

# Unit 3 – Managing APIs

Developing with SAP Integration Suite

C\_CPI\_14

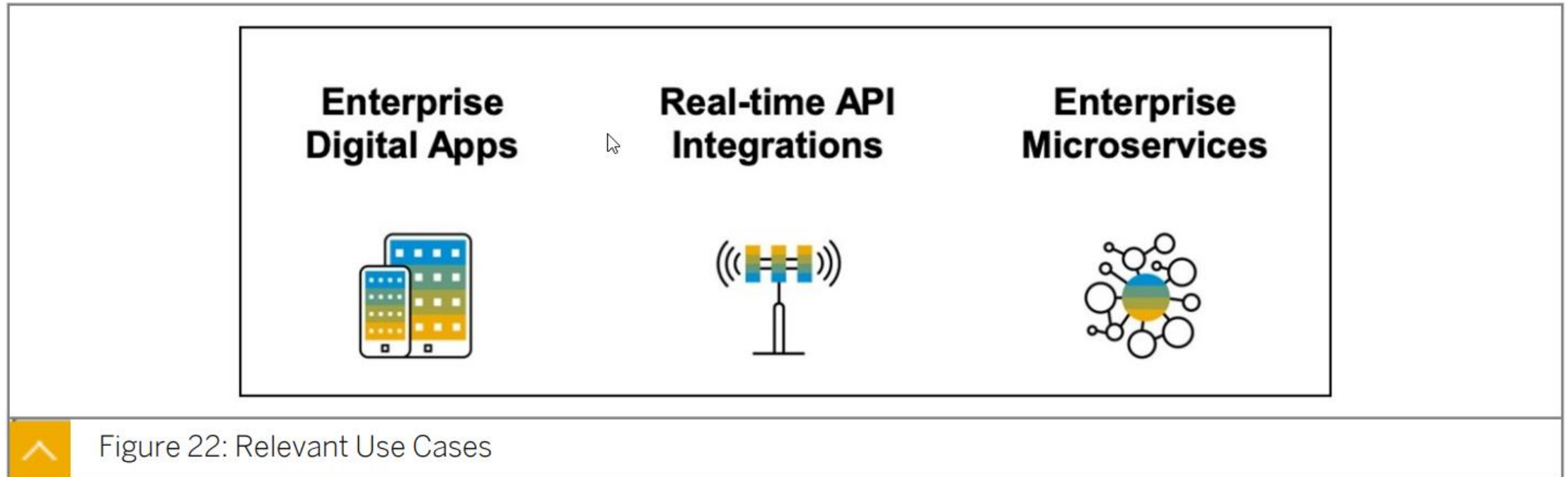
# Agenda

- 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

