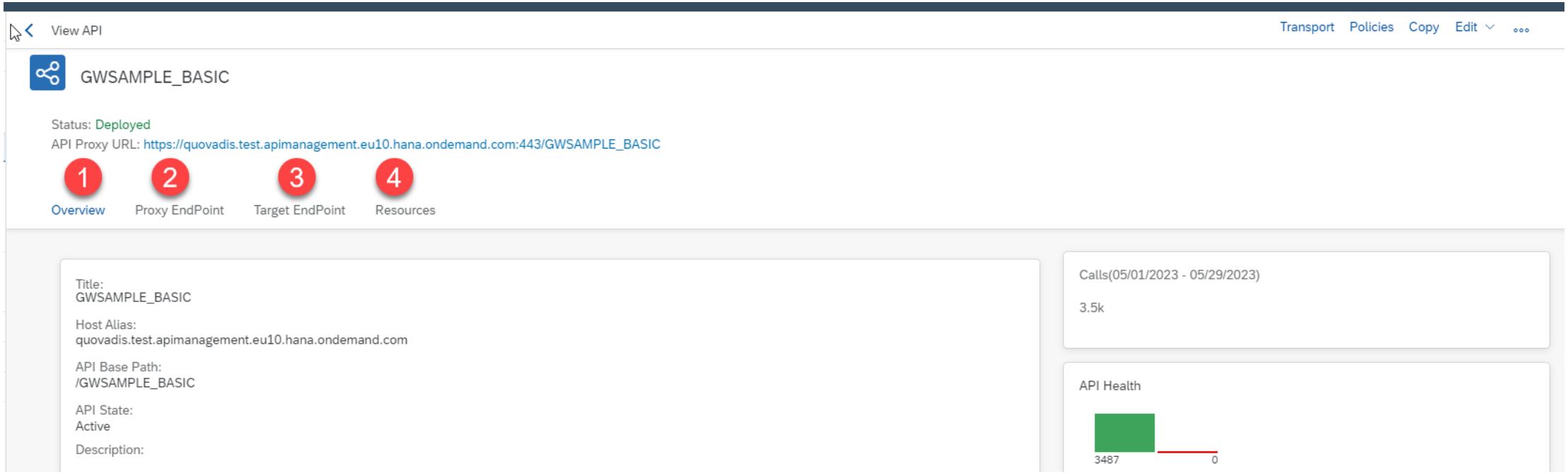
When you finish creating this API (Proxy), it has to be deployed so that it can be used. After that, the API (proxy) is ready for testing. The *service type* is automatically defined. In this case, it is OData.

Key Summary Points – Unit 3

In this case, you must enter the data manually (marked). The *Service Type* can only be *REST* or *SOAP*.



Editing APIs

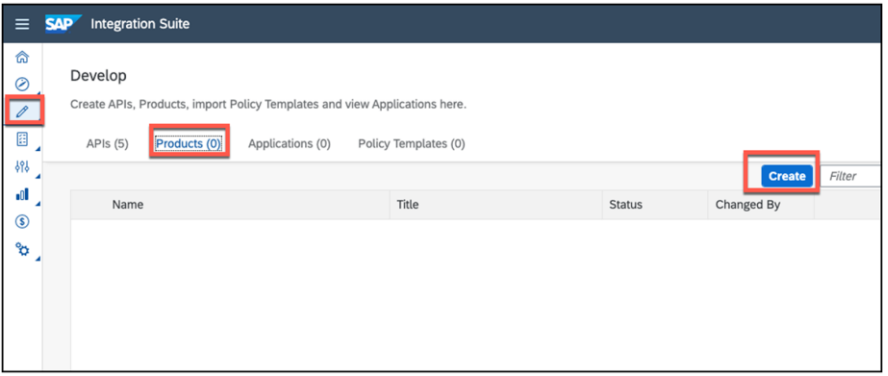


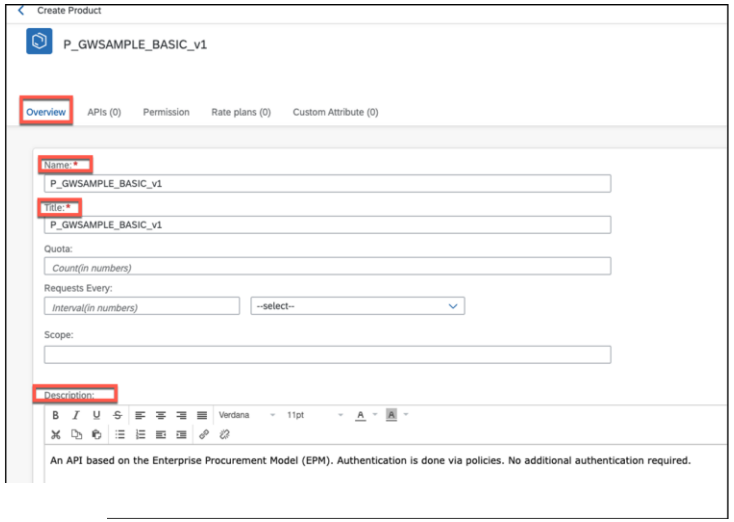
Creating a Product

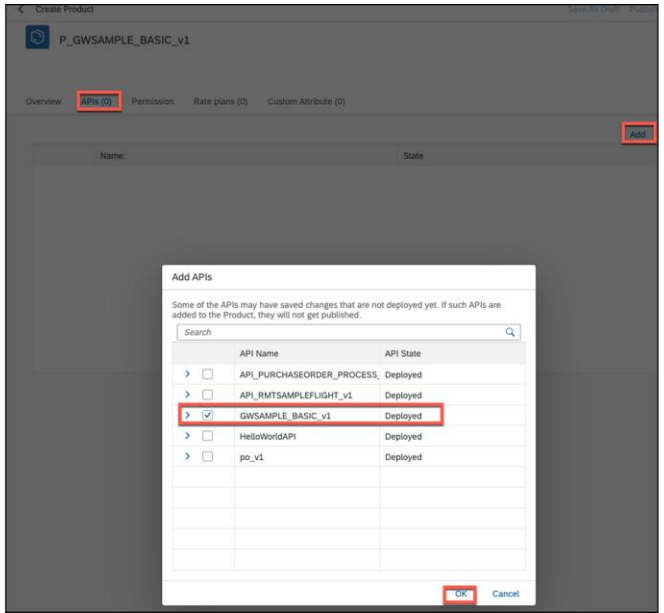
- Products are artifacts that appear in the SAP API Business Hub Enterprise Portal
- Bundle and publish one or more API (proxies) as a Product for consumption

- Role Collections
  - AuthGroup.API.Admin
  - AuthGroup.API.ApplicationDeveloper

Key Summary Points – Unit 3







Key Summary Points – Unit 3

- API Designer
  - Visualization of openAPI specification is done using swagger UI
  - Swagger UI is an open source JavaScript framework to make APIs tangible