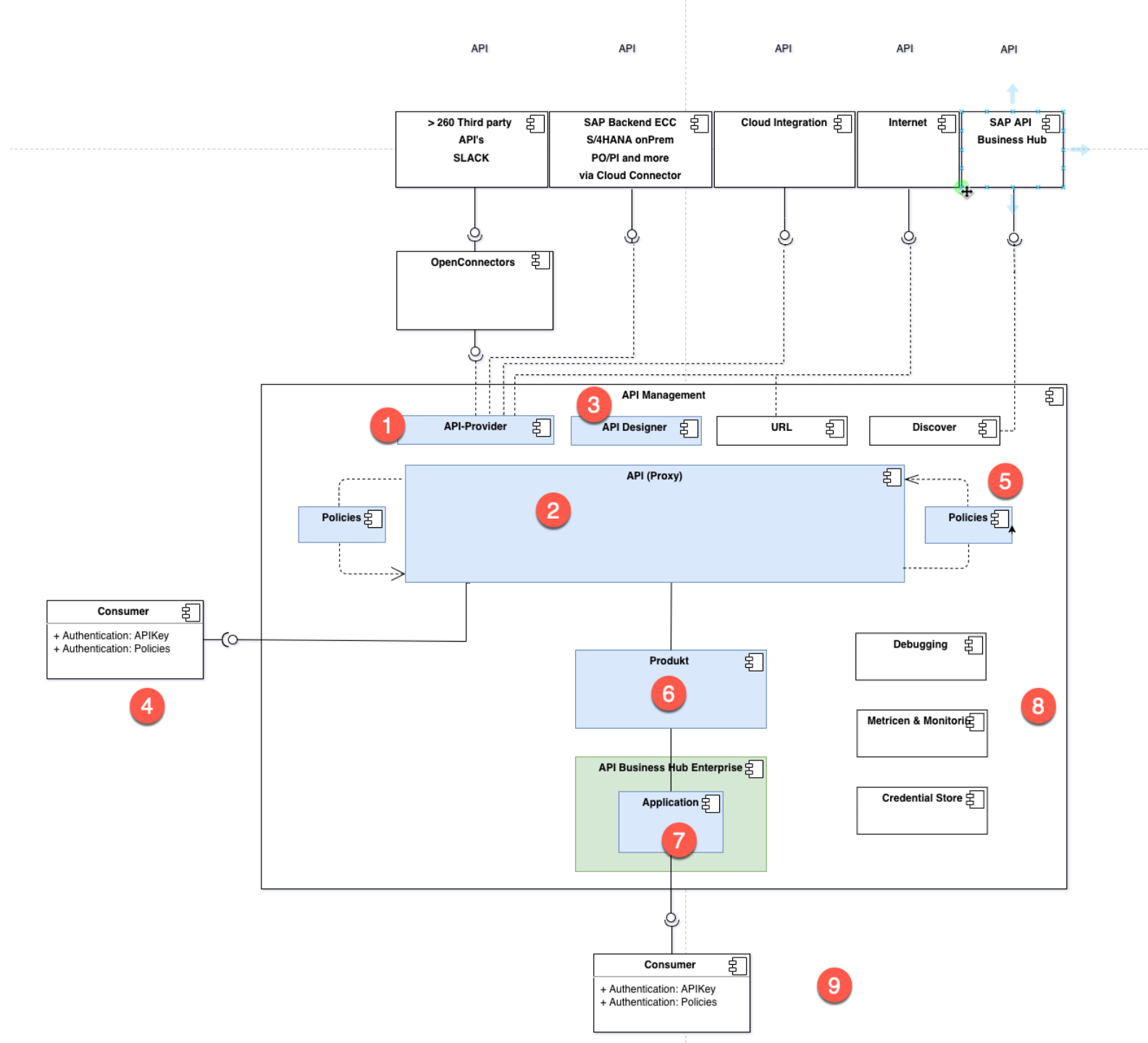
- Building APIs (proxies)
- Publishing APIs (Bundle APIs as Product)
- Analyzing APIs
- Consuming APIs
- Monetizing APIs
- Discover API Packages
- API (proxy) Designer

# Relevant Use Cases



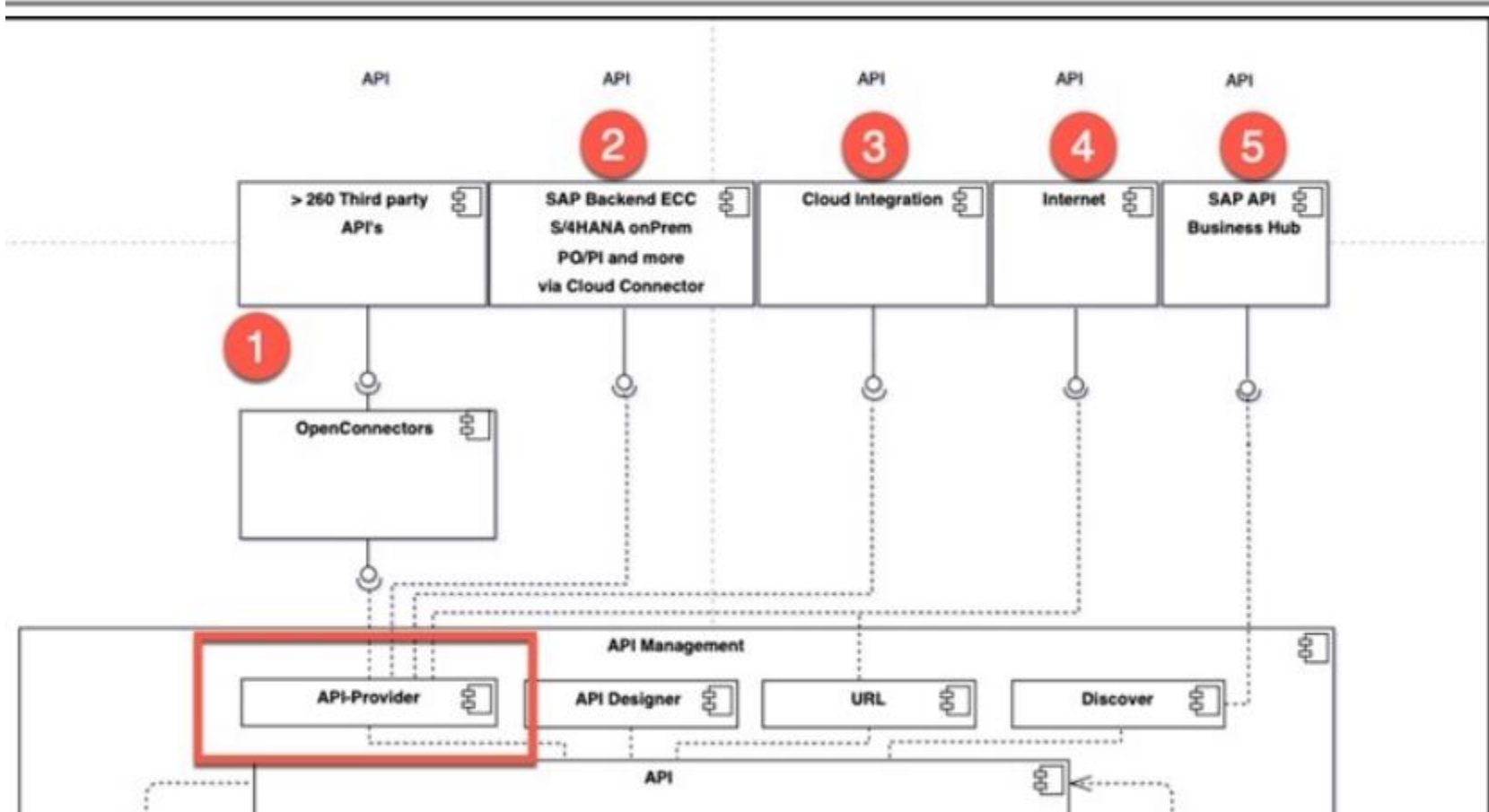
# Components of SAP API Management

- 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



# 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





# 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)

Overview **Connection** Catalog Service Settings

Type: \* ⓘ

Internet

Internet

On Premise

Open Connectors

Cloud Integration

Use SSL: ☐

# 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	
Password	

# 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)

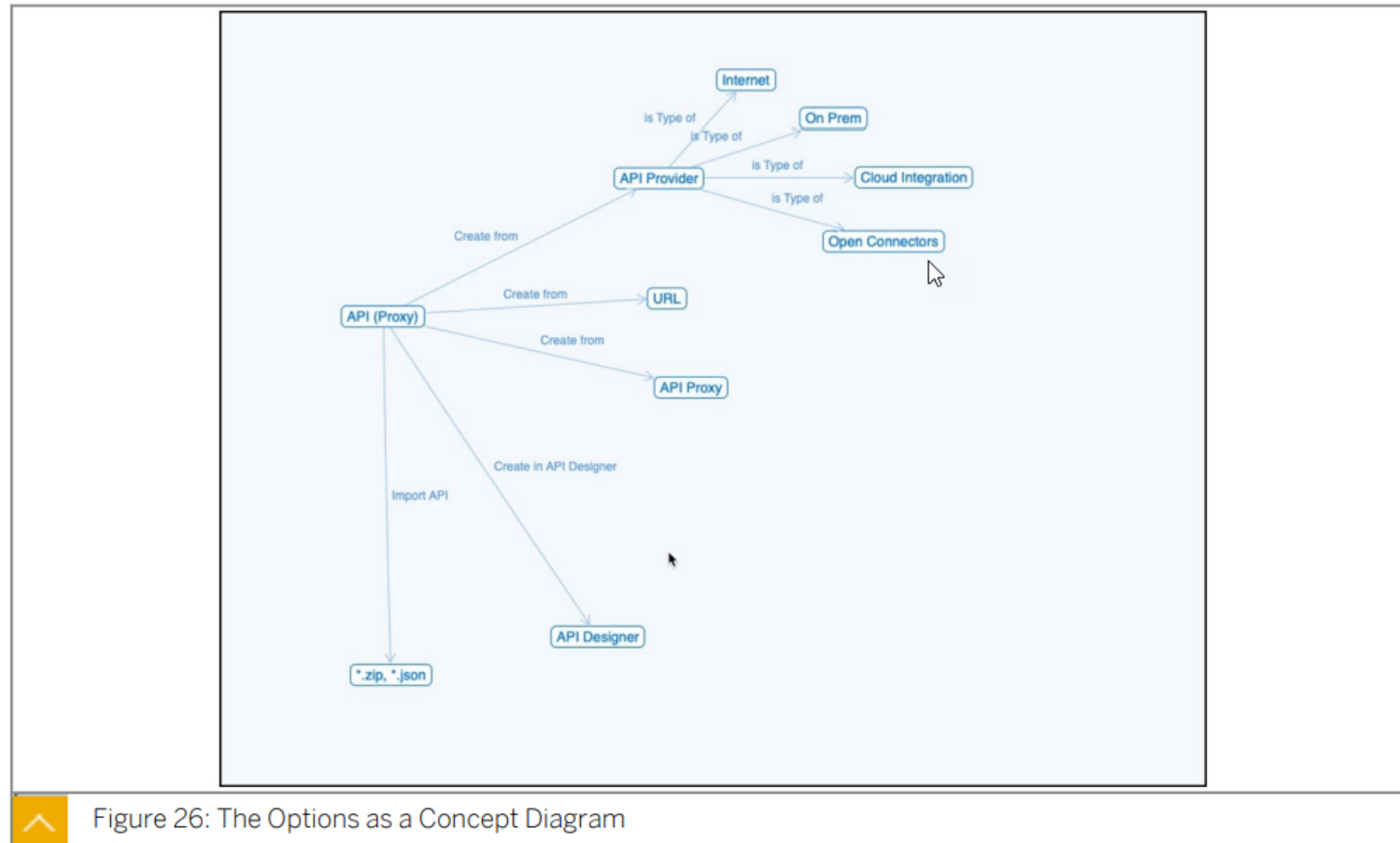


Figure 26: The Options as a Concept Diagram

# Demo: API Proxy

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

Create APIs, Products, import Policy Templates and view Applications here.

Policy Templates (0)

4

[Create in API Designer](#)

Filter

[illegible]

# 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...



SAP

Business Accelerator Hub

ExploreResourcesDiscover IntegrationsPartner with Us

APIs

1

Find APIs to integrate and extend.

Sort by: A-Z ▾

🔍 performance3 x

📄 ⭐

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

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

target\_processing\_ti...  
TargetEndPoint  
PreFlow

Scripts

proxy\_processing\_time.js

proxy\_request\_receiving\_latency.js

target\_processing\_time.js

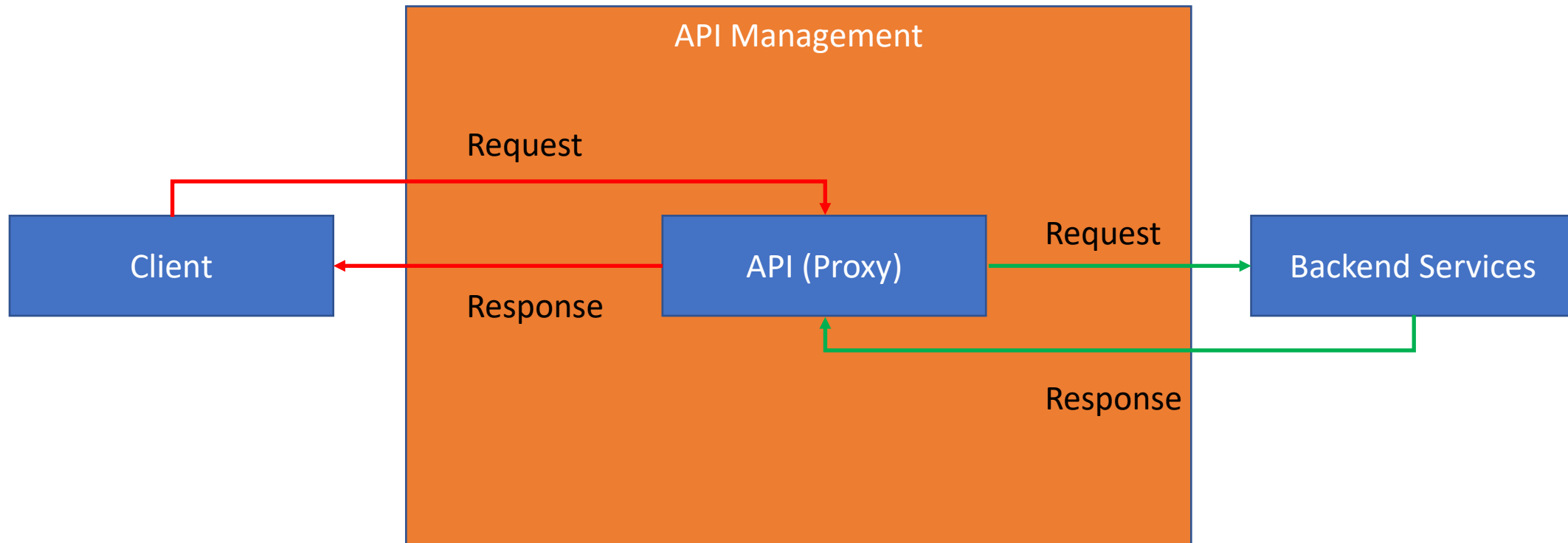
targetreceivinglatency.js

Flow Type:

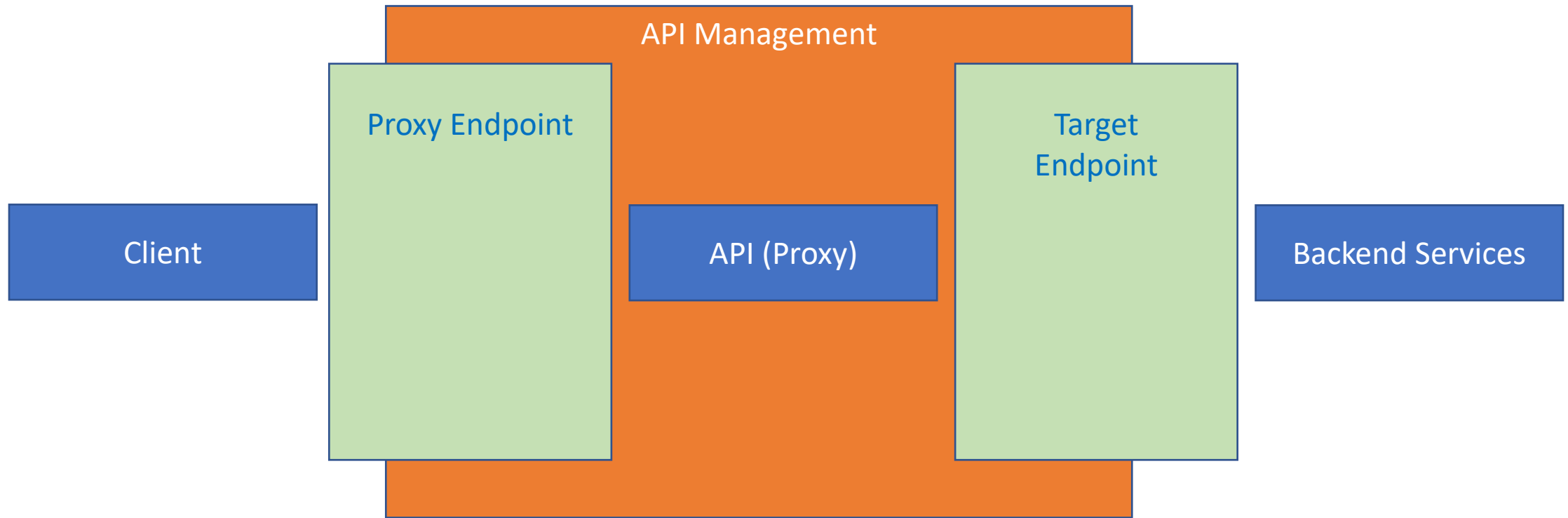
1

FEEDBACK

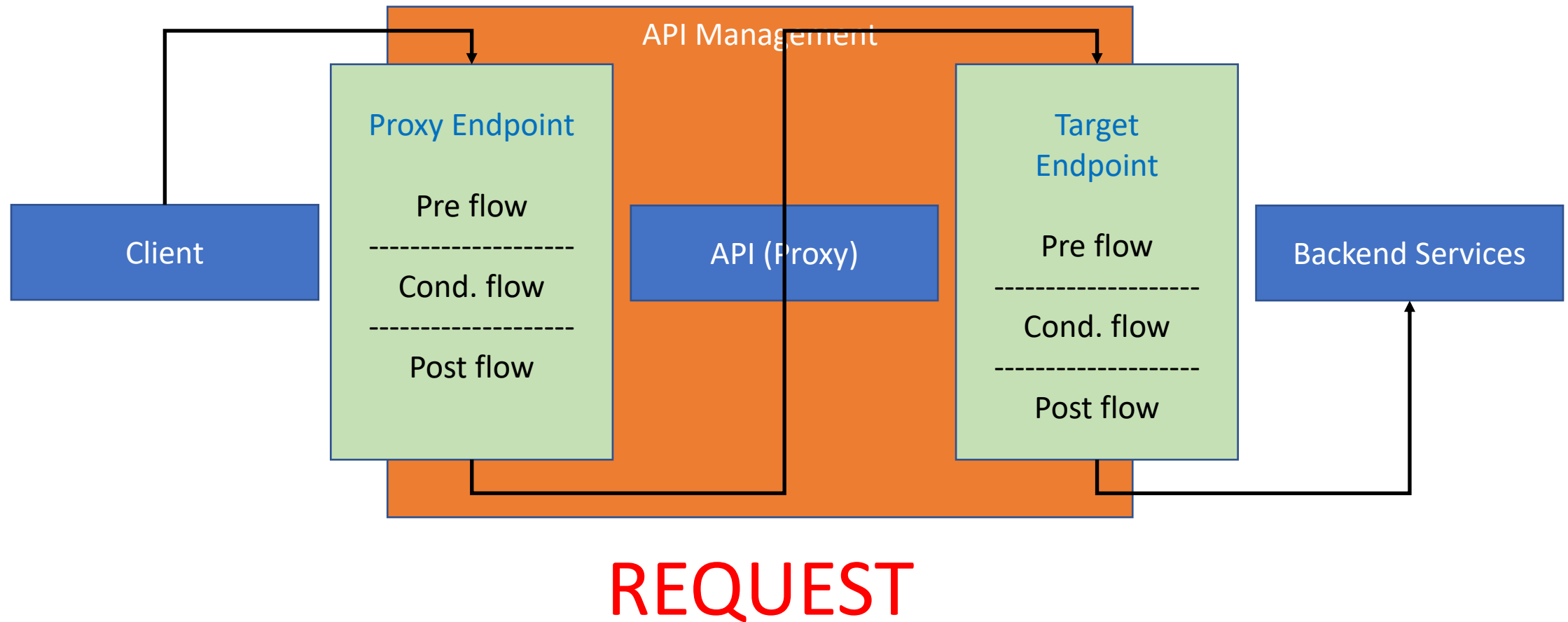
# Flows – Where should I apply my policies ?



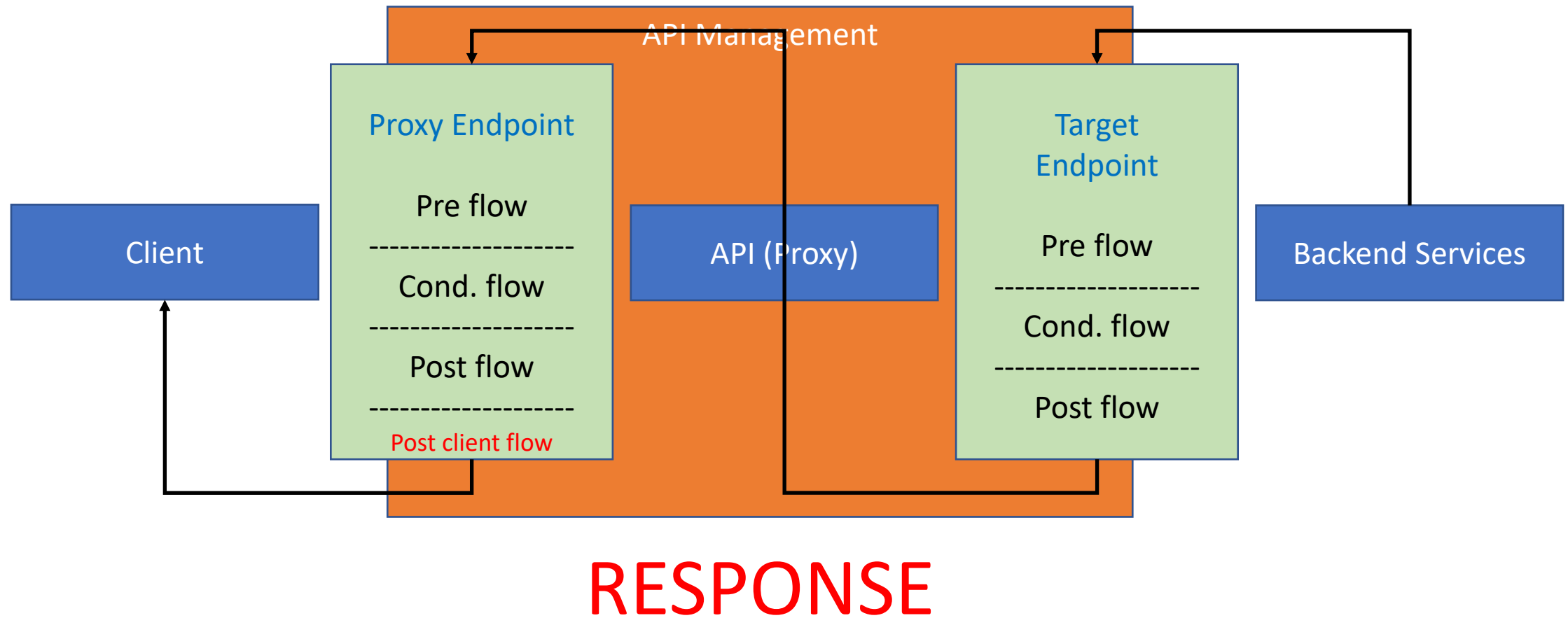
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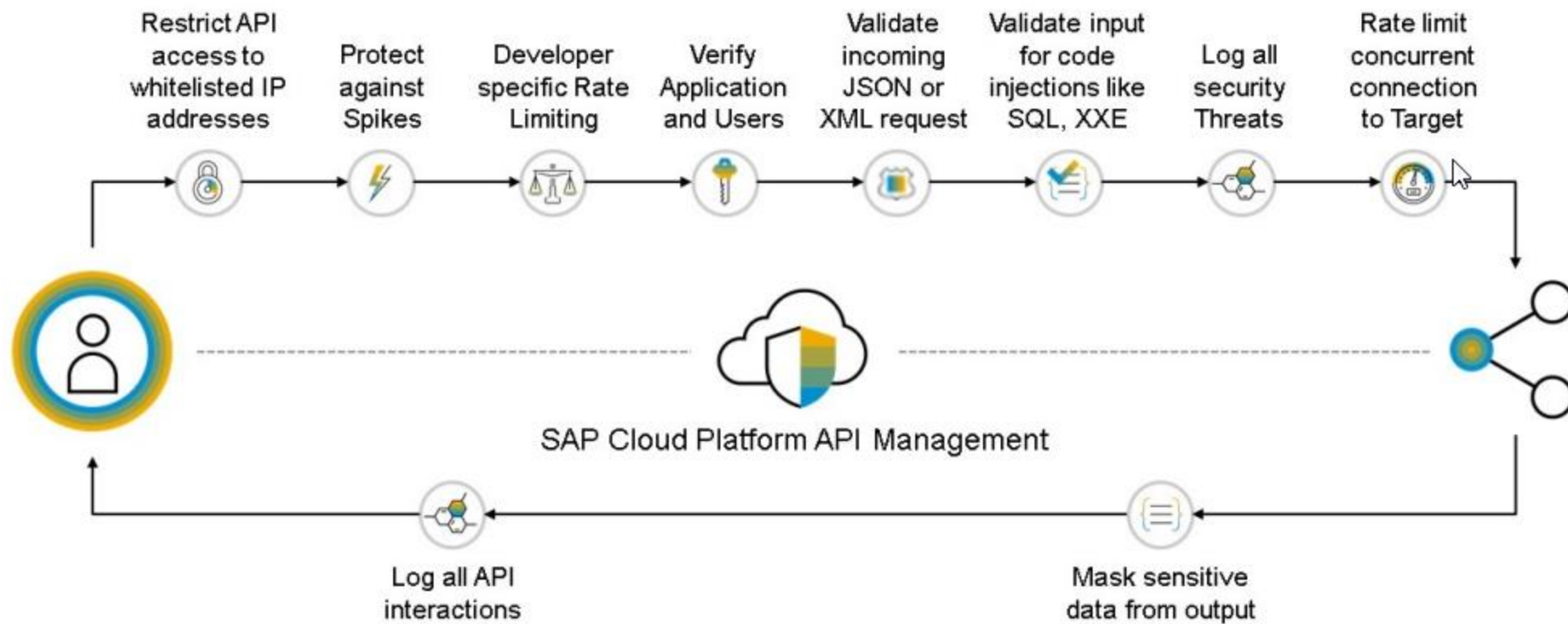


Figure 44: SAP Cloud Platform API Management

# Demo: Policies for basic authentication

The screenshot displays the SAP Integration Suite API Portal interface. The top navigation bar includes the SAP logo, 'Integration Suite', 'API Portal', and a user profile icon. The main header shows 'API Artifacts for GWSAMPLE\_BASIC\_v1'. The 'Policy Editor' section is active, showing a flow diagram with a 'setCredentials' operation and a 'setBasicAuth' operation. The left sidebar lists 'Flows' (ProxyEndpoint, TargetEndpoint), 'Created Policies' (PreFlow, PostFlow), and 'Scripts'. The right sidebar shows a list of 'Security Policies' and 'Traffic Management Policies'. The 'Update' button is highlighted with a red box. The bottom panel displays the XML policy configuration for Basic Authentication.

**Policy Editor**

API Artifacts for GWSAMPLE\_BASIC\_v1

Update Policy Template Cancel

Flows

- ProxyEndpoint
- TargetEndpoint

PreFlow 0

PostFlow 2

Created Policies

Scripts

setCredentials

setBasicAuth

Security Policies

- Basic Authentication
- Decode.JWT
- Generate.JWT
- JSON Threat Protection
- OAuth v2.0
- OAuth v2.0 GET
- OAuth v2.0 SET
- Regular Expression Protection
- SAML Assertion Generation
- SAML Assertion Validation
- Verify API Key
- Verify.JWT
- XML Threat Protection

Traffic Management Policies

- Access Control
- Concurrent Rate Limit
- Invalidate Cache
- Lookup Cache
- Populate Cache


```
1 <BasicAuthentication async="true" continueOnError="false" enabled="true" xmlns="http://www.sap.com/ospinget">
2   <!-- Operation can be Encode or Decode -->
3   <Operation>Encode</Operation>
4   <IgnoreUnresolvedVariables>true</IgnoreUnresolvedVariables>
5   <!-- for Encode, User element can be used to dynamically populate the user value -->
6   <User ref="request.header.username"></User>
7   <!-- for Encode, Password element can be used to dynamically populate the password value -->
8   <Password ref="request.header.password"></Password>
9   <!-- Source is used to retrieve the encoded value of username and password. This should not be used if the operation is
10  Encode-->
11  <Source>request.header.Authorization</Source>
12  <!-- Assign to is used to assign the encoded value of username and password to a variable. This should not be used if the
13  operation is Decode -->
14  <AssignTo createNew="false">request.header.Authorization</AssignTo>
15 </BasicAuthentication>
```




# 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

 View API

TransportPoliciesCopyEdit ▾⋮

 GWSAMPLE\_BASIC

Status: **Deployed**

API Proxy URL: [https://quovadis.test.apimanagement.eu10.hana.ondemand.com:443/GWSAMPLE\\_BASIC](https://quovadis.test.apimanagement.eu10.hana.ondemand.com:443/GWSAMPLE_BASIC)

1

2

3

4

OverviewProxy EndPointTarget EndPointResources

Title:  
GWSAMPLE\_BASIC

Host Alias:  
quovadis.test.apimanagement.eu10.hana.ondemand.com

API Base Path:  
/GWSAMPLE\_BASIC


API State:  
Active

Description:

Calls(05/01/2023 - 05/29/2023)

3.5k

API Health


 3487 0

# Creating a Product

- Products are artifacts that appear in the SAP API Business Hub Enterprise Portal
- Role Collections
  - AuthGroup.API.Admin
  - AuthGroup.API.ApplicationDeveloper

Create APIs, Products, import Policy Templates and view Applications here.

APIs (4)   **Products (1)**   Applications (0)   Policy Templates (1)

Name	Title	Status	Changed By
 <a href="#">PRODUCT_GWSAMPLE_BASIC</a>	PRODUCT_GWSAMPLE_BASIC	Published	milton.chan

<>

API Business Hub  
Enterprise

The diagram illustrates the sequence of steps for SAP API Business Hub Enterprise. It consists of two rows of boxes. The top row contains three boxes: 'SAP API Business Hub' (with a logo of three circles), 'SAP BTP Cockpit' (with a blue square logo), and 'API Management Client SDK' (with a cube icon). A red circle with the number '4' is positioned to the right of these three boxes. The bottom row contains a single box labeled 'API Business Hub Enterprise' (with a code icon) and a red circle with the number '5' to its right. A dotted line connects the three boxes in the top row to the box in the bottom row, indicating a flow or dependency.

# 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

